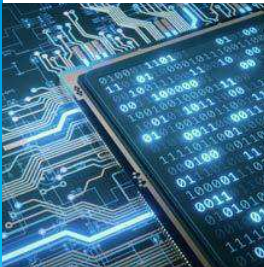# Modular Weighing for Automation
Connect Smart Sensors to Systems

Boost Machine Performance
With ultra-fast processing connected to the world's most widely used PLCs/DCS, the IND360 terminal boosts productivity and increases operational uptime. Condition monitoring and Smart5™ alarming ensure your system is performing as expected and lets you react quickly when issues arise.

Simplify Integration
IND360 is the smartest way to integrate weighing. For ease of use, terminals use certified automation interfaces and include sample-programming code. Detailed documentation and automation drivers including Rockwell EDS, AOPs and Siemens function blocks save you time and money on implementation and maintenance.

Eliminate Programming Time
Preprogrammed applications for semi- or fully automated weighing processes including tank/vessel weighing, filling/dosing, rate control and dynamic weighing allow you to benefit from METTLER TOLEDO's weighing expertise. You improve process throughput without spending time on custom programming.

Make Compliance Worry-Free
IND360 product family is certified compliant with both international and local standards enabling streamlined procurement, faster implementation, and more efficient cross-border startup without the usual headaches associated with exporting equipment.

IND360base Automation Terminals
Optimize Weighing Integration

IND360base automation terminals deliver precision measurement and status information to your control system. This gives you the ability to easily and efficiently manage your weighing applications, boost throughput and save time and materials.

IND360 includes the following key features:
- Up to 960 Hz ultra-high cyclical PLC update rate
- Up to 7 simultaneous floating point variables
- Automation Buses: PROFINET, Profibus DP, EtherNet/IP, Modbus RTU and 4-20mA/0-10V
- Operator display and network status LEDs, web interface for service and monitoring
- CalFree™ and CalFree Plus™, as well as automatic PLC/DCS-driven calibration of precision scales

METTLER TOLEDO

Technical Features
IND360 Automation Terminal

Parameter	Detail	Units of Measurement	DIN	Panel	Harsh
Housing	Enclosure type		DIN-Rail mount, quick connection with automatic grounding	Panel mount with detachable electronics	VESA 100 Desk/wall/column mount
	Material		Rugged ABS plastic	Stainless steel front panel with hygienic drip edge including mounting hardware	Stainless steel, includes fixed-angle brackets
	Ingress protection		IP20, Type 1	IP65 display, IP20 electronics	IP66 and IP69K
	W × H × D	mm / in	40 × 130 × 100 / 1.6 × 5.1 × 3.9	175 × 94 × 16 / 6.9 × 3.7 × 0.6	275 × 85 × 200 / 10.8 × 3.3 × 7.9
	Shipping weight	kg / lb	0.5 / 1.1	1.7 / 3.7	3.6 / 7.9
	Legal for Trade	°C / °F	-10 to 40 / 14 to 104; 10% to 90% relative humidity, non-condensing		
	Operation	°C / °F	-10 to 50 / 14 to 122; 10% to 90% relative humidity, non-condensing		
	Storage	°C / °F	-40 to 60 / -40 to 140; 10% to 90% relative humidity, non-condensing		
Power Requirements	DC powered	VDC / W	20 - 28VDC[1] / 12W[2]		NA
			[1] Power supply short circuit protection time shall be equal or longer than 100ms. [2] 18W, when 5 to 8 POWERCELLs are connected		
	AC powered	VAC / Hz	NA	100 - 240 VAC / 49 - 61 Hz	
Power Dissipation	DC powered	W	3	4.5	NA
	AC powered	W	NA	6	6
Scale	Number of scales		1		
	Strain gauge (analog) type		Max. 8× 350Ω (20× 1,000Ω) load cells; 1-4mV/V sensitivity; 5VDC excitation voltage		
	µV build recommended / approved		0.1 µV/d recommended; 0.3 µV/e Weights and Measures approved		
	POWERCELL® type		Supports one PowerDeck™ floor scale or a network of up to 8 POWERCELL® load cells, or PowerMount™ weigh modules		
	Precision type		Precision scales and weigh modules – see Precision Scale Compatibility on page 6		
	Adjustment / calibration		Zero / span with linearization up to 5 points; step; CalFree (analog scale) / CalFree Plus (POWERCELL® scale)		
	Primary unit		Analog/POWERCELL®: g, kg, lb, t and ton. Precision: Determined by scale or weigh module		
	Calibration unit		Analog/POWERCELL®: g, kg, lb, t and ton. Precision: Determined by scale or sensor		
	Capacity & increment		Analog/POWERCELL®: 1,000,000 maximum Capacity, maximum 100,000 display increments. Precision: Determined by scale or or sensor		
Connectivity	Automation interface		Optional: EtherNet/IP, Profibus DP®, PROFINET®, Modbus RTU, or Analog Output (4-20 mA/0-10V, 16-bit resolution)		
	Redundancy		Media Redundancy Protocol (MRP - Siemens) and Device Level Ring (DLR - ODVA)		
	Protocol		Standard Automation Interface (SAI) 2 and 8 block format		
	Protocol type		32-bit floating point and binary; cyclical or acyclical		
	Simultaneous floating point variables		1 or 7 user-selectable including status block for condition monitoring		
	Alarm status		Smart5™ based on NAMUR NE107		
	Condition monitoring		Heartbeat, Data OK, Smart5™		
	Automation Bus drivers - Siemens		GSD (Profibus DP), GSDML (PROFINET), function block		
	Certification Profibus DP / PROFINET		Profibus international Certificate No: Z02266, Z13050, Z13051		

