## Content

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Abbreviations and Definitions</td>
</tr>
<tr>
<td>2.</td>
<td>Safety Instructions</td>
</tr>
<tr>
<td>2.1.</td>
<td>Sentinels</td>
</tr>
<tr>
<td>2.2.</td>
<td>Intended Use</td>
</tr>
<tr>
<td>2.3.</td>
<td>General Regulations for Careful Handling</td>
</tr>
<tr>
<td>2.4.</td>
<td>Welding Instructions</td>
</tr>
<tr>
<td>2.5.</td>
<td>Persons</td>
</tr>
<tr>
<td>2.6.</td>
<td>Warranty</td>
</tr>
<tr>
<td>2.7.</td>
<td>References for Use in Explosive Atmospheres</td>
</tr>
<tr>
<td>2.8.</td>
<td>Conformity</td>
</tr>
<tr>
<td>2.9.</td>
<td>Standards</td>
</tr>
<tr>
<td>3.</td>
<td>General Terms</td>
</tr>
<tr>
<td>3.1.</td>
<td>Purpose of use</td>
</tr>
<tr>
<td>3.2.</td>
<td>Design of ATEX CU ex ia</td>
</tr>
<tr>
<td>3.3.</td>
<td>Control unit variants / product key</td>
</tr>
<tr>
<td>3.4.</td>
<td>Control unit adapter</td>
</tr>
<tr>
<td>3.5.</td>
<td>Fitting position</td>
</tr>
<tr>
<td>4.</td>
<td>Technical Data</td>
</tr>
<tr>
<td>4.1.</td>
<td>General terms</td>
</tr>
<tr>
<td>4.2.</td>
<td>Materials</td>
</tr>
<tr>
<td>4.3.</td>
<td>Compressed air quality</td>
</tr>
<tr>
<td>4.4.</td>
<td>Valve position indicator (internal installation)</td>
</tr>
<tr>
<td>4.4.1.</td>
<td>Valve position indicator (external installation)</td>
</tr>
<tr>
<td>4.5.</td>
<td>FAS solenoid valves ex</td>
</tr>
<tr>
<td>5.</td>
<td>CU Assembly and Start-up</td>
</tr>
<tr>
<td>5.1.</td>
<td>Pneumatic air connection</td>
</tr>
<tr>
<td>5.2.</td>
<td>Electric connection</td>
</tr>
<tr>
<td>5.3.</td>
<td>Wiring diagrams</td>
</tr>
<tr>
<td>5.4.</td>
<td>Adjustment of valve position indicator</td>
</tr>
<tr>
<td>5.5.</td>
<td>Potential equalization</td>
</tr>
<tr>
<td>6.</td>
<td>Accessories and Tools</td>
</tr>
<tr>
<td>7.</td>
<td>Dismantling</td>
</tr>
<tr>
<td>7.1.</td>
<td>General terms</td>
</tr>
<tr>
<td>7.2.</td>
<td>Dismantling of solenoid valves</td>
</tr>
<tr>
<td>7.3.</td>
<td>Dismantling of proximity switches</td>
</tr>
<tr>
<td>8.</td>
<td>Type Examination Certificate</td>
</tr>
<tr>
<td>9.</td>
<td>Spare Parts Lists</td>
</tr>
<tr>
<td></td>
<td>ATEX CU ex ia</td>
</tr>
<tr>
<td></td>
<td>ATEX CU adapter</td>
</tr>
</tbody>
</table>

IT IS ESSENTIAL TO READ THIS INSTRUCTION MANUAL BEFORE USE OF THE CONTROL UNIT!
1. Abbreviations and Definitions

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Exhaust Air</td>
</tr>
<tr>
<td>AWG</td>
<td>American Wire Gauge</td>
</tr>
<tr>
<td>CE</td>
<td>Communauté Européenne</td>
</tr>
<tr>
<td>CU</td>
<td>Control Unit</td>
</tr>
<tr>
<td>DI</td>
<td>Digital Input</td>
</tr>
<tr>
<td>DO</td>
<td>Digital Output</td>
</tr>
<tr>
<td>EMC</td>
<td>Electromagnetic Compatibility</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>GND</td>
<td>Ground/Mass Potential</td>
</tr>
<tr>
<td>IP</td>
<td>International Protection</td>
</tr>
<tr>
<td>LED</td>
<td>Luminous Diode</td>
</tr>
<tr>
<td>N</td>
<td>Pneumatic Air Connection NOT element</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Electrical Manufacturers Association</td>
</tr>
<tr>
<td>P</td>
<td>Supply Air Connection</td>
</tr>
<tr>
<td>PWM</td>
<td>Pulse-Width Modulation</td>
</tr>
<tr>
<td>Y</td>
<td>Pneumatic Air Connection</td>
</tr>
</tbody>
</table>

