**FEATURES**

- EC-Type Examination Certificate TÜV 17
- Usable up to SIL 2 acc. to IEC 61508
- Protection degree IP67
- LEDs for switching state of sensor and solenoid valve
- Valve LEDs disconnectable
- Two M20 x 1.5 system connections
- Large terminal space for ease of wiring
- Sensor electronics sealed from terminal compartment
- Screw terminals

**TECHNICAL DATA**

**General specifications**

- Switching function: 2 x normally closed (NC)
- Output type: NAMUR
- Rated operating distance: \( s_n \) 3 mm
- Installation: Flush mountable
- Assured operating distance: \( s_a \) 0 ... 2.4 mm
- Actual operating distance: \( s_r \) 2.7 ... 3.3 mm typ.
- Actuating element: 304 stainless steel

**Nominal ratings**

- Nominal voltage: \( U_0 \) 8 V
- Switching frequency: \( f \) 0 ... 3 kHz
- Hysteresis: \( H \) Typ. - 5 %
- Reverse polarity protection: Reverse polarity protected
- Short-circuit protection: Yes
- Suitable for 2:1 technology: Yes, reverse polarity protection diode not required
- Current consumption:
  - Measuring plate not detected: \( \geq 3 \) mA
  - Measuring plate detected: \( \leq 1 \) mA
- Time delay before availability: \( t_v \) \( \leq 1.1 \) ms
- Switching state indicator: LED, yellow
- Valve status indicator: LED, yellow

**Functional safety related parameters**

- MTTFd: 1470 a
- Mission Time: \( T_M \) 20 a
- Diagnostic Coverage: DC 0%

**Ambient conditions**

- Ambient temperature: \( T_A \) -25 ... 100°C (-13 ... 212°F)
- Storage temperature: \( -40 ... 100°C \) (-40 ... 212°F)

**Mechanical specifications**

- Connection (system & valve): Screw terminals, tightening torque min. 0.5 Nm
- Stripped length: 7 mm
- Core cross-section (system & valve):
  - Rigid: 0.14 ... 2.5 mm²
  - Flexible: 0.14 ... 1.5 mm²
  - Flexible with core-end sleeve: 0.25 ... 1.5 mm²
- Housing material: PBT
- Sensing face material: PBT
- Degree of protection: IP67
- Tightening torque, housing screws: 1 Nm
- Tightening torque, cable gland: M20 x 1.5 ; \( \leq 7 \) Nm
- Note: LED switch-off

**General information**

- Use in the hazardous area - ATEX: See instruction manuals for categories 1G & 2G
- Use in hazardous area - N.A.: See control drawing: WD-000455

**Compliance with standards and directives**

- Standard conformity:
  - EN 60947-5-6:2000
  - IEC 60947-5-6:1999
  - NE 21:2007
  - EN/IEC 60947-5-2:2007

**Approvals and certificates**

- UL approval: cULus Listed, General Purpose (E248934)
- FM approval: FM 18 US0014X
ACTIVATOR AND MOUNTING KITS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>54063A-14800536</td>
<td>Fits Bray S92/93 Sizes 63 to 128 - Imperial</td>
</tr>
<tr>
<td>54063A-14850536</td>
<td>Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric</td>
</tr>
<tr>
<td>54160A-14800536</td>
<td>Fits Bray S92/93 Sizes 160 to 210 - Imperial</td>
</tr>
<tr>
<td>54160A-14850536</td>
<td>Fits Bray S92/93 Sizes 160 to 255 - Metric</td>
</tr>
<tr>
<td>54063C-14800536</td>
<td>Fits Bray S92/93 Sizes 63 to 128 - Imperial</td>
</tr>
<tr>
<td>54063C-14850536</td>
<td>Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric</td>
</tr>
<tr>
<td>54160C-14800536</td>
<td>Fits Bray S92/93 Size 160 - Imperial</td>
</tr>
<tr>
<td>54160C-14850536</td>
<td>Fits Bray S92/93 Size 160 - Metric</td>
</tr>
<tr>
<td>54210C-14800536</td>
<td>Fits Bray S92/93 Size 210 - Imperial</td>
</tr>
<tr>
<td>54210C-14850536</td>
<td>Fits Bray S92/93 Sizes 210 to 255 - Metric</td>
</tr>
</tbody>
</table>

APPLICATION

Note: The connections to this sensor are sealed with stopping plugs to protect against dirt and moisture. If your application does not require the use of all connections, permanently seal stopping plugs onto unused connections or ensure that stopping plugs are secure and impermeable during initial installation and when performing regular maintenance work. If necessary, re-tighten the stopping plugs to a torque of 1 Nm.

