IND900 Series
PC Application Terminal

METTLER TOLEDO

IND900 Series PC Application Terminal

METTLER TOLEDO Service

Essential Services for Dependable Performance of Your IND900 Series PC Application Terminal

Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use of your new equipment according to this Manual and regular calibration and maintenance by our factory-trained service team ensures dependable and accurate operation, protecting your investment. Contact us about a service agreement tailored to your needs and budget. Further information is available at www.mt.com/service.

There are several important ways to ensure you maximize the performance of your investment:

1. **Register your product**: We invite you to register your product at www.mt.com/productregistration so we can contact you about enhancements, updates and important notifications concerning your product.

2. **Contact METTLER TOLEDO for service**: The value of a measurement is proportional to its accuracy – an out of specification scale can diminish quality, reduce profits and increase liability. Timely service from METTLER TOLEDO will ensure accuracy and optimize uptime and equipment life.

   a. **Installation, Configuration, Integration and Training**: Our service representatives are factory-trained, weighing equipment experts. We make certain that your weighing equipment is ready for production in a cost effective and timely fashion and that personnel are trained for success.

   b. **Initial Calibration Documentation**: The installation environment and application requirements are unique for every industrial scale so performance must be tested and certified. Our calibration services and certificates document accuracy to ensure production quality and provide a quality system record of performance.

   c. **Periodic Calibration Maintenance**: A Calibration Service Agreement provides on-going confidence in your weighing process and documentation of compliance with requirements. We offer a variety of service plans that are scheduled to meet your needs and designed to fit your budget.

   d. **GWP® Verification**: A risk-based approach for managing weighing equipment allows for control and improvement of the entire measuring process, which ensures reproducible product quality and minimizes process costs. GWP (Good Weighing Practice), the science-based standard for efficient life-cycle management of weighing equipment, gives clear answers about how to specify, calibrate and ensure accuracy of weighing equipment, independent of make or brand.

FCC Notice

This device complies with Part 15 of the FCC Rules and the Radio Interference Requirements of the Canadian Department of Communications. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
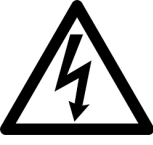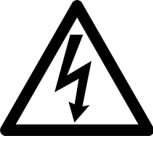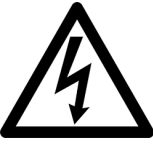
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her expense.

■ Declaration of Conformity is available at
http://glo.mt.com/global/en/home/search/compliance.html/compliance/.

Warnings and Cautions

- READ this manual BEFORE operating or servicing this equipment and FOLLOW these instructions carefully.

- SAVE this manual for future reference.

	⚠️ **WARNING**
	ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THE TERMINAL. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.
	⚠️ **WARNING**
	THE IND890 STANDARD TERMINAL IS NOT INTRINSICALLY SAFE! IT MAY NOT BE USED IN AREAS THAT ARE CLASSIFIED AS POTENTIALLY EXPLOSIVE DUE TO COMBUSTIBLE OR EXPLOSIVE ENVIRONMENTS.
	⚠️ **WARNING**
	THE PROTECTIVE GROUND CONNECTION MUST BE CHECKED AFTER SERVICE WORK IS PERFORMED. PERFORM THE CHECK BETWEEN THE PROTECTIVE GROUND CONTACT ON THE POWER PLUG AND THE HOUSING. THIS TEST MUST BE DOCUMENTED IN THE SERVICE REPORT.
	⚠️ **WARNING**
	WHEN THIS EQUIPMENT IS INCLUDED AS A COMPONENT PART OF A SYSTEM, THE RESULTING DESIGN MUST BE REVIEWED BY QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF ALL COMPONENTS IN THE SYSTEM AND THE POTENTIAL HAZARDS INVOLVED. **TO ENSURE SAFE OPERATION AT ALL TIMES, THE DESIGN OF THE OVERALL INSTALLATION SHOULD INCLUDE PROPER SAFETY DISCONNECT EQUIPMENT SUCH AS EMERGENCY STOP SWITCHES AND POWER DISCONNECTS.** **FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.**
	⚠️ **WARNING**
	DO NOT REPLACE THE BATTERY IN THIS DEVICE WITH THE WRONG TYPE. CONNECT THE BATTERY CORRECTLY. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN INJURIES OF PROPERTY DAMAGE.
	⚠️ **WARNING**
	BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTIONS ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT AND/OR BODILY HARM.
	NOTICE
	OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

Disposal of Electrical and Electronic Equipment

In conformance with the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) this device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements.

Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

If you have any questions, please contact the responsible authority or the distributor from which you purchased this device.

Should this device be passed on to other parties (for private or professional use), the content of this regulation must also be related.

Thank you for your contribution to environmental protection.

Contents

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1   Introduction

Thank you for purchasing the IND930 and IND970 PC application terminals. The IND900 combines state-of-the-art technology with an optimized operating philosophy, the application areas of which are virtually without limits. Our many years of experience in this product area guarantee the reliability and long service life of your IND900 terminal.

The IND900 is a high-performance terminal that supports IDNet, SICS and SICSpro scales as well as weighing platforms using analog weighing technology. In this context, up to 4 scales can be operated metrological with the option of forming a sum scale. With its high-quality materials and high degree of environmental protection, the IND900 terminal performs reliably in even the harshest industrial settings.

1.1.   IND930 and IND970 Terminal Versions

The IND900 terminals are available with the following functions and versions:

- IND930 as a compact design in a single housing
- IND970-15″ as a user interface with touchscreen and keyboard for connection to an IND970-ELO Box
- IND970-19″ as a user interface with touchscreen and keyboard for connection to an IND970-ELO Box
- IND970-ELO Box with PC technology for connection to an IND900
- Housing versions for use as a desk, panel or stand installation as well as a version for panel mounting
- Connection of up to four scale channels and a metrological correct sum scale
- Connection of up to four analog scales with an input impedance of 80 ohms to 2,400 ohms per scale channel
- Active TFT color LED with backlighting and weight display with a maximum character height of approx. 25 mm for IND930 and approx. 38 mm for IND970.
- Up to 6 serial interfaces (RS232/422/485) for asynchronous, bidirectional communication and print output and for the ELO-Box another 3 additional RS232 PC com ports
- Up to two 10/100 Base-T Ethernet interfaces (depending on the IND900 model)
- Digital I/O interface
- USB master

- Support for the following interface options:

  - Analog weighing cell interface
  - IDNet scale interface
  - SICS/SICSpro scale interface
  - PROFIBUS (in combination with INDpro)
  - Digital inputs/outputs via ARM100
  - Serial communication
  - USB

- Basic weighing functions such as scale selection, zero setting, taring and printing

- Use as single and multi-range scale as well as multi-interval scale

- Selectable super/sub-classification operating mode with graphics

- Graphic DeltaTrac display

- Two memory tables for use with tare or target value memory

- Unit switching, including user-defined units

- Alibi memory for up to 500,000 records

- Ten user-specific adjustable print dialogs and report printouts

- Traditional calibration with 3-point and 5-point linearization

1.2.   Warnings and precautions

⚠	⚠ **CAUTION**
	ONLY AUTHORIZED METTLER-TOLEDO SERVICE TECHNICIANS MAY OPEN THIS DEVICE.
⚠	⚠ **CAUTION**
	IN CRITICAL APPLICATIONS AND WHEN USING DISCRETE I/O AN ADDITIONAL SAFETY MECHANISM HAS TO BE USED.

Please read these instructions very carefully before operating the terminal for the first time.

Before plugging in the terminal, it must be ensured that the voltage listed on the model plate matches the local voltage supply. If this is not the case, the terminal must not be connected under any circumstances.

Only power supply sockets that have the correct voltage and ground conduction connection are suitable for this device. The power supply socket must be freely accessible at all times.

While the IND900 terminal may be very sturdy, it is also a precision instrument. For this reason, care should be exercised when handling and installing the terminal.

Only suitable commercially-available cleaners may be used for cleaning the device.

Malware Disclaimer for IND900

METTLER TOLEDO undertakes all reasonable steps to deliver the IND900 without virus or other malware infection. Malware as used herein stands for malicious software, meaning any kind of harmful, unintentional code. The production environment is permanently checked. However we can neither warrant nor guarantee absolute freedom of malware or viruses for our product over its lifetime. Therefore you are urged to take all reasonable efforts and corrective actions to protect your system and infrastructure against malware attacks.

In particular you are advised herewith to take all necessary steps to ensure that no virus contamination, Trojan horses, worms or other harmful malware occurs in your equipment. METTLER TOLEDO cannot accept responsibility for any loss or damage sustained as a consequence of any malware transmission. METTLER TOLEDO does not warrant that our system will operate error free or without interruption, or in combination with other software, or that all program defects are correctable.

Malware protection for PC based scales should be managed centrally in your network environment by using firewalls, proxy servers and corresponding tools. Network administrators shall limit inbound and outbound traffic to certain protocol sets such as HTTP or FTP. Administrators shall also restrict unwanted or unauthorized network traffic using filters in IP addresses and MAC addresses.

To limit vulnerability of the IND900, the operating system must be maintained regularly by installing the most recent updates and patches.

Please note that due to the severe impact of virus scanners on overall system performance and real time availability of the processor in a Windows-based system, we do not generally recommend installing a virus scanner, nor do we recommend any particular type of protection software. METTLER TOLEDO does not test any anti-virus solutions on its products but does strongly recommend that network administrators identify and install the best anti-virus solution for their particular needs based on their IT policies and system configuration, among other things.

Do not overload the operating system with virus scanner or other background processes. Take care that processor load remains below 70%.

1.2.1. Special Directories in Mass Storage

Some directories in the mass storage of the IND900 are located required for the proper functioning of the system. It is very important that the content of these directories is not changed. Do not add, edit or delete any files in the following directories

- IND900Weigh
- Mettler-Toledo
- Service
- Backup

- IND900Service
- MTA
- Templates
- Restore

- IND900Totalization
- IND900Com

1.3. Operating environment

The following must be considered when selecting the installation site:

- Select a stable, vibration-free surface

- Ensure that no extreme temperature fluctuations occur and that the terminal is not exposed to direct sunlight

- Avoid any draft (e.g. from fans or an air-conditioning system)

- Readjust the terminal after all major changes to the geographical position (recalibration)

1.3.1. Temperature and Humidity

The IND900 terminal can be operated within the temperature and relative humidity ranges listed in chapter 1.9 Technical Data in Table 1-2. The terminal can be stored at temperatures from −20 °C to +60 °C (−4 °F to +140 °F), at 10 % to 85 % relative humidity, non-condensing.

1.3.2. Protection from the Environment

The housing variants of the IND930, IND970-15 and IND970-19 for desk, panel and stand design as well as the IND970 ELO Box meet the requirements of IP69k. The versions for control panel installation meet the requirement for IP69k at the front.

NOTICE
IF THE DEVICE IS USED OTHER THAN AS DESCRIBED IN THIS MANUAL, THE PROTECTION PROVIDED MAY BE IMPAIRED.

1.3.3. Hazardous areas

	⚠ **WARNING**
	THE IND900 STANDARD TERMINAL IS NOT INTRINSICALLY SAFE! IT MAY NOT BE USED IN AREAS THAT ARE CLASSIFIED AS POTENTIALLY EXPLOSIVE DUE TO COMBUSTIBLE OR EXPLOSIVE ENVIRONMENTS.
	⚠ **CAUTION**
	ONLY AUTHORIZED METTLER-TOLEDO SERVICE TECHNICIANS MAY OPEN THIS DEVICE.

The standard version of the IND900 terminal cannot be operated in areas that have been classified as potentially explosive according to the National Electrical Code (NEC) due to combustible or explosive environments. Contact your authorized METTLER TOLEDO representative if you need information about applications in hazardous areas.

1.3.4. FCC Notification

This corresponds to section 15 of the FCC regulations and the radio interference changes of the Canadian Communication Ministry. Its operation is subject to the following conditions: (1) This device must not cause any radio interference, and (2) the device must be capable of tolerating all received radio interference, including such disturbances that, under certain circumstances, negatively influence operation.

This device was checked and according to section 15 of the FCC regulations is within the limit values for a Class A digital device. These limit values ensure protection from radio interferences if the device is operated in a commercial environment. This device generates, uses and can radiate radio frequency energy. Improper installation and use can result in disruptions of the radio communication. The operation of this device in a residential area probably will result in radio interference, and appropriate measures to correct the problem must be undertaken at the user's expense.

1.4. Chemical Resistance

The front film of the IND900 touchscreen consists of a durable polyester film with a good resistance to alcohol, diluted lyes, esters, hydrocarbons, ketones and standard household cleaning agents.

In accordance with DIN 42115 part 2, it is resistant to the following chemicals when exposed to them for more than 24 hours without visible changes:

Ethanol Cyclohexanol Glycol Isopropanol Glycerine Methanol	Acetaldehyde Aliphatic hydrocarbons Gasoline Toluene Xylene Benzene	Hydrochlorofluorocarbons Perchlorethylene 1.1.1.Trichloroethane Trichloroethylene Ethyl acetate Diethyl ether
Acetone Methyl ethyl ketone Dioxane Acetonylacetonate	Sulfuric acid <50 % Acetic acid <50 % Phosphoric acid <30 % Hydrochloric acid <10 % Nitric acid <10 % Sulfuric acid <10 % Tetrahydrofuran	Sodium hypochlorite <20 % Hydrogen peroxide <25 % Green soap Detergent Fabric softener
Ammonia <2 % Soda lye <2 % Alkali carbonate Bichromate Prussiate of potash Silver nitrate 20 % Brake fluid	Drilling emulsion Diesel oil Varnish Paraffin oil Castor oil Silicone oil Turpentine oil substitute	Saturated salt solution water

The front film is **not** resistant to the chemicals listed below:

Concentrated mineral acids	Benzyl alcohol
Concentrated alkaline lyes	Methylene chloride
High pressure steam above 100 °C	Chlorinated detergents

The front membrane is not suitable for long-term exposure to direct sunlight.

1.5.   Inspection and Checklist for Contents

Check the contents and inspect the supply immediately upon delivery. If the shipping container is damaged upon arrival, check the contents for damage and, if necessary, submit a damage claim to the transport agency. If the container is not damaged, remove the IND900 terminal from the protective packaging; note how it was packaged and check all components for damage.

If the terminal must be shipped again, the original packaging should be reused. The IND900 terminal must be correctly packed to ensure safe transportation.

The following components are included:

- IND900 terminal
- Documentation CD
- Quick Guide
- Possibly a bag with parts, depending on the terminal configuration

1.6.   Model identification

The IND900 model name and serial number are located on the model plate at the rear of the terminal. Table 1-1 lists the different terminal types and corresponding product numbers.

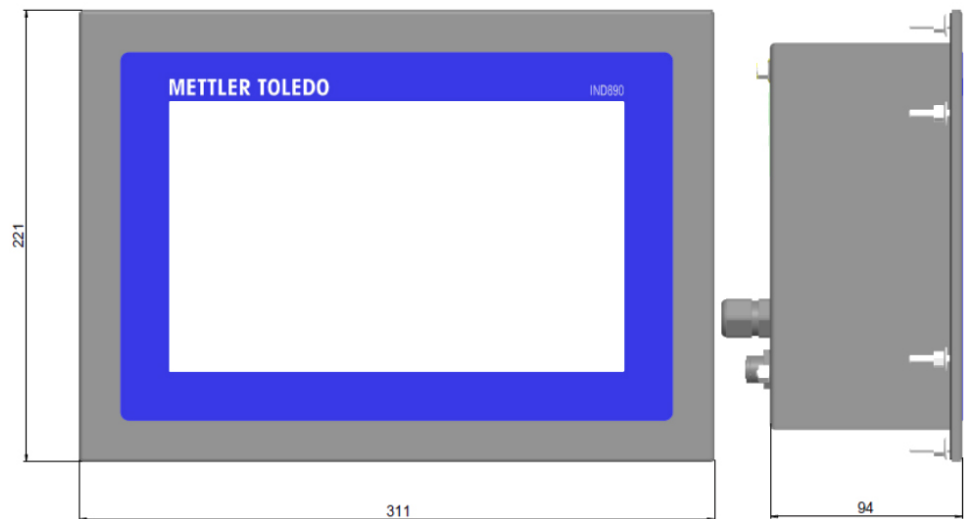**Table 1-1: Model Identification**

IND900 Terminal	Family Number
IND930 110/230 V	30500813
IND970 HMI 110/230 V	30500815
IND970-ELO (IP69k)	30500816
1 x Ethernet 10/100 Mbit	Standard

1.7. Dimensions

The following drawings show the dimensions in millimeters of the IND900 in its different versions.
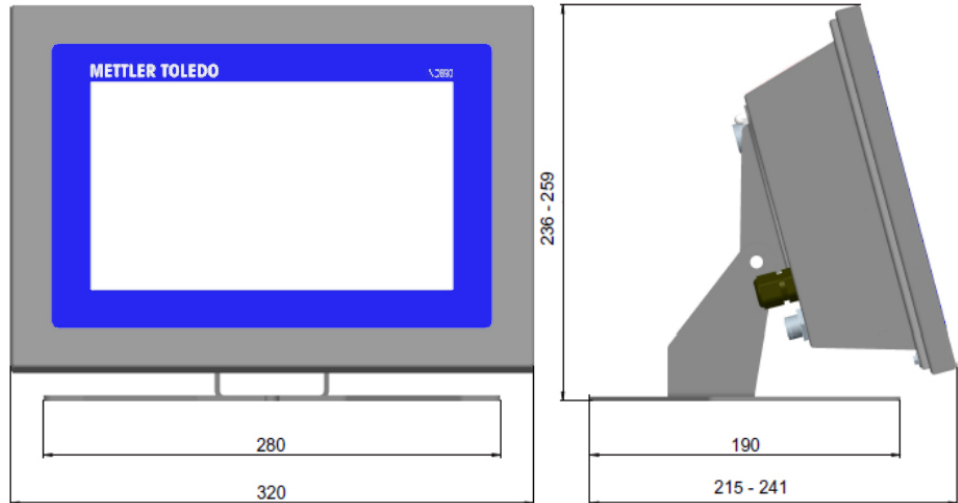
Figure 1-1: Dimensions of IND930, Desk/Panel Version
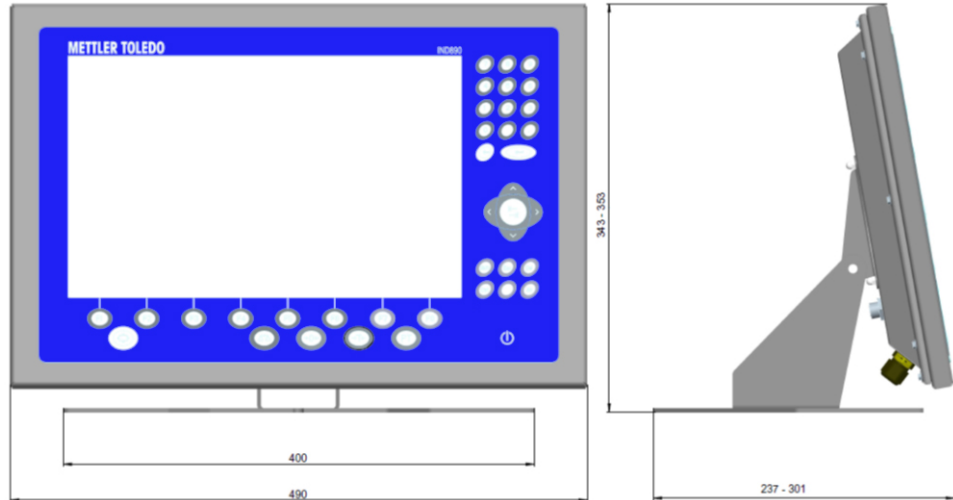
Figure 1-2: Dimensions of IND930, Panel Mount

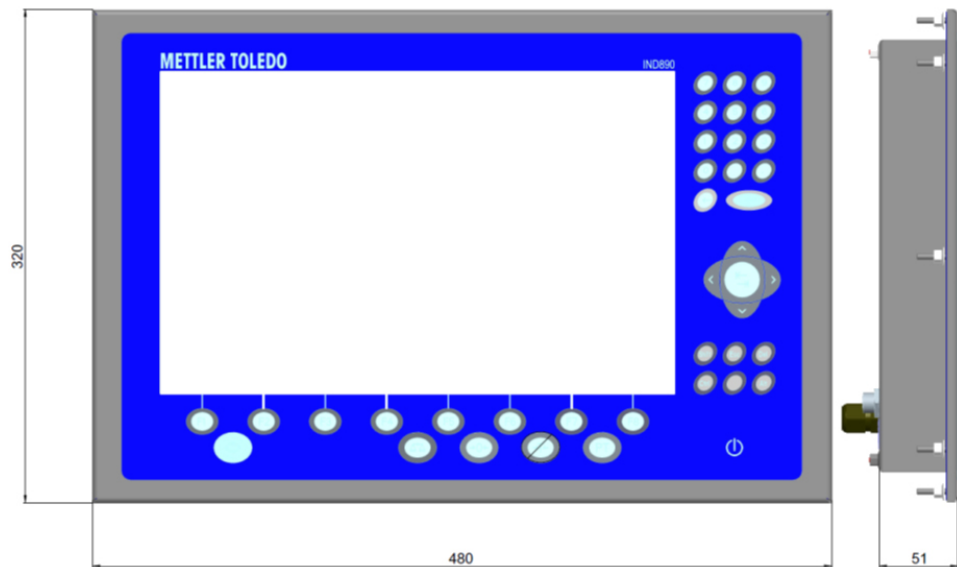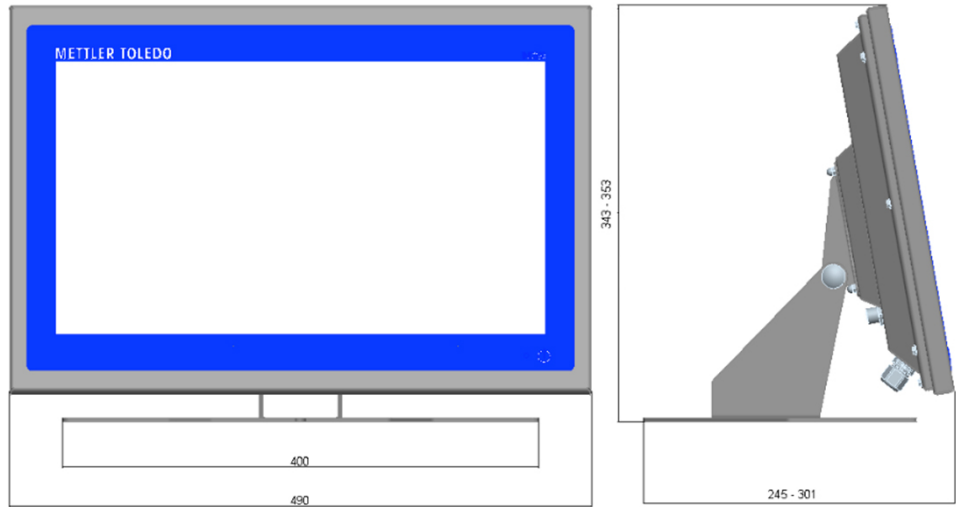**Figure 1-3: Dimensions of IND970-15. Desk/Panel Installation**

Figure 1-4: Dimensions of IND970-15, Panel Mount

Figure 1-5: Dimensions of IND970-19, Desk/Panel Version

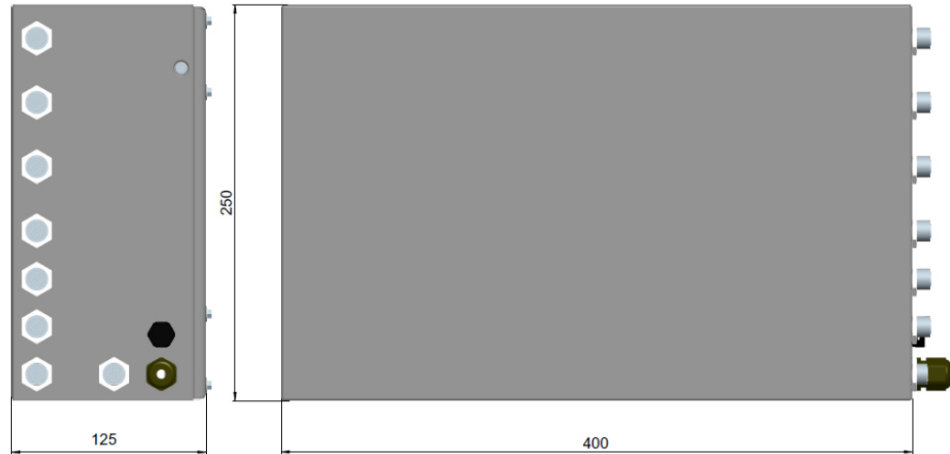**Figure 1-6: Dimensions of IND970-19, Panel Mount**

Figure 1-7: Dimensions of IND970 ELO Box

1.8. Technical data

The IND900 terminal's specifications are listed in Table 1-2.

Table 1-2: IND900 Technical Data

IND900 Technical Data	
Housing type	Desk/panel/stand installation, stainless steel housing AISI 304 / 1.4301, DIN X5 CrNi 1810
	Control panel installation version, stainless steel housing AISI 304 / 1.4301, DIN X5 CrNi 1810

Maximum housing dimensions (H × W × D)	Desk, panel and stand version IND930:
	    259 mm × 320 mm × 241 mm
	Desk, wall and stand version IND970-15 and IND970-19
	    353 mm × 490 mm × 301 mm
	IND970-ELO-Box:
	    250 mm × 125 mm × 400 mm

	Control panel installation IND930:
	    221 mm × 311 mm × 94 mm
	Control panel installation IND970-15-HMI:
	    320 mm × 480 mm × 51 mm
	Control panel installation IND970-19-HMI:
	    320 mm × 480 mm × 68 mm

IND900 Technical Data	
Net weight	IND930-Desk = 4.7 kg IND930-10-Panel = 3.9 kg IND970-15 / -19 HMI Desk = 9.7 kg IND970-15 / -19 HMI Panel = 7.5 kg IND970-ELO-Box= 5.2 kg (Depends on type and configuration)
Gross weight (With packaging = shipping weight)	IND930-Desk = 5.5 kg IND930-Panel = 4.5 kg IND970-15 / -19 HMI Desk = 11.4 kg IND970-15 / -19 HMI Panel = 8.5 kg IND970-ELO-Box = 6.3 kg
Type of protection (EN40050)	The housing variants of the IND930, IND970-15 and IND970-19 for desk, panel and stand design as well as the IND970 ELO Box, meet the requirements of IP69k. The versions for control panel installation meet the requirement for IP69k at the front. Hence, the IND900 is dust-proof and splash-proof and suitable for high-pressure and steam cleaning.
Ambient temperature	Running: -10 °C - +40 °C for scales of approval class III 0 °C - +40 °C for scales of approval class II Storage: -20 °C to +60 °C (−4 °F to 140 °F)
Maximum relative humidity	-10 °C to +40 °C (14 °F to 104 °F), at 10 % to 85 % relative humidity, non-condensing
Ambient conditions according to EN 61010	Indoor use only Pollution degree 2 Overvoltage category II Max. installation height 2,000 m AMSL
Hazardous Areas	The IND900 terminals cannot be operated in hazardous areas
Power supply	100-240 V AC, +10 % / - 15 %; 50/60Hz Current consumption: IND930: 650 mA – 275 mA IND970-15 / -19 650 mA – 275 mA IND970-ELO-Box: 750 mA – 375 mA Country-specific power cable
Display	Active TFT color LED with backlighting and weight display with a maximum character height of approx. 25 mm for IND930, approx. 38 mm for IND970-15, and approx. 44 mm for IND970-19. Supports display of up to four connected scales.
Weight display	Display resolution: 300,000 digits for analog scales Display resolution for IDNet scales, SICS and SICSpro scales depends on the weighing platform used.
Scale types	Analog scales, IDNet scales, SICS scales, SICSpro scales

IND900 Technical Data	

Data for connecting analog scales	Min. load cell impedance: 80 ohms
	 Max. load cell impedance: 2,400 ohms
	 Sensitivity: 2…3 mV/V
	 Max. resolution: 10,000 e
	                                300,000 d
	 Min. increment: 0.26 µV/e
	                                0.026 µV/d
	 Load cell supply voltage: 3.3 V
	 Max. cable length: 100 m
	 Typical stabilization time: 0.5 s

Number of scales	Up to four scale channels operating simultaneously plus sum scale. Maximum of 4 scales can be displayed simultaneously. Important: In Japan, a maximum of 3 IDNet or AnalogScale interfaces may be connected.
Analog/digital refresh rates	Internal Analog: >366 Hz IDNet: depends on the weighing platform SICS: depends on the weighing platform SICSpro: depends on the weighing platform
Keypad	IND930: No keys: since the operation is accomplished exclusively via the display using the touchscreen. IND970-15: Action point membrane keypad, 38 keys with numeric keypads, navigation keys, function keys and scale function keys IND970-19: Only ON/OFF key, the operation is accomplished exclusively via the display using the touchscreen.

Communication	**Serial interfaces**
	     Standard: Ethernet 10/100 Base-T
	 Protocol
	     Serial inputs: ASCII characters, ASCII commands for CTPZ (Cancel, Tare, Print, Zero), SICS (stages 0, 1, 2 and 3)
	     Serial outputs: Request with up to ten configurable print dialogs, report printout, interfaces with external ARM100 input/output modules

Approvals	Non-automatic Weighing Instruments Directive 2014/31/EU EMC Directive 2014/30/EU Low Voltage Directive 2014/35/EU RoHS Directive 2011/65/EU

1.9.   Main Board

The terminal's main board of the IND900 terminal features connections for microprocessor, main memory, battery, Ethernet, USB and serial communication.

1.10.   Interface Controller Board

The interface controller board (ICB) features 6 freely configurable ports (RS232, RS422, RS485, USB and scale interfaces). These ports are bidirectional and can be configured for different functions, e.g. demand output, SICS, ASCII command input (C, T, P, Z), ASCII character input, report printout or connection to an ARM100 module.

1.11.   Weighing Platforms

The terminal supports analog, IDNet, SICS and SICSpro weighing platforms. A maximum of four scales (including mixed types) can be connected to an IND900.

■   **Important**: In the case of IND900 devices for use in Japan, the scale interfaces IDNet or analog scale can use a maximum of 3 interfaces per device.

1.11.1.   Weighing platform with analog weighing cells

The IND900 supports scale types with an analog weighing technology via the analog weighing cell interface. The terminal can operate up to four scale channels, each with an input impedance of between 80 and 2,400 ohms.

1.11.2.   IDNet™ weighing platform

The terminal supports the newer T-brick version of a precision weighing platform via the IDNet scale interface.

1.11.3.   SICS/SICSpro weighing platform

The IND900 terminal supports the (high-precision) scales from METTLER TOLEDO that use the SICS communication protocol. These scales feature the brand names METTLER TOLEDO Excellence, X-Base/platforms, WM/WMH/WMS, scales of series 4 (BBx4xx, IND4xx) and scales of series PBK9 and PFK9. SICS/SICSpro scales are connected to the IND900 terminal using serial interfaces. With optional interface cards installed, each terminal can support up to four SICS/SICSpro scales. Depending on the type of SICS/SICSpro scale connected, different configuration settings are available in the terminal's setup screens of the IND900 terminal.

1.12.   Options

The following additional options are available for the IND900:

- Serial interfaces (RS232/425/485)

- USB interfaces

- Digital inputs/outputs (4I/O)

- Digital inputs/outputs (via ARM100 module)

- Analog output (via A100 module)

- PC com ports RS232 (only IND970-ELO-Box)

- Scale interfaces for analog scales, IDNet, SICS or SICSpro

- PROFIBUS (in combination with INDpro)

- Different cables for connecting the interfaces

- InSite™ configuration tool

- Floor stand

- Calibration set

The scale connections as well as the additional interface options are implemented via six internal option slots in the IND900. Different options that are required for the respective application can be combined, but no more than a total of six. Furthermore, two additional USB interfaces can be installed in the IND970-15-HMI.

1.12.1.   Serial interfaces

Additional communication cards offer RS232, RS422 or RS485 communication at speeds from 1200 to 57600 baud. A maximum of 6 serial communication modules can be installed.

Moreover, a set of three PC com ports RS232 can be installed for the IND970-ELO-Box. The voltage can be loaded with a maximum of +5V 300mA, +12V 150mA.

▪ **IMPORTANT**: External systems should always use software handshaking with the terminal. Be sure that a program communicating with the terminal waits for a response after every command before sending a new command. Sending a command before receiving a response may result in data loss or interfaces, which stop communicating!

1.12.2.   USB interfaces

Additional communication cards enable the connection of USB devices according to USB standards 1.1 and 2.0. A maximum of 3 USB communication modules can be installed. Each USB connection has a maximum load rating of 500 mA. However, for each IND900 the total may not exceed 600 mA.

1.12.3.   Digital inputs/outputs

▪ **IMPORTANT**: The IND900 terminal can use **either** its internal optional DIO boards **or** external ARM100 modules, but **not both**.

1.12.3.1. Optional Digital inputs/outputs (4I/O)

The IND900 can be equipped with one or two optional digital Input/Output boards, installed in positions X5 and X6.

Each 4I/O-900 provides 4 digital inputs and four digital outputs.

Refer to the **IND900 Installation Manual**, for connector pin assignments.

1.12.3.2. ARM100

Additional digital inputs/outputs are implemented using ARM100 remote I/O modules from METTLER TOLEDO.

- One ARM100 has four (passive) inputs and six (low-current) outputs. An external power supply with 24 V DC is required to operate the ARM100.

- A maximum of five ARM100s can be connected to one IND900. This provides a total of 20 inputs and 30 outputs.

- The ARM100 modules are connected to the IND900 via an RS485 interface.

1.13. Application programs

The application programs described below can be installed on the IND900 terminal to provide additional functions for specific working environments and industries.

1.13.1. InSite™ CSL configuration tool

The IND900 terminal can be connected to a PC/laptop with InSite (version 1.4.05 or higher) via Ethernet so that the following tasks are possible:

- Viewing and/or modifying the configuration

- Performing configuration tasks without the device prior to the actual installation of the device

- Saving the configuration data locally to the PC, loading a saved configuration file into the same or other devices or restoring a known state for service purposes

- Printing the configuration documentation for the customer records

- Performing a firmware upgrade for the IND900

- To support the latest functions of the IND900, you should ensure that you are using the corresponding InSite version

1.14. Display and keyboard

The **IND900** is equipped with an active color TFT display with backlighting. Resolutions and sizes are as follows:

- IND930 – 1280 x 800 pixels, 10.1" (25.7 cm)

- IND970-15 − 1280 x 800 pixels, 15.4" (39.1 cm)

- IND970-19 − 1280 x 800 pixels, 18.5″ (47.0 cm).

The weight information can be displayed in a multitude of formats, including single- or multi-scale display with or without tare window.

Figure 1-8: IND930 Fascia

Figure 1-9: IND970-15 Fascia
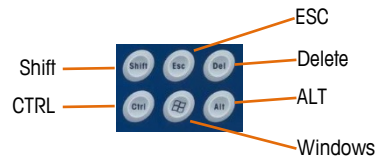
Figure 1-10: IND970-15 Windows Function Keys, Detail

All IND900 models feature an integrated touchscreen and can be operated exclusively via this screen.

In the display layout, the area at the very top is reserved for the system toolbar. It can display general data as well as status icons, which are enabled or disabled in setup.

Next is the weight display with all the relevant weighing information. The middle section of the display is reserved for status messages and special applications. The bottom section contains the areas reserved for DeltaTrac, and the softkeys are arranged underneath.

8 softkeys can be configured to enable a variety of integrated functions of the IND900, ranging from the setting of time and date to access to specific memory tables, and including special scale functions of the IND900 and its application PACs.

In the IND970-15 only, the numeric keypad is used for entering data. The numeric keys are located at the top right side of the front panel of the terminal (Figure 1-9). Alphanumeric data can be entered via the softkey or by using an external USB keyboard, or scanned in from a barcode reader or other external device.

Eight function keys are arranged underneath the screen. The operator can use these keys to navigate through the setup options in the menu structure and within setup and application screens.

The IND970-19 (Figure 1-11) has only an ON/OFF switch. The terminal is operated exclusively using the touchscreen. A computer mouse or similar pointing device can also be connected to the standard USB port.

Figure 1-11: IND970-19 Fascia

2 Operation

The IND900 is a user-friendly and technically sophisticated weighing terminal that excels with its large variety of application options and intuitive touchscreen operation.

While reading this manual and operating the terminal, keep in mind that various functions or softkeys may not have been enabled for your installation. Hence, the menus pictured in the manual may differ from terminal to terminal and depending on setup and configuration.

This document contains instructions for executing typical weighing processes with the IND900 terminal.

2.1. Security

The IND900 supports the use of a user name/password for configuration security on four levels. To define the security levels that are assigned to specific parameters during setup. Refer to chapter 3, **Configuration**.

- **Administrator** – An administrator account has unrestricted access to all areas of the operating system and setup. There can be several administrator accounts. The primary administrator account cannot be changed or deleted and its secret password cannot be modified. If logged in under this primary administrator account, it is possible to create, manage and delete additional user accounts.

- If a calibration set is installed, certain metrologically relevant parameters can be changed only after removing the calibration screw and pressing the W&M switch (refer to the following section).

- After configuring an additional administrator, you should take care to remember the password. If the password is changed or forgotten, only the primary administrator account can access the complete setup menu. Ensure that unauthorized persons do not have access to the password.

- **Maintenance** – Access at the maintenance level is generally identical to access at the administrator level, except for access to metrologically relevant setup areas.

- **Supervisor** – Access at this level is generally restricted to editing tables and setting the time and date.

- **Operator** – A default user account is predefined. This is particularly useful for locations with validation requirements. Operator is the security level with the most restrictions, e.g. there are generally only a few softkeys enabled with functions that are strictly limited to the operation required for the logged-in user.

The user identified as a default user is automatically logged in after switching the terminal on the IND900 or after the Logout 👤 of another user and generally has heavily restricted rights, but at

least the Login 👤 softkey which allows a (higher ranked) user to log in with user name and password. Depending on the access right of the logged-in user, setup menus are displayed only or they are displayed and can be changed. In addition, each user is assigned only certain softkeys and operating functions.

If a login fails, the terminal displays an error message, exits the log-in dialog and returns to the home screen.

The login can be time-limited. In this case, when the time configured in setup expires the logged-in user is automatically logged out.
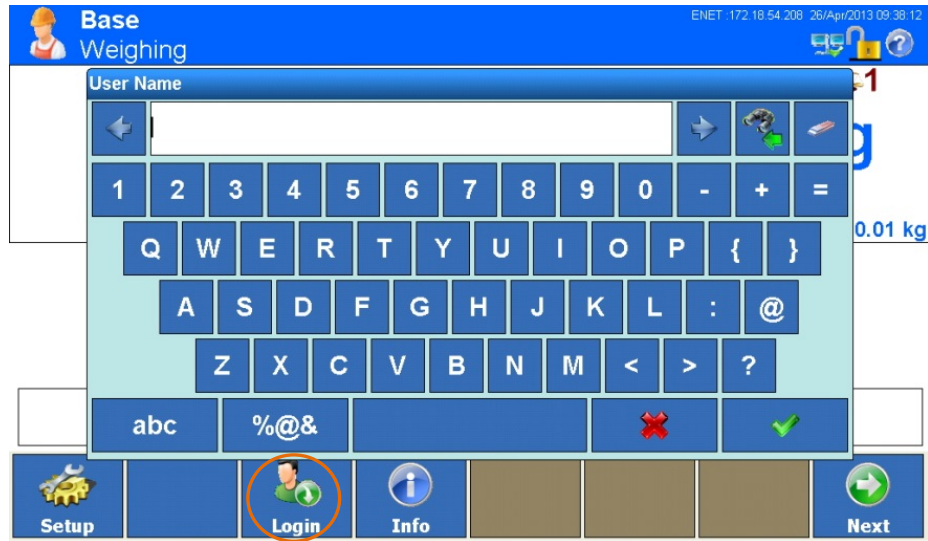
Figure 2-1: User Login

2.1.1.   **Calibration Screw**

For calibrated operation, the IND900 must be equipped with a calibration set, the calibration screw must be screwed in and the paper seal must be attached and undamaged. Only after removing the calibration screw that is secured against manipulation by the paper seal – and therefore damaging the paper seal – and pressing the W&M switch does a user who is logged in with administrator security level have access to the metrologically relevant parameters of the connected scales.

For a recalibration, the calibration screw must be screwed in again, the locking mark must be replaced and W&M Approval Mode must be enabled in setup of the scales. Figure 2-2 shows the calibration screw applied to the rear of the device (IND930) or to the ELO-Box (IND970-15/-19), with and without the paper seal.
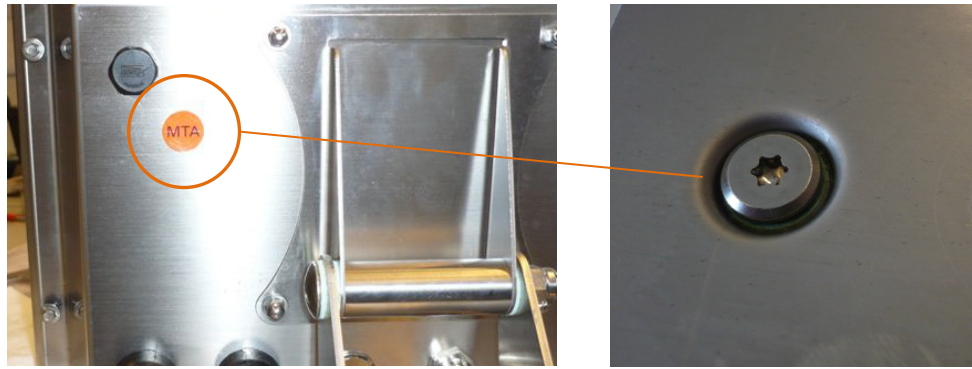
Figure 2-2: Calibration Screw, Before and After Removing the Paper Seal

2.2. Display Operation

The name of softkeys as well as the texts and messages that correspond to the IND900 software are identified with gray shading in this manual. For example:

- "Touch the "Start" softkey if the display shows continue with Start."

2.2.1. Softkeys and Symbols

Softkeys use graphical, self-explanatory symbols for identification. Table 2-1 shows the available symbols and their functions, which are subdivided according into categories according to their use. An asterisk (*) in the "Softkey" column indicates that this symbol is assigned to a softkey.

The exact function of the individual softkeys is explained in the chapters of these Operating Instructions. The description of how the softkeys are configured can be found in chapter 3, **Configuration**.

Even though softkeys have been configured, their functions are not always available to the user. In Table 2-1, the softkeys are shown without a background color. In the example at right, the Up softkey is active and shows a blue background, the Next softkey inactive and shows a brown background.
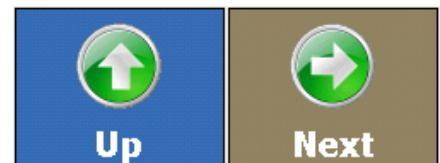
Table 2-1: Softkey Symbols and Functions

Symbol	User-dependent	Designation	Explanation
	*	Shutdown	Shut down the terminal; refer to section 2.3.7, **Switching On and Off and Restart**.
	*	Scale	Changes to the next scale; refer to section 2.7.1 **Selecting a scale** or section 2.3.3, **Scale function keys**.

Symbol	User-dependent	Designation	Explanation
	*	Zero	Sets the net value of the current scale to 0; refer to section 2.7.3, **Zero** or section 2.3.3, **Scale function keys**.
	*	Taring	Tares the current scale; refer to section 2.7.4 **Tare** or section 2.3.3, **Scale function keys**.
	*	Clear Tare	Clears the tare value; refer to section 2.7.4.5, **Clear Tare**.
	*	TareFix	Calls up the table of all available tare memory records; refer to section 2.7.4.3, **Tare table**.
	*	PreTare	Tares the current scale with a predefined value; refer to section 2.7.4.2, **PreTare** or section 2.3.3, **Scale function keys**.
	*	Change units	Selects secondary unit softkey; refer to section 2.7.6, **Changing Units**.
	*	Resolution	Increases or decreases the resolution of the displayed weight value; refer to section 2.7.8, **Resolution**.
	*	Print	Creates a printout; refer to section 2.7.9, **Printing**.
	*	Repeat	Creates an additional printout; refer to section Repeat Print, **Repeat print**.
	*	Ident-A Ident-B Ident-C Ident-D Ident-E Ident-F	Opens the dialog window for entering Identifications A through F; refer to section 2.7.10, **Identifications**.
	*	MinWeigh	Opens the dialog window for entering the MinWeigh® parameters; refer to section 2.7.11, **MinWeigh**.
	*	Info	Recalls information; refer to section 2.7.12, **Recalling Terminal Information**.
	*	Delta	Opens the screen for the input of the DeltaTrac Parameters, refer to section 2.7.14, **DeltaTrac**.

Symbol	User-dependent	Designation	Explanation
	*	DeltaFix	Opens the target table to copy a target to DeltaTrac, refer to section 2.7.14.6, **Accepting DeltaTrac Target Weight Fixed Values**.
	*	Date and time	Sets date and time, refer to section 2.7.15, **Time and Date**.
	*	Reports	Prints reports; refer to section 2.7.16, **Reports**.
	*	Alibi	Calls up the Alibi memory; refer to section 2.8, **Direct Access to Alibi Memory**.
	*	Application	Starts an application; refer to section 2.11, **Starting an Application**.
	*	Home	Exits setup and enables the basic state
	*	Setup	Provides access to the device settings; refer to section 2.7, **Basic Functionality**.
	*	Login	Opens the login screen; refer to section 2.1, **Security**.
	*	Logout	Logs out the current user and changes to the default user; refer to section 2.1, **Security**.
	*	Gross	Displays the gross weight; refer to section 2.7.5, **Gross Recall**.
	*	Dynamic	Starts dynamic weighing; refer to section 2.10, **Dynamic weighing**.
	*	Resetting the counter	Opens the dialog window for entering the transaction counter parameters.
	*	Exit	Exits the application to access the operating system
	*	Restart	Restarts the terminal; refer to section 2.3.7, **Switching On and Off and Restart**

Symbol	User-dependent	Designation	Explanation
	*	FACT	Manual activation of FACT = Fully Automatic Calibration Technology (supported only by some of the new SICSpro scales).
	*	Totalizing	These Sofkeys only appear when the Totalizing function is activated, see chapter 2.12.

Symbol	Function	Explanation
	Balances	Calls up the Scale setup
	Application	Calls up the Application setup
	Terminal	Calls up the Terminal setup (IND930)
	Terminal	Calls up the Terminal setup (IND970-15/19)
	Communication	Calls up the Communication menu
	Maintenance	Calls up the Maintenance menu
	Scale 4	Calls up the Scale 1 configuration menu
	Scale 2	Calls up the Scale 2 configuration menu
	Scale 3	Calls up the Scale 3 configuration menu
	Scale 4	Calls up the Scale 4 configuration menu
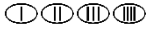
Symbol	Function	Explanation
	Sum scale	Calls up the Sum Scale configuration menu
	Device	Calls up the menu for setting the device properties
	Display	Calls up the Display configuration menu
	Region	Calls up the menu for setting the region-dependent parameters
	User	Calls up the menu for creating and managing users
	Softkeys	Calls up the menu for selecting and assigning softkeys
	Reset	Returns the settings to the factory settings
	Date & Time	Calls up the menu for setting the date and time
	Smart Keys	Calls up the menu for adjusting the SmartKeys; refer to section 2.3.8, **Smart Keys**.
	Back	Displays the previous softkey line
	Next	Displays the next softkey line
	Up	Displays the higher softkey line

Symbol	Function	Explanation
	No network connection	Appears if no network connection exists.
	Active network connection	Appears if a network connection exists.

Symbol	Function	Explanation
	Wait	A process is active and it is necessary to wait until it ends. After activation, details about the current process are displayed.
	Service required	Scheduled or unscheduled maintenance is required. After activation, details about the required service are displayed.

Symbol	Function	Explanation
	Scale number	Displays the number of the respective scale (1 to 4 or sum scale), here: Scale 1
	Weighing range of weight value	Appears only for scales with several weighing ranges. Displays the currently activated weighing range of the scale.
UPS	Updates per second	Data rate of the scale (appears only if configured accordingly)
Tare	Tare value	Currently set tare value
Max	Maximum load	Maximum load of the scale, or of the currently displayed weighing range.
d	Increment	Increment of the scale or of the currently displayed weighing range
Min … Max … e	Scale parameter	Scale parameters display. Depending on the type of scale, the scale parameters (Max, Min, e, …) of the current or all available weighing ranges are displayed alternately depending on the current weight value or every 5 seconds. For details, refer to section 2.5**, Weight** Window.
	Second unit	Displayed when the second unit is selected.
	MinWeigh®	Appears, flashing, when scale weight is below the defined minimum weight.

Symbol	Function	Explanation
	W&M Approval Mode active	Appears only during correct W&M Approval Mode. Upon activation, the version and history of the certifiable software components are displayed, the alibi memory can be called up and the calibration test can be started. Refer also to section 2.7.13**, Recalling Calibration-Relevant Information**.

Symbol	Function	Explanation
⚠	Faulty W&M Approval Mode	Appears flashing if W&M Approval Mode was enabled but is faulty due to impermissible effects. Upon activation, the reason for the fault is displayed. Refer also to section 2.7.13, **Recalling Calibration-Relevant Information**.
Min	MinLoad	Minimum capacity of the scale or of the currently displayed weighing range.
e	Verification interval	Verification interval of the scale or of the currently displayed weighing range
⬭Ⓘ⬭⬭⬭	Approval class	Identification of the defined approval class.

Symbol	Function	Explanation
	Edit	Permits changes to be made to the parameters of the selected object.
➕	Add	Replaces a new object or inserts a new object containing information that can be displayed for the user.
✔	OK / Accept	Accepts or saves the entry or parameter.
✖	Cancel	Skips or ignores a setting or parameter or exits the entry dialog without a change.
	Delete	Deletes an entry, a character, or an object.
🖨	Print	Prints the selected memory on a connected peripheral device. A corresponding connection must be defined in setup.
	Copy	Creates a copy of the currently selected object.
🗑	Exit	Exits a function and discards the parameters entered.
🔍	Search in history	Lists the most recently entered values.
➡	Right	Moves the cursor to the right by one character.

Symbol	Function	Explanation
	Left	Moves the cursor to the left by one character.
	Reset	Sets the default values/factory setting.
	Accept	Accepts a weight value from the weight display into the entry dialog.

2.3. Description of the Navigation Interface

When navigating applications and configuring the IND900 terminal, the following interface elements are used:

- Navigation keys (IND930)
- Softkeys
- An optional external keyboard
- Scale function keys (IND970-15)
- Numeric or alphanumeric input windows

Figure 2-3 and Figure 2-4 show the position of all the keys and display screen items in the IND930 and IND970-15.

Figure 2-3: IND970-15 Fascia
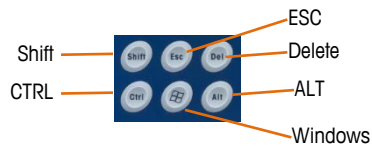
Figure 2-4: IND970-15 Windows Function Keys, Detail

The IND930 (Figure 2-5) does not have a membrane keypad, but it is operated in the same way via touchscreen.

Figure 2-5: IND930 Fascia

The IND970-19 (Figure 2-6) has only an ON/OFF switch. The terminal is operated exclusively using the touchscreen. A computer mouse or similar pointing device can also be connected to the standard USB port.

Figure 2-6: IND970-19 Fascia

2.3.1. Navigation Keys

The navigation keys (for IND970-15 only, refer to Figure 2-4) provide additional navigation options in addition to the touchscreen if this is supported by the application. For example, the central tab key allows jumping to the next input field in tables or the left/right arrow keys allow moving the cursor when an input dialog is open.

Preference should, however, be given to operating via touchscreen since it is more intuitive and faster.
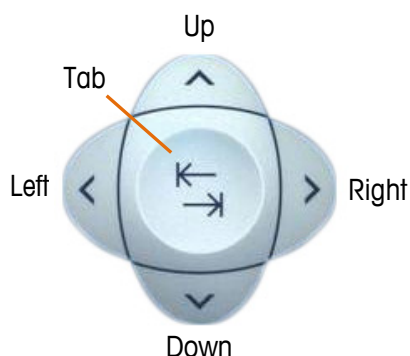
Figure 2-7: Navigation Keys

2.3.2. Softkeys

The softkey setup menu (Figure 2-8) is accessed in Setup at **Terminal I Users I Admin I Softkeys**. Here, softkeys can be added or removed for each operator, and softkey positions changed.
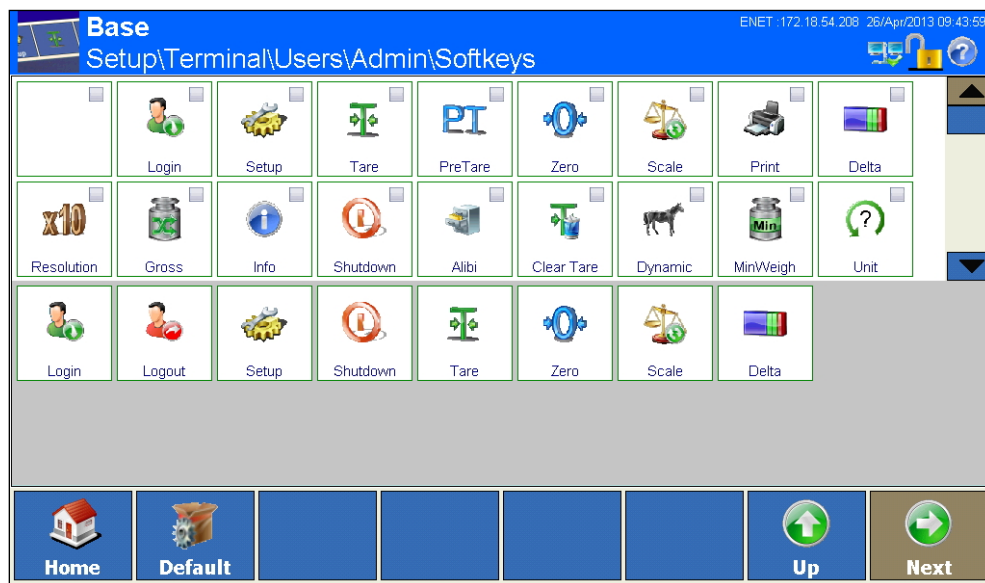
Figure 2-8: Softkeys Setup Menu

Symbols that can be assigned as softkeys are listed in Table 2-1. Chapter 3, **Configuration**, explains in detail how to assign and edit the softkeys in setup.

2.3.3.   Scale Function Keys

The four scale function keys (see Figure 2-3) are on the touchscreen in all models, and on the membrane keypad in the IND970-15. The softkeys can be assigned individually to the different operators in softkey setup – refer to the previous section.

Table 2-2: Scale Function Keys

Softkey/key	Explanation
or	**Scale** If several scales are connected to the terminal, this button allows users to change between scales, including the sum scale if one is configured.
or	**Zero** If the scale platform or the weighing platform is empty, the terminal should display zero. The gross zero reference is recorded during the calibration. Pressing the Zero key enters a new gross zero reference point if the weight is in the zero range.
or	**Tare** Tare is the weight of an empty container. Tare is generally used to determine the net weight of the content of a container. The Tare key is pressed if an empty container is on the scale. The terminal acquires the tare value and displays zero as the net weight. The weight display shows NET and a small box is shown at the top right of the display in which the tare value and the tare unit are displayed (if configured; refer to 2.7.4, **Tare**). When the container is loaded, the terminal shows the net weight of the content. To delete the tare value, touch PreTare key PT and exit with 🗑 .
or	**PreTare** If the weight of the empty container is known, the tare value is directly entered via the PreTare key. The terminal then displays the net weight of the container content. To delete the tare value, touch PreTare key PT and exit with 🗑 .

■ The subsequent text references only the softkeys (, , , PT) and not the corresponding keys on the IND970-15 membrane keypad (, , ,). Note that they have the same function as the softkeys but only if their function is permissible, i.e. when the corresponding softkey is displayed.

2.3.4.   Numeric Entry

Numeric entries can be made directly via the membrane keypad (IND970-15 only), and also via an external keyboard.

Preference should be given to the entry via touchscreen, where the numeric entry can have the following maximum display options, depending on permissible values and functions:

Input field with flashing cursor. Directly after opening the numeric entries, the entire value is highlighted and can be overwritten. The cursor can be placed at any position in the value at any time by clicking on it.

Designation of value to be entered

Recall the 10 most recently entered values

Deletes the previous character or marked value

Moves the cursor to the left by one position

Displays or changes the unit

Moves the cursor to the right by one position

Deletes the value and exits the corresponding function, e.g. DeltaTrac

Accepts a weight value from the weight display

Cancels the entry

Accepts the entry

Numeric keys and decimal point

Loads the default value

Figure 2-9: Numeric Entry Keypad

2.3.5. Alphanumeric Entry

Alphanumeric entries can also be made using an external keyboard.