2. Safety Instructions

2.1. Sentinels

*Meaning:*

**DANGER!** Direct danger which can lead to severe bodily harm or to death!

**CAUTION!** Dangerous situation which can lead to bodily harm and/or material damage.

**ATTENTION!** Risk as a result of electric current.

**NOTE!** Important technical information or recommendation.

These special safety instructions point directly to the respective handling instructions. They are accentuated by the corresponding symbol. Carefully read the instructions to which the sentinels refer. Continue handling the control unit only after having read these instructions.
2. Safety Instructions

2.2. Intended Use

The ATEX CU ex ia control unit is only intended for use as described in chapter 3.1. Any use exceeding the margins and specifications set forth, is considered to be not intended and SPX FLOW shall not be liable for damage resulting therefrom. The operator is solely responsible for the risk. Prerequisites for proper and safe operation of the control unit are proper transport and storage as well as professional assembly. Intended use also means compliance with the operating, service and maintenance conditions.

2.3. General Regulations for Careful Handling

Please observe the information of this instruction manual as well as the operating conditions and permissible data specified in the datasheets of the control unit for process valves to ensure proper functioning and long service life of the unit.

- The operator is committed to operating the control unit in faultless condition, only.
- Observe the general technical rules while using and operating the unit!
- Observe the relevant accident prevention regulations, the national rules of the user country as well as your company-internal operating and safety regulations during operation and maintenance of the unit!
- Switch off the electrical power supply before carrying out any work on the system!
- Note that piping or valves that are under pressure must not be removed from a system!
- Take suitable measures to prevent unintentional operation or impermissible impairment
- Following an interruption of the electrical or pneumatic supply, ensure a defined and controlled re-start of the process!
- If these instructions are not observed, we will not accept any liability. Warranties on units, devices and accessories will expire!
2. Safety Instructions

2.4. Welding instructions

It is generally recommended to avoid welding work in process installation in which control units are installed and connected. If welding is nonetheless required, earthing of the electrical devices in the welding area is a necessity.

2.5. Persons

- Installation and maintenance work may only be carried out by qualified personnel and by means of appropriate tools.
- Qualified personnel must get a special training with regard to possible risks and must know and observe the safety instructions indicated in the instruction manual.
- Work at the electrical installation may only be carried out by personnel specialised in electrics!

2.6. Warranty

This document does not contain any warranty acceptance. We refer to our general terms of sale and delivery. Prerequisite for a guarantee is the correct use of the unit in compliance with the specified conditions of application.

Attention!

This warranty only applies to the Control Unit. No liability will be accepted for consequential damage of any kind that could arise from the failure or malfunction of the device.
2. Safety Instructions

2.7. References for Use in Explosive Atmospheres
In explosive atmospheres, the ATEX CU ex ia control unit must be operated with closed cover, only. Intervention with open cover must not be undertaken in humid or aggressive atmosphere. Take appropriate measures to prevent unintentional damage to boards, screw terminals as well as cable insulation and intrinsically safe components. Limit the opening period of the cover to an absolute minimum.

Take suitable measures to prevent electrostatic charge of plastic cover parts.

The connection of components the electrical data of which are outside the range of the ascertained intrinsically safe operation and outside the range of technical data, to the in- and outputs of the boards is prohibited.

Observe the respective national regulations, i.e. VDE 0165 in Germany, for the installation and operation in explosive atmospheres.

Observe the data of the respective declaration of conformity for the electric connection of intrinsically safe components.

It is essential to observe the data indicated in the respective ATEX approval.

2.8. Conformity:
The ATEX CU ex ia control unit complies with the EU Directives according to the EU Declaration of Conformity.

2.9. Standards:
Through the following standards, the conformity with the EU Directives is fulfilled:
DIN EN 60079-0
DIN EN 60079-11
3. General Terms

3.1. Purpose of use
The control unit ATEX CU ex ia is intended to control process valve in explosive atmospheres of the food and beverage industry, in chemical and pharmaceutical applications as well as in accompanying industrial fields.

The control unit serves as interface between process control and process valve and controls the electric and pneumatic signals. Intrinsically safe solenoid valves are connected to the PLC via isolation amplifiers, likewise signals from the intrinsically safe valve position indicators are transferred to the PLC via isolation amplifiers.

The pneumatic control of APV valves is carried out via the solenoid valves.
The control unit controls the valve position, *open* and *closed*, via integrated or external sensors.