ACCESSORIES

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>600250-21526536</td>
<td>Series 60 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form A connector (DIN 43560), Intrinsically safe</td>
</tr>
</tbody>
</table>
## INSTRUCTION MANUAL - ATEX (1G)

<table>
<thead>
<tr>
<th>Equipment protection level Ga (ia)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction</td>
</tr>
<tr>
<td>Device category</td>
</tr>
<tr>
<td>Protection concept</td>
</tr>
<tr>
<td>Standards</td>
</tr>
<tr>
<td>CE marking</td>
</tr>
<tr>
<td>ATEX marking</td>
</tr>
<tr>
<td>EU-Type Examination Certificate</td>
</tr>
</tbody>
</table>

| Effective internal capacitance | $C_i \leq 100 \text{ nF}$. A cable length of 10 m is considered. The value is applicable for one sensor circuit. |
| Effective internal inductance | $L_i \leq 100 \text{ μH}$. A cable length of 10 m is considered. The value is applicable for one sensor circuit. |

### General

- The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.
- The EU-type examination certificate has to be observed.
- The special conditions must be adhered to.
- The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions.
- The use in ambient temperatures of > 60°C was tested with regard to hot surfaces by the mentioned certification authority.
- If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.

### Ambient temperature

- The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate.
- **Note:** Use the temperature table for category 1.
- The 20% reduction in accordance with EN 1127-1:2007 has already been accounted for in the temperature table for category 1.

### Installation, commissioning

- Laws and/or regulations and standards governing the use or intended usage goal must be observed.
- The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety.
- The associated apparatus must satisfy the requirements of category ia.
- Due to the possible danger of ignition, which can arise due to faults and/or transient currents in the equipotential bonding system, galvanic isolation of the power supply and signal circuit is preferable.
- Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met.

### Maintenance

- No changes can be made to apparatus, which are operated in hazardous areas.
- Repairs to these apparatus are not possible.

### Special conditions

#### Protection from mechanical danger

- When used in the temperature range below -20°C the sensor should be protected from knocks by the provision of an additional housing.

#### Electrostatic charge

- Additional requirements for gas group IIB/IIC.
- Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device.
- Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1.

#### Lead insertion

- The connection cables should either be fixed when laid and mechanically protected or installed in such a way, that a force of 30 N applied in the direction of the cable inlet for one hour, does not lead to any visible displacement of the cable connections, even though the cable sheathing is displaced, see also IEC 60079-11.
- Depending on the type of installation, a suitable cable in accordance with Type A or B of IEC 60079-14, must be used.
<table>
<thead>
<tr>
<th><strong>INSTRUCTION MANUAL - ATEX (2G)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equipment protection level Gb (ia)</strong></td>
</tr>
<tr>
<td><strong>Instruction</strong></td>
</tr>
<tr>
<td><strong>Device category</strong></td>
</tr>
<tr>
<td><strong>Protection concept</strong></td>
</tr>
<tr>
<td><strong>Standards</strong></td>
</tr>
<tr>
<td><strong>CE marking</strong></td>
</tr>
<tr>
<td><strong>ATEX marking</strong></td>
</tr>
<tr>
<td><strong>EU-Type Examination Certificate</strong></td>
</tr>
<tr>
<td><strong>Effective internal capacitance</strong></td>
</tr>
<tr>
<td><strong>Effective internal inductance</strong></td>
</tr>
</tbody>
</table>

**General**
- The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EU-type examination certificate has to be observed.
- The special conditions must be adhered to.
- The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions.
- The use in ambient temperatures of > 60°C was tested with regard to hot surfaces by the mentioned certification authority. If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.

**Ambient temperature**
- $T_A$, The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate.

**Installation, commissioning**
- Laws and/or regulations and standards governing the use or intended usage goal must be observed.
- The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety.

**Maintenance**
- No changes can be made to apparatus, which are operated in hazardous areas.
- Repairs to these apparatus are not possible.

**Special conditions**

**Protection from mechanical danger**
- When used in the temperature range below -20°C the sensor should be protected from knocks by the provision of an additional housing.

**Electrostatic charge**
- Additional requirements for gas group IIC.
- Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device.
- Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1.

**Lead insertion**
- The connection cables should either be fixed when laid and mechanically protected or installed in such a way, that a force of 30 N applied in the direction of the cable inlet for one hour, does not lead to any visible displacement of the cable connections, even though the cable sheathing is displaced, see also IEC 60079-11. Depending on the type of installation, a suitable cable in accordance with Type A or B of IEC 60079-14, must be used.