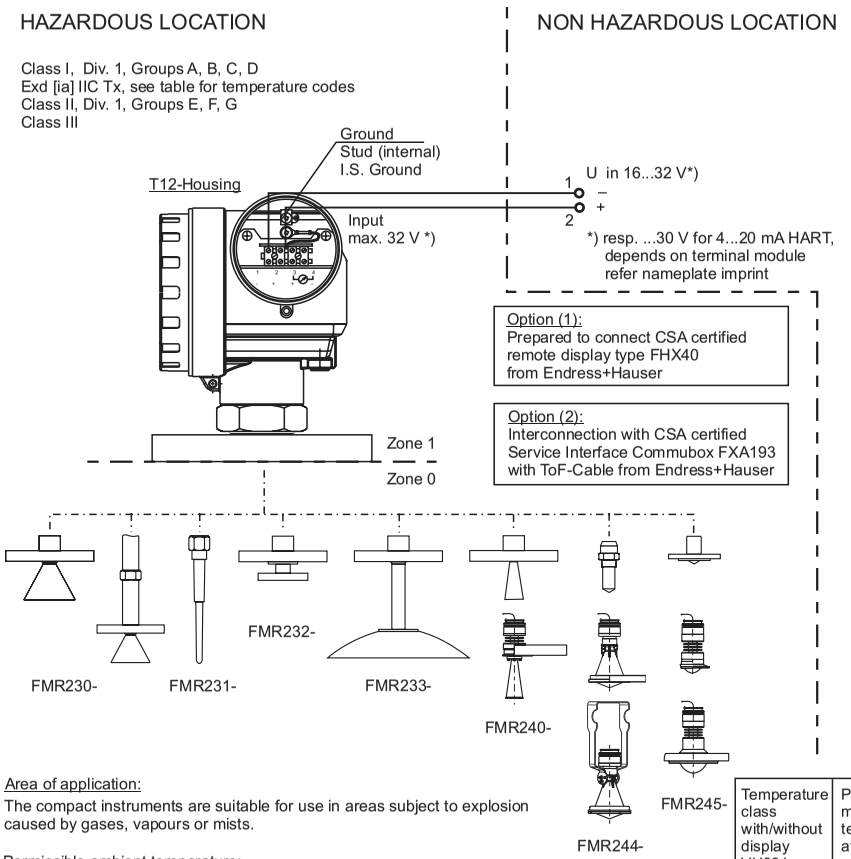
ZD062E-H/00/EN/07.10
CCS/FM6.0
CSA/H 25.03.08
71118431

CSA Control Drawing
960402-2067 H

Micropilot M
FMR230/231/232/233/240/244/245
(T12 / XP)

Endress+Hauser
People for Process Automation



Area of application:

The compact instruments are suitable for use in areas subject to explosion caused by gases, vapours or mists.

Permissible ambient temperature:
Electronic: T12 enclosure –40...+70 °C resp. –40...158 °F

Type	Type of antennas	Operation temperature [1]
FMR230 -	Horn antenna with PTFE-Korund feeder	–40 °C/–40 °F to +200 °C/392 °F
-..F	HT antenna (Tantal gasket)	–40 °C/–40 °F to +350 °C/662 °F
-..G	HT antenna (Graphite gasket)	–60 °C/–76 °F to +400 °C/752 °F
	Horn antenna with scavenge connection	depends on type
-..L	XT (extended temperature)	–60 °C/–76 °F to +280 °C/536 °F
-..M	HT (high temperature)	–60 °C/–76 °F to +400 °C/752 °F
FMR231 -	Rod antenna PPS	–20 °C/– 4 °F to +120 °C/250 °F
	Rod antenna PTFE	–40 °C/–40 °F to +150 °C/300 °F
	Rod antenna PTFE cladded	–40 °C/–40 °F to +150 °C/300 °F
	Sanitary (process connection)	–40 °C/–40 °F to +150 °C/300 °F
	PVDF (process connection)	–20 °C/– 4 °F to + 80 °C/176 °F
FMR232 -	Planar antenna	–40 °C/–40 °F to +150 °C/300 °F
FMR233 -	Parabolic antenna	–40 °C/–40 °F to +200 °C/392 °F
FMR240 -	> 20 GHz horn antenna	–40 °C/–40 °F to +150 °C/300 °F
	Wave guide antenna	–60 °C/–76 °F to +200 °C/392 °F
	Horn compact, extended, special edition	–40 °C/–40 °F to +150 °C/300 °F
FMR244 -	Compact antenna (PTFE capsuled)	–40 °C/–40 °F to +130 °C/266 °F
	80 mm/3", PP cladded (type 4)	–40 °C/–40 °F to + 80 °C/176 °F
FMR245 -	Compact antenna (types 3, 4)	–40 °C/–40 °F to +150 °C/302 °F
	DN50 + DN80 (types B, C, F, G)	–40 °C/–40 °F to +200 °C/392 °F

[1] Note: Take care to specific temperature ranges of antenna versions

Notes.

