Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use according to these instructions and regular calibration and maintenance by our factory-trained service team ensure dependable and accurate operation, protecting your investment. Contact us about a ServiceXXL agreement tailored to your needs and budget.

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 METTLER TOLEDO product.
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1 Safety precautions

▲ The ADI856 Display is approved for operation in Division 1 hazardous areas.
▲ Particular care is required when using weighing systems with the ADI856 Display in hazardous areas. The code of practice is oriented to the "Safe Distribution" concept drawn up by METTLER TOLEDO.

Competence ▲ The ADI856 Display may only be installed, maintained and repaired by authorized METTLER TOLEDO service personnel.

Ex approval ▲ No modifications may be made to the device and no repair work may be performed on the modules. Any scale or system modules that are used must comply with the specifications contained in the installation instructions. Non-compliant equipment jeopardises the intrinsic safety of the system, cancels the *Ex* approval and renders any warranty or product liability claims null and void.
▲ The safety of the weighing system is only guaranteed when the weighing system is operated, installed and maintained in accordance with the respective instructions.
▲ Also comply with the following:
– the instructions for the system modules and scales,
– the regulations and standards in the respective country,
– the statutory requirement for electrical equipment installed in hazardous areas in the respective country,
– all instructions related to safety issued by the owner.
▲ The explosion-protected weighing system must be checked to ensure compliance with the requirements for safety before being put into service for the first time, following any service work and every 3 years, at least.

Operation ▲ Prevent the build-up of static electricity. Always wear suitable working clothes when operating or performing service work in an hazardous area.
▲ Do not use protective covers for the devices.
▲ Avoid damage to the system components.
Installation

▲ Only install or perform maintenance work on the weighing system in the hazardous areas if the following conditions are fulfilled:
   – the intrinsically safe characteristic values and zone approval for individual components are in accordance with one another,
   – the owner has issued a permit ("spark permit" or "fire permit"),
   – the area has been rendered safe and the owner’s safety co-ordinator has confirmed that there is no danger,
   – the necessary tools and any required protective clothing are provided (danger of build-up of static electricity)

▲ The certification documents (certificates, manufacturer’s declarations) must be present.

▲ Route the cables so that they cannot move. Protect the cables against possible damage.

▲ Only route the cables into the housing of the system modules via a suitable cable gland.
2 System overview

2.1 Using the ADI856 Display

The ADI856 Display is a TouchScreen display used for remote operation of a PC. The ADI856 Display and scale are placed in the hazardous area and are connected via an ADI856 cable to the ADI856 Interface and to the PC. The Interface and PC are placed in the safe area.

2.2 Supplied equipment

- ADI856 Display with ADI856 cable
- ADI856 Interface
- 1 x 1.8 m USB cable
- 1 x 1.8 m scale cable
- 1 x 1.8 m mains cable (regional options)
- 1 x 15 m cable
- USB-Serial Converter software

Note

Contact your METTLER TOLEDO representative for accessories and options available.

2.3 System configuration
2.4 Description of the components

**ADI856 Display**

The ADI856 Display is Intrinsically Safe Apparatus of Category 1. It is suitable for use in Division 1 hazardous areas.

Approvals: FM US & Canada  Class I II, Division 1, Groups C, D, E, F, G T4
Temperature range: 0 °C to + 40 °C

Connections

1. Main Cable Connector
2. Scale Connector
3. Display Reset Switch
**AD856 Interface**

The AD856 Interface is an Associated Intrinsically Safe Apparatus of Category 1. It is suitable for supplying Division 1 hazardous area equipment.

- **Approvals**: FM US & Canada, Class I, II, Division 1, Groups C, D, E, F, G
- **Temperature range**: -20 °C to +40 °C

**Connections - PC Version**

1. Main Cable Connector
2. Mains Input Connector
3. Power switch
4. USB Ports
5. Network Port
6. HDMI Socket
7. Mini Display Port
8. External Power Socket (Not Used)
9. USB Ports
10. DVD drive
11. PC On/Off switch
Connections – No PC Version

1. Power Switch
2. Mains Input Connector
3. Main Cable Connector
4. USB Input Connector
3 Hardware installation

3.1 Notes on installing the ADI856 system

**WARNING!**
Electric shock hazard!
▲ Connect the units with certified cables approved by METTLER TOLEDO only.
▲ Before operating the equipment make sure that the mains power cable to the ADI856 Interface case contains an earth, that is connected to the safe-area power-supply earth. The cable must comply with the national requirements.

**CAUTION!**
Damage to the units!
▲ Before connecting the equipment to the power supply, connect all cables to the ADI856 Interface and the ADI856 Display.
▲ Do not connect the equipment if the required voltage value is different to the local voltage.
▲ Allow only trained personnel to install and operate the equipment.

