# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION
## IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

| | | | |
|---|---|---|---|
| Certificate No.: | IECEx ZLM 11.0001X | issue No.:0 | Certificate history: |
| Status: | **Current** | | |
| Date of Issue: | **2011-09-14** | Page 1 of 3 | |

Applicant: **ABB Automation Products GmbH**
Schillerstrasse 72
D-32425 Minden
**Germany**

Electrical Apparatus: **PositionMaster EDP300**
*Optional accessory:*

Type of Protection: **Intrinsically Safe, Non-Sparking, dust ignition protection by enclosure**

Marking: **Ex ia IIC T4 resp. T6 Ga resp.**
**Ex nA IIC T4 resp. T6 Gc resp.**
**Ex ia IIIC T100°C resp. T55°C Da resp.**
**Ex tb IIIC T100°C resp. T55°C Db**

*Approved for issue on behalf of the IECEx Certification Body:*

*Position:*

*Signature:*
*(for printed version)*

*Date:*

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

**ZELM Explosionsschutz GmbH**
**Siekgraben 56**
**D-38124 Braunschweig**
**Germany**

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# IECEx Certificate of Conformity

Certificate No.: IECEx ZLM 11.0001X

Date of Issue: **2011-09-14** Issue No.: **0**



Manufacturer: **ABB Automation Products GmbH**
Schillerstrasse 72
D-32425 Minden
**Germany**

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

**STANDARDS:**
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

| | |
|---|---|
| **IEC 60079-0 : 2011**<br>Edition: 6.0 | Explosive atmospheres - Part 0: General requirements |
| **IEC 60079-11 : 2011-06**<br>Edition: 6.0 | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i" |
| **IEC 60079-15 : 2010**<br>Edition: 4 | Explosive atmospheres - Part 15: Equipment protection by type of protection "n" |
| **IEC 60079-26 : 2006**<br>Edition: 2 | Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga |
| **IEC 60079-31 : 2008**<br>Edition: 1 | Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't' |

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

**TEST & ASSESSMENT REPORTS:**
*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

Test Report:
DE/ZLM/ExTR11.0001/00

Quality Assessment Report:

DE/TUN/QAR06.0012/01

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**Schedule**

**EQUIPMENT:**
*Equipment and systems covered by this certificate are as follows:*

The PositionMaster EDP300 is intended to control and operate pneumatic operated valves by a 4-20 mA current signal. The integrated position sensor measures the position of the valve and the integrated pneumatic unit will be used to control the pneumatic auxiliary power. The pneumatic positioner may be extended by different option modules, which have additional functionalities.
For electrical values, type designation code and ambient temperature range see Attachment.

**CONDITIONS OF CERTIFICATION: YES as shown below:**

1. If the PositionMaster EDP300 is used according to temperature class T6, before the pressure supply is fully switched on, the pneumatic unit shall be operated with a maximum pressure of 1.4 bar for so long until no more explosive mixture is present, but at least 5 minutes. During this operation the EDP300 is to be fully loaded and vented for several-times.
2. The usage of the PositionMaster with natural gas is only permitted in type of protection „Intrinsic Safe".
3. If the PositionMaster is used with natural gas, the venting of the PositionMaster has to be routed safely to outside the hazardous area.
4. If the PositionMaster uses natural gas instead of compressed air, the maximum ambient temperature is 60°C.
5. If the ordering option F3 is used the lower ambient temperature is reduced to –25°C.
6. If the ordering option M1 is used, limit switches are not permitted.
7. The functionality of the device is not considered to be within the scope of this Certificate of Conformity.

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Type designation code

EDP300 xx * * * * * ** ** ** ** xx ** ** ** ** ** ** ** **

Limit Switches:
without, no limit switches
F2, Proximity switches (NC) SJ2-SN
F3, Proximity switches (NO) SJ2-S1N

Explosion protection:
M1, Intrinsic Safe Approval — Ex ia IIC T4 resp. T6 Ga resp.
Ex ia IIIC T100°C resp. T55°C Da
N1, Approval as non-sparking equipment resp. protection by enclosure
Ex nA IIC T4 resp. T6 Gc resp.
Ex tb IIIC T100°C resp. T55°C Db

The signs „*“ in the type designation code can be replaced by letters or numbers, these alphanumeric signs indicate different versions of the device, which have no influence on the explosion protection concept of the device.

The temperature class resp. the maximum surface temperature depends on the ambient temperature range and the type of protection and can be determined in the following table.

1. Usage in type of protection Intrinsic Safe „ia“

| temperature class | surface temperature | ambient temperature range |
|---|---|---|
| T6 | T55°C | -40°C...+40°C |
| T4 – T1 | T100°C | -40°C...+85°C |

2. Usage according type of protection “non-sparking device nA“ resp. in type of protection “protection by enclosure tb“

| temperature class | surface temperature | ambient temperature range |
|---|---|---|
| T6 | T55°C | -40°C...+40°C |
| T4 – T1 | T100°C | -40°C...+80°C |

The maximum pressure of the attached pressure supply is 12 bar absolute.