The intrinsically safe ATEX CU ex ia control unit is certified according to the current ATEX Standard 2014/34/EU (94/9/EC) and, thus, admitted for use as Device of Category 2 (gas).
3. General Terms

3.2. Design of ATEX CU ex ia 1 S&T 12V control unit

The control unit consists of the following components:

**Pos. 1  Adapter (illustrated: CU4-S-ATEX adapter)**
Assembly of control unit on different valve types

**Pos. 2  Control unit base with integrated air channels as well as electric and pneumatic connections.**
Accommodation of solenoid valves with integrated pneumatic connecting channels. Provision of pneumatic and electric connections, accommodation of all other components.

**Pos. 3  Safety valve**
Protection against excess pressure within the control unit.

**Pos. 4  Solenoid valves**
(illustrated: version with 1 solenoid valve)
Compressed air supply for pneumatic valve actuators.

**Pos. 5  Assembly bracket**
Accommodation and adjustment of valve position indicator, fixing of CU cover by transparent central screw

**Pos. 6  Proximity switches**
(illustrated: internal proximity switches)
Recording of corresponding open and closed valve position
3. General Terms

**Pos. 7 Connection - board(s)**
Connection of solenoid valves and proximity switches to the intrinsically safe circuits.

**Pos. 8 Actuator screw**
Control of internal proximity switches

**Pos. 9 Signal rod**
Optical indication of valve position (colour selection: green and red)

**Pos. 10 Control unit cover**
Closure of control unit, IP protection IP65

**Pos. 11 Central union - sight glass**
Fixing of CU cover and indication of the position of the signal elements

**Pos. 12 Earthing screw**
Integration of control unit in local potential equalization

**Pos. 13 Air supply**

**Pos. 14 Pneumatic air to valve actuator**
Exit of solenoid valve 1

**Pos. 15 Cable union**
Connection of electric lines for the intrinsically safe circuits

**Pos. 16 Guide rod prolongation**
Connection of valve guide rod with the actuator screw and the signal rod
### 3. General Terms

#### 3.3. Control unit variants / Product key

<table>
<thead>
<tr>
<th>ATEX CU type</th>
<th>Solenoid valves</th>
<th>Proximity switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEX CU ex ia 1 S&amp;T 12V</td>
<td>1 P / S112.1421</td>
<td>Ni3-Q10S-Y1X 0,15m (2 internal sensors)</td>
</tr>
<tr>
<td></td>
<td>11-312E-06-HP H110005 12VDC 0,5W</td>
<td></td>
</tr>
<tr>
<td>ATEX CU ex ia 1N S&amp;T 12V</td>
<td>1 P + NOT / S112.1425</td>
<td>Ni3-Q10S-Y1X 0,15m (2 internal sensors)</td>
</tr>
<tr>
<td></td>
<td>11-312E-06-HP H110005 12VDC 0,5W</td>
<td></td>
</tr>
<tr>
<td>ATEX CU ex ia 1 M 12V</td>
<td>1 P / S112.1421</td>
<td>Ni5-K11-Y1X (2 external sensors)</td>
</tr>
<tr>
<td></td>
<td>11-312E-06-HP H110005 12VDC 0,5W</td>
<td></td>
</tr>
<tr>
<td>ATEX CU ex ia 3 M 12V</td>
<td>3 P / S112.1423</td>
<td>Ni5-K11-Y1X (2 external sensors)</td>
</tr>
<tr>
<td></td>
<td>11-312E-06-HP H110005 12VDC 0,5W</td>
<td></td>
</tr>
<tr>
<td>ATEX CU ex ia 1 S&amp;T 24V</td>
<td>1 P / S112.1422</td>
<td>Ni3-Q10S-Y1X 0,15m (2 internal sensors)</td>
</tr>
<tr>
<td></td>
<td>11-312E-06-HP H110006 24VDC 0,5W</td>
<td></td>
</tr>
<tr>
<td>ATEX CU ex ia 1N S&amp;T 24V</td>
<td>1 P + NOT / S112.1426</td>
<td>Ni3-Q10S-Y1X 0,15m (2 internal sensors)</td>
</tr>
<tr>
<td></td>
<td>11-312E-06-HP H110006 24VDC 0,5W</td>
<td></td>
</tr>
<tr>
<td>ATEX CU ex ia 1 M 24V</td>
<td>1 P / S112.1422</td>
<td>Ni5-K11-Y1X (2 external sensors)</td>
</tr>
<tr>
<td></td>
<td>11-312E-06-HP H110006 242VDC 0,5W</td>
<td></td>
</tr>
<tr>
<td>ATEX CU ex ia 3 M 24V</td>
<td>3 P / S112.1424</td>
<td>Ni5-K11-Y1X (2 external sensors)</td>
</tr>
<tr>
<td></td>
<td>11-312E-06-HP H110006 24VDC 0,5W</td>
<td></td>
</tr>
</tbody>
</table>

