



(1) **EU-Type Examination Certificate**

- (2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 2014/34/EU**
- (3) Certificate number: **SEV 12 ATEX 0132 X**
- (4) Product: Intrinsically safe multi-parameter transmitter
Type M400 * * *
- (5) Manufacturer: Mettler-Toledo GmbH
- (6) Address: Im Hackacker 15, 8902 Urdorf, Switzerland
- (7) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) Eurofins, notified body No. 1258, in accordance with article 17 of Directive 2014/34/EU of the European parliament and of the council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no 11-IK-0619.01 - .04, 19-Ex-0042.X05
- (9) Compliance with the essential health and safety requirements has been assured by compliance with:

EN 60079-11:2012
EN 60079-26:2015
EN IEC 60079-0:2018

Except in respect of those requirements listed at item 18 of the schedule.

- (10) If the sign «X» is placed after the certificate number, it indicates that the product is subjected to special conditions for safe use specified in the schedule to this certificate. The sign “U” is placed after the certificate number. It indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.
- (11) This EU type examination certificate relates only to design and construction of the specified product. Further requirements of this directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- (12) The marking of the product shall include the following:

 **II 2(1)G Ex ib [ia Ga] IIC T4 Gb**
II 2(1)D Ex ib [ia Da] IIIC T80 °C Db

II 1G Ex ia IIC T4 Ga
II 1D Ex ia IIIC T80 °C Da

Eurofins Electric & Electronic Product Testing AG
Notified Body ATEX

Martin Plüss
Product Certification



(13)

Appendix

(14)

EU-Type Examination Certificate no. SEV 12 ATEX 0132 X

(15) **Description of product**

General product information:

Intrinsically safety multi-parameter transmitter is used to collect physical signals such as pH, electrical conductivity (resistivity), dissolved oxygen transmitters, temperature etc., and convert those into a standard 4 - 20 mA electrical signal, or delivers those by FF/PA communication signal.

It is powered by 2-wire and can be connected to analogue sensor or digital sensor to delivers 4-20 mA output signal or FF/PA output signal, representing pH, conductivity (resistivity), dissolved oxygen and temperature, etc.

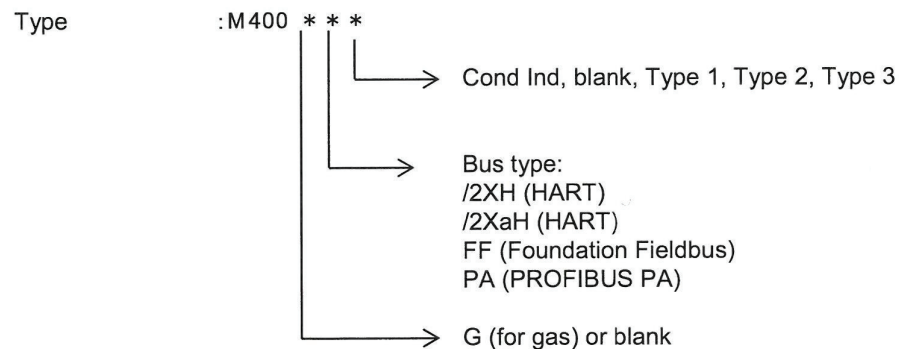
There are optional 0/4-20 mA input voltage signals, digital input signals, digital output signals for alarm and control. By the modular-structure, the transmitter can not only accurately measure physical parameters, but also provide certain amounts derived parameters from these measurements.

Intrinsically safety multi-parameter transmitter consists of aluminium alloy made housing (back cover and front cover), with three PCBs installed inside. All boards are protected by an additional middle cover. On the front cover, there are one LCD display and five membrane buttons. 32 Terminals for HART or 22 terminals for FF/PA are designed for external connection. The function and safe parameters are listed as following. On the back cover, there are five cable inlets. Only cable gland and blanking plug, complying with IEC 60079-0 and IEC 60079-11 could be used.

The function and safe parameters are listed below.

