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**SERIES 54**  
**PROXIMITY SENSORS**  
TECHNICAL SALES MANUAL



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**OVERVIEW**

The Series 54 inductive proximity sensor provides position indication for quarter turn valves. The superior design offers reliable and durable valve monitoring and control solutions for efficient plant operation.

The compact Series 54 directly mounts to VDI/VDE 3845 compliant actuators resulting in a smaller actuator profile while saving on cost.

Various electrical output options allow integration of the Series 54 into all standard process control environments.

**HIGHLIGHTS AT A GLANCE**

- > Two independent sensors for open and close valve position indication
- > Optimized for indoor and outdoor use
- > Rugged design resistant to shock, vibration, UV and corrosion
- > Maintenance free design
- > Hermetically sealed to protect against the ingress of liquids or solids
- > Non-contact sensor eliminates the effect of mechanical wear
- > Eliminates potential switch welding, arcing and sparking
- > Quick and easy installation



	General Service	Industrial Service	Hazardous Location	
<b>Design</b>	Extreme low profile	Compact	Intrinsically Safe	Non-Sparking
<b>Housing Material</b>	Thermoplastic PBT	Thermoplastic PBT	Thermoplastic PBT	Powder coated aluminum and polycarbonate (PC)
<b>Mounting</b>	30x80mm 30x130mm	30x80mm 30x130mm	30x80mm 30x130mm	30x80mm 30x130mm
<b>Connectivity</b>	Connector Cable gland	Connector Cable gland	Connector Cable gland	Cable gland
<b>Temperature Range</b>	-25 to 70°C -13 to 158°F	-25 to 70°C -13 to 158°F	-25 to 100°C -13 to 212°F	-40 to 75°C -40 to 167°F
<b>Ingress Protection</b>	IP66/67	IP66/67	IP66/67	IP66/67/69K
<b>Electrical Output</b>	2-wire DC 3-wire DC PNP	3-wire DC PNP 3-wire DC PNP with output AS-i with output AC/DC	NAMUR IS NAMUR IS with output	2-wire DC
<b>Solenoid Outputs</b>	None	One	One	One
<b>Activator</b>	Non adjustable	Standard adjustable High visibility adjustable	Standard adjustable High visibility adjustable	High visibility adjustable
<b>Certifications</b>				

## DESIGN FEATURES



- 1 Sensor:** Extremely low profile with direct mounting to VDI/VDE 3845 compatible actuators.
- 2 Sensing Face:** Compact concave design for protection of sensor targets.
- 3 Bright LED:** Indication to display sensor power and switch status.
- 4 Activator:** Low resistivity material prevents electrostatic discharge. Contains two stainless steel targets for CW or CCW operation.
- 5 Indicator:** Bright yellow for improved visibility of valve position.
- 6 Connection:** Sensor connectivity includes single pin connector or cable gland.
- 7 Y-Connector (optional):** Reduces site cable requirements while decreasing installation time for sensor and valve solenoid. Allows power and signal on a single cable for the sensor and solenoid.

## DESIGN FEATURES



- 1 Sensor:** Low profile sensor with direct mounting to VDI/VDE 3845 compatible actuators.
- 2 Sensing Face:** Small sensing face ensures no pinch point hazard between sensor and activator.
- 3 Sensor Targets:** Sensor switch targets easily located and identified on sensor face.
- 4 Bright LEDs:** indication to display sensor power and switch status.
- 5 Activator:** Low resistivity material prevents electrostatic discharge. Contains two stainless steel targets for CW or CCW operation. Independently adjustable bottom level, top level and indicator
- 6 Connection:** Sensor connectivity includes single pin connector, dual pin connector or cable glands.
- 7 Optional Connector:** S-connector (shown) or Y-Connector reduce field wiring and eliminates common cabling errors.
- 8 High Visibility Activator (optional):** Protective dome to prevent mechanical damage. Contains two stainless steel targets for CW or CCW operation. Fully independently adjustable, top level and indicator (5 degree increments). Bottom level adjustable in 90 degree increments.

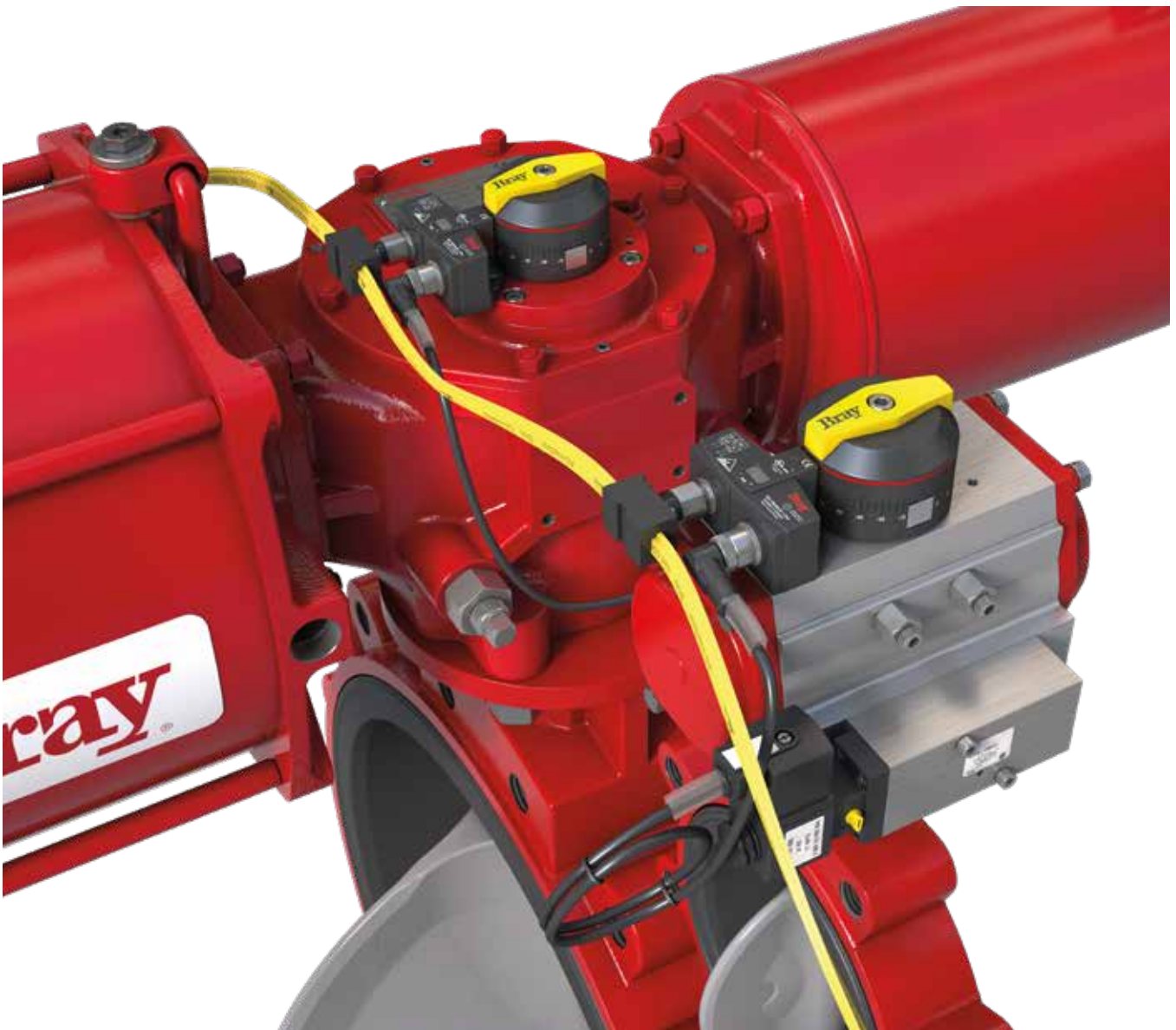
### AS-i BENEFITS INCLUDE

- > Digital network solution for valve actuator networks
- > Open standards based communication protocol with connectivity to higher level bus systems
- > Allows 62 devices on a single network which reduces site wiring, cabling and junction boxes
- > AS-i unique device addressing permits quick identification of fault conditions
- > Supports AS-i industry standard cabling topologies
- > Two wires provide power and communication for sensor and low power solenoids
- > Provides solenoid valve status for indication of solenoid coil health
- > Sensor connectivity choices include dual pin connector or cable glands



AS-i sensor with cable gland

With the increasing use of computer technology in plant operations, AS-i networks provide a cost effective solution to simplify wiring complexity for optimal use of available plant floor space.



## DESIGN FEATURES

Harsh environments require rugged equipment. Bray's Series 54 hazardous location sensor design is optimized to provide unparalleled reliability and safe operation in these environments. This sensor is used in a broad range of applications, from high to low temperatures, water deluge, corrosive environments, and hazardous non-sparking locations. The Series 54 hazardous location proximity sensor thrives in applications where others fail.



Snow



Heat/UV



Washdown

- 1 Sensor:** Rugged housing resists high UV, temperature extremes, corrosion, shock and salt water exposure.
  - > Non-sparking.
  - > IP69K: suitable for high temperature and pressure washdown.
  - > Captive sensor cover bolts prevents lost hardware during installation.
- 2 Connection:** Two M20 x 1.5 cable gland entries for system and solenoid connectivity.
- 3 Terminal Compartment:** Large terminal compartment for cable terminations.

- 4 Terminal Block:** Removable terminal block permits ergonomic and quick wire termination.
- 5 High Visibility Activator (standard):** Protective dome to ensure reliable operation. Contains two stainless steel targets for CW or CCW operation. Fully independently adjustable, top level and indicator (5 degree increments). Bottom level adjustable in 90 degree increments.
- 6 Protective Shield:** Stainless steel shield resists high mechanical impact.
- 7 Electrical output:** 2-wire DC configuration.

**GENERAL SERVICE**

S54 Sensor	Electrical output	Operating Voltage	Electrical Connection	Activator Type
540021-71104533	DC 3-wire PNP	10 ... 30 V DC	M12 x 1 connector, 4 pin	Non-adjustable
540022-71104533	DC 2-wire	5 ... 30 V DC	M12 x 1 connector, 4 pin	
540032-71104533	DC 2-wire	5 ... 30 V DC	M20 x 1.5 cable gland	

**INDUSTRIAL SERVICE**

S54 Sensor	Electrical Output	Operating Voltage	Electrical Connection	Activator Type
540001-71104533	DC 3-wire PNP	10 ... 30 V DC	M12 x 1 connector, 4 pin	Adjustable or Adjustable High Visibility
540041-71104533	DC 3-wire PNP + Out	10 ... 30 V DC	Rd24 x 1/8, 6-pin+PE M12 x 1, 4-pin socket	
540004-71104533	AC/DC	20 ... 253 V AC	7/8" - 16 UN 2A connector	
540005-71104533	AS-i Interface + Out	26.5 - 31.9 V	M12 x 1 connector, 4 pin M12 x 1 socket, 4-pin	
540015-71104533	AS-i Interface + Out	26.5 - 31.9 V	M20 x 1.5, qty 2 cable gland M12 x 1.5 cable gland	

**HAZARDOUS LOCATION**

S54 Sensor	Electrical Output	Operating Voltage	Electrical Connection	Activator Type
540003-71104533	NAMUR IS	8 V	M12 x 1 connector, 4 pin	Adjustable or Adjustable High Visibility
540013-71104533	NAMUR IS + Out	8 V	M20 x 1.5, qty 2 cable gland	
540102-126XX536	DC 2-wire Non-sparking + Out	6 ... 30 V DC	M20 x 1.5, qty 2 cable gland	Adjustable High Visibility

**ACTIVATOR AND MOUNTING KITS**

Kit Part Number	Bray Actuator	Activator Type
54063B-14800536	S92/93 Sizes 63-93, Imperial	Non-adjustable
54063B-14850536	S92/93 Sizes 63-93, S98 all sizes, Metric	Non-adjustable
54063A-14800536	S92/93 Sizes 63-128, Imperial	Adjustable
54063A-14850536	S92/93 Sizes 63-128, S98 all sizes, Metric	Adjustable
54063C-14800536	S92/93 Sizes 63-128, Imperial	High Visibility Adjustable
54063C-14850536	S92/93 Sizes 63-128, S98 all sizes, Metric	High Visibility Adjustable
54119B-14800536	S92/93 Sizes 119-210, Imperial	Non-adjustable
54119B-14850536	S92/93 Sizes 119-255, Metric	Non-adjustable
54160A-14800536	S92/93 Sizes 160-210, Imperial	Adjustable
54160A-14850536	S92/93 Sizes 160-255, Metric	Adjustable
54160C-14800536	S92/93 Sizes 160-210, Imperial	High Visibility Adjustable
54160C-14850536	S92/93 Sizes 160-255, Metric	High Visibility Adjustable