IND360base Automation Terminal

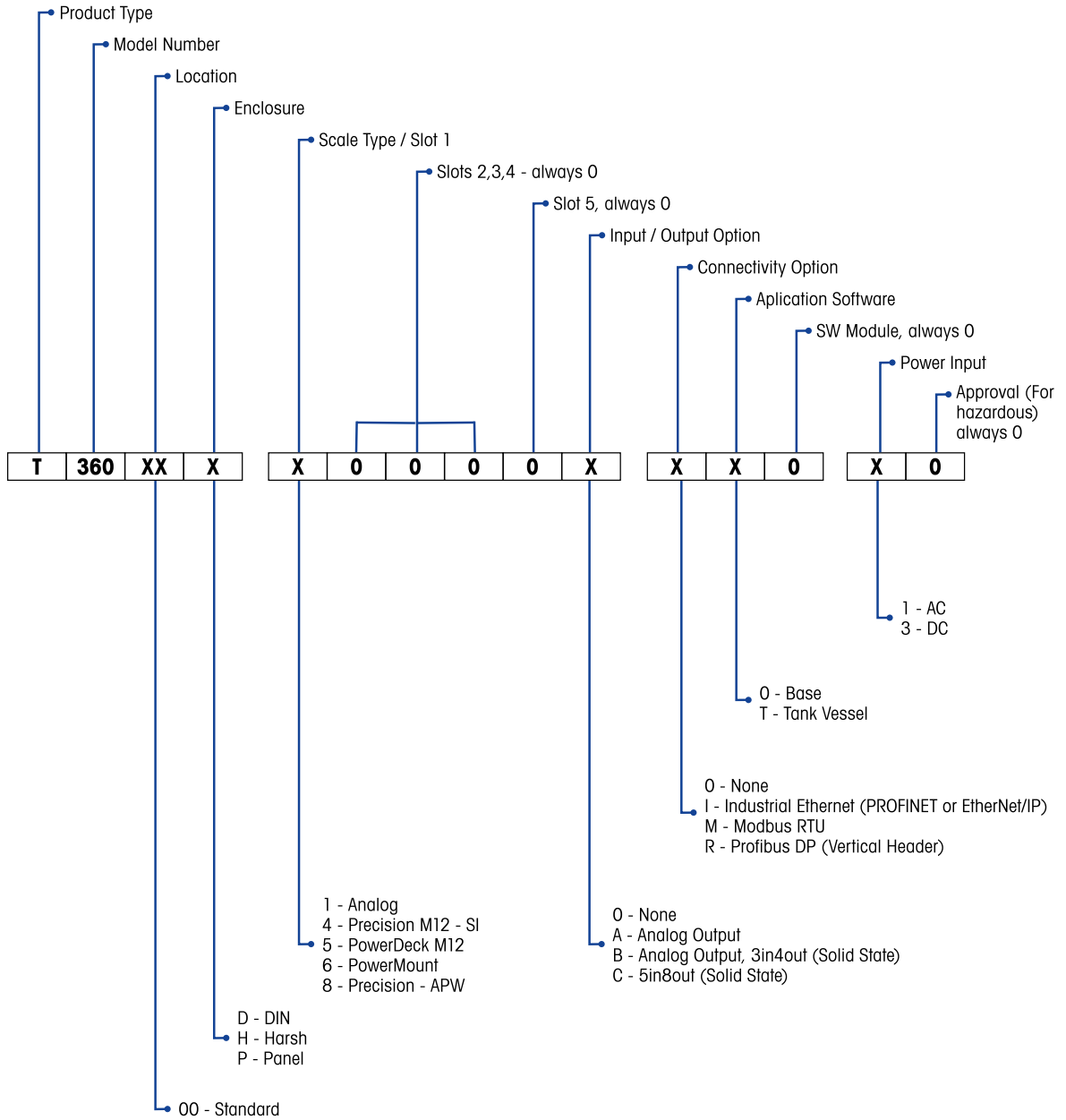# Technical Features Continued
IND360 Automation Terminal

