

Positioner 8049-ExPro

$U_i/V_{max} = 30V$
 $I_i/I_{max} = 120mA$
 $P_i/P_{max} = 1W$
 $C_i = 0nF$
 $L_i = 0\mu H$
 Operating voltage range/
 plage de tension/plage de tension: 8V-30V
 Rated current range/
 plage de courant: 3mA-25mA

$U_i/V_{max} = 16V$
 $I_i/I_{max} = 25mA$
 $P_i/P_{max} = 64mW$
 $C_i = 11nF$
 $L_i = 0\mu H$
 Rated voltage/
 tension nominale: 8.2V
 Rated load/
 charge nominale: 1k Ω

$U_o/V_{oc} = 5.4V$
 $I_o/I_{sc} = 1mA$
 $P_o/P_{max} = 2mW$
 $C_o/C_a = 65\mu F$
 $L_o/L_a = 50mH$
 Rated voltage/
 tension nominale: 2.8V
 Rated load/
 charge nominale: 0.2mA

$U_M = 6.1V$
 Rated voltage /
 tension nominale: 2.8V

Input Signal/signal d'entrée

- 1-signal (+)
- 2-signal (-)

Alarm Output/sortie alarme

- 3-Alarm (+) / 3-alarme (+)
- 4-Alarm (-) / 4-alarme (-)

Binary Input/entrée binaire

- 5-BIN-IN (1)
- 6-BIN-IN (2)

PC-Connector/
connecteur ordinateur

Feedback Module RM-4/
module de recopie de position RM-4

Feedback Loop/
réponse du boucle de courant

- 10-FB Loop (I+) / 10-FB boucle (I+)
- 11-FB Loop (I-) / 11-FB boucle (I-)

(Option)

SW2-Switch High/
interrupteur supérieur

- 12-SW2 High (+) / 12-SW2 supérieur (+)
- 13-SW2 High (-) / 13-SW2 supérieur (-)

SW1-Switch Low/
interrupteur inférieur

- 14-SW1 Low (+) / 14-SW1 inférieur (+)
- 15-SW1 Low (-) / 15-SW1 inférieur (-)

Filter Module/
module de filtration
(Option)

| | | |
|---|---|---|
| 1 | 2 | 3 |
| G | V | V |
| N | P | R |
| D | o | e |
| | s | f |

Hazardous Location

$U_o/V_{oc} = 5.4V$
 $I_o/I_{sc} = 66mA$
 $P_o/P_{max} = 89mW$
 $C_o/C_a = 61\mu F$
 $L_o/L_a = 8mH$
 Rated voltage/ tension nominale: 2.8V

$U_i/V_{max} = 30V$
 $I_i/I_{max} = 120mA$
 $P_i/P_{max} = 1W$
 $C_i = 0nF$
 $L_i = 0\mu H$
 Operating voltage range/
 plage de tension/plage de tension: 8V-30V
 Rated current range/
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$U_i/V_{max} = 16V$
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 Rated voltage/
 tension nominale: 8.2V
 Rated load/
 charge nominale: 1k Ω

$U_i/V_{max} = 16V$
 $I_i/I_{max} = 25mA$
 $P_i/P_{max} = 64mW$
 $C_i = 11nF$
 $L_i = 0\mu H$
 Rated voltage/
 tension nominale: 8.2V
 Rated load/
 charge nominale: 1k Ω

NIFW parameters are the same as the I.S. parameters/
Les valeurs N.I. sont conformements aux valeurs I.S.

Technical data / données techniques

IP 65
T_a = -10°C ... 75°C

8049-ExPro-0 8049-ExPro-1
 II 1 G Ex ia IIC T4 Ga II 2 G Ex ia IIC T4 Gb
 IEC Ex BVS 17.0080 IEC Ex BVS 17.0080

8049-ExPro-FM
 FA:
 I.S. Zone: CL.I, Zone0, AEx ia IIC T4 entity
 Zone0 Ex ia IIC T4 entity
 I.S. Division: IS.CLI, DIV.1,GP: A,B,C,D T4 entity
 FN:
 NI: NI,CL.I,DIV.2,GP: A,B,C,D T4 NIFW
 product type test certificate (FM) / certificat d'essai de type de produit
 FM22US0015 / FM22CA0010