Type designation:

The type designation is changed as follows



Ratings:

The ratings are as follows and include safe parameters the for FF/PA fieldbus connection:

1. For connection to intrinsically safe circuits in HART bus transmitter (M400*/2XH*, M M400*/2XaH*), use the following maximum values (continued, same as in the extension 1):

Terminals	Function	Safety parameters				
		U_i	I_i	P_i	L_i	C_i
10, 11	Aout1 HART	$U_i=30\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=15\text{ nF}$
12, 13	Aout2	$U_i=30\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=15\text{ nF}$
1, 2; 3, 4;	Digital Input;	$U_i=30\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=0$
6, 7; 8, 9;	OC1 Output;	$U_i=30\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=0$
P, Q	Analog Input	$U_i=30\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=15\text{ nF}$
N, O	RS485 Sensor	$U_o=5.88\text{ V}$	$I_o=54\text{ mA}$	$P_o=80\text{ mW}$	$L_o=1\text{ mH}$	$C_o=1.9\text{ }\mu\text{F}$
		$U_i=30\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=0.7\text{ }\mu\text{F}$
L, M	One-wire Sensor	$U_o=5.88\text{ V}$	$I_o=22\text{ mA}$	$P_o=32\text{ mW}$	$L_o=1\text{ mH}$	$C_o=2.8\text{ }\mu\text{F}$
I, J, K	Temperature Sensor	$U_o=5.88\text{ V}$	$I_o=5.4\text{ mA}$	$P_o=8\text{ mW}$	$L_o=5\text{ mH}$	$C_o=2\text{ }\mu\text{F}$
B, C, D, H	Dissolved Oxygen Sensor	$U_o=5.88\text{ V}$	$I_o=29\text{ mA}$	$P_o=43\text{ mW}$	$L_o=1\text{ mH}$	$C_o=2.5\text{ }\mu\text{F}$
A, B, E, G	Conductivity Sensor	$U_o=5.88\text{ V}$	$I_o=29\text{ mA}$	$P_o=43\text{ mW}$	$L_o=1\text{ mH}$	$C_o=2.5\text{ }\mu\text{F}$
A, E, G	pH Sensor	$U_o=5.88\text{ V}$	$I_o=1.3\text{ mA}$	$P_o=1.9\text{ mW}$	$L_o=5\text{ mH}$	$C_o=2.1\text{ }\mu\text{F}$

2. For connection to intrinsically safe circuits in HART transmitter (M400*/2XH* Cond Ind., M400*/2XaH* Cond Ind.), use the following maximum values (new in this extension 3):

Terminals	Function	Safety parameters				
		U_i	I_i	P_i	L_i	C_i
10, 11	Aout1 HART	$U_i=30\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=15\text{ nF}$
12, 13	Aout2	$U_i=30\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=15\text{ nF}$
1, 2; 3, 4;	Digital Input;	$U_i=30\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=0$
6, 7; 8, 9;	OC1 Output;	$U_i=30\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=0$
D, E, F, G H	Inductive Conductivity Sensor	$U_o=5.36\text{ V}$	$I_o=17.2\text{ mA}$	$P_o=23\text{ mW}$	$L_o=1\text{ mH}$	$C_o=3.2\text{ }\mu\text{F}$
I, J, K	Temperature Sensor	$U_o=5.88\text{ V}$	$I_o=5.4\text{ mA}$	$P_o=8\text{ mW}$	$L_o=5\text{ mH}$	$C_o=2\text{ }\mu\text{F}$

3. For connection to intrinsically safe circuits in FF/PA bus transmitter (M400*FF, M400*PA), use the following maximum values (continued, same as in the extension 1):

