



# Certificate of Compliance

**Certificate:** 80119114

**Master Contract:** 264855

**Project:** 80119114

**Date Issued:** 2023-07-10

**Issued To:** Mettler-Toledo GmbH Process Analytics  
Im Hackacker 15  
Urdorf, Zurich, 8902  
Switzerland

**Attention:** Stefan Hartmann

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.*



**Issued by:** Annie Qi  
Annie Qi

## PRODUCTS

CLASS - C225802 - PROCESS CONTROL EQUIPMENT For Hazardous Locations

**Class I, Division 2, Groups A, B, C and D T4A**  
**Ex ec ic IIC T4 Gc**

CLASS - C225882 - PROCESS CONTROL EQUIPMENT For Hazardous Locations - Certified to US Standards

**Class I, Division 2, Groups A, B, C and D T4A**  
**Class I, Zone 2, AEx ec ic IIC T4 Gc**

M400 2-Wire G2 Series Multi-parameter Transmitter, model M400 2aH Type b c d, rated 14-30Vdc; Temperature code T4/T4A,  $-20^{\circ}\text{C} \leq T_{\text{amb}} \leq 60^{\circ}\text{C}$ ; Enclosure Type 4X/IP66.

Model designations of the M400 2aH Type b c d are as follows:



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- a = none: model for Zone 2 and Class I, Division 2
- a = X: model for Zone 0 or 1 and Zone 21, Class I/II/III, Division 1
- b = 2, 3 or any numbers: indicating firmware differences only for different sensors
- c = none: supporting both analog and digital (ISM) sensors
- c = ISM: supporting digital (ISM) sensors only
- d = any alphanumeric code and strings that is only with adjustment on firmware compared with the above models

**Conditions of Acceptability:**

- i. The product shall be operated at an altitude no greater than 5000m.
- ii. The units shall be used and installed by professional personnel or the submitter’s trained personnel only.
- iii. The units shall be powered by external approved power supply.
- iv. Final acceptance of this equipment when installed is subject to the jurisdiction of the local inspection authority.
- v. J5 and J6 on the main board shall not be used in the hazardous (classified) locations.
- vi. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.
- vii. All cable entry holes shall be fitted with either certified cable glands or blanking elements to maintain the level of explosion protection and enclosure ratings.
- viii. The display has not been tested for resistance to ultraviolet light. The display shall be protected from direct light (e.g. from sunlight or luminaires).
- ix. The product shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.
- x. Transient protection shall be provided that is set at a level not exceeding 140 % of the peak rated voltage value at the supply terminals to the equipment.
- xi. The service temperature of branching point and entry point is as below. The end user shall select the cable and cable gland rated at least the maximum service temperature in the final installation.

Branching point (°C)	Entry point (°C)	Ambient temperature (°C)
63.1	62.3	60

**CLASS - C225804 - PROCESS CONTROL EQUIPMENT Intrinsically Safe, Entity - For Hazardous Locations**

**Class I, Division 1, Groups A, B, C, D T4**

**Class II, Division 1, Groups E, F, G T4**

**Class III, Division 1**

**Ex ia IIC T4 Ga**

**Ex ia IIIC T80°C Db**

**Ex ib [ia Ga] IIC T4 Gb**

**Ex ib [ia Da] IIIC T80°C Db**

**CLASS - C225884 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations**  
**- Certified to US Standards**



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**Class I, Division 1, Groups A, B, C, D T4**

**Class II, Division 1, Groups E, F, G T4**

**Class III, Division 1**

**Class I, Zone 0, AEx ia IIC T4 Ga**

**Zone 21, AEx ia IIIC T80°C Db**

**Class I, Zone 1, AEx ib [ia Ga] IIC T4 Gb**

**Zone 21, AEx ib [ia Da] IIIC T80°C Db**

M400 2-Wire G2 Series Multi-parameter Transmitter, model M400 2aH Type b c d, rated 14-30Vdc, temperature code T4/T80°C, ambient temperature range: -20 °C to +60 °C; Enclosure Type 4X/IP66, intrinsically safe with entity parameter when installed per control drawing 30868972 and 30868973.

