FM Approvals
Member of the FM Global Group

FM Approvals
1151 Boston Providence Turnpike
P.O. Box 9102 Norwood, MA 02062 USA
T: **781 762 4300** F: 781-762-9375 www.fmapprovals.com

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

PROMAG 10abb-cdefghiklmno+#**#. Magnetic Flowmeter

NI/I/2/ABCD/T6...T1; -40°C ≤ Ta ≤ +60°C; +80°C ≤ Tmed ≤ +150°C – FES0069; NIFW; Type 4X; Type 6P (for a = F, P or W); IP66/67
NI/I/2/IIC/T6...T1; -40°C ≤ Ta ≤ +60°C; +80°C ≤ Tmed ≤ +150°C – FES0069; NIFW; Type 4X; Type 6P (for a = F, P or W); IP66/67
DIP/II/III/1/EFG/T6...T1; -40°C ≤ Ta ≤ +60°C; +80°C ≤ Tmed ≤ +150°C; Type 4X; Type 6P (for a = F, P or W); IP66/67

See Control Drawing for Nonincendive Field Wiring Parameters.

a = Type of sensor: E, F, P, W, D, L or X
bb = Size: any double number or letter
c = Liner Material: any single number or letter
d = Process connection: any single number or letter
e = Electrode/Material: any single number or letter
f = Calibration: any single number or letter
g = Certificates: any single number or letter
h = Approvals: R
i = Protection: any single number or letter
k = Cable for Remote Version: any single number or letter
l = Cable gland: any single number or letter
m = Display/Power Supply: 0, 1, 4, 5 or X
n = Software: any single number or letter
o = I/O: A or X
** = Option in two digits (none, two or multiple of two digits); any combination of number or letter
+, # = Signs used as indicator for optional abbreviation of extended order code

PROMAG 10abb-cdefghiklmno+#**#. Magnetic FLowmeter

NI/I/2/ABCD/T6...T1; -40°C ≤ Ta ≤ +60°C; +80°C ≤ Tmed ≤ +150°C – FES0069; NIFW; Type 4X; IP66/67
NI/I/2/IIC/T6...T1; -40°C ≤ Ta ≤ +60°C; +80°C ≤ Tmed ≤ +150°C – FES0069; NIFW; Type 4X; IP66/67
DIP/II/III/1/EFG/T6...T1; -40°C ≤ Ta ≤ +60°C; +80°C ≤ Tmed ≤ +150°C; Type 4X; IP66/67

See Control Drawing for Nonincendive Field Wiring Parameters.

a = Type of sensor: H or X
bb = Size: any double number or letter
c = Process connection: any single number or letter
d = Gasket: any single number or letter
e = Electrode/Material: any single number or letter
f = Calibration: any single number or letter
g = Certificates: any single number or letter
h = Approvals: R
i = Protection: any single number or letter
k = Cable for Remote Version: any single number or letter
l = Cable gland: any single number or letter
m = Display/Power Supply: 0, 1, 4, 5 or X
n = Software: any single number or letter
o = I/O: A or X
** = Option in two digits (none, two or multiple of two digits); any combination of number or letter

Equipment Ratings:

Nonincendive for Class I, Division 2, Group A, B, C and D and Class I, Zone 2, Group IIC, dust-ignitionproof for Classes II and III, Division 1, Groups E, F and G hazardous (classified) outdoor (Type 4X, Type 6P) locations; sensor electrodes nonincendive for Class I, Division 2, Groups A, B, C and D and Class I, Zone2, Group IIC when installed in accordance with FM Control Drawing FES0069, Dated 18Dec02.

FM Approved for:

Endress + Hauser Flowtec AG
Kaegenstrasse 7
CH-4153 Reinach
Switzerland

FM Approvals®

Member of the FM Global Group

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

Class 3600	2011
Class 3611	2004
Class 3810	2005

Original Project ID: 3016651 Approval Granted: February 21, 2003

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
3935149	February 24, 2009		
3036718	August 25, 2009		
111013	December 27, 2011		
140421	July 14, 2014		