Note: Metric activator kits compatible with VDI/VDE 3845

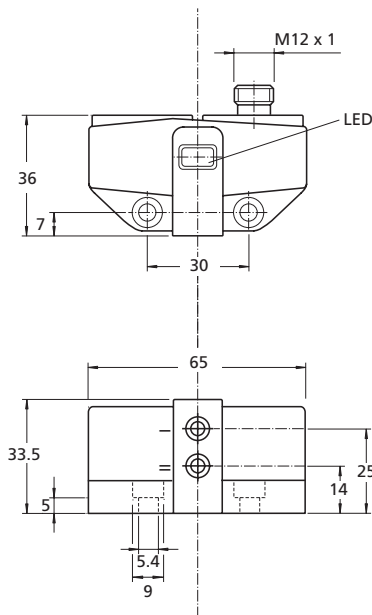


**ACCESSORIES**

Part Number	Type	Description
090005-76145882	Sensor cordset	4 pin female M12 to flying leads, Zn
090004-76145534	Sensor cordset	4 pin female M12 to flying leads, SS
090004-76144534	Sensor cordset	5 pin female 7/8" to flying leads, SS
090700-71155517	Rd24 x 1/8	6 pin + PE female field connector
66A000-14205533	As-i M12 to flat cable	Flat female field connector
090402-711555ZT	As-i M12 connector	4 pin M12 female field connector
600250-23663536	DC 3 wire PNP Y-connector	4 pin M12 to 24VDC S62/63 DIN Type I
600250-23666536	DC 3 wire PNP Y-connector	4 pin M12 to 24VDC S60 DIN Type A
090001-76159882	DC 3 wire PNP S-connector	4 pin M12 to 24VDC S62/63 DIN Type I
090001-76160882	DC 3 wire PNP S-connector	4 pin M12 to 24VDC S60 DIN Type A
090005-76148533	DC 3 wire PNP S-connector	Flying leads to 24VDC S60 DIN Type A



## DIMENSIONS



## FEATURES

- > DC 3-wire PNP sensor
- > IP 67 rugged plastic housing
- > Hermetically sealed
- > Vibration, shock and corrosion resistant
- > Compact design
- > High visibility LED for power and switch status

## TECHNICAL DATA

### General specifications

Switching function		2 x normally open (NO)
Output type		PNP, 3-wire
Rated operating distance	$s_n$	3 mm
Installation		Flush mountable
Output polarity		DC
Assured operating distance	$s_a$	0 ... 2.43 mm
Actual operating distance	$s_r$	2.7 ... 3.3 mm typ.

### Nominal ratings

Operating voltage	$U_B$	10 ... 30 V DC
Switching frequency	$f$	0 ... 500 Hz
Hysteresis	$H$	Typ 5 %
Reverse polarity protection		All connections
Short-circuit protection		Pulsing
Voltage drop	$U_d$	$\leq 3$ V
Operating current	$I_L$	0 ... 100 mA
Off-state current	$I_r$	0 ... 0.5 mA typ. 0.1 $\mu$ A at 25 °C
No-load supply current	$I_O$	$\leq 25$ mA
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow

### Functional safety related parameters

MTTF <sub>d</sub>		780 a
Mission Time (TM)		20 a
Diagnostic Coverage (DC)		0%

### Ambient conditions

Ambient temperature	$T_A$	-25 ... 70 °C (-13 ... 158 °F)
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### Mechanical specifications

Connection (system side)		4-pin, M12 x 1 connector
Housing material		PBT
Sensing face material		PBT
Degree of protection		IP67

### Standard conformity

Standards	EN 60947-5-2:2007	IEC 60947-5-2:2007
	EN 60947-5-2/A1:2012	IEC 60947-5-2 AMD 1:2012

### Approvals and certificates

UL approval		cULus listed, general purpose
CCC approval		Approval and marking not required for products rated $\leq 36$ V

## ACTIVATORS



Activators sold separately

## ACTIVATOR AND MOUNTING KITS

### 30 x 80 mm NAMUR Mounting, adjustable

54063A-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063A-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, adjustable

54160A-14800536	Fits Bray S92/93 Sizes 160 to 210 - Imperial
54160A-14850536	Fits Bray S92/93 Sizes 160 to 255 - Metric

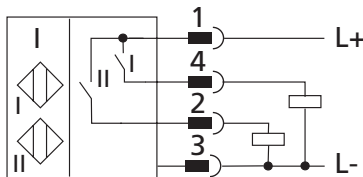
### 30 x 80 mm NAMUR Mounting, adjustable, High Visibility

54063C-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063C-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, adjustable, High Visibility

54160C-14800536	Fits Bray S92/93 Size 160 - Imperial
54160C-14850536	Fits Bray S92/93 Size 160 - Metric
54210C-14800536	Fits Bray S92/93 Size 210 - Imperial
54210C-14850536	Fits Bray S92/93 Sizes 210 to 255 - Metric

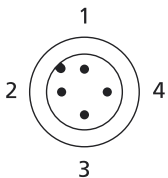
## WIRING DIAGRAM



## ACCESSORIES

090005-76145882	Sensor Cordset - M12 female straight connector (4-pin) to flying leads, 5 meters, zinc
090004-76145534	Sensor Cordset - M12 female straight connector (4-pin) to flying leads, 5 meters, stainless steel
600250-23663536	Y-Connector Cordset (S62, S63) - M12 female straight connector (4-pin sensor side) to M12 male straight connector (5-pin system side) AND Form B Type I solenoid connector (DIN 43650)
600250-23666536	Y-Connector Cordset (S60) - M12 female straight connector (4-pin sensor side) to M12 male straight connector (5-pin system side) AND Form A solenoid connector (DIN 43650)
630250-21524536	Series 63 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 24vdc coil
621250-21524536	Series 62 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 24vdc coil

## CONNECTOR PINOUT



Wire colors in accordance with EN 60947-5-2

1	BN	Brown
2	WH	White
3	BU	Blue
4	BK	Black



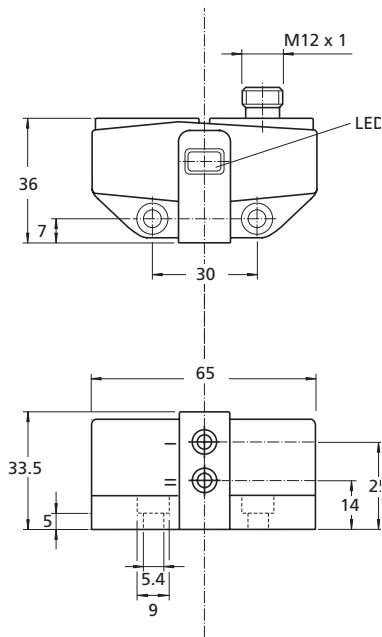
## FEATURES

- > ATEX and IECEx certified
- > Usable up to SIL 2 acc. to IEC 61508
- > IP 67 rugged plastic housing
- > Hermetically sealed
- > Vibration, shock and corrosion resistant
- > Compact design
- > High visibility LED for power and switch status

## 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	$U_o$ 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
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 side)	4-pin, M12 x 1 connector
Housing material	PBT
Sensing face	PBT
Degree of protection	IP67
General information	
Use in hazardous area - ATEX/IECEx	See instruction manuals for categories 1G, 2G, and 1D
Use in hazardous area - N.A.	See control drawing: WD-000577

## DIMENSIONS

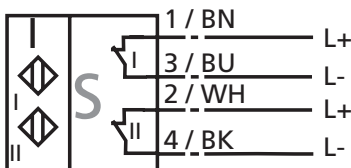


## ACTIVATORS

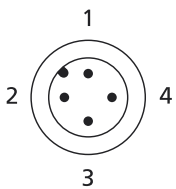


Activators sold separately

## WIRING DIAGRAM



## CONNECTOR PINOUT



Wire colors in accordance with  
EN 60947-5-2

1	BN	Brown
2	WH	White
3	BU	Blue
4	BK	Black

## TECHNICAL DATA

Compliance with standards and directives	
Standard conformity	EN IEC 60947-5-2:2020-03, EN 60947-5-6:2000-01
Approvals and certificates	
UL approval	cULus Listed, General Purpose (E248934)
FM approval	FM 18 US0014X
TÜV NORD ATEX approval	TÜV 17 ATEX 203727 X
TÜV NORD IECEx approval	IECEx TUN 17.0035X

## ACTIVATOR AND MOUNTING KITS

30 x 80 mm NAMUR Mounting, adjustable	
54063A-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063A-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric
30 x 130 mm NAMUR Mounting, adjustable	
54160A-14800536	Fits Bray S92/93 Sizes 160 to 210 - Imperial
54160A-14850536	Fits Bray S92/93 Sizes 160 to 255 - Metric
30 x 80 mm NAMUR Mounting, adjustable, High Visibility	
54063C-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063C-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric
30 x 130 mm NAMUR Mounting, adjustable, High Visibility	
54160C-14800536	Fits Bray S92/93 Size 160 - Imperial
54160C-14850536	Fits Bray S92/93 Size 160 - Metric
54210C-14800536	Fits Bray S92/93 Size 210 - Imperial
54210C-14850536	Fits Bray S92/93 Sizes 210 to 255 - Metric

## ACCESSORIES

090005-76158882	Sensor Cordset - M12 female straight connector (4-pin) to flying leads, 5 meters, zinc, intrinsically safe
600250-23662536	Y-Connector Cordset (S60) - M12 female straight connector (4-pin sensor side) to M12 male straight connector (6-pin system side) AND Form A solenoid connector (DIN 43650)
600250-21526536	Series 60 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form A connector (DIN 43560), intrinsically safe

## INSTRUCTION MANUAL - ATEX/IECEX (Ga)

Equipment protection level Ga (ia)	
Instruction	Manual electrical apparatus for hazardous areas - gas group IIC
Device category	1G, for use in hazardous areas with gas, vapour and mist
Protection concept	Intrinsic safety
Standards	EN IEC 60079-0:2018, EN 60079-11:2012
CE marking	CE 2813
ATEX marking	Ex II 1G Ex ia IIC T6..T1 Ga
EU-Type Examination Certificate	TÜV 17 ATEX 203727 X
IECEX marking	Ex ia IIC T6..T1 Ga
IECEX certificate	IECEX TUN 17.0035X
Effective internal capacitance	$C_i \leq 100$ nF. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
Effective internal inductance	$L_i \leq 100$ $\mu$ H. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
General	<p>The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.</p> <p>The EU-type examination certificate has to be observed.</p> <p>Special conditions must be adhered to.</p> <p>The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions.</p> <p>The use in ambient temperatures of <math>&gt; 60^\circ\text{C}</math> was tested with regard to hot surfaces by the mentioned certification authority.</p> <p>If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.</p>
Ambient temperature	<p><math>T_A</math></p> <p>The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate. The maximum permissible ambient temperature of the data sheet must be noted, in addition, the lower of the two values must be maintained..</p>
Installation, commissioning	<p>Laws and/or regulations and standards governing the use or intended usage goal must be observed.</p> <p>The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety.</p> <p>The associated apparatus must satisfy the requirements of category ia.</p> <p>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.</p> <p>Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met.</p> <p>Install the device in such a way that the resin surface is not exposed to mechanical hazards.</p>
Maintenance	<p>No changes can be made to apparatus, which are operated in hazardous areas.</p> <p>Repairs to these apparatus are not possible.</p>
Special conditions	
Protection from mechanical danger	When used in the temperature range below $-20^\circ\text{C}$ the sensor should be protected from knocks by the provision of an additional housing.
Electrostatic charge	<p>Electrostatic charges must be avoided on the mechanical housing components.</p> <p>Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.</p> <p>Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device.</p> <p>Additional requirements for gas group IIC.</p> <p>Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1</p>

## INSTRUCTION MANUAL - ATEX/IECEX (Gb)

Equipment protection level Gb (ia)	
Instruction	Manual electrical apparatus for hazardous areas - gas group IIC
Device category	2G, for use in hazardous areas with gas, vapour and mist
Protection concept	Intrinsic safety
Standards	EN IEC 60079-0:2018, EN 60079-11:2012
CE marking	CE 2813
ATEX marking	Ⓜ II 1G Ex ia IIC T6..T1 Ga
EU-Type Examination Certificate	TÜV 17 ATEX 203727 X
IECEX marking	Ex ia IIC T6..T1 Ga
IECEX certificate	IECEX TUN 17.0035X
Effective internal capacitance	$C_i \leq 100$ nF. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
Effective internal inductance	$L_i \leq 100$ $\mu$ H. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
General	<p>The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.</p> <p>The EU-type examination certificate has to be observed.</p> <p>Special conditions must be adhered to.</p> <p>The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions.</p> <p>The use in ambient temperatures of <math>&gt; 60^\circ\text{C}</math> was tested with regard to hot surfaces by the mentioned certification authority.</p> <p>If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.</p>
Ambient temperature	<p><math>T_A</math></p> <p>The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate.</p> <p>The maximum permissible ambient temperature of the data sheet must be noted, in addition, the lower of the two values must be maintained.</p>
Installation, commissioning	<p>Laws and/or regulations and standards governing the use or intended usage goal must be observed.</p> <p>The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety.</p> <p>Install the device in such a way that the resin surface is not exposed to mechanical hazards.</p>
Maintenance	<p>No changes can be made to apparatus, which are operated in hazardous areas.</p> <p>Repairs to these apparatus are not possible.</p>
Special conditions	
Protection from mechanical danger	<p>No changes can be made to apparatus, which are operated in hazardous areas.</p> <p>Repairs to these apparatus are not possible.</p> <p>When used in the temperature range below <math>-20^\circ\text{C}</math> the sensor should be protected from knocks by the provision of an additional housing.</p>
Electrostatic charge	<p>Electrostatic charges must be avoided on the mechanical housing components.</p> <p>Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.</p>

