



FM Approvals
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Member of the FM Global Group

CERTIFICATE OF COMPLIANCE

HAZARDOUS LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

Waterpilot FMX21

Equipment Ratings:

IS for use in Class I, Divisions 1, Groups A, B, C & D; Class I, Zone 0, AEx ia IIC T*;; Hazardous (Classified) Locations

T* - Temperature code per ambient temperature

Temperature class	Ambient temperature
T6	$-10^{\circ}\text{C} \leq T_a \leq 40^{\circ}\text{C}$
T5	$-10^{\circ}\text{C} \leq T_a \leq 55^{\circ}\text{C}$
T4	$-10^{\circ}\text{C} \leq T_a \leq 70^{\circ}\text{C}$

FM Approved for:

Endress+Hauser GmbH+Co KG
D-79689 Maulburg, Germany

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

Class 3600	1998
Class 3610	2007
Class 3810	2005
ANSI/ISA-12.00.01	2005
ANSI/ISA-12.12.02	2002
IEC60529	2001
ANSI/NEMA 250	1991

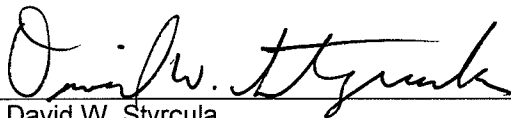
Original Project ID: 3035508

Approval Granted: May 15, 2009

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
090529	June 2, 2009		

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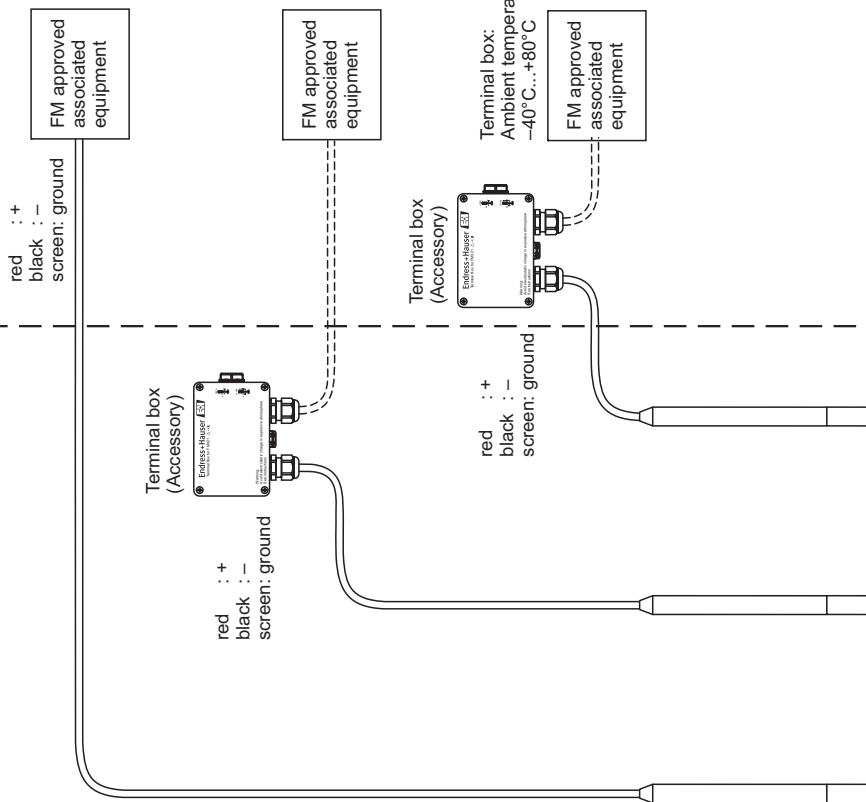


David W. Styracula
Technical Team Manager

June 2, 2009
Date

Hazardous location
 Class I, Div. 1, Groups A, B, C, D
 Class I, Zone 0
 AEx ia IIC

Non hazardous location



Intrinsically safe (entity), Class I, Div. 1, Groups A, B, C, D or Zone 0, IIC
 Hazardous Location Installations

1. FM approved apparatus must be installed in accordance with manufacturer instructions.
2. Control room equipment must not use or generate over 250 V.
3. The installation must be in accordance with the National Electric Code ANSI / NFPA 70 and ANSI / ISA-RP 12.06.01.
4. Sensor entity parameters: $V_{max} = 30 \text{ V DC}$; $I_{max} = 133 \text{ mA}$; $P_{max} = 1 \text{ W}$ Ci and Li per following table:

Length of sensor cable	Ci (10.3 nF + 180 pF/m)	Li (1 $\mu\text{H}/\text{m}$)
5 m	11.3 nF	5 μH
10 m	12.2 nF	10 μH
20 m	14.0 nF	20 μH
30 m	15.8 nF	30 μH
50 m	19.4 nF	50 μH
100 m	28.4 nF	100 μH
200 m	46.4 nF	200 μH
300 m	64.4 nF	300 μH

5. FM approved associated equipment must meet following conditions:
 $V_{oc} \text{ or } V_i \leq V_{max}$; $I_{sc} \text{ or } I_o \leq I_{max}$; $P_o \leq P_{max}$;
 $C_a \geq C_i + C_{cable}$; $L_a \geq L_i + L_{cable}$.
 Install associated equipment in accordance with the manufacturer instructions.
6. Use supply wires suitable for 5°C above surrounding ambient.
7. Avoid friction and impact sparks. Anchor sensor if necessary, secure against swinging.
8. **WARNING:** Avoid electrostatic charging of plastic surfaces.
 Do not rub. Do not use in media or environments which may generate electrostatic charges on plastic surfaces.
9. **WARNING:** Substitution of components may impair intrinsic safety.
10. Do not remove or move terminal blocks, fastening elements or insulation plates of the terminal box. Do not build in additional components.
11. Connect cable screen to earth ground of the installation.

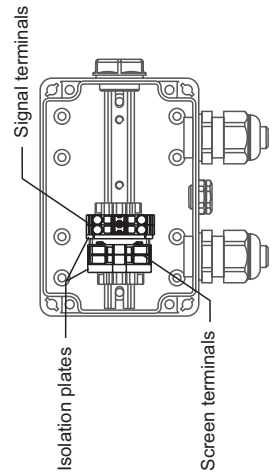
Sensor

Temperature class	Ambient temperature range
T4	$-10^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$
T5	$-10^\circ\text{C} \leq T_a \leq +55^\circ\text{C}$
T6	$-10^\circ\text{C} \leq T_a \leq +40^\circ\text{C}$

Terminal box

Temperature class	Ambient temperature range
T6	$-40^\circ\text{C} \leq T_a \leq +80^\circ\text{C}$

Terminal box (Accessory):



ZD231P/00/en/06.09
 CCS/FM6.0
 FM/- 05.11.08



71083488

FM Installation Drawing
960008975 -

Waterpilot
 FMX21

Endress+Hauser

People for Process Automation