Input via touchscreen is made using three easily switchable keyboard layouts. Its functions are otherwise identical to those of the numeric entry.
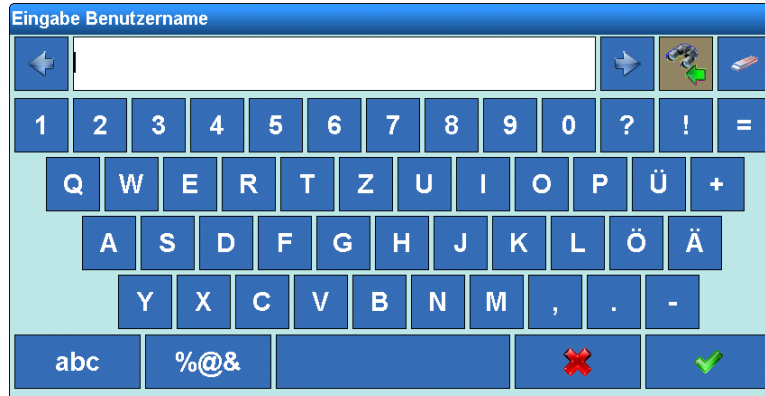
Figure 2-10: Alphanumeric Entry Display

The keys **ABC**, **abc** and **%@&** (at lower left of the keyboard displays shown in Figure 2-10 and Figure 2-11) can be used to switch to upper or lower case letters, or special characters.
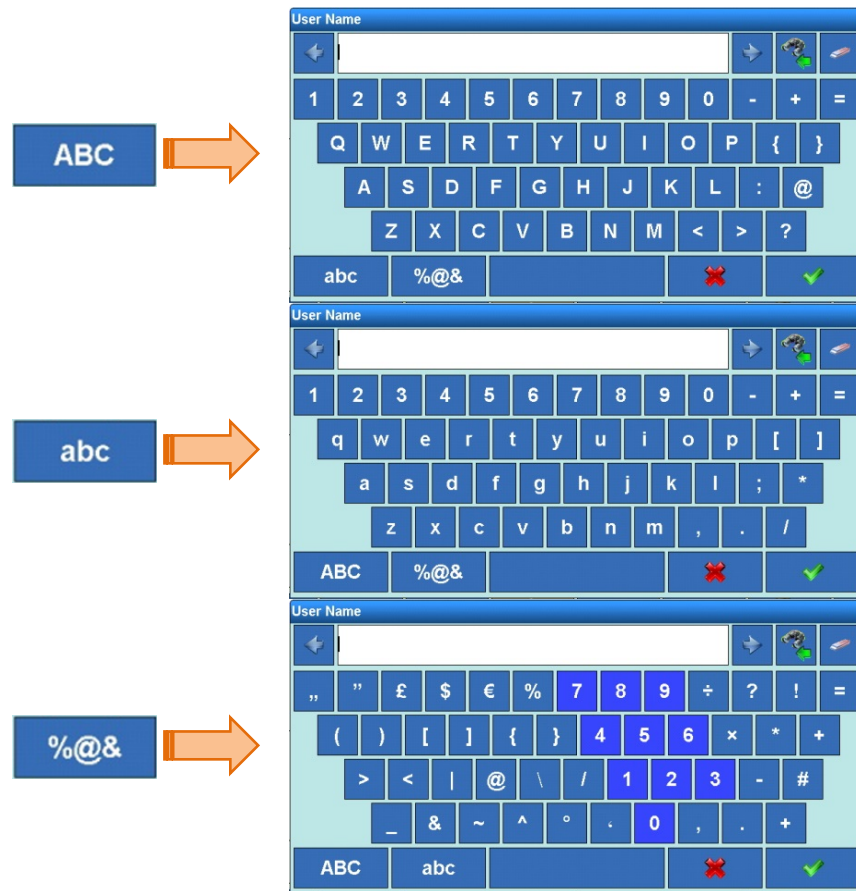
Figure 2-11: Alternative Keyboard Layouts

2.3.6. Screen Adjustment Key

In the IND970-15, the screen adjustment key can be used ⊕ to adjust the screen.

Figure 2-12: Screen Adjustment Key, IND970-15

To do this, press and hold the screen adjustment key ⊕, then press one of the keys F1, F2, F3 or F4 to perform a screen adjustment:

⊕ + F1	Start the settings menu
⊕ + F2	Enable menu item, accept settings
⊕ + F3	Navigate to the left, decrease value
⊕ + F4	Navigate to the right, increase value

 For the initial commissioning of the IND970-15 in the base state (i.e., not from within setup), press the keys ⊕ + F2 to adjust the screen and ELO Box to each other ("Auto-Setup"). During this process, the display may shake a little. Afterwards, the screen and ELO Box are tuned to each other. This adjustment only needs to be made once.

2.3.7. Switching On and Off and Restart

The device can be switched on and off (shut down) or restarted as follows:

	IND930	**IND970-15/-19**
Switching on	Insert the power plug, the IND900 terminal starts up automatically.	Insert the power plug, Power LED flashes. Press the On/Off key ⏻ until a beep sounds, the terminal starts up and the Power LED is lit constantly.
Switching off (shutdown)	Touch the Shutdown ⓘ softkey and confirm the prompt. The terminal reports "The terminal can now be disconnected from the power supply," and shuts down.	Touch the Shutdown softkey ⓘ; the terminal automatically shuts down.
Restarting	Touch Restart ✳ softkey. The terminal will restart.	Touch Restart ✳ softkey. The terminal will restart.

 Only after the terminal has been completely shut down or a corresponding message appears may the power plug be pulled out or the voltage supply disconnected.

2.3.8. Smart Keys

Smart Keys allow the experienced user to directly initiate certain scale functions by touching the weight window. The SmartKeys are disabled at the factory and can be enabled in setup at **Setup I Terminal I Smartkeys**, or adapted to user requirements.

Figure 2-13 shows all available Smart Keys. They can be assigned to one of the following functions:

	Default Setting
Zero the corresponding scale	Smart Key 1
Activate the corresponding scale (with multi-scale operation)	Smart Key 2
Activate the next scale (with multi-scale operation)	Smart Key 3
Toggle between second or first unit	Smart Key 4
Tare the corresponding scale	
Initiate a printout	
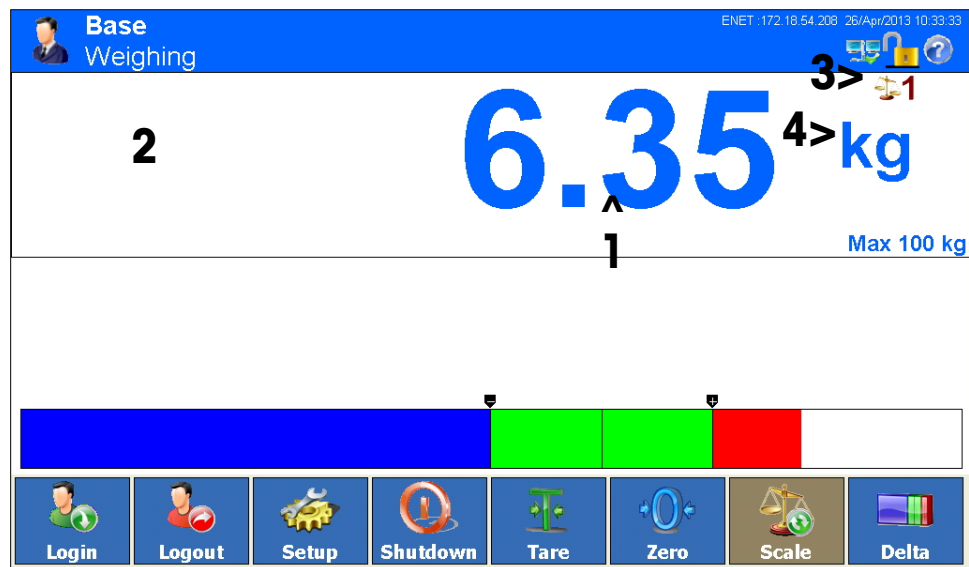
Figure 2-13: Smart Keys in the Display

> 📘 The symbols for calling up the certification information (🖼 and ⚠) are also Smart Keys, but they cannot be switched off.

2.4. Home Screen

Fig. 2-10 shows the home screen, from which the operator has access to the programmable softkeys.
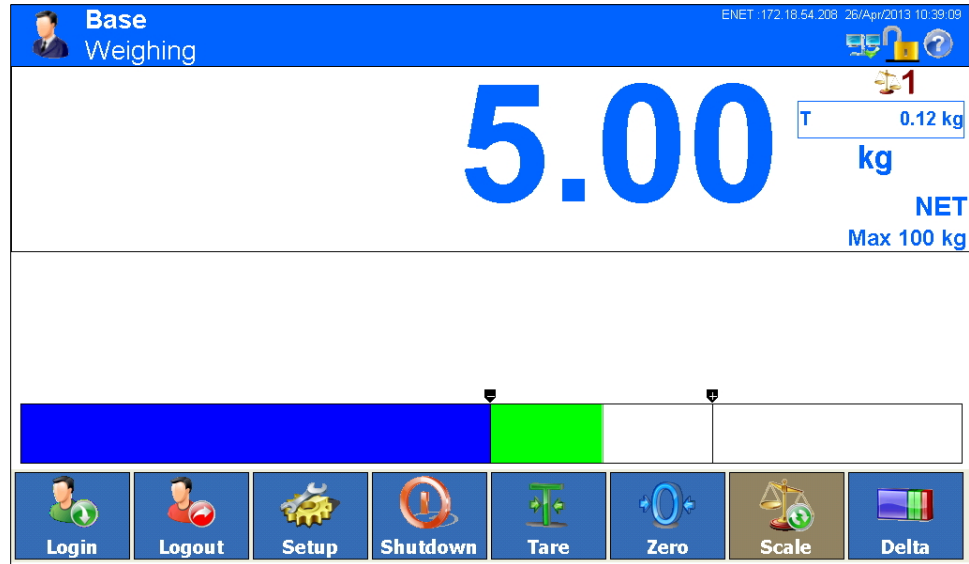
Figure 2-14: Weighing Operation Home Screen

The home screen contains:

- **Status bar**   Application (Base), function (Weigh), date and time (dd.mmm.yyyy hh.mm.ss) and system messages

- **Weight window**   (One for each scale) Weight, units, tare, scale number, scale parameters, approval class and other application-specific weighing data.

- **Application area**   Messages and graphics, depending on application

- **DeltaTrac**   Graphical weight display

- **Softkeys**   Symbols and names for the active functions available to the user currently logged in. The Next ⊕ symbol indicates that additional softkeys are available.

2.5.   Weight Window

During a weighing, the measured data that is either always displayed by the weight window (Figure 2-15) or only displayed in W&M Approval Mode is always visible with the weight value(s) of the connected scales.

For test purposes, the weight value can be displayed at a higher resolution with the Resolution x10 softkey. In W&M Approval Mode only as long as the softkey is pressed. During this time no printouts of the weight value are possible and the weight value is identified by a star.
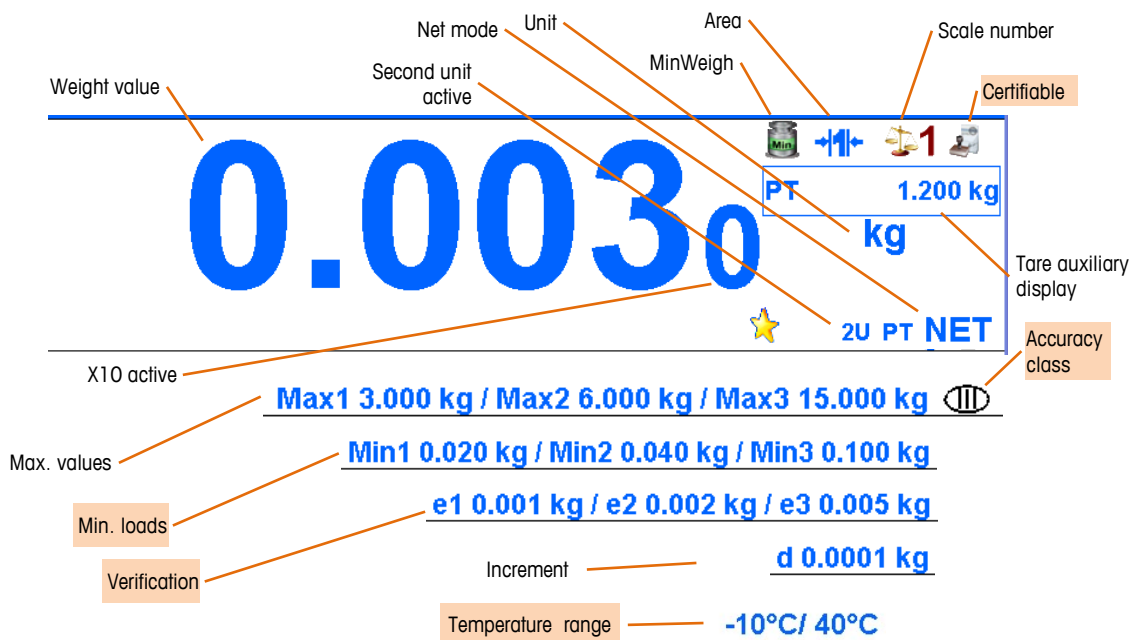
Figure 2-15: Symbols and Values in the Weight Window

SICSPro scales also indicate the allowed temperature range.

For Multi-Interval or Multi-Range scales, the measured data of all weighing ranges is always displayed in rotation; for Multi-Range scales this includes the range number. Table 2-3 shows examples of information that might appear in this rotation.

Table 2-3: Examples Displayed Data for Multi-Interval and Multi-Range Scales

Scale Type	Sequence of Displayed Data
Multi-Interval	"Max 3,000/6,000/15,000 kg" ➔ "Min 0.020 kg" ➔ "e = 0.001/0.002/0.005 kg" ➔ Max 3,000/6,000/15,000 kg" ➔ …
Multi-Range	"Max1 3,000 kg / Max2 6,000 kg / Max3 15,000" ➔ "Min1 0.020 kg / Min2 0.040 kg / Min3 0.100 kg" ➔ "e1 = 0.100 kg / e2 = 0.002 kg / e3 = 0.005 kg" ➔ " Max1 3,000 kg / Max2 6,000 kg / Max3 15,000" ➔ …

In the special case of e ≠ d (Class II, e.g. e=10d), both values are displayed; otherwise, only increment d (not certifiable) or only verification interval e (certifiable) is shown. In these cases, the additional display digit is also shown smaller.

The weight window is hidden only during the configuration (when Setup is accessed) and moves to the background during (alpha)numeric entries, but it can never be covered completely by another application. An exception is the screen saver, but this is active only when the scale is unloaded (i.e., 0.000 displayed).

Particularly for the IND970-15 and -19, the IND900 application is also designed completely individually, e.g. with an entirely different operator interface. The weight window is also constantly in the foreground for these solutions, but it can be reduced in size.

Figure 2-16: Weight Display

In multi-scale operation, a weight window can be shown for each scale, in which case the currently active primary scale is identified in color, as in Figure 2-17.

Figure 2-17: Active Scale Indicated by Color

In all variants, the weight value is always displayed with a minimum height of 4 mm.

2.6.   Backlighting and Screen Saver

After an adjustable time, the backlighting switches off and/or a screen saver appears. The corresponding timeout values are configured in Setup at **Terminal I Display I Backlighting switchoff I Timeout** or **Terminal I Display I Screen saver I Screen saver timeout**.

To exit the screen saver and/or switch on the backlighting, press any key on the terminal or an optional external keyboard. This first keystroke does not perform the function usually associated with the respective key.

The screen saver is also exited and/or the backlighting enabled if an interface command arrives, or when the scale is deflection at least 30 increments.

2.7.   Basic Functionality

This section contains information about the basic functionality of the IND900. Access the setup menu structure to configure these functional areas. An example is shown in Figure 2-18. Additional functional areas that apply specifically to application software available for the IND900 are discussed in the respective application **Users Guides**. The basic functions discussed in this section include:

- Selecting a scale
- Sum scale
- Zero
- Taring
- Gross recall
- Changing the unit
- IDNet class II
- Resolution
- Printing
- Identifications

- MinWeigh®
- Calling up information
- Calling up calibration-relevant information
- DeltaTrac
- Time and date
- Reports
- Direct access to alibi memory
- Browsing tables
- Dynamic weighing
- Starting an application

Figure 2-18: Accessing a Setup Page

2.7.1. Selecting a Scale

The Scale ⚖ softkey is used to change between weighing platforms (including the sum scale) if multiple platforms are configured for the IND900. It determines which scale is identified as active on the display, and controlled by the scale function keys (Zero ⊕ , Tare ⊤ , PreTare PT).

When the Scale ⚖ softkey is touched, each weighing platform is activated in sequence. To access a scale directly, simply touch the number (indicated in Figure 2-19) of the corresponding scale on screen. Figure 2-19 shows a multi-scale display including scales numbered 1 and 2. Scale 1 is identified as active by the blue color of its displayed data.
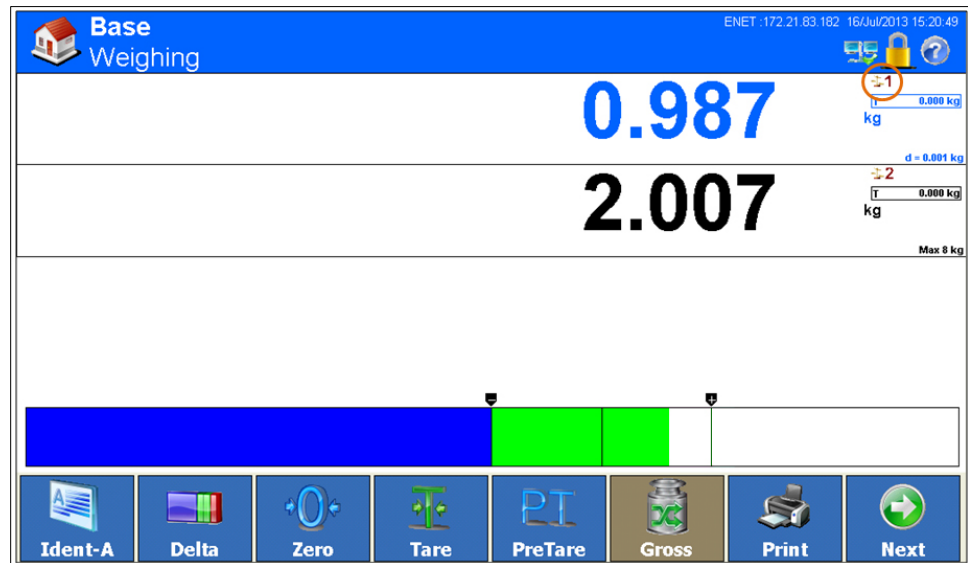
Figure 2-19: Selecting a Scale

2.7.2. Sum scale

Configuring a sum scale in setup at **Scales I Sum Scale I Type** enables the use of a logical measuring channel that provides the arithmetic sum of the weight values of two or more scales. Each scale can have a different capacity and increment size, but they must all be configured with the same unit.

In general, the display of the sum scale behaves like every other independent physical scale channel. However, a zero command issued to the sum scale is forwarded to each scale included in the sum.

If a scale which is included in the sum scale is in an overload or underload condition, that scale's display and the sum scale will show ⌐‾‾‾‾‾⌐ or ⌐_____⌐ .
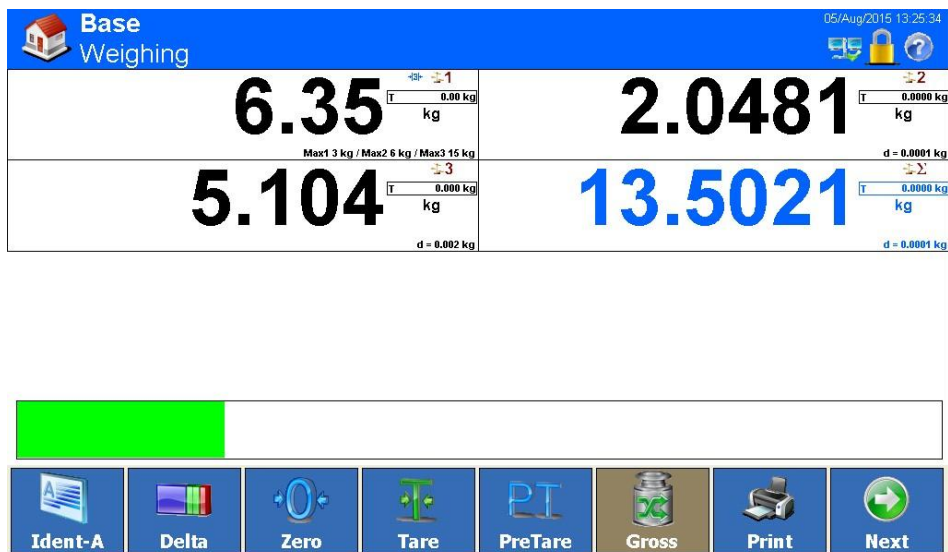
Figure 2-20: Sum Scale Display

2.7.3. Zero

The zero function is used for setting or resetting the terminal's initial zero reference point of the IND900. There are three types of zero:

- Auto Zero (Automatic Zero Maintenance)
- Power Up Zero
- Push Button Zero

2.7.3.1. Automatic Zero Maintenance

With the Auto Zero function (Automatic Zero Maintenance - AZM), the scale can compensate for small weight changes and re-establish the center of zero by itself. If the scale is not moving, it performs small adjustments at the current zero value within the AZM operating range (adjustable by scale type from 0.0 to 9.9 divisions) to adjust the weight display to true zero. If scale weight is outside the programmed AZM range, this function does not work.

2.7.3.2. Power Up Zero

With Power-up zero, the IND900terminal can acquire a new zero reference point when it is powered on. If motion is detected while performing the zero process during power up, the terminal continues to check for a stable (no-motion) state until zero can be set.

Power-up zero can be disabled (reset at switch-on) or enabled (restart at switch-on), and a range above and below calibrated zero can be configured. The range is programmable from 0% to 100% of the capacity and can include a positive range as well as a range below calibrated zero.

2.7.3.3. Push Button Zero

The Push button zero function (semi-automatic) can be executed by pressing the scale function key ⊙→0← ; by touching the Zero softkey ·0· ; by programming a digital input; and via a serial command.

Although it is available as a softkey, Zero ∙O∙ can also be disabled for individual scales. In this case, the softkey background will be brown, and the zero function cannot be initiated.

The range for all types of semi-automatic zero is selectable from 0% to 100% of scale capacity, with plus or minus tolerance either from the calibrated zero point (if **Power-up zero** is disabled) or from the initial zero setting point (if **Power up zero** is enabled).

2.7.4. Tare

Tare is the weight of an empty container. A tare value is deducted from the gross weight value to give the net weight value of the material without its container. The tare function can also be used to determine the net value of the material added to or removed from a package.

The tare value can be displayed together with the net weight. The operation of this secondary display is defined in setup under **Terminal I Display I Auxiliary Display**.

Figure 2-21: Tare Display

The IND900 allows the following tare types and the processes:

- Pushbutton Tare
- Tare Preset
- Table Tare
- Net Sign Correction
- Automatic taring
- Clear Tare
- Manual Clear
- Auto Clear

2.7.4.1. Pushbutton Tare

The Tare ⅛ softkey can be enabled or disabled in Setup at **Terminal I User I Admin I Softkeys**.

If enabled, the Tare ⅛ softkey can be used to initiate a semi-automatic tare determination. The terminal then attempts to perform a tare. If this process is successful, the display changes to a zero net weight value and the previous weight on the scale is stored as the tare value. The display shows the net mode, identified by **NET**.

A tare value cannot be determined if the scale is moving. If motion is detected when a pushbutton tare command is issued, the IND900 waits for stability (no motion). As soon as stability is achieved, the pushbutton tare command is executed.

2.7.4.2. PreTare

A PreTare can be entered manually via numerical entry, received from a peripheral device or called up from the tare table memory. The tare preset value may not exceed the capacity of the scale. The data entered is interpreted in such a way that it has the same units as the currently displayed value. Movement on the scale does not affect the entry of tare preset values.

The PreTare Softkey PT can be configured as enabled or disabled in Setup at **Terminal I User I Admin I Softkeys**.

To enter a tare value manually, first touch the PreTare PT softkey (or press the PreTare scale function key PT), then either enter the value via the numeric keypad or capture it directly from the weight display (Scale Setup softkey). The tare process is then executed in the same way as Pushbutton Tare, but the tare type display field will show PT to indicate that a preset tare value is in use.

The preset tare can be entered in a free format. If the value entered does not match the decimal point of the display value or the display interval, the tare value is rounded to the next display interval, and the decimal point is adjusted so that it matches the gross weight.

A tare preset value of less than 1.0 can be entered without the leading zero (to the left of the decimal point). However, when this value is later displayed, stored or printed, the leading zero will be included. For example, a preset tare entry of **.05** will displayed as **0.05**.

Tares are not additive. If a preset tare has already been defined and another preset tare value is entered, the new preset tare replaces the existing value. The replacement tare can be greater or smaller than the original tare value.

2.7.4.3.   **Tare Table**

The IND900 terminal contains a tare table for storing tare weights that can be called up by the operator so that they do not have to be entered manually for every transaction. This is helpful if certain tare values are needed repeatedly.

Each record can include a description consisting of up to 40 characters. This enables the individual tare records to be distinguished.

To select a tare memory from a list of all available records, touch the TareFix softkey.

Alternatively, a tare memory can also be called up by touching PT, then entering the tare memory ID, and touching .

A report of the records in the tare table can be printed. For more details about the tare table, refer to chapter 3, **Configuration**.

2.7.4.4.   **Automatic Tare**

The terminal can be configured so that a tare value is automatically determined (Automatic Tare) once the weight on the scale exceeds a programmed tare threshold weight. The Automatic Tare function can be configured as enabled or disabled in setup. If this function is enabled, the display changes to a zero net weight value when the weight exceeds the threshold. Auto Tare processes contain the following:

- **Tare Threshold Weight** – If the weight on the weighing platform exceeds the tare threshold weight and no motion occurs, the terminal automatically performs a tare operation.

- **Reset Threshold Weight** – The reset threshold weight must be lower than the tare threshold weight. If the weight on the weighing platform falls below the reset threshold value, which

would be the case if the item being weighed is removed, the terminal automatically resets the Auto Tare trigger.

- **Motion Check** – A motion check is possible to control the renewed triggering of the Auto Tare function. If this function is disabled, the Auto Tare trigger is reset as soon as the weight falls below the reset value. If this function is enabled, the weight must set to a state without motion below the reset threshold before the next Auto Tare can be initiated.

There are several conditions that can hinder the Automatic Tare function:

- **Motion** – No Auto Tare value can be determined if the scale is in motion. If a motion is detected after exceeding a tare threshold weight, the terminal waits for a state without motion.

- **Auto Tare disabled** – Auto Tare can be configured as enabled or disabled in setup.

2.7.4.5.   Clear Tare

Tare values can be cleared manually or automatically.

2.7.4.5.1.   Manual Clear

Tare values are manually cleared by touching the Clear Tare 🕊 softkey. A motion on the scale does not affect the manual clearing.

If the function is so configured in setup (refer to chapter 3, **Configuration**), the tare value is also cleared by touching the Zero ⊙ softkey before a zero command is issued.

2.7.4.5.2.   Auto Clear

The IND900 can be configured so that the tare value is automatically cleared when the weight returns to a value below a programmable threshold, or after a print command has been issued. After clearing the tare value, the display returns to the gross weighing mode.

Auto Clear is enabled or disabled in setup. If Auto Clear is enabled, the following parameters affect the automatic clearing process, depending on the configuration in setup:

- **Clear Threshold Weight** – This is the gross weight which causes the terminal to clear a tare value automatically when it is underrun after the terminal has settled on a value below this threshold.

- **Motion Check** – A motion check can be performed as part of the control on tare Auto Clear.

If the motion check is disabled, the tare value is cleared as soon as the weight drops below the clear threshold weight, regardless of the motion status.

If the motion check is enabled, after the clear threshold value is exceeded and the weight subsequently drops below this threshold (i.e. if a weight to be weighed is placed on the scale and then removed again) the terminal waits for a state without motion and then automatically clears the tare.

- **Clear After Print** – If this function is enabled, the tare value is automatically cleared, and the scale returns to gross mode after the data has been transferred by touching the Print 🖨 softkey.

For more information about configuring the Auto Clear process, refer to chapter 3, **Configuration**.

2.7.5. Gross Recall

The gross weight can be displayed only if a tare weight is stored.

- **Non-W&M Approval Mode** – Touch the Gross 🗑 softkey to display the gross weight. Touch the Gross softkey again to switch back to the net display.

- **W&M Approval Mode** – Touch the Gross 🗑 softkey to display the gross weight. After 5 seconds, the terminal automatically reverts to net display.

2.7.6. Changing Units

For locations and applications that use multiple units of measure, the IND900 supports changing between different units. The Unit ⟲ softkey allows switching between primary units (the main units of measure) and alternative units (primary or secondary units). Depending on the available second unit, the Unit softkey may also show a different symbol, e.g. (kg), (g) or (lb). For more detailed information, refer to chapter 3, **Configuration**.

If the Unit ⟲ softkey is touched, the display changes from the primary unit to the secondary unit, and the ⭐ symbol appears. The secondary unit can be a standard unit of measure or a user-defined unit. User-specific conversions allow the individual definition of a division factor, a designation of the secondary unit, and the unit of increment. An international standard unit of measure should not be used as a conversion factor.

When changing between two units, the unit value changes to that of the selected unit and the displayed value is converted accordingly. The graduation mark display changes to a corresponding weight value in the new unit (e.g. from 0.02 kg to 0.01 kg) and the decimal character is adjusted according to the conversion.

Figure 2-22 shows the home screen with the primary unit kg.
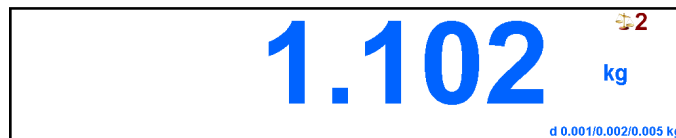
Figure 2-22: Weight Display in Primary Units

Figure 2-23 shows the home screen after touching the Unit ⟲ softkey. The gross weight is now displayed in pounds (lb).
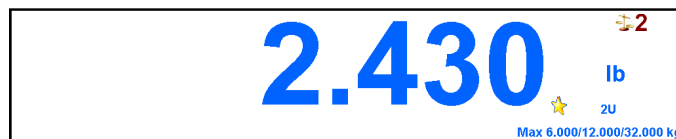
Figure 2-23: Home Screen Displaying Secondary Unit

2.7.7. IDNet Class II

If the capacity and increment of an IDNet weighing platform with approval class II is configured accordingly, the terminal shows a weight value whose last digit is displayed in a smaller font.

Figure 2-24: Weight Display for Calibration Class II IDNet Weighing Platform

In this case, a demand print of the weight data is identified by an asterisk (✳) to indicate the special configuration according to approval class II. For example:

Gross: ✳2.7678 kg

Tare: ✳1.7193 kg T

Net: ✳1.0485 kg

2.7.8. Resolution

The Resolution x10 softkey is used to increase the selected weight display resolution by one additional digit. A weight display of **40.96** could be expanded by one additional digit, so that **40.95**8 is displayed. If the Resolution x10 softkey is touched again, the display returns to the regular weight display.

If the terminal is in W&M Approval Mode (the 🏋️ display symbol is displayed), the higher resolution weight value is displayed only as long as softkey is pressed, after releasing display automatically returns to the regular weight display. Printing is not possible while the higher resolution weight value is displayed.

If an IDNet scale is configured according to approval class II (🏋️ and ⅠⅠ symbols are displayed), the Resolution x10 function is not available.

2.7.9. Printing

The print function (Demand Print) can be initiated by touching the Print 🖨️ softkey or by initiating the printout via the automatic print function. The demand print of data can also be initiated as part of a number of operating processes or from within an application software package. The 🖨️ symbol is displayed on the status bar while the terminal executes a requested print command.

2.7.9.1. Print Interlock

The Print Interlock function causes print outputs to be performed only once for each transaction. The print interlock can be enabled or disabled.

If this function is enabled, the print command is ignored until the determined gross weight exceeds the print interlock threshold. After executing the first print command, subsequent print commands are ignored until the gross weight display drops below print interlock reset threshold. If a print command is blocked by the print interlock, the error message **2nd Print Prohibited** is displayed.

A demand print is initiated automatically if the gross weight exceeds the minimum threshold weight and no motion occurs on the scale. After the print process is initiated, the gross weight must return below the reset threshold before another automatic print process can occur.

2.7.9.3. Repeat Print

The Repeat 🖨️ softkey generates another output of the most recent demand print. The header includes **DUPLICATE** to distinguish the repeat print from the original printout.

2.7.10. Identifications

The terminal features six identification data memories for storing and printing identification data **A** through **F**. The memories feature a designation – for example, an item number – and content that identifies the current weighing.

The ID memories are designated in setup, and the designation appears after touching an Ident softkey on the display:

1. Touch one of the softkeys, Ident A 📄 … Ident F 📄 .

2. Enter the identification data and confirm by touching ✔️ .

3. Depending on the how the terminal is configured in setup, a data string is sent to the configured interface either immediately or once the scale is stable.

Identification data can also be entered via a barcode or RFID reader.

It is also possible to recall predefined messages from the Message Table: enter the message ID number (for example "123") in the alphanumeric user dialog, then touch the softkey 🔢 to recall the predefined message.

To delete identification, touch the 🗑️ key during the entry.

2.7.11. MinWeigh®

Certain branches of industry, such as the pharmaceutical and food industries, demand a guarantee that the weighing equipment selected for a certain weighing function is suitable for the task. One method to ensure this is to define and monitor a minimum weighing value (MinWeigh®) under which certain weighing equipment may not be used.

If the MinWeigh function is enabled, the MinWeigh 🥫 softkey allows the modification of the MinWeigh value without entering setup.

The IND900 compares the current net weight with the programmed MinWeigh value. If the net weight is greater than or equal to the MinWeigh value, all device functions behave normally. However, if the absolute value of the net weight is less than the MinWeigh value, the weight window displays a flashing 🥫 symbol. In addition, the net weight value is highlighted in a special color. If the user attempts to record the weight in this condition, the printout includes an asterisk (✳).

MinWeigh configuration is detailed in chapter 3, **Configuration**.

2.7.12.   Recalling Terminal Information

Touch the Info ⓘ softkey to display up the Info menu.

Figure 2-25: Information Menu

With the softkey Print 🖨 it is possible to print a summary of the info data.

Touching one of the specific elements (see the following table) allows to access information about this topic and also to print out this specific information with the softkey Print 🖨.

🔹 To enable a printout you must setup a connection using the assignment "Reports" in Setup\Communication\Connections.

Touch the softkey ✅ to close the Info menu.

Table 2-4: Information Menu Topics

Symbol	Label	Explanation
	Weight	Displays the ID and the current gross, tare and net weight values of each scale.
	System	Displays system information, incl. model name, serial number, Terminal IDs or the date on which the device was last powered up.
	Metrology	Displays the calibration-relevant information. Refer to **Recalling Calibration-Relevant Information**. In this case, either the 🖋 symbol (W&M Approval Mode is enabled and functions properly) or the flashing ⚠ symbol (W&M Approval Mode is enabled, but faulty) appears.

Symbol	Label	Explanation
	Terminal	Displays information about the terminal, such as its type and the versions of installed software. For example: **Terminal Info** Type — IND930 Serial Number — B704623601 BIOS Version — --- CE Image Version — v1.1.11(core license)/2014-04-03 BootService — v1.1.3 (Build 22 Aug 16) SystemServices — v1.3.5a (Build 30 Jan 17) ScaleServer — v1.3.5a CommServer — v1.3.5a IND930API — v1.3.5a Logged in user — Admin Dongle — Not Installed
	Scale	Displays details about the connected scale/s. For example: **Scale Info** Total Scales — 1 Scale Mode — Serial Scale 1 — Analog-Scale Serial Number — 1000000001 Platform Software Version — 2.0.0 Ident Code — 330 Approved — No Verification Interval — e=d Max Weight — 100.00 kg Min Load — 0.02 kg Second Unit — None Range Type — SingleRange Range 1 — 100.00 x 0.01 kg
	Communication	Displays information about interface modules installed in the terminal, such as: **Communication Info** X1 Interface available — Yes Hardware — Analog-Scale Version — V1.1.4 Device — Default Settings — 9600,None,8,1 X2 Interface available — Yes Hardware — IDNet-Scale Version — V1.1.4 Device — Default Settings — 9600,Even,7,2

2.7.13. Recalling Calibration-Relevant Information

In W&M Approval Mode, the symbol 🖾 appears for correct W&M Approval Mode and the symbol ⚠ (flashing) for faulty W&M Approval Mode. Touch these symbols to call up details about the W&M Approval Mode – see Figure 2-26 and Figure 2-27. The version states of the calibration-

relevant software components ScaleServer and ScaleLock can be checked. For BootService, it is also possible to compare the checksum with the entry in the verification approval.

In addition, it is possible to display the logbook on the updates of the ScaleServer, to list or print out the entries of the alibi memory or – in the case of IDNet scales – to start the calibration test.
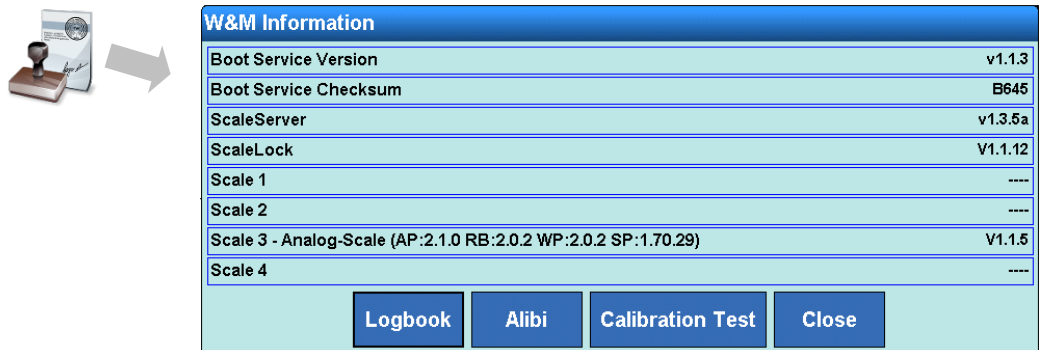
If the W&M Approval Mode is faulty, the cause is referenced.

Figure 2-26: Calibration-Relevant Information with Correct W&M Approval Mode
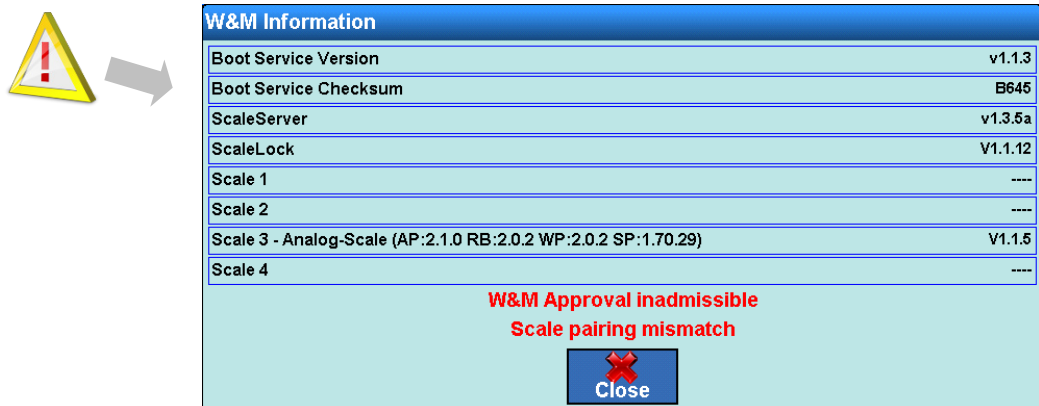
Figure 2-27: Calibration-Relevant Information with Faulty W&M Approval Mode

2.7.14. DeltaTrac

DeltaTrac is configured in setup, and is a graphical representation of the displayed gross or net weight. The type of representation can be a bar chart, a display showing above and below or a control function. A DeltaTrac display is possible under the following conditions:

- A target value as well as a bottom and top tolerance must be defined and selected.

- A suitable DeltaTrac display mode must be selected under **Setup | Terminal | Display | DeltaTrac**.

Details about these settings can be found in chapter 3, **Configuration**.

2.7.14.1. Display colors

The following conventions apply to the DeltaTrac of the IND900 terminal:

- **Red** – above tolerance
- **Green** – within the tolerance
- **Blue** – below tolerance
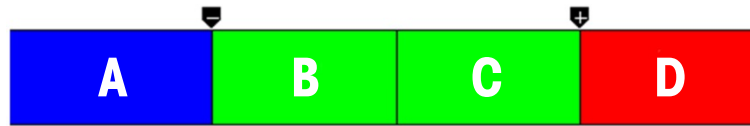
Figure 2-28: DeltaTrac Zones and Colors

2.7.14.2. **Filling Mode – Bar Chart**

In Filling mode, DeltaTrac facilitates weighing to a target weight with tolerance control.

Target weight not yet reached

Weight within tolerance

Exact target weight reached

Weight above tolerance
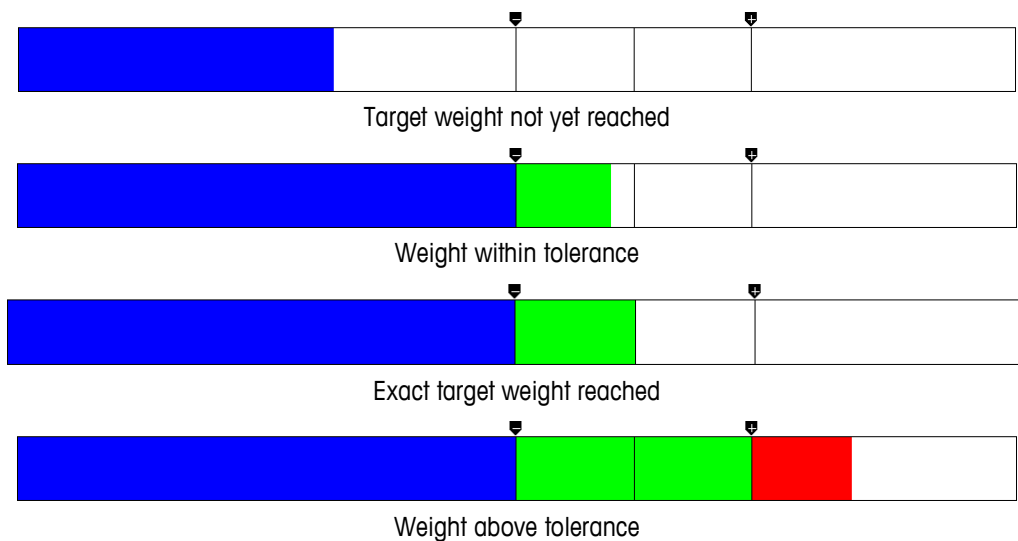
Figure 2-29: DeltaTrac Displays in Filling Mode

2.7.14.2.1. Below Tolerance

The "below tolerance" zone is identified with **A** in Figure 2-28; it represents the weight of material between 0% of the target and the target minus the negative tolerance value.

2.7.14.2.2. Acceptable Tolerance Below Target Value

Zone **B** in Figure 2-28 represents the range of acceptable tolerance below the target. In this case, the speed of the bar is faster than in the zones **A** and **D**, depending on the relationship of tolerance to target weight.

2.7.14.2.3. Target Reached

If the measured value perfectly matches the target value, zone **B** is completely filled and zone **C** is completely empty.

2.7.14.2.4. Acceptable Tolerance Above Target Value

Zone **C** in Figure 2-28 represents the range of acceptable tolerance above the target. In this case, the rate of change of the bar is typically faster than in the zones **A** and **D**, depending on the relationship of tolerance to target weight.

2.7.14.2.5. Above Tolerance

Zone **D** in Figure 2-28 represents the range of unacceptable tolerance above the target. If the measured value is so high that the number of dot columns required for the display exceeds the available number, then the display is saturated. Additional increases to the measured value will no longer affect the graphical display.

2.7.14.3. Classify Mode (Over/Under Mode)

The Classify mode facilitates assessing samples as 'Good', 'Too light' or 'Too heavy' with reference to a target weight and specified tolerances.

Too light – Weight below tolerance limit

Good – Weight within tolerance

Too heavy – Weight above tolerance limit:

Figure 2-30: DeltaTrac Displays in Classify Mode

2.7.14.4. Control Mode

Control mode is used to determine the difference between target and actual weight.

Delta: -0.220 kg

Weight below tolerance limit, difference: -0.220 kg

Delta: 0.047 kg

Weight within tolerance, difference: 0.047 kg

Delta: 0.257 kg

Weight above tolerance limit, difference: 0.257 kg
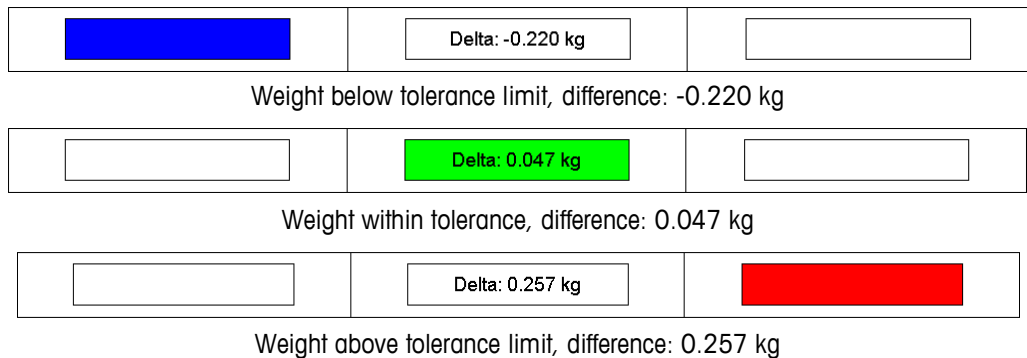
Figure 2-31: DeltaTrac Displays in Control Mode

2.7.14.5. Specifying DeltaTrac Target Weights

To enter DeltaTrack values numerically:

1. Touch the Delta 🔲 softkey. The keypad shown in Figure 2-32 will display.

Figure 2-32: Target and Tolerance Weight Entry Keypad

2. Enter the target weight and confirm with ✅

3. Enter lower tolerance and confirm with ✅

4. Enter top tolerance and confirm with ✅

■ Touch the Change Units key to select a different weight unit or % for the entry of values.

■ When entering the target weight, touch the key for accepting the weight value 🔺 to directly accept the weight of a placed reference sample.

2.7.14.6. **Accepting DeltaTrac Target Weight Fixed Values**

The IND900 weighing terminal features target weight ROMs for frequently used target values and tolerances that are programmed in setup and can be recalled directly:

1. Touch the DeltaFix 🔲 softkey.

2. Select target from the table and activate with ✅

Alternatively, a target weight ROM can also be called up with the key combination 🔲, entry of the target weight ID and confirming ≡ .

2.7.15. Time and Date

Time and date are used for creating reports, for time stamps for error and transaction logs and for initiating service events. Time and date are displayed at the top right on the status bar if this is configured accordingly in setup.

Touching the Date&Time 📅 softkey calls up the menu for setting time and date, including hours, day, month and year. When the time is set, the seconds are set to 0.

Although the format for time and date is selectable in setup according to the local usage, the format of the time stamp in log files cannot be changed. They are always defined as follows:

- **Date**: YYYY/MM/DD (e.g. 20 July 2013 is the date 2013/07/20 in the fixed format)

- **Time**: HH:MM:SS using the 24-hour format (e.g. 10:01:22 PM is the time 22:01:22 in the fixed format).

2.7.16. Reports

The Reports ✍ softkey must be available and a corresponding interface connection must be configured so that table reports can be created directly by the user; otherwise, table reports can be created only from within setup. Touch the Reports ✍ softkey to display a list (Figure 2-33) of database tables available for printing. After selecting a database table, the corresponding table report is transmitted.

Select table to print

- Message Table
- Alibi Memory
- Tare Values
- Targets
- Strings Table
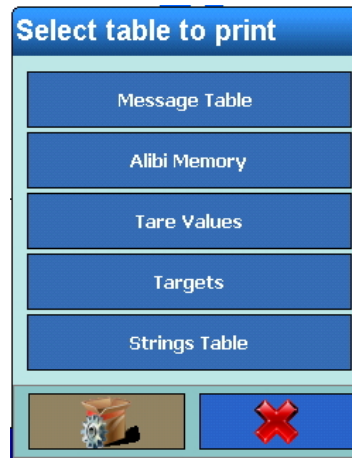
Figure 2-33: Table Report Selection Dialog

2.8.   Direct Access to Alibi Memory

Alibi memory makes it possible meet the legal obligation for recording data for legal applications without the need to archive paper documents.

The alibi memory automatically assigns a consecutive transaction counter value to each weighment. This counter value appears on the printout, together with the gross, net and tare weights, date and time of each transaction, and additional data depending on the configuration in setup.

Alibi memory entries are made, for example, following the interface commands "S", "SX" and "SR" (as soon as the weight value is constant), or after initiating calibration-relevant printouts (Print 🖨 softkey), or after the automatic transmission of the resting weight value to external devices.

The alibi memory can be displayed in different ways:

- Touch the Alibi 📑 softkey, if configured.
- With correct W&M Approval Mode, touch the 📖 symbol.
- If authorized, select **Setup I Application I Memory I Alibi**.

To search for specific entries in the alibi memory, refer to chapter 3, **Configuration**.

2.9. Browsing Tables

Search processes in a table can be initiated in different ways – by using the softkeys TareFix ▤ , DeltaFix ▥ and Alibi ▥ , or from within setup.

2.9.1. Method

To browse a table:

1. Touch one of these softkeys: ▤ , ▥ or ▥ .

2. Touch the Search ◎ softkey.

3. Fill out the search fields. Start on the left side with the Name field, where the fields Date or User Data can be selected.

4. Use the **Operator** search field to select how the data should be restricted. Table 2-5 lists the options of this search field.

Table 2-5: Operators for Table Searches

Symbol	Comparison		Symbol	Comparison
<	Less than		<>	Not equal
<=	Less than or equal to		>=	Greater than or equal to
=	Equal (default)		>	Greater than

5. Next, enter the desired value in the **Value** search field.

6. With the search query populated with information, touch the **Check** key to confirm that the entered information is valid (Figure 2-34).
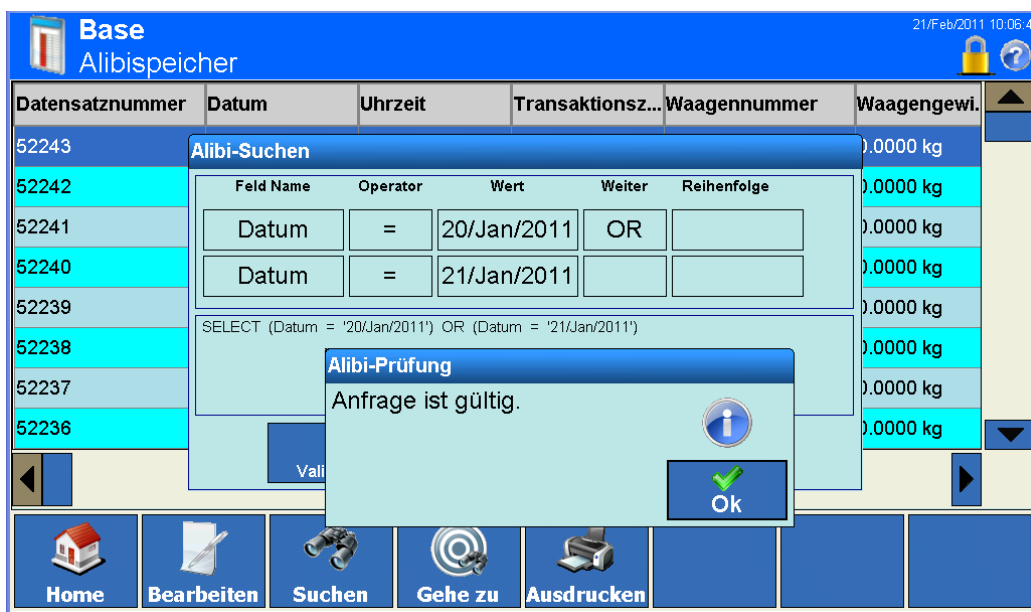
Figure 2-34: Checking the Search Query

7. To narrow the results further, select a logical operator for the second search line. Enter the field name, operator and value as before.

8. In the **Order** field, select the sort order – either **Ascending** or **Descending**.

9. Finish the search query by touching ✔. Records matching the search query are displayed in the sort order selected.

10. A report of the selected data can be printed by touching the Print 🖨 softkey.

11. The Edit ✎ softkey can also be used to edit the user data of a record.

2.10. Dynamic weighing

The Dynamic 🐂 softkey can be used to weigh unsteady weights such as live animals. The number of weighing cycles to use when determining the weight value can be defined in the application's setup menu. The result for each weighment can be configured to be sent to a printer or host. Dynamic Weighing can also be started with an interface command.

1. Place the container on the weighing platform.

2. Tare the weighing platform.

3. Add the weighing sample to the container.

4. Start dynamic weighing with the Dynamic 🐂 softkey.

5. At the end of the cycle time, the display shows:

   Result   x.xxx kg

2.11. Starting an Application

Depending on the use, the IND900 can be equipped with a customer-specific or a standardized functional application. Unless it has already been done, this must first be enabled and then configured as required.

2.11.1. Customer-Specific Application
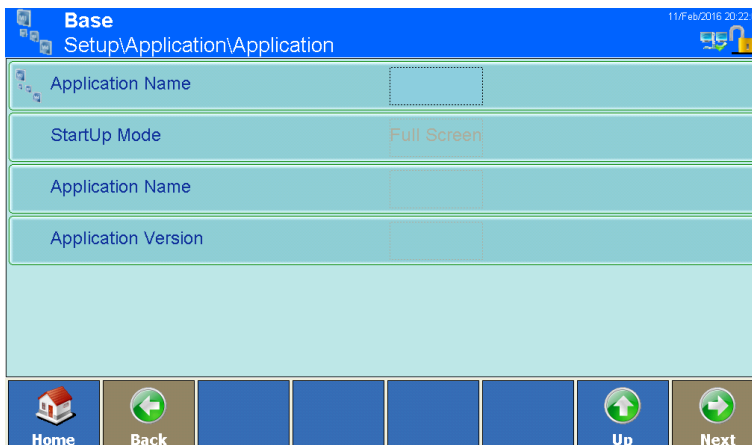
Figure 2-35: Application Menu Displaying Options for Customer-Specific Application

The customer-specific application is selected in Setup at **Application | Application | Application name**, and must be an **.exe** (executable) file.

The **Startup Mode** is always windowed and thus depends on the setting that was made in Setup at **Terminal | Application mode**. **Load type** is always **Automatic**, which means the selected.EXE – file is automatically started during the boot operation. Refer to the customer-specific application's documentation for further details.

2.11.2. Standardized Application (PAC)

The standardized application is selected in setup at **Application | Application | Application name** (Figure 2-36) and must consist of a **.dll** file.
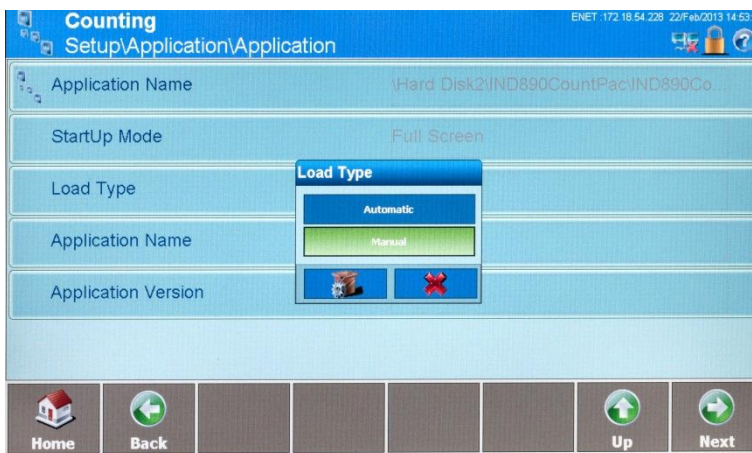
Figure 2-36: Application Menu Displaying Options for a Standard Application PAC

By default, **Startup mode** is always **Windowed**. However, standard applications run fully integrated into the base application so, as a rule, setting the **Application mode** to **Full screen** is recommended. After the **.dll** file has been selected for the first time, the **Application name** (e.g., **Counting**) and **Application version** (e.g., 1.0.1a) are displayed. In addition, a special setup option appears at **Setup | Application**. In Figure 2-37, the Counting PAC is installed and its application-specific setup options can be accessed by touching its icon at lower left.

Figure 2-37: Application Setup Screen Showing Application PAC Icon

The standard application's variables, I/O settings, special softkeys, etc., are now available in the various Setup menus. Refer to the application's **User's Guide** for details on these settings.

2.12. Basic Totalizing

Since version V1.3.3, terminal has been equipped with a basic totalizing functionality.

To activate totalizing, follow chapter 2.11.2 and select TotalizationPac.dll in **Setup | Application | Application**:
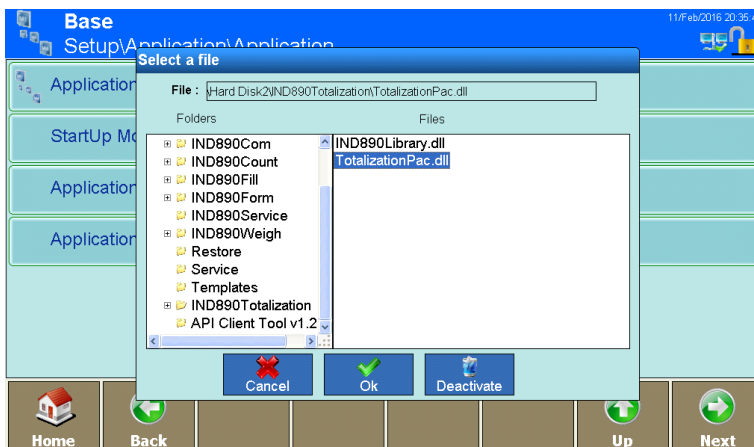
Figure 2-38: Activation of the basic totalizing function

After leaving Setup, a number of totalizing specific Softkeys will be available,

Figure 2-39: totalizing specific Softkeys

These softkeys have the following functionality:

Softkey	Function
	The **Plus** Softkey is pressed to totalize items.
	Totalize manual weight values with the **Manual** Softkey.
	Remove last item from the total by pressing the **Cancel** Softkey.
	Display and print out the total with the **Sum** Softkey.
	Enter the target value for the total after pressing the **Target** Softkey.
	Enter a start and end value for the item counter with the **Item** Softkey.
	Often needed is an article name which can be entered with an **Ident** Softkey.

2.12.1. Procedure

1. Place an item on the scale. If the weight exceeds the minimum deflection specified in Setup, the "+" sign appears behind the concurrent total.

Figure 2-40: Active total indicated when scale is loaded

2. Press Plus Softkey ⊕. The item is added to the total and transferred to the printer/PC.

3. Totalize further items. The item counter and the transaction number are both increased by 1.

2.12.2. Printing the Total and Finalising

1. Press the Sum Softkey ∑. The total is displayed and printed out.
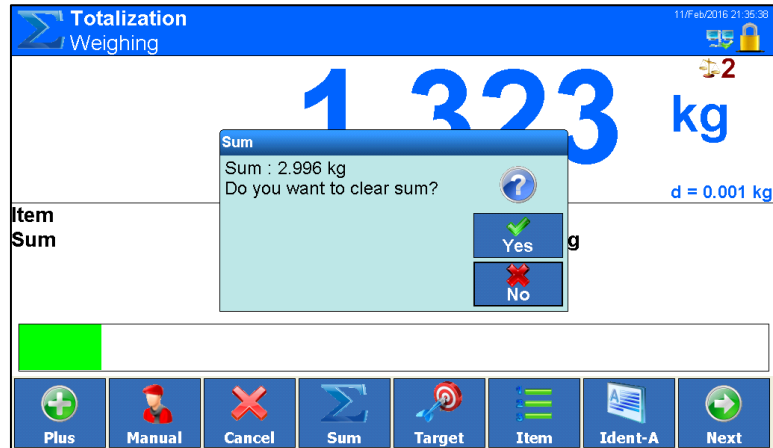
Figure 2-41: display of total with user query

2. In order to continue with totalizing, press the [Yes] key. The total is displayed and printed out, or, to clear the sum, press the [No] key. The item counter is reset to the start value.

2.12.3. Manual Entry

In order to add known weights to the total process as follows:

1. Unload the scale and press the Manual Softkey 🔴.

2. Enter the weight and use the [✓] key to add to the total.

2.12.4. Totalizing to a Target Value

If a target is entered, the 'Target reached' message is displayed when this weight value is reached.