**ATEX CU ex ia / Product key**

- **ATEX CU**
  - **ex ia**
  - **1**
  - **S&T**
  - **12V**

**Nominal voltage**
- 12V
- 24V

**Valve type / Actuator**
- S&T
- M

**Internal proximity switches**
- Internal prox. switches
- External prox. switches

**Solenoid valves**
- 1
- 1N
- 3

**Ignition protection type**
- ex ia
- Intrinsically safe
3. General Terms

3.4. Control unit adapter, incl. actuating and signal element

<table>
<thead>
<tr>
<th>single seat valves</th>
<th>butterfly valves</th>
<th>double seat valves</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="signal_rod.png" alt="Signal rod" /></td>
<td><img src="signal_rod.png" alt="Signal rod" /></td>
<td><img src="signal_rod.png" alt="Signal rod" /></td>
</tr>
</tbody>
</table>

**Signal rod**

The optical position indication at the valve is realized via the signal rod which indicates the valve position through the sight glass. For different valve types, normally closed and normally open, respectively one red and one green signal rod form part of the scope of supply.

The valve position of double seat valves is indicated via the LED at the proximity switches installed in the actuator.

3.5. Fitting position

Vertical installation is the preferred fitting position, protective type IP 65 is reached. Please observe that for all other fitting positions the protective type IP 65 is not applicable.
4. Technical Data

4.1. General terms
   Ambient temperature: -10 to +55°C
   Air hos: 6mm / ¼” OD
   Pressure range: 6–8bar

4.2. Materials

<table>
<thead>
<tr>
<th>Designation</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4305 stainless steel / AISI 303</td>
<td>CU base</td>
</tr>
<tr>
<td>1.4301 stainless steel / AISI 304</td>
<td>CU adapter</td>
</tr>
<tr>
<td>1.4301 stainless steel / AISI 304</td>
<td>CU cover</td>
</tr>
<tr>
<td>1.4301 stainless steel / AISI 304</td>
<td>assembly bracket</td>
</tr>
<tr>
<td>PA-T</td>
<td>sight glass</td>
</tr>
<tr>
<td>PVC/PEHD</td>
<td>signal rod</td>
</tr>
<tr>
<td>PA6</td>
<td>guide rod prolongation</td>
</tr>
<tr>
<td>1.4523 stainless steel</td>
<td>actuator screw</td>
</tr>
</tbody>
</table>

4.3. Compressed air quality: quality class acc. to DIN ISO 8573-1

- content of solid particles: quality class 3,
  max. size of solid particles per m³
  10000 of 0,5μm < d ≤ 1,0μm
  500 of 1,0μm < d ≤ 5,0μm

- content of water: quality class 3,
  max. dew point temperature -20°C
  For installations at lower temperatures or at higher altitudes,
  additional measures must be considered to reduce the pressure
dew point accordingly.

- content of oil: quality class 1,
  max. 0,01mg/m³

The oil applied must be compatible with Polyurethane elastomer materials.
4. Technical Data

4.4. valve position indicator: Ni3-Q10S-Y1X 0,15M
(internal installation)
admission KEMA 02 ATEX 1090X
II 2G Ex ia IIC T6 Gb
Ui = 20V / li = 60mA / Pi = 200mW
Ci = 150nF; Li = 150µH

4.4.1. valve position indicator: Ni5-K11-Y1X
(external installation)
admission KEMA 02 ATEX 1090X
II 2G Ex ia IIC T6 Gb
Ui = 20V / li = 60mA / Pi = 200mW
Ci = 150nF; Li = 150µH

The operating conditions indicated in the Type Examination Certificate must be observed!

4.5. Solenoid valves: Picosol Type 11…H110...
Admission INERIS 04ATEX0101X

PICOSOL Type 11…H110… / coil 12V
11-312E-06-HP H110005 12VDC 0,5W
Admission INERIS 04ATEX0101X
S112.1421-S112.1423-S112.1425
II 1G Ex ia IIC T6 Ga
Ui = 16V / 100mA / 288OHM
Ci negligible, Li negligible

PICOSOL Type 11…H110… / coil 24V
11-312E-06-HP H110006 24VDC 0,5W
Admission INERIS 04ATEX0101X
S112.1422-S112.1424-S112.1426
II 1G Ex ia IIC T6 Ga
Ui = 30V / 50mA / 1152OHM
Ci negligible, Li negligible

The operating conditions indicated in the Type Examination Certificate must be observed!

5. CU Assembly and Start-up

- The adapter for the respective valve is mounted on the actuator by means of the supplied assembly screws.

- With S&T adapters, the next step is to assemble the actuator screw and the signal rod (green or red) on the guide rod prolongation. Recommended max. tightening torque of union is 2.1Nm (securing with Loctite semi-solid is recommended).