Model designations of the M400 2aH Type b c d are as follows:

a = none: model for Zone 2 and Class I, Division 2

a = X: model for Zone 0 or 1 and Zone 21, Class I/II/III, Division 1

b = 2, 3 or any numbers: indicating firmware differences only for different sensors

c = none: supporting both analog and digital (ISM) sensors

c = ISM: supporting digital (ISM) sensors only

d = any alphanumeric code and strings that is only with adjustment on firmware compared with the above models

The entity parameters are listed in Table 1:

Table 1 Entity parameters of terminals

Terminal No.	Function	Entity parameters				
1, 2, 3, 4	RS485 Easy clean	Ui/Vmax=7.2V	Ii/Imax=20mA	Pi=0.15W	Li=0	Ci=0.3µF
5, 6	Digital Input 1	Ui/Vmax=30V	Ii/Imax=100mA	Pi=0.8W	Li=0	Ci=0
7, 8	Digital Input 2	Ui/Vmax=30V	Ii/Imax=100mA	Pi=0.8W	Li=0	Ci=0
9, 10	OC1 Output	Ui/Vmax=30V	Ii/Imax=100mA	Pi=0.8W	Li=0	Ci=0
11, 12	OC2 Output	Ui/Vmax=30V	Ii/Imax=100mA	Pi=0.8W	Li=0	Ci=0
13, 14	Aout1 ( HART )	Ui/Vmax=30V	Ii/Imax=100mA	Pi=0.8W	Li=0	Ci=15nF
15, 16	Aout2	Ui/Vmax=30V	Ii/Imax=100mA	Pi=0.8W	Li=0	Ci=15nF
P, Q	Analog Input	Ui/Vmax=30V	Ii/Imax=100mA	Pi=0.8W	Li=0	Ci=15nF
N, O	RS485 Sensor	Uo/Vsc=5.88V	Io/Isc=13.5mA	Po=19.9mW	Lo/La=1mH	Co/Ca=3.3µF
L, M	One-wire Sensor	Ui/Vmax=10V	Ii/Imax=100mA	Pi=500mW	Li=0mH	Ci=0µF
		Uo/Vsc=5.88V	Io/Isc=21.3mA	Po=31.3mW	Lo/La=1mH	Co/Ca=2.8µF
J, K wrt I	Temperature Sensor	Uo/Vsc=5.88V	Io/Isc=5.4mA	Po=8.0mW	Lo/La=5mH	Co/Ca=2µF



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B, C, D, H	Dissolved Oxygen Sensor	$U_o/V_{sc}=11.24V$	$I_o/I_{sc}=2.3mA$	$P_o=6.3mW$	$L_o/L_a=1mH$	$C_o/C_a=0.84\mu F$
A, B, E wrt G	Conductivity Sensor	$U_o/V_{sc}=5.88V$	$I_o/I_{sc}=25.7mA$	$P_o=37.8mW$	$L_o/L_a=1mH$	$C_o/C_a=2.5\mu F$
A, E wrt G	pH Sensor	$U_o/V_{sc}=5.88V$	$I_o/I_{sc}=1.3mA$	$P_o=1.9mW$	$L_o/L_a=5mH$	$C_o/C_a=2.1\mu F$

Note: Parameters for terminal “A” to “K” are for analog sensors, thus they are not applicable for product models named “M400 2aH Type b ISM d”.