3.1.1 Routing principles
➜ Route the cables in a way that sharp/rough edges or extreme heat cannot damage them.
➜ Make sure that the cables are long enough to prevent tensions on wires, terminals, connections, junctions and supports.
➜ Put grommets on the cables that pass through metal enclosures.
➜ Cable and connectors are identical, compatible with both interface and display ports allowing the cable to be installed either way round.

3.1.2 Installation order
1. Position the ADI856 Display.
2. Connect the scale to the ADI856 Display.
3. Connect ADI856 Display and ADI856 Interface.
4. Connect the PC and peripherals to the ADI856 Interface.
5. Connect the ADI856 Interface to the power supply.
6. Switch on the ADI856 Display.

3.1.3 Storage
➜ Store packaged units in a cool, dry area at a temperature of –20 °C to 50 °C.
➜ Keep units away from any heat source or direct sunlight.
➜ Make sure that the units are not exposed to vibrations or shocks.
3.2 Wall mounting of ADI856 Display

CAUTION!
Display weighs approx. 7 kg. When mounting display to the wall pay attention to the following:
▲ Work must be undertaken by competent personnel.
▲ Adequate fixings must be ensured.

The ADI856 has a standard VESA 100 mounting bracket.
3.3 Connections at the ADI856 Display

3.3.1 Connecting the scale
1. Mount the scale in the hazardous area as described in the scale’s Installation Information.
2. Route the scale cables to the ADI856 display.

3.3.2 Connecting the ADI856 cable
1. Place the foam pad provided on a clean flat surface, ensuring there is nothing that can damage the screen.
2. Place the screen face down on the foam pad.
3. Rotate the stand 180°.
4. Connect the blue multiway cable and secure using the screwlocks.
5. Connect the scale cable and twist the body to lock.
6. Lift the base of the stand and adjust to the correct angle.

7. Remove the Foam Pad and place the unit on its stand.
3.4 Connections at the ADI856 Interface

3.4.1 Connecting the ADI856 Display to the ADI856 Interface

**CAUTION**

**Damages to the unit**

▲ The ADI856 Interface must only be installed in the safe area.
▲ Do not connect the interface safe area connections to the PC and peripheral equipment if the voltage supply is higher than 250 V r.m.s.

**PC Version**

1. Plug the large blue cable in to the Interface Unit and secure using the screwlocks.
2. Plug any required peripherals in to the Interface.
3. Connect the power cord to the ADI856 Interface and a mains outlet.

**Notes**

• Switch the system off if you do not use it for a longer period of time
Non-PC Version

1. Plug the large blue cable in to the Interface Unit and secure using the screwlocks.
2. Plug the USB cable in to the USB Input connector and a free USB port on the PC.
3. Connect the power cord to the ADI856 Interface and a mains outlet.
4. Connect the PC to a mains outlet.
Software installation is only required on the Non-PC Version of the ADI856.

**Important!** Do not connect the ADI856 to your PC before the install.

A monitor, mouse and keyboard should be connected to the PC for use in the software installation process.

### 4.1 DisplayLink Software

- Insert the CD in to the PC.
- Browse to the folder ADI856.
- Double click on `Display Setup.exe`.
- The Windows User Account Control window opens (if enabled in the OS).
- Click `Yes`.
- The DisplayLink Core Software installs.

The screen may go blank or flash during installation.

The following dialogue box will be displayed.

The DisplayLink Graphics Software installs.

No message will be displayed at the end of installation.

Connect the ADI856 to the PC using a USB Cable.

Installing Device Driver Message.

The screen should flash and the DisplayLink device should start to extend the Windows desktop.
4.2 Scale Software

Double click on Scale Setup.exe.
The Windows User Account Control window opens (if enabled in the OS).
Click Yes.
The Scale Software installs.

Go to Control Panel/Hardware and Sound/Device Manager and manually select the required COM port.

Open the properties for the COM port.
Select Advanced

Change the Latency Timer (highlighted in Red) to 2
Untick Serial Enumerator
5 Cleaning and inspection

5.1 Cleaning

DANGER!
Electric shock hazard due to ingress of moisture!
▲ Before cleaning:
  – shutdown the PC via the ADI856 Display
  – pull out the power plug to disconnect the system from the power supply

Further notes on cleaning
⇒ Use a damp cloth and only non solvent based cleaners.
⇒ Do not use any acids, alkalis or solvent based cleaners.
⇒ Do not clean the unit using a high-pressure cleaning unit or under running water.
⇒ Follow all the relevant instructions regarding cleaning intervals and permissible cleaning agents.