- The corresponding control unit is placed on the adapter and tightened with the inner hexagon screws.

- Air hosing

- Electric connection
5. CU Assembly and Start-up

5.1. Pneumatic air connection

Control unit with 1 solenoid valve

P air supply
Y 1 exit pneumatic air - solenoid valve 1
main actuator

Control unit with 1 solenoid valve and NOT-element

P air supply
Y 1 exit pneumatic air - solenoid valve 1
main actuator
Y 2 exit pneumatic air NOT-element
e.g. actuator spring side

Control unit with 3 solenoid valves

P air supply
Y 1 exit pneumatic air - solenoid valve 1
main actuatorDA3+
Y 2 exit pneumatic air - solenoid valve 2
seat lift cylinder - upper DA3+
Y 3 exit pneumatic air - solenoid valve 3
seat lift cylinder - lower DA3+

Caution! Shut off compressed air supply before connection of the air hose!

See to a careful cutting to length of the air hose and use a hose cutter.
5. CU Assembly and Start-Up

Pneumatic air to valve actuator:
Connection of pneumatic air connection Y1 with valve actuator. For double seat valves, the pneumatic air connections Y1, Y2, Y3 to the valve actuators must be connected.

With the ATEX CU ex ia 1N S&T 12V and with the ATEX CU ex ia 1N S&T 24V (with logic NOT element), the pneumatic air connection Y2 must be connected with the spring side of the actuator. Observe the assembly of the pressure reducing valve at the spring side of the actuator.

Exhaust air:
The standard exhaust air union is provided with a silencer. If required, the silencer can be removed and exhaust air can be hosed separately if, for example, it must be discharged to the outside.

5.2. Electrical connection

The intrinsically safe circuits for solenoid valves and valve position indicators (proximity switches) must be connected to the PLC only with appropriate isolation amplifiers.

Caution!
Electrical connections must only be carried out by qualified technical personal.

The selection of the corresponding connecting cable is undertaken on the basis of the control unit variant. The regulation for the installation of intrinsically safe circuits according to ATEX Directive 2014/34/EU (94/9/CE) must be observed.

The cable is guided through the cable union and connected according the wiring diagram.
Use of wire end ferrules is preferred!

Firmly tighten the cable union - by this means, only, the corresponding protective type can be provided.
5. CU Assembly and Start-Up

5.3. Wiring diagrams

ATEX CU ex ia 1 S&T 12V
ATEX CU ex ia 1 S&T 24V
1 solenoid valve 2 internal sensors
Y1 solenoid valve 1
S1 proximity switch
S2 proximity switch

ATEX CU ex ia 1N S&T 12V
ATEX CU ex ia 1N S&T 24V
1 solenoid valve + NOT element 2 internal sensors
Y1 solenoid valve 1
S1 proximity switch
S2 proximity switch
5. CU Assembly and Start-Up

ATEX CU ex ia 1M 12V
ATEX CU ex ia 1M 24V
1 solenoid valve 2 external sensors

Y1 solenoid valve 1
S1 proximity switch

ATEX CU ex ia 3M 12V
ATEX CU ex ia 3M 24V
3 solenoid valves 2 external sensors

Y1 solenoid valve 1
Y2 solenoid valve 1
Y2 solenoid valve 3
S1 proximity switch
S2 proximity switch
5. CU Assembly and Start-Up

5.4. Adjustment of valve position indicator

**Caution!** Media/liquids must not be in the valve during valve control and adjustment of the valve position indicator. Caution! Risk of injury through movable parts.

Butterfly valves / Single seat valves (internal position indicator)

Adjustment of the feedbacks for open and closed valve position must be carried out as described hereinafter.

In order to adjust the positions of the proximity switches, release the fastening screws to such a degree that the corresponding sensor in the bar of the mounting bracket can be moved. After adjustment and inspection, re-tighten the fastening screws.
5. CU Assembly and Start-Up

For normally closed (normally open) single seat valves or butterfly valves, the following allocation is applied:

Closed valve position   proximity switch 1
controlled

For the adjustment, slide proximity switch 1 with non-controlled (controlled) solenoid valve 1 into the required position by moving the guide bar. The LED at the proximity switch lights up.

Open valve position   proximity switch 2
controlled

To adjust proximity switch 2, control solenoid valve 1. This can be carried out either manually or electrically. The valve moves by one stroke and further into the corresponding final position.

The open valve position and the corresponding feedback can be adjusted. Move the sensor in the guide bar into the required position. The LED at the proximity switch lights up.

Observe the switching hysteresis of the proximity switches! Therefore, adjust the switch-point of the sensors with overlap in order to permit small variations and, thus, to prevent failures!

