

CERTIFICATE OF CONFORMITY



- HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
- Certificate No:** FM18US0180X
- Equipment:** D20/D30 Series
(Type Reference and Name) DIGITAL VALVE CONTROL POSITIONER
- Name of Listing Company:** PMV Automation AB
- Address of Listing Company:** Korta Gatan 9
SE-171 54 Solna
Sweden
- The examination and test results are recorded in confidential report number:
PR449734 dated 26th September 2019
- FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:
FM Class 3600:2022, FM Class 3610:2021, FM Class 3611:2021, FM Class 3810:2021,
ANSI / UL 61010-1:2015, ANSI / UL 60079-0:2020,
ANSI / ISA 60079-11:2018
- If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
- This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
- Equipment Ratings:**
Intrinsically safe for Class I , Division 1, Groups A, B, C, and D, Class I, Zone 0, AEx ia IIC; Nonincendive for Class I, Division 2, Groups A, B, C and D when supplied with nonincendive field wiring parameters, Class I, Zone 2, IIC when supplied with nonincendive field wiring parameters with an ambient temperature rating of -40°C to +85°C. Refer to Control Drawing D4-086C.

Certificate issued by:



J.E. Marquedant
VP, Manager - Electrical Systems

6 May 2022

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
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11. The marking of the equipment shall include:

IS, Class I Division 1, Groups A, B, C, D; T4 Ta = -40°C to +85°C*

Class I, Zone 0, AEx ia IIC T4 Ga Ta = -40°C to +85°C*

Class 1, Division 2, Groups A, B, C, D; T4 Ta = -40°C to +85°C*

Class I, Zone 2, IIC T4 Ta = -40°C to +85°C*

***Temperature Code**

Feedback option model code K	SWITCH Type	Min. temp °C	T4 (*)°C
5	SJ2-SN NAMUR	-40	85
6	SJ2-N NAMUR	-25	85
G	Mechanical switch gold Mec.	-40	78
N	NJ2-V3-N NAMUR	-25	85
P	Hamlin Proximity Reed	-40	80
S	Mechanical switch Mec.	-40	78
U	NCN4-V3-N0 NAMUR	-25	85
X	No feedback option	-40	85

12. **Description of Equipment:**

General - The D20/D30 series positioners are a two wire loop powered position controller, with options of HART communication, Profibus PA or Foundation Fieldbus. Additional features include transmitter output 4-20 mA analog signal, and optional end position switches.

Construction - The positioner consists of a two piece single compartment electronics housing of painted aluminium.

Ratings - The positioner is rated for use in an ambient temperature range of -40°C to +85°C*.