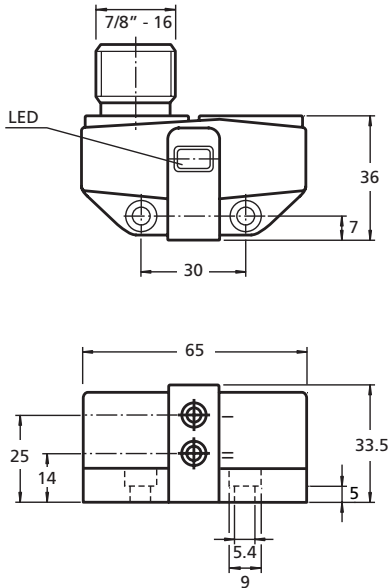
## INSTRUCTION MANUAL - ATEX/IECEX (Da)

Equipment protection level Da	
Instruction	Manual electric apparatus for hazardous areas – dust group IIIC
Device category	1D, for use in hazardous areas with dust
Protection concept	Intrinsic safety
ATEX Standards	EN IEC 60079-0:2018, EN 60079-11:2012
CE marking	CE 2813
ATEX marking	Ⓜ II 1D Ex ia IIIC T <sub>200</sub> 135°C Da
ATEX certificate	TÜV 17 ATEX 203727 X
IECEX Standards	IEC 60079-0:2017, IEC 60079-11:2011
IECEX marking	Ex ia IIIC T <sub>200</sub> 135°C Da
IECEX certificate	IECEX TUN 17.0035X
Effective internal capacitance	C <sub>i</sub> < 100 nF. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
Effective internal inductance	L <sub>i</sub> < 100 µH. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
General	<p>The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.</p> <p>The EU-type examination certificate has to be observed.</p> <p>Special conditions must be adhered to.</p> <p>The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions.</p> <p>The use in ambient temperatures of &gt; 60 °C was tested with regard to hot surfaces by the mentioned certification authority.</p> <p>If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.</p>
Ambient temperature	<p>The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate. The maximum permissible ambient temperature of the data sheet must be noted, in addition, the lower of the two values must be maintained.</p> <p>Note: Use the temperature table for category 1.</p>
Installation, commissioning	<p>Laws and/or regulations and standards governing the use or intended usage goal must be observed.</p> <p>The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety.</p> <p>The associated apparatus must satisfy the requirements of category ia.</p> <p>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.</p> <p>Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met.</p> <p>Install the device in such a way that the resin surface is not exposed to mechanical hazards.</p>
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 below 20°C the sensor should be protected from knocks by the provision of an additional housing.
Electrostatic charge	<p>Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.</p> <p>Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device.</p> <p>Additional requirements for dust group IIIC.</p> <p>Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1</p>





## DIMENSIONS



## FEATURES

- > AC/DC sensor
- > IP67 rugged plastic housing
- > Hermetically sealed
- > Vibration, shock and corrosion resistant
- > Compact design
- > High visibility LED for power and switch status
- > Quick installation

## TECHNICAL DATA

### General specifications

Switching function		2 x normally open (NO)
Output type		Two-wire
Rated operating distance	$s_n$	3 mm
Installation		Flush mountable
Output polarity		AC/DC
Assured operating distance	$s_a$	0 ... 2.43 mm
Output type		4-wire

### Nominal ratings

Operating voltage	$U_B$	20 ... 250 V AC/DC
Switching frequency	$f$	25 Hz
Hysteresis	$H$	Typ. 3 %
Reverse polarity protection		Yes
Short-circuit protection		Yes
Voltage drop	$U_d$	$\leq 8$ V
Operating current	$I_L$	4 ... 400 mA
Off-state current	$I_r$	$\leq 1.7$ mA
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow

### Ambient conditions

<b>Ambient temperature</b>	$T_A$	-25 ... 70°C (-13 ... 158°F)
<b>Storage temperature</b>		-40 ... 100°C (-40 ... 212°F)

### Mechanical specifications

Connection (system side)		V95 connector (7/8"-16 UN 2A), 5-pin
Housing material		PBT
Sensing face material		PBT
Degree of protection		IP67
Housing		PBT
Mass		90 g

### Standard conformity

Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012	IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012
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### Approvals and certificates

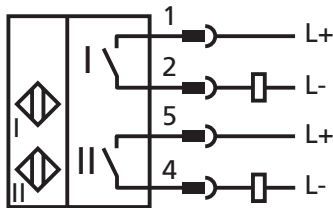
Protection class		II
Rated insulation voltage	$U_i$	253 V
Rated impulse withstand voltage	$U_{imp}$	4 kV
UL approval		cULus listed, general purpose

## ACTIVATORS

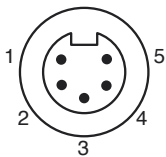


Activators sold separately

## WIRING DIAGRAM



## CONNECTOR PINOUT



## ACTIVATOR AND MOUNTING KITS

### 30 x 80 mm NAMUR Mounting, adjustable

54063A-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063A-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, adjustable

54160A-14800536	Fits Bray S92/93 Sizes 160 to 210 - Imperial
54160A-14850536	Fits Bray S92/93 Sizes 160 to 255 - Metric

### 30 x 80 mm NAMUR Mounting, adjustable, High Visibility

54063C-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063C-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, adjustable, High Visibility

54160C-14800536	Fits Bray S92/93 Size 160 - Imperial
54160C-14850536	Fits Bray S92/93 Size 160 - Metric
54210C-14800536	Fits Bray S92/93 Size 210 - Imperial
54210C-14850536	Fits Bray S92/93 Sizes 210 to 255 - Metric

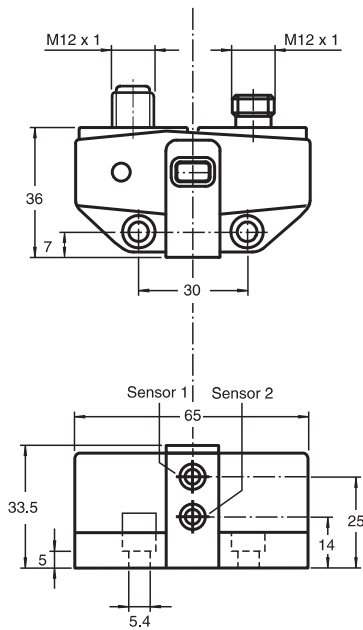
## ACCESSORIES

090004-76144534	Sensor Cordset - 7/8" female straight connector (5-pin) to flying leads, 4 meters
090004-76153534*	Sensor Cordset - 7/8" female straight connector (6-pin) to flying leads, 4 meters
630250-21520536	Series 63 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 120V 50/60 Hz coil
630250-21522536	Series 63 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 240V 50/60 Hz coil
621250-21520536	Series 62 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 120V 50/60 Hz coil
621250-21522536	Series 62 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 240V 50/60 Hz coil
600250-23667536*	Y-connector Cordset (S62/S63) - 7/8" female straight connector (5-pin sensor side) to 7/8" male straight connector (6-pin system side) and Form B Type I solenoid connector (DIN 43650)

\*Order 6-pin cordset in addition to Y-connector cordset



## DIMENSIONS



Drawing without actuator

## FEATURES

- > AS-i sensor
- > A/B slave with extended addressing possibility for up to 62 devices
- > Interoperable with higher-level BUS systems
- > Protection degree IP67
- > Communication monitoring, turn-off
- > Lead breakage and short-circuit monitoring of solenoid valve
- > System cable supports power and data
- > Two M12 connections

## TECHNICAL DATA

### General specifications

Switching element function		Programmable
Rated operating distance	$s_n$	3 mm
Installation		Flush mountable
Output polarity		AS-Interface
Assured operating distance	$s_a$	0 ... 2.43 mm
Slave type		A/B slave
AS-Interface specification		V3.0
Required master specification		$\geq$ V2.1

### Nominal ratings

Operating voltage	$U_B$	26.5 ... 31.9 V via AS-i bus system
Switching frequency	$f$	0 ... 100 Hz
No-load supply current	$I_0$	$\leq$ 35 mA

### Functional safety related parameters

MTTF <sub>d</sub>		842 a
Mission Time ( $T_M$ )		20 a
Diagnostic Coverage (DC)		0%

### Indicators/operating means

LED PWR		AS-Interface voltage; LED green
LED IN		Switching state (input); LED yellow
LED OUT		Binary LED yellow/red; yellow: switching state red: lead breakage/short-circuit

### Electrical specifications

Rated operational voltage	$U_e$	26.5 ... 31.6 V from AS-Interface
Rated operational current	$I_e$	100 mA

### Ambient conditions

Ambient temperature	$T_A$	-25 ... 70°C (-13 ... 158°F)
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### Mechanical specifications

Connection (system side)		Connector M12 x 1, 4-pin
Connection (valve side)		Socket connector, M12 x 1, 4-pin
Housing material		PBT
Sensing face material		PBT
Degree of protection		IP67

## ACTIVATORS

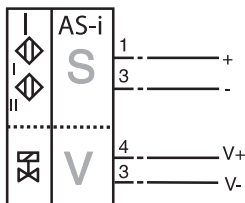


Activators sold separately

## TECHNICAL DATA

Note	Valve voltage limited to 26,4 V max.; valve power 2,5 W max.	
<b>Standard conformity</b>		
<b>Electromagnetic compatibility</b>	EN 50295:1999-10	
<b>Standards</b>	EN 60947-5-2:2007 EN 60947-5-2/A1:2012	IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012
<b>Approvals and certificates</b>		
UL approval	cULus listed, general purpose	
CCC approval	Approval and marking not required for products rated ≤ 36 V	

## WIRING DIAGRAM



## ACTIVATORS AND MOUNTING KITS

### 30 x 80 mm NAMUR Mounting, adjustable

54063A-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063A-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, adjustable

54160A-14800536	Fits Bray S92/93 Sizes 160 to 210 - Imperial
54160A-14850536	Fits Bray S92/93 Sizes 160 to 255 - Metric

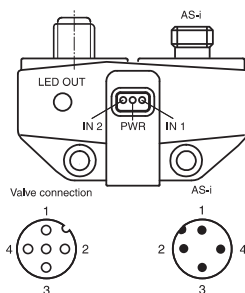
### 30 x 80 mm NAMUR Mounting, adjustable, High Visibility

54063C-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063C-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, adjustable, High Visibility

54160C-14800536	Fits Bray S92/93 Size 160 - Imperial
54160C-14850536	Fits Bray S92/93 Size 160 - Metric
54210C-14800536	Fits Bray S92/93 Size 210 - Imperial
54210C-14850536	Fits Bray S92/93 Sizes 210 to 255 - Metric

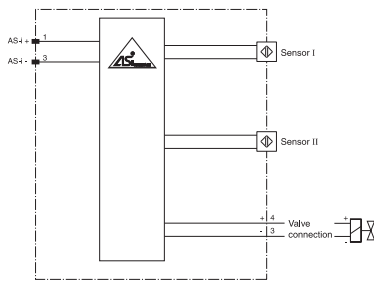
## CONNECTOR PINOUT



Compatible with  
4-pin connector

## ACCESSORIES

090005-76145882	Sensor Cordset - M12 female straight connector (4-pin) to flying leads, 5 meters, zinc
090004-76145534	Sensor Cordset - M12 female straight connector (4-pin) to flying leads, 5 meters, stainless steel
090402-711555ZT	Sensor Cordset - Single ended M12 female straight socket (4-pin) with screw terminal for field wiring. Field attachable.
66A000-14205533	Sensor Cordset - AS-i M12 female to flat cable piercing method
090001-76160882	S-Connector Cordset (S60) - M12 male right angle (2-pins+PE) to Form A solenoid connector (DIN 43650), 0.3 meters
600250-21540536	Series 60 -Solenoid Valve, Low Power (0.7W), NAMUR mount 5/2, Form A connector (DIN 43560), IP65, single 24vdc coil



## INSTALLATION

The Series 54 is an inductive dual sensor used to indicate the valve positioning of actuators. The dual sensor is mounted directly on the actuator using two screws. Additional adjustment is not necessary. A switch box M12 x 1 on the sensor is used directly for the valve controls. The Series 54 is connected via a M12x1 screw fixing to the bus line. This makes it possible to transmit both the switch signal for the valve and the messages of the sensors via AS-Interface. They are both powered directly through the bus cable. Moreover, the valve is monitored for lead breakage and short circuit. The D1 data bit monitors the fault signal. The sensors can be programmed as normally closed and normally open contacts (parameter bit P1 and P2). If there are no communications on the bus cable, the valve is automatically de-energised. This communication monitoring can be turned off via the parameter bit P0.