Parameter	Detail	Units of Measurement	DIN	Panel	Harsh
Connectivity	Automation device drivers ODVA / Rockwell		Electronic Data Sheet (EDS), Custom Add-on Profile (AOP), Custom Add-on Instruction (AOI)		
	Certification EtherNet/IP		Open Device Vendors Association (ODVA) File Number: 12095.01		
Service Interfaces	Service interfaces		Web interface over Ethernet TCP/IP and/or keypad and display		
	Service functions		Configuration, adjustment, parameter backup and restore, cloning and monitoring		
Automation Bus Update Rate	Strain gauge (analog)	Hz	960 for PROFINET & EtherNet/IP, Profibus DP IND360 without application 480 for PROFINET & EtherNet/IP, Profibus DP IND360 with application 100 for analog output and Modbus RTU		
	POWERCELL®/ PowerMount™/ PowerDeck™		100 for 1-4 load cells; 50 for 5-8 load cells over all automation interfaces		
	Precision		92Hz over all automation interfaces		
Filtering	Strain gauge (analog)	Weighing Mode	Normal, dynamic		
		Environment	Very stable, stable, standard, unstable, very unstable		
		Limit Frequency	Low pass filter, 1 - 20Hz		
	POWERCELL®/ PowerMount/ PowerDeck	Low Pass Filter	Very light, light, medium, heavy		
		Stability Filter	Enable, disable		
	Precision scales and weigh modules		Filter type and settings depending on scale or weigh module		
Inputs / Outputs	Optional inputs (selectable polarity)		Max. 5 inputs - functions: none, clear tare, tare, zero, print. Voltage range high: 5 ~ 30VDC; voltage range low 0 ~ 3VDC		
	Optional Outputs		Max. 8 outputs - functions: none, center of zero, comparators (1-8), Smart5 red, Smart5 orange, motion, net, over capacity, under zero. Voltage range high: 5 ~ 30VDC, max current 150mA		
Display	Type		1.04" Green OLED	4.3" Color TFT	
	On-display status indicators		Weight units, gross/net indication; graphic symbols for motion, center of zero, Smart5 alarms.		
	Tri-color status LEDs		System (SYS), Network 1 (NW1), Network 2 (NW2)	Status information displayed on main display	
	Weight display	Characters	Maximum 9 digits including sign, displays 8 weight digits on high-precision devices		
Keyboard	Keys		4 keys (Up, Down, Left, Enter)	5 keys (Up, Down, Left, Right, Enter)	
	Overlay		0.9 mm thick polyester overlay (PET) with 0.178 mm thick polycarbonate display lens	0.9 mm thick polyester overlay (PET) with 0.178 mm thick polycarbonate display lens	
User Security	-		3 levels: administrator, maintenance and operator		
Logs	Alibi		27,000 records		
	Error log		500 records		
	Maintenance log		2,500 records		
	Change log		2,500 records		
Approvals	Product safety		UL, cUL, CE, FCC, CB		
	Metrology approval		IND360 Analog and IND360 POWERCELL®: Europe: Class �III, T11060 TC11949 USA: Class III / III L n max. 10,000 CC No. 21-002 Canada: Class III / IIIHD n max. 10,000 AM-6161 China: Class �III n max. 10,000		
			IND360 Precision: Europe: T11060, TC11949 USA: Class II / III / III L n max. 100,000 / 10,000 CC No. 21-002 Canada: Class II / III / IIIHD n max. 100,000 / 10,000 AM-6161		
			Additional certifications may be found at www.mt.com/compliance		

Ordering Information
IND360 Automation Terminals

IND360 is available in different variants with the main item number 30601194.