EXPLOSION PROOF CLASS I, DIV. 1, GROUPS A, B, C, D or Exd [ia] IIC
CLASS II, DIV. 1, GROUPS E, F, G; CLASS III
HAZARDOUS LOCATION INSTALLATION

1. Install per Canadian Electrical Code (CEC) resp. National Electrical Code NFPA 70 (NEC).
2. Supply wires shall be installed in conduit in accordance with the CEC resp. NEC.
3. Control room equipment may not use or generate over 250 Vrms.
4. Terminal compartment: Warning: Keep cover tight when circuit is alive unless the area is known to be non-hazardous.
5. For electronic: maximum ambient temperature = 70 °C.
6. Use supply wires suitable for 5 K above surrounding ambient.
7. Ground stud shall be connected to a grounding electrode by 12 AWG wire or larger insulated conductors. Resistance between ground stud and grounding electrode shall be less than 1 Ohm.
8. Use a dust tight seal at the conduit entry in Class II and III Location.
9. In case of use of PTFE rod antenna (white), planar, parabolic, enamelled horn, type 244 or type 245 avoid electrostatic charge at the antenna; (e.g. do not rub with dry cloth; do not install within the filling curtain.
10. Apparatus with faucet: In case of disconnection of Micropilot M from the faucet (e.g. for maintenance) we recommend to secure resp. to close the faucet e.g. with an additional blind flange. The responsibility for applicability of the arrangement behooves exclusive the operator.
11. FACTORY SEALED / SEAL NOT REQUIRED. (Apparatus was tested by CSA with 5, 10 and 15 feet conduit).
12. Use specific cables, supplied with the Service Interface Commubox FXA193 or Remote Display FHX40. Refer to the applicable Control Drawing.
13. Dual Seal Device acc. ISA 12.27.01 - Gas tight conduit seal not required.

CLASS I, DIV. 2, GROUPS A, B, C, D or Ex nC IIC and DIP. for CLASS II and III, DIV. 1, GROUPS E, F, G
HAZARDOUS LOCATION INSTALLATION

1. Install per CEC using threaded metal conduit or wiring methods described in Rule 18-156 or Rule 18-202 or Rule 18-302 resp. install per NEC using threaded conduits or wiring methodes acc. Acrticle 500 through Article 510. Intrinsic safety barrier not required. Max. supply voltage 32 V*). For T-code see table.
2. Warning: Explosion Hazard - Do not disconnect equipment unless power has been switched off or the area is known to be Non-Hazardous.
   Avertissement: Risque d'éxplosion - Avant de déconnecter l'équipement, couper le courant ou s'assurer que l'emplacement est désigné non dangereux.
   Warning: Explosion Hazard - Substitution of components may impair suitability for Class I, Div. 2.
   Avertissement: Risque d'éxplosion - La substitution de composants peut rendre ce materiel inacceptable pour les emplacements de Classe I, Div. 2.

For CLASS II and III; DIV. 1

Installation shall be in accordance CEC resp. NEC.
WARNING: Keep cover tight unless power has been switched off or the area is known to be non-hazardous.

Temperature class with/without display VU331	Permissible max. medium temperature at the antenna process connection (Tmed)	Permissible max. ambient temperature of the electronic compartment (Ta) (enclosure T12 (XP-IP))										
		FMR230 - ..E/V/K/D/H	FMR230 - ..L	FMR230 - ..M	FMR230 - ..F/G	FMR231	FMR232	FMR233	FMR240	FMR240 Wave Guide	FMR244	FMR245
T6	+ 70 °C + 60 °C	+55/50 °C +60/55 °C	+60/55 °C +60/55 °C	+60/55 °C +60/55 °C	+60/55 °C +60/55 °C	+55/55 °C +60/55 °C	+55/50 °C +60/55 °C	+55/50 °C +60/55 °C	+55/50 °C +60/55 °C	+60/55 °C +60/55 °C	+55/50 °C +60/55 °C	+55/50 °C +60/55 °C
T5	+ 95 °C + 70 °C	+65/60 °C +70 °C	+65/60 °C +70 °C	+65/60 °C +70 °C	+65/60 °C +70 °C	+65/60 °C +70 °C	+65/60 °C +70 °C	+65/60 °C +70 °C	+65/60 °C +70 °C	+65/60 °C +70 °C	+65/60 °C +70 °C	+65/60 °C +70 °C
T4	+130 °C + 70 °C	+60 °C +70 °C	+65 °C +70 °C	+65 °C +70 °C	+65 °C +70 °C	+55 °C +70 °C	+60 °C +70 °C	+60 °C +70 °C	+60 °C +70 °C	+65 °C +70 °C	+60 °C +70 °C	+60 °C +70 °C
T3C (functional)	+150 °C + 70 °C	+60 °C +70 °C	+65 °C +70 °C	+65 °C +70 °C	+60 °C +70 °C	+55 °C +70 °C	+60 °C +70 °C	+50 °C +70 °C	+60 °C +70 °C	+65 °C +70 °C	not allowed	+60 °C +70 °C
T3	+195 °C + 70 °C	+55 °C +70 °C	+65 °C +70 °C	+65 °C +70 °C	+60 °C +70 °C	not allowed	not allowed	+50 °C +70 °C	not allowed	+65 °C +70 °C	not allowed	+55 °C +70 °C
T2B (functional)	+250 °C + 70 °C	+50 °C +70 °C	+60 °C +70 °C	+65 °C +70 °C	+55 °C +70 °C	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed
T2 (functional)	+280 °C + 70 °C	not allowed	+60 °C +70 °C	+65 °C +70 °C	+55 °C +70 °C	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed
T2	+290 °C + 70 °C	not allowed	not allowed	+65 °C +70 °C	+55 °C +70 °C	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed
T1 (functional)	+350 °C + 70 °C	not allowed	not allowed	+60 °C +70 °C	+50 °C +70 °C	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed
T1 (functional)	+400 °C + 70 °C	not allowed	not allowed	+60 °C +70 °C	+45 °C +70 °C	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed

Note: The applicable temperature of antenna must be within their specified limits; Tx (functional) means limited through type of antenna;
T6 and T5 requires for FF electronic enlarged derating: for ambient; 1st number = HART or PA electronic insert; 2nd number = FF electronic insert
e.g. +60/55 °C expression means: Apparatus with HART or PA electronic insert max. ambient at housing = +60 °C;
Apparatus with FF electronic insert max. ambient at housing = +55 °C