

Micro Motion® Model 5700 Transmitter

IECEX Installation Instructions



Subject: Equipment type **Transmitter type 5700*1*******

Manufactured and submitted for examination **Micro Motion, Inc.**

Address **Boulder, Co. 80301, USA**

Standard basis IEC 60079-0:2011 General requirements
IEC 60079-1:2014 Ed. 7 Flameproof enclosure 'd'
IEC 60079-11:2011 Intrinsic safety 'i'
IEC 60079-31:2013 Dust Enclosure 't'

Code for type of protection **Ex db [ib] IIB + H₂ T6 Gb**
Ex db [ib] IIC T6 Gb
Ex tb [ib] IIIC T75°C Db
IP66/IP67

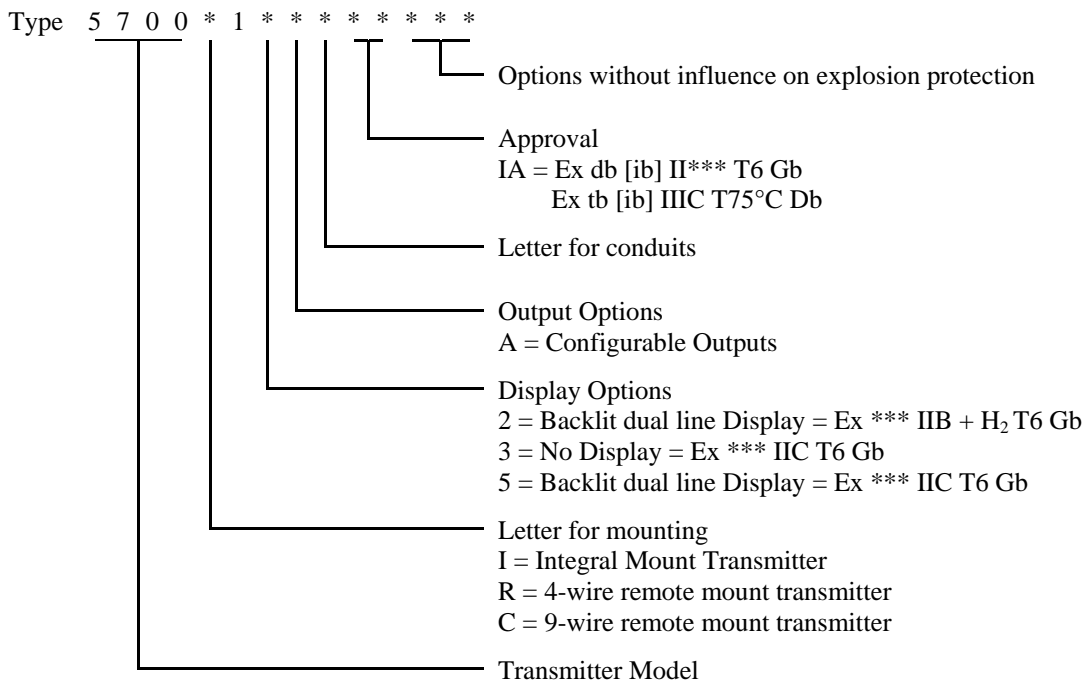
Certificate of Conformity **IECEX BVS 14.0090 X**

THIS COMPONENT MUST COMPLY WITH REGULATORY AGENCY REQUIREMENTS. NO CHANGES ARE ALLOWED WITHOUT PRIOR AUTHORIZATION FROM MICRO MOTION APPROVALS ENGINEERING.

1) Subject and Type

Transmitter type 5700*1*****

Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the following variations:



2) Description

The transmitter is, in combination with a sensor, used for measurement of mass flow and data transmission.

The electrical circuitry of the transmitters is mounted inside a metal enclosure which is divided into three compartments.

In one compartment (electronic compartment) type of protection “Flameproof Enclosure” the EMI Terminal Board, Power Supply Board, Feature Board, Core Board and Backplane Board are mounted.

When executed with display, there is a window cover available, either marked (for gas application) as IIB + H₂ (type 5700*12*****) or IIC (type 5700*15*****)).

The other compartment (terminal compartment) in type of protection “Flameproof Enclosure” is equipped with terminals for the connection of non-intrinsically safe circuits.

The enclosure can be constructed with a terminal compartment (compartment for sensor connection) for the connection of remotely operating intrinsically safe sensors (type 5700C1*****) or to remote mount core (5700R1*****)).

Alternatively, the enclosure can be mounted directly to the sensor via a transition compartment (type 5700I1*****). This type of mounting has to be certified separately.

The enclosures (electronic compartment, terminal compartment and compartment for sensor connection) also fulfill the requirements for type of protection “Protection by enclosures”.