Ex-Code

Type Code Type 8049-ExPro-

| Hazardous Location | | | | | |
|--|--|----|--|--|--|
| For use in zone 1 | | 1 | | | |
| For use in zone 0 | | 0 | | | |
| For use in Cl 1, Div 1; Cl 1, Zone 0; Cl 1, Div 2 | | FM | | | |
| Electrical connections | | | | | |
| Cable glands 2x M16x1.5 (without RM-4 module) S0078 | | 0 | | | |
| Cable glands 2x M16x1.5 (with RM-4 module) S0079 | | 1 | | | |
| Plug 1 1x M12x1 - 4 Pin S0080 | | 2 | | | |
| Plug1 + 2 2x M12x1 - 4 Pin S0081 | | 3 | | | |
| Plug 1 + 2 2x M12x1 - 4 Pin S0082 | | 4 | | | |
| Plug 1 + 2 2x M12x1 - 4 Pin S0083 | | 5 | | | |
| Plug 1 + 2 2x M12x1 - 4 Pin S0084 | | 6 | | | |
| US NPT thread with yellow cover plug (without RM-4 module) S0078 | | 7 | | | |
| US NPT thread with yellow cover plug (with RM-4 module) S0079 | | 8 | | | |
| Stroke acquisition | | | | | |
| Linear potentiometer - standard | | 1 | | | |
| Turn potentiometer | | 2 | | | |
| Filter module for ext. potentiometer | | 3 | | | |
| Filter module for NCS | | 4 | | | |
| Linear potentiometer - 50mm | | 7 | | | |
| Option module | | | | | |
| Without | | 0 | | | |
| Feedback Module RM-4 | | 4 | | | |

The following combinations are not possible:

8049-ExPro-0x7x

For FM only the following types are allowed:

8049-Expro-FM7xx except: 8049-ExPro-FMX7X (no linear pot. 50mm version)

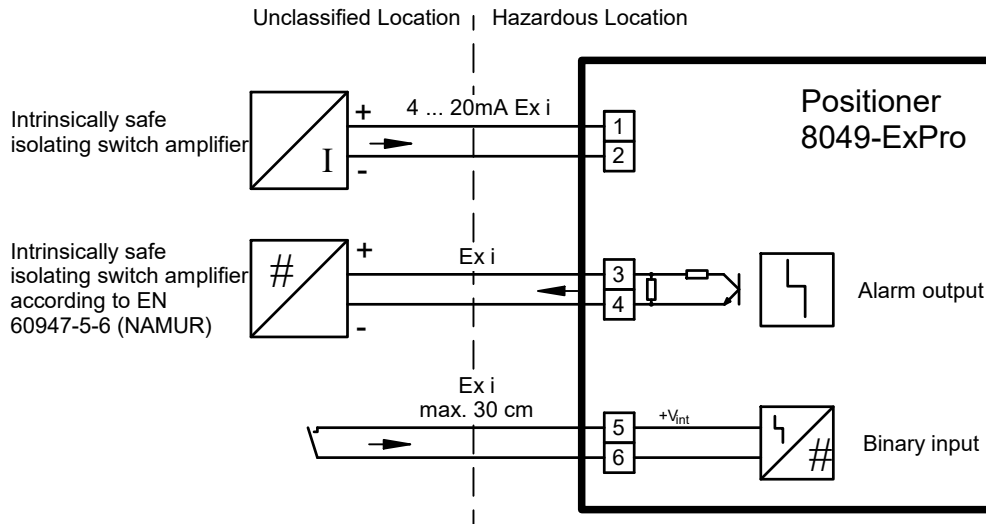
8049-Expro-FM8xx except: 8049-ExPro-FMX7X (no linear pot. 50mm version)