Choose options according to the variant configuration structure, and contact your METTLER TOLEDO Sales representative for detailed ordering information.

- Product Type
- Model Number
- Location
- Enclosure
- Scale Type / Slot 1
- Slots 2,3,4 - always 0
- Slot 5, always 0
- Input / Output Option
- Connectivity Option
- Aplication Software
- SW Module, always 0
- Power Input
- Approval (For hazardous) always 0

| T | 360 | XX | X | | X | 0 | 0 | 0 | 0 | X | | X | X | 0 | | X | 0 |

Power Input:
1 - AC
3 - DC

Aplication Software:
0 - Base
T - Tank Vessel

Connectivity Option:
0 - None
I - Industrial Ethernet (PROFINET or EtherNet/IP)
M - Modbus RTU
R - Profibus DP (Vertical Header)

Scale Type / Slot 1:
1 - Analog
4 - Precision M12 - SI
5 - PowerDeck M12
6 - PowerMount
8 - Precision - APW

Input / Output Option:
0 - None
A - Analog Output
B - Analog Output, 3in4out (Solid State)
C - 5in8out (Solid State)

Enclosure:
D - DIN
H - Harsh
P - Panel

Location:
00 - Standard

Ordering Information
IND360 Automation Terminals

Base Unit	Descriptions
Item Number	IND360 in different enclosures
30601194	IND360 DIN Mount
	IND360 Panel Mount
	IND360 Harsh

Smart Options

	1 = None (analog scale)
	4 = Precision (PBK, PFK) - Standard Industrial (approved readability and M12 connector on terminal side)
	5 = PowerDeck M12 (connector on terminal side)
	6 = PowerMount (open wires on terminal side)
	8 = Precision - APW incl. PBK, PFK (higher readability and open wires on terminal side)

Input/Output Options

	0 = None
	A = Analog output (4 - 20mA)
	B = Analog output (4 - 20mA) plus 3 digital inputs / 4 digital outputs (solid state)
	C = 5 digital inputs / 8 digital outputs (solid state)

Connectivity Options

	0 = None
	I = Industrial Ethernet (PROFINET or EtherNet/IP)
	M = Modbus RTU
	R = Profibus DP (vertical header - connector)

Application Options

	0 = Base
	T = Tank vessel

Power Options

	1 = AC (AC/DC power module included)
	3 = DC

Accessories

Item Number	Descriptions
30601149	4-20mA analog output PCBA kit for IND360 DIN and Panel mount version including enclosure opening tool
30601150	4-20mA analog output PCBA kit for IND360 Harsh version
30601151	PCBA kit of 4-20mA analog output, 3 discrete inputs, 4 discrete outputs (solid state) for IND360 DIN and Panel mount version including enclosure opening tool
30601152	PCBA kit of 4-20mA analog output, 3 discrete inputs, 4 discrete outputs (solid state) for IND360 Harsh version
30601153	PCBA kit of 5 discrete inputs, 8 discrete outputs (solid state) for IND360 DIN and Panel mount version including enclosure opening tool
30601154	PCBA kit of 5 discrete inputs, 8 discrete outputs (solid state) for IND360 Harsh version
30601155	PCBA kit of Industrial Ethernet connection (PROFINET or EtherNet/IP) for IND360 DIN and Panel mount version including enclosure opening tool
30601156	PCBA kit of Industrial Ethernet connection (PROFINET or EtherNet/IP) for IND360 Harsh version
30601159	PCBA kit of Modbus RTU connection for IND360 DIN and Panel mount version including enclosure opening tool
30601160	PCBA kit of Modbus RTU connection for IND360 Harsh version
30601161	PCBA kit of Profibus DP connection for IND360 DIN and Panel mount version including enclosure opening tool
30601162	PCBA kit of Profibus DP connection for IND360 Harsh version
30617714	AC/DC Power Module APS324
30617716	Power supply cable from the APS324 power module to IND360
30624028	Complete set of IND360 connecters.
30624029	Display cable (3m) from IND360 module to the panel. Use this when the IND360 module is not mounted to the back of the panel.
30624030	Display cable (11cm) from IND360 module to the panel. Use this when the IND360 module is mounted to the back of the panel.
30462051	VESA 100 Bracket to mount a IND360 Harsh version on desk or on wall
22020286	Adjustable Column Bracket VESA 100 for IND360 Harsh version
30624077	Opening tool for IND360 DIN mount version enclosure