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Electrical Data

1. Usage in type of protection Intrinsic Safe „ia“

Signal circuit (AI)
(Terminals +11 -12)

in type of protection Intrinsic Safe Ex ia IIC or Ex ia IIIC
only for connection to certified intrinsic safe circuits with following maximum Values:

temperature class T1 – T4 resp. T100°C

| | | | |
|---|---|---|---|
| $U_i$ | = | 30 | V |
| $I_i$ | = | 320 | mA |
| $P_i$ | = | 1,1 | W |

temperature class T6 resp. T55°C

| | | | |
|---|---|---|---|
| $U_i$ | = | 28 | V |
| $I_i$ | = | 320 | mA |
| $P_i$ | = | 0,8 | W |

maximum effective inductance: negligible small
maximum effective capacitance:
without pressure option $C_i$ = 6,5 nF
with pressure option $C_i$ = 8,8 nF

Digital input (DI)
(Terminals +81 -82)

in type of protection Intrinsic Safe Ex ia IIC or Ex ia IIIC
only for connection to certified intrinsic safe circuits with following maximum Values:

temperature class T1 – T4 resp. T100°C

| | | | |
|---|---|---|---|
| $U_i$ | = | 30 | V |
| $P_i$ | = | 0,5 | W |

temperature class T6 resp. T55°C

| | | | |
|---|---|---|---|
| $U_i$ | = | 28 | V |
| $P_i$ | = | 0,4 | W |

maximum effective inductance: negligible small
maximum effective capacitance: $C_i$ = 4,2 nF

Digital output (DO)
(Terminals +83 -84)

in type of protection Intrinsic Safe Ex ia IIC or Ex ia IIIC
only for connection to certified intrinsic safe circuits with following maximum Values:

temperature class T1 – T4 resp. T100°C

| | | | |
|---|---|---|---|
| $U_i$ | = | 30 | V |
| $P_i$ | = | 0,5 | W |

temperature class T6 resp. T55°C

| | | | |
|---|---|---|---|
| $U_i$ | = | 28 | V |
| $P_i$ | = | 0,4 | W |

maximum effective inductance: legible small
maximum effective capacitance: $C_i$ = 4,2 nF



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Shut Down Module
(Terminals +85 -86)

in type of protection Intrinsic Safe Ex ia IIC or Ex ia IIIC only for connection to certified intrinsic safe circuits with following maximum Values:

temperature class T1 – T4 resp. T100°C

$U_i$ = 30 V
$P_i$ = 1,0 W

temperature class T6 resp. T55°C

$U_i$ = 30 V
$P_i$ = 1,0 W

maximum effective inductance: negligible small
maximum effective capacitance: $C_i$ = 5,3 nF

Analog Feedback Module
(Terminals +31 -32)

in type of protection Intrinsic Safe Ex ia IIC or Ex ia IIIC only for connection to certified intrinsic safe circuits with following maximum Values:

temperature class T1 – T4 resp. T100°C

$U_i$ = 30 V
$I_i$ = 320 mA
$P_i$ = 1,0 W

temperature class T6 resp. T55°C

$U_i$ = 28 V
$I_i$ = 320 mA
$P_i$ = 0,8 W

maximum effective inductance: $L_i$ = 150 µH
maximum effective capacitance: $C_i$ = 11,3 nF

Universal Analog Input Module
(Terminals +21 -22)

in type of protection Intrinsic Safe Ex ia IIC or Ex ia IIIC only for connection to certified intrinsic safe circuits with following maximum Values:

temperature class T1 – T4 resp. T100°C

$U_i$ = 30 V
$I_i$ = 320 mA
$P_i$ = 1,0 W

temperature class T6 resp. T55°C

$U_i$ = 28 V
$I_i$ = 320 mA
$P_i$ = 0,8 W

maximum effective inductance: $L_i$ = 150 µH
maximum effective capacitance: $C_i$ = 11,3 nF



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| | |
|---|---|
| Digital Feedback Module<br>(Terminals:<br>SW 1: +41 -42 or<br>SW 2: +51 -52) | in type of protection Intrinsic Safe Ex ia IIC or Ex ia IIIC only for connection to certified intrinsic safe circuits with following maximum Values per output: |

temperature class T1 – T4 resp. T100°C

$U_i$ = 30 V
$P_i$ = 0,5 W

temperature class T6 resp. T55°C

$U_i$ = 28 V
$I_i$ = 250 mA
$P_i$ = 0,4 W

maximum effective inductance: negligible small
maximum effective capacitance: $C_i$ = 2,2 nF

2. Usage in type of protection non-sparking equipment „nA“ resp. in type of protection “protection by enclosure tb“

| **circuit** | **maximum values** |
|---|---|
| Signal circuit (AI)<br>(Terminals +11 -12 ) | $U_{Max} \leq$ 30 V<br>$I_N \leq$ 22 mA |
| Digital Input (DI)<br>(Terminals +81 -82 ) | $U_N \leq$ 30 V |
| Digital Output (DO)<br>(Terminals +83 -84 ) | $U_N \leq$ 30 V |
| Shut Down Module<br>(Terminals +85 -86) | $U_N \leq$ 30 V |
| Analog Feedback Module<br>(Terminals +31 –32) | $U_N \leq$ 30 V<br>$I_N \leq$ 22 mA |
| Universal Analog Input Module<br>(Terminals +21 –22) | $U_{Max} \leq$ 30 V<br>$I_N \leq$ 22 mA |
| Digital Feedback Module<br>(Terminals:<br>SW 1: +41 -42<br>SW 2: +51 –52) | per output<br>$U_N \leq$ 30 V |
| Digital Out Module<br>(Terminals<br>Limit 1: +51 -52<br>Limit 2: +41 –42) | per output<br>$U_N \leq$ 16 V<br>$I_N \leq$ 25 mA |



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