NI, CL.I, DIV.2, GP. A,B,C,D T4 only on NIFW

Electrical connection

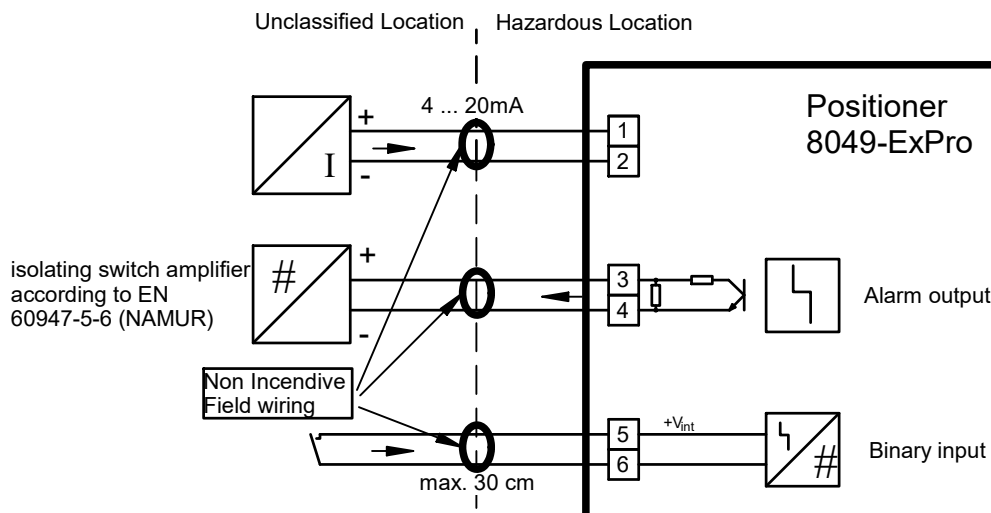
Standard connection 8049-ExPro-10 / 8049-ExPro-00 / ExPro-FM7