5.2 Inspection

The ADI856 parts are not serviceable and cannot be repaired by the user.
⇒ Contact your supplier if damage and/or malfunction are discovered during installation or operation of the system.

5.2.1 Inspection intervals
⇒ Inspections are to be carried out annually, as a minimum, to ensure the continued safe operation of the unit.

5.2.2 Inspection procedure
⇒ Let a METTLER TOLEDO trained technician carry out the inspection.
⇒ If damage and/or malfunction of the unit are discovered during the inspection, contact your METTLER TOLEDO representative.
6 Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display is blank</td>
<td>• Cables are not correctly connected</td>
<td>➜ Check if all cables are correctly connected</td>
</tr>
<tr>
<td></td>
<td>• Cable is damaged</td>
<td>➜ Check all cables for physical damage</td>
</tr>
<tr>
<td></td>
<td>• Units are not switched on</td>
<td>➜ Ensure that all cables are correctly connected before powering on</td>
</tr>
<tr>
<td></td>
<td>• Software not installed correctly</td>
<td>➜ Check that both the ADI856 Interface and the PC are powered on</td>
</tr>
<tr>
<td></td>
<td>• Cause is not known</td>
<td>➜ Check that the software has been installed and configured according to the instruction manual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➜ Contact your METTLER TOLEDO representative</td>
</tr>
<tr>
<td>Display is dim or distorted</td>
<td>• Cause is not known</td>
<td>➜ Contact your METTLER TOLEDO representative</td>
</tr>
<tr>
<td>Touchscreen does not work</td>
<td>• Cables are not correctly connected</td>
<td>➜ Check if all cables are correctly connected to the ADI856</td>
</tr>
<tr>
<td></td>
<td>• Cable is damaged</td>
<td>➜ Check all cables for physical damage</td>
</tr>
<tr>
<td></td>
<td>• Software not installed correctly</td>
<td>➜ Check that the software has been installed and configured according to the instruction manual</td>
</tr>
<tr>
<td></td>
<td>• Cause is not known</td>
<td>➜ Contact your METTLER TOLEDO representative</td>
</tr>
<tr>
<td>Scale does not work</td>
<td>• Cables are not correctly connected</td>
<td>➜ Check if all cables are correctly connected to the ADI856</td>
</tr>
<tr>
<td></td>
<td>• Cable is damaged</td>
<td>➜ Check all cables for physical damage</td>
</tr>
<tr>
<td></td>
<td>• Software not installed correctly</td>
<td>➜ Check that the software has been installed and configured according to the instruction manual</td>
</tr>
<tr>
<td></td>
<td>• Port settings are not correctly set</td>
<td>➜ Check that the port settings are correctly set on the peripheral and the computer (the serial interface does not support handshaking)</td>
</tr>
<tr>
<td></td>
<td>• Cause is not known</td>
<td>➜ Contact your METTLER TOLEDO representative</td>
</tr>
<tr>
<td>Software does not work correctly</td>
<td>• Cause is not known</td>
<td>➜ Contact supplier of PC and/or software</td>
</tr>
<tr>
<td>Physical damage</td>
<td>• Cause is not known</td>
<td>➜ Contact supplier of PC and/or software</td>
</tr>
</tbody>
</table>
7 Technical data

7.1 ADI856 Display

<table>
<thead>
<tr>
<th>Ignition protection type</th>
<th>FM</th>
<th>Class I &amp; II, Division 1, Groups C, D, E, F &amp; G T4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range</td>
<td>Operation 0 °C to +40 °C</td>
<td>Storage −20°C to +50°C</td>
</tr>
<tr>
<td>Preinstalled cable</td>
<td>15m</td>
<td></td>
</tr>
<tr>
<td>Serial port output parameters</td>
<td>$U_o = \pm 11$ V</td>
<td>$I_o = 0.02178$ A</td>
</tr>
<tr>
<td></td>
<td>$P_o = 0.599$ W</td>
<td>$U_i = 12$ V</td>
</tr>
<tr>
<td></td>
<td>$I_i = 0.0568$ A</td>
<td>$P_i = 0.165$ W</td>
</tr>
<tr>
<td>Scale power supply output parameters</td>
<td>$U_o = 14.28$ V</td>
<td>$I_o = 2.28$ A</td>
</tr>
<tr>
<td></td>
<td>$P_o = 3.89$ W</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>ADI856 Display 7.0 kg</td>
<td></td>
</tr>
</tbody>
</table>

