

ZD 084F/00/ae/01.04/CCS
FM



Wiring diagram 960522-1050 B

Tank Side Monitor NRF590

Endress + Hauser
The Power of Know How

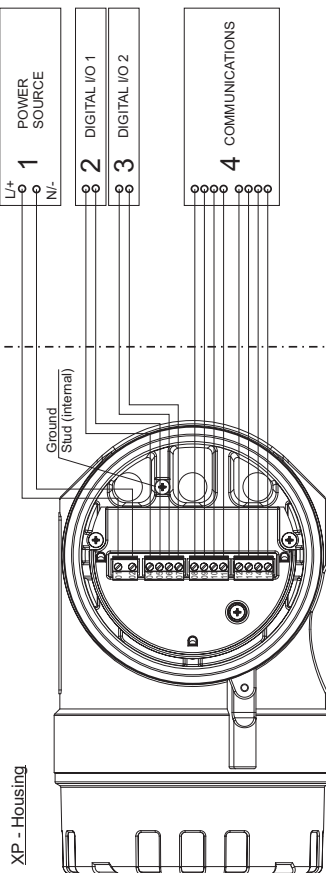


HAZARDOUS AREA

CLASS I, DIV.1, GROUPS A, B, C, D
CLASS I, Zone 1, IIC
CLASS II, DIV.1, GROUPS E, F, G
CLASS III

NON HAZARDOUS AREA

NON-INTRINSICALLY SAFE CIRCUITS



XP - Housing

1 POWER SOURCE

2 DIGITAL I/O 1

3 DIGITAL I/O 2

4 COMMUNICATIONS

RESISTIVE TEMPERATURE PROBE

B3 B1 B4 B2

C1 C2 C3

D RADAR POWER SUPPLY

Option: Intrinsically safe connection with FM approved Service Interface CompuBox FXA 193 with T9F-Cable from Endress + Hauser

IS - Housing

Ground (Studs internal)

Ground (Studs internal)

Ground (Studs internal)

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INTRINSICALLY SAFE CIRCUITS

HAZARDOUS AREA

CLASS I, DIV.1, GROUPS A, B, C, D
CLASS I, Zone 0, IIC
CLASS II, DIV.1, GROUPS E, F, G
CLASS III

$T_A \leq 70^\circ\text{C}$

Notes

Intrinsically safe (Entity), Class I, DIV. I, GROUP A, B, C, D
Hazardous location installations:

- Control room Equipment may not use or generate over 250V.
- The maximum permissible values of voltage and current as well as the maximum permissible external capacitance and inductance are shown in the following table. ($C_a \geq C_i + C_{\text{cable}}$, $L_a \geq L_i + L_{\text{cable}}$)

Intrinsic safe circuits:

Tank Side Monitor NRF 590-S-000000 without IS-4-20 mA Input or
Tank Side Monitor NRF 590-S-000001 with IS-Option Modul (4-20 mA Input):

Terminals	Circuit	V_{oc} in V	I_{sc} in mA	P_o in mW	C_a in nF	L_a in μ H	Group A/B (IIC)	C_a in μ F	L_a in mH	Group C (IIA/IIIB)
16, 17, 18, 19	SPOT temp.	7.5	99.6	187.0	1200	2000	2000	5.70	5.0	
20, 21, 22, 23	IS Option B(6)	0.0	0.0	0.0						
24 and 25 or 28 and 27 or 30 and 31	HART BUS C	29.8	95.0	707.0	68	62	62	0.39	0.5	
	RADAR PWR D	29.8	95.0	707.3	68	62	62	0.39	0.5	
	SERVICE PORT E	7.5	62.4	117.0	1300	2000	2000	6.20	5.0	

Tank Side Monitor NRF 590-S-000002 with integrated IS-4-20 mA Input:

Terminals	Circuit	V_{oc} in V	I_{sc} in mA	P_o in mW	C_a in nF	L_a in μ H	Group A/B (IIC)	C_a in μ F	L_a in mH	Group C (IIA/IIIB)
16, 17, 18, 19	SPOT temp.	5.1	31.3	30.3	3100	2000	2000	14.00	5.0	
20*	Digital Input 1 B3	5.1	1.0	1.2	3700	1000	1000	20.00	1.0	
21*	IS Option 4-20mA B1	5.1	1.0	1.2	3700	1000	1000	20.00	1.0	
22*	Digital Input 2 B4	5.1	1.0	1.2	3700	1000	1000	20.00	1.0	
23*	IS Option Power B2	29.8	95.0	707.3	68	62	62	0.39	0.5	
24 and 25 or 26 and 27 or 28 and 29	HART BUS C	29.8	95.0	707.0	68	62	62	0.39	0.5	
30 and 31	RADAR PWR D	29.8	95.0	707.3	68	62	62	0.39	0.5	
Service Port	SERVICE PORT E	5.1	31.2	30.2	3100	2000	2000	14.00	5.0	

* used in combination with IS 0 V reference potential on terminals 19, 25, 27, 29, 31

3. Installation should be in accordance with ANSI / ISA RP12.06.01

Installation of intrinsically safe systems for Hazardous (Classified) location s and the National Electrical Code (ANSI/NFPA 70)

4. Warning: substitution of components may impair intrinsic safety.

5. Use supply wires suitable for 5°C above surrounding ambient.

6. If optional modules are added to the NRF 590 install according to the safety instructions of the module.
The maximum permissible values of voltage and current of the terminal B are also given in the modules safety instructions. IS 4-20mA option module : Refer to NRF 590 WIRING DRAWING 960522-1051

NONINCENDIVE CLASS I DIV.2 GROUP A, B, C, D and DIP for CLASS II and III, DIV. I, GROUP E, F, G
HAZARDOUS LOCATION INSTALLATION:

1. Install per National Electrical Code (NEC) using threaded metal conduit. Intrinsic safety barrier not required.
Max. supply voltage 30V for circuits C and D. For circuits A and E:

7.5V If Order Code is NRF590-S-000000000000 or NRF590-S-000001000000

5.1V If Order Code is NRF590-S-000002000000

2. A dust tight seal must be used at the conduit entry when the transmitter is used in a Class II or III location.
3. 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.