Double seat valves

The assembly of the proximity switches is carried out at the actuator of the corresponding double seat valve. Observe the instruction manual for double seat valves for this purpose!
5. **CU Assembly and Start-Up**

5.5. **Potential equalization**

During the assembly of the ATEX CU ex ia control unit on valves with stainless steel actuator, usually a potential equalization from the control unit via the adapter to the process valve is made and, thus, to the earthed piping system as all components mentioned are made of conductive material (stainless steel).

ATEX CU ex ia control units on double seat valves must be integrated separately into the potential equalization as these valves are equipped with non-conductive plastic actuators on which the control unit is installed. For this purpose, the base of the control unit is provided with a M5 earthing screw by means of which the control unit must be integrated into the potential equalization.
6. Accessories and Tools / Tightening torques

Assembly/disassembly adapter on valve actuator:
• S-adapter / ring spanner 13mm
• T and M adapter / 
  hexagon socket wrench 4mm
  ring spanner 13mm

Assembly/disassembly CU on adapter:
• hexagon socket wrench 4mm

Assembly/disassembly feedback unit:
• hexagon socket wrench 4mm

Assembly/disassembly proximity switches:
• hexagon socket wrench 2.5mm
• hexagon socket wrench 3mm

Assembly/disassembly solenoid valves:
• hexagon socket wrench 4mm

Assembly/disassembly air connections:
• ring spanner 13mm
• hexagon socket wrench 4mm

Assembly/disassembly safety valve:
• hexagon socket wrench 2.5mm

Assembly/disassembly control unit cover
by screw plug
• ring spanner 42mm
  recommended torque in Nm12-15

Loctite semi-solid
7. Disassembly

7.1 General terms

Ensure the following matters before dismantling process:
- Valve must be in the safety position and must not be controlled!
- Shut off supply air!
- Switch off current at the control unit, i.e. interrupt supply voltage!

7.2 Dismantling of solenoid valve

- Open the control unit cover by turning the sight glass and lift off the cover.
- Release the screw connection of the corresponding connecting cable at the connection board.
- Release and remove the 2 screws.
- Replace the solenoid valve.
- Assembly in reverse order. See to an even fit of the flat seal!
7. Disassembly

7.3 Dismantling of proximity switches

+ Release the screw connection of the corresponding connecting cable at the connection board.
+ Remove the 2 fastening screws.
+ Replace the proximity switch.
+ Assembly in reverse order.
+ Check the right position of the proximity switches and their functionality as described in chapter 5.4 Adjustment of the valve position indicators.
8. Type Examination Certificate

see Annex

9. Spare Parts Lists

The reference numbers of the spare parts for the different valve designs and sizes are included in the attached spare parts drawings with corresponding lists.

Please indicate the following data to place an order for spare parts:

- number of required parts
- reference number
- designation

Data are subject to change.
Translation

Type Examination Certificate

Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC

No. of EC-Type Examination Certificate: BVS 14 ATEX E 170

Equipment: Control unit type
ATEX CU ex ia 3 M 12V, ATEX CU ex ia 3 M 24V,
ATEX CU ex ia 1 S&T 12V, ATEX CU ex ia 1 S&T 24V,
ATEX CU ex ia 1N S&T 12V, ATEX CU ex ia 1N S&T 24V,
ATEX CU ex ia 1 M 12V and ATEX CU ex ia 1 M 24V

Manufacturer: SPX Flow Technology Rosista GmbH
Address: Zechenstraße 49, 59425 Unna, Germany

The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.

The certification body of DEKRA EXAM GmbH certifies that this equipment 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 the Test and Assessment Report BVS PP 14.2236 EQ.

The Essential Health and Safety Requirements are assured by compliance with:

EN 60079-0:2012 General requirements
EN 60079-11:2012 Intrinsic Safety "i"

If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

This Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

The marking of the equipment shall include the following:

II 2G Ex ia IIC T4 Gb

DEKRA EXAM GmbH
Bochum, dated 2014-11-19

Signed: Simanski
Certification body

Signed: Dr. Eickhoff
Special services unit
15.1 Subject and type

Control unit type: ATEX CU ex ia 3 M 12V, ATEX CU ex ia 3 M 24V
ATEX CU ex ia 1 S&T 12V, ATEX CU ex ia 1 S&T 24V
ATEX CU ex ia 1N S&T 12V, ATEX CU ex ia 1N S&T 24V
ATEX CU ex ia 1 M 12V and ATEX CU ex ia 1 M 24V

15.2 Description

The control unit is provided for controlling process valves in hazardous areas, it is used as an interface between the process control and the process valve and operates the electrical and pneumatic signals.

The control unit monitors the valve positions, opened and closed by means of built-in or external sensors.