Dimensional drawings
7.2 ADI856 Interface

<table>
<thead>
<tr>
<th>Ignition protection type</th>
<th>FM</th>
<th>Class I &amp; II, Division 1, Groups C, D, E, F, G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range</td>
<td>Operation</td>
<td>0 °C to +40 °C</td>
</tr>
<tr>
<td></td>
<td>Storage</td>
<td>−20°C to +50°C</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>90-250 V AC, 50-60Hz</td>
<td></td>
</tr>
<tr>
<td>Power Consumption</td>
<td>PC Version</td>
<td>40 W typ.</td>
</tr>
<tr>
<td></td>
<td>Non - PC Version</td>
<td>15 W typ.</td>
</tr>
<tr>
<td>Weight</td>
<td>PC Version</td>
<td>3 kg</td>
</tr>
<tr>
<td></td>
<td>Non - PC Version</td>
<td>2 kg</td>
</tr>
</tbody>
</table>

Dimensional drawing
8 Declarations of conformity

8.1 ADI856 Display Declaration of Conformity

The ADI856 Display is an Intrinsically Safe Apparatus, Category 1, suitable for use in Class I & II, Division 1 Hazardous Areas.

The manufacturer hereby declares with sole responsibility that the ADI856 Display complies with the following international standards:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EN60529:1992 Ingress Protection: IP54</td>
</tr>
<tr>
<td></td>
<td>FM3610: 01/10 Approval Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, &amp; III, Division 1, and Class I, Zone 0 &amp; 1 Hazardous (Classified) Locations</td>
</tr>
<tr>
<td></td>
<td>FM 3615: 08/06 Approval Standard for Explosionproof Electric Equipment for use in Hazardous</td>
</tr>
<tr>
<td></td>
<td>FM 3810: 01/05 Approval Standard for Electrical Equipment for Measurement, Control and Laboratory Use</td>
</tr>
<tr>
<td>CAN/CSA-C22.2 No. 157-92 R2012</td>
<td>Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations</td>
</tr>
<tr>
<td>CSA-C22.2 No. 30 1986 (R2012)</td>
<td>Explosion-Proof Enclosures for Use in Class I Hazardous Locations</td>
</tr>
<tr>
<td>CAN/CSA-C22.2 No. 1010-1 2004</td>
<td>Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use - Part 1</td>
</tr>
</tbody>
</table>

Notified Body: FM Approvals Ltd.
Special Conditions: Ambient Temperature 0 °C to +40 °C

The serial port available to the user in the hazardous area has the following output parameters:

<table>
<thead>
<tr>
<th>Serial port output parameters</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$U_o$</td>
<td>±11 V</td>
<td></td>
</tr>
<tr>
<td>$I_o$</td>
<td>0.02178 A</td>
<td></td>
</tr>
<tr>
<td>$P_o$</td>
<td>0.599 W</td>
<td></td>
</tr>
<tr>
<td>$U_i$</td>
<td>12V</td>
<td></td>
</tr>
<tr>
<td>$I_i$</td>
<td>0.0568A</td>
<td></td>
</tr>
<tr>
<td>$P_i$</td>
<td>0.165W</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale power supply output parameters</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$U_o$</td>
<td>14.28 V</td>
<td></td>
</tr>
<tr>
<td>$I_o$</td>
<td>2.28 A</td>
<td></td>
</tr>
<tr>
<td>$P_o$</td>
<td>3.89 W</td>
<td></td>
</tr>
</tbody>
</table>

Intecpc Ltd, Rupert House, London Rd Sth, Poynton, Cheshire, SK12 1PQ, United Kingdom

25/02/2015

Mark Russell
Managing Director

Andy Griffin
Technical Director
8.2 ADI856 Interface Declaration of Conformity

The ADI856 Interface is Associated Intrinsically Safe Apparatus, Category 1, suitable for supplying Class I & II, Division 1 Hazardous Area equipment.

The manufacturer hereby declares with sole responsibility that the ADI856 Interface complies with the following international standards:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN60529:1992</td>
<td>Ingress Protection: IP54</td>
</tr>
<tr>
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<td>Approval Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, &amp; III, Division 1, and Class I, Zone 0 &amp; 1 Hazardous (Classified) Locations</td>
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<td>Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use - Part 1</td>
</tr>
</tbody>
</table>

Notified Body: FM Approvals Ltd.
Special Conditions: None

Intecpc Ltd, Rupert House, London Rd Sth, Poynton, Cheshire, SK12 1PQ, United Kingdom

25/02/2015

Mark Russell
Managing Director

Andy Griffin
Technical Director
9 Annex

9.1 Disposal

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

→ 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.

9.2 FCC notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to both Part 15 of the FCC Rules and the radio interference regulations of the Canadian Department of Communications. These limits are designed to provide a 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 user 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 own expense.