

IND360

Indicator and Transmitter



METTLER TOLEDO

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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/>.

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1 Introduction

This document describes the changes in the firmware for the compact automation transmitter / terminal IND360. Please note the following general information:

- The three housing variants (DIN, Panel, Harsh) all use the same firmware file
- The firmware file includes updates for applications as well

Use the dedicated firmware file for each scale type (analog, POWERCELL®, Precision, MutliACM™)

- More information about SAI (Standard Automation Interface) - PLC Communication for IND360 is available at www.mt.com/ind-ind360-downloads

1.1. Best Practices for Firmware Upgrade

Please execute the following procedure for firmware upgrade:

1. Back up configured parameters
2. Update the firmware on main unit and display (if available)
3. Execute a master reset using hardware switches -- refer to the **IND360base User's Guide**.
4. Restore configured parameters, including adjustment parameters

Starting from firmware release 2.02.0000, a firmware upgrade including update of the display firmware takes about 5 to 10 minutes to complete. Upgrade from an earlier firmware version requires more time.

2 Supplier Declaration

METTLER TOLEDO is certified according to ISO 9001. All products of the METTLER TOLEDO business unit "OEM" are developed and manufactured based on the internationally recognized ISO 9001 quality system.

- The software is developed based on a life cycle model, using defined documentation, programming and test guidelines.
- All suppliers of system components must be formally assessed. Obviously, standard products are an exception.
- The individual phases of the life cycle model and their working results are subject to a formal review (milestones).
- All documents and approved system components are subject to the modification check.

3 History of Changes

3.1. IND360base

Date	Topic	Description	Version
2024/12/02	Feature	The "MultiACM™" versions, which provide individual load cell readings and supervision, support tank/vessel, fill/dose, dynamic and rate control applications.	2.05.0000
	Feature	Supports PROFINET S2 redundancy	
	Feature	Added ClearWeight™ filter function to reduce specific low frequency noise in the weight signal	
	Feature	Supports connection to selected METTLER TOLEDO lab balances and moisture analyzers. See IND360 datasheet for more details	
	Bug-fix	Fixed PROFINET connection stability problem with Siemens switch XC-200 serial	
	Bug-fix	Fixed problem connecting to specific lab balances	
	Others	Various improvements and minor bug-fixes	
2023/12/12	Feature	Added functions for SLP33xD - MT-SICS command "M35" as zeroing method - MT-SICS command "C8" as external calibration method - Baud rate modification function	2.03.0000
	Feature	Added 0-5V analog output option	
	Bug-fix	Fixed a bug that device returns 0x8001 "command invalid" when cyclic command Eprint(410) is triggered	
2023/10/20	Feature	Added smart factory features OPC UA and JSON REST API (preview version)	2.02.0001
	Feature	Added ASM (Advanced Setup Mode) in web interface	
	Feature	Added option to display alibi records on IND360 screen	
	Feature	Added virtual weight simulator to web interface	
	Feature	Added hysteresis compensation and leveling guidance for PowerDeck	
	Feature	Improved analog sensor error detection	
	Feature	Added hardware support for new option board with extended memory and 4 digital inputs and 4 digital outputs	
	Bug-fix	Fixed issue in PLC Alibi memory read transmitting a double instead of a float	
	Bug-fix	Various bug-fixes	
2023/06/27	Bug-fix	Various bug-fixes	2.01.0000

Date	Topic	Description	Version
2022/06/03	Feature	Added support for three additional automation connectivities: EtherCAT, CC-Link Field Basic and ModbusTCP.	Analog and POWERCELL 1.00.0015 Precision: 1.00.0016
	Feature	Added optional fill/dose application, which manages filling process in distributed control systems.	
	Feature	Added new SAI (Standard Automation Industry) commands to trigger and read Alibi log from PLC	
	Feature	Added function to load adjustment data from PowerDeck.	
	Bug-fix	Various bug-fixes	
2021/09/01	Feature	Extended Profibus DP and Modbus RTU to IND360 POWERCELL and IND360 Precision. With this, all IND360s support EtherNet/IP, PROFINET, Profibus DP and Modbus RTU	1.00.0013
	Feature	Added ability to enable/disable local keypad using an optional discrete input or from a PLC using a specific SAI command.	
	Bug-fix	Various bug-fixes	
2021/04/30	-	Initial version	1.00.0012

3.2. IND360advancedBase

■ Note that, as this application is an extension to IND360base, refer also to section 3.1, above.

Date	Topic	Description	Version
2024/12/02	Feature	Supports connecting selected METTLER TOLEDO moisture analyzers	2.05.0000
	Feature	Allows "reversed" scale adjustment - from span to zero	
	Others	Various improvements and minor bug-fixes	
2023/10/20	-	Initial Version - Supports 64bit floating point weight values on PLC interface for Precision scales - Supports stealth mode to hide weight value - Remote I/O support for PLC to control IND360s digital outputs - Calculation and output of current flow rate	2.02.0001

3.3. IND360tank/vessel

■ Please refer to the change logs of the IND360base (section 3.1, above) and IND360advancedBase (section 3.2, above) for additional changes affecting the tank/vessel application.