## SUPPLEMENTARY INFORMATION

### Programming Instructions

#### Address

00 preset, alterable via Busmaster or programming units

IO-code D

ID-code A

ID1-code 7

ID2-code E

#### Data bit

##### Bit Function

D0 valve status (0=valve OFF, 1=valve ON)

D1 valve fault<sup>1</sup> (0=lead breakage/short circuit; 1=no fault)

D2 switch output sensor 1<sup>2</sup> (0=damped; 1=undamped)

D3 switch output sensor 2<sup>2</sup> (0=damped; 1=undamped)

#### Parameter bit

##### Bit Function

P0 Watchdog (0=inactive; 1=active<sup>3</sup>)

P1 switching element function sensor II<sup>4</sup> (0=NO; 1= NC)

P2 switching element function sensor I<sup>4</sup> (0=NO; 1= NC)

P3 not used

1) Verification only with actuated valve (D0=1)

2) Applies to NC function (P2/P3=1; preset), with NO function (P2/P3=0) reversed characteristics

3) Watchdog active: valve voltage drops with the occurrence of an AS-I communication fault

4) Default setting: NC



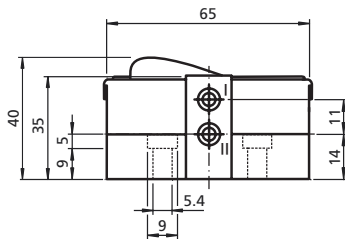
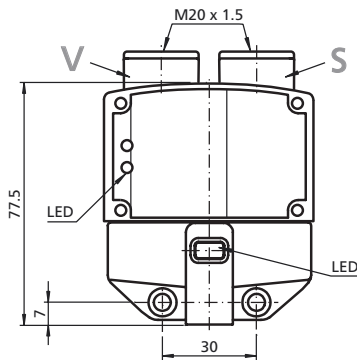
## FEATURES

- > Bullet point 1

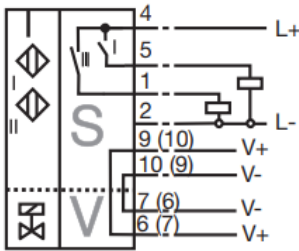
## TECHNICAL DATA

General specifications	
Switching function	2 x normally closed (NC)
Output type	PNP
Rated operating distance	$s_n$ 3 mm
Installation	Flush mountable
Output polarity	DC
Assured operating distance	$s_a$ 0 ... 2.43 mm
Actual operating distance	$s_r$ 2.7 ... 3.3 mm typ.
Nominal ratings	
Nominal voltage	$U_o$ 10 ... 30 VDC
Switching frequency	$f$ 0 ... 500 Hz
Hysteresis	$H$ Typ. - 5 %
Reverse polarity protection	All Connections
Short-circuit protection	Pulsing
Voltage drop	$U_d$ $\leq$ 3 V
Operating current	$I_L$ 0 ... 100 mA
Off-state current	$I_r$ 0 ... 0.5 mA typ. 0.1 $\mu$ A
No-load supply current	$I_o$ $\leq$ 25 mA
Operating voltage indicator	LED, green
Switching state indicator	LED, yellow
Functional safety related parameters	
MTTFd	780 a
Mission Time	$T_M$ 20 a
Diagnostic Coverage	DC 0%
Valve circuit	
Voltage	max. 32 V DC
Current	max. 240 mA
Short-circuit protection	no
Reverse polarity protection	yes, with reversed output LED is out of function, therefore more power for solenoid valve
Ambient conditions	
Ambient temperature	$T_A$ -25 ... 70 °C (-13 ... 158 °F)

## DIMENSIONS



## WIRING DIAGRAM



## TECHNICAL DATA

Mechanical specifications	
Connection (system side)	Screw terminals, M20 x 1.5, Cable gland
Core cross-section (system side)	1.5/2.5 mm2 flexible/rigid
Connection (valve side)	Screw terminals M12 x 1.5, Cable gland
Core cross-section (valve side)	1.5/2.5 mm2 flexible/rigid
Housing material	PBT
Sensing face material	PBT
Degree of protection	IP67
Tightening torque, housing screw	1Nm
Tightening torque, cable gland	M20 x 1.5 ; ≤ 7 Nm
Standard conformity	
Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012
Approvals and certificates	
UL approval	cULus listed, general purpose
CCC approval	Approval and marking not required for products rated ≤ 36 V

## ACTIVATOR AND MOUNTING KITS

30 x 80 mm NAMUR Mounting, adjustable	
54063A-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063A-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric
30 x 130 mm NAMUR Mounting, adjustable	
54160A-14800536	Fits Bray S92/93 Sizes 160 to 210 - Imperial
54160A-14850536	Fits Bray S92/93 Sizes 160 to 255 - Metric
30 x 80 mm NAMUR Mounting, adjustable, High Visibility	
54063C-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063C-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric
30 x 130 mm NAMUR Mounting, adjustable, High Visibility	
54160C-14800536	Fits Bray S92/93 Size 160 - Imperial
54160C-14850536	Fits Bray S92/93 Size 160 - Metric
54210C-14800536	Fits Bray S92/93 Size 210 - Imperial
54210C-14850536	Fits Bray S92/93 Sizes 210 to 255 - Metric

## 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



## 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

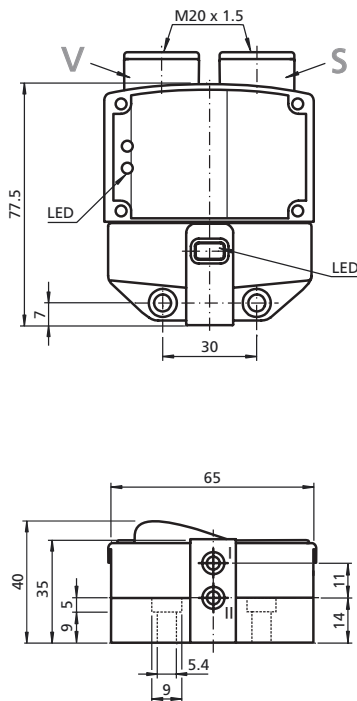
Nominal ratings	
Nominal voltage	$U_o$ 8 V
Switching frequency	$f$ 0 ... 3 kHz
Hysteresis	$H$ Typ. - 5 %
Reverse polarity protection	Reverse polarity protected
Short-circuit protection	Yes
Suitable for 2:1 technology	Yes, reverse polarity protection diode not required
Current consumption	
Measuring plate 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 mm <sup>2</sup> Flexible: 0.14 ... 1.5 mm <sup>2</sup> Flexible with core-end sleeve: 0.25 ... 1.5 mm <sup>2</sup>
Housing material	PBT
Sensing face material	PBT
Degree of protection	IP67
Tightening torque, housing screws	1 Nm

## DIMENSIONS





## ACTIVATORS



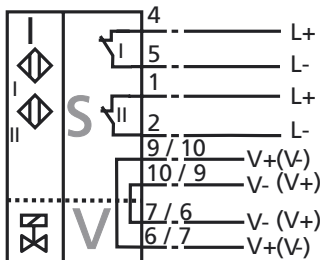
Activators sold separately

## TECHNICAL DATA

Tightening torque, cable gland	M20 x 1.5 ; ≤ 7 Nm
Note	LED switch-off
<b>General information</b>	
Use in the hazardous area -ATEX	See instruction manuals for categories 1G & 2G
Use in hazardous area - N.A.	See control drawing: WD-000455
<b>Compliance with standards and directives</b>	
Standard conformity	EN IEC 60947-5-2:2020-03 EN 60947-5-6:2000-01
<b>Approvals and certificates</b>	
UL approval	cULus Listed, General Purpose (E248934)
FM approval	FM18US0014X
TÜV NORD-ATEX	TÜV 17 ATEX 203727 X
TÜV NORD-IECEX	IECEX TUN 17.0035X

## WIRING DIAGRAM

N4-K



## ACTIVATOR AND MOUNTING KITS

### 30 x 80 mm NAMUR Mounting, adjustable

54063A-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063A-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, adjustable

54160A-14800536	Fits Bray S92/93 Sizes 160 to 210 - Imperial
54160A-14850536	Fits Bray S92/93 Sizes 160 to 255 - Metric

### 30 x 80 mm NAMUR Mounting, adjustable, High Visibility

54063C-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063C-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, adjustable, High Visibility

54160C-14800536	Fits Bray S92/93 Size 160 - Imperial
54160C-14850536	Fits Bray S92/93 Size 160 - Metric
54210C-14800536	Fits Bray S92/93 Size 210 - Imperial
54210C-14850536	Fits Bray S92/93 Sizes 210 to 255 - Metric

## 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

600250-21526536	Series 60 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form A connector (DIN 43560), Intrinsically safe
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## INSTRUCTION MANUAL - ATEX/IECEX (Ga)

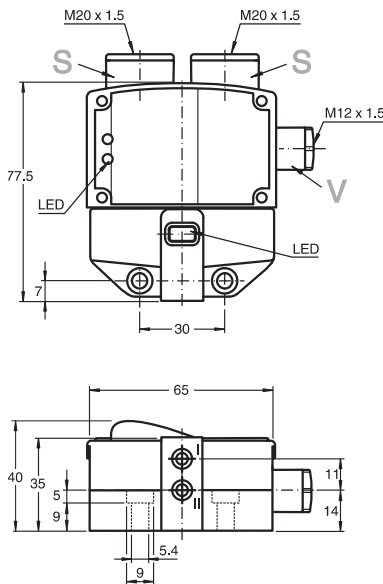
Equipment protection level Ga (ia)	
Instruction	Manual electrical apparatus for hazardous areas
Device category	1G, for use in hazardous areas with gas, vapour and mist
Protection concept	Intrinsic safety
Standards	EN IEC 60079-0:2018, IEC 60079-0:2017, EN 60079-11:2012, IEC 60079-11:2011
CE marking	CE 2813
ATEX marking	Ⓜ II 1G Ex ia IIC T6..T1 Ga
IECEX marking	Ex ia IIC T6..T1 Ga
EU-Type Examination Certificate	TÜV 17 ATEX 203727 X
IECEX Certificate	IECEX TUN 17.0035X
Effective internal capacitance	$C_i \leq 100$ nF. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
Effective internal inductance	$L_i \leq 100$ $\mu$ H. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
General	<p>The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.</p> <p>The EU-type examination certificate has to be observed.</p> <p>The special conditions must be adhered to.</p> <p>The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions.</p> <p>The use in ambient temperatures of &gt; 60°C was tested with regard to hot surfaces by the mentioned certification authority.</p> <p>If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.</p>
Ambient temperature	<p><math>T_A</math></p> <p>The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate.</p> <p>Note: Use the temperature table for category 1.</p>
Installation, commissioning	<p>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.</p> <p>The associated apparatus must satisfy the requirements of category ia.</p> <p>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.</p>
Maintenance	<p>No changes can be made to apparatus, which are operated in hazardous areas.</p> <p>Repairs to these apparatus are not possible.</p>
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	<p>Additional requirements for gas group IIB/IIC.</p> <p>Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device.</p> <p>Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1.</p>
Lead insertion	<p>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.</p> <p>Depending on the type of installation, a suitable cable in accordance with Type A or B of IEC 60079-14, must be used.</p>

## INSTRUCTION MANUAL - ATEX/IECEX (Gb)

Equipment protection level Gb (ia)	
Instruction	Manual electrical apparatus for hazardous areas
Device category	2G, for use in hazardous areas with gas, vapour and mist
Protection concept	Intrinsic safety
Standards	EN IEC 60079-0:2018, IEC 60079-0:2017, EN 60079-11:2012, IEC 60079-11:2011
CE marking	CE 2813
ATEX marking	II 1G Ex ia IIC T6..T1 Ga
IECEX marking	Ex ia IIC T6..T1 Ga
EU-Type Examination Certificate	TÜV 17 ATEX 203727 X
IECEX Certificate	IECEX TUN 17.0035X
Effective internal capacitance	$C_i \leq 100$ nF. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
Effective internal inductance	$L_i \leq 100$ $\mu$ H. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
General	<p>The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.</p> <p>The EU-type examination certificate has to be observed.</p> <p>The special conditions must be adhered to.</p> <p>The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions.</p> <p>The use in ambient temperatures of &gt; 60°C was tested with regard to hot surfaces by the mentioned certification authority.</p> <p>If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.</p>
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	<p>Additional requirements for gas group IIC.</p> <p>Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device.</p> <p>Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1.</p>
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.