1. Press the Target Softkey 🎯.

2. Enter the target weight and confirm with [✓]. The Deltatrac appears with the target weight loaded.

3. Totalize the items.

4. When the 'Target reached' message is displayed, finalize the total.

To abort totalizing to target value, press the Target Softkey 🎯, enter '0' and confirm with [✓]. If items are already totalized, you first must clear the sum.

2.12.5. Totalizing with an Item Counter

The start and end value of the item counter can be specified between 1 and 9999.

1. Press the Item Softkey ☰.

2. Enter the start value and confirm with ✔.

3. Enter the end value and confirm with ✔.

4. Totalize the items.

5. When the 'Target reached' message is displayed, finalize the total.

2.12.6. Cancelling an Item

The last added item can be removed from the total.

Press the Cancel Softkey ✖. The last item is removed from the total and the item counter is reduced by 1.

■ Do not set Scale Mode to Parallel if using totalizing functionality.

3   Configuration

This chapter covers

- Entering and exiting setup
- Main setup screen
- Scale Configuration
- Application Configuration
- Terminal Configuration
- Communications Configuration
- Maintenance Configuration

To protect the IND900's configuration settings, users can be assigned different access rights.

In the terminal's default configuration (i.e. no passwords set up), all setup windows can be accessed, parameters changed and data entered.

More information about security and setting up users and passwords can be found in the **Security** section of chapter 2, **Operation**.

3.1.   Entering and Exiting Setup

To enter setup, touch the Setup softkey 🐝.

If setup has been password protected, the alphanumeric dialog shown in Figure 3-1 appears. Enter the user name, touch the OK ✅ softkey, then enter the correct password.
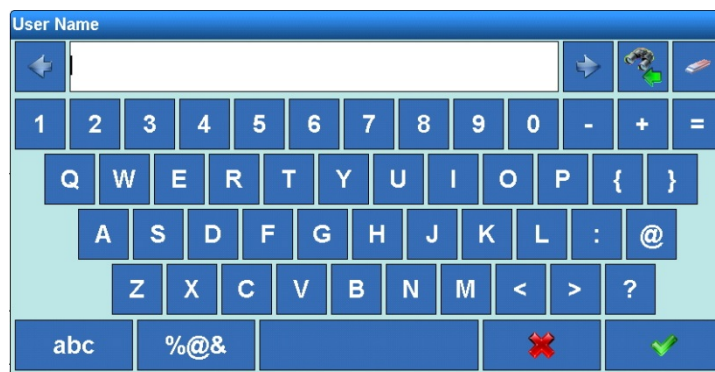
Figure 3-1: Alphanumeric Entry Dialog

Once the name and password input is complete, the dialog shown in Figure 3-2 appears.

🔹 The user name is not case-sensitive ("BROWN" is identical with "brown").

🔹 The password is case-sensitive ("BROWN" is not identical with "brown").

Figure 3-2: Login Confirmation Dialog

Touch either field to correct an entry.

Touch the the OK ✅ softkey to perform the login, or the Exit/Cancel ❌ softkey to cancel it.

After a successful login, the main setup screen (Figure 3-3) displays.
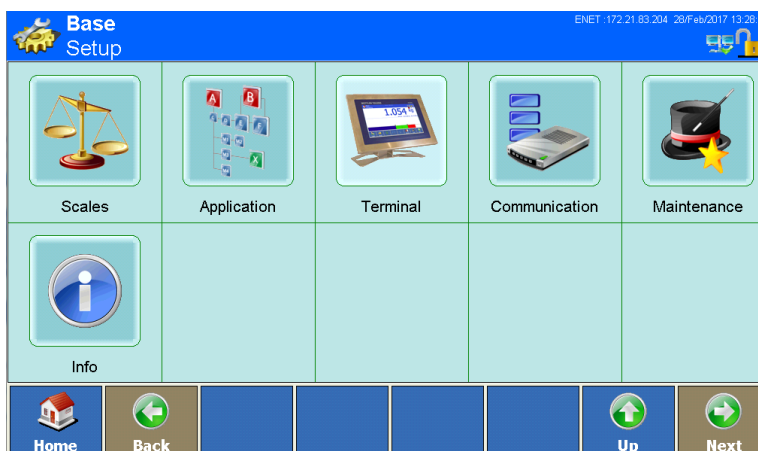
Figure 3-3: Main Setup Screen

To exit setup, touch the Home 🏠 softkey. The home screen will display.

3.2. Main Setup Screen

The main Setup screen shows the available submenus, each of which can contain further submenus. The various setup screens allow data to be accessed and parameters viewed, input or changed, to customize the terminal's functions as required.

Scale — Configure connected scales, and a sum scale.

Application — Configure settings for a standard application, or for a customer-specific application.

Terminal — Configure settings for the terminal itself, such as display and user settings.

	Communication	Configure built-in interfaces, network settings and printouts.
	Maintenance	Primarily reserved for METTLER TOLEDO Service engineers. Run tests and diagnostics, perform data backups, and restore data from a backup.
	Info	Recalls information; refer to section 2.7.12, **Recalling Terminal Information.**

3.3.   Scale Configuration

▪ If the W&M switch is in the "Approved" position, access to the Scales submenu is not permitted. The Scales softkey ⚖ cannot then be touched.

▪ After changing parameters in the Scales menu we recommend a restart of the terminal.

The Scales screens allow all connected scales to be configured, as well as a sum scale. W&M Approval Mode can also be enabled or disabled here.

Please note that many of the menu items listed here are available only if the user is logged in as the administrator.

Figure 3-4: Scales Setup Screen

3.3.1. Scales 1 to 4

The following menu items are available for the individual scales:
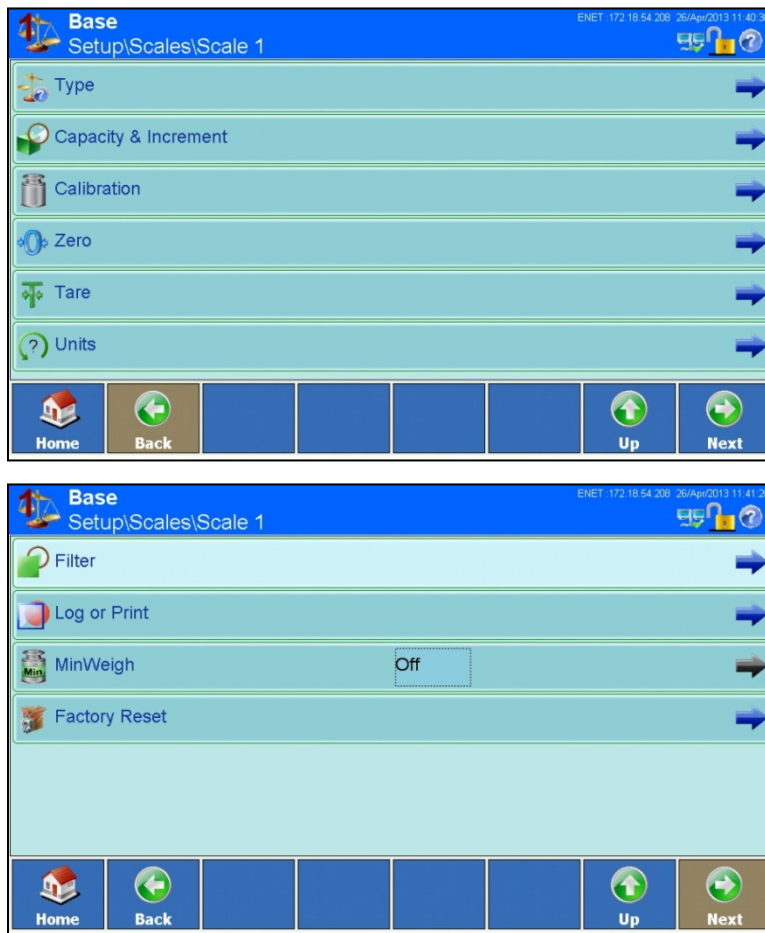
Figure 3-5: Scales Setup Parameters

Not all parameters may be available for all scale types. For example, options vary for analog scales, IDNet scales, SICS scales and SICSpro scales.

3.3.1.1. Type

From the **Type** menu, the scale can be assigned a name and serial number, and approval type selected and class set.

Figure 3-6: Scale Type Setup Screen

Name	The Name field allows the assignment of a name which reflects the function of the connected scale, such as Goods Receiving.
Scale Type	The scale type that is connected to the terminal is automatically recognized when it is switched on, and displayed in the menu item. The following types are currently available:

- IDNet scale
- Analog scale
- SICS scale
- SICSpro scale (these will show the type directly)

Serial Number	If no serial number is displayed, the serial number of the weighing platform can be entered by touching this field to open the dialog shown in Figure 3-7. For IDNet platforms, SICS scales and SICSpro scales this must be consistent with the type of scale that was entered in Service mode.

Only letters (a-z, A-Z) and numbers (0-9) allowed.
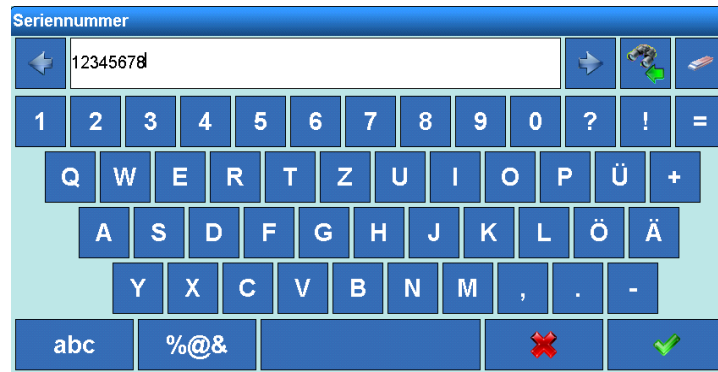
Figure 3-7: Serial Number Entry Dialog

Approval   Permits configuration of the approval regulations governing the scale's use. Touch the Approval row to open the Approval selection dialog. The one shown in Figure 3-8 is for an analog scale.

For IDNet weighing platforms, SICS and SICSpro scales, the type of approval can be set only if the weighing platform itself has also been set to W&M APPROVAL in Service mode

Figure 3-8: Scale Approval Selection Dialog

Approval Class   The selection chosen from the Approval class selection dialog (Figure 3-9) determines the approval class under which the scale is to work.

The approval class marked with asterisks (***class***) is the recommended setting.

For SICS, SICSpro scales and IDNet scales the approval class set in the scale is displayed. This can be changed only in the respective scale itself.

Figure 3-9: Approval Class Selection Dialog

3.3.1.2.   Capacity and Increment

The Capacity & Increment setup menu is used to make various weighing-specific settings.

For IDNet scales, the parameters set in the scales are displayed and changes must be made under the Service mode menu item.

For SICS scales, the set parameters are displayed, and changes can be made only on the respective scale itself.

For SICSpro scales, the set parameters are not displayed. They can be displayed and set in Advanced Setup Mode (ASM).

For older analog scales without Advanced Setup Mode (ASM) the eight parameters shown in Figure 3-10 can be set.

Figure 3-10: Capacity and Increment Options for Analog Scales without ASM

Verification Interval   Select e=1 d or e=10d for the verification interval
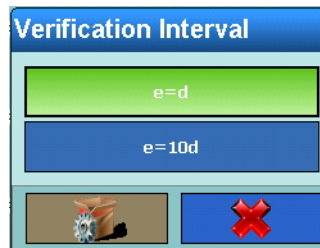
Figure 3-11: Verification Interval Selection Dialog

Min Load   The terminal calculates the correct minimum load for approval, based on the approval and the approval class settings made under the **Type** menu.

If no value is proposed, the necessary value for the selected approval can be input

manually (Figure 3-12).

Figure 3-12: Minimum Load Entry Dialog

Primary Unit   The primary unit of measure is selected from the dialog shown in Figure 3-13.

Figure 3-13: Primary Unit Selection Dialog

Range Type   Range types are **Single**, **MultiRange** and MultiInterval.
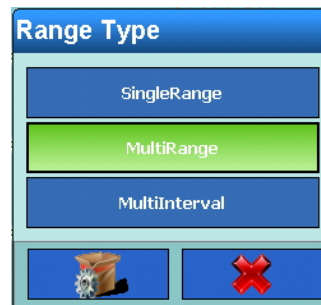
Figure 3-14: Range Type Selection Dialog

# of Ranges   When **Range Type** is **MultiRange** or **MultiInterval**, the number of ranges can be set from 1 to 3.

Figure 3-15: Number of Ranges Selection Dialog

Range 1

Range 2   For each range, enter a capacity and then an increment.

Range 3

Figure 3-16: Range Capacity and Increment Setting Dialogs

3.3.1.3. Service Mode IDNet

For IDNet scales, all the above settings can be configured on the respective scale in Service mode.
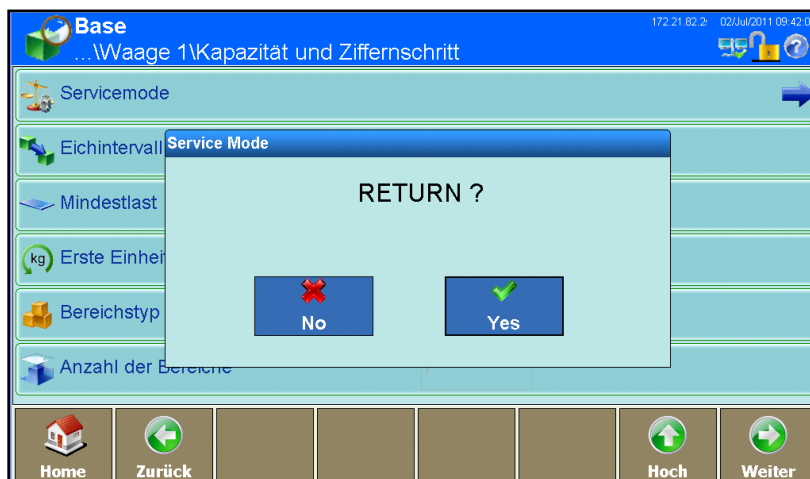
Figure 3-17: Service Mode Menu

Refer to the **Service Manual** of the connected METTLER TOLEDO weighing platform for more detailed information on individual menu items in Service Mode.

When the last menu item, **Save Parameters**, is selected the data is saved in the weighing platform. Touch ✔ in the **Return** dialog (Figure 3-17) to return to the IND900 setup menus.

3.3.1.4. Service Mode SICSpro

For SICSpro scales, all the above settings can be configured in Advanced Setup Mode (ASM) on the respective scale.

The IND900 does automatically detects whether a scale supports ASM.

Figure 3-1: Entering the Advanced Setup Mode (ASM)
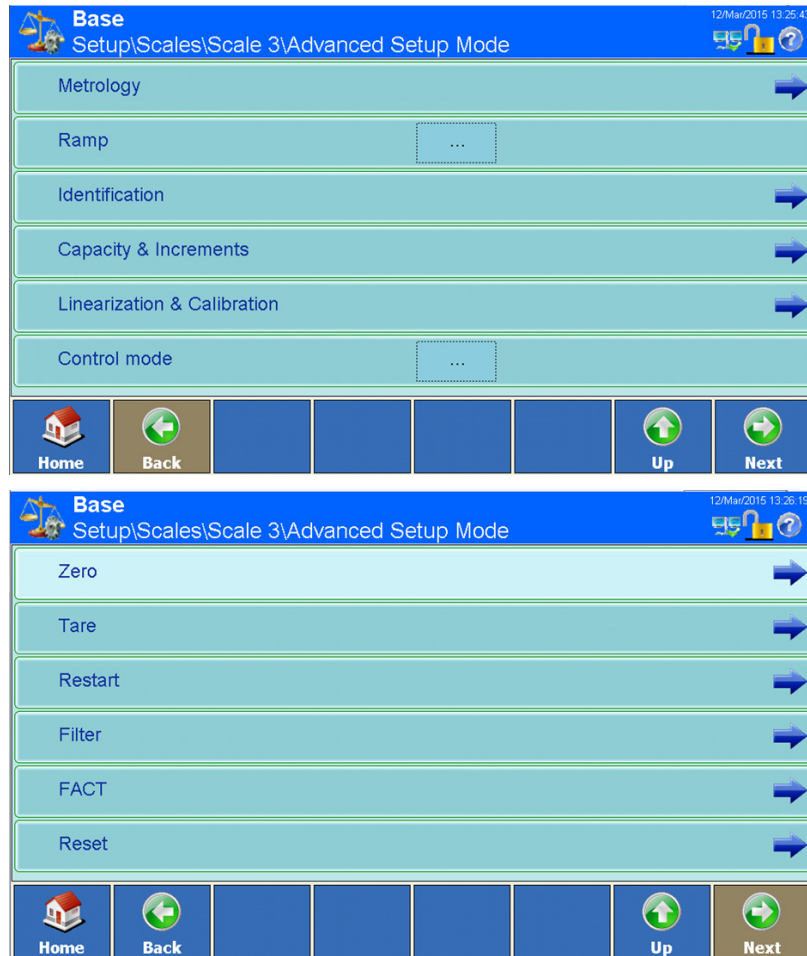
Figure 3-2: Menu of the Advanced Setup Mode (ASM)

3.3.1.5. Calibration

The calibration screen appears for analog and SICS scales without Advanced Setup Mode (ASM).

IDNet scales must be calibrated in the Service mode of the respective scale.

SICSpro scales must be calibrated in the ASM of the respective scale.

3.3.1.5.1.   Calibration of analog scales without ASM

Analog scale parameters include Geo code, calibration unit, linearity adjustment and the test weights. Once these items are configured, the calibration process can be started.
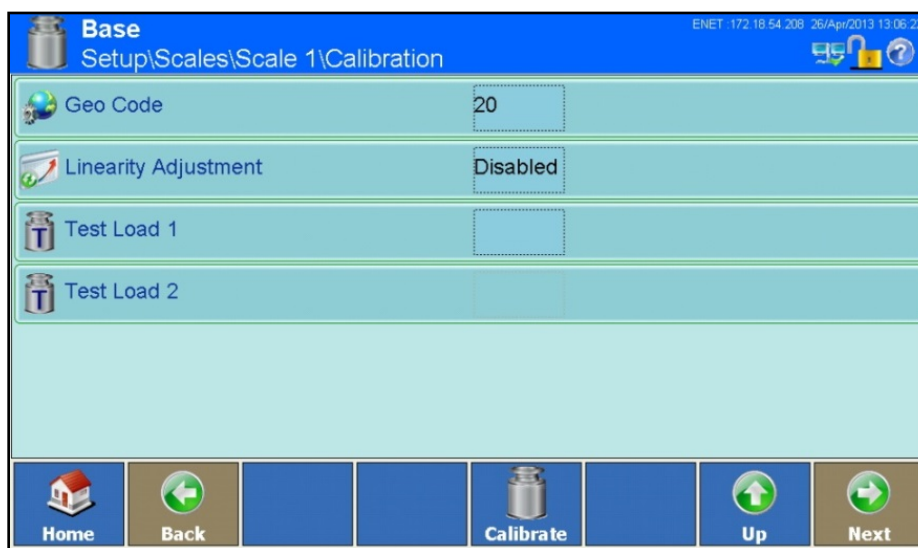
Figure 3-18: Scale Calibration Screen

GEO Code   Enter the appropriate Geo code (a value from 0 to 31) for the current geographical location of the scale. Refer to appendix C, **Geo Codes**.

Figure 3-19: Geo Code Setting Screen

Linearity Adjustment   Linearity can be either **Disabled** or **3 Point**.

Disabled: Calibration is performed without linearity adjustment, and the zero point and the test weight 1 are used for calibration.

3 Point: A linearity adjustment is performed in addition to the calibration, using the zero point, test weight 1 and test weight 2.

Test Load 1   Set the weight of each of the two test weights used in the **Linearity Adjustment**
Test Load 2   procedure.

Figure 3-20: Test Weight Setting Dialogs

3.3.1.5.2.   Performing Calibration

Touch the Calibration softkey 🏋 to start the calibration. A confirmation dialog will appear. Touch **Yes** to continue, or **No** to cancel the calibration.
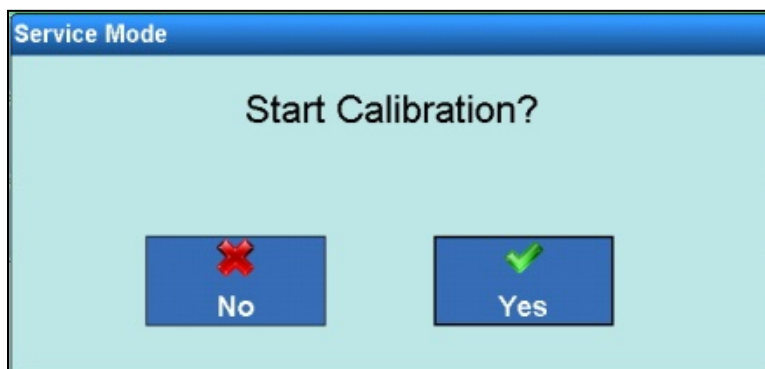
Figure 3-21: Calibration Confirmation Dialog

Once the start of calibration is confirmed, the terminal prompts for zero weight so that the zero point can be registered. Confirm that the scale is unloaded by touching the Yes ✔ softkey.
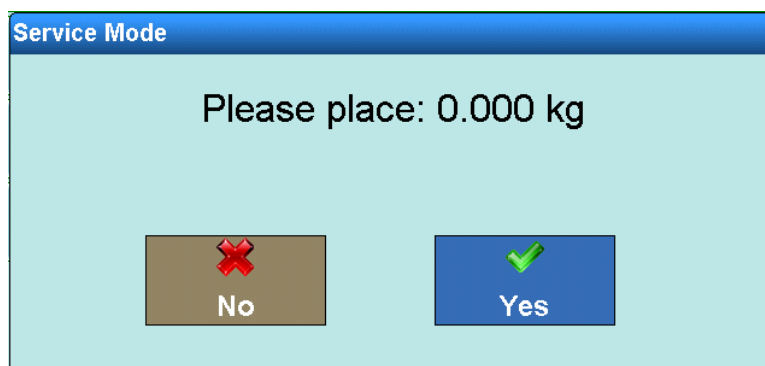
Figure 3-22: Empty Scale Confirmation Dialog

Next, the terminal displays a dialog requesting **Test Load 1** to be placed on the scale. The dialog displays the weight value assigned to this weight during calibration configuration. Touch the Yes

softkey. Once the terminal has registered the first test load, if **Linearity Adjustment** is enabled another prompt will request that **Test Load 2** be placed on the scale. Place the weight and touch the Yes ✔ softkey to confirm.

Service Mode

Bitte auflegen: 15.00 kg

❌ No   ✔ Yes
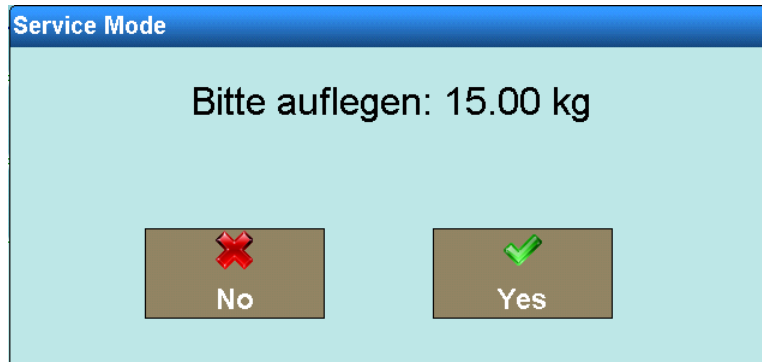
Figure 3-23: Test Load Request Dialog

Finally, the terminal displays a message asking that the load be removed from the scale.

Service Mode

Calibration Success. Restarting Scale...

❌ Cancel
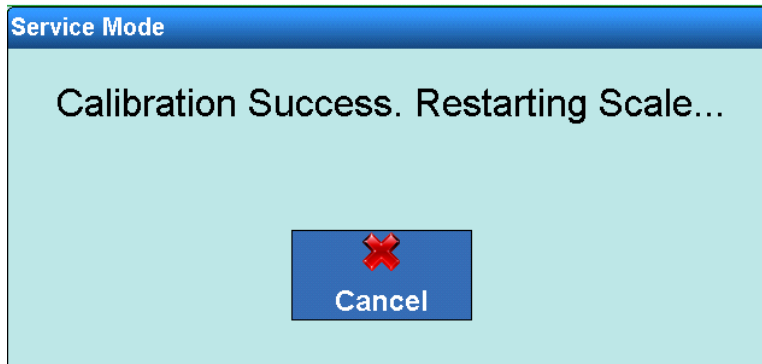
Figure 3-24: Calibration Success Confirmation Message

If the linearity adjustment and calibration were successful, a confirmation message is displayed.

Otherwise, the Calibration Error failure message is displayed. Please repeat the entire procedure from the beginning. If the calibration fails a second time, contact METTLER TOLEDO Service.

If a problem occurs during calibration and the process stalls, the scale will restart automatically after 30 seconds.

3.3.1.5.3.   Calibration of SICS scales without ASM

The settings listed below can be made for SICS scales without ASM under the Calibration menu item. If the SICS scale does not offer a menu at this point, the settings must be made on the scale itself.

Figure 3-25: SICS Scale Calibration Screen

Calibration Mode

Calibration Mode determines whether the calibration should be started manually or automatically. If **Automatic**, the calibration conditions set in the SICS scale will be used. Any changes must be made them directly in the SICS scale.

Figure 3-26: Calibration Mode Selection Dialog

Internal/External Calibration Weight

This sbetting determines whether the calibration should be performed using the scale's internal calibration weight, where available, or using an external weight.

Figure 3-27: Calibration Weight Selection Dialog

Test Weight

If **Calibration Weight** is set to **External**, the desired calibration weight is entered here.
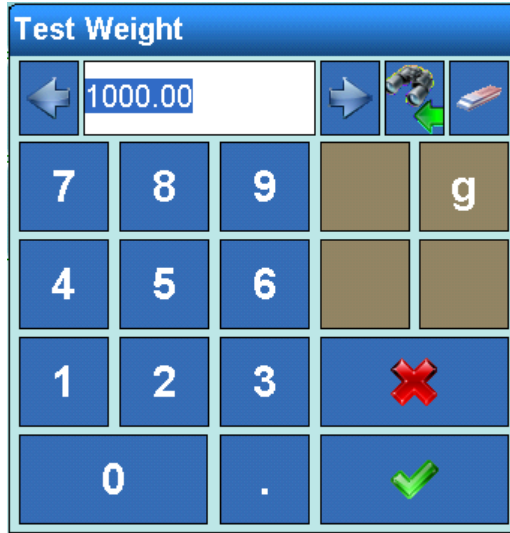
Figure 3-28: Test Weight Setting Dialog

3.3.1.5.4.   Performing Calibration

Touch the Calibration softkey 🗿 to start the calibration. The following screen appears:
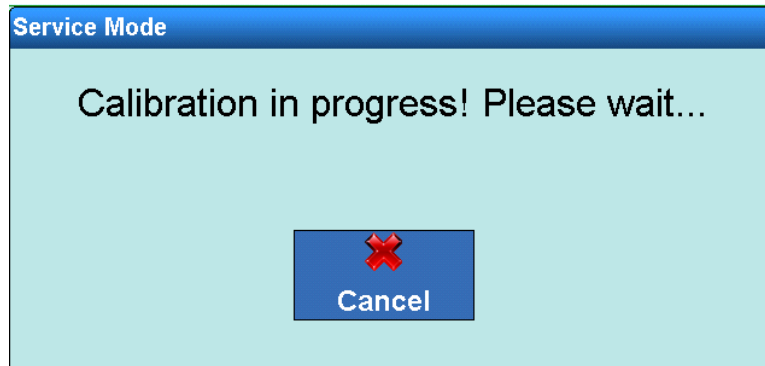
Figure 3-29: Calibration in Progress Message

If external calibration wbas selected, the terminal prompts for the placement of the calibration weight.

Figure 3-30: Calibration Weight Prompt

If the calibration was successful, a confirmation message is displayed.
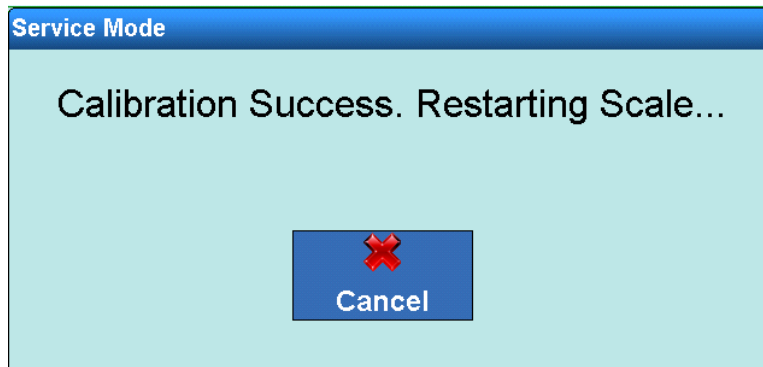
Figure 3-31: Confirmation Message

Otherwise, a Calibration Error failure message is displayed. Please repeat the entire procedure from the beginning. If the calibration fails a second time, contact METTLER TOLEDO Service.

3.3.1.6.   Zero

The AutoZero function, underload display, power up zero and resetting to zero using the zero setting button are configured from this screen.
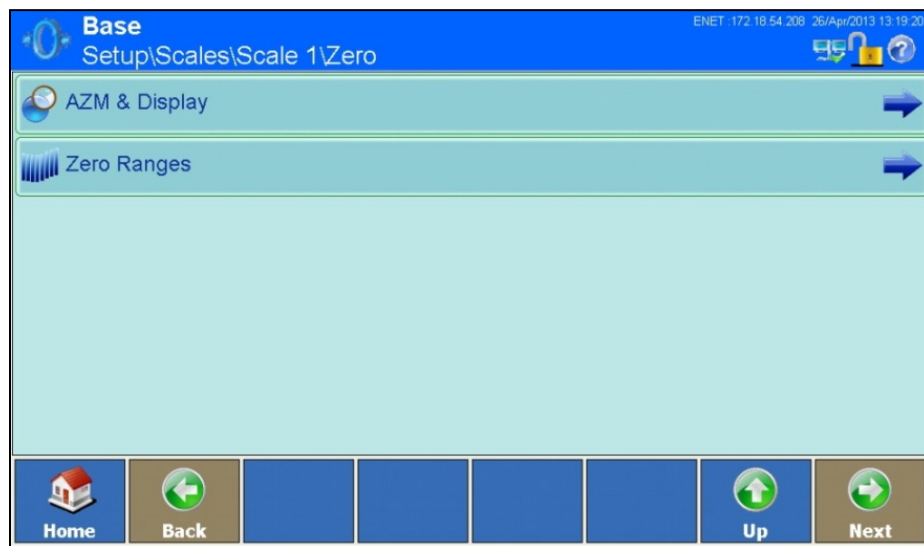
Figure 3-32: Zero Configuration Screen

3.3.1.6.1.   Auto Zero and Underload Display
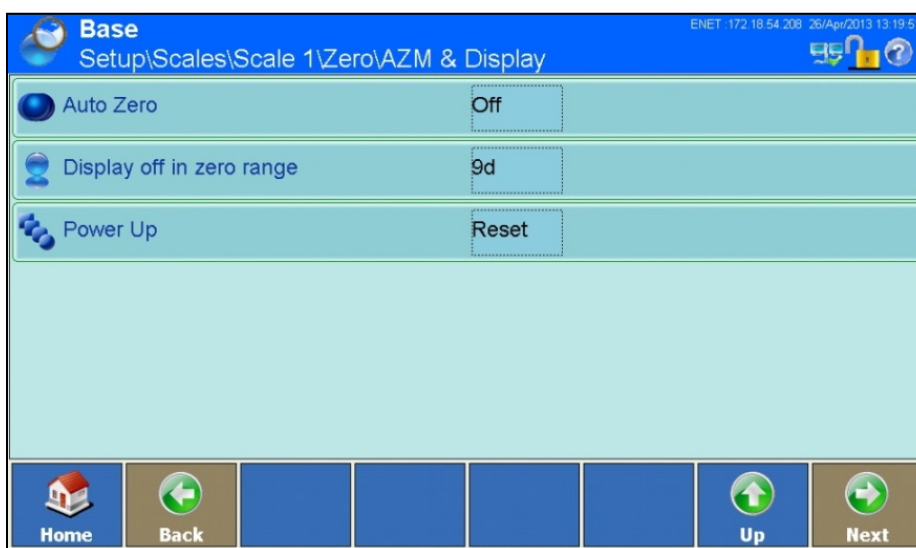
Figure 3-33: Auto Zero and Blank Under Zero Configuration Screen

Auto Zero

Settings are **On** and **Off**.

Auto Zero is a method for automatically correcting the zero point when the scale is unloaded. It compensates for the drift due to the condition of weighing cells and electronics, or the deposition of material residues on a scale platform.

Display off in zero range

Settings are **9d** and **9d with zero range**.

This parameter sets the negative weight value at which the underload bar will be displayed.

9d   The underload bar is displayed for weight values less than 9d. Once the weight value is within 9 divisions of zero, the underload bar is not displayed.

9d with zero range   The underload bar is also displayed for weight values less than 9d. However, in this case even when the weight values changes to exceed 9 divisions below zero, the weight display is still suptouched, and the condition indicated with the invalid weight symbol ━━━━━━━━━━, until the scale is reset to zero by touching the Zero softkey. This function prevents faulty weighments due to incorrectly zeroed scales.

Figure 3-34: Display off in zero range Setting Dialog

Power Up   Options are **Reset** and **Restart**.

This setting determines whether a new zero point (**Reset**) is determined during the power-up process, or whether the zero point set at the last power down should be used (**Restart**).

The Restart option is generally selected if the zero point cannot be re-determined, such as in the case of tanks scales which typically are filled with material.
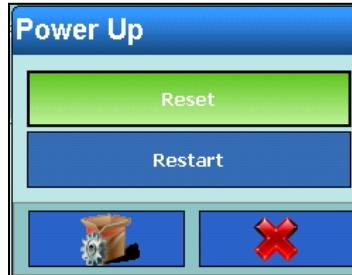
Figure 3-35: Power Up Zero Setting Dialog

3.3.1.6.2.   Zero ranges

The Zero ranges menu permits the power up zero and push button zero functions to be enabled or disabled, and ranges to be set for zeroing to the original zero point of the scale.
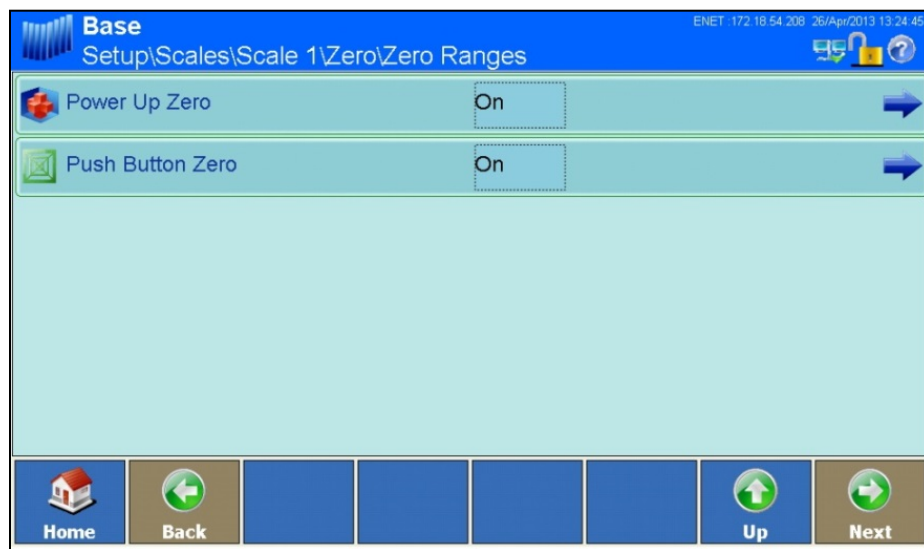
Figure 3-36: Zero Ranges Configuration Screen

Power Up Zero   Options are **Off** and **On**.

This settinbg is used for analog scales and certain SICS scales. It determines whether the terminal should set a new zero point at power up, or continue to use the zero point value in use at the last power down.
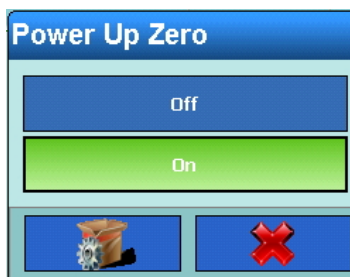
Figure 3-37: Power Up Zero Setting Dialog

3.3.1.6.3.   Zero Ranges at Power Up

When **Power Up Zero** is **On**, it is necessary to specify a range around the scale's original zero within which the power up zero can be applied.
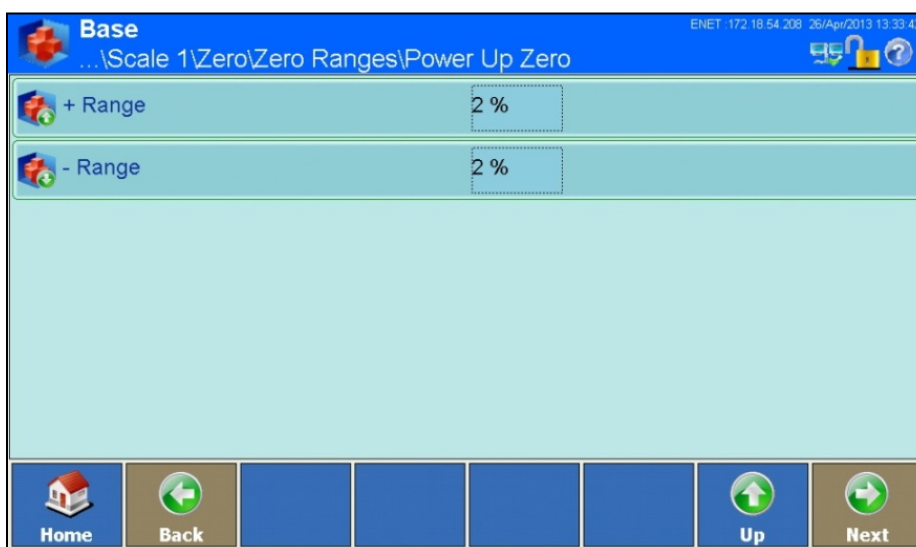
Figure 3-38: Zero Ranges Configuration Screen

If for instance the + range for power up zero is set to 2%, power up zero can be performed only if the weight value on the scale is less than or equal to 2% of the scale capacity above the original zero point.

■   If **Power Up Zero** is **Enabled** and the weight on the scale is outside the zero range, the display shows the overload display until the weight has been taken off and the zero point can be determined.

3.3.1.6.4.   Push Button Zero

If **Push Button Zero** is **On**, the Zero ⚙ softkey can be used to zero the scale.

Figure 3-39: Pushbutton Zero Setting Dialog

Ranges for push button zero

If **Push Button Zero** is **On**, it is necessary to define a positive and a negative range above and below the zero point of the scale, to determine when the pushbutton zero can be applied.
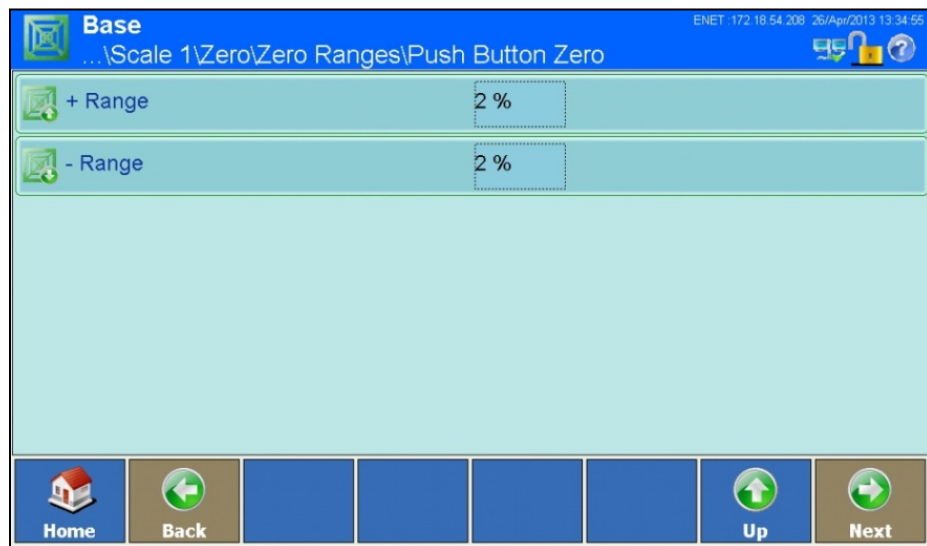
Figure 3-40: Push Button Zero Range Setting Screen

If for instance the + range for push button zero is set to 2%, a push button zero can be performed only if the weight value on the scale is less than or equal to 2% of scale capacity above the original zero point.

3.3.1.7. **Tare**

The tare function is used to subtract the weight of an empty container from the gross weight on the scale, in order to determine the net weight of the contents. Tare is aborted if the scale has not achieved stability by the time the timeout expires.

The IND900 offers a variety of tare options. To use these, the Tare 🌣 and PreTare **PT** softkeys can be enabled and disabled in the Softkeys menu – refer to section 3.5.6, **Softkeys**.

🌣 The Tare softkey creates a tare value based on an empty container on the scale. The terminal then shows a zero weight and indicates that it is Net mode. When the container is filled, the terminal shows the net weight of the contents.

PT   The PreTare softkey allows the known value for the empty weight of a container to be entered manually. The terminal then displays the net weight of the container content. Tare preset values are automatically rounded to the next display graduation.

3.3.1.7.1.   Tare Configuration

An automatic tare can be enabled or disabled, and tare reset threshold weights configured.

Figure 3-41: Tare Configuration Screen

Auto Set Tare   Options are **Off** and **On**.

If Auto Set Tare is enabled, the tare weight is determined automatically as soon as a container on the scale exceeds a specified threshold value, and the scale has achieved stability.

Automatic taring conditions

When **Auto Set Tare** is **On**, a further screen of options allows the definition of various conditions under which an auto tare will be applied.

Figure 3-42: Auto Set Tare Configuration Screen

Tare Threshold Weight

If the weight on the scale exceeds the tare threshold weight and then achieves stability, the terminal automatically tares the active scale.

Figure 3-43: Auto Set Tare Threshold Weight Setting Dialog

Reset Threshold Weight

If the weight on the scale platform falls below the **Reset Threshold Weight**, the terminal, depending on the programming of the motion check, automatically resets the Auto tare trigger. The next time the weight exceeds the tare threshold weight, the scale is automatically tared again. The reset threshold weight must be less than the tare threshold weight.

Figure 3-44: Reset Threshold Weight Setting Dialog

Motion Check

Options are **Off** and **On**.

Set **Motion Check** to **On** to prevent an Auto Tare reset from being performed while the scale is still in motion. When this setting is enabled, the scale must return to a value less than the reset value and detect stability in order to reset the Auto tare trigger.

Figure 3-45: Motion Check Setting Dialog

3.3.1.7.2.   Auto Clear Tare

This screen allows Auto Clear Tare to be enabled or disabled, and to configure the conditions under which a tare will be cleared automatically.
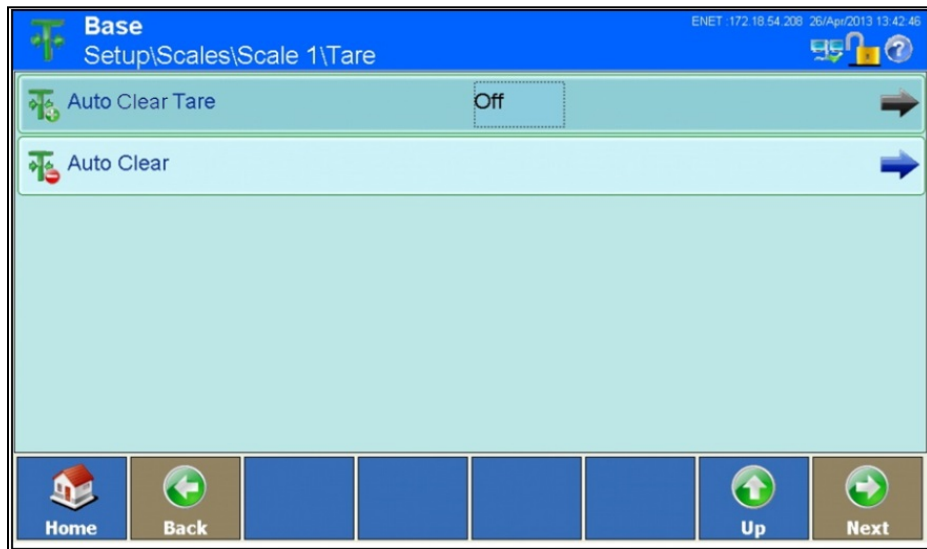
Figure 3-46: Auto Clear Tare Configuration Screen

Auto Clear Tare   Touch the field to display the **Auto Clear Tare** setting dialog. Options are **Off** and **On**.

Set **Auto Set Tare** to **On** to clear the tare value automatically when the scale returns below a specified threshold weight.

Figure 3-47: Auto Clear Tare Setting Dialog

Auto Clear   When **Auto Clear Tare** is **On**, touch the Next softkey ➡ in the **Auto Clear** row to display the **Auto Clear Tare Configuration** screen, where the various conditions under which tare will be cleared automatically are set.
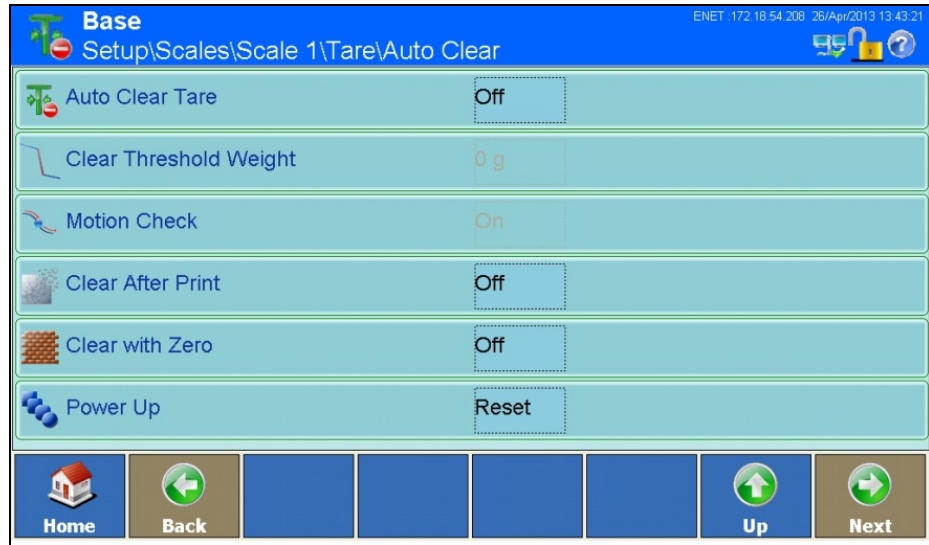
Figure 3-48: Auto Clear Tare Configuration Screen

Clear Threshold Weight If the gross weight falls below the clear threshold weight, the terminal automatically clears the tare values for the active scale, and returns to gross mode

Figure 3-49: Clear Threshold Weight Setting Dialog

Motion Check When **Motion Check** is **On**, auto clear tare is performed only when the scale has settled to stability.
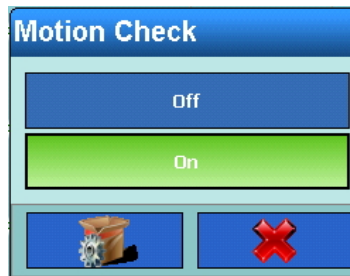
Figure 3-50: Auto Clear Tare Motion Check Setting Dialog

Clear After Print   When enabled, tare values are cleared automatically after each printout.
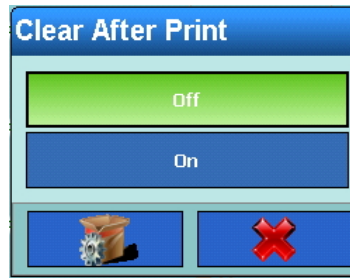
Figure 3-51: Auto Clear Tare Clear After Print Setting Dialog

Clear with Zero   When enabled, tare values are cleared automatically when the scale is at its zero point.
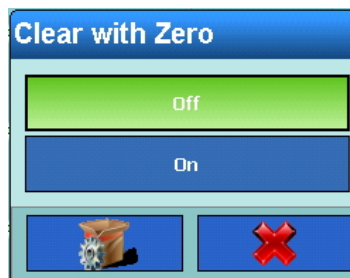
Figure 3-52: Auto Clear Tare Clear With Zero Setting Dialog

Power Up   When enabled, tare values are cleared automatically when the terminal is powered up.
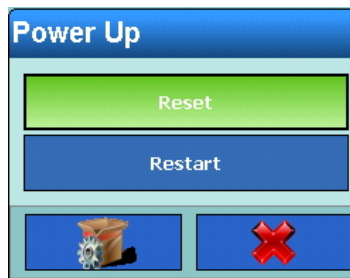
Figure 3-53: Auto Clear Tare Clear At Power Up Setting Dialog

3.3.1.8. **Units**

The Units screen permits the selection of a second weight unit, and the specification of which unit is active at power-up.
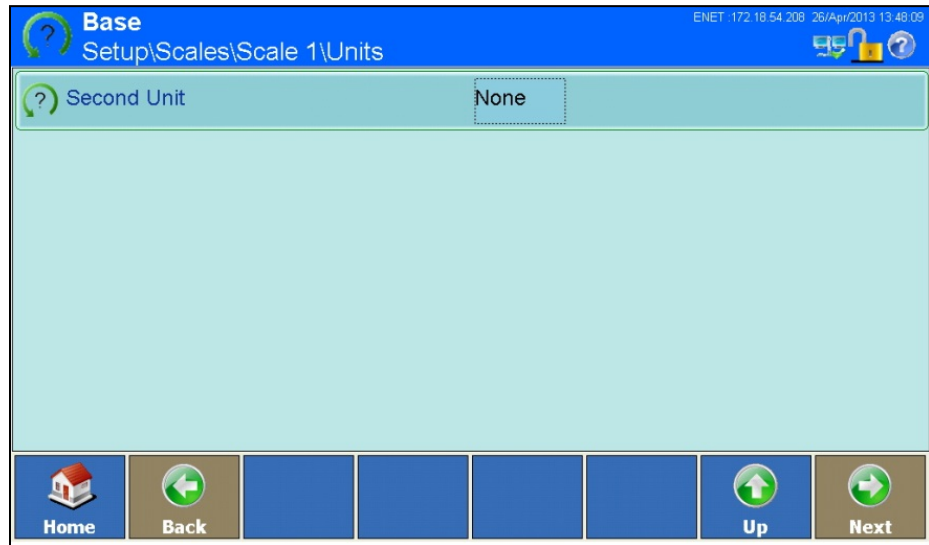
Figure 3-54: Units Configuration Screen

Second Unit   The second unit setting dialog allows a secondary unit to be selected or defined.

Figure 3-55: Second Unit Setting Dialog

3.3.1.8.1.   Power Up Unit

When a second unit is selected, a **Power Up Unit** option becomes visible in the Units Configuration Screen (Figure 3-54). Touch the row to open the dialog shown in Figure 3-56. This dialog sets the unit that will be displayed when the terminal is powered up. If **First unit** is selected, the terminal starts with the primary unit of measure. If **Restart** is selected, the terminal starts with whichever unit of measure was active when the terminal was last powered down.

Figure 3-56: Power Up Unit Setting Dialog

3.3.1.9. **Filters**

The IND900 terminal is equipped with multi-stage filters, which can be set to a variety of conditions. These filters differ depending on the type of scale that is connected. The more severe the filtering, the longer the display will take to reach equilibrium.

Figure 3-57: Filters Configuration Screen

3.3.1.9.1. Stability Filter

The stability filter specifies when the scale should designate a weight as still "in motion" or as "stable". When this "stable" designation has been achieved, the weight values are printed out and logged; if it is not achieved, they are not. The speed of the scale and reproducibility of the weighing results are affected by the various settings.

Figure 3-58: Stability Filter Selection Dialog

The settings for the stability filter are as follows, with the default setting indicated by an asterisk (*):

0	Off (only for scales that are not approved	
1	Quick display	Good reproducibility
2*	▲	▼
3	▲▲	▼▼
4	Slow display	Very good reproducibility

Similar settings are available for SICS and IDNet scales:

Figure 3-59: Automatic Stability Filter for SICS and IDNet Scales

3.3.1.9.2.   Environment

Touch the **Environment** selection field to open a dialog where environmental conditions at the workplace can be specified. For analog scales, the dialog appears as in Figure 3-60.

Figure 3-60: Stability Filter Environment Setting Dialog, Analog Scales

For SICS and IDNet scales, the dialog shown in Figure 3-61 appears.

Figure 3-61: Stability Filter Environment Setting Dialog, IDNet and SICS Scales

The selections for IDNet and SICS scales are shown in Table 3-1.

Table 3-1: IDNet and SICS Scales Environment Settings Options for Stability

Setting	Description
Ideal Conditions	The weighing platform works very quickly, but is very sensitive. This setting is suitable for very quiet and stable weighing locations.
Average Conditions	This is the factory default setting, and is suitable for most normal conditions.
Extreme Conditions	The weighing platform responds more slowly to changes in weight, but under extreme conditions is much more stable.

3.3.1.9.3.   Weighing Process

Use the Weighing Process selection field to select the specific weighing process. For analog scales, the dialog appears as in Figure 3-62.

Figure 3-62: Stability Filter Weighing Process Selection Dialog, Analog Scales

For SICS and IDNet scales, the dialog shown in Figure 3-63 appears.
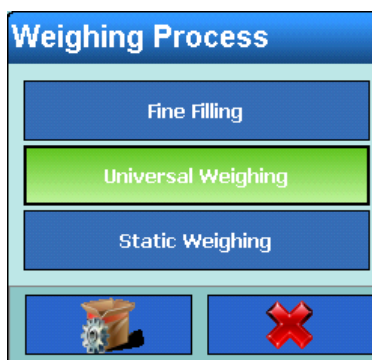
Figure 3-63: Stability Filter Weighing Process Selection Dialog, IDNet and SICS Scales

The selections for IDNet and SICS scales are shown in Table 3-2.

Table 3-2: IDNet and SICS Scales Environment Settings Options for Weighing Process

Setting	Description
Fine Filling	Use for weighing liquids or fine powders.
Universal Weighing	For coarse filling of solid materials, or for checkweighing.
Static Weighing	For solid materials and for weighing under extreme conditions such as heavy vibrations.

3.3.1.10. Log or Print

The parameters in the Log or Print configuration screen specify whether and when data is saved or sent to a printer, and which thresholds should be observed in so doing.

Figure 3-64: Log or Print Configuration Screens

The menu items available in this screen differ depending on which settings are selected for **Interlock** and **Automatic**. Table 3-3 indicates which options will appear, depending on the settings.

Table 3-3: Setting Options for Logging or Printing

Interlock	Automatic	Fields displayed
Off	Off	Minimum weight, interlock, automatic
On	Off	Minimum weight, interlock, automatic, reset on, reset off, motion check

Interlock	Automatic	Fields displayed
Off	On	Minimum weight, interlock, automatic, reset on, reset off, threshold weight, motion check
On	On	Minimum weight, interlock, automatic, reset on, reset off, threshold weight, motion check

Minimum Weight   The minimum weight parameter sets the threshold in the first unit, below which the weight values are neither logged nor printed.

Interlock   Options are **On** and **Off**.

Enabling the interlock prevents repeated logging and printing actions. If the interlock has been switched on, after a logging event or printing event the weight value must be reset in accordance with the Reset on setting and then be set to a new weight greater than the minimum weight before the scale will respond to the next request for logging or printing off.

Automatic   Options are **On** and **Off**.

Enable Automatic in order to generate automatic logging of data and automatic printing as soon as the weight on the scale is greater than the threshold weight.

Reset On   Options are **Return** and **Deviation**.

Reset On Weight   The automatic printout can be reset based on the weight threshold values or weight deviation values. Select **Return** (to reset, the weight must return to below a certain value) or **Deviation** (to rest, the weight must deviate by more than this value) from the selection field, and enter the weight value into the **Reset On Weight** field.

Threshold Weight   Sets the threshold weight above which the automatic logging and printing of data is enabled.

Figure 3-65: Log or Print Reset On Weight Setting Dialog

Motion Check   Options are **On** and **Off**.

Enable the motion check in order to prevent the interlock and also the automatic logging and printing functions from being reset when the scale is subjected to motion above and beyond the point for Reset off.

3.3.1.11. **Updates**

The **Updates** parameter is used to set the number of weight values per second that the weighing platform sends to the terminal for processing.
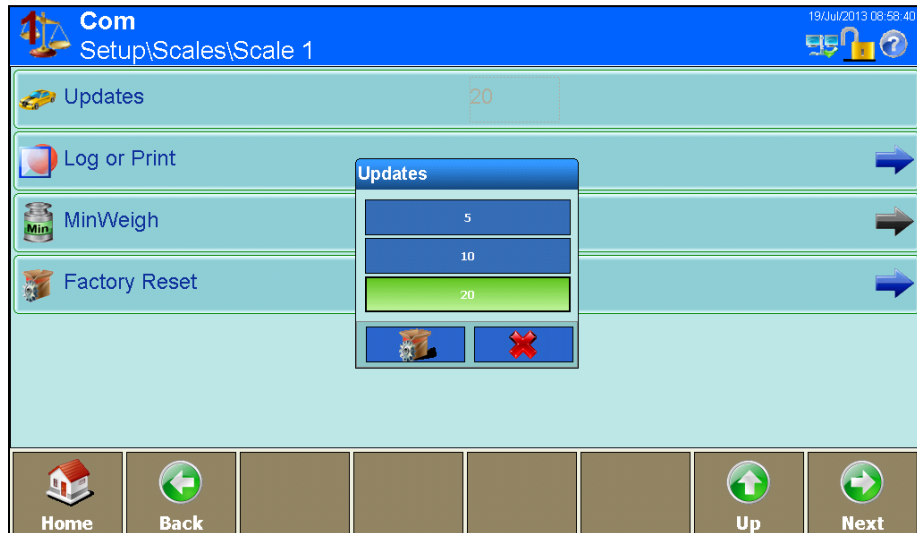
Figure 3-66: Updates Selection Dialog

3.3.1.12. **MinWeigh**

MinWeigh can be set to **On** or **Off**. When it is on, the terminal compares the current net weight with a MinWeigh value. If the net weight is equal to or greater than the MinWeigh value, all terminal functions behave normally. If the current net weight is less than the MinWeigh value, the weight value is shown in the color set as the **Display Color**. In the printout, the weight value is marked with an asterisk (*).

