



**[1] EC-TYPE EXAMINATION CERTIFICATE**

**[2] Equipment or Protected System Intended for use  
in Potentially explosive atmospheres  
Directive 94/9/EC**

- [3] **EC-Type Examination Certificate Number:**        **Nemko 08ATEX1362X**
- [4] **Equipment or Protective System:**                **Valve Positioner**
- [5] **Applicant/ Manufacturer:**                        **Palmstierna Insternational AB**
- [6] **Address:**                                                **Korta gatan 9  
S-17154 Solna  
Sweden**
- [7] **This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.**
- [8] **Nemko AS, notified body number 0470 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.**
- The examination and test results are recorded in confidential report no. 118427**
- [9] **Compliance with the Essential Health and Safety Requirements has been assured by compliance with:**
- CENELEC EN 60079-0: 2006, CENELEC EN 60079-11: 2007, CENELEC EN 60079-26: 2004**
- [10] **If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.**
- [11] **This EC-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC.  
Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.**
- [12] **The marking of the equipment or protective system shall include the following:**



**II 1G**

**Ex ia IIC T4 Ta:85°C**

**Oslo, 2008-12-12**

**Rolf Hoel  
Certification Manager, Ex-products**

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## [13] Schedule

### [14] EC-TYPE EXAMINATION CERTIFICATE No Nemko 08ATEX1362X

#### [15] Description of Equipment or Protective System

The **D20-series** digital positioners designed primarily to control modulating valves. The positioner can be used with single action actuators with either rotary or linear movement.

The positioner comprises:

- electronic board with microprocessor, display etc,
- pneumatic valve block,
- positional feedback with potentiometer
- the positioner can also be equipped with modules for feedback, limit switches, and a pressure gauge block. The modules can be factory assembled before delivery or fitted later. The modules for feedback and limit switches can contain the following. Feedback 4-20mA and one of the following functions:  
Two mechanical switches: Two reed switches: Two inductive sensors.
- option with remote unite with potentiometer

#### Model code overview

D20 series digital positioners.

The series comprises the three main models D20, D21, D22 with options as specified in the model code.

D20 Digital compact positioner, General purpose, LED status

D21 Digital positioner, LCD display, LED status

D22 Digital positioner, full LCD menu, LED status

#### D 2x ABCD-EFFGGG-HIJKL

A: A character or digit indication of the configuration of the digital positioner.

B: I : Intrinsically Safe

C: A letter indicating the size threaded entries for electrical and air connections.

D: Housing / Surface treatment.

E: Function.

F: Mounting options / Spindle.

G: Cover and indicator options.

H: Temperature / seals.

I: Input signal / Protocol: 4-20mA/ Hart, Profibus / Fieldbus.

4: 4-20mA / none

5: 4-20mA / Hart

P: Profibus

F: Foundation Fieldbus

J: Feedback options.

T 4-20 mA transmitter only

S Limit switches Mechanical SPDT + 4-20mA

N Namur V3 type sensor, P+F NJ2-V3-N + 4-20mA

P Limit switches Proximity SPDT + 4-20mA

4 Slot type Namur sensor, P+F SJ2-S1N + 4-20mA

5 Slot type Namur sensor, P+F SJ2-SN + 4-20mA

6 Slot type Namur sensor, P+F SJ2-N + 4-20mA

K: options, add in electronics

L: Accessories

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**D20 Safety Data for External Connections****4-20mA input signal & Hart . Terminals no. 1, 2**

Maximum input voltage.	U <sub>i</sub> :	28V
Maximum input current.	I <sub>i</sub> :	93mA
Maximum input power.	P <sub>i</sub> :	653mW
Maximum internal capacitance.	C <sub>i</sub> :	11,28nF
Maximum internal inductance.	L <sub>i</sub> :	11,28μH

**Switches, Mechanical or Proximity. Terminals 3-5, 6-8 or 4-5, 7-8**

Maximum input voltage.	U <sub>i</sub> :	28V
Maximum input current.	I <sub>i</sub> :	45mA
Maximum input power.	P <sub>i</sub> :	315mW
Maximum internal capacitance.	C <sub>i</sub> :	1nF
Maximum internal inductance.	L <sub>i</sub> :	1μH

**Switches, Mechanical or Proximity with isolator barriers. Terminals 3-5, 6-8**

Maximum input voltage.	U <sub>i</sub> :	10,6V
Maximum input current.	I <sub>i</sub> :	29,7mA
Maximum input power.	P <sub>i</sub> :	79mW
Maximum internal capacitance.	C <sub>i</sub> :	1nF
Maximum internal inductance.	L <sub>i</sub> :	1μH

**Namur switch and isolator barrier. Terminals 3-4, 6-7**

Maximum input voltage.	U <sub>i</sub> :	10,6V
Maximum input current.	I <sub>i</sub> :	29,7mA
Maximum input power.	P <sub>i</sub> :	79mW
Maximum internal capacitance.	C <sub>i</sub> :	40nF
Maximum internal inductance.	L <sub>i</sub> :	100μH

**4-20mA Output - Terminals 9-10**

Maximum input voltage.	U <sub>i</sub> :	28V
Maximum input current.	I <sub>i</sub> :	93mA
Maximum input power.	P <sub>i</sub> :	653mW
Maximum internal capacitance.	C <sub>i</sub> :	16,4nF
Maximum internal inductance.	L <sub>i</sub> :	11,3μH

**Alarm. Terminals 11-12**

Maximum input voltage.	U <sub>i</sub> :	28V
Maximum input current.	I <sub>i</sub> :	45mA
Maximum input power.	P <sub>i</sub> :	315mW
Maximum internal capacitance.	C <sub>i</sub> :	5,7nF
Maximum internal inductance.	L <sub>i</sub> :	11,3μH

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### Remote Unit

Remote unit is connected to terminals 3-4-5.

The remote unit comprises a potentiometer mounted in an aluminium enclosure.

The remote unit may be connected to D20 with a cable up to 10m length. The maximum output power at terminals 3-4-5 is Po: 0,38W.

### Ingress Protection Code

IP 66/67 according to EN 60529

Type 4X according to NEMA 250

### Ambient temperature

Temperature range:  $-40^{\circ}\text{C} \leq T_a \leq 85^{\circ}\text{C}$

#### [16] Report No. 118427

**Descriptive Documents technical file content** "Technical File contents intrinsically safe (ia) certification of D20 Rev. A Dated 2008-12-08.

#### [17] Special Conditions for Safe Use

##### Special Conditions for Safe Use

1. The enclosure is made of aluminium and impact or friction caused by external objects shall be avoided in the application.
2. The above data for the diode safety barriers assumes linear resistive output characteristics.
3. The installation and connection information according to the Control drawing 3-86 has to be taken into account.

#### [18] Essential Health and Safety Requirements

See item 9

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