The two used internal wire proximity sensors are TURCK NI3-Q10S-Y1X (KEMA 02 ATEX 1090X) and the two used external wire proximity sensors are TURCK NI3-K11-Y1X (KEMA 02 ATEX 1090X).

The following electrovalves are installed:
PICOSOL type 11-312E-08-HP H110006 12VDC 0.5W (INERIS 04 ATEX 0101 X)
PICOSOL type 11-312E-08-HP H110006 24VDC 0.5W (INERIS 04 ATEX 0101 X)

15.3 Parameters

15.3.1 Control unit type ATEX CU ex ia 3 M 12V

15.3.1.1 Circuits of valve:

Current circuit 1 via terminals Y1,
Current circuit 2 via terminals Y2,
Current circuit 3 via terminals Y3.

Connection values per current circuit:

Maximum input voltage: $U_i$ 16 V

Maximum input current: $I_i$ 100 mA

Maximum internal capacitance: $C_i$ negligible

Maximum internal inductance: $L_i$ negligible

15.3.1.2 External current circuits of the wire proximity sensors:

Current circuit 1 via terminals S1,
Current circuit 2 via terminals S2.

Connection values per current circuit:

Maximum input voltage: $U_i$ 20 V

Maximum input current: $I_i$ 60 mA

Maximum input power: $P_i$ 200 mW

Maximum internal capacitance: $C_i$ 150 nF

Maximum internal inductance: $L_i$ 150 µH
15.3.2 Control unit type ATEX CU ex ia 3 M 24V

15.3.2.1 Circuits of valve:
Current circuit 1 via terminals Y1.
Current circuit 1 via terminals Y2.
Current circuit 1 via terminals Y3.

Connection values per current circuit:

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<tr>
<th>Parameter</th>
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15.3.2.2 External current circuits of the wire proximity sensors:
Current circuit 1 via terminals S1.
Current circuit 2 via terminals S2.

Connection values per current circuit:

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<tr>
<td>Maximum input current</td>
<td>$I_i$</td>
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15.3.3 Control unit type ATEX CU ex ia 1 S&T 12V

15.3.3.1 Circuit of valve:
Current circuit via terminal Y1.

Connection value:

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15.3.3.2 Internal current circuits of the wire proximity sensors:
Current circuit 1 via terminals S1.
Current circuit 2 via terminals S2.

Connection values per current circuit:

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<th>Parameter</th>
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15.3.4 Control unit type ATEX CU ex ia 1 S&T 24V

15.3.4.1 Circuit of valve:
Current circuit via terminals Y1.

Connection value:

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<th>Value</th>
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15.3.4.2 Internal current circuits of the wire proximity sensors:

Current circuit 1 via terminals S1.
Current circuit 2 via terminals S2.

Connection values per current circuit:

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<tr>
<td>Maximum input current</td>
<td>$I_i$</td>
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<tr>
<td>Maximum input power</td>
<td>$P_i$</td>
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<tr>
<td>Maximum internal capacitance</td>
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15.3.5 Control unit type ATEX CU ex ia 1N S&T 12V

15.3.5.1 Circuit of valve:

Current circuit via terminals Y1.

Connection value:

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<tr>
<td>Maximum input current</td>
<td>$I_i$</td>
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<tr>
<td>Maximum internal capacitance</td>
<td>$C_i$</td>
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15.3.6 Control unit type ATEX CU ex ia 1N S&T 24V

15.3.6.1 Circuit of valve:

Current circuit via terminals Y1.

Connection value:

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<tr>
<td>Maximum input current</td>
<td>$I_i$</td>
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<tr>
<td>Maximum internal capacitance</td>
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15.3.6.2 Internal current circuits of the wire proximity sensors:

Current circuit 1 via terminals S1
Current circuit 2 via terminals S2.

Connection values per current circuit:

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15.3.7 Control unit type ATEX CU ex ia 1 M 12V

15.3.7.1 Circuit of valve:
Current circuit via terminals Y1.

Connection value:
- Maximum input voltage $U_i$ 16 V
- Maximum input current $I_i$ 100 mA
- Maximum internal capacitance $C_i$ negligible
- Maximum internal inductance $L_i$ negligible

15.3.7.2 External current circuits of the wire proximity sensors:
Current circuit 1 via terminals S1
Current circuit 2 via terminals S2

Connection values per current circuit:
- Maximum input voltage $U_i$ 20 V
- Maximum input current $I_i$ 60 mA
- Maximum input power $P_i$ 200 mW
- Maximum internal capacitance $C_i$ 150 nF
- Maximum internal inductance $L_i$ 150 µH