a b c d e - f g h - i j k l m n, DIGITAL VALVE CONTROL POSITIONER

where

a = Model number

D20 = Single Button Interface, LED Status

D21 = Single Button Interface, LED Status and LCD

D22 = Full 5 button LCD menu, LED status

D30 = Full 5 button LCD menu, LED status

D31 = Single Button Interface, LED Status and LCD

D33 = Single Button Interface, LED Status

b = Approval, Certificate

F = FM

c = Function

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- S = SA D20 E/P (poppet valve)
- H = DA (High Flow)
- d = Connections Air, Electrical
 - G = 1/4" G air, M20 x 1,5 electrical
 - M = 1/4" NPT air, M20x1,5 electrical
 - N = 1/4" NPT air, 1/2"NPT electrical
- e = Connection feature
 - 2 = 2 Electrical conduits
 - 4 = 4 Electrical conduits
 - T = 2 Electrical conduits, threaded Aux. ventilation
 - F = 4 Electrical conduits, threaded Aux ventilation
- f = Housing material/ Surface treatment
 - x = Material (always Aluminium) and treatment Powder epoxy different colours or Tuffram
- g = Mounting options / Spindle
 - R x = Unit prepared for remote mounting (x any other character)
 - x x = Any other combination are with different spindle shafts
- h = Cover and Indicator
 - x x x = Combination indicates lid colour and indicator type
- i = Temperature/seals
 - x = (Any character not S and V) ambient working temperature range NBR seals
 - S = ambient working temperature range Silicone seals
 - V = ambient working temperature range FPM seals
- j = Input signal/Protocol
 - 4 = 4-20 mA / none
 - 5 = 4-20 mA / HART
 - P = Profibus PA
 - F = Foundation Fieldbus
- k = Feedback option, switches
 - X = No feedback option
 - T = 4-20 mA transmitter, no switches
 - 5 = Slot type Namur sensor, P+F SJ2-SN
 - 6 = Slot type Namur sensor, P+F SJ2-N
 - G = Limit switches Mechanical SPDT, Gold
 - N = Namur V3 type sensor, P+F NJ2-V3-N
 - P = Limit switches Proximity SPDT
 - S = Limit switches Mechanical SPDT
 - U = Namur V3 type sensor, P+F NCN4-V3-N0
- l = Options, Add in electronics
 - 0 = No pressure sensor board
 - 3 = Added pressure sensors
 - 2 = Added pressure sensors (alternative code)
- m = Accessories
 - x = External accessories not effecting ia certification
- n = Special Options
 - x = Special options not effecting ia certification

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U	NCN4-V3-N0 NAMUR	-25	85
X/T	No feedback switch option	-40	85

IS Entity Parameters

4-20mA Input Signal: $U_i = 28 \text{ Vdc}$, $I_i = 93 \text{ mA}$, $P_i = 0.653 \text{ W}$, $L_i = 11.3 \mu\text{H}$, $C_i = 11.3 \text{ nF}$
 4-20mA Output Signal: $U_i = 28 \text{ Vdc}$, $I_i = 93 \text{ mA}$, $P_i = 0.653 \text{ W}$, $L_i = 11.3 \mu\text{H}$, $C_i = 22 \text{ nF}$
 Profibus PA/Foundation FISCO: $U_i = 17.5\text{Vdc}$, $I_i = 380 \text{ mA}$, $P_i = 5.32 \text{ W}$, $L_i = 10 \mu\text{H}$, $C_i = 5 \text{ nF}$

NIFW Parameters

NAMUR Switch: $V_{\text{max}} = 25\text{V}$
 Proximity Switch: $V_{\text{max}} = 30\text{V}$, $I_{\text{max}} = 500\text{mA}$
 4-20mA Input Signal: $V_{\text{max}} = 30\text{V}$, $I_{\text{max}} = 40\text{mA}$
 4-20mA Output Signal: $V_{\text{max}} = 30\text{V}$

Feedback option model code K	Function	U_i	I_i	P_i	L_i	C_i
T	4-20 mA transmitter	28 V	93 mA	653 mW	22 nF	11.3 μH
5	SJ2-SN NAMUR	16 V	25 mA	34 mW	30 nF	100 μH
6	SJ2-N NAMUR	16 V	25 mA	34 mW	30 nF	100 μH
G	Mechanical switch gold Mec.	28 V	45 mA	315 mW	1 nF	1 μH
N	NJ2-V3-N NAMUR	16 V	25 mA	34 mW	40 nF	50 μH
P	Hamlin Proximity Reed	28 V	45 mA	315 mW	1 nF	1 μH
S	Mechanical switch Mec.	28 V	45 mA	315 mW	1 nF	1 μH
U	NCN4-V3-N0 NAMUR	16 V	25 mA	34 mW	100 nF	100 μH

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13. Specific Conditions of Use:

1. For Intrinsically Safe applications: Use linear barrier only.
2. Potential risk of sparking from aluminum alloy enclosure. In Division 1 or Zone 0 installations, equipment shall be installed in such manner as to prevent the possibility of sparks resulting from friction or impact against the enclosure.
3. Potential risk of electrostatic sparking. Clean only with a damp cloth.

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals filed in Project ID 3038391.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
26 th September 2019	Original Issue.
6 th May 2022	<u>Supplement 1:</u> Report Reference: – PR458176 dated 6 th May 2022. Description of the Change: Product design update with additional options including D20 versions. Update the standards editions to the FM3600:2022, FM3610:2021, FM3611:2021, FM3810:2021, ANSI/UL 60079-0:2020.

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