Terminals	Function	Safety parameters				
		U_i	I_i	P_i	L_i	C_i
10, 11	Power (FF/PA) FISCO field device	$U_i=17.5\text{ V}$	$I_i=380\text{ mA}$	$P_i=5.32\text{ W}$	$L_i=0$	$C_i=3\text{ nF}$
	Linear power	$U_i=24\text{ V}$	$I_i=200\text{ mA}$	$P_i=1.2\text{ W}$	$L_i=0$	$C_i=3\text{ nF}$
P, Q	Analog Input	$U_i=24\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=15\text{ nF}$
N, O	RS485 Sensor	$U_o=5.88\text{ V}$	$I_o=54\text{ mA}$	$P_o=79\text{ mW}$	$L_o=1\text{ mH}$	$C_o=1.9\text{ }\mu\text{F}$
		$U_i=24\text{ V}$	$I_i=100\text{ mA}$	$P_i=0.8\text{ W}$	$L_i=0$	$C_i=0.7\text{ }\mu\text{F}$
L, M	One-wire Sensor	$U_o=5.88\text{ V}$	$I_o=22\text{ mA}$	$P_o=32\text{ mW}$	$L_o=1\text{ mH}$	$C_o=2.8\text{ }\mu\text{F}$
I, J, K	Temperature Sensor	$U_o=5.88\text{ V}$	$I_o=5.4\text{ mA}$	$P_o=8\text{ mW}$	$L_o=5\text{ mH}$	$C_o=2\text{ }\mu\text{F}$
B, C, D, H	Disolved Oxygen Sensor	$U_o=5.88\text{ V}$	$I_o=29\text{ mA}$	$P_o=43\text{ mW}$	$L_o=1\text{ mH}$	$C_o=2.5\text{ }\mu\text{F}$
A, B, E, G	Conductivity Sensor	$U_o=5.88\text{ V}$	$I_o=29\text{ mA}$	$P_o=43\text{ mW}$	$L_o=1\text{ mH}$	$C_o=2.5\text{ }\mu\text{F}$
A, E, G	pH Sensor	$U_o=5.88\text{ V}$	$I_o=1.3\text{ mA}$	$P_o=1.9\text{ mW}$	$L_o=5\text{ mH}$	$C_o=2.1\text{ }\mu\text{F}$

4. For connection to intrinsically safe circuits in FF/PA bus transmitter (M400*FF Cond Ind., M400*PA Cond Ind.), use the following maximum values (new in this extension 3):

Terminals	Function	Safety parameters				
		U_i	I_i	P_i	L_i	C_i
10, 11	Power (FF/PA) FISCO field device	$U_i=17.5\text{ V}$	$I_i=380\text{ mA}$	$P_i=5.32\text{ W}$	$L_i=0$	$C_i=3\text{ nF}$
	Linear power	$U_i=24\text{ V}$	$I_i=200\text{ mA}$	$P_i=1.2\text{ W}$	$L_i=0$	$C_i=3\text{ nF}$
D, E, F, G H	Inductive Conductivity Sensor	$U_o=5.36\text{ V}$	$I_o=17.2\text{ mA}$	$P_o=23\text{ mW}$	$L_o=1\text{ mH}$	$C_o=3.2\text{ }\mu\text{F}$
I, J, K	Temperature Sensor	$U_o=5.88\text{ V}$	$I_o=5.4\text{ mA}$	$P_o=8\text{ mW}$	$L_o=5\text{ mH}$	$C_o=2\text{ }\mu\text{F}$

(16) **Report number**

11-IK-0619.01 - .04, 19-Ex-0042.X05

(17) **Specific conditions of use**

1. For installation, use and maintenance, IEC/EN 60079-14 should be observed.
2. Observe the warning: potential electrostatic charging hazard – see instructions, avoid ignition hazard due to impact or friction.
3. When installation in explosive dust atmospheres:
 - 3.1. Cable gland or blanking plug with marking Ex ia IIIC IP66 shall be installed before application.
 - 3.2. The overlay switch shall be protected from light.
 - 3.3. Avoid high risk of mechanical danger on the overlay switch.

(18) **Essential health and safety requirements**

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
None	

(19) **Drawings and Documents**

See test report "Manufacturer's Documents"