Intrinsically safe wiring



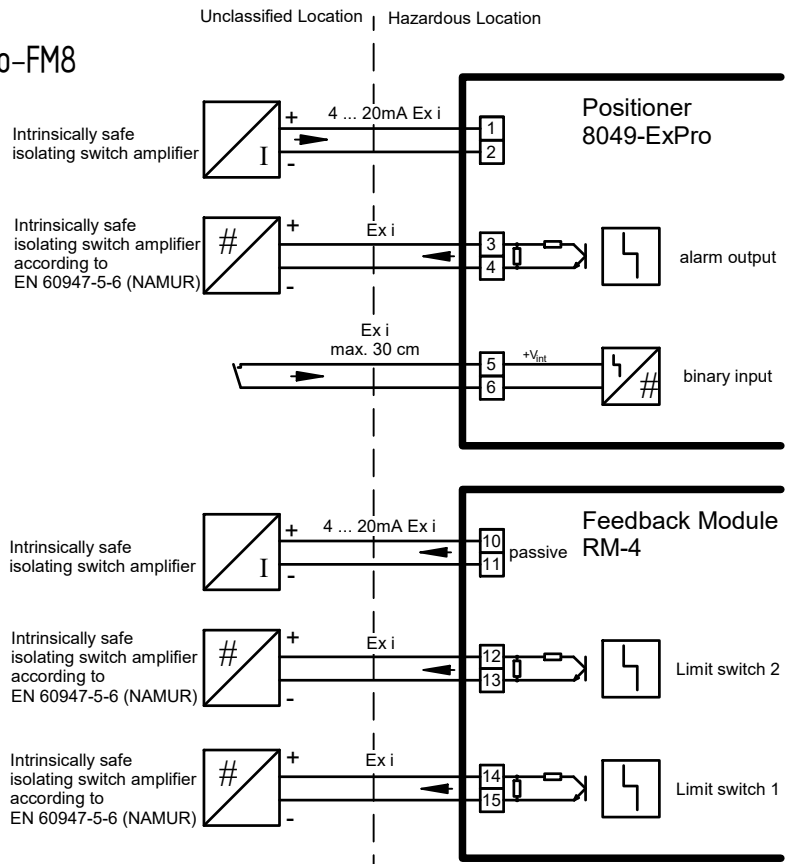
Standard connection only 8049-ExPro-FM7

Non Incendive wiring



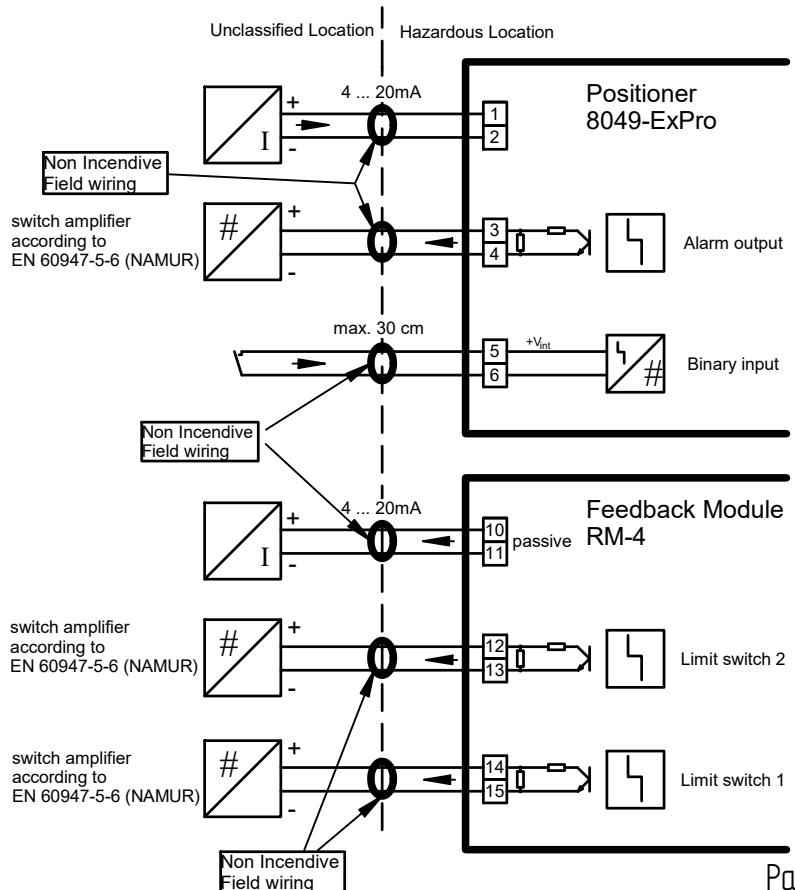
Connection with feedback module
8049-ExPro-11 / 8049-ExPro-01 / ExPro-FM8

Intrinsically safe wiring

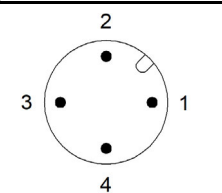


Connection with feedback module
only 8049-ExPro-FM8

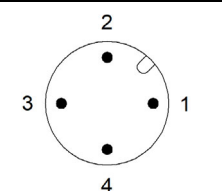
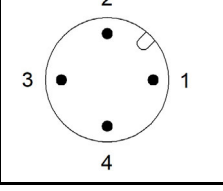
Non incendive wiring



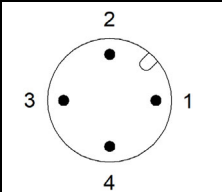
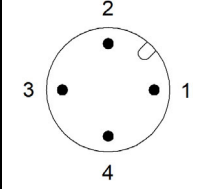
Pin assignment 8049-ExPro-12 / 8049-ExPro-02

| | Topview on plug of the positioner | Pin at plug | Function | Terminal on board |
|--------|---|-------------|--------------------|-------------------|
| Plug 1 |  | Pin 1 | Control signal (+) | Terminal 1 |
| | | Pin 2 | Control signal (-) | Terminal 2 |
| | | Pin 3 | Alarm output (+) | Terminal 3 |
| | | Pin 4 | Alarm output (-) | Terminal 4 |

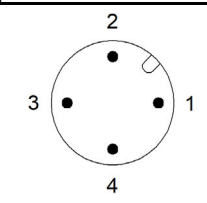
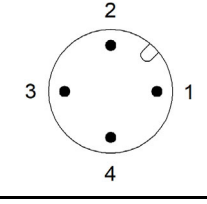
Pin assignment 8049-ExPro-13 / 8049-ExPro-03

| | Topview on plug of the positioner | Pin at plug | Function | Terminal on board |
|--------|--|-------------|--------------------|-------------------|
| Plug 1 |  | Pin 1 | Control signal (+) | Terminal 1 |
| | | Pin 2 | Control signal (-) | Terminal 2 |
| | | Pin 3 | Alarm output (+) | Terminal 3 |
| | | Pin 4 | Alarm output (-) | Terminal 4 |
| Plug 2 |  | Pin 1 | Feedback (+) | Terminal 10 |
| | | Pin 2 | Feedback (-) | Terminal 11 |
| | | Pin 3 | Limit switch1 (+) | Terminal 14 |
| | | Pin 4 | Limit switch1 (-) | Terminal 15 |