Date	Topic	Description	Version
2024/12/02	Feature	Feature extension on LoadAdvisor™ - Compatible with IND360 MultiACM™ versions - Fast shimming function during tank installation	2.05.0000

Date	Topic	Description	Version
	Others	Various improvements and minor bug-fixes	
2023/10/20	Feature	Added display softkey to start/stop application	2.02.0001
	Feature	Added major feature extension "LoadAdvisor™ for POWERCELL"	
	Feature	Added commands for PLC to read Alibi memory entries	
	Feature	Added option to display alibi records on IND360 screen	
2021/04/30	-	Initial version	1.00.0012

3.4. IND360fill/dose

- Please refer to the change logs of the IND360base (section 3.1, above) and IND360advancedBase (section 3.2, above) for additional changes affecting the fill/dose application.

Date	Topic	Description	Version
2024/12/02	Feature	Fast resume on pause, set cut-off point relative to target	2.05.0000
	Bug-fix	Fixed issue on IND360Precision causing an Autotare Error 146 even though power up tare is disabled	
	Others	Various improvements and minor bug-fixes	
2023/12/12	Bug-fix	Fixed a bug of fast resume on pause cutoff point setting	2.03.0000
2023/10/20	Feature	Added feature to calculate and output of current flow rate to PLC	2.02.0001
	Feature	IND360's ISA-88-based state machine now provides both the stop (immediate shutdown) and abort (graceful shutdown) functions	
	Feature	Added combined digital input function "stop/reset" and "abort/reset"	
	Feature	Added configurable resume behavior following a pause after recovery from a power outage	
	Feature	Added target table that stores up to 10 products. Select product through the HMI or PLC	
	Feature	Added ready to feed signal (interlock)	
	Feature	Added optional filling result confirmation by operator, either when out of tolerance or after every cycle	
	Feature	Added resume after pause to two-speed mode	
	Feature	Added "absolute value mode" (i.e., no distinction between fill and dose)	
	Feature	Added display softkey to start/stop application	
	Feature	Added commands for PLC to read Alibi memory entries	
	Feature	Added option to display alibi records on IND360 screen	
2022/06/03	-	Initial Version	Analog and POWERCELL 1.00.0015

Date	Topic	Description	Version
			Precision: 1.00.0016

3.5. IND360dynamic

- Please refer to the change logs of the IND360base (section 3.1, above) and IND360advancedBase (section 3.2, above) for additional changes affecting the fill/dose application.

Date	Topic	Description	Version
2024/12/02	Feature	Dynamic weight capture in static mode Added a new mode "trigger by weight" to trigger a weighment without using photoeyes	2.05.0000
	Others	Various improvements and minor bug-fixes	
2023/10/20	-	Initial version	2.02.0001

3.6. IND360rateControl

- Please refer to the change logs of the IND360base (section 3.1, above) and IND360advancedBase (section 3.2, above) for additional changes affecting the rate control application.

Date	Topic	Description	Version
2024/12/02	-	Initial version	2.05.0000

3.7. IND360legacy

- IND360legacy requires a separate firmware file, and is not related to any other application.

Date	Topic	Description	Version
2023/08/30	Feature	Added ItExtend format for PLC output. This reports a 4-bit integer (instead of 2 bytes) for backward compatibility to IND131/IND331	1.00.0006
2021/09/01	-	Initial version	1.00.0003

4 PLC Device Description File Compatibility

Date	Firmware Version	Device Description File				
		PROFIBUS DP (GDS)	PROFINET (GSDML)	EtherNet/IP (EDS)	EtherCAT (ESI)	CC-Link IE Field Basic (CSPP)
2024/12/02	2.05.0000	MT1153	V2.43	V1.2	V1.0	V1.0
2023/12/12	2.03.0000	MT1153	V2.35	V1.2	V1.0	V1.0
2023/10/20	2.02.0001	MT1153	V2.35	V1.2	V1.0	V1.0
2023/06/27	2.01.0000	MT1153	V2.35	V1.2	V1.0	V1.0
2022/06/03	Analog and POWERCELL: 1.00.0015 Precision: 1.00.0016	MT1153	V2.35	V1.2	V1.0	V1.0
2021/09/01	1.00.0013	MT1153	V2.35	V1.1	n/a	n/a
2021/04/30	1.00.0012					

5 Disclaimer

The information contained in this document has been collected to the best of our knowledge and represents the latest update. In addition, METTLER TOLEDO will in no event be liable for consequences of any kind arising out of, or in connection with, the use of the downloadable software or this document.

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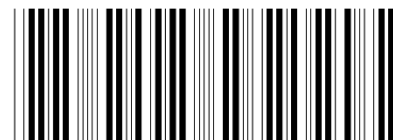
We invite you to register your product at www.mt.com/productregistration so we can contact you about enhancements, updates and important notifications concerning your product.

www.mt.com/IND360

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