

[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 03ATEX110X Issue 7

[4] Equipment or Protective System: Valve Positioner

[5] Applicant/ Manufacturer: Palmstierna International AB

**[6] Address: Korta Gatan 9
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. 188549

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2009, EN 60079-11: 2007, EN 60079-26: 2007

[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 Ga Ta:80°C
Ex ia IIC T4 Ga Ta: 80°C FISCO Field Device**

Oslo, 2012-09-14

p.p. Asle Kaastad
Certification Manager, Ex products

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[13] Schedule

[14] EC-TYPE EXAMINATION CERTIFICATE No Nemko 03ATEX110X Issue 7

[15] Description of Equipment or Protective System

The PMV D3I is a digital positioner designed primarily to control modulating valves. The positioner can be used with single or double action actuators with either rotary or linear movement.

The D3I positioner comprises:

- electronic board with microprocessor, Hart modem or fieldbus (FISCO) interface , display etc,
- pneumatic valve block,
- positional feedback with potentiometer
- compartment for electrical connections.
- the positioner D3I 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.
- Remote unit, an external unit containing the position potentiometer and indicator.

Type Designation.

D3I abcdefghijkl

D3Y abcdefghijkl (Y= Direct mount to flow act.)

The additional letters and digits in the type reference concern different accessories and functions of the instrument.

a: Air pipe connection thread type,

b: Surface treatment,

c: Function,

de: Spindle,

fgh: Cover and indicator,

i: Sensors /Temperature/Seals,

j: Input signal/protocol: 4, 5, P, F

4: 4-20mA

5: 4-20mA Hart

P: Profibus PA(FISCO field device)

F: Foundation Fieldbus(FISCO field device)

k: Feedback option

X: no option

S: Limit switch MEC + 4-20mA

N: Limit sensors NAM + 4-20mA

P: Limit switches PXY + 4-20mA

T: 4-20mA transmitter only

4: Slot type Namur sensor, P+F SJ2 S1N+ Alarm

5: Slot type Namur sensor, P+F SJ2 SN+ Alarm

6: Slot type Namur sensor, P+F SJN + Alarm

l: Accessories:

X: No accessories

M: Gauge block

D3I Remote Unit

A separate unit for connection to the D3I

The Remote Unit is connected to terminals 3,4 and 5 on models with type indicator c= M or R and k=T

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Safety Data

The transmitter must be connected to safety barriers or isolators according to the drawing 3-36C. corresponding to the stated input values of the positioner.

Profibus PA, Fieldbus Foundation, FISCO field device, input signal. Terminals no. 1, 2

Maximum input voltage.	U_i :	17,5V
Maximum input current.	I_i :	380mA
Maximum input power.	P_i :	5,32W
Maximum internal capacitance.	C_i :	2nF
Maximum internal inductance.	L_i :	8 μ H

4-20mA input signal. Terminals no. 1, 2

Maximum input voltage.	U_i :	28V
Maximum input current.	I_i :	93mA
Maximum input power.	P_i :	653mW
Maximum internal capacitance.	C_i :	11,3nF
Maximum internal inductance.	L_i :	11,3 μ H

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

Maximum input voltage.	U_i :	28V
Maximum input current.	I_i :	45mA
Maximum input power.	P_i :	315mW
Maximum internal capacitance.	C_i :	4nF
Maximum internal inductance.	L_i :	5 μ H

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

Maximum input voltage.	U_i :	10,6V
Maximum input current.	I_i :	29,7mA
Maximum input power.	P_i :	79mW
Maximum internal capacitance.	C_i :	1nF
Maximum internal inductance.	L_i :	1 μ H

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

Maximum input voltage.	U_i :	10,6V
Maximum input current.	I_i :	29,7mA
Maximum input power.	P_i :	79mW
Maximum internal capacitance.	C_i :	35nF
Maximum internal inductance.	L_i :	50 μ H

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Aux input 4-20mA- Terminals 9-10

Maximum input voltage.	U _i :	28V
Maximum input current.	I _i :	45mA
Maximum input power.	P _i :	315mW
Maximum internal capacitance.	C _i :	5,7nF
Maximum internal inductance.	L _i :	5μH

4-20mA Output. Terminals 11-12

Maximum input voltage.	U _i :	28V
Maximum input current.	I _i :	75mA
Maximum input power.	P _i :	525mW
Maximum internal capacitance.	C _i :	5,7nF
Maximum internal inductance.	L _i :	5μH

Alarm. Terminals 13-14

Maximum input voltage.	U _i :	28V
Maximum input current.	I _i :	45mA
Maximum input power.	P _i :	315mW
Maximum internal capacitance.	C _i :	5,7nF
Maximum internal inductance.	L _i :	5μH

Ambient Temperature Range $-30^{\circ}\text{C} \leq T_a \leq 80^{\circ}\text{C}$ **D3I Remote Unit** $-30^{\circ}\text{C} \leq T_a \leq 120^{\circ}\text{C}$ **Ingress Protection Code**

IP 66 according to IEC 60529

Type 4X according to NEMA 250

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[16] **Report No. 188549** and the list of Schedule Documents D3I Technical File Rev.2 Dated 2012-09-14.

Certificate History and Associated Nemko Reports

Issue	Date	Report	Description
0	2003-05-07	200309115	Prime Certificate released
1	2004-07-12	26023	Alternative model Logix 800si certified
2	2005-03-31	41473	Changes of the transmitter board
3	2007-01-17	64145	Updated electronics for all models and Change of Safety Parameters
4	2008-04-30	105867	Changes of display board, main board and a new pressure board.
5	2009-07-15	131793	Minor changes of main board.
6	2010-11-10	160923	Modifications of PCB, profibus/fieldbus version.
7	2012-09-14	188549	New version for FISCO

[17] 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 surface area of the plastic parts on the cover exceeds the limits specified in EN 60079-0 for II 1G (EPL Ga) for gas group IIC and intensive rubbing or brush charging should be avoided when used in an IIC explosive atmosphere.
3. The cable connection the D3I Remote Unit with the D3 –unit shall be type A or B in accordance with EN 60079-25. The cable must be adequately mechanically protected in all instance and have a temperature rating for the ambient temperature range at the site.

[18] Essential Health and Safety Requirements

See item 9

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