## DIMENSIONS



## FEATURES

- > AS-i sensor
- > A/B slave with extended addressing possibility for up to 62 devices
- > Interoperable with higher-level BUS systems
- > Protection degree IP67
- > Communication monitoring, turn-off
- > System cable supports power and data
- > Lead breakage and short-circuit monitoring of solenoid valve
- > Two M20 x 1.5 system connections
- > One M12 x 1.5 valve connection
- > Large terminal space for ease of wiring
- > Sensor electronics sealed from terminal compartment

## TECHNICAL DATA

General specifications	
Switching element function	Programmable
Rated operating distance	$s_n$ 3 mm
Installation	Flush mountable
Output polarity	AS-Interface
Assured operating distance	$s_a$ 0 ... 2.43 mm
Slave type	A/B slave
AS-Interface specification	V3.0
Required master specification	$\geq$ V2.1
Nominal ratings	
Operating voltage	$U_B$ 26.5 ... 31.9 V via AS-i bus system
Switching frequency	$f$ 0 ... 100 Hz
No-load supply current	$I_0$ $\leq$ 35 mA
Functional safety related parameters	
MTTF <sub>d</sub>	842 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %
Indicators/operating means	
LED PWR	AS-Interface voltage; LED green
LED IN	Switching state (input); LED yellow
LED OUT	Binary LED yellow/red; yellow: switching state red: lead breakage/short-circuit
Electrical specifications	
Rated operational voltage	$U_e$ 26.5 ... 31.6 V from AS-Interface
Rated operational current	$I_e$ 100 mA
Ambient conditions	
Ambient temperature	$T_A$ -25 ... 70 °C (-13 ... 158 °F)
Mechanical specifications	
Connection (system side)	Screw terminals, M20 x 1.5, Cable gland, Qty 2
Core cross-section (system side)	1.5/2.5 mm <sup>2</sup> flexible/rigid
Connection (valve side)	Screw terminals M12 x 1.5, Cable gland, Qty 1
Core cross-section (valve side)	1.5/2.5 mm <sup>2</sup> flexible/rigid
Housing material	PBT
Sensing face material	PBT
Degree of protection	IP67

## ACTIVATORS

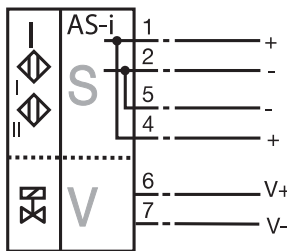


Activators sold separately

## TECHNICAL DATA

Tightening torque, housing screws	1 Nm	
Tightening torque, cable gland	M20 x 1.5 ; ≤ 7 Nm M12 x 1.5 ; ≤ 3 Nm	
Note	Valve voltage limited to 26,4 V max.; valve power 2,5 W max.	
<b>Standard conformity</b>		
Electromagnetic compatibility	EN 50295:1999-10	
Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012	IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012
<b>Approvals and certificates</b>		
UL approval	cULus listed, general purpose	
CCC approval	Approval and marking not required for products rated ≤ 36 V	

## WIRING DIAGRAM



## ACTIVATOR AND MOUNTING KITS

<b>30 x 80 mm NAMUR Mounting, adjustable</b>	
54063A-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063A-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric
<b>30 x 130 mm NAMUR Mounting, adjustable</b>	
54160A-14800536	Fits Bray S92/93 Sizes 160 to 210 - Imperial
54160A-14850536	Fits Bray S92/93 Sizes 160 to 255 - Metric
<b>30 x 80 mm NAMUR Mounting, adjustable, High Visibility</b>	
54063C-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063C-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric
<b>30 x 130 mm NAMUR Mounting, adjustable, High Visibility</b>	
54160C-14800536	Fits Bray S92/93 Size 160 - Imperial
54160C-14850536	Fits Bray S92/93 Size 160 - Metric
54210C-14800536	Fits Bray S92/93 Size 210 - Imperial
54210C-14850536	Fits Bray S92/93 Sizes 210 to 255 - Metric

## 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

090005-76148533	S-Connector cordset (S60) - Form A solenoid connector (DIN 43650) (2C+Ground) to flying leads, 3 conductor, PUR, 5 meters
600250-21540536	Series 60 -Solenoid Valve, low power (0.7W), NAMUR mount 5/2, Form A connector (DIN 43560), IP65, single 24vdc coil

## SUPPLEMENTARY INFORMATION

### Programming Instructions

#### Address

00 preset, alterable via Busmaster or programming units  
IO-code D  
ID-code A  
ID1-code 7  
ID2-code E

#### Data bit

##### Bit Function

D0 valve status (0=valve OFF, 1=valve ON)  
D1 valve fault<sup>1</sup> (0=lead breakage/short circuit; 1=no fault)  
D2 switch output sensor 1<sup>2</sup> (0=damped; 1=undamped)  
D3 switch output sensor 2<sup>2</sup> (0=damped; 1=undamped)

#### Parameter bit

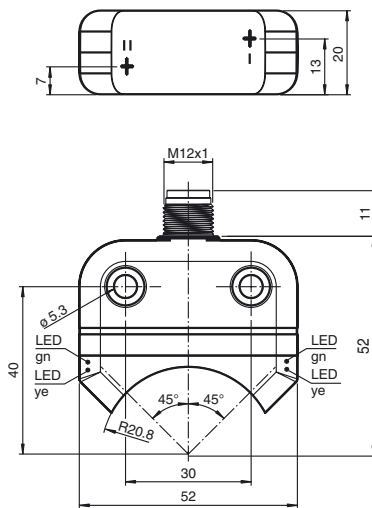
##### Bit Function

P0 Watchdog (0=inactive; 1=active<sup>3</sup>)  
P1 switching element function sensor II<sup>4</sup> (0=NO; 1= NC)  
P2 switching element function sensor I<sup>4</sup> (0=NO; 1= NC)  
P3 not used

- 1) Verification only with actuated valve (D0=1)
- 2) Applies to NC function (P2/P3=1; preset), with NO function (P2/P3=0) reversed characteristics
- 3) Watchdog active: valve voltage drops with the occurrence of an AS-I communication fault
- 4) Default setting: NC



## DIMENSIONS



## FEATURES

- > DC 3-wire PNP sensor
- > IP 67 rugged plastic housing
- > Hermetically sealed
- > Vibration, shock and corrosion resistant
- > Small, compact design
- > High visibility LED for power and switch status
- > Quick Installation

## TECHNICAL DATA

General specifications		
Switching function		2 x normally open (NO)
Output type		PNP, 3-wire
Rated operating distance	$s_n$	4 mm
Installation		Flush mountable
Output polarity		DC
Assured operating distance	$s_a$	0 ... 3.24 mm
Actual operating distance	$s_r$	3.6 ... 4.4 mm typ.
Nominal ratings		
Operating voltage	$U_B$	10 ... 30 V DC
Switching frequency	$f$	0 ... 1000 Hz
Hysteresis	$H$	Typ. 5 %
Reverse polarity protection		Reverse polarity protected
Short-circuit protection		Pulsing
Voltage drop	$U_d$	$\leq 2.5$ V
Operating current	$I_L$	0 ... 200 mA
Off-state current	$I_r$	0 ... 0.5 mA typ. 0.1 $\mu$ A at 25°C
No-load supply current	$I_o$	$\leq 22.5$ mA
Time delay before availability	$t_v$	$\leq 100$ ms
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow
Ambient conditions		
Ambient temperature	$T_A$	-25 ... 70°C (-13 ... 158°F)
Storage temperature		-40 ... 85°C (-40 ... 185°F)
Mechanical specifications		
Connection type		Connector M12 x 1, 4-pin
Housing material		PBT
Sensing face material		PC
Degree of protection		IP67
Mass		48g
Tightening torque, fastening screws		M5 x 25 : 2.7Nm
Compliance with standards and directives		
Standards		EN 60947-5-2:2007 IEC 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2 AMD 1:2012
Approvals and certificates		
UL approval		cULus listed, general purpose
CCC approval		Approval and marking not required for products rated $\leq 36$ V

## ACTIVATOR



Activator sold separately

## ACTIVATOR AND MOUNTING KITS

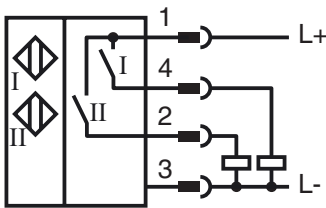
### 30 x 80 mm NAMUR Mounting, non adjustable

54063B-14800536	Fits Bray S92/93 Sizes 63 to 93 - Imperial
54063B-14850536	Fits Bray S92/93 Sizes 63 to 93 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, non adjustable

54119B-14800536	Fits Bray S92/93 Sizes 119 to 210 - Imperial
54119B-14850536	Fits Bray S92/93 Sizes 119 to 255 - Metric

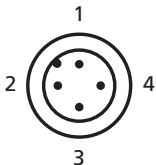
## WIRING DIAGRAM



## ACCESSORIES

090005-76145882	Sensor Cordset - M12 female straight connector (4-pin) to flying leads, 5 meters, zinc
090004-76145534	Sensor Cordset - M12 female straight connector (4-pin) to flying leads, 5 meters, stainless steel
600250-23663536	Y-Connector Cordset (S62, S63) - M12 female straight connector (4-pin sensor side) to M12 male straight connector (5-pin system side) AND Form B Type I solenoid connector (DIN 43650)
600250-23666536	Y-Connector Cordset (S60) - M12 female straight connector (4-pin sensor side) to M12 male straight connector (5-pin system side) AND Form A solenoid connector (DIN 43650)
630250-21524536	Series 63 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 24vdc coil
621250-21524536	Series 62 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 24vdc coil

## CONNECTOR PINOUT



Wire colors in accordance with  
EN 60947-5-2

1	BN	Brown
2	WH	White
3	BU	Blue
4	BK	Black





## FEATURES

- > DC 2-wire sensor
- > IP 67 rugged plastic housing
- > Hermetically sealed
- > Vibration, shock and corrosion resistant
- > Small, compact design
- > High visibility LED for power and switch status
- > Min off state current optimized for PLCs

## TECHNICAL DATA

### General specifications

Switching function		2 x normally open (NO)
Output type		Two-wire
Rated operating distance	$s_n$	4 mm
Installation		Flush mountable
Output polarity		DC
Assured operating distance	$s_a$	0 ... 3.24 mm
Actual operating distance	$s_r$	3.6 ... 4.4 mm typ.
Output type		2 x 2-wire

### Nominal ratings

Operating voltage	$U_B$	5 ... 30 V DC
Switching frequency	$f$	0 ... 500 Hz
Hysteresis	H	Typ. 5 %
Reverse polarity protection		Reverse polarity protected
Short-circuit protection		Pulsing
Voltage drop	$U_d$	$\leq 4.5$ V
Operating current	$I_L$	4 ... 100 mA
Off-state current	$I_r$	120 ... 200 $\mu$ A typ. 175 $\mu$ A at 25°C
Time delay before availability	$t_v$	$\leq 100$ ms
Switching state indicator		LED, yellow
Valve status indicator		LED, yellow

### Ambient Conditions

Ambient temperature	$T_A$	-25 ... 70°C (-13 ... 158°F)
Storage temperature		-40 ... 85°C (-40 ... 185°F)

### Mechanical specifications

Connection type		Connector M12 x 1, 4-pin
Housing material		PBT
Sensing face material		PC
Degree of protection		IP67
Mass		49 g
Tightening torque, fastening screws		M5 x 25 : 2.7 Nm

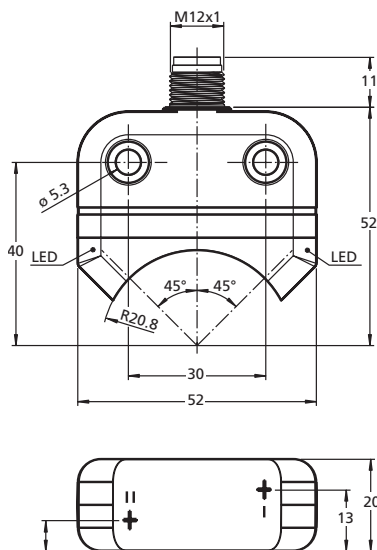
### Compliance with standards and directives

Standards	EN 60947-5-2:2007	IEC 60947-5-2:2007
	EN 60947-5-2/A1:2012	IEC 60947-5-2 AMD 1:2012

### Approvals and certificates

UL approval		cULus listed, general purpose
CCC approval		Approval and marking not required for products rated $\leq 36$ V

## DIMENSIONS

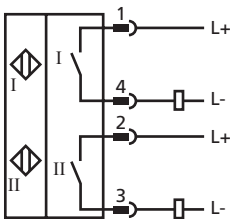


## ACTIVATOR



Activator sold separately

## WIRING DIAGRAM



## ACTIVATOR AND MOUNTING KITS

### 30 x 80 mm NAMUR Mounting, non adjustable

54063B-14800536	Fits Bray S92/93 Sizes 63 to 93 - Imperial
54063B-14850536	Fits Bray S92/93 Sizes 63 to 93 and Series 98 - Metric

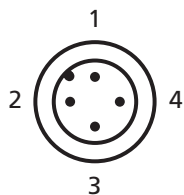
### 30 x 130 mm NAMUR Mounting, non adjustable

54119B-14800536	Fits Bray S92/93 Sizes 119 to 210 - Imperial
54119B-14850536	Fits Bray S92/93 Sizes 119 to 255 - Metric

## ACCESSORIES

090005-76145882	Sensor Cordset - M12 female straight connector (4-pin) to flying leads, 5 meters, zinc
090004-76145534	Sensor Cordset - M12 female straight connector (4-pin) to flying leads, 5 meters, stainless steel

## CONNECTOR PINOUT

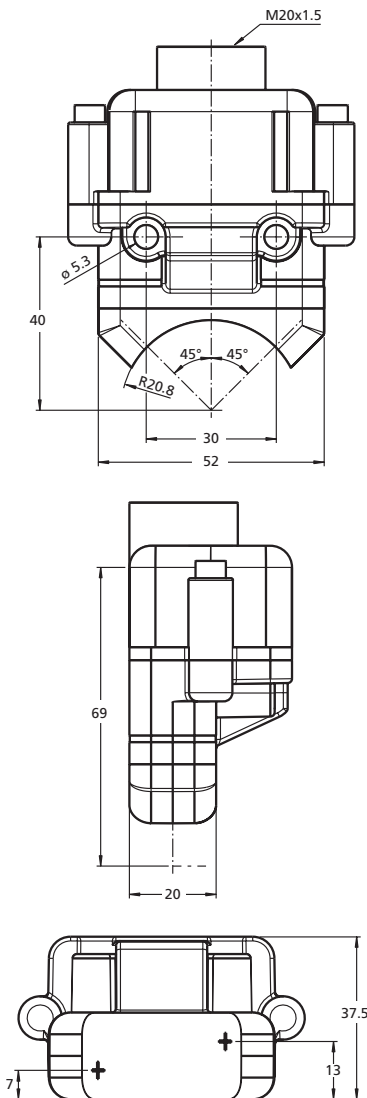


Wire colors in accordance with  
EN 60947-5-2

1	BN	Brown
2	WH	White
3	BU	Blue
4	BK	Black



## DIMENSIONS



## FEATURES

- > DC 2-wire sensor with plugin terminal
- > IP 67 rugged plastic housing
- > Hermetically sealed
- > Vibration, shock and corrosion resistant
- > Small, compact design
- > High visibility LED for power and switch status
- > Min off state current optimized for PLCs
- > Sensor electronics sealed from terminal compartment