Figure 3-67: Min Weigh Setting Dialog

When **On** is selected from the MinWeigh dialog, a screen of additional parameters appears.
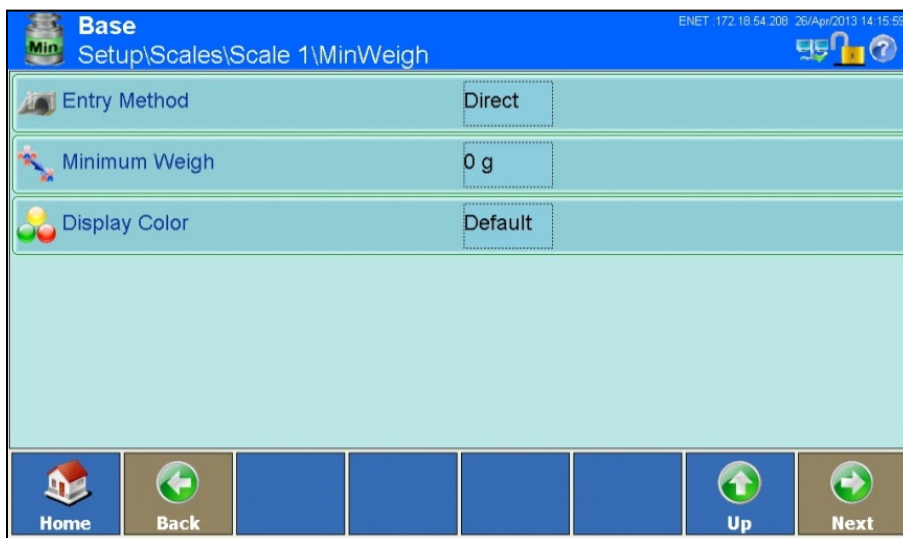
Figure 3-68: Minweigh Configuration Screen

Entry Method   Options are **Direct** and **Calculated**.

The MinWeigh value can either be entered directly, or calculated by the terminal.

Figure 3-69: MinWeigh Entry Method Selection Dialog

When **Direct** is selected, the Minimum Weight menu is used to input the weight value for **MinWeigh** directly.

Minimum Weight   The Minimum Weight dialog is used for direct entry of the MinWeigh value.

Figure 3-70: MinWeigh Minimum Eight Entry Dialog

When **Calculated** is selected, the terminal calculates the MinWeigh value using four factors, each of which must be entered separately. The formula is:

$$\text{MinWeigh} \quad = \quad \frac{U_0 \times SF \times 100\%}{T - (SF \times 100\%)}$$

where:

Uo = Measurement accuracy as the load on the scale tends to 0. U_0 is calculated differently in each country and is entered in the first weight unit.

Figure 3-71: MinWeigh Uo Setting Dialog

T = Tolerance in percent. Defines tolerances necessary for a specific procedure and equipment. Valid values are from 0.1% to 99.9%

Figure 3-72: MinWeigh Tolerance Setting Dialog

SF = Safety Factor. This is a fubrther means of adjustment. Usually the SF = 1.
Valid values are whole numbers from 1 to 10.

Figure 3-73: MinWeigh Safety Factor Setting Dialog

Display Color   Options are **Default**, **Pink** and **Orange**.

This parameter sets the color used to display a weight value that falls below the MinWeigh threshold.
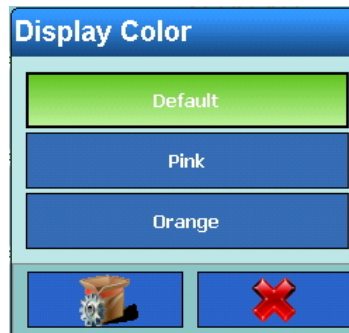
Figure 3-74: MinWeigh Display Color Selection Dialog

Touching the Factory Defaults softkey in the **Scale Configuration** screen (Figure 3-5) resets all the parameters described above to their default setting, if they have been changed. For security reasons this operation must be confirmed by touching the Yes softkey ✔ in the warning dialog shown in Figure 3-75
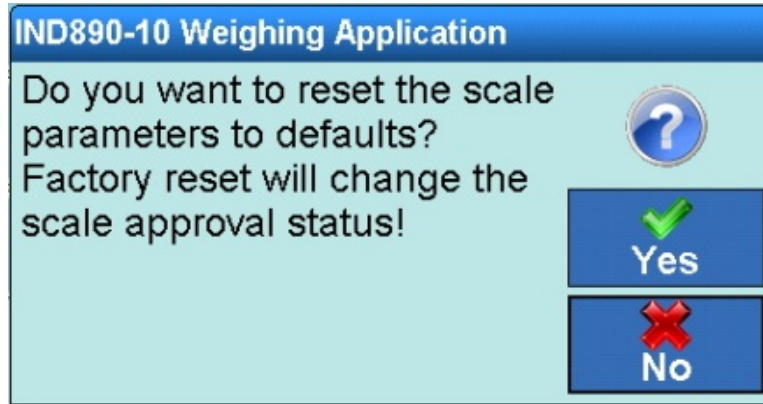
Figure 3-75: Scale Block Reset Warning Dialog

3.3.2.   Sum Scale

Sum scale allows the system to display the total sum of the values of up to four selected scales. In general, the same settings can be made for the sum scale as for scales 1-4. The special features are described below.

■ A sum scale can only be set up if the Scale Mode is configured as **Parallel**, in Setup at **Terminal I Display I Scale Mode**.

Figure 3-76: Scales, Sum Scale Enabled
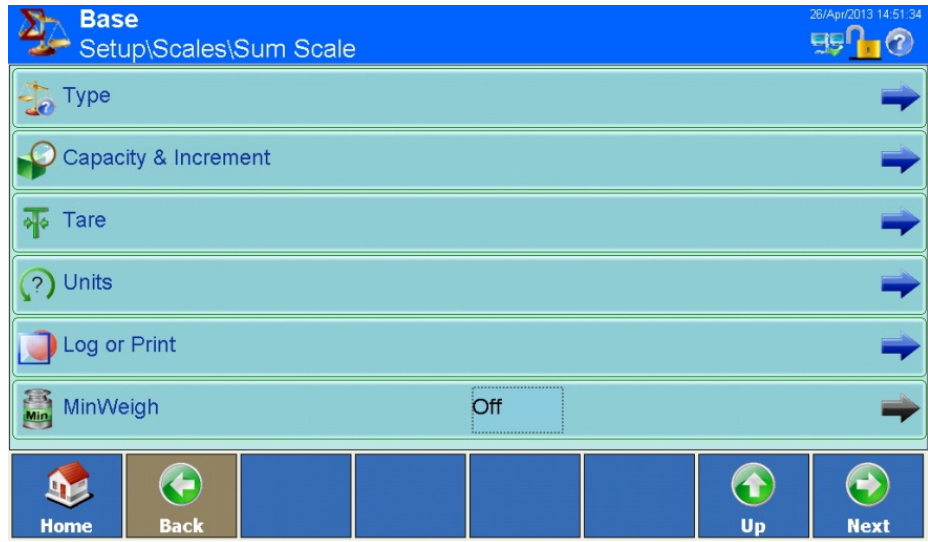
Figure 3-77: Sum Scale Configuration Screen

3.3.2.1. Type

The Scale type screen allows the type of the sum scale to be specified, a name assigned to it, its approval configuration to be set, and the specification of which scales (1-4) to include in the sum.

Figure 3-78: Sum Scale Type Configuration Screens

Type	Selects whether the sums for the sum scale are composed of the displayed weight values, or from the internal higher-resolution fine weights. The summation itself is performed arithmetically correctly in either case.
Name	
Approval	Refer to section 3.3.1.1.
Approval Class	
Scale 1, 2, 3, 4	Determines which scales are included in the sum.
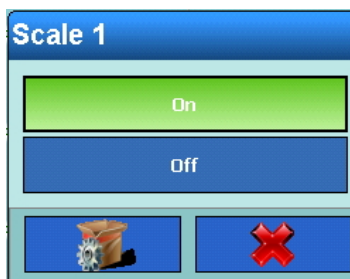
Figure 3-79: Sum Scale Scale Selection Dialog

■ It applies generally that the sum scale display behaves similarly to the displays for the individual scales. If a scale that is part of the sum scale is loaded above its capacity, the display shows an overload for both the individual scale and also for the sum scale. If a scale that is part of the sum scale is loaded in the underload range, the display shows an underload.

■ The sum scale can only be in W&M approved mode if all of the totalized scales are in W&M approved mode. In approved mode the symbol ⚖ is shown with the sum scale.

3.3.2.2. Capacity and increment

Refer to section 3.3.1.2, **Capacity and Increment**.

3.3.2.3. Taring

Refer to section 3.3.1.7, **Tare**.

3.3.2.4. Units

Refer to section 3.3.1.8, **Units**.

3.3.2.5. Log or print

Refer to section 3.3.1.10, **Log or Print**.

3.3.2.6. MinWeigh

Refer to section 3.3.1.12, **MinWeigh**.

3.3.2.7. Factory defaults

Touching the Factory defaults softkey restores all the above parameters to their default settings, if they have been changed. For security reasons this operation must be confirmed by touching the Yes softkey ✓ in the warning dialog shown in Figure 3-75.

3.3.3. W&M approval mode

To put the terminal in W&M approved mode proceed as follows:

- Scale is connected and the terminal is in its home screen condition

- Press softkey Next ⊙ until softkey Login 👤 appears, then press this

- Enter user name "ADMIN" and password. Confirm both entries with Return ✔, log in with a further confirmation on Login

- In the upper left corner the message "Welcome Admin" is shown

- Unscrew verification screw on the rear side of the device and press the verification switch with a pen (diameter approx. 2mm)

- In the upper left corner the message "W&M switch pressed" is shown

- Press softkey Setup 🛠, then select Scales ⚖

- For each connected scale do the following steps:

    o Select Scale x 1⚖ , then select Type ⚖

    o Touch the field in the middle of the softkey Approval ⚖

    o Select approval region "OIML"

    o Touch the field in the middle of the softkey Verification class ⅠⅠ

    o Select verification class "II"

    o Confirm the note that possibly appears

    o Touch 2 times the softkey Up ⬆

As soon as all connected scales are prepared for W&M approval mode and an approval and approval class has been selected, it is possible to enable the "W&M approval mode" of the weighing system. The electronic pairing of the scales is thereby updated.

Figure 3-80: W&M Approval Mode Setting Dialog

- Touch the field in the middle of the softkey W&M Approval Mode ⚖

- Switch approval mode from "Off" to "On"

- Quit Setup by pressing the softkey Home 🏠

- Screw in again the verification screw and secure it with a sealing mark

🔷 When **W&M Approval Mode** is **On**, the calibration screw on the back of the terminal must be protected by a paper seal. Refer to Chapter 2, section 2.1.1., **Calibration Screw**.

The correct W&M Approval mode is displayed in the weight value window with the symbol 🔧. A flashing ⚠️ symbol will appear instead, if any of the following is true:

- Unpaired scales connected

- The W&M switch has been changed

- Calibration-relevant parameters of the scales have been changed

In this case, the system is no longer in the correct W&M approval mode and must be repaired and/or re-approved.

3.4.   Application

Touch the Application softkey 📲 in the main setup screen (Figure 3-3) to access the screen shown in Figure 3-81.
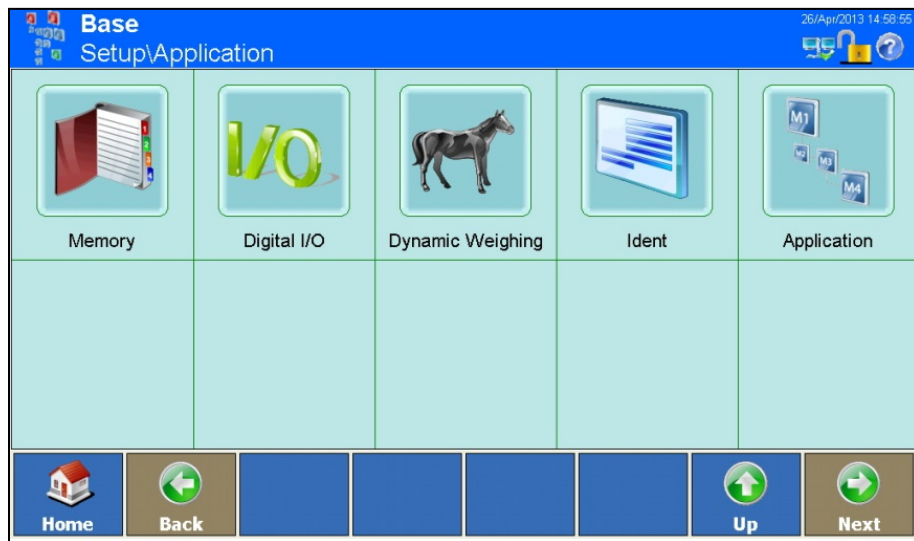
Figure 3-81: Application Configuration Screen

3.4.1. Memory

Touch the Memory softkey 📕 to open the Memory configuration screen.
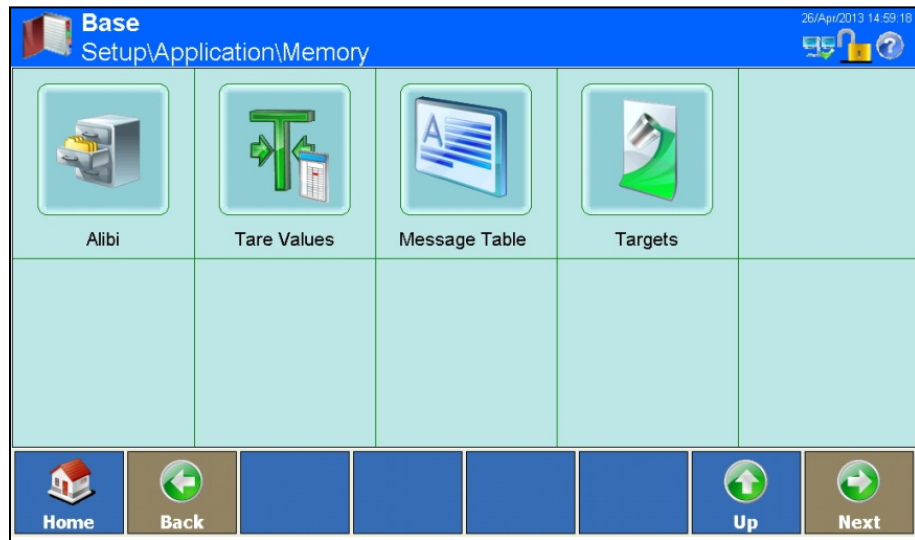
Figure 3-82: Memory Configuration Screen

3.4.1.1. Alibi

Touch Alibi 🗄 to open the Alibi Memory configuration screen. Here, the memory can be enabled or disabled, and the Alibi table viewed.
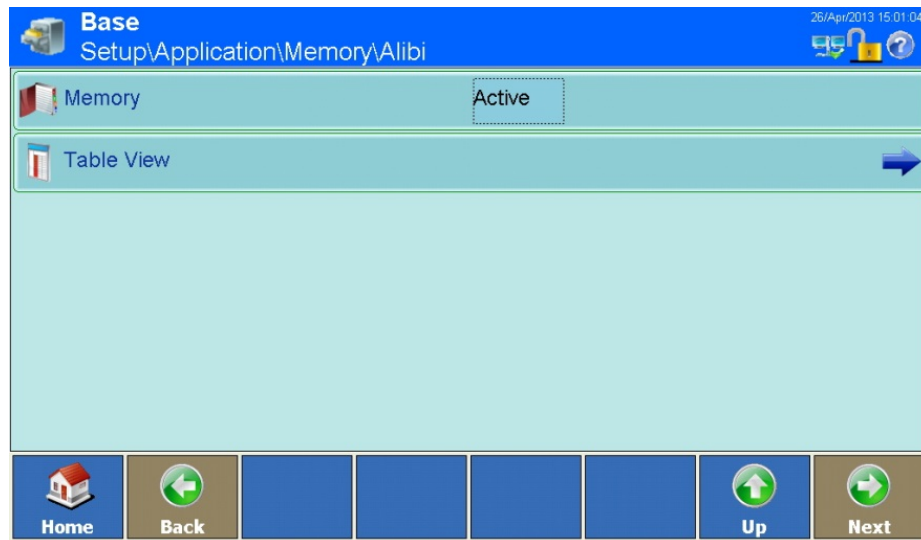
Figure 3-83: Alibi Memory Configuration Screen

The alibi memory functions as a FIFO file which overwrites the oldest record when it has reached its maximum size. The alibi memory can record 500,000 transactions before it starts to overwrite the oldest transactions. When the alibi memory is 75% full, a warning message appears which shows the status. A further message is displayed when the file is 90% full. The alibi memory continues to save records until the file is 100% full, after which each additional record overwrites the current oldest record.
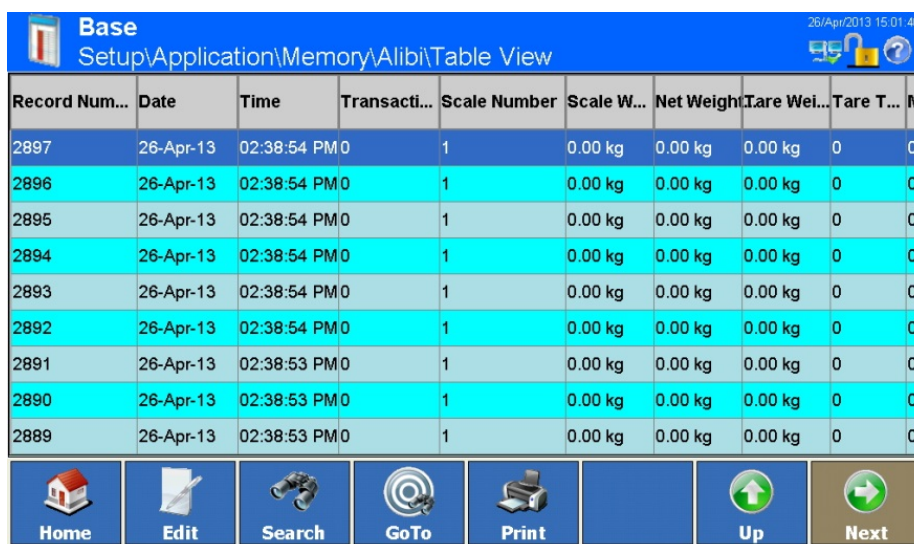
Further particulars of the alibi memory can be found in appendix B, **Communication**.

Touch the Memory 🔲 softkey to enable or disable the alibi memory.

🔹 If the IND900 terminal is set to "Approved", the alibi memory can be enabled or disabled only if the W&M (metrology) switch is off.

When the alibi memory enabled, the alibi memory table can be viewed by touching the Table View 🔲 softkey.

Figure 3-84: Alibi Memory Table View

🔹 To turn pages in the table, move a finger up or down on the touchscreen. To scroll to the left or right, move a finger in the horizontal direction on the touchscreen. During scrolling, entries in the table are not highlighted. To change the table column width, touch the table header line on the right column border and either drag the columns apart or push them together.

The principle of the alibi memory is that it logs transaction information which cannot be changed. This information always contains:

- Record number (1 to 500,000)
- Date and time stamp
- Transaction counter value
- Scale Number
- Gross, net and tare weights
- Tare type
- MinWeigh status
- Ident-A to Ident-F
- User Data (up to 200 characters)
- Checksum for the record

■ Meaning of tare type:
  tare type = 0: direct tare (tare key, tare command)
  tare type = 1: manual tare (pretare key, pretare command)

Any of the following actions will generate an alibi record:

- Touching the Print softkey 🖨

- Automatic printing

- Print request triggered by inputs/outputs

- Print request triggered by a PLC

Editing an Existing Record

■ Only the user data can be changed in an alibi record. No other data can be changed.

Highlight a record and touch the Edit softkey 📝 . The record editing screen shown in Figure 3-85 opens.

Figure 3-85: Alibi Memory User Data Editing Screen

Touch the field in the center of the User data softkey to open an alphanumeric input screen. Enter new user data, or change existing user data. Touch the OK ✔ softkey to confirm the input . Save the change to the Table by touching the Up 🔼 softkey.

Searching for a Record

In the Alibi Memory Table View screen (Figure 3-84), touch the Search softkey 🔍 . An input screen opens (Figure 3-86), which offers a very flexible way of searching for records using a variety of criteria.
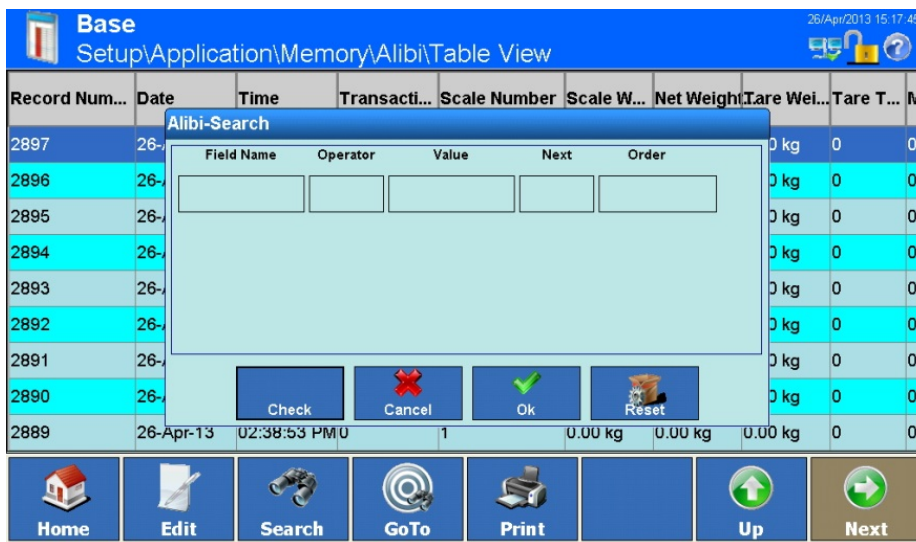
Figure 3-86: Alibi Memory Search Dialog

1. Fill out the search fields. Start on the left side with the **Field Name** where for instance the fields Date or User data can be selected.

2. Use the **Operator** search field to select how the data should be compared. The following table lists the options for this search field.

Table 3-4: Comparison Field Operators

Operator	Comparison	Operator	Comparison
<	Less than	<>	Not equal
<=	Less than or equal to	>=	Greater than or equal to
=	Equal (default)	>	Greater than

3. Go to the **Value** search field and enter the desired value.

📘 When searching for user data you can enter the search string with the wildcard sign in the search field Value. The wildcard * stands for a freely selectable number of characters. A search for Ha* finds, for example, Hans, Hannes or Harald.

4. Once the search query is filled with meaningful information, the search can be checked by touching the Check softkey (Figure 3-87).
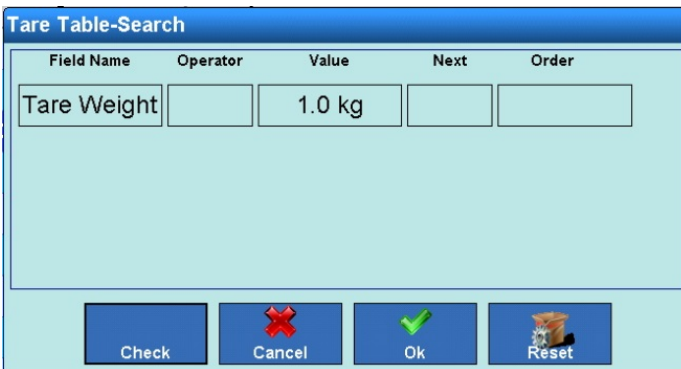
Figure 3-87: Alibi Search Dialog: Checking the Search Parameters

5. If necessary, to further narrow the search enter a logical operator in the **Next** field for a second search line, and then enter there the **Field Name**, **Operator** and **Value** as before.

6. In the **Order** field, the sort order can be set to **Ascending** or **Descending**.

7. Execute the search by touching the OK softkey ✔. The table view will now display only records that match the search query, and the records will be arranged in the specified order.

Accessing a Record Using the Record Number

Touch the GoTo softkey ⊙. A numeric input screen opens. Enter the record number then touch the OK softkey ✔ to acknowledge the input. The desired record will be displayed in the window and highlighted.

Printing a record

Touch the Print softkey 🖨.

3.4.1.2. Tare Table

The Tare Table can store up to 1000 tare weights table. The user can recall stored weights, instead of having to enter a tare weight manually for each transaction. This is particularly useful when tare values are needed repeatedly.

Touch the Tare Values softkey 📇 in the Memory Setup window to open the Tare Table view.

Figure 3-88: Tare Table View

■ To turn pages in the table, move a finger up or down on the touchscreen. To scroll to the left or right, move a finger in the horizontal direction on the touchscreen. During scrolling, entries in the table are not highlighted. To change the table column width, touch the table header line on the right column border and either drag the columns apart or push them together.

Each tare record contains:
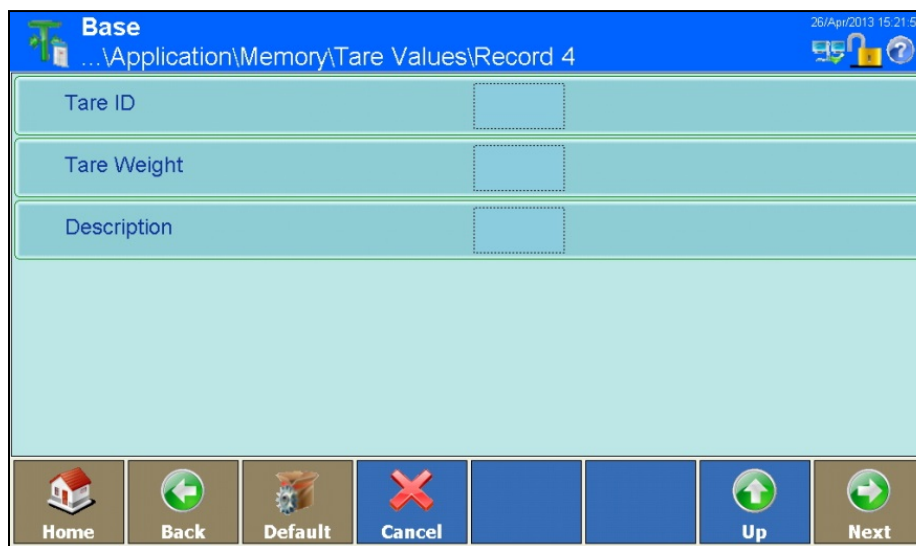
- Tare ID

- Tare weight value and unit

- Description

Records can be created, displayed, changed and deleted.

Further particulars of the tare table memory can be found in appendix B, **Communication**.

Adding a New Tare Record

Touch the Add softkey ⊕ to open the new tare record configuration screen.

Figure 3-89: New Tare Record Configuration Screen

Tare ID	Touch the field in the center of the Tare ID row; a numeric dialog field for inputting the tare ID opens. This must be unique, i.e. the ID must not already exist. Touch the OK softkey ✓ to confirm the input.
Tare Weight	Touch the field in the center of the Tare Weight row; a numeric dialog field for inputting the tare weight opens. Touch the OK softkey ✓ to confirm the input.
Description	Touch the field in the center of the Description row; an alphanumeric dialog opens. Here, a description with a maximum length of 40 characters can be entered. This entry is optional. Touch the Cancel softkey ✗ to abort the input, or enter a description and touch the OK softkey ✓ to confirm the input.

Save the new record in the Table by touching the UP softkey ⬆.

Editing an Existing Record

■ Once assigned, a Tare ID cannot be modified. To assign a new ID to a tare record, delete the record and enter it afresh.

Touch the Edit softkey ✎. As when creating a new record, touch the fields in succession in order to change the tare weight and the description.

Deleting one or all Records

Highlight a record. Touch the Clear softkey ✐. Another dialog is shown where you can select to delete one or all records. Make your selection and answer the security question that appears by touching the OK softkey ✓ if you really wish to delete the record, or by touching the Cancel softkey ✗ if you wish to abort the process.

Searching for a record

Touch the Search softkey 🔍. The Tare Table Search dialog opens.
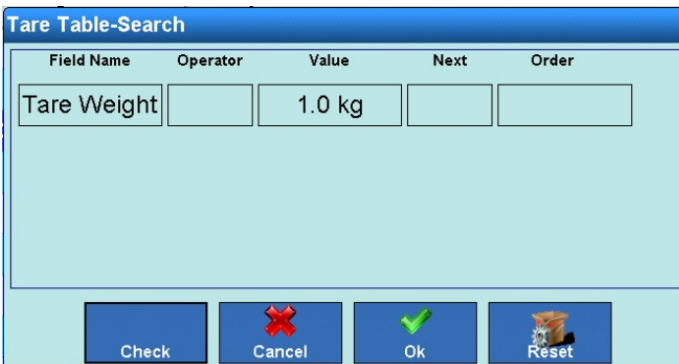
Figure 3-90: Tare Table Search Dialog

The search procedure is the same as that described for the Alibi Memory table, on page 3-47 in section 3.4.1.1.

Printing a Record

Touch the Print softkey 🖨.

3.4.1.3. **Message Table**

The IND900 includes a table that can store up to 1000 messages with user-defined alphanumeric text. These messages can be used as character strings for templates. A record in the message table contains the message ID (1 to 1000) and the message text.

Touch the Messages field 📝 in the Memory setup window to open the Message Table View.
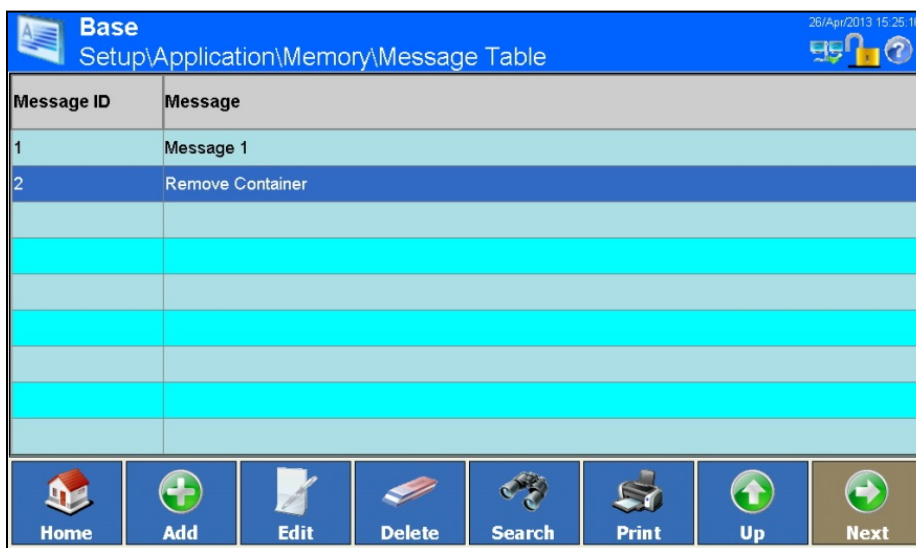
Figure 3-91: Message Table View Screen

- To turn pages in the table, move a finger up or down on the touchscreen. To scroll to the left or right, move a finger in the horizontal direction on the touchscreen. During scrolling, entries in the table are not highlighted. To change the table column width, touch the table header line on the right column border and either drag the columns apart or push them together.

Records can be created, displayed, changed and deleted.

Adding a New Message

Touch the Add softkey ⊕ to open the New Message screen.

Figure 3-92: New Message Screen

Message ID	Touch the field in the center of the Message ID row; a numeric dialog for inputting the message ID opens. The ID must be unique. Touch the OK softkey ✔ to confirm the input.
Message	Touch the field in the center of the Message row; an alphanumeric dialog for inputting the message opens. Touch the OK softkey ✔ to confirm the input.

Save the change in the table using Up softkey ⊕.

Editing and Deleting Records

- Once assigned, a Message ID cannot be modified. To assign a new ID to a tare record, delete the record and enter it afresh.

The process for editing and deleting Message Table records is the same as that described on page 3-51 for the Tare Table.

Searching for a Record

Touch the Search softkey 🔍. The following search screen opens:
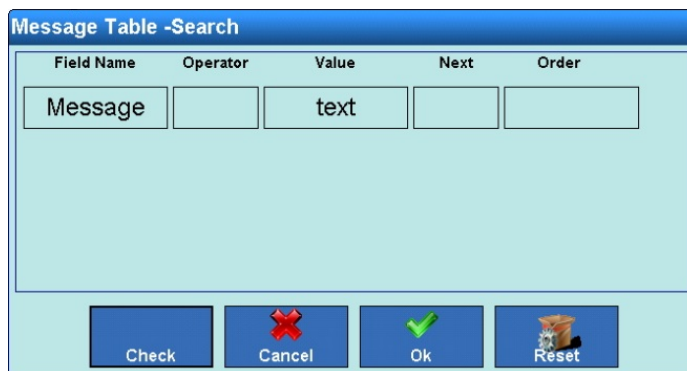
Figure 3-93: Message Table Search Dialog

The search procedure is the same as that described for the Alibi Memory table, on page 3-47 in section 3.4.1.1.

Printing a Record

Touch the Print softkey 🖨.

3.4.1.4. **Target Table**

This table can be used to save frequently used target values.

Touch the Targets softkey 🔑 in the Memory Setup window (Figure 3-82) to open the Target Table View screen.

Figure 3-94: Target Table View Screen

■ To turn pages in the table, move a finger up or down on the touchscreen. To scroll to the left or right, move a finger in the horizontal direction on the touchscreen. During scrolling, entries in the table are not highlighted. To change the table column width, touch the table header line on the right column border and either drag the columns apart or push them together.
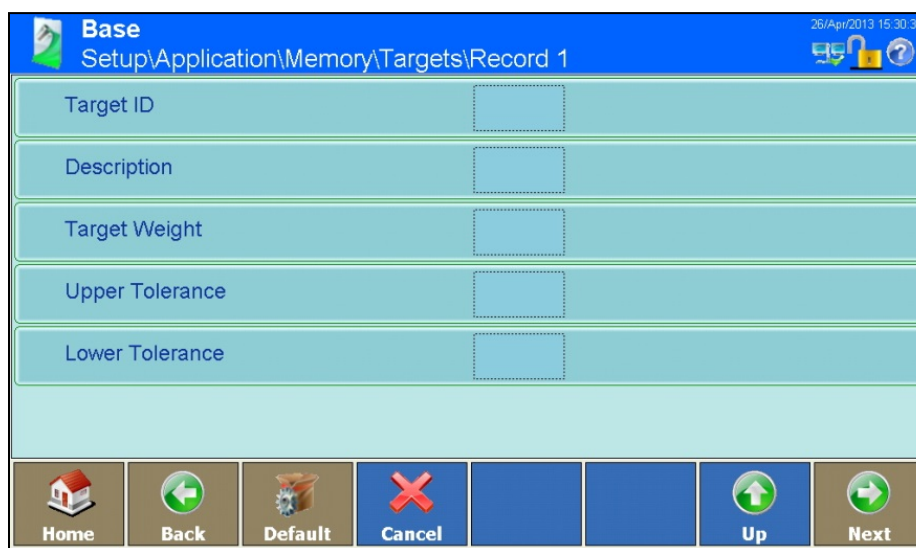
A record contains:

- Target ID
- Description
- Target weight
- Upper tolerance
- Lower tolerance

Records can be created, displayed, modified and deleted.

Adding a New Target

Touch the Add softkey ⊕ to open the New Target screen.

Figure 3-95: New Target Screen

Target ID	Touch the field in the center of the Target ID row. A numeric dialog opeps, allowing the Target ID to be entered. Touch the OK softkey ✔ to confirm the input.
Description	Touch the field in the center of the Description row; an alphanumeric dialog opens. Here, a description with a maximum length of 40 characters can be entered. This entry is optional. Touch the Cancel softkey ✖ to abort the input, or enter a description and touch the OK softkey ✔ to confirm the input.
Target Weight **Upper Tolerance** **Lower Tolerance**	Touch the fields in the center of the respective rows to open a numeric dialog wehre the weight or tolerance value can be entered. Touch the OK softkey ✔ to confirm the input.

Editing, Deleting and Searching in the Target Table

To Edit, Delete or Search for a record in the Target Table, follow the procedures described under section 3.4.1.2, **Tare Table**, starting on page 3-49.

Further particulars of the target table can be found in appendix B, **Communication**.

3.4.2. Digital I/O

The setup window for digital I/O allows inputs and outputs to be configured.

Touch the Digital I/O softkey **I/O** in the **Application Configuration** screen (Figure 3-81) to open the **Digital I/O Configuration** screen.
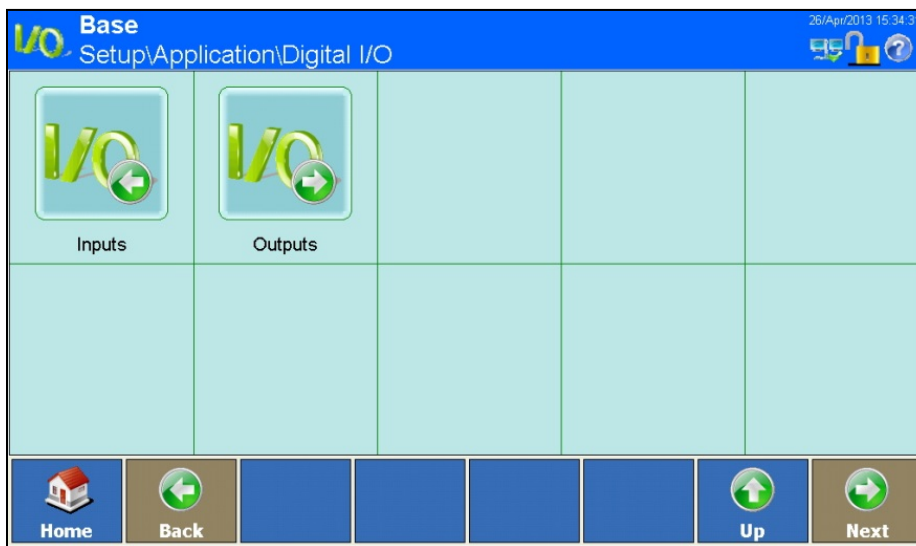
Figure 3-96: Digital I/O Configuration Screen

3.4.2.1. Inputs

Touch the Inputs softkey **I/O** in the **Digital I/O Configuration** screen to open the **Inputs Configuration** screen.

Input	Trigger	Function	Scale
1.0.1	Rising edge	Clear Tare	None
1.0.2	Rising edge	Blank Display	None
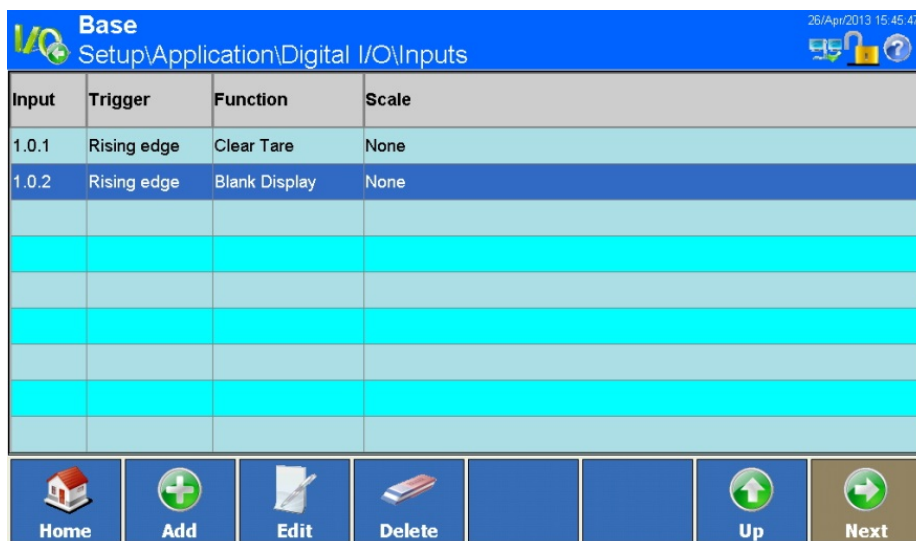
Figure 3-97: Inputs Configuration Screen

An Input record contains:

- Address of the input
- Type of trigger
- Function to be triggered
- Scale
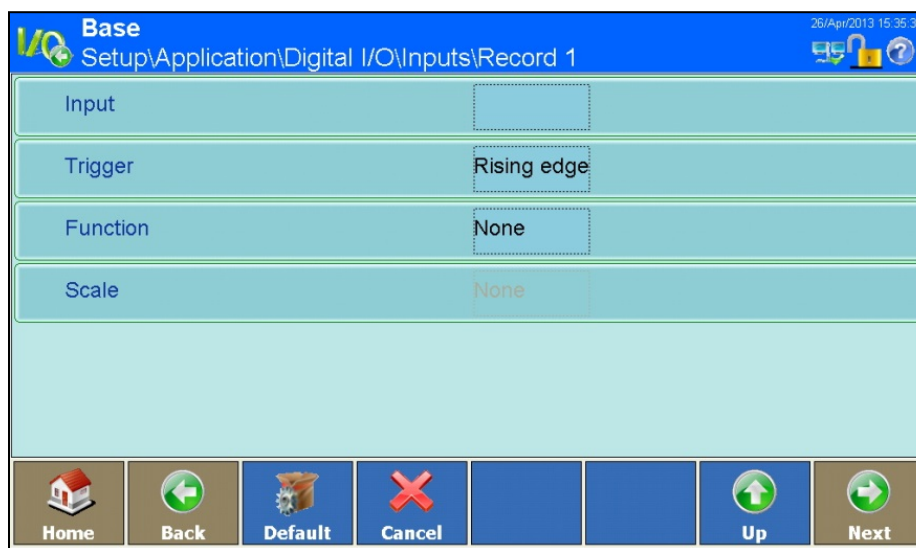
Inputs can be added, displayed, changed and deleted.

Notes on Digital I/O Input Addresses

- For technical reasons, the address of the input is shown as 3 digits (e.g. 1.0.4 for remote I/O #1 and input #4).

- The 1st digit indicates the address of the externally connected I/O device.

- The 2nd digit is always 0 and has no significance.

- The 3rd digit indicates the address of the input on the I/O device.

Adding a New Input

Touch the Add softkey 🟢 to open the **Input Editing** screen.

Figure 3-98: Input Editing Screen

Input	Touch the field at the center of the Input row to open a dialog where the address of the external connected I/O device (ARM100) is to be entered. Enter an address between 1 and 5. Touch the OK softkey ✔ to confirm the input. A further numeric dialog will open; always enter 0 (zero) here, and touch the OK softkey ✔ to confirm the input. Finally, in the third numeric dialog enter an address between 1 and 4 and touch the OK softkey ✔ to confirm the input.
Trigger	Touch the field at the center of the Trigger row to open a dialog which determines the mode of operation of the input. Options are **Rising Edge**, **Falling Edge** and **Level**.

Function   Touch the field in the center of the **Function** row to open the selection field shown in Figure 3-99. Depending on the function selected, it may be necessary to define the scale to which it applies.
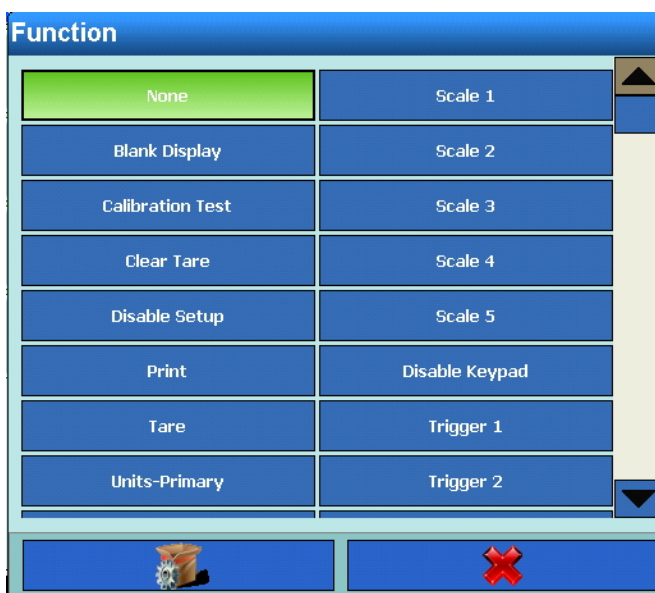
Figure 3-99: Trigger Function Selection Dialog

Scale   Touch the field in the center of the **Scale** row to open a dialog like the one shown in Figure 3-100.
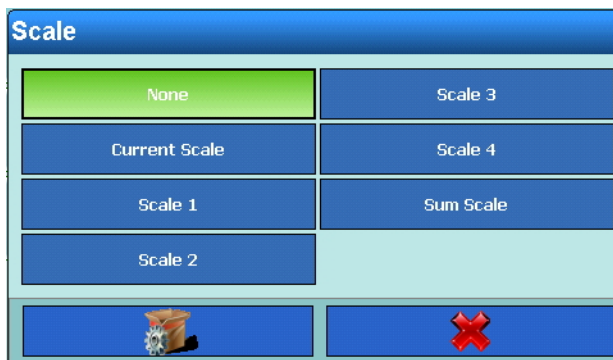
Figure 3-100: Scale Selection Dialog

Save the changes in the Inputs Table by touching the Up softkey ⬆.

Editing an Existing Record

■ Once assigned, an input address cannot be modified. To assign a new address to an input, delete the input and enter it afresh.

Touch the Edit softkey ✎. As when creating a new record, touch the softkeys in succession in order to change the mode of operation, the function to be triggered and, if desired, the scale.

Save the change in the Inputs Table by touching the Up softkey ⬆.
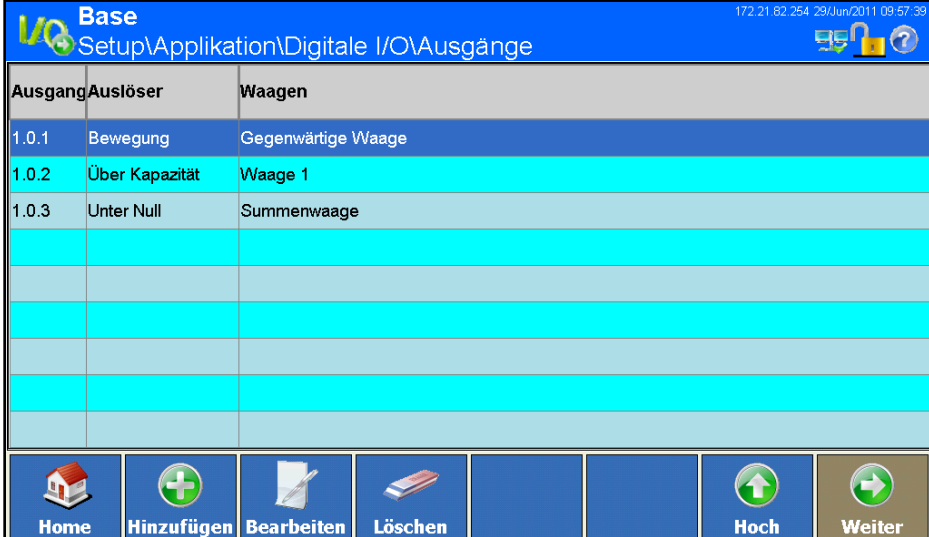
Deleting a Record

Highlight a record. Touch the Clear softkey ✐. Answer the security question by touching the OK softkey ✔ if you wish to delete the record, or touch the cancel ✖ softkey to cancel the process.

3.4.2.2. **Outputs**

Touch the Outputs softkey 🔲 in the **Digital I/O Configuration** screen (Figure 3-96) to open the **Outputs Configuration** screen.

Ausgang	Auslöser	Waagen
1.0.1	Bewegung	Gegenwärtige Waage
1.0.2	Über Kapazität	Waage 1
1.0.3	Unter Null	Summenwaage

Home   Hinzufügen   Bearbeiten   Löschen   Hoch   Weiter

Outputs menu

An Output record contains:

- Address of the output

- Triggering event

- Scale

Outputs can be added, displayed, changed or deleted.

Notes on Digital I/O Output Addresses

- For technical reasons, the address of the output is shown as 3 digits (e.g. 1.0.6 for remote I/O #1 and output #6).

- The 1st digit indicates the address of the externally connected I/O device.

- The 2nd digit is always 0 and has no significance.

- The 3rd digit indicates the address of the output on the I/O device.

Configuration

Adding a New Output

Touch the Add softkey ⊕ to open the **Outputs Configuration** screen.
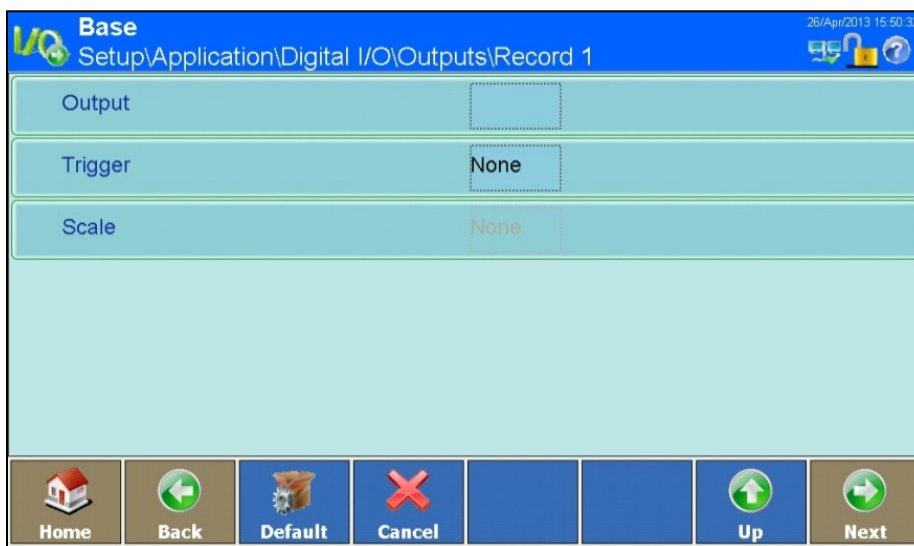
Figure 3-101: Outputs Configuration Screen

Output
: Touch the field at the center of the Output row to open a dialog where the address of the external connected I/O device (ARM100) is to be entered. Enter an address between 1 and 8. Touch the OK softkey ✔ to confirm the input. A further numeric dialog will open; always enter 0 (zero) here, and touch the OK softkey ✔ to confirm the input. Finally, in the third numeric dialog enter an address between 1 and 6 and touch the OK softkey ✔ to confirm the input.

Trigger
: Touch the field at the center of the Trigger row to open a dialog which determines the trigger for this output.

Figure 3-102: Output Trigger Configuration Dialog

Scale
: Touch the field in the center of the **Scale** row to open a dialog like the one shown in Figure 3-100.

Save the change in the Table using Up softkey 🟢.

Editing an Existing Record

■ Once assigned, an input address cannot be modified. To assign a new address to an input, delete the input and enter it afresh.

Touch the Edit softkey 📝. As when creating a new record, touch the softkeys in succession in order to change the triggering event and the scale on which the triggering event occurs.

Save the change in the Table using Up softkey 🟢.

Deleting a Record

Highlight a record. Touch the Clear softkey 🧹. Answer the security question by touching the OK ✅ softkey if you wish to delete the record, or touch the Cancel ❌ softkey to cancel the process.

3.4.3.   Dynamic weighing

Touch the Dynamic weighing softkey 🐎 in the **Application Configuration** window (Figure 3-81) to open the **Dynamic Weighing Configuration** screen.
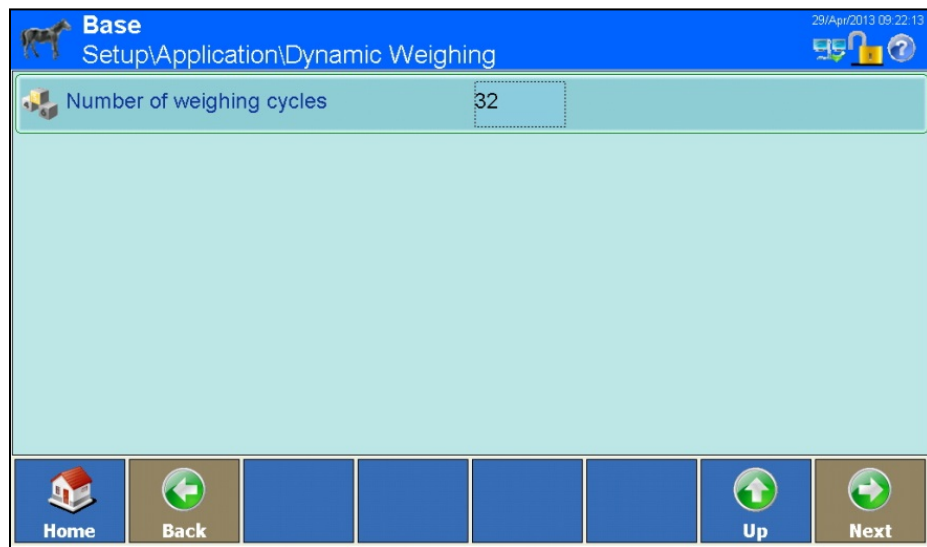
Figure 3-103: Dynamic Weighing Configuration Screen

Number of weighing cycles

Number of weighing cycles	Touch the field in the center of the **Number of weighing cycles** row to open a numeri entry dialog. Values from 1 to 99 are permissible.

3.4.4. Ident

The Ident softkey ⬜ in the **Application Configuration** screen (Figure 3-81) opens the **Ident Configuration** screen.

Figure 3-104: Identification Configuration Screen

Touch one of the Ident softkeys A to F ⬜ to open the **Ident Setup** screen.
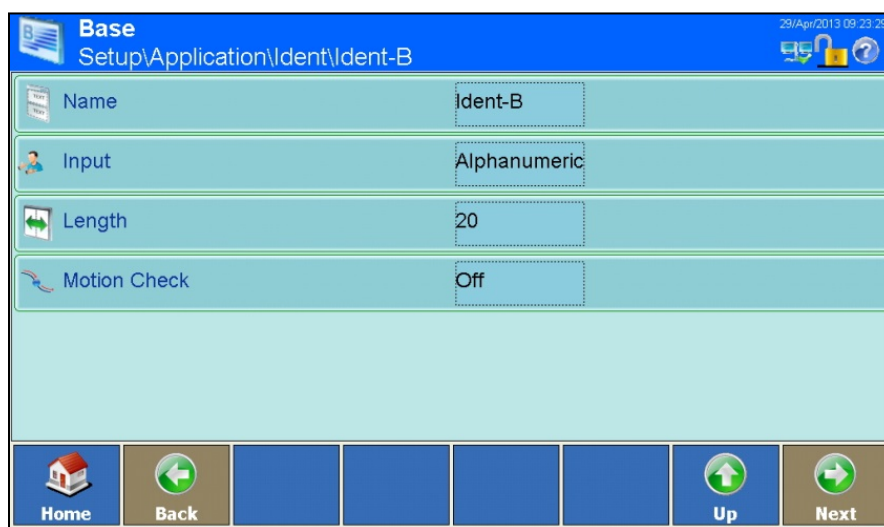
Figure 3-105: Ident Setup Screen

Name	Touch the field in the center of the **Name** row to open an alphanumeric dialog where a name (such as article number) for the identification memory can be entered. Confirm the entry by touching the OK softkey ✓.
Input	Touch the field in the center of the **Input** row to open a selection dialog. Here, the content of the identification memory can be defined as purely numeric, or as alphanumeric. Confirm the entry by touching the OK softkey ✓.
Length	Touch the field in the center of the **Length** row to open a numeric dialog. Enter the

maximum persmissible length of the identification memory. Values between 1 and 40 are permissible. Confirm the entry by touching the OK softkey ✔.

Motion Check Touch the field in the center of the **Motion Check** row to open a selection field. Motion Check can be set to **On** or **Off**. If **On** is selected, the terminal waits until the scale has reached a stable state before it triggers a print output, or data is sent to an interface.

3.4.5. Application

The Application softkey 📊 in the **Application Configuration Screen** gives access to setup areas detailed in the **User's Guide** provided with the Application PAC, if one is installed.

3.4.6. Totalization

Since version V1.3.3, the terminal has been equipped with a basic totalizing functionality. See chapter **2.12 Basic Totalizing** how to activate Totalization. Only if activated, the Totalization Setup node ∑ will appear with the following configuration screen:
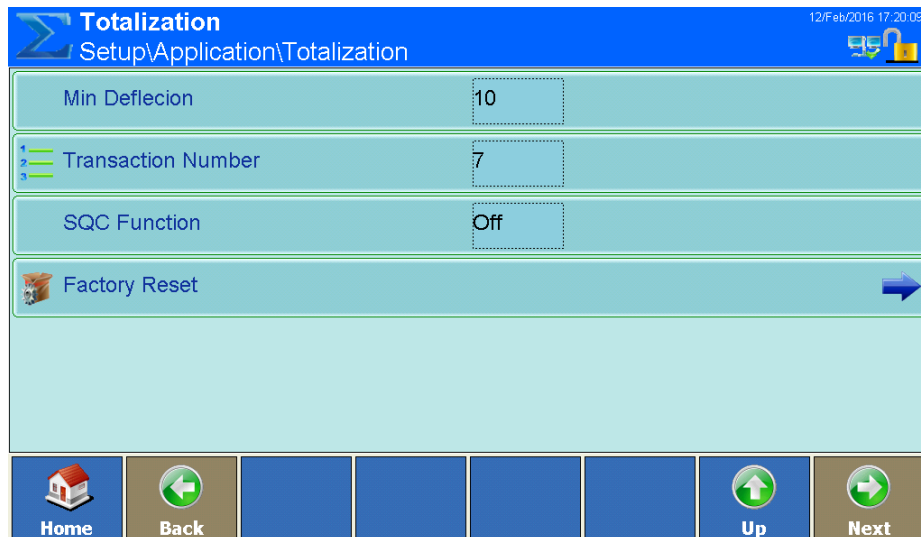
Figure 3-106: Totalization Configuration Screen

Touch one of the Setup nodes to configure the options:

Min Deflection Enter the minimum deflection that has to be exceeded before the next item can be totalized.
Possibly settings: 1 … 999 d
Factory setting: 10 d

Transaction Number The transaction number is increased by 1 at every totalization. When the transaction number has reached 1 499 999, it begins again at 0 000 001.

Nonetheless the transaction number in this block can be set to a specific value by touching the field in the center of this Setup node.

SQC function Recording of the mean standard deviation, minimum and maximum.
Factory setting: SQC Function Off

Factory Reset Reset the Totalizing function to the factory setting

■ Do not set Scale Mode to Parallel if using totalizing functionality.