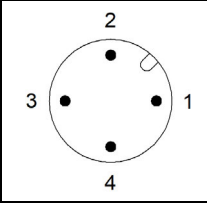
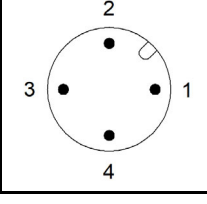
Pin assignment 8049-ExPro-14 / 8049-ExPro-04

| | Topview on plug of the positioner | Pin at plug | Function | Terminal on board |
|--------|---|-------------|--------------------|-------------------|
| Plug 1 |  | Pin 1 | Control signal (+) | Terminal 1 |
| | | Pin 2 | Control signal (-) | Terminal 2 |
| | | Pin 3 | Alarm output (+) | Terminal 3 |
| | | Pin 4 | Alarm output (-) | Terminal 4 |
| Plug 2 |  | Pin 1 | Feedback (+) | Terminal 10 |
| | | Pin 2 | Feedback (-) | Terminal 11 |
| | | Pin 3 | Limit switch2 (+) | Terminal 12 |
| | | Pin 4 | Limit switch2 (-) | Terminal 13 |

Pin assignement 8049-ExPro-15 / 8049-ExPro-05

| Topview on plug of the positioner | | Pin at plug | Function | Terminal on board |
|-----------------------------------|---|-------------|--------------------|-------------------|
| Plug 1 |  | Pin 1 | Control signal (+) | Terminal 1 |
| | | Pin 2 | Control signal (-) | Terminal 2 |
| | | Pin 3 | Alarm output (+) | Terminal 3 |
| | | Pin 4 | Alarm output (-) | Terminal 4 |
| Plug 2 |  | Pin 1 | Limit switch2 (+) | Terminal 12 |
| | | Pin 2 | Limit switch2 (-) | Terminal 13 |
| | | Pin 3 | Limit switch1 (+) | Terminal 14 |
| | | Pin 4 | Limit switch1 (-) | Terminal 15 |

Pin assignement 8049-ExPro-16 / 8049-ExPro-06

| Topview on plug of the positioner | | Pin at plug | Function | Terminal on board |
|-----------------------------------|---|-------------|--------------------|-------------------|
| Plug 1 |  | Pin 1 | Control signal (+) | Terminal 1 |
| | | Pin 2 | Control signal (-) | Terminal 2 |
| | | Pin 3 | Feedback (+) | Terminal 10 |
| | | Pin 4 | Feedback (-) | Terminal 11 |
| Plug 2 |  | Pin 1 | Limit switch2 (+) | Terminal 12 |
| | | Pin 2 | Limit switch2 (-) | Terminal 13 |
| | | Pin 3 | Limit switch1 (+) | Terminal 14 |
| | | Pin 4 | Limit switch1 (-) | Terminal 15 |

Notes:

1. Maximum voltage of non I.S. circuits shall not exceed $U_m = 6.1 \text{ V}$ (only USB-connector for service)
2. Substitution of components may impair safety
3. Install according to CEC in Canada and NEC in US and EN / IEC 60079-14 in Europe
4. Each intrinsically safe circuit is galvanically isolated from each other.
Exception: "Binary Switching Input" circuit is not isolated from "Power Supply / Current Signal Circuit 4-20 mA"
5. Intrinsically safe outputs shall be connected to certified intrinsically safe devices with entity parameters meeting the equations $V_{max} > V_{oc}$, $I_{max} > I_{sc}$, $P_{max} > P_o$, $L_i + L_{cable} < L_a$, $C_i + C_{cable} < C_a$.
6. Cross reference for ATEX / IEC entity parameter nomenclature:
 $U_o = V_{oc}$, $I_o = I_{sc}$, $P_o = P_a$, $C_o = C_a$, $L_o = L_a$, $U_i = V_{max}$, $I_i = I_{max}$, $P_i = P_{max}$, $C_i = C_i$, $L_i = L_i$
7. The Associated Apparatus must be FM approved
8. The FM Approved Associated Apparatus must be a linear output device
9. Control equipment connected to Associated Apparatus must not use or generate more than 250 Vrms or Vdc
10. Associated Apparatus manufacturer's installation drawing must be followed when installing this equipment
11. The Entity Concept allows interconnection of intrinsically safe apparatus with Associated Apparatus when the following is true:
 V_{max} or $U_i \geq V_{oc}$, V_t or U_o
 I_{max} or $I_i \geq I_{sc}$, I_t or I_o
 P_{max} or $P_i \geq P_o$
 $C_a \geq C_i + C_{cable}$
 $L_a \geq L_i + L_{cable}$
12. Resistance between Intrinsically Safe Ground and earth ground must be less than 1.0Ω
13. Dust-Tight conduit seal must be used when installed in Class II and Class III environments
14. Installation should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code (ANSI/NFPA 70).