## TECHNICAL DATA

General specifications		
Switching function	2 x normally open (NO)	
Output type	Two-wire	
Rated operating distance	$s_n$ 4 mm	
Installation	Flush mountable	
Output polarity	DC	
Assured operating distance	$s_a$ 0 ... 3.24 mm	
Actual operating distance	$s_r$ 3.6 ... 4.4 mm typ.	
Output type	2 x 2-wire	
Nominal ratings		
Operating voltage	$U_B$ 5 ... 30 V DC	
Switching frequency	$f$ 0 ... 500 Hz	
Hysteresis	$H$ typ. 5%	
Reverse polarity protection	Reverse polarity protected	
Short-circuit protection	Pulsing	
Voltage drop	$U_d \leq 4.5$ V	
Operating current	$I_L$ 4 ... 100 mA	
Off-state current	$I_r$ 120 ... 200 $\mu$ A typ. 175 $\mu$ A at 25°C	
Time delay before availability	$t_v \leq 100$ ms	
Switching state indicator	LED, yellow	
Valve status indicator	LED, yellow	
Ambient conditions		
Ambient temperature	$T_A$ -25 ... 70°C (-13 ... 158°F)	
Storage temperature	-40 ... 85°C (-40 ... 185°F)	
Mechanical specifications		
Connection (system side)	Screw terminal, M20 x 1.5 cable gland	
Housing material	PBT	
Sensing face material	PC	
Degree of protection	IP67	
Mass	98 g	
Tightening torque, fastening screws	M5 x 25 : 2.7 Nm	
Compliance with standards and directives		
Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012	IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012
Approvals and certificates		
UL approval	cULus listed, general purpose	
CCC approval	Approval and marking not required for products rated $\leq 36$ V	

## ACTIVATOR



## ACTIVATOR AND MOUNTING KITS

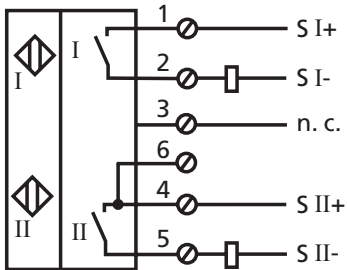
### 30 x 80 mm NAMUR Mounting, non adjustable

54063B-14800536	Fits Bray S92/93 Sizes 63 to 93 - Imperial
54063B-14850536	Fits Bray S92/93 Sizes 63 to 93 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, non adjustable

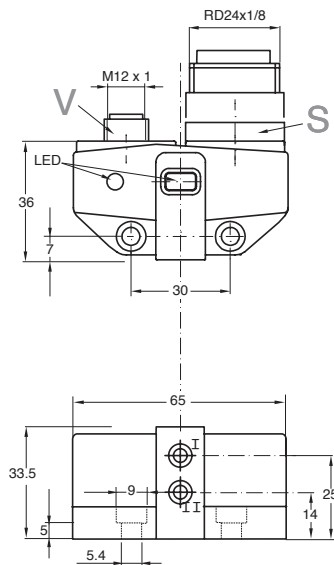
54119B-14800536	Fits Bray S92/93 Sizes 119 to 210 - Imperial
54119B-14850536	Fits Bray S92/93 Sizes 119 to 255 - Metric

## WIRING DIAGRAM





## DIMENSIONS



## FEATURES

- > DC 3-wire PNP sensor
- > IP 67 rugged plastic housing
- > Hermetically sealed
- > Vibration, shock and corrosion resistant
- > Compact design
- > High visibility LED for power and switch status
- > System cable supports power for sensor and solenoid

## TECHNICAL DATA

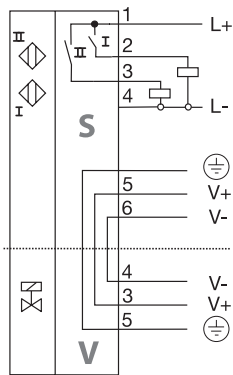
General specifications		
Switching function		2 x normally open (NO)
Output type		PNP, 3-wire
Rated operating distance	$s_n$	3 mm
Installation		Flush mountable
Output polarity		DC
Assured operating distance	$s_a$	0 ... 2.43 mm
Nominal ratings		
Operating voltage	$U_B$	10 ... 30 V DC
Switching frequency	$f$	0 ... 500 Hz
Hysteresis	$H$	Typ. 5%
Reverse polarity protection		All connections
Short-circuit protection		Pulsing
Voltage drop	$U_d$	$\leq 3$ V
Operating current	$I_L$	0 ... 100 mA
Off-state current	$I_r$	0 ... 0.5 mA typ. 0.1 $\mu$ A at 25°C
No-load supply current	$I_o$	$\leq 25$ mA
Operating voltage display		LED, green
Switching state indicator		LED, yellow
Functional safety related parameters		
MTTFd		780 a
Mission Time (TM)		20 a
Diagnostic Coverage (DC)		0%
Ambient conditions		
Ambient temperature	$T_A$	-25 ... 70°C (-13 ... 158°F)
Mechanical specifications		
Connection (system side)		Rd24 x 1/8, 6-pin+PE
Connection (valve side)		Socket connector, M12 x 1, 4-pin
Housing material		PBT
Sensing face material		PBT
Degree of protection		IP67
Note		Valve voltage limited to 26,4 V max.; valve power 6 W max.
Standard conformity		
Standards		EN 60947-5-2:2007      IEC 60947-5-2:2007 EN 60947-5-2/A1:2012      IEC 60947-5-2 AMD 1:2012
Approvals and certificates		
UL approval		cULus listed, general purpose
CCC approval		Approval and marking not required for products rated $\leq 36$ V

## ACTIVATORS

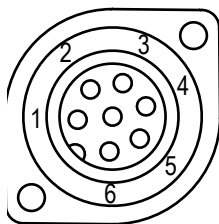


Activators sold separately

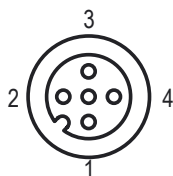
## WIRING DIAGRAM



## CONNECTOR PINOUT



System Side



Valve Side  
Compatible with  
4-pin connector

## ACTIVATOR AND MOUNTING KITS

### 30 x 80 mm NAMUR Mounting, adjustable

54063A-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063A-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, adjustable

54160A-14800536	Fits Bray S92/93 Sizes 160 to 210 - Imperial
54160A-14850536	Fits Bray S92/93 Sizes 160 to 255 - Metric

### 30 x 80 mm NAMUR Mounting, adjustable, High Visibility

54063C-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063C-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, adjustable, High Visibility

54160C-14800536	Fits Bray S92/93 Size 160 - Imperial
54160C-14850536	Fits Bray S92/93 Size 160 - Metric
54210C-14800536	Fits Bray S92/93 Size 210 - Imperial
54210C-14850536	Fits Bray S92/93 Sizes 210 to 255 - Metric

## ACCESSORIES

090700-71155517	Sensor Cordset - Single ended Rd24 female straight socket (6-pin + PE) with screw terminal for field wiring. Field attachable.
090001-76159882	S-Connector Cordset (S62, S63) - M12 male right angle 2-pins + PE to Form B Type I solenoid connector (DIN 43650), 0.6 meters
090001-76160882	S-Connector Cordset (S60) - M12 male right angle (2-pins + PE) to Form A solenoid connector (DIN 43650), 0.3 meters
630250-21524536	Series 63 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 24vdc coil
621250-21524536	Series 62 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 24vdc coil



## FEATURES

- > EU-Type Examination Certificate TÜV 17 ATEX 203727X
- > IP 67 rugged plastic housing
- > System cable supports power for sensor and solenoid
- > Hermetically sealed compact design
- > Fixed setting

## 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
Output type		2-wire

### Nominal ratings

Nominal voltage	$U_O$	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%

### Valve circuit

Voltage		Max. 32 V DC
Current		Max. 240 mA
Short-circuit protection		No
Reverse polarity protection		Yes, with reversed output LED is out of function, therefore more power for solenoid valve

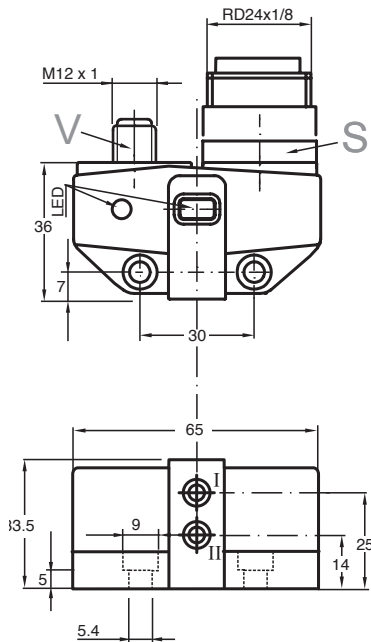
### Ambient conditions

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

### Mechanical specifications

Connection (system side)		Rd24 x 1/8, 6-pin+PE
Connection (valve side)		Socket connector, M12 x 1, 4-pin
Housing material		PBT

## DIMENSIONS



## ACTIVATORS



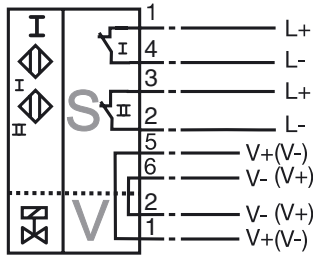
Activators sold separately

## TECHNICAL DATA

Sensing face material	PBT
Degree of protection	IP67
Use in the hazardous area	See instruction manuals
<b>Standard conformity</b>	
Standards	EN IEC 60947-5-2:2020-03, EN 60947-5-6:2000-01
<b>Approvals and certificates</b>	
UL approval	cULus Listed, General Purpose (E248934)
FM approval	FM18US0014X
TÜV NORD-ATEX	TÜV 17 ATEX 203727 X
TÜV NORD-IECEX	IECEX TUN 17.0035X

## WIRING DIAGRAM

N4-K



## ACTIVATOR AND MOUNTING KITS

### 30 x 80 mm NAMUR Mounting, adjustable

54063A-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063A-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

### 30 x 130 mm NAMUR Mounting, adjustable

54160A-14800536	Fits Bray S92/93 Sizes 160 to 210 - Imperial
54160A-14850536	Fits Bray S92/93 Sizes 160 to 255 - Metric

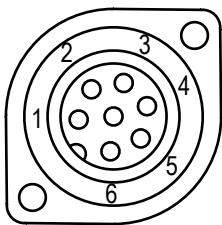
### 30 x 80 mm NAMUR Mounting, adjustable, High Visibility

54063C-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063C-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric

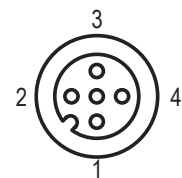
### 30 x 130 mm NAMUR Mounting, adjustable, High Visibility

54160C-14800536	Fits Bray S92/93 Sizes 160 to 210 - Imperial
54160C-14850536	Fits Bray S92/93 Sizes 160 to 255 - Metric

## CONNECTOR PINOUT



System Side



Valve Side  
Compatible with  
4-pin connector

## ACCESSORIES

090700-71155517	Sensor Cordset - Single ended Rd24 female straight socket (6-pin + PE) with screw terminal for field wiring. Field attachable.
090001-76159882	S-Connector Cordset (S62, S63) - M12 male right angle (2-pins + PE) to Form B Type I solenoid connector (DIN 43650), 0.6 meters
090001-76174580	S-Connector Cordset (S60) - M12 male right angle 2-pins + PE) to Form A solenoid connector (DIN 43650), 0.3 meters
630250-21524536	Series 63 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 24vdc coil
621250-21524536	Series 62 - Solenoid Valve, NAMUR mount 3/2 or 5/2, Form B connector (DIN 43560), IP65, single 24vdc coil



## INSTRUCTION MANUAL - ATEX/IECEX (Ga)

Equipment protection level Ga (ia)		
Type of protection		Intrinsic safety
CE marking		CE 2813
Certificates		
ATEX certificate		TÜV 17 ATEX 203727 X
ATEX marking		II 1G Ex ia IIC T6...T1 Ga
Standards		EN IEC 60079-0:2018, EN 60079-11:2012
IECEX certificate		IECEX TUN 17.0035X
IECEX marking		Ex ia IIC T6...T1 Ga
Standards		IEC 60079-0:2017, IEC 60079-11:2011
Effective internal inductivity	$C_i$	$\leq 100$ nF The value is applicable for one sensor circuit. A cable length of 10 m is considered.
Effective internal inductance	$L_i$	$\leq 100$ $\mu$ H The value is applicable for one sensor circuit. A cable length of 10 m is considered.
Maximum values of the valve circuit		The value applies to each valve circuit. A cable length of 10 m is considered
Internal capacitance	$C_i$	$\leq 10$ nF
Internal inductance	$L_i$	$\leq 20$ $\mu$ H
Voltage	$U_i$	$\leq 32$ V
Current	$I_i$	$\leq 240$ mA
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. 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 $> 60^\circ\text{C}$ was tested with regard to hot surfaces by the mentioned certification authority.
Ambient temperature	$T_A$	The temperature ranges, according to temperature class, are given in the EU-Type Examination Certificate The maximum permissible ambient temperature of the data sheet must be noted, in addition, the lower of the two values must be maintained.
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. Install the device in such a way that the resin surface is not exposed to mechanical hazards. Mount the device with at least a degree of protection of IP20 according to IEC/EN 60529.
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 $-20^\circ\text{C}$ the sensor should be protected from knocks by the provision of an additional housing.