3.5. Terminal

Touch the Terminal ⬚ softkey in the main **Setup** screen (Figure 3-3) to access the **Terminal Configuration** screens. Move from the first to second screen by pressing the Next softkey ➡.
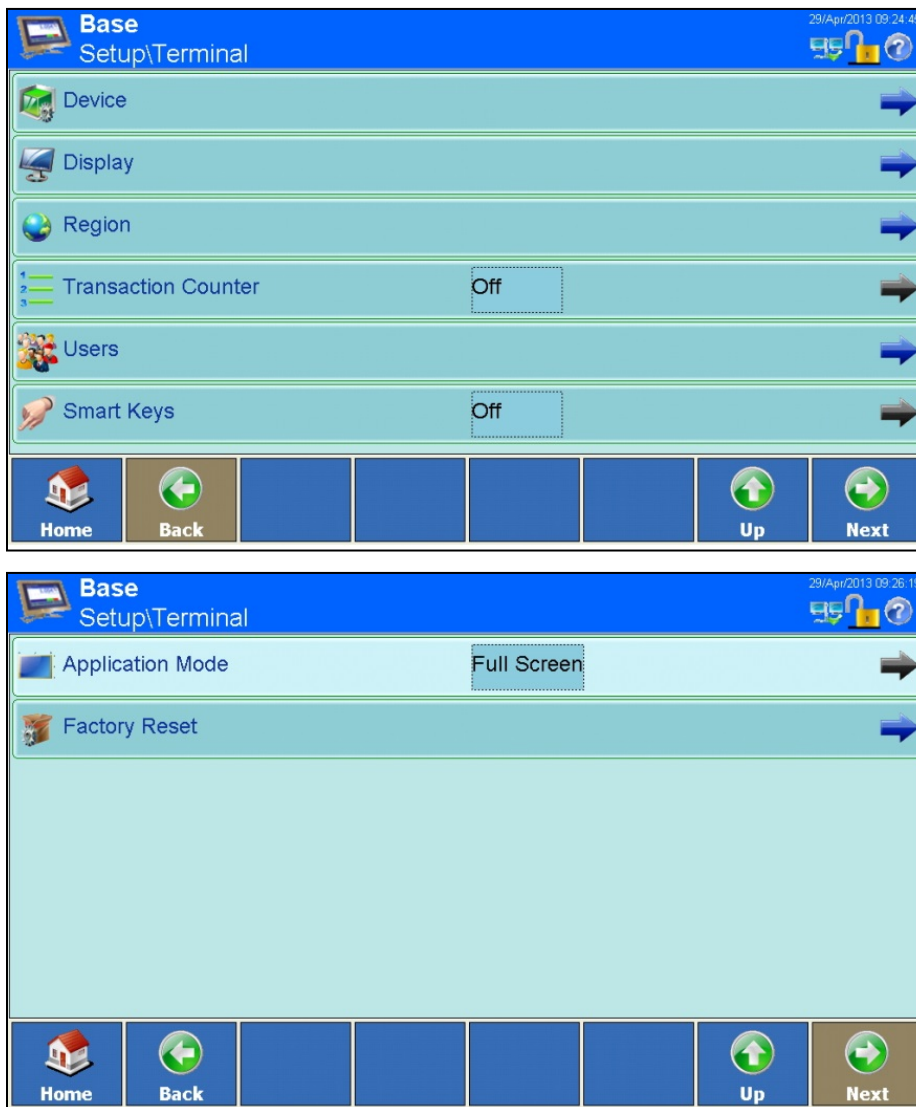
Figure 3-107: Terminal Configuration Screens

3.5.1. Device

Touch the Device softkey 🗾 to open the Device Configuration screen.
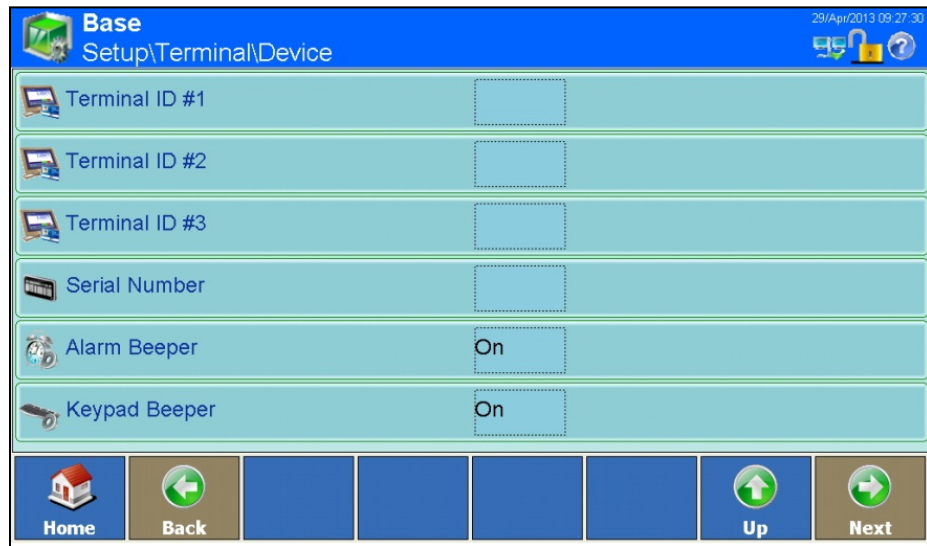
Figure 3-108: Device Configuration Screen

From this screen, three terminal IDs can be configured, together with the serial number of the terminal. Beeper behavior can also be configured.

The ID fields and the serial number can be viewed in the display by touching the Info softkey ⓘ and then touching the System softkey 🖣.

Terminal ID #1 - #3	Touch the field in the center of any of the Terminal ID #x rows 🖥 to open an alphanumeric dialog field. Here, an identification of up to 30 alphanumeric characters can be entered.
Serial Number	The serial number is preset in the factory and matches the serial number on the model plate of the terminal. We recommend that this number should not be changed.
	Touch the field in the center of the Serial Number row 🔲 to open an alphanumeric dialog field opens. Here, up to 30 alphanumeric characters can be entered.
Alarm Beeper **Keypad Beeper**	The beepers can be set to **On** or **Off**.

3.5.2. Display

Touch the Display softkey 🖥 ; to access the Display configuration screens. Move from the first to second screen by pressing the Next softkey ➡.
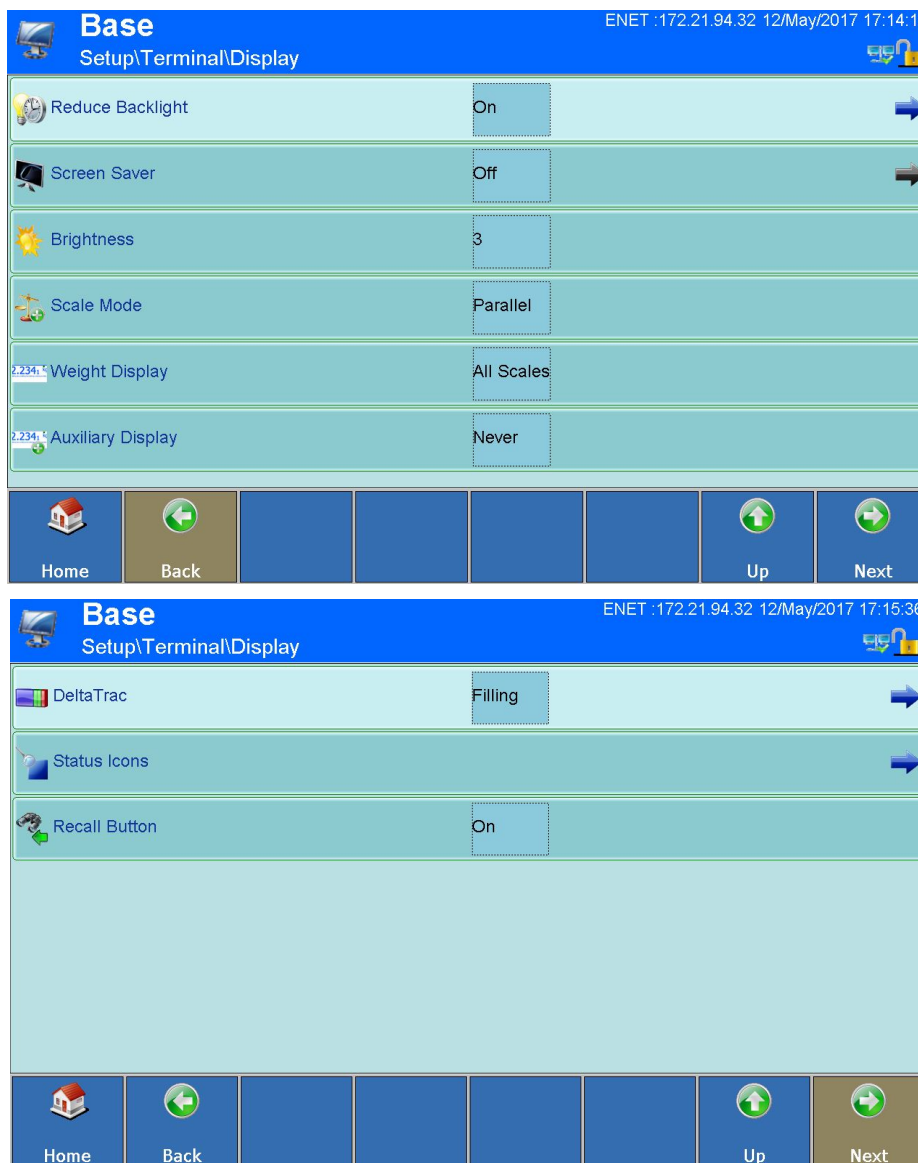
Figure 3-109: Display Configuration Screens

3.5.2.1. Reduce Backlight

■ The backlight has only a limited working life. Reducing the brightness when the terminal is not being used can extend its working life.

Touch the field in the center of the Reduce Backlight row 💡 to open a selection field. This field is used to specify whether the brightness of the display should be reduced after a configurable time or whether it should remain on normal brightness indefinitely.
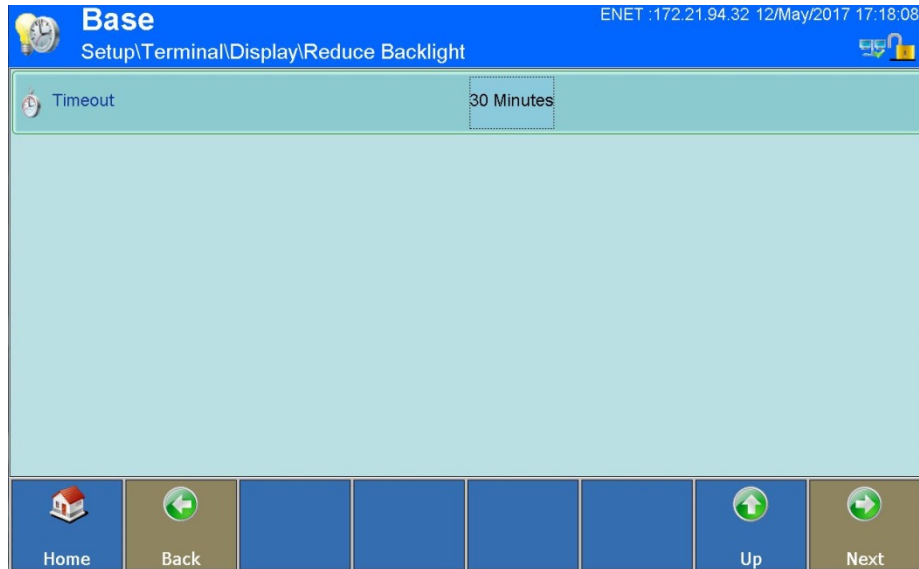
Figure 3-110: Reduce Backlight Setting Screen

Timeout

Touch the field in the center of the Timeout ⏱ row to open a numeric dialog field. Enter the number of minutes (1 to 999) without scale movement, key presses or touchscreen activity after which the backlight brightness will be reduced.

The following message is shown during reduced brightness:
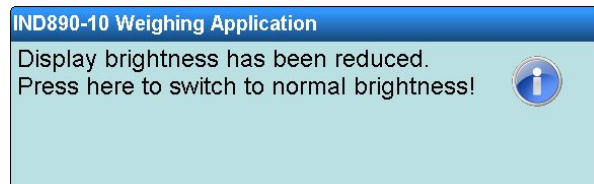
3.5.2.2. **Screen Saver**

Touch the Screen Saver 🖥 softkey to switch the Screen Saver **On** or **Off**.

Touch the field in the center of the Screen Saver 🖥 softkey to open the **Screen Saver** configuration screen.
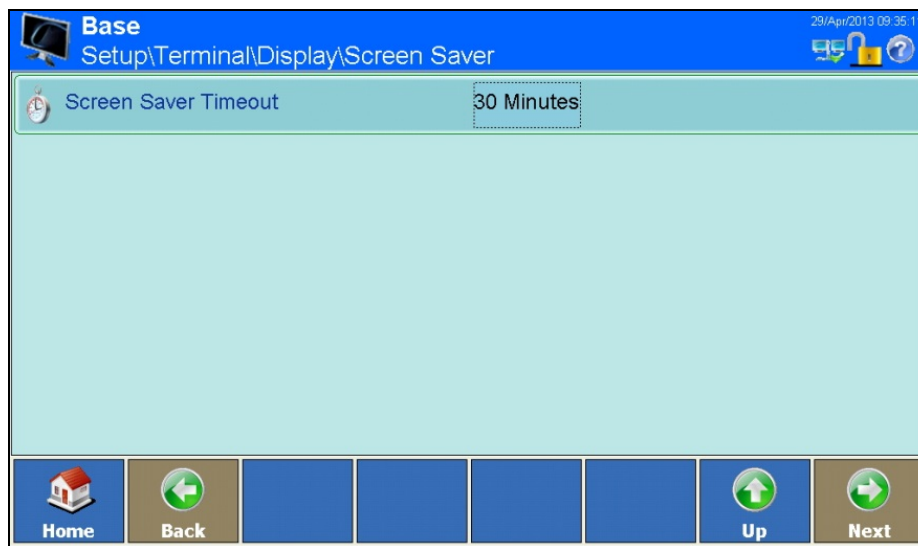
Figure 3-111: Screen Saver Configuration Screen

Screen Save Timeout   Touch the field in the center of the Screen Saver Timeout ⏱ softkey; a numeric dialog field opens.

Enter the number of minutes (1 to 99) without movement of the scale and without a key or the touch screen being touched before the screen saver is switched on. If a movement is sensed or a key or the touch screen is touched, the screen saver will automatically be switched off and the timer reset. The action of touching a key or the touch screen to switch the screen saver off does not trigger any other function.

3.5.2.3.   Brightness

Touch the field in the middle of the Brightness row ☀ ; a numeric dialog field opens. Enter a value between 1 and 5/10 (5: IND930, 10: ELO-Box). 1 is the setting for very dark and 5 (10) is the setting for maximum brightness.

🔹 The backlight has only a limited working life. If the brightness is set to a lower value, this can prolong the life time of the backlight.

3.5.2.4.   Scale Mode

Touch the field in the center of the Scale Mode row ⚖ to open the **Scale Mode** selection dialog.

Figure 3-112: Scale Mode Selection Dialog

Select whether the connected scales should be operated in serial or in parallel mode.

Parallel	The weight values of all the connected scales will be available for processing at the same time.
Serial	Only the displayed scale's weight value is processed. The Scale softkey 🔼 can be used to toggle between scales in order to change the source of the processed weight.

🔷 Do not set Scale Mode to Parallel if using totalizing functionality.

3.5.2.5. Weight Display

🔷 This setting can be changed only when the Scale mode is set to **Parallel**.

Touch the field in the center of the Weight Display row 🔼 to open the Weight Display selection dialog.

Figure 3-113: Weight Display Selection Dialog

Select whether all connected scales should be displayed at the same time or whether only one scale should be shown in the display.

All Scales	The weight values of all the connected scales are displayed concurrently.
One Scale	Only one scale's weight value is displayed. The Scale softkey 🔼 can be used to toggle between scales in order to change the source of the processed weight.

3.5.2.6. Auxiliary Display

Touch the field in the center of the Auxiliary Display row 📟 to open the Auxiliary Display selection dialog.

Figure 3-114: Auxiliary Display Selection Dialog

This setting determines whether the current tare value in the weight window is displayed never, only when tare is active, or always.

3.5.2.7. **DeltaTrac**

Touch the field in the center of the DeltaTrac row ▦ to open the DeltaTrac mode selection dialog
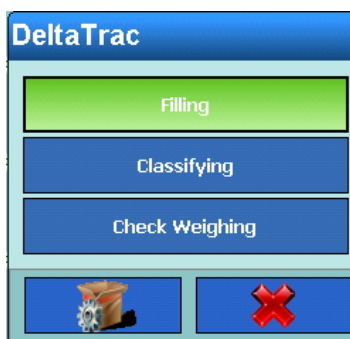
Figure 3-115: DeltaTrac Mode Selection Dialog

DeltaTrac has three available modes – **Filling**, **Classifying** and **Check Weighing**. Once a mode is selected, touch the Right arrow ➡ to open the DeltaTrac configuration screen.
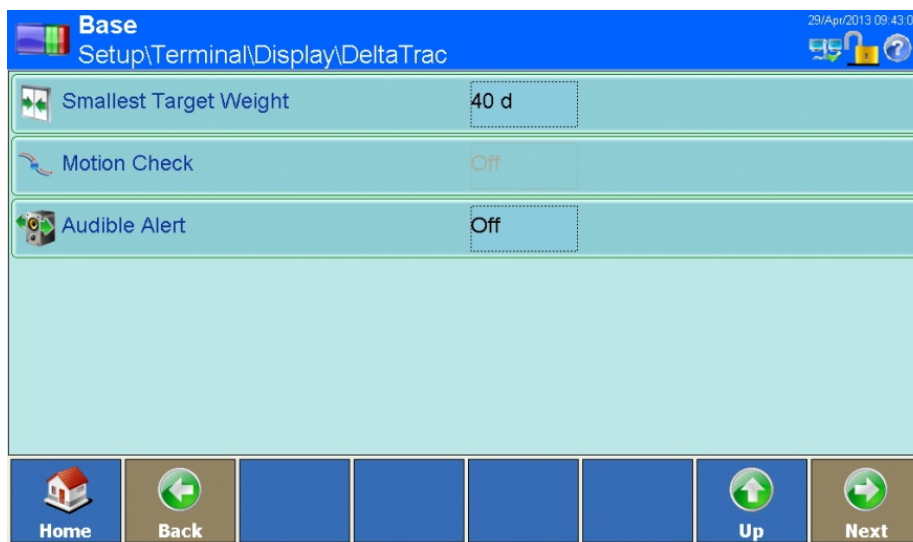
Figure 3-116: DeltaTrac Configuration Screen

Smallest Target Weight	Touch the field in the center of the Smallest Target Weight row 🔀 to open a numeric dialog field. Use the dialog to set the value (expressed in display units), of the smallest target weight for DeltaTrac.
Motion Check	With motion check switched on, the digital outputs are set only after the scale reaches stability. For information about digital outputs, please refer to section 3.4.2, **Digital I/O**.
	Touch the field in the center of the Motion Check row 〰 to open a selection field which allows the motion check to be switched on and off.
Audible Alert	With Audible alert switched on, an interval tone is output if the measured value is within the acceptable tolerance. The intervals are shortened if the measured value perfectly matches the target.
	Touch the field in the center of the Audible Alert row 🔊 to open a selection dialog

that determines whether the Audible alert is emitted.

3.5.2.8. Status Icons

Touch the Status Icons row to display the Status Line configuration screen.
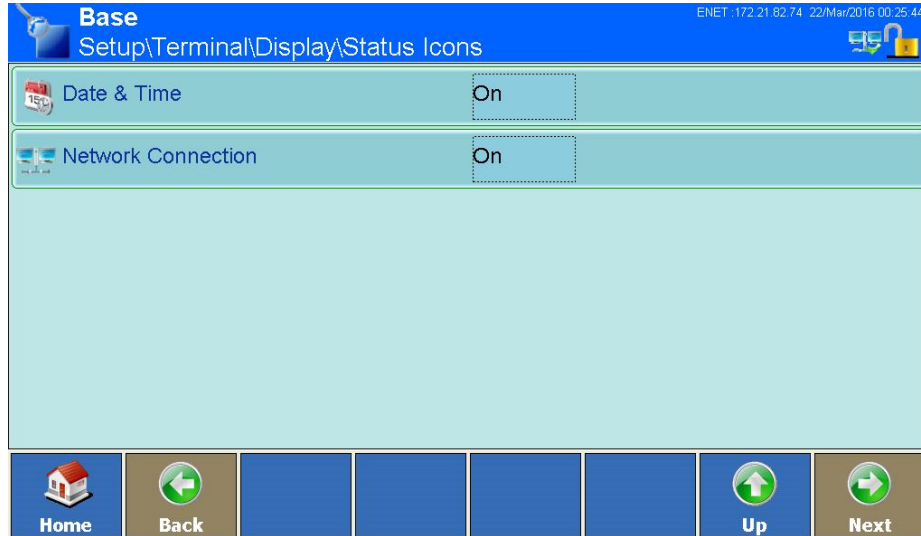
Figure 3-117: Status Line Configuration Screen

Date & Time   Touch the field in the center of the Date & Time row to open a selection dialog. The display of the date and time in the status bar can be turned **On** or **Off**.

Network Connection   Touch the field in the center of the Network Connection row to open a selection dialog. The display of the network symbol in the status bar can be turned **On** or **Off**. This symbol indicates whether an active network connection exists or not .

3.5.2.9. Recall Button

Touch the field in the center of the Recall Button row to switch the Recall Button **On** or **Off**.
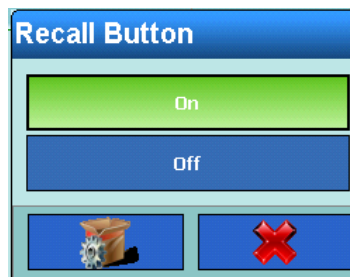
Figure 3-118: Recall Button Selection Dialog

On   The Recall Button is enabled in numeric and alphanumeric entry dialogs. With this button the last 10 entries can be recalled.

Off   The Recall Button is disabled. The user is prevented to see the last entries.

3.5.3. Regional Settings

Touch the Region softkey 🌐 to open the **Region** configuration screen.

Figure 3-119: Region Configuration Screen

3.5.3.1. Date and Time

Touch the Date & Time row 📅 to open the **Date and Time** configuration screens.
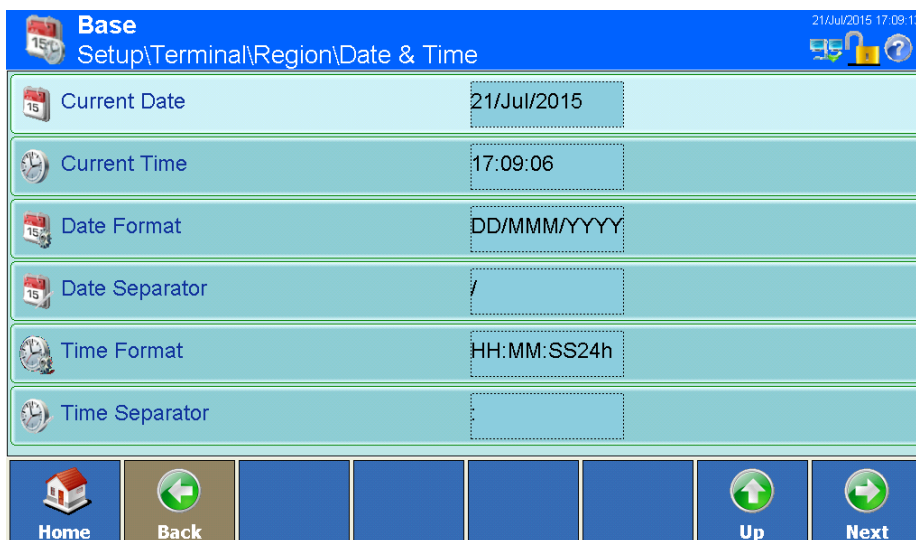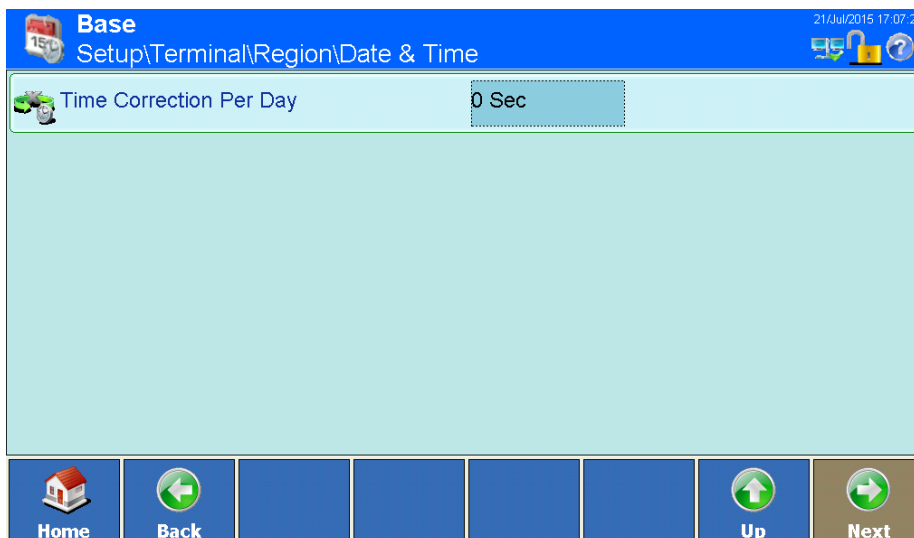
Figure 3-120: Date and Time Configuration Screens

Current Date

Touch the Current Date row 🗓 to display a numeric dialog in which the current date can be set.

Current Time

Touch the Current Time row 🕐 to display a numeric dialog in which the current time can be set.

Date Format

Touch the Date Format row 🗓 to display a selection dialog in which the format of the date can be set.
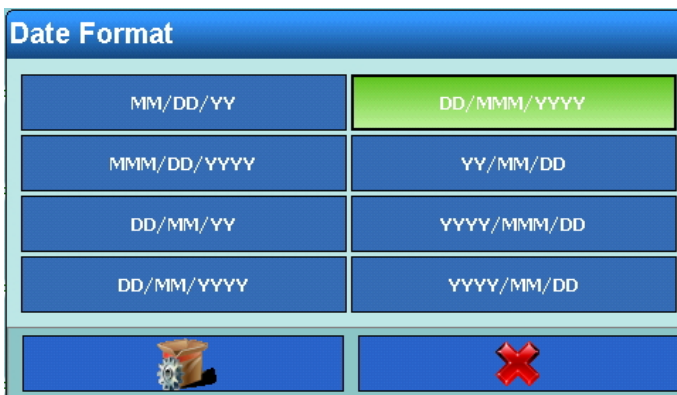
Figure 3-121: Date Format Selection Dialog

Available date formats are:

- MM.DD.YY (2 characters for month, day, year). Example: 16.08.10

- DD.MMM.YYYY (2 characters for day, 3 characters for month, 4 characters for year). Example: 16.Aug.2010

- MMM.DD.YYYY (3 characters for month, 2 characters for day, 4 characters for year). Example: Aug.16.2010

- YY.MM.DD (2 characters for year, month, day). Example: 10.08.16

- DD.MM.YY (2 characters for day, month, year). Example: 16.08.10

- YYYY.MMM.DD (4 characters for year, 3 characters for month, 2 characters for day). Example: 2010.Aug.08

- DD.MM.YYYY (2 characters for day, month, 4 characters for year). Example: 16.08.2010

- YYYY.MM.DD (4 characters for year, 2 characters for month, day). Example: 2010.08.16

Select the appropriate date format.

Date Separator
Touch the Date Separator row 🗓 to display a selection dialog in which the date separator can be set. Select the appropriate separator.
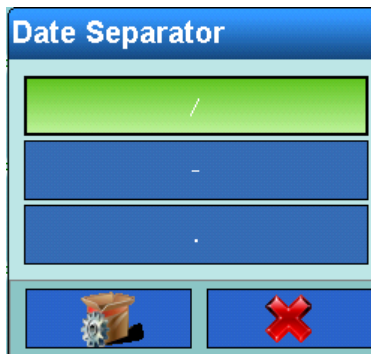
Figure 3-122: Date Separation Selection Dialog

Time Format
Touch the Time Format row 🕑 to display a selection dialog in which the date separator can be set.
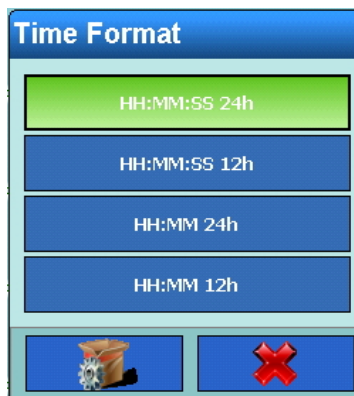
Figure 3-123: Time Format Selection Dialog

Available time formats are:

- HH:MM:SS 24h (24-hour clock with display of hours, minutes and seconds)

- HH:MM:SS 12h (12-hour clock with display of hours, minutes and seconds)

- HH:MM 24h (24-hour clock with display of hours and minutes; when printed, also with seconds)

- HH:MM 12h (12-hour clock with display of hours and minutes; when

printed, also with seconds)

Select the appropriate format.

Time Separator

Touch the Time Separator row 🕐 to display a selection dialog in which the time separator can be set. Select the appropriate separator.

Figure 3-124: Time Separator Selection Dialog

Time Correction Per Day

The IND900 has a battery-powered real-time clock (RTC) onboard which is used to provide current date and time.

Depending on the actions at the terminal it can happen that the RTC goes wrong. The difference to correct time can reach a few seconds per day. This inaccuracy can be critical, especially for Alibi Memory records which are important for certification and therefore must include an accurate timestamp.

The time correction function allows adjusting the RTC between -99 and +99 seconds per day.

🔷 This correction only works while terminal is switched on. When power is off the RTC is very precise and does not need correction.

Touch the Time Correction Per Day row 🕐 to display a dialog in which the time correction can be set.

🔷
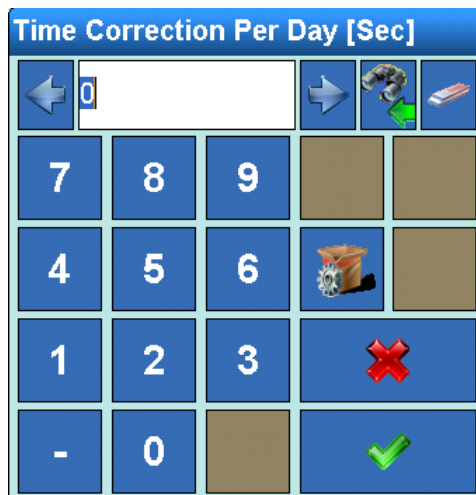
Figure 3-125: Time Correction Per Day Dialog

3.5.3.2. **Time Zone**

Touch the field in the center of the Time Zone row 🌐 to open the **Time Zone** selection dialog.

Time Zone

| (GMT-07:00) Mountain Time (US & Canada) |
| (GMT-06:00) Guadalajara, Mexico City, Monterrey |
| (GMT-06:00) Central America |
| (GMT-06:00) Saskatchewan |
| (GMT-06:00) Central Time (US & Canada) |
| (GMT-05:00) Bogota, Lima, Quito |
| (GMT-05:00) Indiana (East) |
| (GMT-05:00) Eastern Time (US & Canada) |
| (GMT-04:30) Caracas |
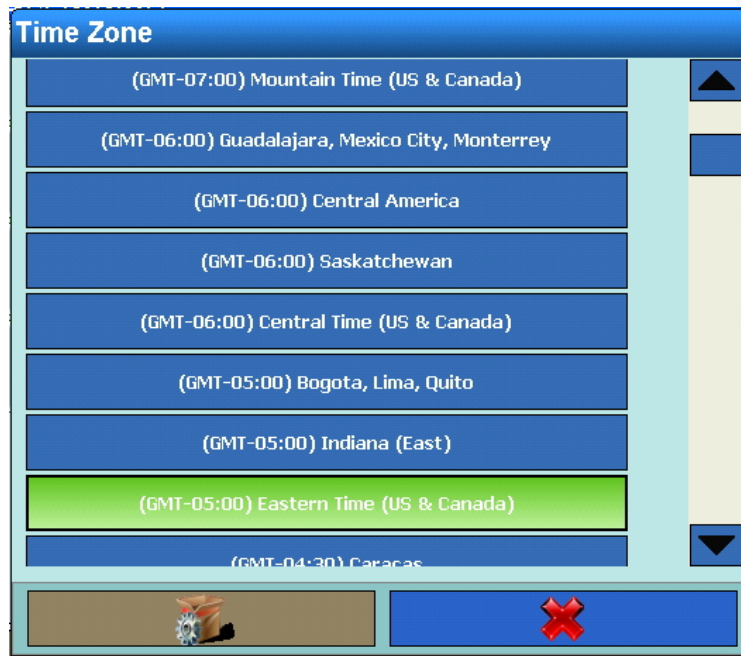
Figure 3-126: Time Zone Selection Dialog

Select the appropriate time zone

3.5.3.3. **Daylight Saving Time**

Touch the Daylight Saving Time softkey 🌐 to open a selection dialog which allows the automatic changeover to Daylight Saving Time to be turned **On** or **Off**.

3.5.3.4. **Language**

Touch the Language row 👥 to open the Language configuration screen.
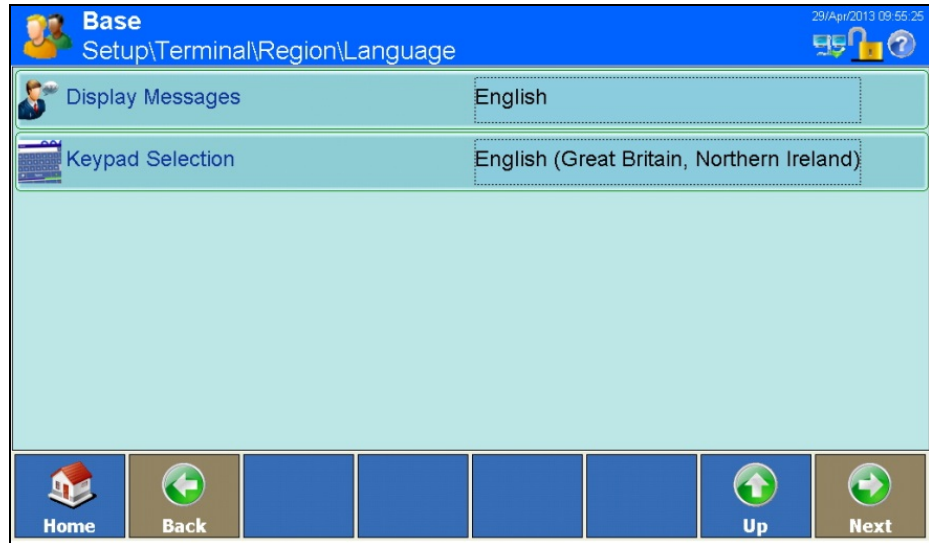
Figure 3-127: Language Configuration Screen

Display Messages   Touch the Display Messages row 🖼 to display a selection dialog in which the language for displayed messages can be set. Select the appropriate language.
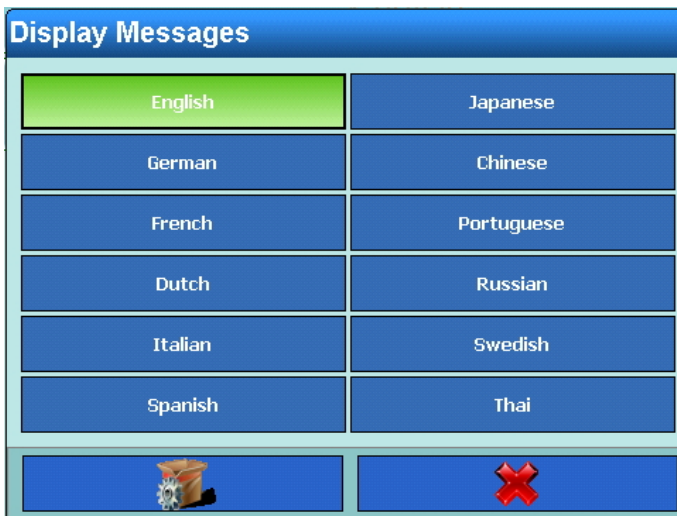
Figure 3-128: Display Messages Language Selection Dialog

Keypad Selection   Touch the Keypad Selection row 🖼 to display a selection dialog in which the keyboard language can be set. Select the appropriate language. This determines which international characters are available in the alphanumeric dialog fields.

Figure 3-129: Keypad Language Selection Dialog

3.5.4. Transaction Counter

The transaction counter is a seven-digit counter which counts the overall number of transactions performed at the terminal. When the value reaches 1,499,999, at the next transaction the counter resets to 1. The transaction counter is displayed in the table view of the alibi memory.

Touch the field in the center of the Transaction Counter row ⁝≣ to switch the transaction counter **On** or **Off**. When the counter is set to **On**,

With the transaction counter switched **On**, touch the Transaction Counter softkey ⁝≣ to display the **Transaction Counter** configuration screen.
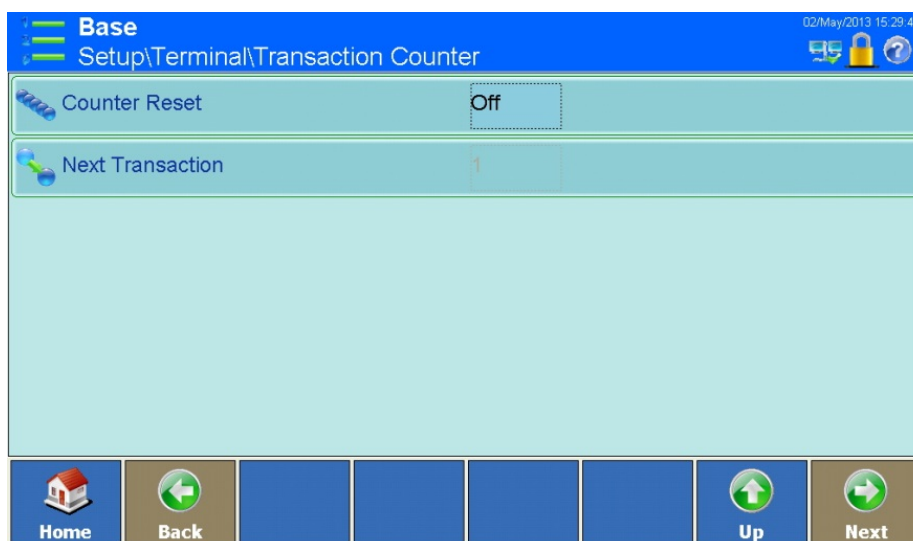
Figure 3-130: Transaction Counter Configuration Screen

Counter Reset	Touch this softkey to enable (**On**) or disable (**Off**) manual reset of the counter.
Next Transaction	The counter value for the next transaction is displayed in the Next Transaction row
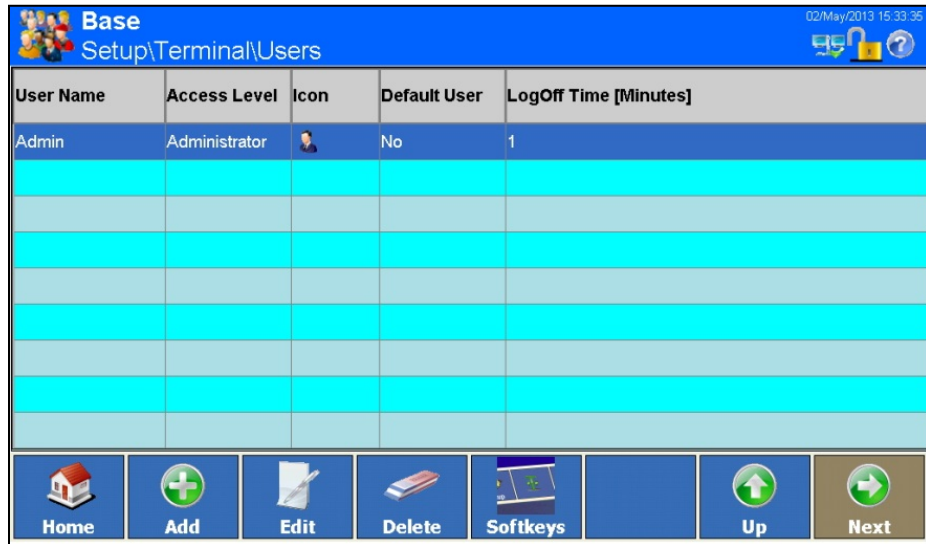
. If **Counter Reset** is **On**, this field can be edited. A Reset Counter softkey is available which can be assigned to the home screen. If **Counter Reset** is **On**, a user can touch this softkey to recall, display and reset the current counter number.

3.5.5. Users

Touch the Users row to open the **Users** configuration screen.

Figure 3-131: Users Configuration Screen

The IND900 terminal is preconfigured with two user names: **Admin** and **Operator**. These two default user names cannot be deleted. A password is assigned by the factory for the Admin user. Unless a password is assigned, there is no protection against entering Setup and making changes to the terminal's configuration. All functions in the terminal, except those for which a password must be entered, are available to all users.

3.5.5.1.1.   Creating a New User

Touch the Add softkey ⊕ to open the **User** setup screen.
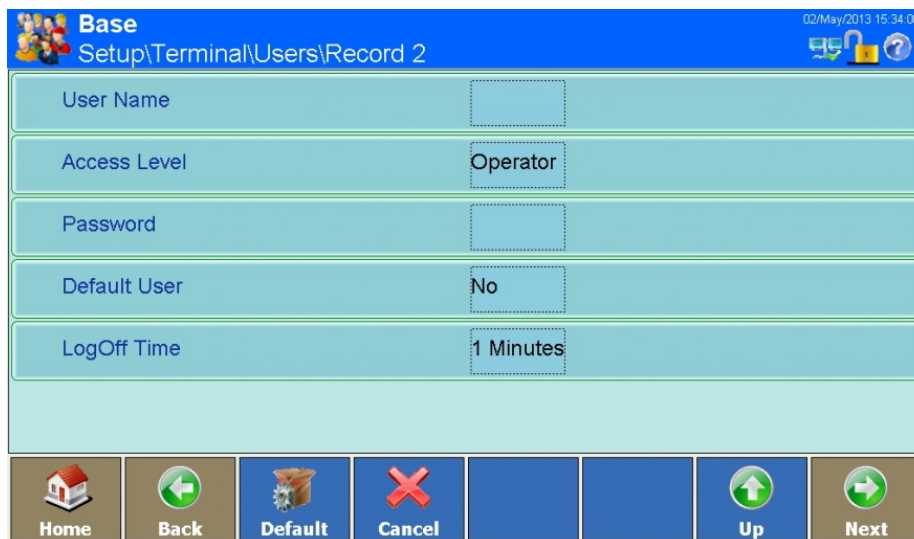
Figure 3-132: User Setup Screen

User Name   Touch this field to open an alphanumeric dialog where the user's name can be entered.

Access Level   Touch this field to open the **Access Level** selection dialog.
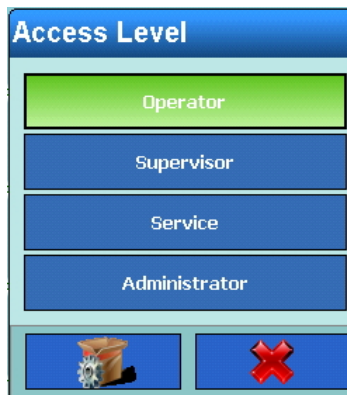
Figure 3-133: User Access Level Selection Dialog

Depending on the access level for the user who is logged in, the Setup menu is displayed as read-only or allows changes. In addition, each user is assigned only certain softkeys and operating functions.

The individual levels have the following rights:

Operator   A standard user account is predefined. This is particularly useful for locations with validation requirements. The user is assigned the security level with the most restrictions, for instance as a rule only a relatively small number of softkeys, those which are essential for all users, are enabled.

Supervisor   Access for this level is generally restricted to editing tables and

setting the time and date.

Service	Access at this level is generally identical to access at the administrator level, except for access to metrologically relevant setup areas.
Administrator	An administrator has unrestricted access to all areas of the operating system and setup. Multiple administrators may exist. The primary administrator account cannot be changed or deleted and its secret password cannot be modified. If logged in under this primary administrator account, it is possible to create, manage and delete additional user accounts.

    ■ When an additional administrator is configured, take care to remember the password. If the password is changed or forgotten, only the primary administrator account can access the complete setup menu. Ensure that unauthorized persons do not have access to the password.

Password	Touch this field to open an alphanumeric dialog where a password can be entered.
Default User	Touch this field to open a selection dialog. This is used to determine if the new user is the default user. Only one user can be the default.

The user identified as default is logged on automatically when the terminal powers up, or when another user 🧑 logs out. This user typically has very restricted rights. However, the default user always has access to the Login softkey 🧑 which, with a correct user name and password, gives access to higher level of rights.

LogOff Time	Touch this field to open a numeric dialog. This is used to set the number of minutes of system inactivity (no user activity) before the system will automatically log out the user.

    ■ A value of 0 disables this function, and the user is never automatically logged out.

    ■ The default user is never automatically logged out.

3.5.5.1.2.   Editing an Existing User

    ■ Once defined, the user name cannot subsequently be changed. The user can, however, be deleted and entered afresh. The primary Administrator account cannot be edited.

Touch the Edit softkey 📝 . As when creating a new user, the access level, the password, the type of user and the logoff time can all be modified.

3.5.5.1.3.   Deleting an Existing User

    ■ The primary Administrator account cannot be deleted.

Highlight a record in the Users Configuration Screen (Figure 3-131) and touch the Clear softkey 🖊

Answer the security question that appears by touching the ✔ softkey to delete the record, or by touching the ✖ softkey to cancel the process.

3.5.6. Softkeys

The softkeys that appear along the bottom edge of the display screen give quick and intuitive access to the setup pages and application functions. If more than eight softkeys are defined, the Next softkey ⊙ appears on the far right. Touch this to move to the next screen of softkeys.

The last available screen with softkeys also displays the Next softkey ⊙. Touching this returns the view to the first screen of softkeys.

The softkeys on the home screen can be modified or rearranged. Touch the Softkeys softkey ▨ to open the **Softkeys** configuration screen.

▪ The screen may appear different from the one shown below, depending on installed options and applications.
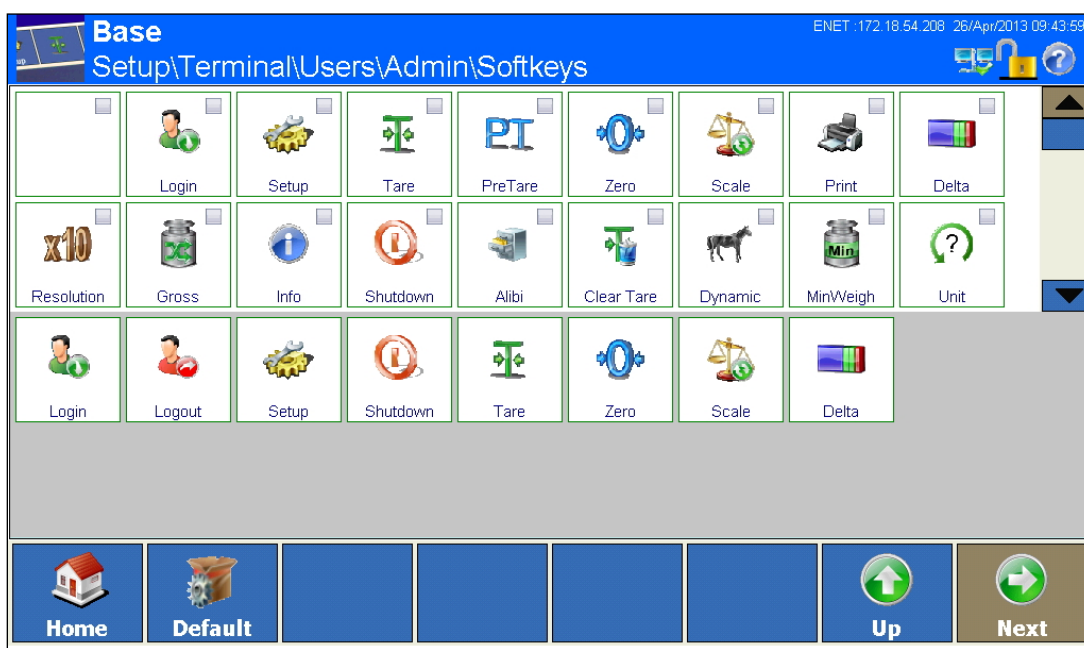
Figure 3-134: Softkeys Configuration Screen

In this window

- **Available** softkeys appear on a white background in the upper half

- **Already configured** softkeys appear on a gray background in the lower half of the window

The available softkeys can be loaded into the field of the configured softkeys by double-clicking on them or by simply dragging them into the field.

Softkeys that have been used in the active array (lower part of screen) at least once are indicated with a check ✔ mark.

The order of the configured softkeys can be customized by clicking and dragging.

A configured softkey can be removed by dragging it into the upper field of existing softkeys. Click Default ▨ to restore the factory-configured softkeys.

A table with all the available softkeys and their precise function can be found in the section 2.2.1 of chapter 2, **Operation**.

3.5.7. Smart Keys

Smart Keys allow the experienced user to directly initiate certain scale functions by touching the weight window.

Touch the Smart Keys 👆 field to turn the Smart Keys **On** or **Off**. When the Smart Keys are set to **On**, touch the Right arrow ➡️ to open the **Smart Keys** configuration screen.
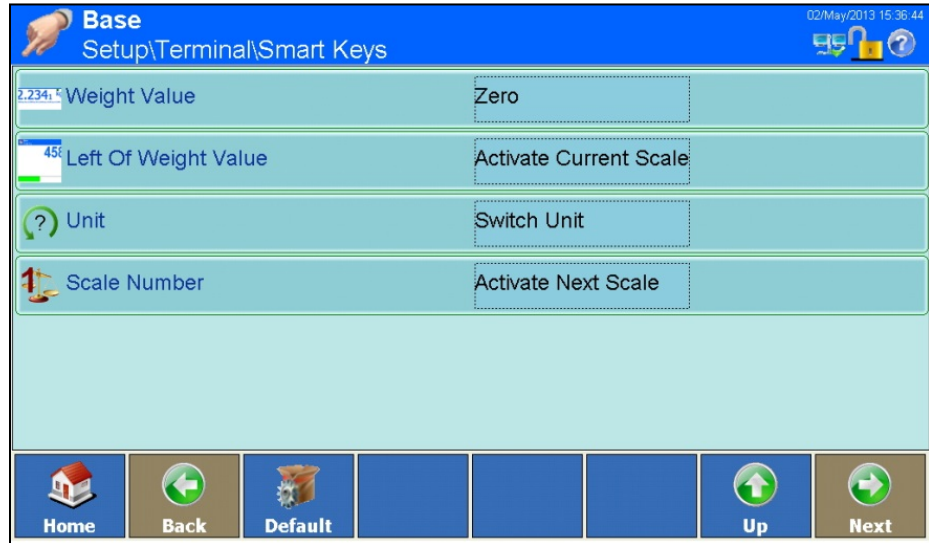
Figure 3-135: Smart Keys Configuration Screen

Weight Value   Touch this field to open the Weight Value selection dialog. Select the function to be activated by the Weight Value smart key.

Figure 3-136: Smart Keys Weight Value Selection Dialog

Left Of Weight Value

Unit   Touching any of these fields this opens the selection dialog shown in Figure 3-136. Select the function to activated by the respective smart key.

Scale Number

3.5.8. Application mode

Touch the field in the center of the Application Mode row to open the **Application Mode** selection dialog.
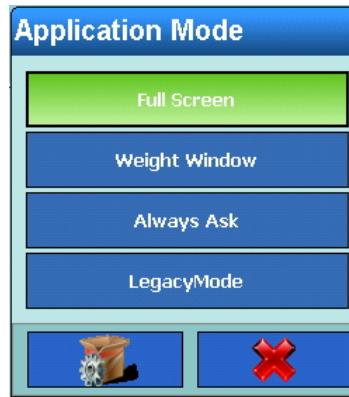
Figure 3-137: Application Mode Selection Dialog

The selection made in this dialog determines how an application will run.

Full Screen The application will occupy the entire screen.

Weight Window Only the window with weight values will display.

Always Ask Each time the application is started, the user is prompted to choose between the **Weight Window** and **LegacyMode** options.

LegacyMode A small window with weight values will display:
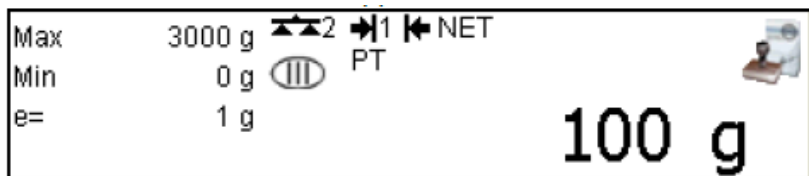
It displays all legally relevant elements and the approval icon (or if approval is disturbed).

The **Legacy Weight Window** can be easily moved to any useful position on the screen by finger. During movement it becomes transparent. The last position is stored and used again after a reboot.

If one of the icons / is pressed, the W&M Info Window appears like in the full screen Weight Window. It shows all legally relevant data as well as the softkeys for Logbook, Alibi and Calibration Test.

Figure 3-138: W&M Information Window

Please note that an API communication must be stopped before opening the W&M Info Window, Logbook or Alibi Memory or before a Calibration Test is executed.

If **Weight Window** or **LegacyMode** is selected, the system will warn that is not possible to return to full screen mode. To confirm the mode selection, touch the ✔ softkey, or cancel the process by touching ✖. When **Weight Window** or **LegacyMode** is selected, touch the Application Mode softkey 🔲 to open the **Application Mode** configuration screen.

Figure 3-139: Application Mode Configuration Screen

Docking Style	Touch this field to display the **Docking Style** selection dialog. Settings are:
	None The application window can be positioned anywhere on the screen.
	Top The weight window is fixed at the top edge of the screen.
	Bottom The weight window is fixed at the bottom edge of the screen.

Figure 3-140: Docking Style Selection Dialog

Top window position (pixel)	These parameters can be specified only when the **Docking Style** is set to **None**.
	Touching one of these fields opens a numeric entry dialog in which the window position can be specified in pixels from the top and left of the screen. The **Left**
Left window position (pixel)	parameter can only be used if the weight window does not take up the entire width of the screen.
	Enter a value that lies within the range specified in the dialog's header.
Window Width (pixel)	**Window Width** can be specified only when the **Docking Style** is set to **None**.
	Touch the field to open a numeric entry dialog. Enter a value that lies within the range specified in the dialog's header.
Window Height (pixel)	**Window Height** cannot be specified when the **Application Mode** is set to **LegacyMode**.
	Touch the field to open a numeric entry dialog. Enter a value that lies within the range specified in the dialog's header.

3.5.9. Resetting to factory defaults

To reset the setup branch terminal to the factory defaults, touch the Reset softkey 🐗. Answer the security question that appears by touching the ✅ softkey to perform the reset, or by touching the ❌ softkey to cancel. On successful completion of the reset, a message will appear indicating that the operation was successful.

3.6.   Communication

Touch the Communication ![icon] softkey in the **Main Setup** screen (Figure 3-3) to open the **Communication Configuration** screen.
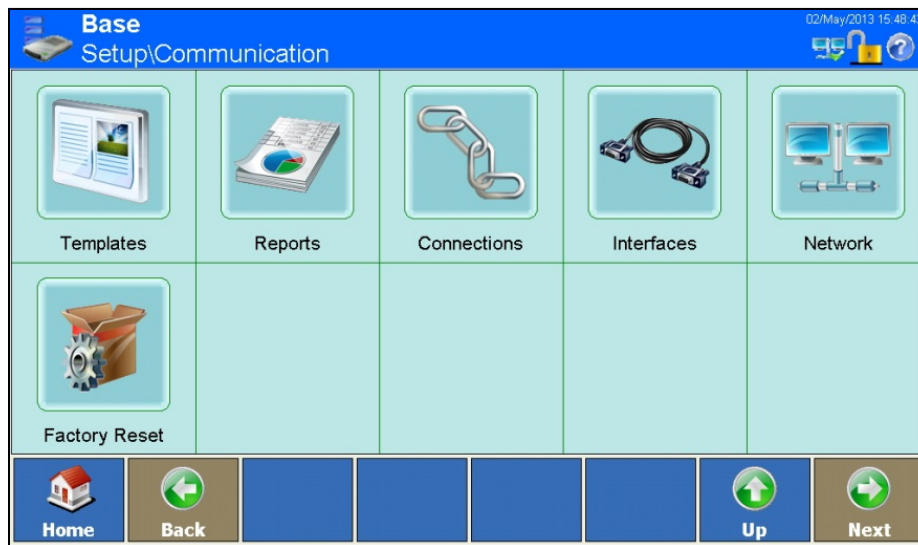
Figure 3-141: Communication Configuration Screen

3.6.1.   Templates

The IND900 terminal uses ten initial templates (each 1000 bytes in size) to define the format of the data output when a weighing procedure or other event has been performed.

An input template is also available. This receives character strings (for example, from a barcode reader) and uses them as data input for an application, tare, tare ID or target ID or keyboard. The input template is used in combination with the ASCII input.

A Character strings setup window allows the configuration of character strings that are frequently used in templates.

The InSite™ CSL tool can be used to edit the input and output templates in a WYSIWYG environment. InSite allows a preview of the format and the output.

Touch the Templates ⬛ softkey in the **Communication** configuration screen (Figure 3-141) to open the **Templates** configuration screen.
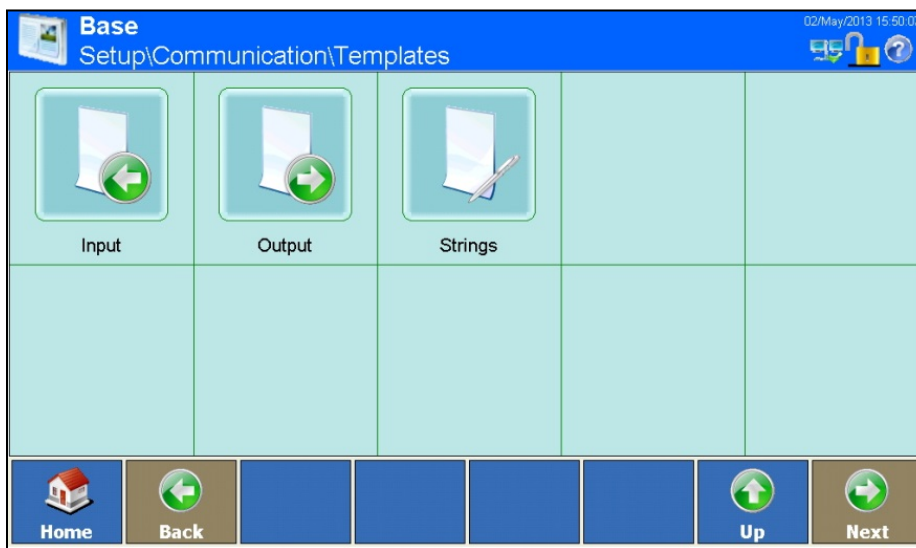
Figure 3-142: Templates Configuration Screen

3.6.1.1. Input Template

The input template allows characters superfluous to the data to be removed from an input character string.

This is especially useful when working with barcode readers or RFID readers.

