



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx BVS 17.0064X	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 5	Issue 4 (2023-02-22)
Date of Issue:	2023-07-27		Issue 3 (2021-10-29)
			Issue 2 (2019-08-08)
			Issue 1 (2018-06-11)
			Issue 0 (2017-08-31)
Applicant:	METTLER-Toledo GmbH Im Langacher 44 8606 Greifensee Switzerland		
Equipment:	Weighing Terminal IND256x type T256x0H1000***** or Weighing system IND256x type BBA256x-****/*-**/*		
Optional accessory:			
Type of Protection:	Intrinsic Safety "i", Protection by Encapsulation "m", Protection by Enclosure "t", Increased Safety "e"		
Marking:	See Annex		

Approved for issue on behalf of the IECEx
Certification Body:

Dr Franz Eickhoff

Position:

**Senior Lead Auditor, Certification Manager and officially
recognised expert**

Signature:
(for printed version)


2023-07-27

Date:
(for printed version)

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Certificate issued by:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany





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Manufacturer: **METTLER-Toledo GmbH**
Im Langacher 44
8606 Greifensee
Switzerland

Manufacturing
locations: **Mettler-Toledo (Changzhou),
Measurement Technology Ltd.**
No. 111, West Taihu Road, Xinbei
District, Changzhou
Jiangsu 213125
China

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-18:2017 Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

DE/BVS/ExTR17.0065/05

Quality Assessment Report:

NL/DEK/QAR11.0008/09



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Subject and Type

See Annex

Description

See Annex

Parameters

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

See Annex



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- A new Pallet Truck 3000e RS232_EX option board was added
- Update of some documents

Annex:

[BVS_17_0064x_Mettler_Annex_issue5_.pdf](#)



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Subject and Type

Weighing Terminal IND256x type T256x0H1000***** or
Weighing system IND256x type BBA256x-****/*-**/*

Instead of the *** in the complete denomination letters or numerals will be inserted which indicate different variants of the weighing terminal:

Type T256x0H1000	**	*	**	*	*
<u>Communication modules</u> (2 characters) 0 = None E = Current Loop Active P = Current Loop Passive W = WLAN C = Discrete IO T = Pallet Truck 3000e RS232_EX option board e.g: Variant with ...00... does not include communication modules. Variant with ...WT... includes WLAN module and Pallet Truck 3000e RS232_EX option board					
<u>Connectivity module</u> 0 = None A = Analog out					
<u>Supply variant</u> 2 = intrinsically safe (from external battery) 4 = non-intrinsically safe AC 5 = non-intrinsically safe DC					

Type BBA256x-	*	****/*-	*	*	/*
<u>Platform</u> 6 = PBA426x 7 = PBA439x 9 = PBA429x					
<u>Communication module</u> A = Analog out E = Current Loop Active P = Current Loop Passive W = WLAN C = Discrete IO					
<u>Supply variant</u> 2 = intrinsically safe (from external battery) 4 = non-intrinsically safe AC 5 = non-intrinsically safe DC					

The remaining asterisks are replaced by numbers and letters to indicate different variants which have no influence on explosion protection.



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Description

The weighing terminal IND256x type T256x0H1000***** is intended for the connection to one analog weighing device. The terminal evaluates and processes the data of the analog weighing device. It contains a display and keypad as well as – depending on the variant – different intrinsically safe interfaces and optionally a Wifi-interface.

The weighing system IND256x type BBA256x-****/*_**/* consists of a weighing terminal and a weighing platform PBA426x or PBA429x or PBA439x. A platform includes two parts: A load frame which is a mechanical structure and a load cell which contains electronics. The electronics is separately certified in IEC FMG21.0003X and IECEx BVS 13.0109X (Load cells type PW-IS-P-S-S003-30, PW-I-S-H-S-S003-30 and SLP84X).

The weighing terminal is intended for use in explosive areas Zone 1 or Zone 21.
It provides intrinsically safe output and data circuits.

The terminal has a stainless steel enclosure.

It is supplied via a permanently connected cable (AC- and DC-variant) resp. via connection terminals (intrinsically safe supplied variant) inside the enclosure.

The intrinsically safe output circuits and the intrinsically safe RS232-interface are connected to terminals inside the enclosure.

The terminal contains a power board, a main board (connected to LCD-module and keypad via a Junction board) and – depending on the variant – different option boards.