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Electrostatic charge	<p>Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by controlling the humidity, protecting the device from direct airflow, and ensuring that the electrostatic charge is continuously drained by incorporating these in the equipotential bonding.</p> <p>Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device.</p> <p>Additional requirements for gas group IIC.</p> <p>Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1</p>
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## INSTRUCTION MANUAL - ATEX/IECEX (Gb)

Equipment protection level Gb (ib)		
Type of protection		Intrinsic safety
CE marking		CE 2813
Certificates		
ATEX certificate		TÜV 17 ATEX 203727 X
ATEX marking		Ⓔ II 1G Ex ia IIC T6...T1 Ga
Standards		EN IEC 60079-0:2018, EN 60079-11:2012
IECEX certificate		IECEX TUN 17.0035X
IECEX marking		Ex ia IIC T6...T1 Ga
Standards		IEC 60079-0:2017, IEC 60079-11:2011
Effective internal inductivity	$C_i$	$\leq 100$ nF The value is applicable for one sensor circuit. A cable length of 10 m is considered.
Effective internal inductance	$L_i$	$\leq 100$ $\mu$ H The value is applicable for one sensor circuit. A cable length of 10 m is considered.
Maximum values of the valve circuit		The value applies to each valve circuit. A cable length of 10 m is considered
Internal capacitance	$C_i$	$\leq 10$ nF
Internal inductance	$L_i$	$\leq 20$ $\mu$ H
Voltage	$U_i$	$\leq 32$ V
Current	$I_i$	$\leq 240$ mA
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. 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 $> 60^\circ\text{C}$ 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 EU-Type Examination Certificate. The maximum permissible ambient temperature of the data sheet must be noted, in addition, the lower of the two values must be maintained.
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. Install the device in such a way that the resin surface is not exposed to mechanical hazards. Mount the device with at least a degree of protection of IP20 according to IEC/EN 60529.
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 $-20^\circ\text{C}$ the sensor should be protected from knocks by the provision of an additional housing.



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Electrostatic charge	<p>Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by controlling the humidity, protecting the device from direct airflow, and ensuring that the electrostatic charge is continuously drained by incorporating these in the equipotential bonding.</p> <p>Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device.</p> <p>Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1</p>
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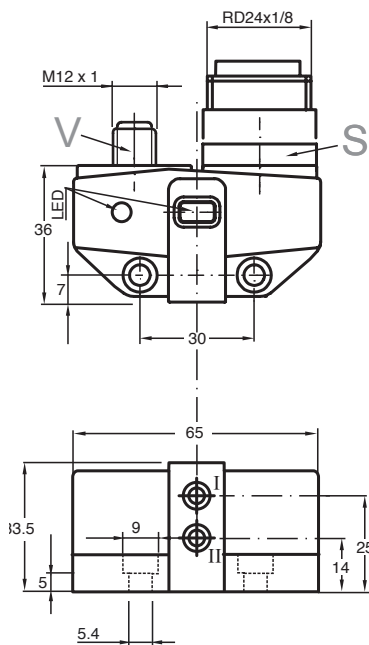
## FEATURES

- > System cable supports power for sensor and solenoid
- > Hermetically sealed compact design
- > Fixed setting

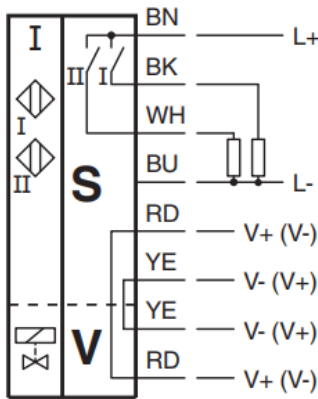
## TECHNICAL DATA

General specifications		
Switching function		2 x normally closed (NO)
Output type		PNP
Rated operating distance	$s_n$	3 mm
Installation		Flush mountable
Assured operating distance	$s_a$	0 ... 2.43 mm
Actual operating distance	$s_r$	2.7 ... 3.3 mm typ.
Nominal ratings		
Nominal voltage	$U_B$	10-30 V
Switching frequency	$f$	0 ... 500 Hz
Hysteresis	$H$	Typ. 5%
Reverse polarity protection		All connections
Short-circuit protection		Pulsing
Voltage drop	$U_d$	$\leq 3$ V
Operating current	$I_L$	0 ... 100 mA
Off-state current	$I_R$	0 ... 0.5 mA typ. 0.1 $\mu$ A at 25 °C
No-load supply current	$I_o$	$\leq 25$ mA
Operating voltage indicator		LED, green
Switching state indicator		LED, yellow
Functional safety related parameters		
MTTFd		780 a
Mission Time ( $T_M$ )		20 a
Diagnostic Coverage (DC)		0%
Valve circuit		
Voltage		Max. 32 V DC
Current		Max. 240 mA
Short-circuit protection		No
Reverse polarity protection		Yes, with reversed output LED is out of function, therefore more power for solenoid valve
Ambient conditions		
Ambient temperature	$T_A$	-25 ... 70 °C (-13 ... 158 °F)
Mechanical specifications		
Connection (system side)		PVC cable 5 m
Core cross-section (system side)		0.75 mm <sup>2</sup>
Connection (valve side)		PVC cable 0.5 m
Core cross-section (valve side)		0.75 mm <sup>2</sup>
Housing material		PBT
Sensing face material		PBT
Degree of protection		IP67

## DIMENSIONS



## WIRING DIAGRAM



## TECHNICAL DATA

Standard conformity	
Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012
Approvals and certificates	
UL approval	cULus listed, general purpose
CCC approval	Approval and marking not required for products rated ≤ 36 V

## ACTIVATOR AND MOUNTING KITS

30 x 80 mm NAMUR Mounting, adjustable	
54063A-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063A-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric
30 x 130 mm NAMUR Mounting, adjustable	
54160A-14800536	Fits Bray S92/93 Sizes 160 to 210 - Imperial
54160A-14850536	Fits Bray S92/93 Sizes 160 to 255 - Metric
30 x 80 mm NAMUR Mounting, adjustable, High Visibility	
54063C-14800536	Fits Bray S92/93 Sizes 63 to 128 - Imperial
54063C-14850536	Fits Bray S92/93 Sizes 63 to 128 and Series 98 - Metric
30 x 130 mm NAMUR Mounting, adjustable, High Visibility	
54160C-14800536	Fits Bray S92/93 Size 160 - Imperial
54160C-14850536	Fits Bray S92/93 Size 160 - Metric
54210C-14800536	Fits Bray S92/93 Size 210 - Imperial
54210C-14850536	Fits Bray S92/93 Sizes 210 to 255 - Metric

## APPLICATION

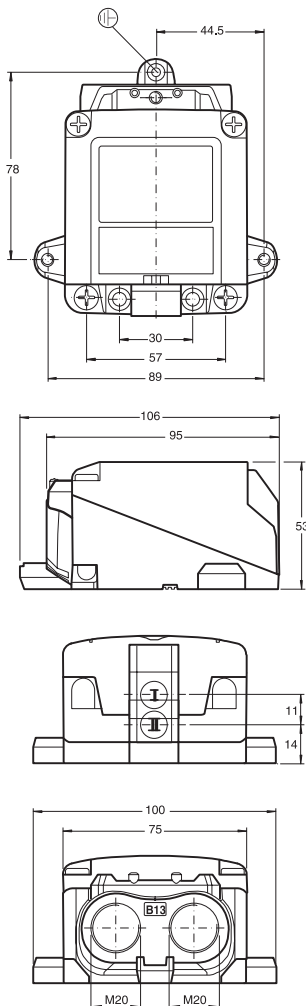
Note: The connections to this sensor are sealed with stopping plugs to protect against dirt and moisture. If your application does not require the use of all connections, permanently seal stopping plugs onto unused connections or ensure that stopping plugs are secure and impermeable during initial installation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

## ACCESSORIES

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## DIMENSIONS



## SENSOR FEATURES

- > 2-wire DC sensor with minimum off-state current
- > ATEX-approval for zone 2 and zone 22
- > High temp, UV, salt water resistant
- > IP66/67/69K
- > Removable plug-in terminals
- > Large terminal space for easy wiring

## TECHNICAL DATA

General specifications	
Switching function	2 x normally open (NO)
Output type	Two-wire
Rated operating distance	$s_n$ 2.5mm
Installation	For non-flush mounting
Output polarity	DC
Assured operating distance	$s_a$ 0 ... 2.05mm
Output type	2 x 2-wire
Nominal ratings	
Operating voltage	$U_B$ 6 ... 30V
Switching frequency	$f$ 0 ... 100 Hz
Hysteresis	H Typical 0.5 mm
Reverse polarity protection	Reverse polarity tolerant
Short-circuit protection	No
Voltage drop	$U_d$ $\leq$ 6 V
Operating current	$I_L$ 4 ... 100mA
Off-state current	$I_r$ 100 ... 200 $\mu$ A, typical 160 $\mu$ A
Functional safety related parameters	
MTTFd	684 a
Mission Time	$T_M$ 20 a
Diagnostic Coverage	DC 0%
Electrical specifications - valve circuit	
Voltage	10 ... 32V
Current	Max. 240 mA
Ambient conditions	
Ambient temperature	$T_A$ -40 ... 75°C (-40 ... 167°F), restriction for use in hazardous area, see instruction manual
Storage temperature	-40 ... 85°C (-40 ... 185°F)
Mechanical specifications	
Connection (system side)	M20 x 1.5 cable gland, ground connection w/ earthing screw only for wire cross-section 4mm <sup>2</sup> , use solid wire or stranded wire w/ wire end ferrule
Connection (valve side)	Screw terminal, cable gland M20 x 1.5
Housing material	Rugged polycarbonate (PC) + GF 10%, optimized for outdoor use
Housing base	Powder coated aluminum
Degree of protection	IP67; additional degree of protection IP66/IP69K with 540100-70600533 and 540100-21900533

## TECHNICAL DATA

Terminal assembly	
Number	10
Connection type	For connection of copper wires with 7 mm dismantle length. Tightening torque 0.5 ... 0.6 Nm
Type	Screw terminal block, pluggable
Terminal capacity	Conductor cross-section 0,25 ... 2,5 mm <sup>2</sup> , flexible/rigid. For Multiple-wire connection: two wires of equal cross-section per 0.25...1 mm <sup>2</sup>
Tightening torque, fastening screws	2 Nm
Tightening torque, housing screws	1.5 Nm
Tightening torque, earthing screw	1.5 Nm
Tightening torque, cable gland	≤ 4 Nm
Tightening torque, stopping plug	2 Nm
General information	
Use in the hazardous area	See instruction manuals
Category	3G; 3D; Ex ec; Ex tc
Compliance with standards & directives	
Standards	IEC 60947-5-2:2019-10      VDI / VDE 3845 EN IEC 60947-5-2:2020-03
CCC approval	Approval and marking not required for products rated ≤ 36 V



## ACTIVATOR AND MOUNTING ASSEMBLY FEATURES

- > High-visibility valve position display
- > Protection against contamination and damage
- > 30 x 80mm or 30 x 130mm actuator mounting
- > Rugged metal cover



## ASSEMBLY



## TECHNICAL DATA

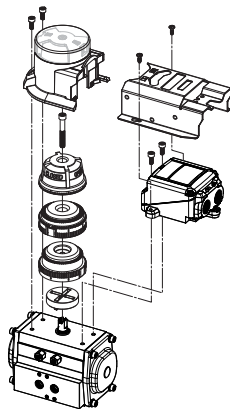
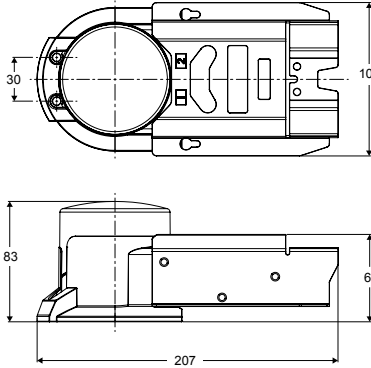
General specifications	
Housing material	PC
Activator material	PA
Protective cover material	V4A/316L
Valve status indicator	Red = CLOSED Green = OPEN
Indicator adjustments	5 degree increments
Activator adjustment - top level	5 degree increments
Activator adjustment - bottom level	90 degree increments
Activator markings	5 degree increments
Hardware	316 stainless steel
Activator targets	303 stainless steel