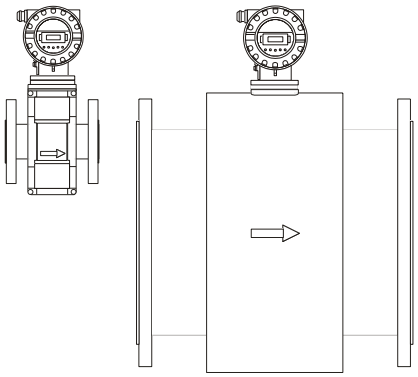
FM Approvals LLC

J. E. Marquedant
Group Manager, Electrical

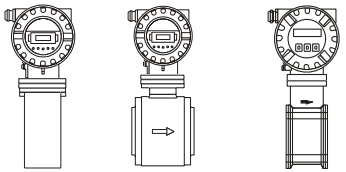
14 July 2014
Date

Hazardous Locations

Class I Div. 2 Groups ABCD or Class I Zone 2 Groups IIC
and Class II and III Division 1 Groups EFG



PROMAG 10 W / P / E / L



PROMAG 10 H

PROMAG 10 D

PROMAG 10 W / P / E / H / D / L

Notes:

1. Control room equipment shall not use or generate more than 250 V rms.
2. Caution: Use supply wires suitable for 5 °C above ambient temperature, but at least for 80 °C / 176°F.
3. Class II Group G: The surface temperature of the apparatus cannot exceed 165 °C / 329°F.
4. Installation of Transmitter circuit wiring according to NEC using threaded conduit or other wiring methods in accordance with articles 500 to 510.
5. WARNING: EXPLOSION HAZARD! DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS
6. WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR DIVISION 2 AND ZONE 2
7. Temperature table for compact version

Max. ambient temperature	Max. medium temperature depending temperature classes						
	T6	T5	T4A	T4	T3C	T2	T1
50 °C / 122°F	---	---	115°C / 239°F	115°C / 239°F	115°C / 239°F	115°C / 239°F	115°C / 239°F
45 °C / 113°F				130°C / 266°F	130°C / 266°F	130°C / 266°F	130°C / 266°F
40 °C / 104°F					150°C / 302°F	150°C / 302°F	150°C / 302°F

The minimum ambient temperature is –20°C / -4°F

Functional Rating
These ratings do not supersede Hazardous Location values.
Terminals 26 and 27, Hart current output
U_{nom} = 30V I_{nom} = 4…20mA
Terminals 24 and 25, Pulse output
$U_{nom} \leq$ 30V $I_{nom} \leq$ 250mA

8. The Nonincendive Field Wiring Circuit Concept allowes 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:
   $V_{max} \geq V_{oc}$ or V_t, $C_a \geq C_i + C_{cable}$, $L_a \geq L_i + L_{cable}$

   Hart, current output , Terminals 26 (+) and 27 (-)
   (current controlled circuit)

V_{max}	I_{max}	C_i	L_i
36V	See note 10	8 nF	0.3 mH

   Pulse output , Terminals 24 (+) and 25 (-)
   (voltage controlled circuit)

V_{max}	I_{max}	C_i	L_i
36V	250mA	6 nF	0

9. For this current controlled circuit, the parameter I_{max} is not required and need not to be aligned with parameter I_{SC} and I_t of the associated non-incendive field wiring or associated apparatus.

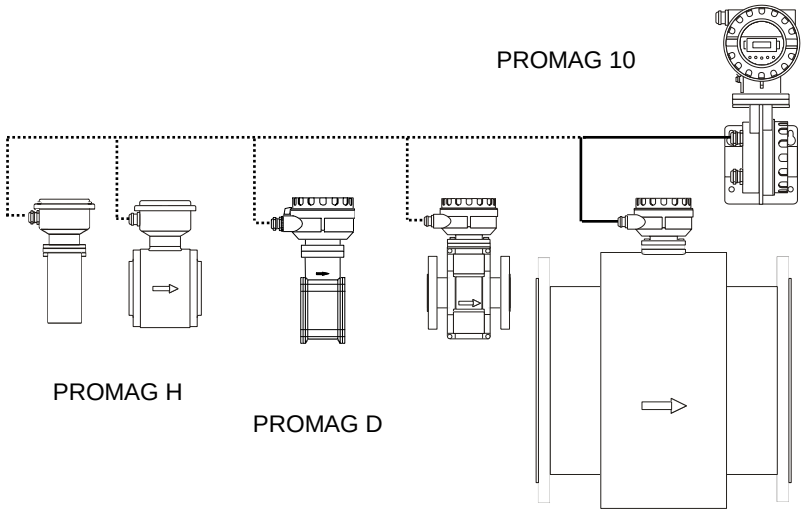
Aenderungen:					Ersteller: FES / **ID 1136** FILE: M:\ZEICHNG\FES0069\C\FES0069D.DOC
	A	19.05.04/PAM	F		
	B	10.10.08/BDA	G		
	C	06.05.09/BDA	H		
	D	17.04.14/BDA	J		
	E		K		