Touch the Input softkey ⬛ to display the **Input** configuration screen.
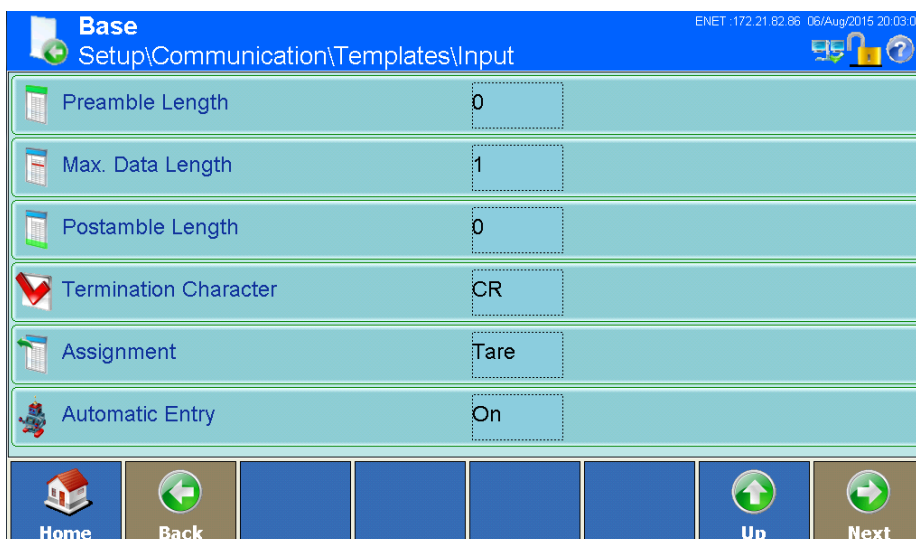
Figure 3-143: Input Template Configuration Screen

Preamble Length   Touch this field to display a numeric dialog where the preamble length is set. This is the number of characters that should be skipped at the start of an input string, before

the desired data.

Data Length   Touch this field to display a numeric dialog where the data length is set. This is the maximum number of characters that should be interpreted as data.

Postamble Length   Touch this field to display a numeric dialog where the postamble length is set. This is the number of characters that should be cropped from the end of the data, before the termination character of the input string. All data after the preamble and up to the termination character, less the postamble, will be used as the input character string.

Termination Character   Touch this field to display the Termination Character selection dialog. This character is used to signal the end of the input character string. It can be any ASCII control character. If **None** is selected, the input will end automatically, 1 second after receipt of the last character.
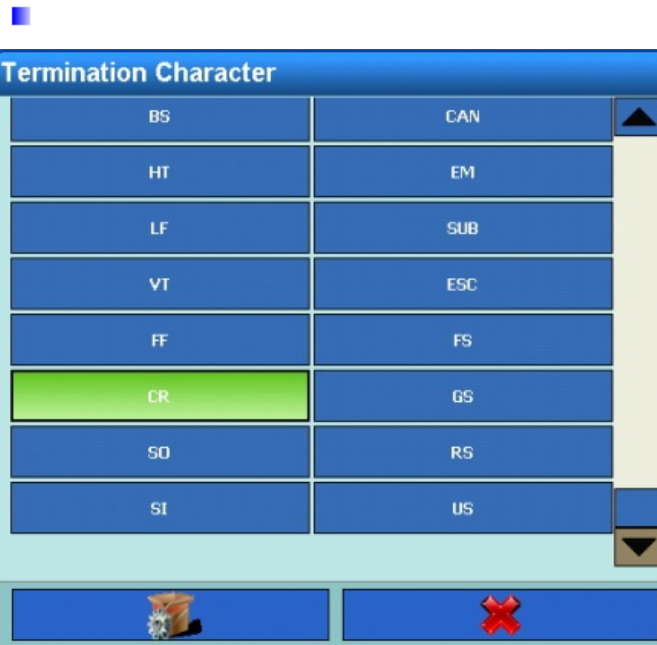
Figure 3-144: Termination Character Selection Dialog

Assignment   Touch this field to display the **Assignment** selection dialog. Options are:

Tare	Use the input data as a tare value.
Tare ID	Use the input data as a tare ID, to select a tare value from the Tare Table.
Target ID	Use the input data as a target ID, to select a tare value from the Target Table.
Ident-A to Ident-F	Use the input data as a value for Ident-A to Ident-F.
None	Input data are written only into an open dialog window.

Automatic Entry   Touch this field to switch Automatic Entry **On** or **Off**.

On: a received barcode or RFID code is shown on the screen and subsequently automatic accepted as input without any further action.

Off: a received barcode or RFID code is shown on the screen and only accepted as input after a manual confirmation.

3.6.1.2. Output Templates

Touch the Output softkey 🗋 to open the **Output Templates** configuration screen. Touch the Next softkey 🟢 to display the second page.

Figure 3-145: Output Templates Configuration Screens

Ten output templates (Templates 1 to 10) are available.

The contents of an existing template can be copied into another template. This is useful when several templates are required whose content differs only slightly. Touch the Copy Template softkey to display the **Copy Source** selection dialog.

Figure 3-146: Template Copy Source Selection Dialog

Touch the template to be copied by touching it. The Copy Destination selection dialog will display.

Figure 3-147: Template Copy Destination Selection Dialog
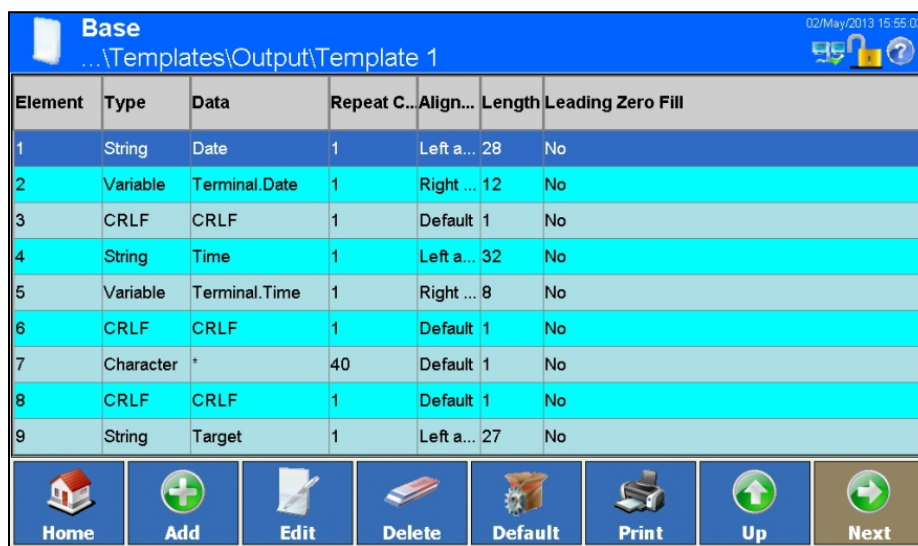
Touch a target template to select it.

▪ Copying will completely overwrite the previous content of the target template.

Answer the security question that appears by touching the ✔ softkey to over-write the template's current contents, or by touching the ✖ softkey to cancel the process.

3.6.1.2.2.   Viewing and Editing Templates

To view and modify elements (records) within a template, or to create a new template, select the desired template by touching the Template x softkey ◻ . The **Template View** screen will display.
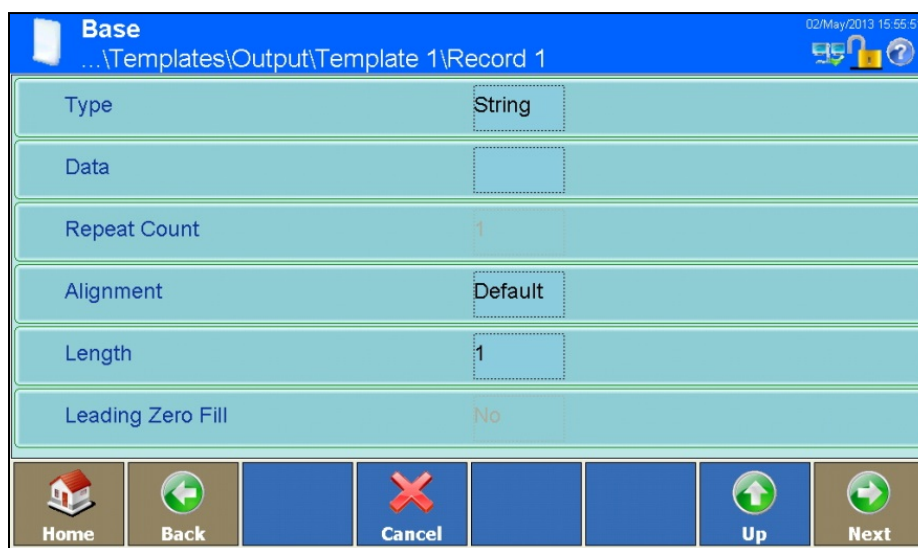
Figure 3-148: Template n View Screen

3.6.1.2.3.   Adding a New Element

In the window, touch the row below which you wish to insert a new element, then touch the Add softkey ⊕ . The **Add Record** screen will display.

Figure 3-149: Template – Add Record Screen

Type   Touch this field to open a selection dialog from which the type of element can be selected.
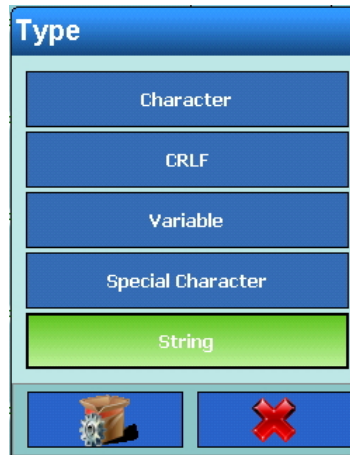
Figure 3-150: Template Element Type Selection Dialog

Data   Touch this field to set options for the element type selected. Options are:

Character   An alphanumeric entry dialog appears. Enter any character.

CRLF   No options available

Variable   The **Variable Group Selection** dialog opens. Touching an option opens a further dialog, shown in the Figures below, which permit the selection of variables from various areas of the IND900, such as interfaces, other templates, and scales. Some dialogs lead to further sets of options.

For the **Character String** variable type, an alphanumeric entry dialog appears into which any character string can be entered.

Figure 3-151: Variable Group Selection Dialog

Figure 3-152: Terminal Variables Selection Dialog
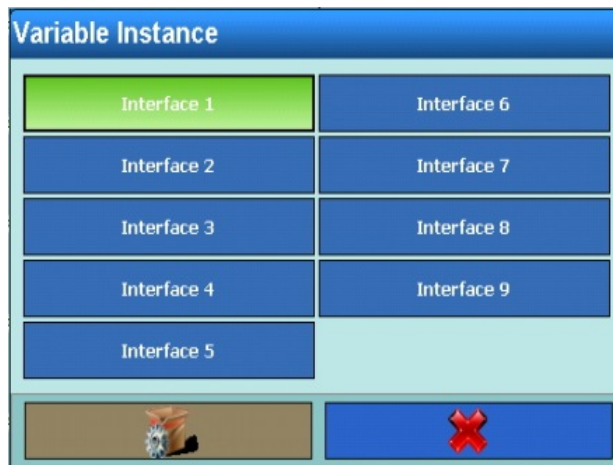
Figure 3-153: Interfaces Group Selection Dialog

Each interface in turn offers the following selections:

Figure 3-154: Interface Variables Selection Dialog

Figure 3-155: Input Template Variables Selection Dialog

Figure 3-156: Output Template Variables Variables Selection Dialog

■ Note that output templates can be nested, but a template cannot be nested within itself.

Figure 3-157: Report Variables Selection Dialog

For Networks, select Network 1 or Network 2. Each network offers the following selections:

Figure 3-158: Network Variables Selection Dialog

Figure 3-159: Scales Group Selection Dialog

Each scale in turn offers the following selections:

Figure 3-160: Scale Variables Selection Dialog

Figure 3-161: Application Variables Selection Dialog

Figure 3-162: Maintenance Variables Selection Dialog
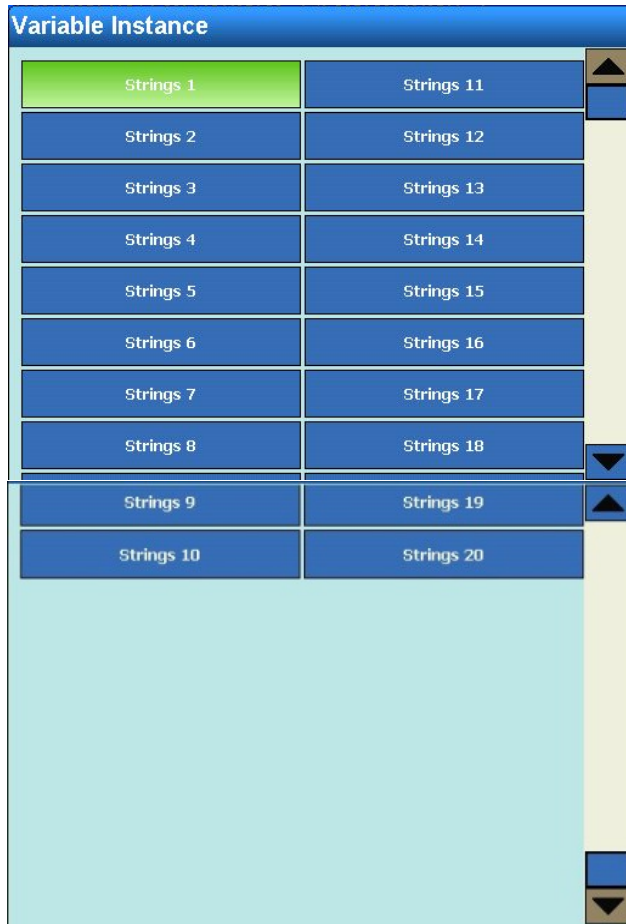
Figure 3-163: String Variables Selection Dialog

Figure 3-164: E-mail Information Selection Dialog

Figure 3-165: Fixed Memory Selection Dialog

Figure 3-166: Special Characters Selection Dialog

Repeat Count   Touch this field to open a numeric dialog. Enter the number of times the previously defined element is to be repeated (depending on **Data** type). An element can be repeated up to 999 times.

Alignment　　　　Depending on the **Data** type selected, the Alignment selection dialog appears. These alignment options determine the position of the data within the **Length** of the field.
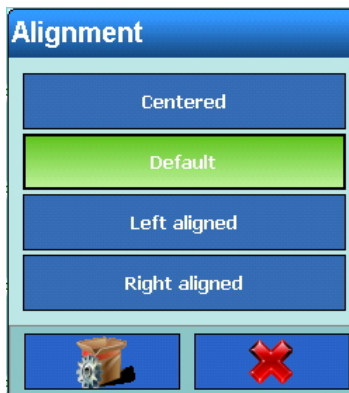
Figure 3-167: Alignment Selection Dialog

Length　　　　Touch this softkey to open a numeric dialog. Here, depending on the **Data** type selected, the length of the element can be specified. Data is positioned in accord with the format and length selected. If the data for an element contains more characters than the numeric value entered here, the output data will be trimmed. For instance, if **Length** is set to 6, and a data string containing 8 characters is to be output, only 6 characters of the data string will be printed.

The relationship between **Length** and **Alignment** is indicated in Figure 3-168

A character string "ABCDEFGH" consisting of 8 characters and an output length of 6 characters:

Centered	Left-justified	Right-justified
B C D E F G	A B C D E F	C D E F G H
Prints the center six characters of the character string that had eight characters – crops the first and last characters.	Prints the first six characters of the character string that had eight characters – crops the two last characters.	Prints the last six characters of the character string that had eight characters – crops the two first characters.

A character string "ABCD" consisting of 4 characters and an output length of 6 characters:

Centered	Left-justified	Right-justified
A B C D	A B C D	A B C D
Prints all four characters of the character string with 4 characters in the center position, leaving a space at the beginning and at the end.	Prints all four characters of the character string with 4 characters in a left-justified position, leaving two spaces at the end.	Prints all four characters of the character string with 4 characters in a right-justified position, leaving two spaces at the beginning.

Figure 3-168: Data String Output by Length and Alignment

Leading Zero Fill　　　　Touch this field to display a selection dialog which determines whether leading characters are to be filled in with zeroes.

3.6.1.2.4.   Editing an Existing Record

Highlight the record and touch the Edit softkey 📝 . As when creating a new record, edit using the successive dialog fields to modify the content of the record.

3.6.1.2.5.   Deleting an Existing Record

Highlight the record and touch the Clear softkey 🧽. Answer the security question by touching the ✔ softkey to delete the record, or by touching the ✖ softkey to cancel the process.

3.6.1.2.6.   Deleting the Entire Content of the Template

Touch the Default softkey 📦 .
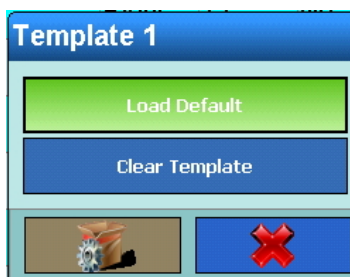
Figure 3-169: Delete Template Selection Dialog

Load Default	Reset the template to its factory default contents.
Clear Template	Delete the template's contents.

3.6.1.2.7.   Printing a template

Touch the Print softkey 🖨 to output a trial print of the template.

🔹   If a GA46 printer is used the last record should be a **CRLF**. Only then the printout does start immediately.

3.6.1.3.   Character strings

Touch the Character Strings softkey 🗒 to display the **Character Strings** view screen, which allows the configuration of character strings that are frequently used in templates.
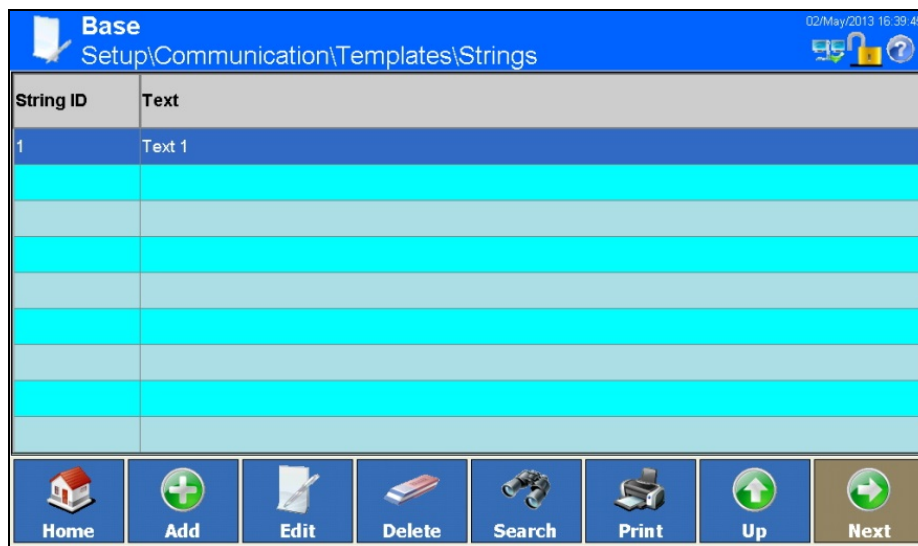
Figure 3-170: Character Strings View Screen

3.6.1.3.1. Adding a new character string:

Touch the Add softkey ⊕ to display the New String setup screen.
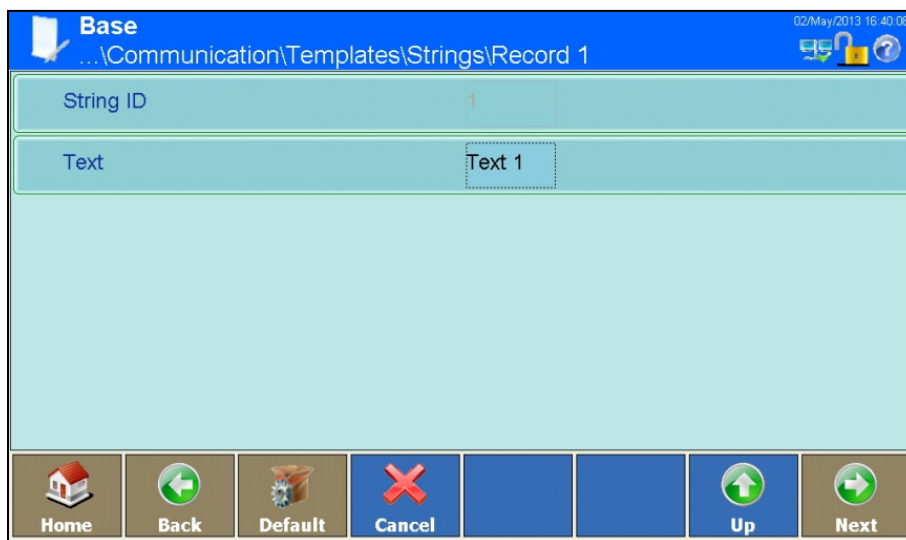
Figure 3-171: New String Setup Screen

String ID   Touch this field to open a numeric dialog where the ID for the string can be entered.

Text   Touch this field to open an alphanumeric dialog where the string can be entered.

3.6.1.3.2. Editing an Existing Character String

- Once it is defined, the character string ID cannot be changed. The only option is to delete the record and enter it afresh.

Highlight a character string then touch the Edit softkey. Touch the field in the center of the Text row to open an alphanumeric dialog field where the revised string can be entered.

3.6.1.3.3.   Deleting a Character String

Highlight a character string and touch the Clear softkey ✐. Answer the security question by touching the ✔ softkey to delete the record, or by touching the ✖ softkey to cancel the process.

3.6.1.3.4.   Searching for a Character String

Touch the Search softkey ✎ to display the search dialog. This offers a very flexible way of searching for a record or several records, using a variety of criteria.

1. Fill out the search fields. Start on the left side with the **Field Name** where the fields String ID or Text can be selected.

2. Use the Operator search field to select how the data should be filtered. The options for this search field are listed in Table 3-4.

3. Next, enter the desired value in the **Value** search field.

■ When searching for text you can enter the search string with the wildcard sign in the search field Value. The wildcard * stands for a freely selectable number of characters. A search for Ha* finds, for example, Hans, Hannes or Harald.

4. The search query is now filled with meaningful information. You can check it by touching the Check softkey.
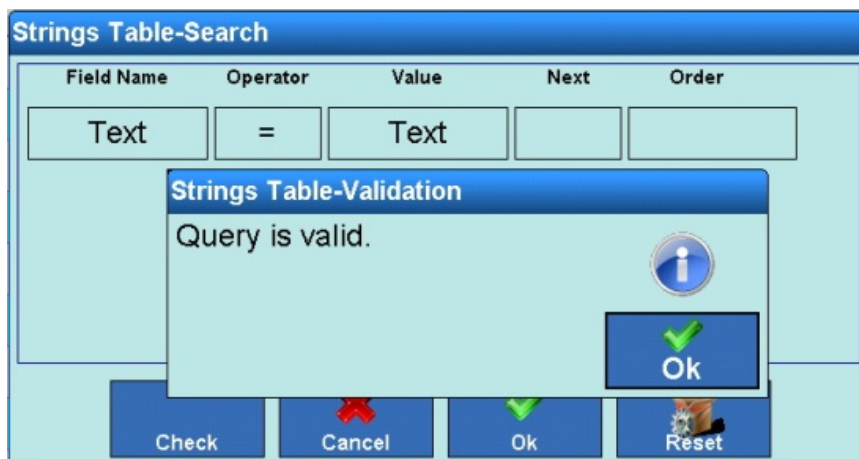
Figure 3-172: String Table Search Check Dialog

5. If necessary, select a logical operator for a second search line in the **Next** search field. Enter the field name, operator and value.

6. In the **Order** field, define the sort order – options are **Ascending** and **Descending**.

7. Execute the search by touching the OK softkey ✔. Now, only the records matching the search query are displayed in the **Character Strings View** screen, in the selected order.

3.6.1.3.5.   Printing a Character String

Highlight a string and touch the Print softkey 🖨 to print the string.

3.6.2. Reports

Touch the **Reports** softkey 📄 to open the **Reports** configuration screen. This screen is used to configure the structure of reports such as tare and target table reports produced by the IND900 terminal.
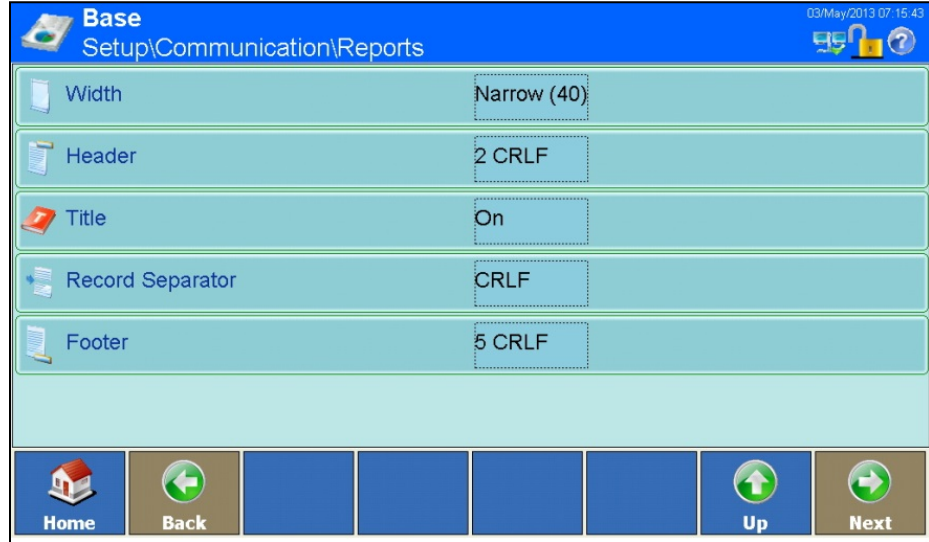
Figure 3-173: Reports Configuration Screen

Width	Options for width are:
	• (40) (narrow) – creates reports with a width of 40 characters
	• (132) (wide) – creates reports with a width of 132 characters
Header	Touch this field to open a numeric input dialog. Enter the number of blank lines (CR/LF) to be inserted at the beginning of each report.
Title	Touch this field to open a selection dialog. The default title line can be set to **On** or **Off** to determine whether it is included in the report.
Record Separator	Touch this field to display the **Record Separation** selection dialog. The character selected here is repeated in the printed report until the entire line is filled. For instance, if * (asterisk) is selected, the record separator appears like this:
	**
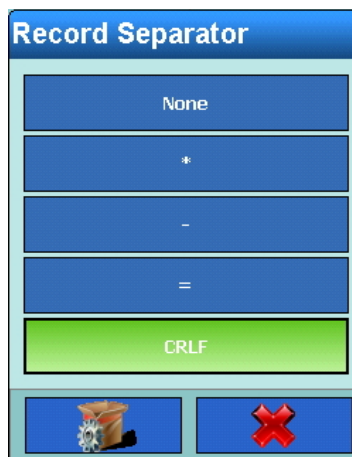
Figure 3-174: Reports Record Separator Selection Dialog

Footer   Touch this field to display a numeric input dialog. Enter the number of blank lines (CR/LF) to be inserted at the end of each report.

3.6.3. Connections

In the **Communication** configuration screen (Figure 3-141), touch the Connections softkey to open the Connections configuration screen.
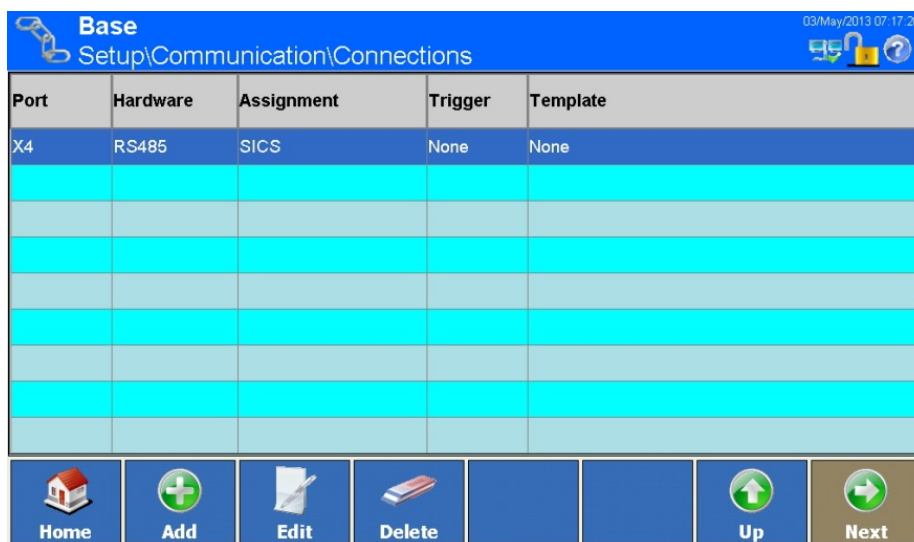
Figure 3-175: Connections Configuration Screen

This screen shows the logical port assignments configured for the terminal. It contains the optional ports X1 to X6 together with the permanently available Ethernet port. The ports X1 to X6 are configurable only if interfaces are actually installed.

3.6.3.1. Editing a connection

- Port numbers and hardware cannot be changed. Installed hardware is detected automatically by the system.

■ The options offered for assignment, trigger and template vary depending on the installed hardware. Some permit no editing.

Highlight a character string by touching it, then touch the Edit softkey ✎ . The **Connection** setup screen appears. Touch Next ➡ to view the second screen.
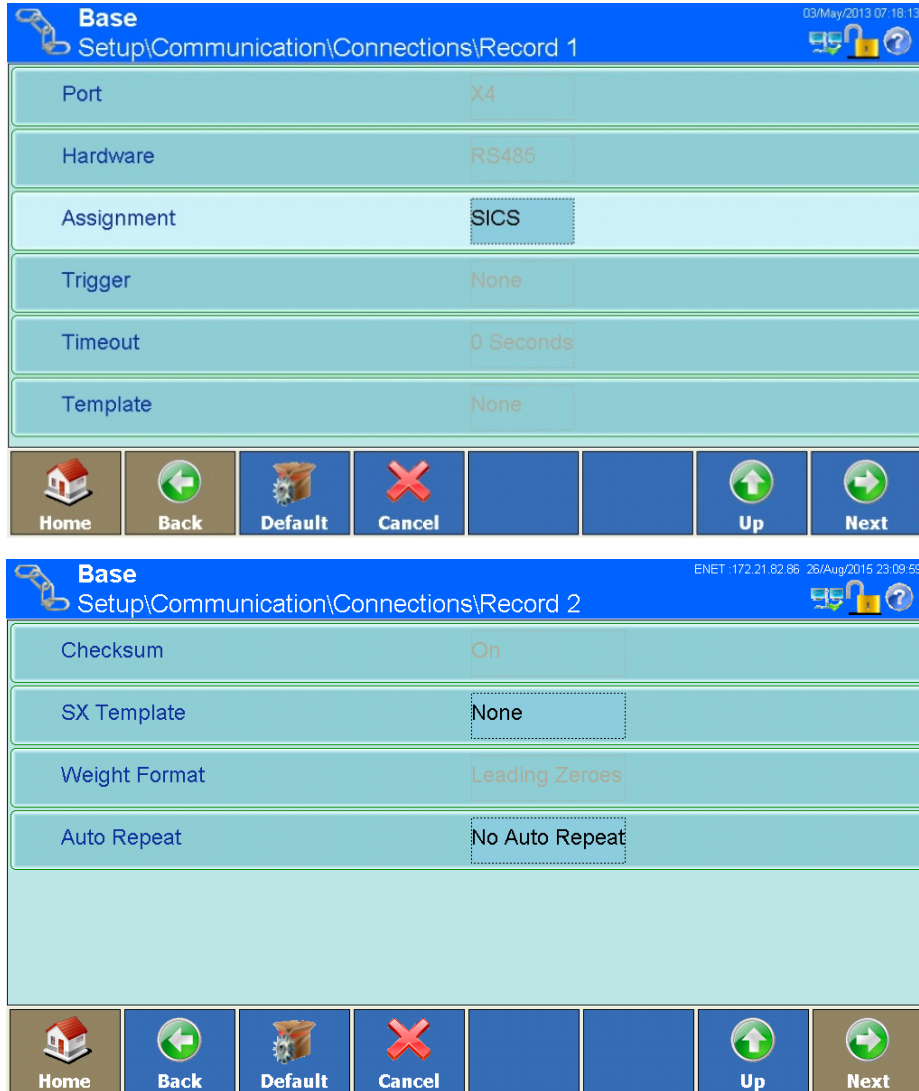
Figure 3-176: Connection Setup Screens

Assignment   Touch this field to open the **Port Assignment** dialog.
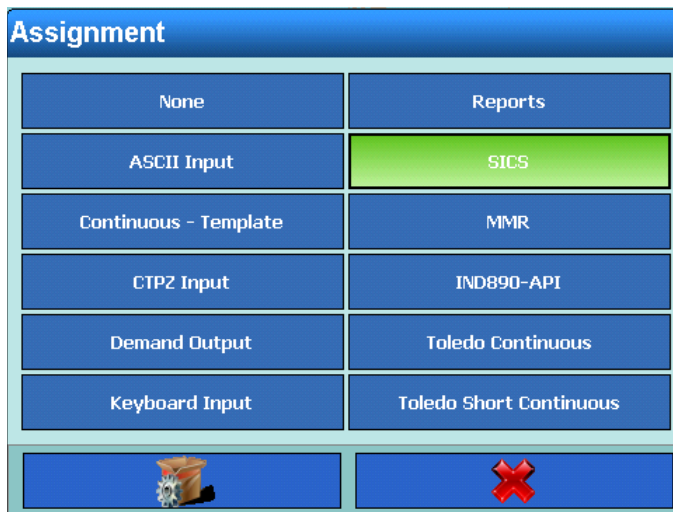
Figure 3-177: Port Assignment Dialog

Specific details on the various assignments can be found in appendix B, **Communication**.

Table 3-5 shows the available options for **Port Assignment**. The options permissible at a port depend on the hardware installed at that port. Empty cells indicate settings that are not applicable to this port.

Table 3-5: Connection Options by Port Type

Port	Assignment	Trigger	Timeout	Template	SX Template
X1 X2 X3 X4 X5 X6	None				
	Digital I/O				
	IND900-API				
	ASCII input				
	Continuous - Template	None			
		Scale 1 to scale 4		None	
				Template 1 to Template 10	
		Sum scale		None	
				Template 1 to Template 10	
		Timer	<seconds>	None	
				Template 1 to Template 10	
	Continuous Output				
	CTPZ input				
	Demand output	None			
		Print Softkey		None	
				Template 1 to Template 10	
		Tare softkey		None	
				Template 1 to Template 10	
		Zero softkey		None	
				Template 1 to Template 10	
		Dynamic softkey		None	
				Template 1 to Template 10	
		Softkey Ident-A - F		None	
				Template 1 to Template 10	

Port	Assignment	Trigger	Timeout	Template	SX Template
		Trigger 1 Trigger 10		None	
				Template 1 to Template 10	
	Keyboard input				
	Reports				
	SICS				None
					Templates 1 to 10
	MMR				None
					Templates 1 to 10
	IND900-API				
Enet	None				
	Continuous - Template	None			
		Scale 1 to scale 4		None	
				Template 1 to Template 10	
		Sum scale		None	
				Template 1 to Template 10	
		Timer	< seconds>	None	
				Template 1 to Template 10	
	Continuous Output				
	CTPZ input				
	Demand output	None			
		Print Softkey		None	
				Template 1 to Template 10	
		Tare softkey		None	
				Template 1 to Template 10	
		Zero softkey		None	
				Template 1 to Template 10	
		Dynamic softkey		None	
				Template 1 to Template 10	
		Softkey Ident-A - F		None	
				Template 1 to Template 10	
		Trigger 1 Trigger 10		None	
				Template 1 to Template 10	
	Reports				
	SICS				None
					Templates 1 to 10
	MMR				None
					Templates 1 to 10
	IND900-API				
Print Client	None				
	Continuous - Template	None			
		Scale 1 to scale 4		None	
				Template 1 to Template 10	
		Sum scale		None	
				Template 1 to Template 10	
		Timer	<seconds>	None	
				Template 1 to Template 10	
	Demand output	None			
		Print Softkey		None	
				Template 1 to Template 10	

Port	Assignment	Trigger	Timeout	Template	SX Template
		Tare softkey		None	
				Template 1 to Template 10	
		Zero softkey		None	
				Template 1 to Template 10	
		Dynamic softkey		None	
				Template 1 to Template 10	
		Softkey Ident-A - F		None	
				Template 1 to Template 10	
		Trigger 1 Trigger 10		None	
				Template 1 to Template 10	
File	None				
	Demand output	None			
		Print Softkey		None	
				Template 1 to Template 10	
		Tare softkey		None	
				Template 1 to Template 10	
		Zero softkey		None	
				Template 1 to Template 10	
		Dynamic softkey		None	
				Template 1 to Template 10	
		Softkey Ident-A - F		None	
				Template 1 to Template 10	
		Trigger 1 Trigger 10		None	
				Template 1 to Template 10	

- Not all options are available for all port assignments. Only valid options are shown in the menus.

- A demand print which is generated while the triggering scale is selected adds the transaction to the terminal's alibi memory of the IND900 instead of sending the record to an external printer.

- The scale channel or trigger that is linked to the connection is specified in the "Trigger" field.

- If the options selected for the port and assignment permit the use of a trigger which does not relate to the scale channels or sum scale channels (Table 3-5), certain softkey assignments as well as triggers 1 to 10 appear in the trigger list. Triggers 1 to 10 can be connected with certain applications. If the assignment is set to Continuous Template, the template list appears so that the template to be used can be selected to format the output.

- The "SICS" option offers interface commands of steps 0, 1, 2 and 3. Details of the SICS protocol can be found in appendix B, **Communication**.

- If a conflict of usage arises – for instance, if no trigger is selected in a Continuous Template assignment – an error message is displayed.

- Print Client offers a method for directly accessing demand outputs or continuous outputs via the Ethernet port.

> If multiple continuous output connections with different scale triggers are assigned to the Print Client port, only the scale data from the currently selected scale is output. The Print Client port is made available only via the secondary port of the Ethernet interface, which can be set in Setup\Communication\Network\Print Client.

Trigger   Touch this field to open the Trigger selection dialog. Different triggers are available, depending on the selected **Port** assignment.
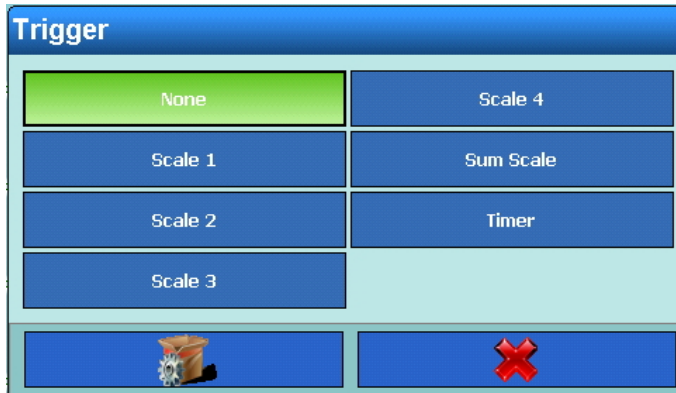
Figure 3-178: Trigger Selection Dialog, Continuous Template

Figure 3-179: Trigger Selection Dialog, Demand Output

Timeout   If the selected trigger is a timer, a timeout period can be selected. Touch the field to open a numeric input dialog, enter the timeout value, and touch the OK softkey ✔ to confirm the input.

Template Depending on the selected Port assignment, a template can be selected. Touch the field to open the **Template** selection dialog.

Figure 3-180: Template Selection Dialog

Checksum If Port assignment is set to **Toledo Continuous** or **Toledo Short Continuous** then **Checksum** can be set to **On**. In this case a checksum is transmitted.

SX Template Depending on the selected Port assignment, an SX template can be selected. Touch the field to open the **SX Template** selection dialog.
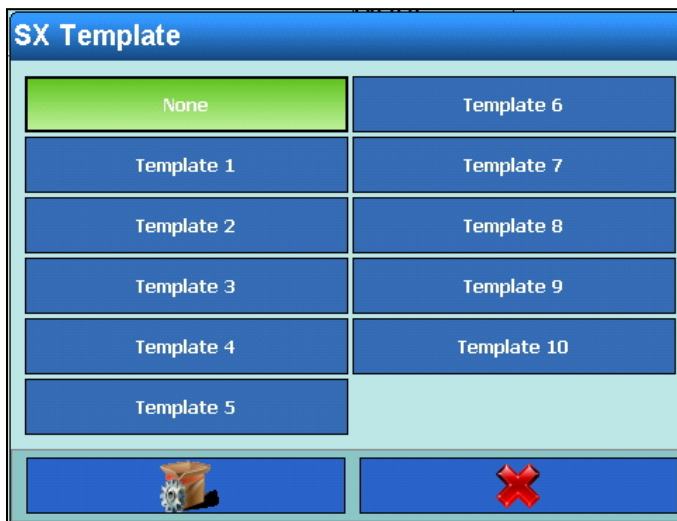
Figure 3-181: SX Template Selection Dialog

Weight Format If Port assignment is set to **Toledo Continuous** or **Toledo Short Continuous** then **Weight Format** can be set to **Leading Zeroes** or **Leading Spaces.** Insignificant leading zeroes are replaced by zeroes or spaces, depending on the setting.

Auto Repeat If Port assignment is set to **SICS** or **MMR** then **Auto Repeat** can be set to **Auto-SIR**. In this case the terminal sends stabilized or dynamic net weight values continuously after it is switched on. See also appendix B (SIR).

3.6.4.   Interfaces

Touch the Interfaces softkey 🔌 in the **Communication Configuration** screen (Figure 3-141) to open the **Interfaces** screen. This screen provides access to the communications parameters for the serial ports X1 to X6. The individual ports can be selected only if the relevant option is installed.
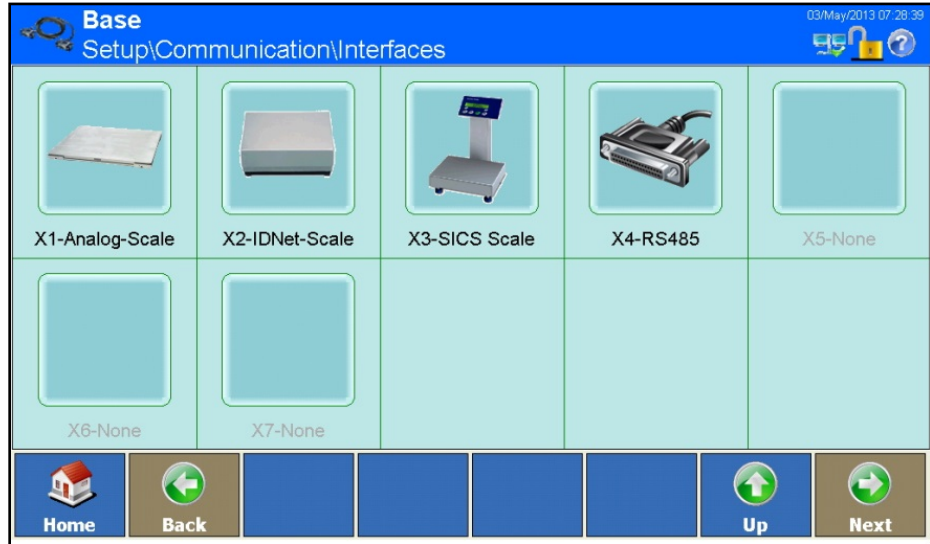
Figure 3-182: Interfaces Configuration Screen

3.6.4.1. **X1 to X6**

Use the setup windows X1 to X6 to configure the parameters for the serial ports. The example given in the following figures shows the configuration of an RS232 interface on Port X5. The **Connection** setup screen appears. Touch Next ➡ to view the second screen.
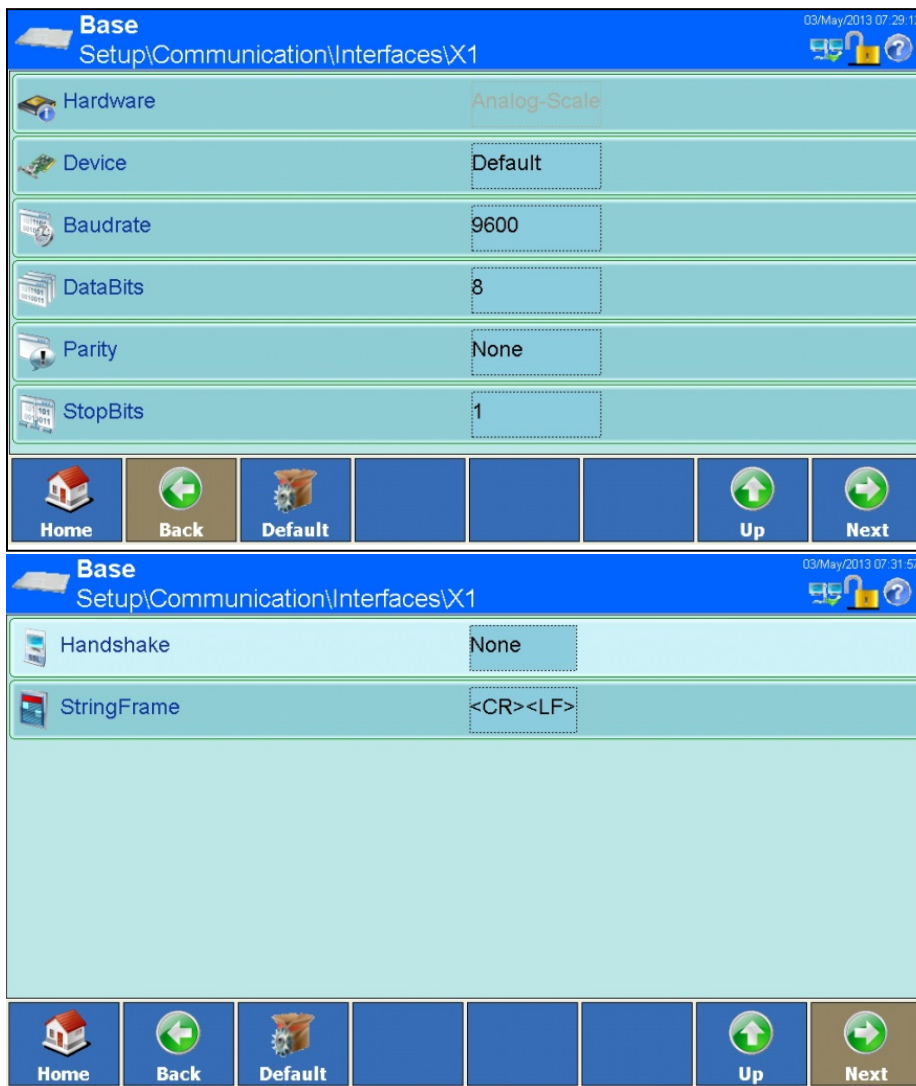
Figure 3-183: RS-232 Serial Port Configuration Screens

Hardware   This row displays the hardware installed at the selected port location.

Device   When hardware is installed, this field automatically displays **Default**. Touch the field to turn the hardware off by selecting **Not Installed**.

Baud Rate　　　　　　Touch this field to open the **Baud Rate** selection dialog.

Figure 3-184: Baud Rate Selection Dialog

Data Bits　　　　　　Touch this field to open the **Data Bits** selection dialog.
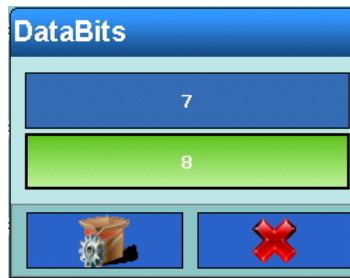
Figure 3-185: Data Bits Selection Dialog

Parity　　　　　　Touch this field to open the **Parity** selection dialog.
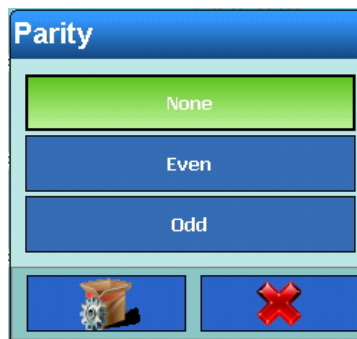
Figure 3-186: Parity Selection Dialog

Stop Bits   Touch this field to open the **Stop Bits** selection dialog.
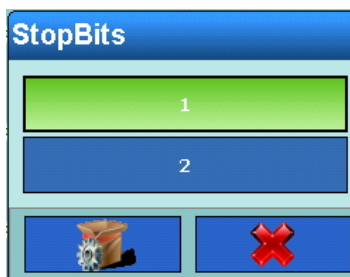
Figure 3-187: Stop Bits Selection Dialog

Handshake   Touch this field to open the **Handshake** (flow control) selection dialog.

Figure 3-188: Handshake Selection Dialog

String Frame   Touch this field to open the **String Frame** (flow control) selection dialog, which includes one or more string limiters for the selected assignment.

Figure 3-189: Handshake Selection Dialog

3.6.4.2.   X7

Slot X7 is reserved for the ScaleLock. It is part of the calibration set. Without it no W&M approval mode is possible.

The ScaleLock protects the IND900 against modifications of scale parameters if W&M approval mode is activated. To that it saves W&M relevant information and a unique identifier of each connected scale.

Only if the paper seal on the backside of the terminal is destroyed and the W&M switch is pressed modifications of W&M relevant parameter of the scales are possible.

Violations of W&M approval mode and W&M relevant software updates are logged by ScaleLock and can be retrieved by W&M authorities.

There are no settings to make on the ScaleLock.

3.6.5. Network

Touch the Network softkey 🖥 in the **Communication Configuration** screen (Figure 3-141) to open the **Network** configuration screen.
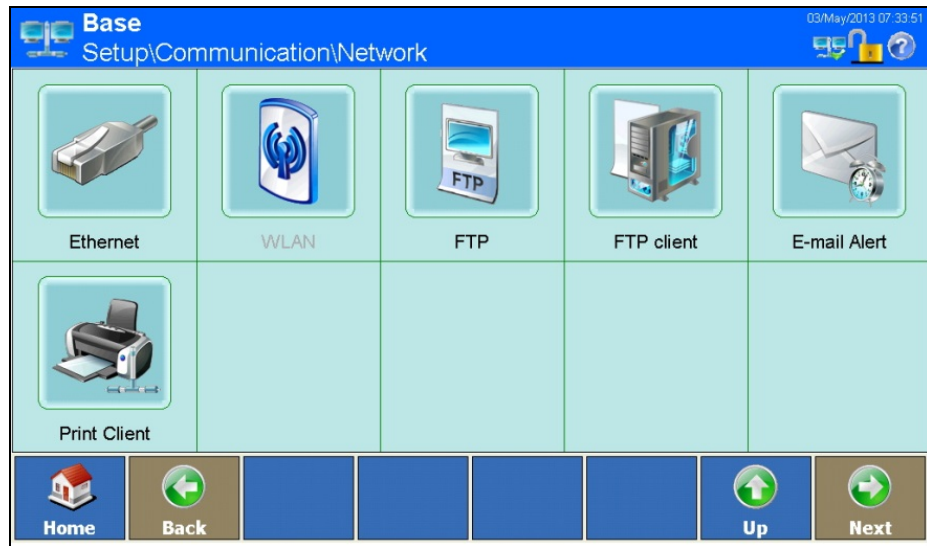
Figure 3-190: Network Configuration Screen

3.6.5.1. **Ethernet**

Ethernet is available for TCP/IP transmission of data, for connection with InSite™ and for performing FTP transfers. Touch the Ethernet softkey ✎ in the **Network** configuration screen to open the **Ethernet** configuration screen.
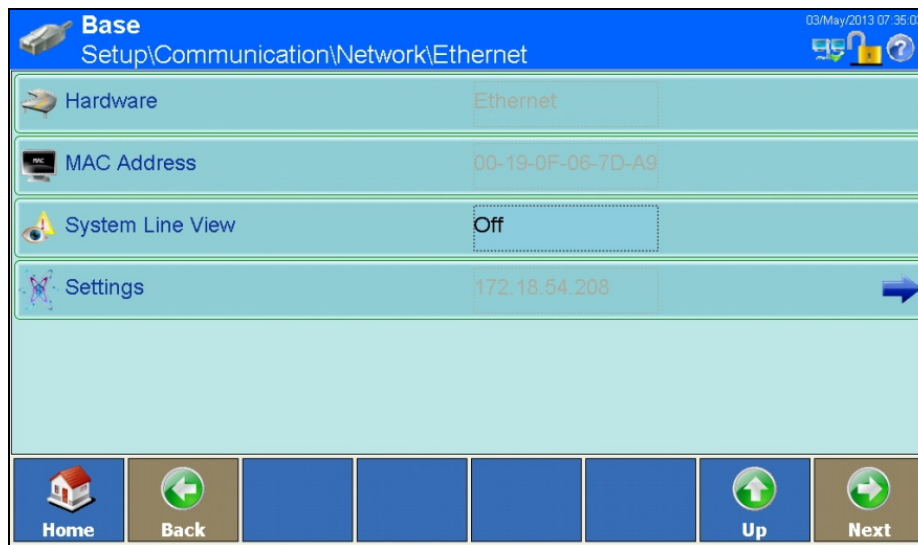
Figure 3-191: Ethernet Configuration Screen

Hardware	This row displays the hardware installed at the selected port location.
MAC Address	The Medium Access Control (MAC) address is displayed, but cannot be changed.
System Line View	The display of the terminal's IP address in the information line can be turned **On** or **Off**. Touch the field to change the setting.
Settings	The terminal's current IP address is displayed here. Touch the Settings softkey ✳ or the Next arrow ➡ to open the **Ethernet Settings** screen. Touch Next ➡ to view the second screen.
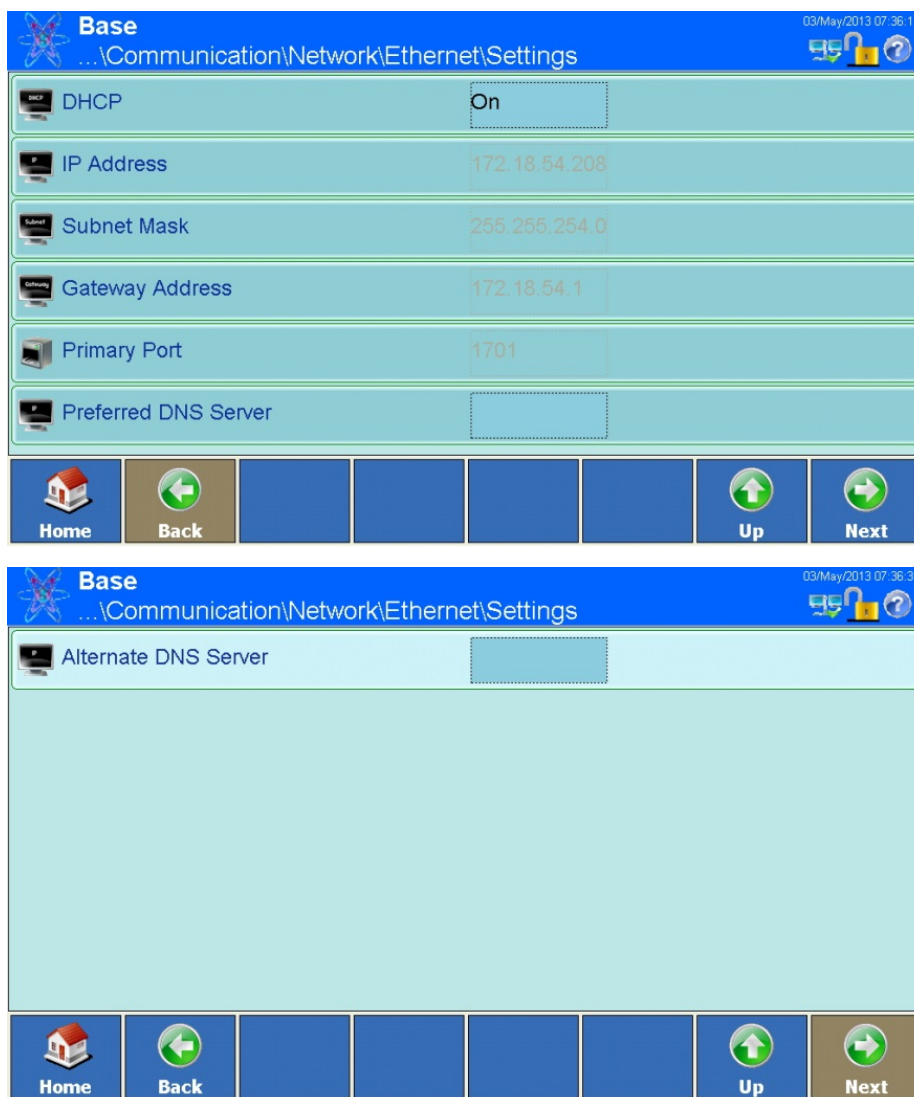
Figure 3-192: Ethernet Settings Screens

🔹 Do not change any of the following settings without consulting your IT department.

DHCP	Touch the DHCP softkey 🖳 to enable (On) or disable (Off) the DHCP (Dynamic Host Configuration Protocol).
	If DHCP is On, the IP address, subnet mask and gateway address of the network will be assigned to the terminal automatically. These fields are then write-protected.
	If DHCP is Off, these addresses must be entered manually into the following fields.
IP Address	Touch this field to enter the IP address. This consists of 4 groups of numbers, separated by dots. The default value is 192.68.0.1.
Subnet Mask	Touch this field to enter the subnet mask. This consists of 4 groups of numbers, separated by dots. The default value is 255.255.255.000.
Gateway Address	Touch this field to enter the gateway address. This consists of 4 groups of numbers, separated by dots. The default value is 000.000.000.000.

Primary Port	The primary port no. is for communication with the InSite service tool. It is set to 1701. This is the factory default setting.
Preferred DNS Server	Touch this field to enter the IP address of the preferred DNS Server.
Alternate DNS Server	Touch this field to enter the IP address of the alternative DNS server.

3.6.5.2. FTP

Touch the FTP softkey 🔳 in the **Network Configuration** screen (Figure 3-190) to open the **FTP Configuration** screen.
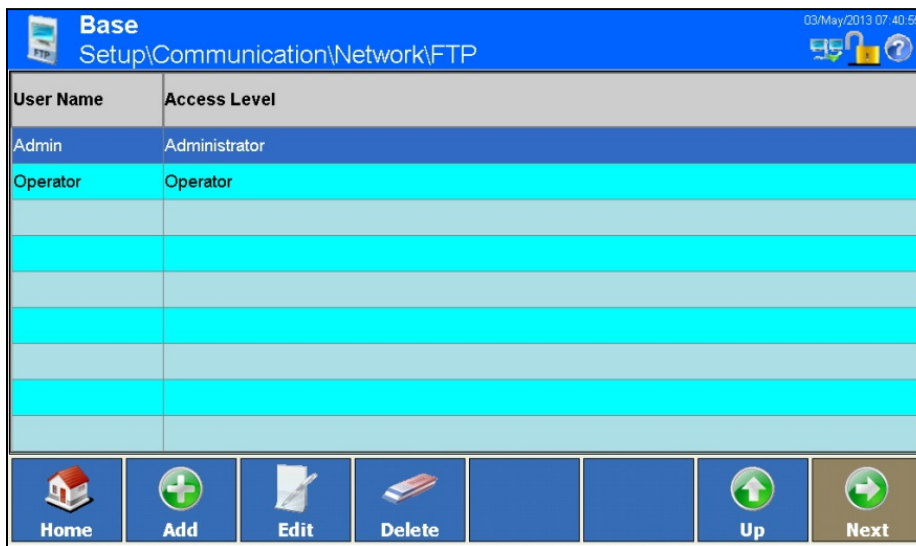
Figure 3-193: FTP Configuration Screen

This screen shows a list of user names and access rights for downloading files. Access rights for all parameters are listed in appendix A, **Default Settings**. Users can be added, edited or deleted.