Precision Scale Compatibility
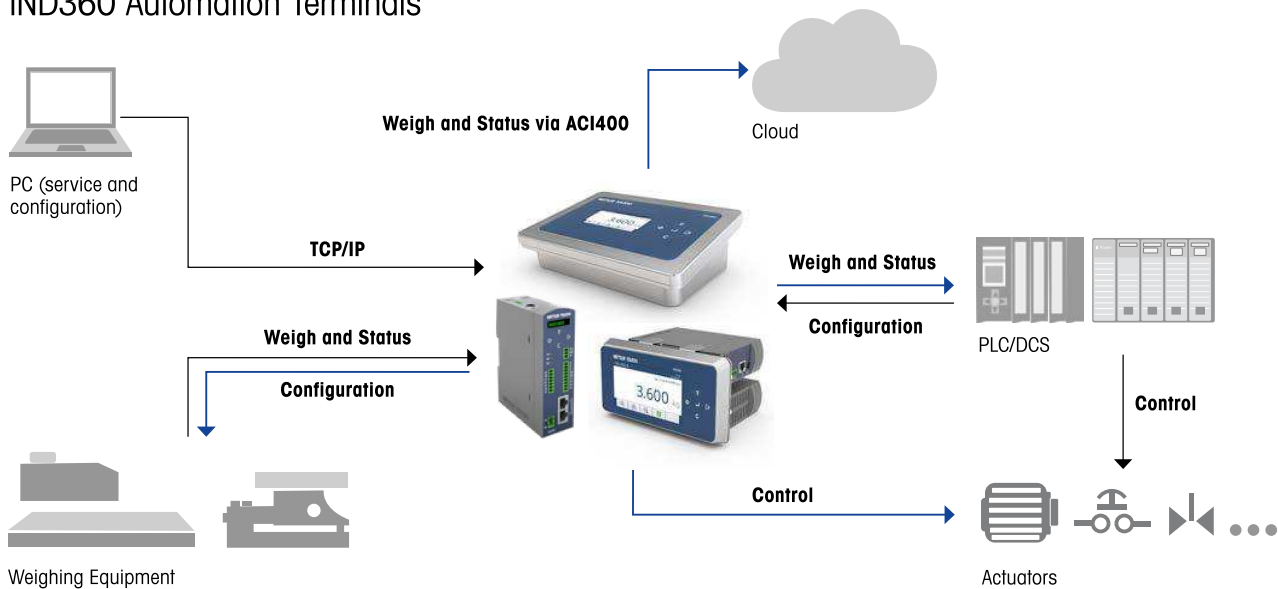## IND360 Automation Terminals

IND360 Precision connects to many types of precision weigh modules. The following table lists how various functions are supported when different types of weigh modules or scales are connected.

	Precision Scales for Legal-for-Trade	Precision Scales for Automation
Compatible Modules	PBD555 / PBD769 / PBD655 / PBK785 / PBK9 / PTA4XX / PFA5XX / PUA5XX / PFA779lift / PFK9	WKC / WMS / WXS / SLF6 / PBK989-APW / PFK989-APW
Basic Functions: Read weight and status, tare, zero, clear	Display/keypad	Display/keypad
	Web interface	Web interface
	Automation interface	Automation interface
Parameter configuration: e.g. calibration, adjustment, filter parameters	Display/keypad on Panel and Harsh versions	Display/keypad
		Software tool: APW-Link
		Automation interface[1]
Firmware upgrade for precision modules	Software tool: eloader	Software tool: eloader

[1] Each weigh module supports different functions. Please consult the SAI (Standard Automation Interface) manual for further details.

Connection Drawings
IND360 Automation Terminals

IND360 connects many different types of weighing equipment to automation controls such as PLCs or DCSs. It provides the ability to manage weighing applications that directly drive outputs for actuators and receive inputs from switches - see IND360 manuals for more details. IND360 is very easy to setup using the web interface that is accessed via a web browser such as Microsoft Edge or Google Chrome. When cloud connectivity is desired, choose the METTLER TOLEDO ACI400.
All relevant documentation, software, device description files, and sample code are available at:
▶ **www.mt.com/ind-IND360-downloads**

www.mt.com/IND360

For more information