**Conditions of Acceptability:**

- i. The product shall be operated at an altitude no greater than 5000m.
- ii. The units shall be used and installed by professional personnel or the submitter’s trained personnel only.
- iii. The units shall be powered by external approved power supply.
- iv. Final acceptance of this equipment when installed is subject to the jurisdiction of the local inspection authority.
- v. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.
- vi. All cable entry holes shall be fitted with either certified cable glands or blanking elements to maintain the level of explosion protection and enclosure ratings.
- vii. The display has not been tested for resistance to ultraviolet light. The display shall be protected from direct light (e.g. from sunlight or luminaires).
- viii. Resistance to impact was tested corresponding to the low risk of mechanical danger. The device has to be protected against strong impacts.
- ix. The enclosure is manufactured from aluminum alloy. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered when the transmitter is installed in Zone 0 locations for group II level of protection Ga.
- x. The service temperature of branching point and entry point is as below. The end user shall select the cable and cable gland rated at least the maximum service temperature in the final installation.

Branching point (°C)	Entry point (°C)	Ambient temperature (°C)
63.1	62.3	60

**APPLICABLE REQUIREMENTS**

- |                                      |   |
|--------------------------------------|---|
| CAN/CSA-C22.2 No. 60079-0:19         | Explosive Atmospheres - Part 0: Equipment - General requirements            |
| CAN/CSA-C22.2 No. 60079-7:16 (r2021) | Explosive atmospheres –Part 7: Equipment protection by increased safety “e” |



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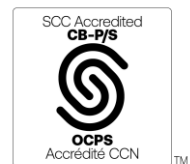
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CAN/CSA-C22.2 No. 60079-11:14 (r2018)	Explosive Atmospheres – Part 11: Equipment protection by intrinsic safety "i"
CAN/CSA C22.2 No. 213-17+ UPD 1 (2018) + UPD 2 (2019) + UPD 3 (2021)	Nonincendive electrical equipment for use in Class I and II, Division 2 and Class III, Division 1 and 2 hazardous (classified) locations
CAN/CSA C22.2 No. 61010-1-12, UPD1: 2015, UPD2: 2016, AMD1: 2018	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
CSA C22.2 No.94.2:20	Enclosures for electrical equipment, environmental considerations
ANSI/UL 913-2019 Ed.8	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations
ANSI/UL 60079-0-2020 Ed.7	Explosive atmospheres – Part 0: Equipment – General requirements
ANSI/UL 60079-7-2017 (R2021) Ed.5	Explosive atmospheres –Part 7: Equipment protection by increased safety "e"
ANSI/UL 60079-11-2018 Ed.6	Explosive Atmospheres – Part 11: Equipment Protection by Intrinsic Safety "i"
ANSI/UL 121201-2021 Ninth Edition	Nonincendive electrical equipment for use in Class I and II, Division 2 and Class III, Division 1 and 2 hazardous (classified) locations
UL 61010-1 3rd edition (2012), AMD1: 2018	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
ANSI/UL50E-2020 Ed.3	Enclosures for Electrical Equipment, Environmental Considerations

**Notes:**

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Products certified under Class C225802, C225804, C225882, C225884 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC).  
[www.scc.ca](http://www.scc.ca)





## Supplement to Certificate of Compliance

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*The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.*

### Product Certification History

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Project	Date	Description
80119114	2023-07-10	Original cCSAus Certification on M400 2-Wire G2 series multi-parameter transmitter. Class I, Division 1, Groups A, B, C, D T4 Class II, Division 1, Groups E, F, G T4 Class III, Division 1 Ex ia IIC T4 Ga Ex ia IIIC T80°C Db Class I, Zone 0, AEx ia IIC T4 Ga Zone 21, AEx ia IIIC T80°C Db Ex ib [ia Ga] IIC T4 Gb; Ex ib [ia Da] IIIC T80°C Db; Class I, Zone 1, AEx ib [ia Ga] IIC T4 Gb; Zone 21, AEx ib [ia Da] IIIC T80°C Db;  Class I, Division 2, Groups A, B, C, D T4A Ex ec ic IIC T4 Gc Class I, Zone 2, AEx ec ic IIC T4 Gc Type 4X/IP66