FM Control Drawing Class I Division 2 / Class I Zone 2 Compact version PROMAG 10	Gezeichnet	18.12.02	Bn
	Geprüft		
	Ex-geprüft	17.04.2014	BDA
	Gesehen		

Flowtec AG, Kaegenstrasse 7, CH-4153 Reinach BL1, Postfach

Hazardous Locations

Class I Div. 2 Groups ABCD or Class I Zone 2 Groups IIC
and Class II and III Division 1 Groups EFG



Functional Rating
These ratings do not supersede Hazardous Location values.
Terminals 26 and 27, Hart current output
U_{nom} = 30V I_{nom} = 4…20mA
Terminals 24 and 25, Pulse output
$U_{nom} \leq$ 30V $I_{nom} \leq$ 250mA

9. 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:
$V_{max} \geq V_{oc}$ or V_t, $C_a \geq C_i + C_{cable}$, $L_a \geq L_i + L_{cable}$

Hart, current output , Terminals 26 (+) and 27 (-)
(current controlled circuit)

V_{max}	I_{max}	C_i	L_i
36V	See note 11	8 nF	0.3 mH

Pulse output , Terminals 24 (+) and 25 (-)
(voltage controlled circuit)

V_{max}	I_{max}	C_i	L_i
36V	250mA	6 nF	0

10. For this current controlled circuit, the parameter I_{max} is not required and need not to be aligned with parameter I_{SC} and I_t of the associated non-incendive field wiring or associated apparatus.

PROMAG 10 W / P / E / H / D / L

Notes:
1. Control room equipment shall not use or generate more than 250 V rms.
2. Caution: Use supply wires suitable for 5 °C above ambient temperature, but at least for 80 °C / 176°F.
3. Class II Group G: The surface temperature of the apparatus cannot exceed 165 °C / 329°F.
4. Installation of circuit wiring according to NEC using threaded conduit or other wiring methods in accordance with articles 500 to 510.
5. WARNING: EXPLOSION HAZARD! DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS
6. WARNING: SUBSTITUTION OF COMPONENTS MY IMPAIR SUITABILITY FOR DIVISION 2 AND ZONE 2
7. A sensor which is connected to a Promag 50/51/53 transmitter can also be installed to a Promag 10 transmitter. For this case this control drawing is relevant for safe use.

8. Temperature table for sensors of remote version
Sensor:

Max. ambient temperature	Max. medium temperature depending temperature classes						
	T6	T5	T4A	T4	T3C	T2	T1
60 °C / 140°F	80°C / 176°F	95°C / 203°F	115°C / 239°F	130°C / 266°F	150°C / 302°F ***)**	150°C / 302°F ***)**	150°C / 302°F ***)**
50 °C / 122°F	80°C / 176°F	95°C / 203°F	115°C / 239°F	130°C / 266°F	150°C / 302°F	150°C / 302°F	150°C / 302°F

***)** only for PROMAG 10H DN40 – 100

Transmitter:
Temperature class for transmitter in remote version is T4A at 60°C / 140°F ambient temperature.
The minimum ambient temperature is –20°C / -4°F

Aenderungen:				
	A	19.05.04/PAM	F	
	B	10.10.08/BDA	G	
	C	06.05.09/BDA	H	
	D	17.04.14/BDA	J	
	E		K	

Ersteller: FES / **ID 1136**
FILE: M:\ZEICHNG\FES0069\C\FES0069D.DOC

FM Control Drawing Class I Division 2 / Class I Zone 2 Remote version PROMAG 10

Gezeichnet	18.12.02	Bn
Geprüft		
Ex-geprüft	17.04.2014	BDA
Gesehen		

Flowtec AG, Kaegenstrasse 7, CH-4153 Reinach BL1, Postfach

FES0069 D 2/2