The mainboard has two slots for option boards. There are 6 different option board versions:

- Active current loop (Type key: „E“)
- Passive current loop (Type key: „P“)
- Intrinsically safe 4-20 mA (Type key: „A“)
- Wifi (Type key: „W“)
- Pallet Truck 3000e RS232_EX option board (Type key: „T“)
- Discrete IO (Type key: „C“)

(Each option board fits to each of the 2 slots)

The different variants of the weighing terminal vary in their power board and option boards.

They get the following marking:

Variants with non-intrinsically safe supply (Type key ends with “4*” resp. “4/*” or “5*” resp. “5/*”)	
Variants with Wifi (Type key includes a “W”) Ex eb ib [ib] mb IIB T4 Gb Ex tb [ib] IIIC T60°C Db	Variants without Wifi (Type key has no “W”) Ex eb ib [ib] mb IIC T4 Gb Ex tb [ib] IIIC T60°C Db
Variants with intrinsically safe supply (Type key ends with “2*” resp. “2/*”)	
Variants with Wifi (Type key includes a “W”) Ex ib IIB T4 Gb Ex tb [ib] IIIC T60°C Db	Variants without Wifi (Type key has no “W”) Ex ib IIC T4 Gb Ex tb [ib] IIIC T60°C Db

IP-protection IP66 is marked on the apparatus as well.



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For variants with non-intrinsically safe AC- or DC-supply:

The supply circuit (permanently connected cable) is connected to “Ex e”-terminals. From there, the circuit is led to the power board protected by encapsulation “Ex mb”. The power board contains limiting circuits to provide intrinsically safe signals connected to the other (non-encapsulated) PCBs and the output terminals.

For applications in dust-explosive areas, non-intrinsically safe circuits are protected by the “Ex tb”-equipment enclosure.

For AC-supplied versions:

The intrinsically safe circuits are safely galvanically isolated from the non-intrinsically safe supply circuit.

For DC-supplied versions:

There is no galvanic separation between non-intrinsically safe supply circuit and intrinsically safe output circuits:

- The non-intrinsically safe supply circuit has to be safely connected to earth.
In this case, the intrinsically safe circuits are earthed as well. Along the intrinsically safe circuits, potential equalization must exist.
or
- The non-intrinsically safe supply circuit has to be safely separated from earth
(e.g. SELV-circuit).

For variants with intrinsically safe supply:

All circuits are intrinsically safe.

For applications in dust-explosive areas, surface temperature is assessed under “tb”-conditions. Hence, the apparatus gets an “tb ib”-marking.

Listing of all components used referring to older standards

None

Parameters

1	Supply circuit (Power Supply Port)				
1.1	Variant with non-intrinsically safe AC-supply (Type key ends with “4*” resp. “4/*”) Permanently connected cable with ferrules				
	Rated voltage (50/60 Hz)		AC	187...230	V
	Rated current			125	mA
	Maximum input voltage	U _m	AC	253	V
1.2	Variant with non-intrinsically safe DC-supply (Type key ends with “5*” resp. “5/*”) Permanently connected cable with ferrules blue: +24 V, brown: gnd, green-yellow: PE				
	Rated voltage		DC	18...30	V
	Rated current			250	mA
	Maximum input voltage	U _m	AC	253	V
	(Attention: the rated voltage is lower)				