3.6.5.2.1. Adding a New User

Touch the Add softkey ➕ to open the **FTP New User Configuration** screen.
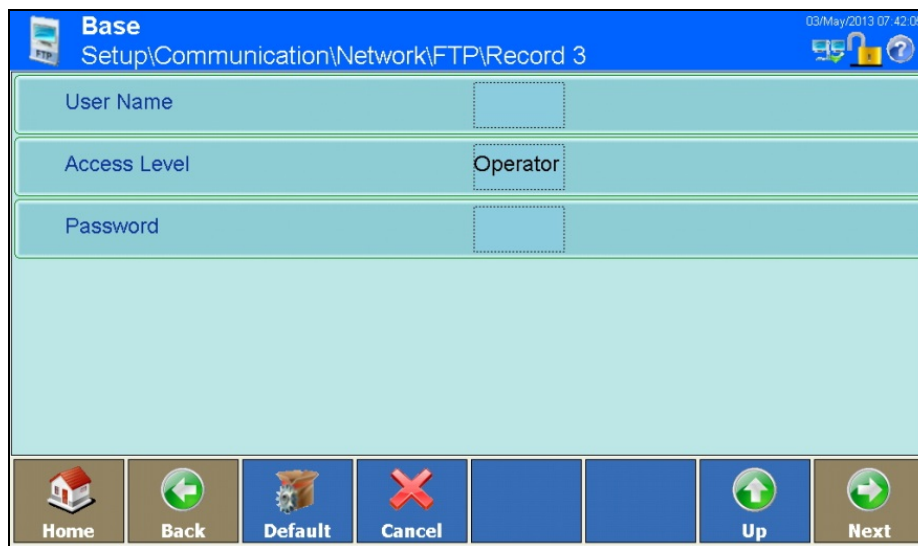
Figure 3-194: FTP New User Configuration Screen

User Name   Touch this field to open an alphanumeric dialog, where the user name can be entered. The name must be unique, and not match any existing user's name.

Access Level   Touch this field to open the Access Level Setting dialog.
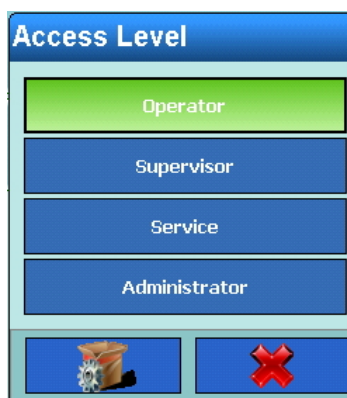
Figure 3-195: Access Level Selection Dialog

Password   Touch this field to open an alphanumeric dialog, where the user's password can be entered. This is optional and can be left blank.

Save the changes by touching the Up softkey ⬆.

3.6.5.2.2.   Editing an Existing User
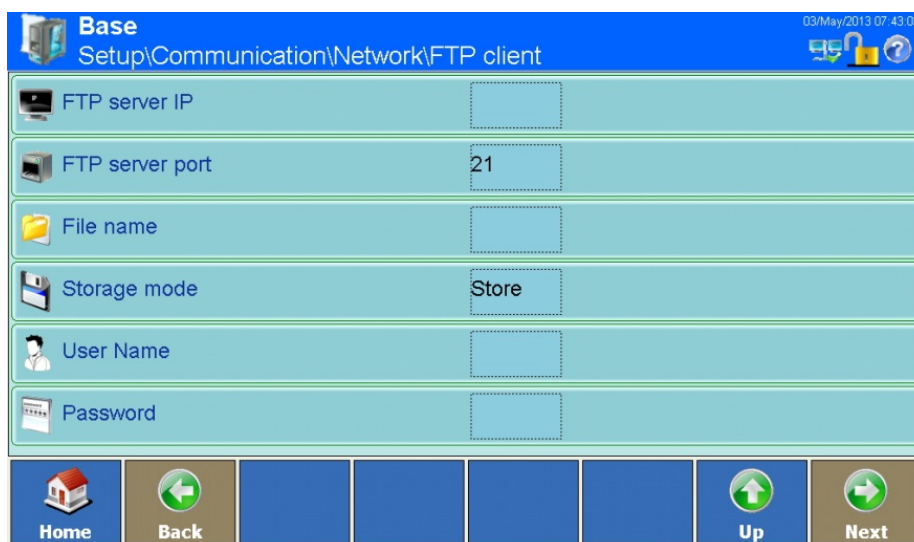
Highlight a user name by touching it and touch the Edit softkey 🖉. As when creating a new user, edit using the successive dialog fields to change the access level and/or password.

3.6.5.2.3.   Deleting Users

Highlight a user name by touching it and touch the Clear softkey 🧹. Answer the security question that appears by touching the ✔ softkey to delete the record, or by touching the ✖ softkey to cancel the process.

3.6.5.3. **FTP Client**

Touch the FTP Client softkey ⬛ in the **Network Configuration** screen (Figure 3-190) to open the FTP Client configuration screen.

Figure 3-196: FTP Client Configuration Screen

FTP Server IP	Touch this field to enter the IP address of the FTP server. The address consists of four groups of numbers, separated by dots.
FTP Server Port	The FTP server is set to Port 21. To change the port, touch the field to open a numeric entry dialog, and enter the new port number.
File name	Touch the field to open an alphanumeric entry dialog. Enter the name of the file in which the FTP server will save the data received from the FTP client. The file name can include up to 30 characters.
Storage mode	Touch this field to display the **Storage Mode** selection dialog.
	Store Overwrites existing file.
	Append Appends new data to existing file.
User Name	Touch this field to open an alphanumeric entry dialog, and enter the user name. The name can include up to 30 characters.
Password	Touch this field to open an alphanumeric entry dialog, and enter the password associated with the user entered under **User Name**. This is optional, and can be left blank if no password has been assigned to the user.
	■ The user name and password are checked by the FTP server when the connection to the FTP client is established.

3.6.5.4. **E-mail Alert**

If problems or errors arise, the terminal can automatically send e-mails to any desired recipient. For this to happen, certain parameters must be set.

▪ Depending on the configuration of the recipient of alert messages (see below), the e-mail warning operates only when the maintenance log is enabled.

▪ In order to use E-mail Alert it is necessary to use the operating system Windows CE Professional which is available as an option.

Touch the E-mail Alert softkey 📧 in the **Network Configuration** screen (Figure 3-190) to open the **E-Mail Alert Configuration** screen.

Figure 3-197: E-mail Alert Configuration Screen

SMTP Server Address	In order to send e-mails, the terminal requires the IP address of the local e-mail server. Touch this field to enter the IP address. This consists of four groups of numbers, separated by dots. This address should be available from your IT department.
Sender E-mail Address	Touch this field to enter the sender's full email address. This should include the component @*domainname*.com.
Sender Name	The default name is **IND900**. Touch the field to open an alphanumeric input dialog and enter a different sender name.
Subject	The default subject is **ALERT!** Touch the field to open an alphanumeric input dialog and enter a different subject line.

Recipients   Touch this field to open the **Recipient Configuration** screen.
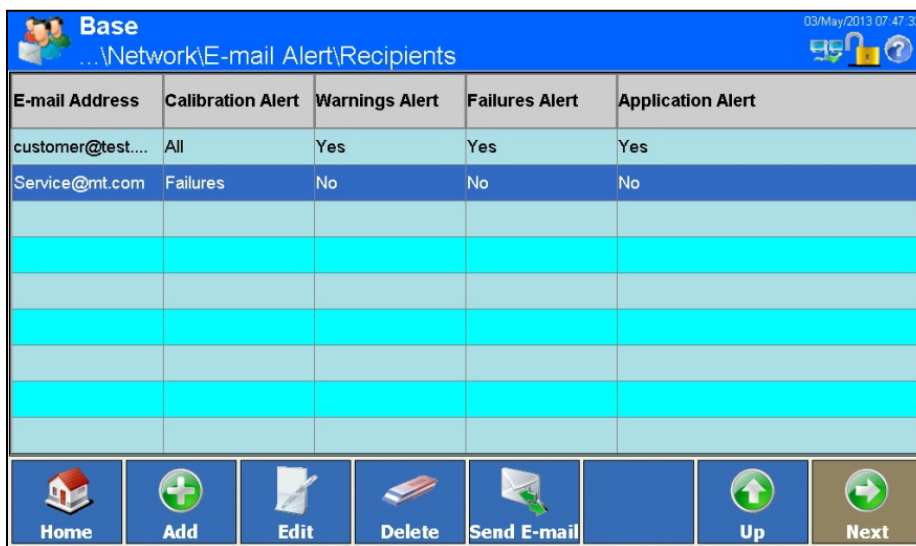
Figure 3-198: Email Recipients Configuration Screen

3.6.5.4.1.   Adding a new recipient

Touch the Add softkey ⊕ to open the **New E-mail Recipient Configuration** screen.
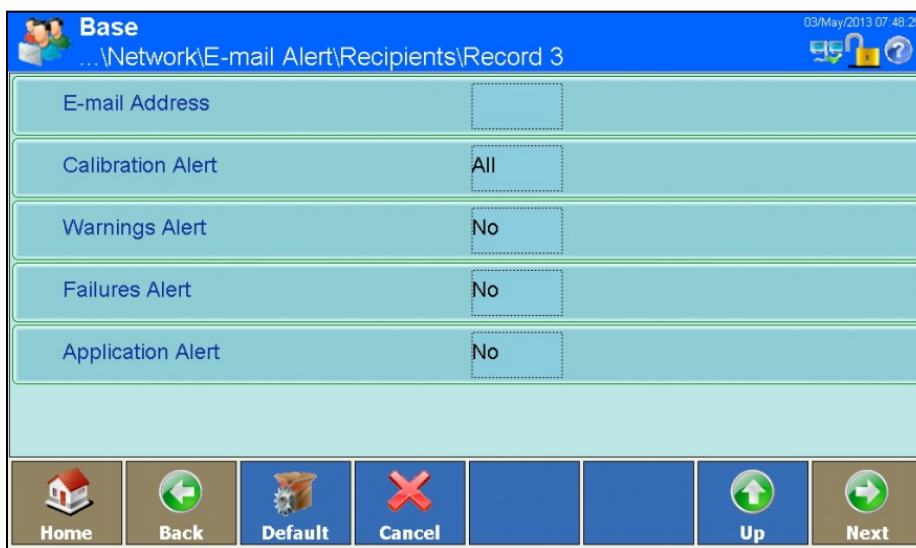
Figure 3-199: New E-mail Recipient Configuration Screen

E-mail Address   Touch the field to open an alphanumeric input dialog and enter the new recipient's email address.

Calibration Alert	Touch this field to open the **Calibration Alert Selection** dialog. This selection determines which type of alert/s will be sent to the recipient's address.
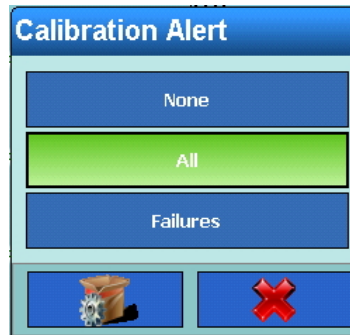
Figure 3-200: Calibration Alert Selection Dialog

Warnings Alert	Touch this field to select whether Warning alerts should be sent.
Failures Alert	Touch this field to select whether Failure alerts should be sent.
Application Alert	Touch this field to select whether Application alerts should be sent.

Save the changes by touching the Up softkey 🔼.

3.6.5.4.2. Editing an Existing Recipient

■ The e-mail address of the recipient cannot subsequently be changed. The only option is to delete the record completely and enter it afresh.

Highlight a recipient name in the E-mail Recipients configuration screen (Figure 3-198) by touching it then touch the Edit softkey ✏️. As when a new recipient is created, existing data can be changed by touching in the Calibration Alert, Warning Alert, Failure Alert and Application Alert softkeys.

3.6.5.4.3. Deleting a Recipient

Highlight a recipient name in the E-mail Recipients configuration screen (Figure 3-198) by touching it, then touch the Clear softkey 🧹. Answer the security question that appears by touching the ✅ softkey to delete the record, or by touching the ❌ softkey to cancel the process.

3.6.5.4.4. Sending an E-mail

Highlight a recipient name in the **E-mail Recipients Configuration** screen (Figure 3-198) by touching it, then touch the Send Email softkey.

A test message with the subject and sender's name is sent to the highlighted recipient. The message text reads: "Test mail from IND900 terminal". A confirmation message indicates that the test message has been sent.

3.6.5.4.5. Structure and Content of the E-mail Alert

The alert message appears in the subject line of the mail. It is a character string delimited by a comma and colon, which contains information from a maintenance log record.

A typical message might appear as follows:

ALERT!:IND930:23:MAINTENANCE CALIBRATION TEST PASSED, 01, SUCCESS, 2011/06/26 10:50:12

The elements of this message described in Table 3-6.

Table 3-6: Elements of an Alert E-mail

Element	Explanation	Source
ALERT!	Subject line	E-mail alert parameter
IND900	Name of the sender	E-mail alert parameter
23	Event code	Maintenance log: Event
MAINTENANCE CALIBRATION TEST PASSED	Meaning of the event code	-
01	Scale no.	Maintenance log: Channel
SUCCESSFUL	Event status	Maintenance log: Status
2011/06/26 10:50:12	Date and time	Maintenance log: Date and time

3.6.5.5. Print Client

With the **Print Client** functionality it is possible to use a centrally placed network printer to send a string or template. The connection is automatically terminated after a specified time.

The terminal checks success of connection and tries to reconnect if a connection is currently not possible.

Touch the Print Client softkey ![icon] in the **Network Configuration** screen (Figure 3-190) to open the **Print Client** configuration screen.
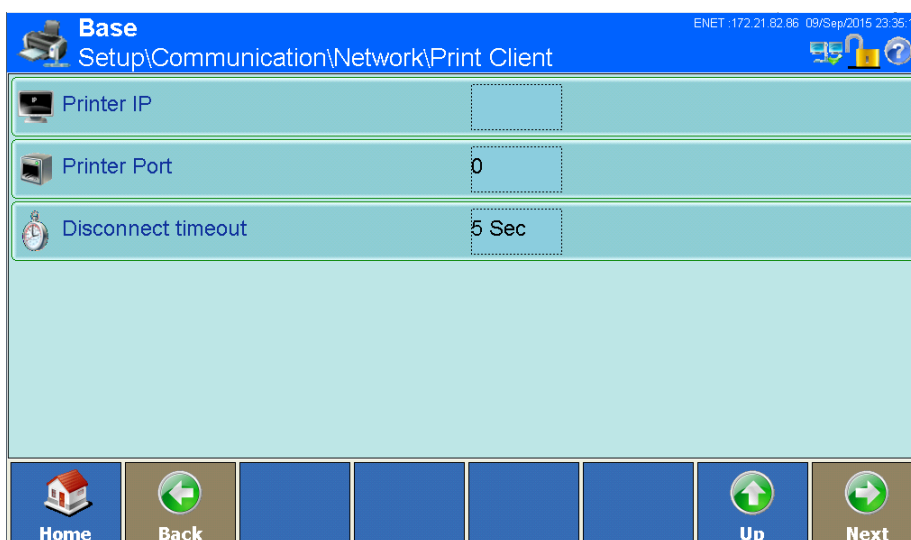
Figure 3-201: Print Client Configuration Screen

Printer IP   Touch this field to enter the IP address of the printer. The address consists of four groups of numbers, separated by dots.

Printer Port	To set the printer port, touch the field to open a numeric entry dialog, and enter the port number.
Disconnection timeout	Touch the field to open a numeric entry dialog. Enter the time after which the connection to the printer shall terminate automatically.

3.6.6. Factory Defaults

Touching the Factory Defaults softkey 🗃 restores all the communication parameters to their default settings, if they have been changed. For security reasons this operation must be confirmed by touching the Yes softkey ✔ in a warning dialog, or cancelled by touching the ✖ softkey.

A   Default Settings

The factory default settings and the associated access rights for the setup parameters of the IND900 terminal are listed in the following tables.

A.1.   Factory Default Settings

Setup function	Default value	Access right
Setup | Scales | Scale 1 | Type (applies also to scales 2 – 4)		
Name	Scale 1	
Scale type	<depending on the weighing platform connected: IDNet, SICS, SICSpro or analog>	
Serial number	<Serial number of the weighing platform connected>	
Approval	Approved: OIML Not Approved: None	
Approval class	Approved: <Approval class e.g. III> Not Approved: <blank>	
Setup | Scales | Scale 1 | Capacity & Increment (applies also to scales 2 – 4)		
Service mode	<depending on the weighing platform connected>	
Verification interval	e=d	
MinLoad	<depending on the weighing platform connected>	
First unit	<depending on the weighing platform connected>	
Range type	<depending on the weighing platform connected>	
Number of ranges	<depending on the weighing platform connected>	
Range 1	<depending on the weighing platform connected>	
Setup | Scales | Scale1 | Calibration		
<depending on the weighing platform connected>		
Setup | Scales | Scale1 | Zero | Auto Zero & Blank Under Zero		
Auto Zero	On	
Display off in Zero Range	9d	
Power-Up	Reset	
Setup | Scales | Scale1 | Resetting to zero | Zero ranges		
Power Up Zero	On	
Push Button Zero	On	

Setup function	Default value	Access right
Setup | Scales | Scale1 | Resetting to zero | Zero ranges | Power up zero		
+ Range	0 %	
- Range	0 %	
Setup | Scales | Scale1 | Resetting to zero | Zero ranges | Push button zero		
+ Range	0 %	
- Range	0 %	
Setup | Scales | Scale1 | Taring		
Automatic taring	Off	
Setup | Scales | Scale1 | Taring | Autom. Clear		
Auto Clear Tare	Off	
Clear Threshold Weight	0 kg	
Motion check	On	
Clear After Print	Off	
Clear With Zero	On	
Power-Up	Reset	
Setup | Scales | Scale1 | Units		
Second unit	None	
Setup | Scales | Scale1 | Filter		
Stability filter	2	
Environment	Average conditions	
Weighing Process	Universal Weighing	
Setup | Scales | Scale1		
Updates	20	
Setup | Scales | Scale1 | Logging or printing		
Minimum weight	0 kg	
Interlock	Off	
Automatic	Off	
Setup | Scales | Scale1		
MinWeigh	Off	
Setup | Scales | Scale1 | MinWeigh		
Entry Method	Direct	
Minimum Weigh	0 kg	
Display Color	Default	
Setup | Scales | Scale1		
Reset	<Reset scale parameters to default value>	
Setup | Scales		
Sum scale	Off	
W&M Approval Mode	Off	

Setup function	Default value	Access right
Setup | Application | Memory | Alibi		
Memory	Active	
Setup | Application | Memory | Alibi | Table View		
<Table opens>		
Setup | Application | Memory | Tare Values		
<Table opens>		
Setup | Application | Memory | Messages		
<Table opens>		
Setup | Application | Memory | Targets		
<Table opens>		
Setup | Application | Digital I/O | Inputs		
<Table opens>		
Setup | Application | Digital I/O | Outputs		
<Table opens>		
Setup | Application | Dynamic Weighing		
Number of weighing cycles	32	
Setup | Application | Ident | Ident A (applies also to Ident B - F)		
Name	Ident A (or B – F)	
Input	alphanumeric	
Length	20	
Motion check	Off	
Setup | Application | Ident | Application		
<File window opens>		
Setup | Terminal | Device		
Terminal ID #1	<blank>	
Terminal ID #2	<blank>	
Terminal ID #3	<blank>	
Serial number	<blank>	
Alarm Beeper	On	Operator
Keypad Beeper	On	
Setup | Terminal | Display		
Reduce Backlight	On	
Screen Saver	Off	
Brightness	4	
Scale mode	Serial	
Weight display	One scale	
Auxiliary display	Never	
DeltaTrac	Filling	

Setup function	Default value	Access right
**Setup	Terminal	Display	Reduce Backlight**		
Timeout	30 minutes	
**Setup	Terminal	Display	Screen saver**		
Screen Saver Timeout	30 minutes	
**Setup	Terminal	Display	DeltaTrac**		
Smallest target weight	40 d	
Motion check	Off	
Audible Alert	Off	
**Setup	Terminal	Display	Status Icon**		
Date & Time	On	
Network connection	On	
**Setup	Terminal	Region	Date & time**		
Current Date	<Current Date>	
Current Time	<Current time>	
Date Format	DD/MMM/YYY	
Date Separator	/	
Time Format	HH:MM:SS24h	
Time Separator	:	
**Setup	Terminal	Region**		
Time zone	(GMT-01:00) Amsterdam, Berlin	
Daylight Saving Time	On	
**Setup	Terminal	Region	Language**		
Display Messages	<Set Language>	
Keypad Selection	<depending on the language>	
**Setup	Terminal**		
Transaction Counter	Off	
**Setup	Terminal	Transaction counter**		
Resetting the counter	Off	
Next transaction	1	
**Setup	Terminal	User**		
<User table>		
Access level	Administrator	
Default user	No	
Logoff time	1	
**Setup	Terminal**		
Smart Keys	Off	
Application mode	Full screen	

Setup function	Default value	Access right
Reset	Do you want to reset the terminal parameters? Yes / No	
**Setup	Terminal	Smart Keys**		
Weight Value	Zero	
Left Of Weight Value	Activate current scale	
Unit	Changing the unit	
Scale Number	Activate next scale	
**Setup	Terminal	Application mode**		
Full screen		
Weight window	You cannot revert back to full screen mode. Are you sure? Yes / No	
Always ask		
LegacyMode	You cannot revert back to full screen mode. Are you sure? Yes / No	
**Setup	Terminal	Application mode	Always ask**		
Docking Style	Top	
Top window position (pixels)	0	
Left window position (pixels)	0	
Window width (pixels)	1024	
Window height (pixels)	200	
**Setup	Communication	Templates	Input**		
Preamble Length	0	
Data Length	1	
Postamble Length	0	
Termination character	CR	
Assignment	Taring	
**Setup	Communication	Templates	Output	Template 1 (to 10)**		
<Template table opens>		
**Setup	Communication	Templates	Output	Copy template**		
Copying Template 1 (up to 10)		
**Setup	Communication	Templates	String**		
<Table opens>		
**Setup	Communication	Reports**		
Width	Narrow (40)	
Header	2 CRLF	
Title	On	
Record separator	CRLF	
Footer	5 CRLF	

Setup function	Default value	Access right
Setup | Communication | Connections		
<Table opens>		
Setup | Communication | Interfaces | X1 (same also for X2 to Xn)		
Hardware	<depending on the device connected>	
Device	<depending on the device connected>	
Baudrate	<depending on the device connected>	
DataBits	<depending on the device connected>	
Parity	<depending on the device connected>	
StopBits	<depending on the device connected>	
Handshake	Hardware handshake	
StringFrame	CRLF	
Setup | Communication | Network | Ethernet		
Hardware	Ethernet	
MAC address	<Address>	
System Line View	On	
Settings	<IP address>	
Setup | Communication | Network | Ethernet | Settings		
DHCP	On	
IP address	<IP address>	
Subnet mask	<Address>	
Gateway address	<Address>	
Primary port no.	<No.>	
Preferred DNS server	<blank>	
Alternative DNS Server	<blank>	
Setup | Communication | Network | FTP		
<Table opens>		
Setup | Communication | Network | FTP Client		
FTP Server IP	<blank>	
FTP Server Port	21	
File name	<blank>	
Storage mode	Store	
User name	<blank>	
Password	<blank>	
Setup | Communication | Network | E-mail Alert		
SMTP server address	<blank>	
Sender e-mail address	<blank>	
Sender name	IND900	
Subject	ALERT!	

Setup function	Default value	Access right
**Setup	Communication	Network	E-mail Alert	Recipients**		
<Table opens>		
**Setup	Communication	Network	Print Client**		
Printer IP	<blank>	
Printer Port	0	
**Setup	Communication**		
Reset	Do you want to reset the interface parameters? Yes / No	
**Setup	Maintenance	Configure**		
Change log	Active	
Maintenance log	Active	
**Setup	Maintenance	Configure	Change log**		
<Table opens>		
**Setup	Maintenance	Configure	Maintenance log**		
<Table opens>		
**Setup	Maintenance	Configure	Error log**		
<Table opens>		
**Setup	Maintenance	Run	Diagnostics	Scale test	Scale 1 (applies also to scales 2 - 4)**		
<Diagnostic window opens>		
**Setup	Maintenance	Run**		
<Submenus with no default values>		
**Setup	Maintenance	Run**		
Touch Calibration	→ for calibration	
**Setup	Maintenance**		
Reset all	Do you want to reset all setup parameters? Yes / No	

A.2. Default Templates

A.2.1. BasePac Templates

The output for Template 1 to 3 is defined as listed in Table B-1 below. The output of templates 4 to 10 can be defined by the user during setup under **Communication I Templates I Output** or by using the InSite™ Template Editor.

A.2.1.1. Template 1

Table A-1: BasePac Default Template Definitions

Template 1						
Element	Type	Data	Repeat count	Alignment	Length	Leading Zero Fill
1	Variable	Scale[0].GrossWeight	1	Right-justified	10	No
2	Character		1	Default	1	No
3	Variable	Scale[0].PrimaryUnit	1	Right-justified	3	No
4	CRLF	CRLF	1	Default	1	No
5	Variable	Scale[0].TareWeight	1	Right-justified	10	No
6	Character		1	Default	1	No
7	Variable	Scale[0].PrimaryUnit	1	Right-justified	3	No
8	Character string	T	1	Right-justified	2	No
9	CRLF	CRLF	1	Default	1	No
10	Variable	Scale[0].NetWeight	1	Right-justified	10	No
11	Character		1	Default	1	No
12	Variable	Scale[0].PrimaryUnit	1	Right-justified	3	No
13	Character string	N	1	Right-justified	2	No
14	CRLF	CRLF	1	Default	1	No

A.2.1.2. Template 2

Template 2						
Element	Type	Data	Repeat count	Alignment	Length	Leading Zero Fill
1	Variable	Scale[0].ScaleID	1	Default	1	No
2	CRLF	CRLF	1	Default	1	No
3	Variable	Terminal.Time	1	Default	11	No
4	CRLF	CRLF	1	Default	1	No
5	Variable	Terminal.Date	1	Default	12	No

Template 2						
Element	Type	Data	Repeat count	Alignment	Length	Leading Zero Fill
6	CRLF	CRLF	1	Default	1	No
7	Variable	Scale[0].GrossWeight	1	Right-justified	10	No
8	Character		1	Default	1	No
9	Variable	Scale[0].PrimaryUnit	1	Right-justified	3	No
10	CRLF	CRLF	1	Default	1	No
11	Variable	Scale[0].TareWeight	1	Right-justified	10	No
12	Character		1	Default	1	No
13	Variable	Scale[0].PrimaryUnit	1	Right-justified	3	No
14	Character		1	Default	1	No
15	Variable	Scale[0].TareType	1	Left-justified	2	No
16	CRLF	CRLF	1	Default	1	No
17	Variable	Scale[0].NetWeight	1	Right-justified	10	No
18	Character		1	Default	1	No
19	Variable	Scale[0].PrimaryUnit	1	Right-justified	3	No
20	Character string	N	1	Right-justified	2	No
21	CRLF	CRLF	1	Default	1	No

A.2.1.3.   **Template 3**

Template 3						
Element	Type	Data	Repeat count	Alignment	Length	Leading Zero Fill
1	Special Character	1BH - ESC	1	Default	1	No
2	String	H3	1	Default	2	No
3	String	First Text	1	Default	10	No
4	CRLF	CRLF	1	Default	1	No
5	Special Character	1BH - ESC	1	Default	1	No
6	String	H2	1	Default	2	No
7	String	Second Text	1	Default	11	No
8	CRLF	CRLF	1	Default	1	No
9	String	Third Text	1	Default	10	No
10	CRLF	CRLF	2	Default	1	No
11	Special Character	1BH - ESC	1	Default	1	No

Template 3						
Element	Type	Data	Repeat count	Alignment	Length	Leading Zero Fill
12	String	H1	1	Default	2	No
13	Variable	Terminal.Date	1	Default	12	No
14	CRLF	CRLF	1	Default	1	No
15	Variable	Terminal.Time	1	Default	11	No
16	CRLF	CRLF	1	Default	1	No
17	Special Character	1BH - ESC	1	Default	1	No
18	String	H2	1	Default	2	No
19	CRLF	CRLF	1	Default	1	No
20	Variable	Application.IdentAText	1	Default	30	No
21	CRLF	CRLF	1	Default	1	No
22	Variable	Application.IdentBText	1	Default	30	No
23	CRLF	CRLF	1	Default	1	No
24	Variable	Application.IdentCText	1	Default	30	No
25	CRLF	CRLF	1	Default	1	No
26	Variable	Application.IdentDText	1	Default	30	No
27	CRLF	CRLF	2	Default	1	No
28	Variable	Scale[0].GrossWeight	1	Default	10	No
29	Character		1	Default	1	No
30	Variable	Scale[0].PrimaryUnit	1	Default	3	No
31	CRLF	CRLF	1	Default	1	No
32	Variable	Scale[0].TareWeight	1	Default	10	No
33	Character		1	Default	1	No
34	Variable	Scale[0].PrimaryUnit	1	Default	3	No
35	Character		1	Default	1	No
36	Variable	Scale[0].TareType	1	Default	2	No
37	CRLF	CRLF	1	Default	1	No
38	Variable	Scale[0].NetWeight	1	Default	10	No
39	Character		1	Default	1	No
40	Variable	Scale[0].PrimaryUnit	1	Default	3	No
41	CRLF	CRLF	6	Default	1	No

A.2.2. TotalPac Templates and Triggers

The following table describes the Triggers which are thrown and the proposed Templates to be assigned to these Triggers:

Table B-2: TotalPac Templates and Action Triggers

Action	Trigger	Template	Printout Example (GA46)
This trigger is sent after **Target** softkey 🎯 has been pressed.	1	4	XXXXXXXXXXXXXXXXXXXXXXXX Date　　　　09/Nov/2016 Time　　　　14:52:28 XXXXXXXXXXXXXXXXXXXXXXXX Target　　　　1.000 kg XXXXXXXXXXXXXXXXXXXXXXXX
This trigger is sent after **Plus** softkey ➕ has been pressed.	2	5	Ident-A 　　　　　　　　POWDER Item Number　　　　1 Last Gross　　0.138 kg Last Net　　　0.138 kg Last Tare　　　0.000 kg Transaction Nr　　　1 XXXXXXXXXXXXXXXXXXXXXXXX
This trigger is sent after **Sum** softkey Σ has been pressed.	3	6	XXXXXXXXXXXXXXXXXXXXXXXX Date　　　　09/Nov/2016 Time　　　　14:53:35 XXXXXXXXXXXXXXXXXXXXXXXX Item Number　　　　2 Transaction Nr　　　3 XGross　　　0.276 kg XNet　　　　0.276 kg XTare　　　0.000 kg XXXXXXXXXXXXXXXXXXXXXXXX
This trigger is sent after **Cancel** softkey ❌ has been pressed.	4	7	Item Number　　　　2 Last Gross　　0.138 kg Last Net　　　0.138 kg Last Tare　　　0.000 kg Transaction Nr　　　3 CANCELLED XXXXXXXXXXXXXXXXXXXXXXXX

Action	Trigger	Template	Printout Example (GA46)
| This trigger is sent after **Sum (SQC)** softkey ∑ has been pressed. | 5 | 8 | ```
XXXXXXXXXXXXXXXXXXXXXXXX
Date          09/Nov/2016
Time              15:49:48
XXXXXXXXXXXXXXXXXXXXXXXX
Item Number              5
Transaction Nr           8

*Gross         0.645 kg
*Net           0.645 kg
*Tare          0.000 kg
MeanValue      0.130 kg
Std. Dev.      0.006 kg
MinWeight      0.121 kg
MaxWeight      0.138 kg
XXXXXXXXXXXXXXXXXXXXXXXX
``` |

These templates can be modified under **Communication I Templates I Output** or by using the InSite™ Template Editor.

B   Communication

This document describes the physical ports available on the IND900. The logical connections that can be defined for using the physical connections are described in detail, and the available communication modes, commands and protocols are explained.

B.1.   Physical ports

B.1.1.   Serial

The IND900 supports up to 6 optional serial interfaces. All 6 ports on the Interface Controller Board can optionally accept an RS232- (TXD, RXD and GND with XON/OFF handshake), RS422 or RS485 interface.

The RS422 interface is a four-wire interface designed for point-to-point communication.

The serial interfaces can be configured in the setup. The following settings are available:

- 7 or 8 ASCII databits

- Parity bit none, even or odd

- 1 or 2 stop bits

- Baud rate from 300 to 57600

The software handshake XON/XOFF can be enabled for controlling the data flow. If a receiving device (normally a printer) is receiving information from an IND900 terminal and cannot accept any more data into its buffer, it sends an ASCII XOFF character (13 h), which requests the IND900 terminal to stop sending data for a short period, until the buffer is empty again.

When the device is once again ready to receive data, it sends an ASCII XON character (11h), which requests the IND900 terminal to start sending data again. This procedure can be repeated by the receiving device as often as necessary.

B.1.2.   Ethernet

The Ethernet port of the IND900 permits connection to an Ethernet network. It can be used for the following functions:

- Access to released data

- SICS protocol

- Continuous output of data

- FTP

- Software updating

B.1.2.1. Ethernet Port

The IND900 has an Ethernet interface which allows the terminal to be connected to a LAN network. The terminal's Ethernet port of the IND900 supports the Auto-Negotiation function, half or full duplex, 10 or 100 Mbps.

B.1.2.2. Cables

There are two types of Ethernet cables: Patch cables and crossover cables. Patch cables allow a PC to be connected to a hub or network. The IND900 can be connected to a PC using two patch cables and a hub. In order to connect the terminal to a hub, a special Ethernet cable with an M12 plug is necessary.

The simplest method of connecting a PC to the IND900 via an Ethernet connection is by using an Ethernet "crossover" cable (Figure B-1). A crossover cable is taken directly from the PC Ethernet port to the IND900 Ethernet port - no hub and no network is necessary. If no crossover cable is available, the connection can be established using two patch cables and a hub (Figure B-2).

Figure B-1: Crossover Cable Connecting IND900 to a PC

Figure B-2: Patch Cables Connecting IND900 to a PC

B.1.2.3. IP Address Setup

The IP address of the IND900 is assigned automatically by a DHCP server, or it can be configured manually in the terminal.

For manual configuration of the IP addresses, these must be configured both on the IND900 and also on the PC, as follows:

1. Check the terminal's IP address and subnet mask of the IND900, and make a note of the IP address and subnet mask for the PC configuration. (Information about network configuration can be found in the **Communication I Networks** section of Chapter 3, **Configuration**.)

2. The PC and the IND900 should have the same subnet mask.

3. The PC and the IND900 must have a unique IP address. The IP addresses must match if the subnet mask is 255, but must differ if the subnet mask is 0. Refer to the example in Table B-1 and Figure B-3 (below).

Table B-1: IP Address Configuration Example (Hub Configuration)

IP address of the IND900	192	168	0	1
Subnet mask	255	255	255	0
IP address of the PC	192	168	0	2

IND900 setup

IP address: 192.168.0.1

Subnet mask: 255.255.255.0

PC setup

IP address: 192.168.0.2

Subnet mask: 255.255.255.0

Figure B-3: IP Address Hub Configuration Example

1. Click in Windows on **Start I Settings I Network** connections (Figure B-4).

Figure B-4: Accessing Network Connections

2. The screen shown in Figure B-5 appears.

Figure B-5: Network Connections Screen

3. Right-click on the LAN connection and select "Properties".

4. In the **Properties** field (Figure B-6), select **Internet Protocol (TCP/IP)** and click on the **Properties** button. The **Internet Protocol (TCP/IP) Properties** window now appears (see Figure B-6, right).

Figure B-6: LAN Connection Properties (left) and Internet Protocol Properties (right) Dialogs

5. Normally **Obtain an IP address automatically** is highlighted. Enable **Use the following IP address**.

6. Enter the IP address and subnet mask settings for the specific PC.

7. Click on the **OK** button.

▪ After breaking the connection to the IND900 and before reestablishing the connection to the normal network connection of the PC, consider resetting the **Internet Protocol (TCP/IP) Properties** back to **Obtain an IP address automatically**, or to whatever setting was previously active.

B.1.3. Digital Remote I/O (ARM100)

The IND900 can be extended by up to 5 remote ARM100 modules. Each ARM100 module has 4 digital inputs and 6 digital outputs.

The IND900 uses a Modbus RTU-based RS485 communication protocol for communication with ARM100 modules. Communication between the IND900 terminal and the ARM100 is established during the switch-on process. Communication errors are shown in the terminal's Info line of the IND900. An error message is displayed for 5 seconds for each of the affected remote modules. Errors in the communication with an ARM100 automatically lead to all inputs and outputs of the ARM100 being switched off for reasons of security.

The RS485 interface can be installed on all 6 ports of the Interface Controller Board.

The parameters are:

- Baudrate: 57600
- DataBits: 8
- Parity: None
- Flow control: None
- Interface: RS485

After the ARM100 modules have been cabled (including the terminating resistor; refer to the **Installation Manual**) and the I/O assigned in the setup, the ARM100s should be ready for operation. When the remote I/O functions are assigned, the remote modules are addressed as 1.0.x for module 1, 2.0.x for module 2 and 3.0.x for module 3. Each module offers four inputs and six light-current relay outputs.

B.1.3.1. Example

Tare is assigned the I/O input address 1.0.1.

This declares that a tare is determined when input 1 in remote module 1 is enabled.

B.1.4. Digital 4I/O

The IND900 can be equipped with up to 2 4I/O interfaces, installed in positions 5 and 6. Each 4I/O 900 has over 4 digital inputs and 4 digital outputs.

Communication errors are shown in the terminal's Info line of the IND900. An error message is displayed for 5 seconds for each of the affected interfaces. Errors in the communication with 4I/) automatically lead to all inputs and outputs 4I/O being switched off for reasons of security.

After the assignment of the I/O in the setup, the 4I/O should be ready to operate.

B.1.4.1. Digital 4I/O Interface Technical Information

- 4 inputs with opto-couplers, common ground. I_{min}=10 mA, I_{max}=50 mA, U_{max}=30 V, Reverse Voltage VR_{max} = 5 V.
- 4 outputs with mini-relay, common ground. I_{max}=1 A @ 30 V per output, but all outputs together no more than 2 A.

- Supply voltage conducted to the outside: 12 V @ max. 100 mA at Pin 11, GND at Pin 12.

- A 12-pin M12 socket (4xIn, 1xIn-Com, 4xOut, 1xOut-Com, 1xGND, 1xPWR) is used for the cable connection.

- For this purpose there is a 3 m long cable with a straight plug (22018969) and an angled plug (22021093) with an open end.

B.1.4.2. 4I/O Configuration Example

Base Setup\Application\Digital I/O\Inputs					**Base** Setup\Application\Digital I/O\Outputs		
Input	Trigger	Function	Scales		Output	Trigger	Scales
0.5.1	Rising edge	Tare	Current Scale		0.5.1	Scale 3	None
0.5.2	Rising edge	Zero	None		0.5.2	Scale 1	None
0.5.3	Rising edge	Scale 1	None		0.5.3	Net	Current Scale
0.5.4	Rising edge	Scale 3	None		0.5.4	Motion	Current Scale

Figure B-7: 4I/O Configuration

Location:	0	=> 4I/O
Slot:	Xn Position	=> X5 – X6
Position:	n	=> Output 1-4 or Input 1-4

B.1.5. USB

The internal USB port can be used for firmware updates, and for backing up and restoring the system configuration files.

B.2. Logical (Custom) Ports

B.2.1. Inputs

B.2.1.1. ASCII Input

The IND900 terminal allows a barcode scanner or other ASCII device to be connected to a port and used for input of ASCII data. This is performed using the connection type "ASCII Input". If "ASCII Input" is selected, the assignment for the data received must also be specified. The available assignments are:

- Application
- Tare
- Tare ID
- Target ID

An input screen must be configured to assign the application to the ASCII input. The screen function allows the removal of leading and trailing characters which are not part of the desired data. Use of these parameters in the setup of the input screen allows the number of characters to be ignored before and after the data to be specified. These must be the same for all data strings that are received by the terminal.

After receipt of the "termination character" or after a one second timeout has elapsed during which no new characters were received, the input is closed. At this point all input data is applied to the

selected application. This can be an actual value, such as a preset tare value, or a tare ID or target ID which selects a tare or target from the respective table.

The following instructions apply to the treatment of ASCII inputs via the input screen:

- The "Preamble Length" defines how many characters should be ignored at the start of a data string.

- The "Data Length" defines the maximum length of a character string. All characters that start after the preamble are used as input.

- The "Postamble Length" defines the number of characters which are cropped from the data string before the termination character.

- The "Termination Character" is used to detect the end of the character string input. The termination character can be any ASCII control character.

- In addition, a one-second timeout function is available. If this one-second timeout is exceeded, the character string is considered to be terminated.

B.2.1.1.1.   Example

Preamble 2, data length 5, postamble 0, termination character <CR>, input assignment tare.

The data received is: <STX>P001.5 kg<CR>

The preamble 2 removes the characters <STX> and P. The next 5 characters 001.5 represent the actual data. The postamble is set to 0, since the data field has already been filled, so that no characters need be removed. The character <CR> terminates the input.

The effect of this character string is to input 1.5 as the pre-tare in the IND900.

The same data could be achieved by programming preamble 2, data length 8, postamble 3, termination character <CR>. The postamble length 3 would remove <space>kg from the data field, since these are the last 3 characters received before the <CR> character.

B.2.1.2.   CTPZ

The CTPZ input mode offers a method whereby a remote device can trigger several basic functions if a control character is transmitted to the IND900 via the COM1 – COM6 port or the EPrint port.

- C – resets the scale to gross

- T – tares the scale (activates the "Tare" pushbutton)

- P – executes a "Print" command

- Z - sets the scale to zero

ASCII control characters can be transmitted as upper case or lower case letters. All other characters are ignored. CTPZ inputs can be assigned to a specific scale, by selecting the desired scale as a trigger in the setup of the connections. If the scale trigger is set to "none", the CTPZ input is assigned to the actively selected scale.

B.2.1.2.1.   Example

Enable the CTPZ input and define the CTPZ scale trigger. Then send the ASCII character "T" to tare the selected scale.

If the CTPZ scale trigger is set to "none", the ASCII control character is forwarded to the actively selected scale, unless a scale identification character is contained within the control character. You can select a specific scale by adding as a prefix to the control character the identification A (for scale 1), B (scale 2), K (scale 3), D (scale 4) or E (sum scale).

B.2.1.2.2.   Example

To tare scale 1, regardless of which scale is currently selected, send the command AT.

There is a facility to input a pre-tare, by placing a numeric value ahead of the "T". For instance 10.5T sends a tare value of 10.5 to the currently selected scale. If two scales are connected, the pre-tare can be set by placing the identification A or B before the tare value. For instance A2000T sends a tare of 2000 to scale 1.

B.2.2.   Keyboard inputs

The keyboard input mode offers a path for a serial remote device (such as a keyboard), to send ASCII data to the IND900 terminal or to act as a remote keyboard. The keyboard input accepts ASCII characters 0x20 to 0x7e hex. The following table shows the control keys that are supported and the expected data:

Keyboard control keys	ANSI Hex key codes	VT200 Hex key codes	IND900 keypad
Reset	08	08	C (clear)
Enter/Return	0d	0d	Input
ESC	1b	1b	Escape
F1	1b 4f 50	1b 5b 31 31 7e	SK1
F2	1b 4f 51	1b 5b 31 32 7e	SK2
F3	1b 4f 52	1b 5b 31 33 7e	SK3
F4	1b 4f 53	1b 5b 31 34 7e	SK4
F5	1b 4f 54	1b 5b 31 35 7e	SK5
F6	1b 4f 55	1b 5b 31 37 7e	SK6
F7	1b 4f 56	1b 5b 31 38 7e	SK7
F8	1b 4f 57	1b 5b 31 39 7e	SK8
Clear	7f	7f	Clear
Right	1b 5b 43	1b 5b 43	Right
Left	1b 5b 44	1b 5b 44	Left

B.2.3. Outputs

B.2.3.1. Demand Output Mode

In Demand Output Mode, data is sent only if a print demand is configured in the IND900 setup. A printout is transmitted to the IND900 terminal when:

- the operator presses the Print softkey 🖨
- a digital input for printing is selected
- the ASCII character "P" is transmitted
- Auto-print is enabled and all the conditions for auto-print are satisfied
- a PLC command for printing is received

Demand mode is normally used when data is transmitted to a printer or a PC.

B.2.3.2. Custom Triggers

User-specific triggers are available in the "Connections" section of the setup. These can be used to trigger a specific demand output. Custom triggers allow various items of information to be printed at the same port or at a different port depending on which user-specific trigger is used. These custom triggers are not normally used, but do offer great flexibility in the configuration of demand outputs.

Custom triggers 1 to 10 can also be assigned to one of the digital inputs or a softkey in order to initiate the demand output.

B.2.3.3. Output templates

The IND900 contains ten templates for the definition of a custom character string with data to be transmitted. A template can be used with a demand output (such as Demand Print), a custom trigger or with a continuous template task. In the **Setup | Communication | Templates** of the terminal, a template is assigned to an output connection. When the trigger is activated, e.g. the Print softkey 🖨, the selected template is transmitted. The three factory-installed default templates in the terminal are defined as follows:

Template 1	**Template 2**	**Template 3**
• XX.XX kg	• Scale ID	• First Text
• XX.XX kg T	• Current time	• Second Text
• XX.XX kg N	• Current Date	• Third Text
	• XX.XX kg	• Current Date
	• XX.XX kg T	• Current Time
	• XX.XX kg N	• Ident A
		• Ident B
		• Ident C
		• Ident D
		• XX.XX kg
		• XX.XX kg T
		XX.XX kg

Each template can store up to 1,000 bytes of data.

B.2.3.3.1.   Template Example

The following example shows a customer ticket, consisting of three left-aligned character strings, one 40-character wide field of asterisks and also a CRLF after each character string.