The QR-Code on the type plate refers direct to the Manual and the Control Drawing for the suitable positioner revision








Control Drawing and Manual can be downloaded here (Click Scan the QR-Code):



The Manual and the Control Drawing can be also ordered as a printed paper version.

For more details, please refer to the Manual

| | |
|---|--|
|  | <p>WARNING</p> <p>Risk of explosion as a result of improper installation.</p> <p>The relevant electrotechnical directives and the accident prevention directives in the destination country must be observed for the electrical installation. In Germany, this is the VDE regulation and the accident prevention regulations of the employer's liability insurance association.</p> <p>EN 60079-14; VDE 0165 Part 1/8.98 "Electrical equipment for explosive gas areas.</p> <p>In the US the installation has to be carried out according to the NEC standard, in Canada the installation has to be Carried out according to the CEC standard.</p> <p>The permissible maximum values contained in the EC type examination certificate (Ui/Uo, li/Io, Pi/Po, Ci/Co and Li/Lo) apply for the interconnection of the intrinsically safe electrical operating equipment.</p> <p>Devices with the "intrinsic safety" ignition protection type lose their approval as soon as they are operated on electric circuits that do not correspond to the test certificate applicable in the respective country.</p> <p>The "ia" protection level of the device is downgraded to "ib" when intrinsically safe electrical circuits with an "ib" protection level are connected.</p> |
|  | <p>WARNING</p> <p>Risk of explosion due to electrostatic charging. Especially, if you use valves, which are insulation mounted in the pipe. Connect the equipotential bonding to Ground Terminal (1) or Ground Terminal (11) For more details, please refer to the manual.</p> |
|  | <p>ATTENTION</p> <p>In order to ensure sufficient compatibility against electromagnetic interference, the positioner has to be earthed. Use the Ground Terminal (1) or Ground Terminal (11). The use of shielded wires is strongly recommended.</p> |
|  | <p>WARNING</p> <p>Risk of explosion as a result of improper installation.</p> <ul style="list-style-type: none"> -> Disconnect the supply before connecting or disconnecting the device -> Observe the electrotechnical directives and the accident prevention directives -> The connection may only be performed by qualified personal |

| | |
|---|--|
|  | <p>WARNING</p> <p>Risk of explosion as a result of connection to unsafe sources -> Ensure that the positioner is only connected to suitable intrinsically safe sources</p> |
|  | <p>WARNING</p> <p>Risk of explosion as a result of device damage following connection to unsuitable sources. -> The device may no longer be used in intrinsically safe applications.</p> |
|  | <p>WARNING</p> <p>Risk of explosion caused by electrostatics. -> When operating in Zone 0 / Division 1, the cover may only be opened when the device is in a deenergized state. -> Ensure that the cover is kept closed during operating in Zone 0 / Division 1. -> Don't supply positioners with damaged body or cover</p> |
|  | <p>WARNING</p> <p>Risk of explosion caused by an unsuitable device. -> Select positioner and components that are authorized for the respective area of application</p> |
|  | <p>WARNING</p> <p>Risk of explosion as a result of non-intrinsically safe electric circuits. -> Do not use the USB connector in explosive areas</p> |
|  | <p>WARNING</p> <p>Risk of explosion as a result of device damage -> Only use original Schubert & Salzer USB connectors V ≥ 3.0</p> |
|  | <p>WARNING</p> <p>Risk of explosion due to short-circuit and electrostatic charging -> Additional modules may only be retrofitted provided that there is no ignitable atmosphere</p> |

Maintenance and repair

The devices may not be repaired, modified or manipulated.
 The product must always be replaced with an original device in the event of a defect.
 Only use accessories that have been specified by the manufacturer.