3) Parameters

3.1	Mains circuit (J1, terminal 1 - 2) voltage max. voltage	Um	AC/DC AC/DC	18 - 240 V + 10 % 265	V
3.2	Non intrinsically safe input/output circuits (J3, terminals 1 - 10) voltage	Um	AC/DC	30	V
3.3	Non intrinsically safe input/output circuits (J2, USB) voltage	Um	AC/DC	10	V
3.4	Intrinsically safe power and signal circuits for type 5700R1***** (J1 in J-box, VDC+ RED; VDC- BLK; COM A WHT; COM B GRN) voltage current; instantaneous current; steady state power	Uo Io Io Po	DC	17,2 0,479 0,272 2,06	V A A W
	type of protection Ex ib IIC max. external inductance max. external capacitance max. inductance/resistance ratio	Lo Co Lo/Ro		154,9 333 17,26	μH nF μH/Ω
	type of protection Ex ib IIB and IIIC max. external inductance max. external capacitance max. inductance/resistance ratio	Lo Co Lo/Ro		619,8 2,04 69,0	μH μF μH/Ω
3.5	Intrinsically safe power and signal circuits for type 5700(C or I)1*****				
3.5.1	Drive circuit; (J2 in J-box, DR+ BRN; DR- RED) voltage current; instantaneous current; steady state power internal resistance	Uo Io Io Po Ri	DC	10,5 1,06 0,272 2,13 9,9	V A A W Ω
	for group IIC max. external capacitance max. external inductance max. external inductance/resistance ratio	Co Lo Lo/Ro		2,41 31,6 12,77	μF μH μH/Ω
	for group IIB and IIIC max. external capacitance max. external inductance max. external inductance/resistance ratio	Co Lo Lo/Ro		16,8 126,6 51,1	μF μH μH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times \left(\frac{Ri + Ro}{1.5 \times Uo} \right)^2$$

whereby E = 40 μJ for group IIC and E = 160 μJ for group IIB will be inserted.

3.5.2 Pick-off circuits (J1 in J-box, LPO+ GRN; LPO- WHT; RPO+ BLU; RPO- GRY)				
voltage	Uo	DC	17,3	V
current	Io		6,92	mA
power	Po		30	mW
for group IIC				
max. external capacitance	Co		353	nF
max. external inductance	Lo		742	mH
max. external inductance/resistance ratio	Lo/Ro		1,19	mH/Ω
for group IIB and IIIC				
max. external capacitance	Co		2,06	μF
max. external inductance	Lo		2,97	H
max. external inductance/resistance ratio	Lo/Ro		4,75	mH/Ω
3.5.3 Temperature circuit (J1 in J-box, RTD+ VIO; RTD- ORA; RTD-SIG YEL)				
voltage	Uo	DC	17,3	V
current	Io		19,26	mA
power	Po		83,3	mW
for group IIC				
max. external capacitance	Co		353	nF
max. external inductance	Lo		95,8	mH
max. external inductance/resistance ratio	Lo/Ro		0,42	mH/Ω
for group IIB and IIIC				
max. external capacitance	Co		2,06	μF
max. external inductance	Lo		383	mH
max. external inductance/resistance ratio	Lo/Ro		1,68	mH/Ω

3.5.4 Ambient temperature range

3.5.4.1 Type 5700*1***** Ta -40°C to +65°C

4) Marking

Type 5700*1***** Ta -40°C to +65°C

- type	- type of protection
5700*12**IA***	Ex db [ib] IIB+H ₂ T6 Gb Ex tb [ib] IIIC T75°C Db IP66/IP67
5700*1(3 or 5)**IA***	Ex db [ib] IIC T6 Gb Ex tb [ib] IIIC T75°C Db IP66/IP67

5 min delay time after switch off

5) Special conditions for safe use / Installation instructions

- 5.1 For the application of the transmitter in an ambient temperature of less than - 20 °C suitable cable and cable entries or conduit entries certified for this condition shall be used.
- 5.2 Enclosure entries can be used for double compression Ex-d IIC Gb/Ex tb IIIC Db cable glands such as but not limited to Hawke 501/453 intended for use with effective filled and circular armoured or braided cable; volume of the Ex-d enclosure is less than 2 liters.
- 5.3 If certified conduit entries are used for the connection of the transmitter enclosure, the associated stopping boxes shall be installed immediately at the enclosure.
- 5.4 The window covers forms one unit and cannot be taken apart without destroying the cover parts. If a cover is damaged it must be replaced by a new cover.
- 5.5 The dimensions of the flameproof joints are in parts other than the relevant minimum or maximum values of IEC 60079-1:2014. For information on the dimensions of the flameproof joints contact the manufacturer.



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