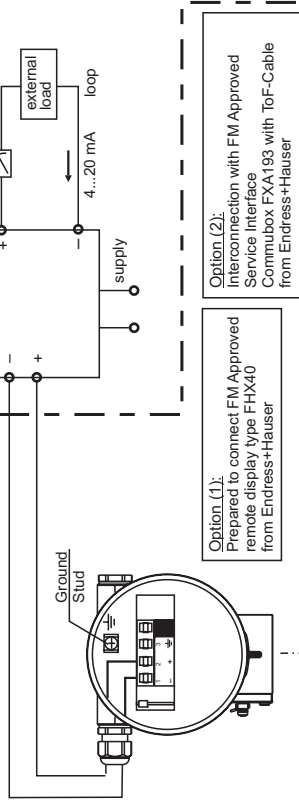


**HAZARDOUS LOCATION**

Class I, Div. 1, 2, Groups A, B, C, D  
 Class I, Zone 0, IIC  
 Class II, Div. 1, 2, Groups E, F, G  
 Class III

F12-Housing:

IS / I, II, III / I, A, B, C, D

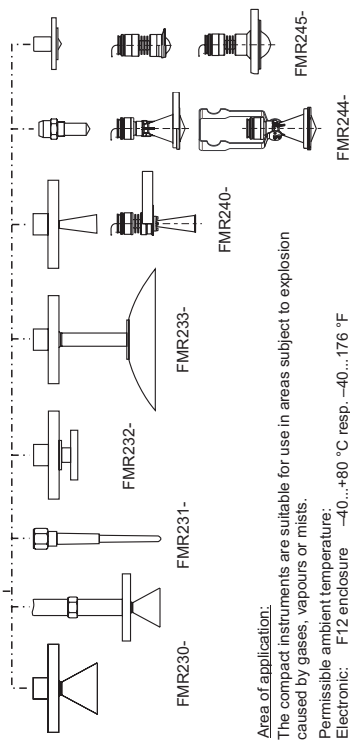


**NON HAZARDOUS LOCATION**

Any FM approved associated apparatus or associated nonincendive field wiring apparatus

Option (1): Prepared to connect FM Approved remote display type FHX40 from Endress+Hauser

Option (2): Interconnection with FM Approved Service Interface CommbuX FXA183 with ToF-Cable from Endress+Hauser



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: F12 enclosure -40...+80 °C resp. -40...176 °F

Type	Type of antennas	Operation temperature <sup>1)</sup>
FMR230 - F, G	Horn antenna with PTFE-Korund feeder	-40 °C/-40 °F to +200 °C/392 °F
-L	HT antenna (Tantal gasket)	-40 °C/-40 °F to +350 °C/662 °F
-M	HT antenna (Graphite gasket)	-60 °C/-76 °F to +400 °C/752 °F
	Horn antenna with scavange connection XT (extended temperature)	-60 °C/-76 °F to +280 °C/536 °F
	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 cladided	-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 <sup>3</sup> , PP cladided (type 4)	-40 °C/-40 °F to +80 °C/176 °F
FMR245 -	Compact antenna (types B, C, F, G)	-40 °C/-40 °F to +150 °C/302 °F
	DN80 (types B, C, F, G)	-40 °C/-40 °F to +200 °C/392 °F

<sup>1)</sup> Note: take care to specific temperature ranges of antenna versions

**Functional ratings:** These ratings do not supersede Hazardous Locations values  
 Unom ≤ 30 V,  
 Inom = 4...20 mA (max. 25 mA).

**Notes:**

**Intrinsically safe installation**  
 Intrinsically safe (entity), Class I, Div. 1, Groups A, B, C, D, Hazardous Location Installation.