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1.3	Variants with intrinsically safe DC-supply (power supply or battery-supply) (Type key ends with "2*" resp. "2/*") Connection terminals V+, GND, BATT, DATA				
	Nominal input voltage	DC	10	V	
	Nominal input current		350	mA	
	Maximum input voltage	U _i DC	12.8	V	
	Maximum input current	I _i	3.03	A	
	Maximum input power	P _i	6.83	W	
	Effective internal inductance	L _i		negligible	
	Effective internal capacitance	C _i		negligible	
2	Intrinsically safe RS232-interface Terminal block J1 terminals J1.1 (TXD), J1.2(RXD) – J1.3 (GND)				
	Maximum input voltage	U _i DC	±10	V	
	Effective internal capacitance	C _i		negligible	
	Effective internal inductance	L _i		negligible	
	Maximum output voltage J1.1 (TXD) - J1.3 (GND) resp. J1.2(RXD) – J1.3 (GND) each	U _o DC	±5.36	V	
	Maximum output current J1.1 (TXD) - J1.3 (GND) resp. J1.2(RXD) – J1.3 (GND) each	I _o	±12.9	mA	
	Maximum output power J1.1 (TXD) - J1.3 (GND) resp. J1.2(RXD) – J1.3 (GND) each	P _o	17.2	mW	
	Maximum external capacitance	C _o	100	nF	
	Maximum external inductance	L _o	100	µH	
3	Intrinsically safe output for connection to one analog weighing device Terminal block J5, terminals J5.1 (EXC+), J5.2 (SEN+), J5.3 (SIG+), J5.5 (SIG-), J5.6 (SEN-), J5.7 (EXC-)				
	Maximum output voltage	U _o DC	5.88	V	
	Maximum output current	I _o	171	mA	
	Maximum output power	P _o	940	mW	
	Maximum external capacitance	C _o	6.8	µF	
	Maximum external inductance	L _o	0.3	mH	
4	Interfaces of the optional communication boards				
4.1	Intrinsically safe 4-20mA-interface, two wires Only for variants with analog output option board (Type key „A“) Terminal block J2 Terminals J2.1 (I_OUT) – J2.2 (GND)				
	Maximum input voltage	U _i DC	3.5	V	
	Maximum input current	I _i	115	mA	



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Effective internal capacitance	C _i	110	nF
Effective internal inductance	L _i	negligible	

Terminals J2.1 (I_OUT) – J2.2 (GND)

Maximum output voltage	U _o	DC	13.65	V
Maximum output current	I _o		115	mA
Linear output characteristics				
Maximum output power	P _o		0.4	W

Maximum external capacitance	C _o	680	nF
Maximum external inductance	L _o	2.6	mH

4.2 WiFi-antenna-connection

Only for variants with Wifi optionboard (Type key „W“)

IPEX-connector for connection to the external antenna type AC-Q24-50ZD/ Antenna, SMAF UFL, 100mm

Maximum RF-power			< 1.3	W
Frequency			2400...2483	MHz

4.3 Intrinsically safe active current loop-interface

Only for variants with active current loop optionboard (type key „E“)

Terminal block J2, terminals J2.1...J2.4

Maximum output voltage	U _o	DC	5.36	V
Linear output characteristics				
Maximum output current	I _o		131	mA
Linear output characteristics				
Maximum output power	P _o		176	mW

Maximum external capacitance	C _o	600	nF
Maximum external inductance	L _o	400	μH

4.4 Intrinsically safe passive current loop-interface

Only for variants with passive current loop optionboard (type key „P“)

Terminal block J4, terminals J4.1...J4.4

Maximum input voltage	U _i	DC	10	V
Maximum input current	I _i		300	mA
Maximum input power	P _i		500	mW

Effective internal capacitance	C _i	110	nF
Effective internal inductance	L _i	negligible	

4.5 Intrinsically safe IO board

Terminal block J2, terminals J2.1...J2.4

Maximum output voltage	U _o	DC	5.4	V
Linear output characteristics				
Maximum output current	I _o		64	mA
Linear output characteristics				
Maximum output power	P _o		86.4	mW

Maximum external capacitance	C _o	100	nF
Maximum external inductance	L _o	100	μH



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4.6	Intrinsically safe Pallet Truck 3000e RS232_EX Terminal block J1 Terminals J1.3 (RXD)– J1.2 (GND), J1.4(TXD) – J1.2 (GND),			
	Maximum input voltage	U_i	DC	± 5.36 V
	Effective internal capacitance	C_i		negligible
	Effective internal inductance	L_i		negligible
	Terminals J1.3 (RXD), J1.4(TXD) – J1.2 (GND)			
	Maximum output voltage	U_o	DC	± 5.36 V
	Maximum output current	I_o		± 16.4 mA
	Linear output characteristics			
	Maximum output power	P_o		21.98 mW
	Maximum external capacitance	C_o		100 nF
	Maximum external inductance	L_o		100 μ H
	Terminals J1.1 (+5V) – J1.2 (GND)			
	Maximum output voltage	U_o	DC	5.36 V
	Maximum output current	I_o		191 mA
	Linear output characteristics			
	Maximum output power	P_o		1.024 W
	Maximum external capacitance	C_o		10 μ F
	Maximum external inductance	L_o		10 μ H
5	Ambient temperature range	T_a		-10 °C...+40 °C