15.3.8 Control unit type ATEX CU ex ia 1 M 24V

15.3.8.1 Circuit of valve:
Current circuit via terminals Y1.

Connection value:
- Maximum input voltage $U_i$ 30 V
- Maximum input current $I_i$ 50 mA
- Maximum internal capacitance $C_i$ negligible
- Maximum internal inductance $L_i$ negligible

15.3.8.2 External Initiatorensensorenstromkreise:
Current circuit 1 via terminals S1
Current circuit 2 via terminals S2

Connection values per current circuit:
- Maximum input voltage $U_i$ 20 V
- Maximum input current $I_i$ 60 mA
- Maximum input power $P_i$ 200 mW
- Maximum internal capacitance $C_i$ 150 nF
- Maximum internal inductance $L_i$ 150 µH
- Ambient temperature range $-10 \degree C \leq T_v \leq +55 \degree C$

(16) Test and Assessment Report
BVS PP 14.2236 EG as of 2014-11-19

(17) Special conditions for safe use
None
We confirm the correctness of the translation from the German original. In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
44809 Bochum, 2014-11-19
BVS-Bou/Rip/Ma A20140436

[Signatures]
Certification body

[Signatures]
Special services unit
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<th>ATEX CU ex ia 1N S&amp;T 12V / 24V</th>
<th>ATEX CU ex ia 1 M 12V / 24V</th>
<th>ATEX CU ex ia 3 M 12V / 24V</th>
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### Ersatzteilliste: spare parts list

**ATEX CU ex ia**

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<th>Beschreibung</th>
<th>Material</th>
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<th>ATEX CU ex ia 3 M 12V / 24V</th>
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# Ersatzteilliste: spare parts list

**ATEX CU ex ia**

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1. **Schalldämpfer**
   - *Menge*: 1-2
   - *Beschreibung*: sound reducer
   - *Material*: Ms / vem.
   - *WS-Nr.*: 08-60-751/93
   - *H208826*

2. **W-Verschraubung G1/8" 6x1**
   - *Menge*: 2-4
   - *Beschreibung*: Elbow connector G1/8" 6x1
   - *Material*: Ms / vem.
   - *WS-Nr.*: 08-60-750/93
   - *H208825*

3. **CU4 Luftfilter**
   - *Menge*: 1
   - *Beschreibung*: CU4 air filter
   - *Material*: PE-porös
   - *WS-Nr.*: 08-10-005/93
   - *H320522*

4. **Gewindestift M5x6 ISO4027**
   - *Menge*: 2
   - *Beschreibung*: hexagon socket set screws M5x6 ISO4027
   - *Material*: A2-50
   - *WS-Nr.*: 65-15-052/13
   - *H332436*

5. **Blindstopfen G1/8" plug G1/8"**
   - *Menge*: 1
   - *Beschreibung*: blind stop G1/8"
   - *Material*: Ms / vem.
   - *WS-Nr.*: 08-60-051/99
   - *H320482
   - *WS-Nr.*: 08-60-051/99
   - *H320482*

6. **Verschraubung selbstabsperrend connector self locked**
   - *Menge*: 1
   - *Beschreibung*: ATEX Kabelverschr. M20x1,5 Kabel ø6-12mm
   - *Material*: Ms / vem.
   - *WS-Nr.*: 08-63-241/99
   - *H320551*

7. **ATEX Kabelverschr. M20x1,5 Kabel ø6-12mm**
   - *Menge*: 1
   - *Beschreibung*: ATEX cable union M20x1,5 cable ø6-12mm
   - *Material*: PA
   - *WS-Nr.*: 08-46-655/93
   - *H332439*

8. **Druckreduzierventil pressure reduce valve**
   - *Menge*: 1
   - *Beschreibung*: pressure reduce valve
   - *Material*: Ms / vem.
   - *WS-Nr.*: 08-60-766/93
   - *H208841*

9. **Gummistülle rubber grommet**
   - *Menge*: 2
   - *Beschreibung*: rubber grommet
   - *Material*: Ms / vem.
   - *WS-Nr.*: 08-46-152/93
   - *H332952*

10. **Scheibe A 3,2 DIN9021**
    - *Menge*: 1
    - *Beschreibung*: A2
    - *Material*: DIN9021
    - *WS-Nr.*: 67-01-001/12
    - *H320404*

11. **CU4 Überströmventil**
    - *Menge*: 1
    - *Beschreibung*: CU4 pressure relief valve
    - *Material*: PPS
    - *WS-Nr.*: 08-46-037/93
    - *H320352*
## ATEX CU Adapter

### Parts List

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<td>W-Verschraubung G1/8&quot;/Ø6mm schwenkbar</td>
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### Notes

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# ATEX CU Adapter

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Material: NBR

SPX FLOW, Germany
APV Control Unit
ATEX CU ex ia
FOR SPECIFIC ATEX APPLICATIONS

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