```
MT TRUCKING
PICK UP AND DELIVERY
TO ANY DESTINATION
****************************************
```

B.2.4.   METTLER TOLEDO Continuous Output Mode

The IND900 terminal's METTLER TOLEDO Continuous Output Mode can be used for continuous sending of weight data and scale status information to a remote device such as a PC or a remote display.

B.2.4.1.   (Short) Continuous Mode

(Short) Continuous Mode can be configured for all serial interfaces and the Ethernet interface.

If an individual serial port is assigned to several scales for continuous data transmission, only the data for the currently selected scale is transmitted. The checksum is transmitted only if it is enabled in the setup. The data consist of 17 or 18 bytes (Table B-2).

Insignificant weight data and tare data figures are transmitted as spaces. Continuous Mode is compatible with METTLER TOLEDO products that require real-time weighing data. Table B-2 shows the format of Continuous Mode.

There are 2 different continuous modes:

• Continuous mode: net and tare values are continuously transmitted.

- Short continuous mode: only net values are continuously transmitted.

Table B-2: Continuous Output Format

		Status			Displayed weight						Tare weight							
Character	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Data	STX	SWA	SWB	SWC	MSD	-	-	-	-	LSD	MSD	-	-	-	-	LSD	CR	CHK
Note	A	B			C						D						E	F

■ Notes on the continuous output format

- ASCII start of text character STX (02 hex) is always transmitted.

- Status words. Details are described in Table B-3 (SWA), Table B-4 (SWB) and Table B-5 (SWC).

- Displayed weight. Either gross or net weight. Six places, no decimal point or sign. Insignificant leading zeroes are replaced by spaces or zeroes, depending on the setting.

- Tare weight. Six places for the tare weight. No decimal point in the field. Not transferred in Short Continuous mode.

- ASCII carriage return <CR> character (0D hex).

- Checksum, transmitted only if it was enabled in the setup for COM1, COM2, COM3, COM4, COM5 or COM6. The checksum is used for error detection in the data transmission. The checksum is defined as the two's complement of the seven lower-value bits of the binary sum of all characters including control characters which precede the checksum, including the <STX> and <CR> characters.

The standard status bytes (SWA, SWB, SWC) for the standard continuous task are described in detail in the tables C-3 to C-5.

Table B-3 :Bit Definitions for Status Word A (SWA)

Bits 2, 1 and 0			
2	**1**	**0**	**Decimal point position**
0	0	0	XXXXX00
0	0	1	XXXXX0
0	1	0	XXXXXX
0	1	1	XXXXX.X
1	0	0	XXXX.XX
1	0	1	XXX.XXX
1	1	0	XX.XXXX
1	1	1	X.XXXXX
Bits 4 and 3			
4		3	**Configuration code**
0		1	Bit 4 X1

Bits 2, 1 and 0		
1	0	X2
1	1	X5
Bit 5		Always = 1
Bit 6		Always = 0

Table B-4 :Bit Definitions for Status Word B (SWB)

Status bits	Function
Bit 0	Gross = 0, net = 1
Bit 1	Sign, positive = 0, negative = 1
Bit 2	Out of range = 1 (over capacity or less than zero)
Bit 3	Motion = 1, stable = 0
	lb = 0, kg = 1 (see also status byte 3, bits 0-2)

Bits 2, 1 and 0			
2	**1**	**0**	**Weight description**
0	0	0	lb or kg, selected by status byte B, bit 4
0	0	1	g (grams)
0	1	0	Metric tons (t)
0	1	1	Ounces (oz)
1	0	0	Troy ounces (ozt)
1	0	1	Penny weight (dwt)
1	1	0	Milligrams (mg)
1	1	1	Custom units
Bit 3			Print demand = 1
Bit 4			Data extension x 10 = 1, normal = 0
Bit 5			Always = 1
Bit 6			Always = 0

Status bits	Function
Bit 4	
Bit 5	Always = 1
Bit 6	Zero not recorded = 1

Table B-5 :Bit Definitions for Status Word C (SWC)

??????

B.2.5. Continuous Template Output

If continuous template is selected as the assignment for a connection, the selected template is output continuously.

B.3. Access to released data

B.3.1. FTP Ports

B.3.1.1. FTP Connection Setup

Windows Explorer should be used to set up an FTP connection with the IND900.

> ■ The InSite program can also be used for the transmission of files to and from the terminal. Information about the functions and capabilities of the InSite program can be found in its Help system.

B.3.1.1.1.   Establishing an FTP connection with Internet Explorer

You can establish an FTP connection to the IND900 with Internet Explorer as follows:

1. Open Internet Explorer and enter the terminal address in the address line (see the example in Figure B-8).

Figure B-8: Terminal's FTP Address

2. Select the option "Log in as…" in the context menu. Enter a valid user name and a valid password and click on the LOG IN button.

3. Internet Explorer then displays the terminal's directory structure of the IND900 (Figure B-9).

Figure B-9: Internet Explorer FTP Window

4. Now files can be copied to and from the terminal, by dragging or by cutting and pasting.

5. After completing the file transfer, close the Internet Explorer window to terminate the FTP session.

B.4. Protocols and data structures

B.4.1. Serial interface parameters

The IND900 supports up to 6 optional serial interfaces. All 6 ports on the Interface Controller Board can optionally accept an RS232- (TXD, RXD and GND with XON/OFF handshake), RS422 or RS485 interface.

All serial interfaces can be configured as RS232-, RS422- or RS485 interfaces. If a serial interface is configured as RS422, the transmission line is "On" even if no data is being transmitted. This operation corresponds to the standard operation of an RS422 port, but differs from the function of many METTLER TOLEDO legacy terminals.

The settings for the serial interfaces can be configured in setup mode. The following settings are available:

- 7 or 8 ASCII databits (optional)
- 0 or 1 parity bit (none, even or odd)
- 1 stop bit

The baudrate can be configured from 2400 to 57600 Baud.

To control the data flow, the IND900 terminal uses the software handshake (XON/XOFF handshake). If a receiving device (normally a printer) is receiving information from an IND900 and cannot accept any more data into its buffer, it sends an ASCII XOFF character (13 h), which requests the IND900 terminal to stop sending data for a short period, until the buffer is empty again.

When the device is once again ready to receive more data, it sends an ASCII XON character (11h), which requests the IND900 terminal to start sending data again.

The XON/XOFF handshake is the only type of data flow control supported by the IND900 terminal.

The IND900 terminal supports two different data task modes – demand mode (such as SICS) and continuous mode.

In addition to the Standard Interface Command Protocol (SICS – see next chapter), the IND900 also supports – yet with limitations - the MMR (Mettler MultiRange) protocol used in older terminals, like ID7, IND690 or ID30.

However, for reinstallations, the MMR protocol should no longer be used!

B.4.2. Standard Interface Command (SICS) Protocol

The IND900 supports the METTLER TOLEDO Standard Interface Command Set (MT-SICS), which is divided into four levels (0, 1, 2, 3). The IND900 terminal supports parts of levels 0, 1, 2 and 3:

A feature of this concept is that the commands summarized in the MT-SICS levels 0 and 1 are identical for all devices.

B.4.3. Configuration of the data interface

Interface settings such as baudrate, number of databits, parity and handshaking protocols are described in section 3.2.4.4. of Chapter 3, Configuration, in this manual.

B.4.4. MT-SICS version numbers

Each level of the MT-SICS has its own version number, which can be requested with the command I1 in level 0. The IND900 supports:

- MT-SICS level 0, version 2.2x
- MT-SICS level 1, version 2.2x
- MT-SICS level 2, version 1.0x for IND900 terminals
- MT-SICS level 3, version 1.0x for IND900 terminals

B.4.5. Command Formats

Each SICS command received at the data interface of the IND900 is acknowledged by a response from the terminal. Commands that are transmitted to the IND900 terminal are composed of one or more characters of the ASCII character set. Commands must always be expressed in upper-case letters.

- Every SICS command must be terminated by a CR/LF character

B.4.6. Example

Command to tare the IND900 terminal:

"TA_20.00_lb" (The command termination CR/LF is not shown.)

B.4.7. Response Formats

All responses transmitted from the IND900 terminal to the sender have one of the following formats:

- Response with weight value
- Response without weight value
- Error message

B.4.7.1. Response Format with Weight Value

ID	___	Status	___	Weight Value	___	Unit	C$_R$	L$_F$
1-2 characters		1 character		10 character		1-3 characters		

- ID – Identification of the response.
- _ – Space (ASCII 32 dec.)
- Status – Status of the IND900. See description of the commands and responses.

- Weight value – weighing result displayed as a number with 10 places including the sign directly before the first place. The weight value appears right-aligned. Leading zeroes, except for a zero to the left of the decimal point, are suppressed.

- Unit – the displayed weight unit.

- CR – ASCII 13 dec.

- LF – ASCII 10 dec.

Note – CR/LF is not shown in this description.

B.4.7.1.1. Example

Response with a stable weight value of 0.256 kg:

S _ S_ _ _ _ _ _ 0.256 _ kg

B.4.7.2. Response Format Without Weight Value

ID	___	**Status**	___	**Parameter**		C_R	L_F
1-4 characters		1 character					

- ID – Identification of the response.

- _ – Space (ASCII 32 dec.)

- Status – Status of the IND900 terminal. See description of the commands and responses.

- Parameter – Command-dependent response code.

- CR – ASCII 13 dec.

- LF – ASCII 10 dec.

Note – CR LF is not shown in this description.

ID C_R L_F

B.4.7.3. ID – error identification

There are three different error messages. Each error message always consists of two characters and a string limitation:

- ES – syntax error
  The IND900 terminal did not recognize the command that was received.

- ET – transmission error
  The scale has received a "defective" command, e.g. with a parity error.

- EL – logical error
  The IND900 terminal cannot execute the command that was received.

- CR – carriage return (ASCII 13 dec.)

- LF – line feed (ASCII 10 Dec.)

B.4.8. Tips for Programmers

Tips for programming the SICS protocol:

B.4.8.1. Command and Response

Improve your application software by ensuring that your program evaluates the terminal's response of the IND900 terminal to a command before sending the next command.

External systems should always use software handshaking with the terminal. Be sure that a program communicating with the terminal waits for a response after every command before sending a new command. Sending a command before receiving a response may result in data loss or interfaces, which stop communicating!

B.4.8.2. Reset

At the start of communication between the IND900 terminal and the system, send a Reset command to the IND900 terminal to start the transaction from a defined status. Switching the IND900 terminal or the system on or off can cause defective characters to be received or transmitted.

B.4.8.3. Quotation marks (" ")

Quotation marks included in a response string are used to define fields and are always transmitted.

B.4.9. Commands and responses, MT-SICS level 0

The IND900 receives a command from the system computer and acknowledges the command with an appropriate response. The following sections describe the MT-SICS level 0 command set in detail. The commands are listed in alphabetical order with the corresponding responses. The commands and responses are terminated with CR and LF. The termination characters and string limitation characters are not mentioned again in the following description, but they must always be entered with the commands and transmitted with the responses.

The commands of MT-SICS level 0 can be used with very simple devices which support the METTLER TOLEDO Standard Interface Command Set.

The commands concerned are as follows:

- I0 Query all implemented MT-SICS commands
- I1 Query the MT-SICS level and MT-SICS versions
- I2 Query the scale data
- I3 Query the SW version and type definition number
- I4 Query the serial number
- I5 Query the software version
- S Send the stable weight value
- SI Send the weight value immediately
- SIR Send the weight value immediately and repeat

- Z   Zero

- ZI   Zero immediately

- @   Reset

A comprehensive description of the commands for level 0 is shown below:

I0 – QUERY ALL IMPLEMENTED MT-SICS COMMANDS

Command: I0 – Query all implemented MT-SICS commands

Response	I0 B 0 ″I0″	Command which implements level 0 ″I0″
	I0 B 0 ″I1″	Command which implements level 0 ″I1″
	I0 B 0 ″I2″	Command which implements level 0 ″I2″
	I0 B 0 ″I3″	Command which implements level 0 ″I3″
	I0 B 0 ″I4″	Command which implements level 0 "I4"
	I0 B 0 ″I5″	Command which implements level 0 "I5"
	I0 B 0 ″S″	Command which implements level 0 "S"
	I0 B 0 ″SI″	Command which implements level 0 "SI"
	I0 B 0 ″SIR″	Command which implements level 0 "SIR"
	I0 B 0 ″Z″	Command which implements level 0 "Z"
	I0 B 0 ″ZI″	Command which implements level 0 "ZI"
	I0 B 0 ″@″	Command which implements level 0 "@"
	I0 B 1 ″D″	Command which implements level 1 ″D"
	I0 B 1 ″DW″	Command which implements level 1 ″DW"
	I0 B 1 ″K″	Command which implements level 1 ″K"
	I0 B 1 ″SR″	Command which implements level 1 "SR"
	I0 B 1 ″T″	Command which implements level 1 "T"
	I0 B 1 ″TA″	Command which implements level 1 "TA"
	I0 B 1 ″TAC″	Command which implements level 1 "TAC"
	I0 B 1 ″TI″	Command which implements level 1 ″TI"
	I0 B 2 ″SX″	Command which implements level 2 ″SX"
	I0 B 2 ″SXI″	Command which implements level 2 ″SXI"
	I0 B 2 ″SXIR″	Command which implements level 2 ″SXIR"
	I0 B 2 ″R0″	Command which implements level 2 ″R0"
	I0 B 2 ″R1″	Command which implements level 2 ″R1"
	I0 B 2 ″U″	Command which implements level 2 ″U"
	I0 B 3 "I6"	Command which implements level 3 ″I6"
	I0 B 3 ″DY″	Command which implements level 3 ″DY"
	I0 A 3 ″P″	Command which implements level 3 ″P"

Error response I0 I – Command cannot be executed at this point in time.

I1 – QUERY THE MT-SICS LEVEL AND MT-SICS VERSIONS

Command: I1 – Query the MT-SICS level and MT-SICS versions

Response I 1 _ A _ ″0123″ _ ″2.2x″ _ ″2.2x″ _ ″1.0x″ _ ″1.0x ″

- "0123" – Levels 0123 implemented

- "2.10" – Level 0, version V2.10

- "2.10" – Level 1, version V2.10

- "2.10" – Level 2, version V2.10

- "1.00" – Level 3, version V1.00

- Error response I1 _ I – Command understood, cannot be executed at present.

I2 – QUERY DATA

Command: I2 – Query data

Response I 2 _ A _ "IND900 base" "A-scale 1 _30000" "A-scale 2 _30000" "A-scale 3 _30000" "A-scale 4 _30000"

- IND900 base model and installed application

- A-scale n – scale type, scale name

- 30000 - capacity of the weighing platform, connected to the IND900

- Error response I2 _ I – Command understood, cannot be executed at present.

- The number of text characters depends on the application software, the number of connected scales and the scale capacity.

I3 – QUERY THE SW VERSION AND TYPE DEFINITION NUMBER

Command I3: Query the SW version number(s) and type definition number

Response I3 _ A _ "scale 1" "scale 2" "scale 3" "scale 4"

- Scale n - Software version of scale n, e.g. IZ18-0-0108

- Error response I3 _ I – Command understood, cannot be executed at present.

- The number of text characters depends on the revision, the device type and the number of connected scales.

I4 – QUERY THE SERIAL NUMBER

Command: I4 – Query the serial number

Response I4 _ A _ "Text"

- Serial number as "Text"

- Error response I4 _ I – Command understood, cannot be executed at present.

Example

Command: I 4 – Query the serial number

Response I 4 _ A _ "123456"

■ The response to I4 appears unprompted after the device is switched on and after the reset command (@).

S – SEND STABLE WEIGHT VALUE

Command: S – Send the current stable net weight.

Response

- S _ S _ WeightValue _ Unit – current stable weight value.
- S _ I – Command not executed (invalid value).
- S _ + – Scale in overload range.
- S _ - – Scale in underload range.

Example

Command: S – Send a stable weight value.

Response S _ S _ _ _ _ _ 100.00 _ kg – The current stable weight value is 100.00 kg.

SI – SEND THE WEIGHT VALUE IMMEDIATELY

Command: SI – Sends the current net weight value irrespective of the scale stability.

Response

- S _ S _ WeightValue _ Unit – stable weight value.
- S _ D _ WeightValue _ Unit – Non-stable (dynamic) weight value.
- S _ I – Command cannot be executed (scale currently executing another command).
- S _ + – Scale in overload range.
- S _ - – Scale in underload range.

Example

Command: SI – Send current weight value.

Response S _ D _ _ _ _ _ 129.07 _ kg – The current stable weight value is non-stable (dynamic) and is 129.07 kg.

■ The response to the command SI is the last internal weight value (stable or dynamic) before receipt of the command SI.

SIR – SEND WEIGHT VALUE IMMEDIATELY AND REPEAT

Command: SIR – Send repeat of the net weight values, irrespective of the scale stability.

Response

- S _ S _ WeightValue _ Unit – stable weight value.

- S _ D _ WeightValue _ Unit – Non-stable (dynamic) weight value.

- S _ I – Command cannot be executed (IND900 terminal currently executing another command, such as taring).

- S _ + – Scale in overload range.

- S _ - – Scale in underload range.

Example

Command: SIR – Send current weight values at intervals.

Response

- S _ D _ _ _ _ _ 129.07 _ kg

- S _ D _ _ _ _ _ 129.08 _ kg

- S _ D _ _ _ _ _ 129.09 _ kg

- S _ D _ _ _ _ _ 129.09 _ kg

- S _ D _ _ _ _ _ 114.87 _ kg

- **. . .** – The scale sends stable or non-stable weight values permanently.

🔹 SIR is overwritten and canceled by the commands S, SI, SR and @.

🔹 The number of weight values sent per second depends on the type of scale

Z – ZERO

Command: Z – Set scale to zero.

Response

- Z _ A – The following then applies:

- The scale is in gross mode

- Zeroing performed, (stability criterion and zeroing range are complied with).

- Z _ I – Zeroing not performed (the IND900 terminal is currently performing another command such as taring, or has not achieved stability.)

- Z _ + – Upper limit of the zeroing range exceeded.

- Z _ - – Lower limit of the zeroing range not achieved.

Example

Command: Z – Zero.

Response Z _ A – Zeroing performed.

🔹 The zero point that was determined at switch-on is not affected by this command (the measuring ranges remain unchanged).

The duration of the timeout depends on the type of scale and the corresponding settings. If motion does not cease within this time span, the command is canceled.

ZI – ZERO IMMEDIATE

Command: ZI – Set scale immediately to zero.

Response

- Z _ A – The following then applies:

- The scale is in gross mode.

- Zeroing performed, (zeroing range are complied with).

- Z _ I – Zeroing not performed (the IND900 terminal is currently performing another command such as taring).

- Z _ + – Upper limit of the zeroing range exceeded.

- Z _ - – Lower limit of the zeroing range not achieved.

Example

Command: ZI – Zero immediate

Response Z _ A – Zeroing performed.

The zero point that was determined at switch-on is not affected by this command (the measuring ranges remain unchanged).

@ – RESET

Command: @ – Reset the IND900 to the status as after Power On.

Response

I 4 _ A _ ″Text″ – Serial number of the scale; the scale is ready for operation.

Example

Command: @

Response I4 _ A _ ″123456-6GG″ – The IND900 terminal is reset and sends the serial number.

All commands that are awaiting responses are canceled.

The command "Reset" is always executed.

A reset command received by the IND900 terminal during calibration and the test procedure cannot be processed.

B.4.10. Commands and responses, MT-SICS level 1

The following commands are available in the MT-SICS level 1:

- D – Writing to the display

- DW – Switch display into weight mode
- K – Keyboard Monitoring
- SR – Send weight value when weight changes (Send and Repeat)
- T – Tare when scale reaches stability
- TA – Query/input a tare value
- TAC – Clear tare value
- TI – Tare immediately

B.4.10.1. D – WRITE TEXT IN THE DISPLAY

Command: D

- D _ "ABCD" writes the text ABCD into the display of the IND900.
- D _ "" Clears display.

Response

- D _ A – Text (up to 50 characters) is displayed left-aligned.
- D _ R – The end of the text (if more than 50 characters) is displayed, the start is truncated.
- D _ L – Command cannot be executed.

Example:

Command: D _ "HELLO" – Writes the text "Hello" into the IND900 display.

Response D _ A

B.4.10.2. DW – SWITCH DISPLAY INTO WEIGHT MODE

Command: DW

Response

- DW _ A – Display shows the weight value.
- DW _ I – Command cannot be executed.

B.4.10.3. K – KEYBOARD MONITORING

Command: K _ 1

- When a key is pressed, execute the function, but do not transmit anything (factory setting).

Command: K _ 2

- When a key is pressed, do not execute the function and do not transmit anything.

Command: K _ 3

- When a key is pressed, do not execute the function, but transmit the key code K _ C _ x or, when the key is pressed longer, transmit K _ R _ x und K _ C _ x.

Command: K _ 4

- When a key is pressed, execute the function and transmit the function code K _ A _ x.
- If the function cannot be executed immediately, the function code for the start of the function K _ B _ x or K _ A _ x for the end of the function is transmitted.

Response

- K _ A – Command understood or function successfully executed.
- K _ I – Command understood, but currently cannot be executed, e.g. no keyboard present.
- K _ L – Command understood, parameters incorrect.
- K _ R _ x – Key x was pressed briefly and released again immediately.
- K _ C _ x – Key x was pressed for approx. 2 sec.

■ Only one K command is ever active at one time.

See the following table for key codes (x):

Key	Key-Icon	Nr. (x)	IND930	IND970-15
Key 0	**0**	0	Softkey keyboard numeric	Foil keyboard + numeric softkeys
…	…	…		
Key 9	**9**	9	Softkey keyboard numeric	Foil keyboard + numeric softkeys
Key Decimal Point	**.**	10	Softkey keyboard numeric	Foil keyboard + numeric softkeys
Scale key	or	19	Scale key	Scale key
Zero key	or	20	Zero key	Zero key
Tare key	or	21	Tare key	Tare key
Pretare key	PT or	22	Pretare key	Pretare key

Key	Key-Icon	Nr. (x)	IND930	IND970-15
Cancel key		23	Cancel key	Cancel key
Enter key		24	Enter key at numeric / alphanumeric input Enter key at additional FreeWeigh Mode keyboard	Enter key of foil keyboard
Code A		25	Configured Ident A key	Configured Ident A key
…	…	…		
Code F		30	Configured Ident F key	Configured Ident F key
X10 key		40	X10 key	X10 key
Delta key		41	Delta key	Delta key
Print key		42	Print key	Print key
Gross recall key		43	Gross recall key	Gross recall key
Setup key		44	Setup key	Setup key

B.4.10.4. SR – SEND WEIGHT VALUE WHEN WEIGHT CHANGES (SEND AND REPEAT)

Command: SR

- S R _ PresetValue _ Unit – After a change in weight that is greater than the preset deflection value, send alternately the next weight value at stability and (depending on the specified deflection) a dynamic weight value.

- SR – After a change in weight send the next weight value at stability and after every deflection > 30d send a dynamic weight value and the next weight value at stability.

Response

- S _ S _ WeightValue _ Unit – current stable weight value. Change in weight.

- S _ D _ WeightValue _ Unit – dynamic weight value.

- S _ S _ WeightValue _ Unit – next stable weight value.

- S _ I – Command cannot be executed (the IND900 terminal is currently performing another command such as taring, or has timed out since it did not achieved stability.)

- S _ L – Command understood, wrong parameter.

- S _ + – IND900 in the overload range.

- S _ - – IND900 in the underload range.

Example

Command: S R _ 0.50 _ kg – Send the current stable weight value, followed by every change in load ≥ 0.50 kg.

Response

- S _ S _ _ _ _ _100.00 _ kg – Scale stable.

- S _ D _ _ _ _ _115.23 _ kg – More than 0.50 kg loaded.

- S _ S _ _ _ _ _200.00 _ kg – Scale stable again.

🔹 SR is canceled by the commands S, SI, SIR, @ and by hardware faults.

🔹 If after a non-stable (dynamic) weight value is sent, no stability was achieved within the timeout interval, the response "S _ I" and then a non-stable weight value is transmitted.

🔹 The preset value must be input in the first unit, i.e. in the weight unit that is displayed after the IND900 terminal is powered up.

B.4.10.5. **T – Taring**

Command: T –Tare a stable weight value

Response

- T_S_weight value_unit - Taring performed.

- T_ I – Taring not executed (scale executing another command, resetting to zero, or stability timeout reached)

- T_+ -- Upper limit of the taring range exceeded.

- T_- - Lower limit of the taring range not reached.

Example

Command: T

Response T _S _ _ _ _ _100.00_kg – The IND900 terminal has adopted a tare value of 100.00 kg.

🔹 The new tare weight value overwrites the tare memory.

🔹 The duration of the timeout depends on the type of scale and the corresponding settings. If motion does not cease within this time span, the command is canceled.

B.4.10.6.   TA – QUERY/INPUT A TARE VALUE

Command: TA – Query of a tare weight value

- TA _ tare weight _ unit – input of a tare value.

Response

- T A _ A _ tare weight _ unit – Current tare weight value.

- T A _ I – Taring not executed

- T A _ L – Command understood, wrong parameter.

Example

Command: T A _ 10.00 _ kg – Specify tare weight 10 kg.

Response T A _ A _ _ _ _ _10.00_ kg – The IND900 terminal has accepted the tare value 10.00 kg.

- ▪ The existing tare is overwritten with the specified tare value.

- ▪ The tare value entered is automatically rounded by the IND900 terminal to the current scale divisions.

- ▪ The tare value must be entered in the current units.

B.4.10.7.   TAC - CLEAR TARE VALUE

Command: TAC – Clear tare value.

Response

- TAC _ A – Tare value cleared.

- TAC _ I – Command cannot be executed

-

B.4.10.8.   TI – TARE IMMEDIATELY

Command: TI – Tare immediately (saves the current weight value, which may be stable or non-stable [dynamic], as the tare weight).

- ▪ Certain scale types, such as IDNet scales, do not support immediate taring. The IND900 then answers basically with TI_L.

Response

- T I _ S _ WeightValue _ Unit – Taring performed, stable tare value.

- T I _ D _ WeightValue _ Unit – Taring performed, non-stable (dynamic) tare value.

- T I _ I – Taring not performed

- T I _ L – The command cannot be executed.

- T I _ + – Upper limit of the taring range exceeded.

- T I _ - – Lower limit of the taring range not reached.

Example

Command: TI – Tare immediately.

Response T I _ D _ _ _ _ _117.57 _ kg – The tare memory contains a non-stable (dynamic) weight value.

🔹 The previous tare value is overwritten with the new tare weight value.

🔹 Even after a non-stable (dynamic) status a tare weight value can be determined. The tare value determined in this way is however not necessarily accurate.

🔹 The saved tare weight value is transmitted in the current units.

B.4.11.   Commands and responses, MT-SICS level 2

The following commands are available in the MT-SICS level 2:

- SX - Send stable weight data

- SXI – Send weight data immediately

- SXIR Send weight data immediately and repeat

- R— Switch keyboard on/off

- U – Switch over units of measure

- DS – Acoustic signal

SX - SEND STABLE WEIGHT DATA

Command: SX – Send the current, stable weight data.

Response

- SX _ S _ x1 _ y _ _ x2 _ y _ _ x3 _ y – Stable weight value, x1 = G _ Gross weight, x2 = N _ Net weight, x3 = T _ Tare weight, y = Weight units.

- SX_I – Command not executed

- SX _ + – Scale in overload range.

- SX _ - – Scale in underload range.

Example

Command: SX - Send stable weight data.

Response

- SX _ S _ G _ _ _ _ _ _ 15620 _ kg _ _ _ N _ _ _ _ _ _ 15305 _ kg _ _ _ T _ _ _ _ _ _ _ _ 315 _ kg_ – The current stable gross, net and tare weight data is sent.

- The duration of the timeout depends on the type of scale and the corresponding settings. If motion does not cease within this time span, the command is canceled.

- The weight values are in the currently displayed units.

SXI – SEND WEIGHT DATA IMMEDIATELY

Command: SXI – Send the current weight data immediately, irrespective of the scale stability.

Response

- SX _ S _ x1 _ y _ _ x2 _ y _ _ x3 _ y – Current stable weight data, x1 = G _ Gross weight, x2 = N _ Net weight, x3 = T _ Tare weight, y = Weight units.

- SX _ D _ x1 _ y _ _ x2 _ y _ _ x3 _ y – Current non-stable weight data, x1 = G _ Gross weight, x2 = N _ Net weight, x3 = T _ Tare weight, y = Weight units.

- SX_I – Command not executed

- SX _ + – Scale in overload range.

- SX _ - – Scale in underload range.

Example

Command: SXI – Send the current weight data immediately.

Response

- SX _ S _ G _ _ _ _ _ _ 22220 _ kg _ _ _ N _ _ _ _ _ _ 22220 _ kg _ _ _ T _ _ _ _ _ _ _ _ 0 _ kg_ – The current stable gross, net and tare weight data is sent.

- SX _ S _ G _ _ _ _ _ _ 2.520 _ ton _ _ _ N _ _ _ _ _ _ 2.520 _ ton _ _ _ T _ _ _ _ _ _ _ _ 0 _ ton_ – The current non-stable dynamic gross, net and tare weight data is sent.

- The response to the command SXI is the last internal weight value (stable or dynamic) before sending the command SXI.

- The weight value is in the currently displayed units.

SXIR – SEND WEIGHT DATA IMMEDIATELY AND REPEAT

Command: SXIR – Send the current weight data multiple times, irrespective of whether the scale has reached stability.

Response

- SX _ S _ x1 _ y _ _ x2 _ y _ _ x3 _ y – Current stable weight data, x1 = G _ Gross weight, x2 = N _ Net weight, x3 = T _ Tare weight, y = Weight units.

- SX _ D _ x1 _ y _ _ x2 _ y _ _ x3 _ y – Current non-stable weight data, x1 = G _ Gross weight, x2 = N _ Net weight, x3 = T _ Tare weight, y = Weight units.

- SX_I – Command not executed

- SX _ + – Scale in overload range.

- SX _ - – Scale in underload range.

Example

Command: SXIR – Send the current weight data immediately and repeat.

Response

- SX _ S _ G _ _ _ _ _ _ 22220 _ kg _ _ _ N _ _ _ _ _ _ 22220 _ kg _ _ _ T _ _ _ _ _ _ _ _ _ _ _ 0 _ kg_

- SX _ D _ G _ _ _ _ _ _ 22223 _ kg _ _ _ N _ _ _ _ _ _ 22223 _ kg _ _ _ T _ _ _ _ _ _ _ _ _ _ _ 0 _ kg_

- SX _ D _ G _ _ _ _ _ _ 22228 _ kg _ _ _ N _ _ _ _ _ _ 22228 _ kg _ _ _ T _ _ _ _ _ _ _ _ _ _ _ 0 _ kg_

- SX _ D _ G _ _ _ _ _ _ 22233 _ kg _ _ _ N _ _ _ _ _ _ 22233 _ kg _ _ _ T _ _ _ _ _ _ _ _ _ _ _ 0 _ kg_

- … – The scale sends stable or non-stable dynamic gross, net and tare weight data at regular intervals.

🔹 SXIR is canceled by the commands S, SI, SR, SX, SXI and @.

🔹 The number of weight values sent per second depends on the type of scale

🔹 The weight value is in the currently displayed units.

R - SWITCH KEYBOARD ON/OFF

Command: R

- R0 – IND900 Switch on keypad and keyboard.
- R1 – IND900 Switch off keypad and keyboard.

Response

- R0 _ A – Keypad and keyboard enabled.
- R1 _ A – Keypad and keyboard disabled.

Example

Command: R1 – Disable keypad and keyboard of the terminal.

Response: R1 _ A – Keypad and keyboard disabled.

🔹 The default is to enable the keypad and the keyboard. They are always enabled at power up.

🔹 If the keypad and the keyboard are disabled, the terminal cannot be operated manually.

U – SWITCH OVER UNITS OF MEASURE

Command: U

- U – Switch to primary units.
- U _ Unit – Switch to specified units (unit = g, kg, lb, ton, etc. choose between primary and secondary units).

Response

- U_A – Units switched over.

- U_I – Command not executed (wrong units specified).

Example

Command: U _ lb – Switch units of measure to pounds.

Response: U_A – The units for the scale have been switched to pounds.

■ Switching over between units is limited to primary and secondary units included in the current settings.

DS – Acoustic signal

Command: DS

Response

- DS_A – Acoustic signal generated.

B.4.12.   Commands and responses, MT-SICS level 3

The following commands are available in the MT-SICS level 3:

- I6 – Query the scale parameters
- DY – Specify DeltaTrac target
- P – Print text

Command: I6

Response

• I6_IB_I	Industrial scale (I = Industrial scale, P = Precision scale)
• I6_MAX_MaxValue_Unit	MaxValue = Maximum Capacity
• I6_MIN_ MinValue_Unit	MinValue = Minimum Capacity
• I6_TH_PTValue_Unit	PTValue = Maximum Preset Tare
• I6_Ri_Resolu_Unit/MaxVal_Unit	
	Ri = 0 Single range Ri = 1, 2, 3 Partial range / interval info Resolu: resolution of range/interval Ri MaxVal: maximum value of range/interval Ri

• I6_E_nd	nd: Verification value
	nd = 0d not approved
	nd = 1d display interval equals verification
	            interval
	nd = 10d class II scale with extended
	            resolution

- IE   End of parameters

Example for a response from an approved Point-IDNet scale (IZ14)

- I6_IB_I   Industrial scale
- I6_MAX_15.000_kg   Maximum Capacity 15.000 kg
- I6_MIN_0.020_kg   Minimum Capacity 0.020 kg
- I6_TH_15.000_kg   Maximum Preset Tare 15.000 kg
- I6_R1_0.001_kg/3.000_kg   Range 1: resolution 0.001 kg / Max. value 3.000 kg
- I6_R2_0.002_kg/6.000_kg   Range 2: resolution 0.002 kg / Max. value 6.000 kg
- I6_R3_0.005_kg/15.000_kg   Range 3: resolution 0.005 kg / Max. value 15.000 kg
- I6_E_1d   Display interval equals verification interval
- IE   End of parameters

Example for a response from a not approved PBK/PFK9xx scale

- I6_IB_I   Industrial scale
- I6_MAX_20.000_kg   Maximum Capacity 20.000 kg
- I6_MIN_0.000_kg   Minimum Capacity 0.000 kg
- I6_TH_20.000_kg   Maximum Preset Tare 20.000 kg
- I6_R0_0.002_kg/20.000_kg   Single range: resolution 0.002 kg / Max. value 20.000 kg
- I6_E_0d   Non approved scale
- IE   End of parameters

Command: DY

- DY _ Target weight _ Unit _ Lower tol _ Unit _ Upper tol _ Unit
- DY _ Target weight _ Unit _ Lower tol _ % _ Upper tol _ %
- DY – Clear the active target and tolerance values

Response

- DY_A – Target and tolerance values have been set.
- DY_I – Command not executed

Example

Command: DY _ 150 _ kg _ 12 _ kg _ 10 _ kg – Set target = 150 kg, Lower tolerance = 12 kg and upper tolerance = 10 kg.

Response DY_A – Target and tolerance values for the scale have been set.

Command: DY _ 100 _ kg _ 10 _ %_ 10 _ % − Set target = 100 kg and lower/upper tolerance = 10% of the target.

Response DY_A − Target and tolerance values for the scale have been set.

■ Weight units can be specified only in the primary and secondary units of the scale. The tolerance weight units must be the same as the target weight unit.

■ The target and tolerance inputs must match the displayed graduation values.

P – PRINT TEXT

Command: P _ ″ABCD″

• P − The text ABCD is been printed.

Response

• P_A − The text has been printed.

P – PRINT TEMPLATE

Command: P _ ″$1″

• P − Print the template 1.

Response

• P_A − The template has been printed.

• P_I − The template print failed.

B.5.   Shared Data Variables and Application Blocks

B.5.1.   Shared Data Variables

The following table shows all existing IND900 Shared Data Variables. They are accessible in the IND900 Template Editor and in the InSite Program.

Group Name	Shared Variable Name	Type in IND900 Weigh	Max. Length	Available values	Default Value	Notes
Terminal						
	TerminalID1	string	30			
	TerminalID2	string	30			
	TerminalID3	string	30			
	SerialNumber	string	30		1	

Group Name	Shared Variable Name	Type in IND900 Weigh	Max. Length	Available values	Default Value	Notes
	LatestAlibi	string	100		0	
	LatestAlibiRecordNumber	string	10			
	LatestAlibiDate	string	12			
	LatestAlibiTime	string	11			
	LatestAlibiTransactionNumber	string	8			
	LatestAlibiScaleNumber	string	1			
	LatestAlibiGrossWeight	string	14			
	LatestAlibiNetWeight	string	14			
	LatestAlibiTareWeight	string	14			
	LatestAlibiTareType	string	1			
	LatestAlibiMinWeigh	string	1			
	LatestAlibiIdentA	string	30			
	LatestAlibiIdentB	string	30			
	LatestAlibiIdentC	string	30			
	LatestAlibiIdentD	string	30			
	LatestAlibiIdentE	string	30			
	LatestAlibiIdentF	string	30			
	LatestAlibiChecksum	string	10			
	LatestAlibiUserData	string	200			
	LatestAlibiValid	string	5			
	Date	string				
	Time	string				
	NextTransaction	big integer		1-1499999	1	
Interface						
	HardwareType	integer		-1=None 0=IDNet-Scale 1=Analog-Scale 2=RS422 3=RS485 4=ScaleLock 5=RS232 6=Dongle 7=SICS-Scale 8=4IO 10=SICSpro-Scale 21=Ethernet 22=WLAN 23=Bluetooth 99=Unknown Hardware	1	
	Baudrate	integer		1200 2400 4800 9600 19200 38400 57600 115200	9600	
	DataBits	integer		7 8	7	
	Parity	integer		0 1 2	0	
	Stopbits	integer		1 2	1	

Group Name	Shared Variable Name	Type in IND900 Weigh	Max. Length	Available values	Default Value	Notes
	Handshake	integer		0=None, 1=XON-OFF 2=Hardware Handshake 3=CL Handshake	0	
	StringFrame	integer		1=CR 2=LF 4=STX..ETX 8=BCC	3	
Templates						
	PreambleLength	integer		0-255	0	
	DataLength	integer		1-40	1	
	PostambleLength	integer		0-255	0	
	TerminationChar	integer		0=None 1=SOH 2=STX 3=ETX 4=EOT 5=ENQ 6=ACK 7=BEL 8=BS 9=HT 10=LF 11=VT 12=FF 13=CR 14=SO 15=SI 16=DLE 17=DC1 18=DC2 19=DC3 20=DC4 21=NAK 22=SYN 23=ETB 24=CAN 25=EM 26=SUB 27=ESC 28=FS 29=GS 30=RS 31=US	13	
	Assignment	integer		1=Tare 2=TareID 3=TargetID	1	
Output Templates						
	OutputTemplate1 to OutputTemplate10					
Reports						
	Width	integer		132=Wide 40=Narrow	40	
	Header	integer		0-99	2	
	Title	integer		0=off, 1=on	1	

Group Name	Shared Variable Name	Type in IND900 Weigh	Max. Length	Available values	Default Value	Notes
	RecordSeparator	integer		0=None 1=* 2=- 3== 4=CR/LF	1	
	Footer	integer		0-99	5	
Network						
	IPAddress	string	15			
	SubnetMask	string	15			
	GatewayAddress	string	15			
	DHCP	integer		0=25,1=110	1	
	SSID	string	15			
	KEY	string	10			
	MACAddress	string	20			
	RemoteIPAddress	string	15			
	PrinterIP	string	15			
	CharacterSet	integer		0=CP 1252 1=CP 437 2=CP 850 3=Chinese GBK 4=CP 1251 5=Unicode	0	
	PreferredDNSServer	string	15			
	AlternateDNSServer	string	15			
	FTPServerIP	string	15			
	FTPServerFilename	string	30			
	FTPServerStorageName	integer		0=store 1=append		
	FTPUserName	string	30			
	FTPPassword	string	30			
	NetworkKey	string	30			
	KeyIndex	integer	1			
Scale						
	ScaleName	string	30			
	ScaleType	integer		-1=None 0=IDNET 1=DIGICELL 7=SICS 10=SICSpro	-1	
	Approval	integer		0=None 1=OIML 2=NTEP	0	
	ApprovalClass	integer		I, II, III, IIII, IIIL		
	Ranges	integer		1, 2, 3	1	
	Range1Resolution	string				
	Range2Resolution	string				
	Range3Resolution	string				
	Range1Weight	string				
	Range2Weight	string				

Group Name	Shared Variable Name	Type in IND900 Weigh	Max. Length	Available values	Default Value	Notes
	Range3Weight	string				
	GeoCode	integer		0-31	20	
	BaseSerialNumber	string	10			
	AutoZero	integer		1=On, 0=Off	0	
	AutoTare	integer		0=Off, 1=On	0	
	TareThresholdWeight	double			0.000000	
	ResetThresholdWeight	double			0.000000	
	AutoTareMotionCheck	integer		0=Off, 1=On	1	
	AutoClearTare	integer		0=Off, 1=On	0	
	ClearThresholdWeight	double			0.000000	
	AutoClearMotionCheck	integer		0=Off, 1=On	1	
	SecondUnit	integer		0=None 1=g 2=kg 3=mg 4=lb 5=oz 6=ozt 7=dwt 8=t 12=Custom	0	
	MinLoad	double			0.000000	
	ScaleID	integer		1-9	1	
	DisplayWeight	These are internal variables.				
	DisplayUnit					
	GrossWeight					
	NetWeight					
	TareWeight					
	HRWeight					
	PrimaryUnit			1=g 2=kg 3=mg 4=lb 5=oz 6=ozt 7=dwt 8=pct 9=pcs 11=t		
	TareType	These are internal variables.				
	NetWeightStable					
	HRWeightStable					
	CurrentRange					
	ScaleResolution					
	MaxWeight					
	SecondUnitText					
	GrossInSecondUnit					

Group Name	Shared Variable Name	Type in IND900 Weigh	Max. Length	Available values	Default Value	Notes
	NetInSecondUnit					
	TareInSecondUnit					
	SICSproScaleType					
Application						
	Memory	integer		0=Not Active 1=Active	1	
	DefaultDynaCount	integer		1-99	32	
	LastDynaResult	These are internal variables.				
	LastDynaWeight					
	IdentAName	string	20		Ident-A	
	IdentAInputDialog	integer		0=Alphanumeric 1=Numeric	0	
	IdentAMotionCheck	integer		0=Off, 1=On	0	
	IdentBName	string	20		Ident-B	
	IdentBInputDialog	integer		0=Alphanumeric 1=Numeric	0	
	IdentBMotionCheck	integer		0=Off, 1=On	0	
	IdentCName	string	20		Ident-C	
	IdentCInputDialog	integer		0=Alphanumeric 1=Numeric	0	
	IdentCMotionCheck	integer		0=Off, 1=On	0	
	IdentDName	string	20		Ident-D	
	IdentDInputDialog	integer		0=Alphanumeric 1=Numeric	0	
	IdentDMotionCheck	integer		0=Off, 1=On	0	
	IdentEName	string	20		Ident-E	
	IdentEInputDialog	integer		0=Alphanumeric 1=Numeric	0	
	IdentEMotionCheck	integer		0=Off, 1=On	0	
	IdentFName	string	20		Ident-F	
	IdentFInputDialog	integer		0=Alphanumeric 1=Numeric	0	
	IdentFMotionCheck	integer		0=Off, 1=On	0	
	IdentAText	string	30			Max. length depends on the IdentA length
	IdentBText	string	30			Max. length depends on the IdentB length
	IdentCText	string	30			Max. length depends on the IdentC length
	IdentDText	string	30			Max. length depends on the IdentD length
	IdentEText	string	30			Max. length depends on the IdentE length
	IdentFText	string	30			Max. length depends on the IdentF length
	ExternalApplicationPath	string	255			
	AplicationName	string	50			
	ApplicationVersion	string	50			

Group Name	Shared Variable Name	Type in IND900 Weigh	Max. Length	Available values	Default Value	Notes
Maintenance						
	LowerLimit	integer		-10 -10	0	
	UpperLimit	integer		40-80	60	
	IntervalWithinLimit	integer		1-60	30	
	IntervalOutsideLimit	integer		1-60	30	
	CriticalTemperature	integer		60-100	65	
	FanSpeed	These are internal variables.				
	CurrentFanSpeed					
	FanSpeedLoss					
	DisplayScaleUpdates	integer		0=Off,1=On	0	
	EnableChangeLog	integer		0=Off,1=On	1	
	EnableMaintenanceLog	integer		0=Off,1=On	1	
	MaintenanceLogScale1	integer		0=Off,1=On	1	
	MaintenanceLogScale2	integer		0=Off,1=On	1	
	MaintenanceLogScale3	integer		0=Off,1=On	1	
	MaintenanceLogScale4	integer		0=Off,1=On	1	
Strings						
	Strings1 to Strings20					
EmailInfo						
	SenderName	string	20			
	SubjectLine	string	80			
	SMTPServerAddress	string	15			
	SenderEmailAddress	string	40			
FixedMemory						
	TargetTable					
	MessageTable					
	TareTable					
Totalizing						
	StartingItemNumber	integer	4	1-9999	1	start value of item counter
	EndingItemNumber	integer	4	1-9999	9999	end value of item counter
	CurrentItemNumber	integer	4	1-9999	0	item counter
	TransactionNumber	integer	7	1-1499999	1	transaction number
	LastAction	integer	1	0=none 1=totalizing 2=manual input 4=cancelled	0	last process
	TargetWeight	string	10			target weight
	TargetWeightUnit	string	3			unit of target weight
	SumGrossWeight	string	10			gross weight of sum
	SumGrossWeightUnit	string	3			unit of gross weight of sum
	SumNetWeight	string	10			net weight of sum
	SumNetWeightUnit	string	3			unit of net weight of sum

Group Name	Shared Variable Name	Type in IND900 Weigh	Max. Length	Available values	Default Value	Notes
	SumTareWeight	string	10			tare weight of sum
	SumTareWeightUnit	string	3			unit of tare weight of sum
	LastGrossWeight	string	10			last gross weight
	LastGrossWeightUnit	string	3			unit of last gross weight
	LastNetWeight	string	10			last net weight
	LastNetWeightUnit	string	3			unit of last net weight
	LastTareWeight	string	10			last tare weight
	LastTareWeightUnit	string	3			unit of last tare weight
	MeanValue	string	14			SQC value mean value
	StandardDeviation	string	14			SQC value standard deviation
	MinWeight	string	14			SQC value min weight value
	MaxWeight	string	14			SQC value max weight value
	SQCFunction	integer		0=off,1=on	0	SQC function setting
	MinDeflection	Integer	3	1-999	10	min deflection setting

B.5.2. Comparison of Application Blocks and Shared Data Variables

The following table lists all Application Blocks together with their corresponding Shared Data Variables.

Application Block	Sub-block	Description	Shared Variable
1	1	Terminal Type	Not available
2	1	Program Number	Not available
4	1	Terminal Identification	Not available
	2	SN Terminal number	Terminal.SerialNumber
	3	SN Scale 1	Scale[1].BaseSerialNumber
	4	SN Scale 2	Scale[2].BaseSerialNumber
	5	SN Scale 3	Scale[3].BaseSerialNumber
	6	SN Scale 4	Scale[4].BaseSerialNumber
	7	SN ITX Board	Not available
5	1	Keyboard	Not available
6	1	Transfer Key	Not available
	2	List of possible key(codes)	Not available
7	1	Gross weight in second unit	CurrentScale.GrossInSecondUnit
	2	second unit	CurrentScale.SecondUnitText
8	1	Net weight in second unit	CurrentScale.NetInSecondUnit
	2	second unit	CurrentScale.SecondUnitText
9	1	Tare weight in second unit	CurrentScale.TareInSecondUnit
	2	second unit	CurrentScale.SecondUnitText
10	1	Scale ID	Not available
11	1	Gross weight in primary unit	CurrentScale.GrossWeight
	2	Primary unit	CurrentScale.PrimaryUnitText
12	1	Net weight in primary unit	CurrentScale.NetWeight
	2	Primary unit	CurrentScale.PrimaryUnitText

Application Block	Sub-block	Description	Shared Variable
13	1	Tare weight in primary unit	CurrentScale.TareWeight
	2	Primary unit	CurrentScale.PrimaryUnitText
14	1	Display weight	CurrentScale.DisplayWeight
	2	Display unit	CurrentScale.DisplayUnit
15	1	Date	Terminal.Date
16	1	Dynamic Weight	Application.LastDynaWeight
17	1	Status Display	Not available
	2	Status Display	Not available
18	1	Target - Actual	Not available
19	1	Date	Terminal.Date
	2	Time	Terminal.Time
20	1	Current Deltatrac	Not available
	2	Delta tol (-)	Not available
	3	Delta tol (+)	Not available
21-45	1	Fix Tare Weight 1..25	Not available
	2	Description	Not available
46	1	Target	Not available
	2	Negative Tolerance	Not available
	3	Positive Tolerance	Not available
71-90	1	Fixed Text 1..25	Not available
91	1	Barcode EAN 28	Not available
	2	Barcode EAN 12801	Not available
	3	Barcode EAN 128310	Not available
	4	Barcode EAN 128330	Not available
92	1	Barcode EAN 29	Not available
93	1	Barcode EAN 29 a	Not available
94	1	IdentA Name	Application.IdentAName
	2	IdentA Text	Application.IdentAText
95	1	IdentB Name	Application.IdentBName
	2	IdentB Text	Application.IdentBText
96	1	IdentC Name	Application.IdentCName
	2	IdentC Text	Application.IdentCText
97	1	IdentD Name	Application.IdentDName
	2	IdentD Text	Application.IdentDText
98	1	IdentE Name	Application.IdentEName
	2	IdentE Text	Application.IdentEText
99	1	IdentF Name	Application.IdentFName
	2	IdentF Text	Application.IdentFText
101-106	1	Hardware Type of X1-X6	Not available
	2	Mode of X1-X6	Not available
	3	Status of X1-X6	Not available
	4	Port Settings of X1-X6	Not available
107		Not available in IND900	Not available
110	1	Scale ID of Scale1	Scale[1].ScaleID
	2	Scale ID of Scale2	Scale[2].ScaleID
	3	Scale ID of Scale3	Scale[3].ScaleID
	4	Scale ID of Scale4	Scale[4].ScaleID
	5	Scale ID of Scale5 (Sum scale)	Scale[5].ScaleID
111_001	1	Gross Weight of Scale1 in Parallel mode	Scale[1].GrossWeight

Application Block	Sub-block	Description	Shared Variable
	2	Primary unit of Scale1	Scale[1].PrimaryUnitText
111_002	1	Gross Weight of Scale2 in Parallel mode	Scale[2].GrossWeight
	2	Primary unit of Scale2	Scale[2].PrimaryUnitText
111_003	1	Gross Weight of Scale3 in Parallel mode	Scale[3].GrossWeight
	2	Primary unit of Scale3	Scale[3].PrimaryUnitText
111_004	1	Gross Weight of Scale4 in Parallel mode	Scale[4].GrossWeight
	2	Primary unit of Scale4	Scale[4].PrimaryUnitText
111_005	1	Gross Weight of Sum Scale in Parallel mode	Scale[5].GrossWeight
	2	Primary unit of Sum Scale	Scale[5].PrimaryUnitText
112_001	1	Net Weight of Scale1 in Parallel mode	Scale[1].NetWeight
	2	Primary unit of Scale1	Scale[1].PrimaryUnitText
112_002	1	Net Weight of Scale2 in Parallel mode	Scale[2].NetWeight
	2	Primary unit of Scale2	Scale[2].PrimaryUnitText
112_003	1	Net Weight of Scale3 in Parallel mode	Scale[3].NetWeight
	2	Primary unit of Scale3	Scale[3].PrimaryUnitText
112_004	1	Net Weight of Scale4 in Parallel mode	Scale[4].NetWeight
	2	Primary unit of Scale4	Scale[4].PrimaryUnitText
112_005	1	Net Weight of Sum Scale in Parallel mode	Scale[5].NetWeight
	2	Primary unit of Sum Scale	Scale[5].PrimaryUnitText
113_001	1	Tare Weight of Scale1 in Parallel mode	Scale[1].TareWeight
	2	Primary unit of Scale1	Scale[1].PrimaryUnitText
113_002	1	Tare Weight of Scale2 in Parallel mode	Scale[2].TareWeight
	2	Primary unit of Scale2	Scale[2].PrimaryUnitText
113_003	1	Tare Weight of Scale3 in Parallel mode	Scale[3].TareWeight
	2	Primary unit of Scale3	Scale[3].PrimaryUnitText
113_004	1	Tare Weight of Scale4 in Parallel mode	Scale[4].TareWeight
	2	Primary unit of Scale4	Scale[4].PrimaryUnitText
113_005	1	Tare Weight of Sum Scale in Parallel mode	Scale[5].TareWeight
	2	Primary unit of Sum Scale	Scale[5].PrimaryUnitText
116	1	Severity of last error	Not available
	2	Source of last error	Not available
	3	Error code of last error	Not available
117_001	1	Gross Weight of Scale1 in Second Unit	Scale[1].GrossInSecondUnit
	2	Second unit of Scale1	Scale[1].SecondUnitText
117_002	1	Gross Weight of Scale2 in Second Unit	Scale[2].GrossInSecondUnit
	2	Second unit of Scale2	Scale[2].SecondUnitText
117_003	1	Gross Weight of Scale3 in Second Unit	Scale[3].GrossInSecondUnit
	2	Second unit of Scale3	Scale[3].SecondUnitText
117_004	1	Gross Weight of Scale4 in Second Unit	Scale[4].GrossInSecondUnit
	2	Second unit of Scale4	Scale[4].SecondUnitText
117_005	1	Gross Weight of Sum Scale in Second Unit	Scale[5].GrossInSecondUnit
	2	Second unit of sum Scale	Scale[5].SecondUnitText
118_001	1	Net Weight of Scale1 in Second Unit	Scale[1].NetInSecondUnit
	2	Second unit of Scale1	Scale[1].SecondUnitText
118_002	1	Net Weight of Scale2 in Second Unit	Scale[2].NetInSecondUnit
	2	Second unit of Scale2	Scale[2].SecondUnitText
118_003	1	Net Weight of Scale3 in Second Unit	Scale[3].NetInSecondUnit
	2	Second unit of Scale3	Scale[3].SecondUnitText
118_004	1	Net Weight of Scale4 in Second Unit	Scale[4].NetInSecondUnit

Application Block	Sub-block	Description	Shared Variable
	2	Second unit of Scale4	Scale[4].SecondUnitText
118_005	1	Net Weight of Sum Scale in Second Unit	Scale[5].NetInSecondUnit
	2	Second unit of sum Scale	Scale[5].SecondUnitText
119_001	1	Tare Weight of Scale1 in Second Unit	Scale[1].TareInSecondUnit
	2	Second unit of Scale1	Scale[1].SecondUnitText
119_002	1	Tare Weight of Scale2 in Second Unit	Scale[2].TareInSecondUnit
	2	Second unit of Scale2	Scale[2].SecondUnitText
119_003	1	Tare Weight of Scale3 in Second Unit	Scale[3].TareInSecondUnit
	2	Second unit of Scale3	Scale[3].SecondUnitText
119_004	1	Tare Weight of Scale4 in Second Unit	Scale[4].TareInSecondUnit
	2	Second unit of Scale4	Scale[4].SecondUnitText
119_005	1	Tare Weight of Sum Scale in Second Unit	Scale[5].TareInSecondUnit
	2	Second unit of sum Scale	Scale[5].SecondUnitText
120	1	Enable/Disable individual keys	Not available
181-184	1	Scale Parameters of Scale1 -Scale4 (applicable only for IDNET)	Not available
185	1	Scale Parameters of Sum Scale	Not available
199	1	Record Number of Last Alibi Memory	LatestAlibiRecordNumber
	2	Date of Last Alibi Memory	LatestAlibiDate
	3	Time of Last Alibi Memory	LatestAlibiTime
	4	Transaction Counter Value	LatestAlibiTransactionNumber
	5	Scale Number	LatestAlibiScaleNumber
	6	Gross of Last Alibi Memory	LatestAlibiGrossWeight
	7	Net of Last Alibi Memory	LatestAlibiNetWeight
	8	Tare of Last Alibi Memory	LatestAlibiTareWeight
	9	Tare Type	LatestAlibiTareType
	10	MinWeigh Status	LatestAlibiMinWeigh
	11	Ident-A	LatestAlibiIdentA
	12	Ident-B	LatestAlibiIdentB
	13	Ident-C	LatestAlibiIdentC
	14	Ident-D	LatestAlibiIdentD
	15	Ident-E	LatestAlibiIdentE
	16	Ident-F	LatestAlibiIdentF
	17	User Data	LatestAlibiUserData
	18	Checksum	LatestAlibiChecksum
701	1	Description of application	Not available
702	1	Program designation	Not available
706	1	Digital outputs 1	Not available
707	1	Digital inputs 1	Not available
708	1	Digital outputs 2	Not available
709	1	Digital inputs 2	Not available
710	1	Digital outputs 3	Not available
711	1	Digital inputs 3	Not available
712	1	Digital outputs 4	Not available
713	1	Digital inputs 4	Not available
714	1	Digital outputs 5	Not available
715	1	Digital inputs 5	Not available
716	1	Digital outputs 6	Not available
717	1	Digital inputs 6	Not available

Application Block	Sub-block	Description	Shared Variable
718	1	Digital outputs 7	Not available
719	1	Digital inputs 7	Not available
720	1	Digital outputs 8	Not available
721	1	Digital inputs 8	Not available

Totalizing

Application Block	Sub-block	Description	Shared Variable
201	1	Application name	Not available
202	1	Application version	Not available
205	1	Start value of item counter	TotalPac.StartingItemNumber
	2	End value of item counter	TotalPac.EndingItemNumber
206	1	Item counter	TotalPac.CurrentItemNumber
207	1	Transaction number	TotalPac.TransactionNumber
208	1	Last process	TotalPac.LastAction
209	1	Target weight	TotalPac.TargetWeight
	2	Target weight unit	TotalPac.TargetWeightUnit
211	1	Gross weight of sum	TotalPac.SumGrossWeight
	2	Unit of gross weight of sum	TotalPac.SumGrossWeightUnit
212	1	Net weight of sum	TotalPac.SumNetWeight
	2	Unit of net weight of sum	TotalPac.SumNetWeightUnit
213	1	Tare weight of sum	TotalPac.SumTareWeight
	2	Unit of tare weight of sum	TotalPac.SumTareWeightUnit
214	1	Last gross weight	TotalPac.LastGrossWeight
	2	Unit of last gross weight	TotalPac.LastGrossWeightUnit
215	1	Last net weight	TotalPac.LastNetWeight
	2	Unit of last net weight	TotalPac.LastNetWeightUnit
216	1	Last tare weight	TotalPac.LastTareWeight
	2	Unit of last tare weight	TotalPac.LastTareWeightUnit
217	1	SQC value mean value	TotalPac.MeanValue
218	1	SQC value standard deviation	TotalPac.StandardDeviation
219	1	SQC value max weight value	TotalPac.MaxWeight
220	1	SQC value min weight value	TotalPac.MinWeight

B.6. Reports

To print reports of the tare table, target table or message table, a connection (**Setup I Communication I Connections**) must be established for the function "Reports". Once a report connection has been established at a serial port, every time a report is created and printed, it is printed out at the assigned port.

The structure of the report can be configured in the setup, so that all reports have the same general format.

An example of various reports with a column width of 40 is depicted in the following sections.

B.6.1. Alibi table

The alibi table can be displayed on the IND900 terminal and printed by pressing the Print key 🖨. The alibi memory can be sorted, displayed and printed in the same way as any other table in the terminal. The alibi table can be displayed by pressing the Alibi softkey 🗂. It can be printed by pressing the Reports softkey 🖨.

B.6.2. Tare table report

The following report example has a width of 40 characters. 2 blank lines are printed before the title. An asterisk "*" was selected as the record separator for these reports. 5 blank lines follow at the end of the printout.

B.6.2.1. Report Example, 40 Columns Wide

```
Tare table

18:58:03          18.01.2010


Tare ID: 1
Tare weight: 26.4 kg
Description: Blue Box #1
****************************************
Tare ID: 1
Tare weight: 17.8 kg
Description: Red Box #2
****************************************
Tare ID: 1
Tare weight: 14.3 kg
Description: Green Box #3
****************************************
```

B.6.3. Target Table Report

The following settings were selected in this example.

B.6.3.1. Report Example, 40 Columns Wide

```
Target table

11:02:13          19.01.2010

Target ID: 1   Description: White RT4
Target weight: 11.00 kg
Positive tolerance: 0.2 kg
Negative tolerance: 0.1 kg
----------------------------------------
Target ID: 1   Description: Red RT2
Target weight: 21.00 kg
Positive tolerance: 1.2 kg
Negative tolerance: 3.1 kg
----------------------------------------
Target ID: 1   Description: Blue RT7
Target weight: 16.00 kg
Positive tolerance: 0.6 kg
Negative tolerance: 0.5 kg
----------------------------------------
```

B.6.4. Message table report

The message table contains texts that can be used in the print screens. There are 100 records, each of which can be up to 40 characters long. The message table report can be printed in the Setup\Application\Memory\Messages by pressing the Print softkey 🖨. Messages can also be printed by pressing the Reports softkey 🗐.

B.6.4.1. Report Example, 40 Columns Wide

In reports with a column width greater than 40 characters, a line break is inserted.

```
Messages

11:02:13          19.01.2010

Message ID:       1
Message:  East Main Street
----------------------------------------
Message ID:       2
Message:  Blue Box
----------------------------------------
Message ID:       3
Message:  World of Rugs
----------------------------------------
Message ID:        4 Message:  BOX
----------------------------------------
```

C   GEO Codes

The GEO code feature provided in the IND900 terminals permits calibration readjustment due to changes in elevation or latitude without reapplying test weights. This adjustment assumes a previously accurate calibration was done with the GEO code set properly for that original location and that the GEO code for the new location can be accurately determined. The procedure for using this feature is as follows.

C.1.   Original Site Calibration

1. Use the GEO code chart (Table C-1) on the following pages to determine the GEO code for the current altitude and location at which the scale will be calibrated.

2. Enter that GEO value into the GEO code parameter in setup at **Scale > Calibration**.

3. Immediately after entering the GEO code, perform a zero and span adjustment using accurate test weights.

4. Exit the setup menu tree.

5. The scale can now be used in its new location.

C.2.   New Site GEO Code Adjustment

When a terminal is to be reinstalled at a different geographic location, gravitational and altitude changes can be accounted for by following these steps. Note that this procedure is not necessary if an on-site recalibration is performed.

1. Use the GEO code chart (Table C-1) on the following pages to determine the GEO code for the new altitude and location at which the scale will be used.

2. Enter that GEO value into the GEO code parameter in Setup at **Scale > Calibration**.

3. Immediately after entering the GEO code, exit the setup menu tree. DO NOT perform a normal calibration.

The calibration has now been adjusted for the differences in gravity from the original site of calibration to the new site of use.

Using the GEO code value for calibration adjustment is not as accurate as re-applying certified test weights and re-calibrating the scale in a new location.

Table C-1: GEO Adjustment Values

Latitude North or South, in Degrees and Minutes	Height Above Sea Level, in Meters										
	0	325	650	975	1300	1625	1950	2275	2600	2925	3250
	325	650	975	1300	1625	1950	2275	2600	2925	3250	3575
	Height Above Sea Level, in Feet										
	0	1060	2130	3200	4260	5330	6400	7460	8530	9600	10660
	1060	2130	3200	4260	5330	6400	7460	8530	9600	10660	11730
0° 0'–5° 46'	5	4	4	3	3	2	2	1	1	0	0
5° 46'–9° 52'	5	5	4	4	3	3	2	2	1	1	0
9° 52'–12° 44'	6	5	5	4	4	3	3	2	2	1	1
12° 44'–15° 6'	6	6	5	5	4	4	3	3	2	2	1
15° 6'–17° 0'	7	6	6	5	5	4	4	3	3	2	2
17° 10'–19° 2'	7	7	6	6	5	5	4	4	3	3	2
19° 2'–20° 45'	8	7	7	6	6	5	5	4	4	3	3
20° 45'–22° 22'	8	8	7	7	6	6	5	5	4	4	3
22° 22'–23° 54'	9	8	8	7	7	6	6	5	5	4	4
23° 54'–25° 21'	9	9	8	8	7	7	6	6	5	5	4
25° 21'–26° 45'	10	9	9	8	8	7	7	6	6	5	5
26° 45'–28° 6'	10	10	9	9	8	8	7	7	6	6	5
28° 6'–29° 25'	11	10	10	9	9	8	8	7	7	6	6
29° 25'–30° 41'	11	11	10	10	9	9	8	8	7	7	6
30° 41'–31° 56'	12	11	11	10	10	9	9	8	8	7	7
31° 56'–33° 9'	12	12	11	11	10	10	9	9	8	8	7
33° 9'–34° 21'	13	12	12	11	11	10	10	9	9	8	8
34° 21'–35° 31'	13	13	12	12	11	11	10	10	9	9	8
35° 31'–36° 41'	14	13	13	12	12	11	11	10	10	9	9
36° 41'–37° 50'	14	14	13	13	12	12	11	11	10	10	9
37° 50'–38° 58'	15	14	14	13	13	12	12	11	11	10	10
38° 58'–40° 5'	15	15	14	14	13	13	12	12	11	11	10
40° 5'–41° 12'	16	15	15	14	14	13	13	12	12	11	11
41° 12'–42° 19'	16	16	15	15	14	14	13	13	12	12	11
42° 19'–43° 26'	17	16	16	15	15	14	14	13	13	12	12
43° 26'–44° 32'	17	17	16	16	15	15	14	14	13	13	12
44° 32'–45° 38'	18	17	17	16	16	15	15	14	14	13	13

Latitude North or South, in Degrees and Minutes	Height Above Sea Level, in Meters										
	0–325	325–650	650–975	975–1300	1300–1625	1625–1950	1950–2275	2275–2600	2600–2925	2925–3250	3250–3575
	Height Above Sea Level, in Feet										
	0–1060	1060–2130	2130–3200	3200–4260	4260–5330	5330–6400	6400–7460	7460–8530	8530–9600	9600–10660	10660–11730
45° 38′–46° 45′	18	18	17	17	16	16	15	15	14	14	13
46° 45′–47° 51′	19	18	18	17	17	16	16	15	15	14	14
47° 51′–48° 58′	19	19	18	18	17	17	16	16	15	15	14
48° 58′–50° 6′	20	19	19	18	18	17	17	16	16	15	15
50° 6′–51° 13′	20	20	19	19	18	18	17	17	16	16	15
51° 13′–52° 22′	21	20	20	19	19	18	18	17	17	16	16
52° 22′–53° 31′	21	21	20	20	19	19	18	18	17	17	16
53° 31′–54° 41′	22	21	21	20	20	19	19	18	18	17	17
54° 41′–55° 52′	22	22	21	21	20	20	19	19	18	18	17
55° 52′–57° 4′	23	22	22	21	21	20	20	19	19	18	18
57° 4′–58° 17′	23	23	22	22	21	21	20	20	19	19	18
58° 17′–59° 32′	24	23	23	22	2\2	21	21	20	20	19	19
59° 32′–60° 49′	24	24	23	23	22	22	21	21	20	20	19
60° 49′–62° 9′	25	24	24	23	23	22	22	21	21	20	20
62° 9′–63° 30′	25	25	24	24	23	23	22	22	21	21	20
63° 30′–64° 55′	26	25	25	24	24	23	23	22	22	21	21
64° 55′–66° 24′	26	26	25	25	24	24	23	23	22	22	21
66° 24′–67° 57′	27	26	26	25	25	24	24	23	23	22	22
67° 57′–69° 35′	27	27	26	26	25	25	24	24	23	23	22
69° 5′–71° 21′	28	27	27	26	26	25	25	24	24	23	23
71° 21′–73° 16′	28	28	27	27	26	26	25	25	24	24	23
73° 16′–75° 24′	29	28	28	27	27	26	26	25	25	24	24
75° 24′–77° 52′	29	29	28	28	27	27	26	26	25	25	24
77° 52′–80° 56′	30	29	29	28	28	27	27	26	26	25	25
80° 56′–85° 45′	30	30	29	29	28	28	27	27	26	26	25
85° 45′–90° 00′	31	30	30	29	29	28	28	27	27	26	26

D   Command Set for GA46 Printer

Command (dec)	Description
10	Line feed
12	Form feed
13 10	Line feed with printout of the entered data
14	Switch on double printing width (current line), wide type
15	Switch off double printing width, normal type
27 35 35	Reset to factory settings. All configurable parameters of the printer are reset to their default settings, and a test printout is generated with the active settings. New parameter values must then be set. If the print head has been replaced, the resistance value must be reset.
27 64	Reset Following this command, the printer is in the same condition as it is after it is turned on. All data stored in the receive buffer are cleared and can no longer be printed.
27 66 n	Bar code n = 1 Code 39: refer to comments n = 2 EAN8 n = 3 EAN13 n = 4 Code 128/EAN 128. Encoded data include starting and control characters, but without test and stop characters n = 5 Code 2 of 5 n = 6 Code 2 of 5 interleaved n = 7 Code 128. ASCII data, no control characters, only characters used in text n = 8 EAN 128. ASCII data, no control characters, only characters used in text
27 67 n	Define page length, n = 0...255. After n lines a form feed follows automatically. n = 0 Printout without page formatting
27 72 n	Define character height, n = 1, 2, 3. Default = 2
27 73	Send identification. After this command the printer sends the current software version number. E.g. ID02-0-0102
27 75 n	Set contrast of the printout, n = 0 − 8. Default = 4. A higher contrast value results in a blacker printout

Command (dec)	Description
27 82 n	Enter resistance class of the print head, depending on the value printed on the print head, n = 0 – 4
27 84	Test printout. Creates printout with the set configurable parameters, interface parameters and version number of the software
27 86 BITMAP	Graphics printout. The data follow "27 86" are treated as a bitmap file. Black and white graphics up to 64 KB are supported. The graphics are printed out immediately and are not stored. Graphics must have a width of 384 pixels
27 87	Load logo. The data following "27 87" are treated as a bitmap file. Black and white graphics up to 23 KB with a width of 384 points are supported. The graphical representation is stored in the printer and printed out after every "27 88" command. The log remains stored until • a new logo is uploaded • a bar code needs to be printed out • a graphical representation is loaded • the printer is switched off
27 88	Print logo
27 94 n	Select character set: n = 0　Character set USA n = 1　Character set Poland n = 2　Character set Germany n = 3　Character set Russia

-Notes

Each command must end with the string terminator $C_R L_F$ (131 10 dec)

Always enter the entry parameter n as a decimal value

Comments on bar code CODE 39

The CODE 39 bar code is printed out lengthways

Up to three bar codes can be printed side-by-side:

Separation of the bar codes:　　Horizontal tabulator H_T (09 dec)

Closure of the bar codes:　　　$C_R L_F$ (13 10 dec)

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