- Control room equipment may not use or generate over 250 Wrms.
- Use FM Approvals Entity-Approved intrinsic safety barrier with Voc or Vt ≤ Vmax, Isc or It ≤ Imax, Ca ≥ Ci + Ccable, La ≥ Li + Lcable barrier must be incapable of delivering more than 1 W to a matched load.  
 Transmitter entity parameters are as follows: Vmax = 30 V, Imax = 300 mA, Ci ≤ 13 nF, Li = 0 μH, Pmax = 1 W.
- Installation should be in accordance with ANSI / ISA RP12.06.01.
- Installation of intrinsically safe systems for Hazardous (Classified) locations and the National Electrical Code (ANSI / NFPA 70).
- Warning: Substitution of components may impair intrinsic safety.
- Intrinsic safety barrier manufacturer's installation drawing must be followed when installing this equipment.
- The configuration of the intrinsic safety barrier(s) must be FM Approved.
- Use supply wires suitable for 5 K above surrounding ambient.
- 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).
- Apparatus with faucet: In case of disconnection of Microplot 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 behoves exclusive the operator.

**Division 2 and Zone 2 installation**

Nonincendive, Class I, Div. 2, Groups A, B, C, D, Hazardous Location Installation.

- Installation shall be in accordance with NEC using threaded conduits or other wiring methods in accordance with Article 500 through Article 510. Intrinsic safety barrier not required. Max. supply voltage 30 V. For T-code see table.
- Nonincendive field wiring installation.  
 The Nonincendive Field Wiring Circuit Concept allows interconnection of nonincendive field wiring apparatus with associated nonincendive field wiring apparatus or associated apparatus not specifically examined in combination as a system using any of the wiring methods permitted for unclassified locations, when Vmax ≥ Voc or Vt, Ca ≥ Ci + Ccable, La ≥ Li + Lcable.  
 Transmitter non incedive field wiring parameters for these current controlled circuit are as follows:  
 Vmax = 30 V; Ci ≤ 13 nF; Li = 0 μH; Imax = see note 3.
- For these current controlled circuit, the parameter Imax is not required and need not to be aligned with parameter Isc and It of the associated nonincendive field wiring apparatus associated apparatus.
- Warning: Explosion Hazard - Do not disconnect equipment unless power has been switched off or the area is known to be Non-Hazardous.  
 Warning: Substitution of components may impair suitability for Class I, Division 2.

**Class III Installation**

DIP for Class II and III, Div. 1, Groups E, F, G, Hazardous Location Installation.

- Installation shall be in accordance with NEC using threaded conduits or other wiring methods in accordance with Article 500 through Article 510.
- Use a dust tight seal at the conduit entry.

Temperature class with/without display VU331	Permissible max. ambient temperature of the electronic compartment (Ta) (enclosure F12)										
	FMR230 - .EV/K/D/H	FMR230 - .L	FMR230 - .M	FMR230 - .F/G	FMR231	FMR232	FMR233	FMR240	FMR244	FMR245	Wave Guide
T6	+55/50 °C	+60/55 °C	+60/55 °C	+60/55 °C	+55/50 °C	+55/50 °C	+55/50 °C	+60/55 °C	+60/55 °C	+60/55 °C	+60/55 °C
T5	+70/65 °C	+75/70 °C	+75/70 °C	+75/70 °C	+70/65 °C	+70/65 °C	+70/65 °C	+75/70 °C	+75/70 °C	+75/70 °C	+75/70 °C
T4	+130 °C	+70 °C	+75 °C	+80 °C	+65 °C	+70 °C	+70 °C	+70 °C	+70 °C	+70 °C	+70 °C
T3C (functional)	+150 °C	+70 °C	+75 °C	+80 °C	+55 °C	+65 °C	+65 °C	+65 °C	+65 °C	not allowed	+65 °C
T3	+195 °C	+70 °C	+75 °C	+80 °C	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	+65 °C
T2B (functional)	+250 °C	+70 °C	+80 °C	+80 °C	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	+80 °C
T2	+280 °C	not allowed	+80 °C	+80 °C	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed
T2 (functional)	+290 °C	not allowed	+80 °C	+80 °C	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed
T1 (functional)	+350 °C	not allowed	+80 °C	+80 °C	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed	not allowed
T1 (functional)	+400 °C	not allowed	+85 °C	+80 °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 = PA electronic insert max. ambient at housing = +60 °C; e.g. +60/55 °C expression means: Apparatus with PA electronic insert max. ambient at housing = +60 °C; Apparatus with FF electronic insert max. ambient at housing = +55 °C.