## INDUCTIVE SENSOR KIT

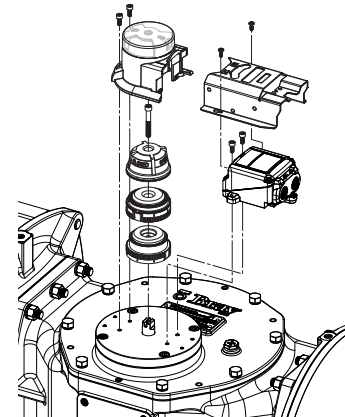
### 30 x 80mm mounting pattern, adjustable activator

Description	Hardware	Kit part number
Bray S92/93 Sizes 63 to 128	Imperial	541102-12600536
Bray S92/93 Sizes 63 to 128 and Series 98 NAMUR VDI/VDE 3845 Compliant mounting	Metric	541102-12650536

## DIMENSIONS



Series 92/93 Actuator



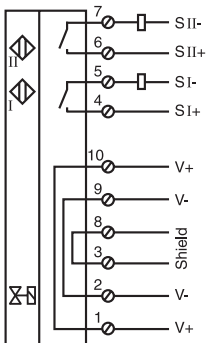
Series 98 Actuator

### Parts List

Qty	Imperial - 541102-12600536	Metric - 541102-12650536
1	Sensor 541102-71104533	Sensor 541102-71104533
1	Activator assembly 540100-21901533	Activator assembly 540100-21900533
1	Metal cover 540100-70600533	Metal cover 540100-70600533
2	Socket head capscrew #10-32X1/2, SS	Socket head capscrew M5X0.8X12, SS

See Series 54 IOM for full mounting details

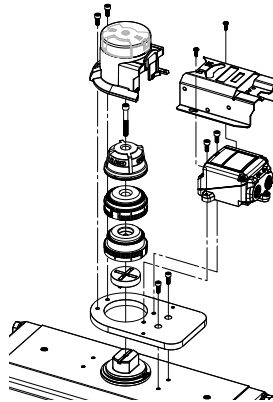
## WIRING DIAGRAM



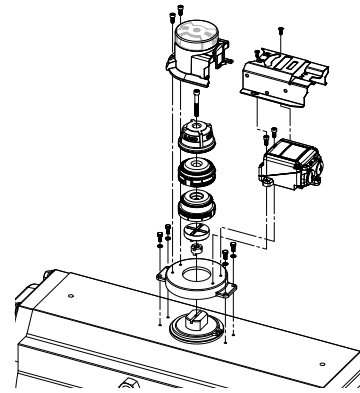
## INDUCTIVE SENSOR KIT

### 30 x 130mm mounting pattern, adjustable activator

Description	Hardware	Kit part number
Bray S92/93 Size 160	Imperial	541102-12601536
Bray S92/93 Size 160 NAMUR VDI/VDE 3845 Compliant mounting	Metric	541102-12651536
Bray Series 92/93 Size 210	Imperial	541102-12602536
Bray Series 92/93 Sizes 210 to 255	Metric	541102-12652536



Series 92/93 Actuator  
Size 160



Series 92/93 Actuator  
Sizes 210 to 255

### Parts List

Qty.	Imperial - 541102-12601536	Metric - 541102-12651536
1	Sensor 541102-71104533	Sensor 541102-71104533
1	Activator assembly 540100-21901533	Activator assembly 540100-21900533
1	Metal cover 540100-70600533	Metal cover 540100-70600533
1	Mounting plate assembly	Mounting plate assembly
2	Socket head capscrew #10-32X1/2, SS	Socket head capscrew M5X0.8X12, SS

See Series 54 IOM for full mounting details

## 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.

## INSTRUCTION MANUAL - ATEX/IECEX (Gc)

Equipment protection level Dc (tc)	Manual electrical apparatus for hazardous areas - Gas Group IIC
Device category 3G (ec)	For use in hazardous areas with gas, vapor and mist
Certificate	IECEX TUR 21.0048X TUR 21 ATEX 8728 X
CE marking	CE
ATEX marking	Ⓔ II 3G Ex ec IIC T6...T1 Gc The Ex-related marking can also be printed on the enclosed label.
IECEX marking	Ex ec IIC T6...T1 Gc
Standards	EN IEC 60079-0:2018, EN 60079-7:2015 - Protection by increased safety "ec".
General	The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The data stated in the data sheet are restricted by this operating instruction! The special conditions must be observed!
Installation, commissioning	Laws and/or regulations and standards governing the use or intended usage goal must be observed. If the Ex-related marking is printed only on the supplied label, then this must be attached in the immediate vicinity of the sensor. The sticking surface for the label must be clean and free from grease. The attached label must be legible and indelible, including in the event of possible chemical corrosion. After opening the housing, you should check that the seal is in the correct position and is clean and intact before closing the housing again. Seal any openings on the housing not in use, using the stainless steel stopping plugs supplied. No other devices should be used to seal the openings. The stopping plugs made of plastic must no longer be used.
Maintenance	No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible. After opening the housing, you should check that the seal is in the correct position and is clean and intact before closing the housing again.
Special Conditions	
Maximum operating current [IL]	The maximum permissible load current must be restricted to the values given in the following list. High load currents and load short-circuits are not permitted.
Maximum operating voltage [UBmax]	The maximum permissible operating voltage UBmax is restricted to the values in the following list. Tolerances are not permitted.
Maximum permissible ambient temperature [TUmax]	Depending on the load current IL, the maximum operating voltage UBmax, and the temperature class. Details can be found in the following list.
at UBmax=30 V, IL =100 mA, T6	35°C (95°F)
at UBmax=30V, IL=100 mA, T1 ... T5	60°C (140°F)
at UBmax=30 V, IL =50 mA, T6	35°C (95°F)
at UBmax=30 V, IL =50 mA, T1 ... T5	60°C (140°F)
Maximum values of the valve circuit	Uv = 32 V; Iv = 240 mA
Protection from mechanical danger	The sensor must not be exposed to any form of mechanical danger. If you use the protective cover 540100-70600533 and the actuator with protective cover 540100-21900533, it is ensured that the device is sufficiently protected in accordance with IEC/EN 60079-0. If protective cover becomes damaged, replace the protective cover.
Protection from UV light	The sensor and the connection cable must be protected from damaging UV-radiation. This can be achieved when the sensor is used in internal areas. If you use the protective cover 540100-70600533 and the actuator with protective cover 540100-21900533, it is ensured that the device is sufficiently protected in accordance with IEC/EN 60079-0. If the protective cover becomes damaged, replace the protective cover.



## INSTRUCTION MANUAL - ATEX/IECEX (Gc)

Electrostatic charge	Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding. Sliding contact discharges must be avoided. 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. Do not attach the nameplate provided in areas where electrostatic charge can build up.
Lead insertion	If cable glands are required for the installation, then the following points must be observed. The cable glands must be certified in accordance with the application. The temperature range of the cable glands must be selected according to the application. The degree of protection must not be reduced by the cable glands. Seal the housing. Use a seal that meets the requirements of the application.
Material selection accessories	When selecting accessories, ensure that the material allows the temperature of the enclosure to rise to up to 70°C.
Plug connector	The plug connector must not be withdrawn under voltage. The proximity switch is identified as follows: "WARNING· DO NOT SEPARATE WHEN ENERGIZED". With the plug connector disconnected, soiling of the internal area must be prevented. (i.e. the area that is inaccessible when the connector is inserted).

## INSTRUCTION MANUAL - ATEX/IECEX (Dc)

Equipment protection level Dc (tc)	Manual electrical apparatus for hazardous areas - Dust Group IIIC
Device category 3D (tc)	For use in hazardous areas with combustible dust
Certificate	IECEX TUR 21.0049X TUR 21 ATEX 8729 X
CE marking	CE
ATEX marking	Ⓜ II 3D Ex tc IIIC T80°C Dc The Ex-related marking can also be printed on the enclosed label.
IECEX marking	Ex tc IIIC T80°C Dc
Standards	EN IEC 60079-0: 2018, EN 60079-31: 2014 - Protection by enclosure "tc"
General	The corresponding datasheets, declarations of conformity, EC-type examination certificates, certifications, and control drawings, where applicable (see datasheets), form an integral part of this document. These documents can be found at <a href="http://www.bray.com">www.bray.com</a> . The maximum surface temperature of the device was determined without a layer of dust on the apparatus. Some of the information in this instruction manual is more specific than the information provided in the datasheet.
Installation, commissioning	Laws and/or regulations and standards governing the use or intended usage goal must be observed. If the Ex-related marking is printed only on the supplied label, then this must be attached in the immediate vicinity of the sensor. The sticking surface for the label must be clean and free from grease. The attached label must be legible and indelible, including in the event of possible chemical corrosion. After opening the housing, you should check that the seal is in the correct position and is clean and intact before closing the housing again. Seal any openings on the housing not in use, using the stainless steel stopping plugs supplied. No other devices should be used to seal the openings. The stopping plugs made of plastic must no longer be used.
Maintenance	No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible. After opening the housing, you should check that the seal is in the correct position and is clean and intact before closing the housing again.
<b>Special Conditions</b>	
Maximum operating current [IL]	The maximum permissible load current must be restricted to the values given in the following list. High load currents and load short-circuits are not permitted.
Maximum operating voltage [UBmax]	The maximum permissible operating voltage UBmax is restricted to the values in the following list. Tolerances are not permitted.
Maximum permissible ambient temperature [TUmax]	Dependant of the load current IL and the maximum operating voltage UBmax. Details can be found in the following list.
at UBmax=30 V, IL=100 mA, T80°C	60°C (140°F)
at UBmax=30 V, IL=50 mA, T80°C	60°C (140°F)
Maximum values of the valve circuit	UV = 32 V; IV = 240 mA
Protection from mechanical danger	The sensor must not be exposed to ANY FORM of mechanical danger. If you use the protective cover 540100-70600533 and the actuator with protective cover 540100-21900533, it is ensured that the device is sufficiently protected in accordance with IEC/ EN 60079-0. If the protective cover becomes damaged, replace the protective cover.
Protection from UV light	The sensor and the connection cable must be protected from damaging UV-radiation. This can be achieved when the sensor is used in internal areas. If you use the protective cover 540100-70600533 and the actuator with protective cover 540100-21900533 it is ensured that the device is sufficiently protected in accordance with IEC/EN 60079-0. If the protective cover becomes damaged, replace the protective cover.



## INSTRUCTION MANUAL - ATEX/IECEX (Dc)

Electrostatic charge	Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding. Sliding contact discharges must be avoided. 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. Do not attach the nameplate provided in areas where electrostatic charge can build up.
Lead insertion	If cable glands are required for the installation, then the following points must be observed. The cable glands must be certified in accordance with the application. The temperature range of the cable glands must be selected according to the application. The degree of protection must not be reduced by the cable glands. Seal the housing. Use a seal that meets the requirements of the application.
Plug connector	The plug connector must not be withdrawn under voltage. The proximity switch is identified as follows: "WARNING - DO NOT SEPARATE WHEN ENERGIZED". With the plug connector disconnected, soiling of the internal area must be prevented. (i.e. the area that is inaccessible when the connector is inserted).



## FEATURES

- > Independently adjustable open and close positions
- > Low resistivity plastic
- > Three level adjustable
- > Suitable for CW or CCW operation
- > 30 x 80mm actuator mounting
- > 30 x 130mm actuator mounting

## TECHNICAL DATA

Activator material	PA66 with carbon fiber
Pointer material	PA6
Activator adjustments	5 degree increments
Pointer adjustments	5 degree increments
Activator markings	-90° to +90° in 5 degree increments
Hardware	304 stainless steel
Activator targets	304 stainless steel

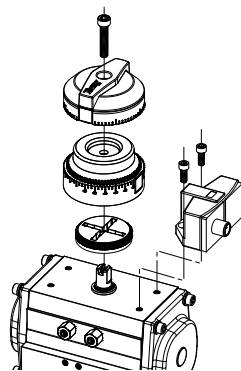
## ASSEMBLY



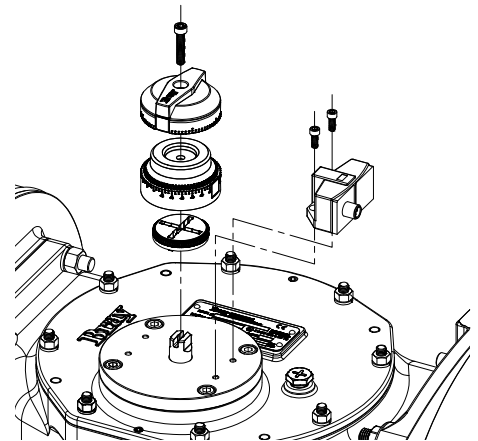
## ACTIVATOR AND MOUNTING KITS

### 30 x 80mm mounting pattern, adjustable activator

Description	Hardware	Kit part number
Bray S92/93 Sizes 63 to 128	Imperial	54063A-14800536
Bray S92/93 Sizes 63 to 128 and Series 98 NAMUR VDI/VDE 3845 Compliant mounting	Metric	54063A-14850536

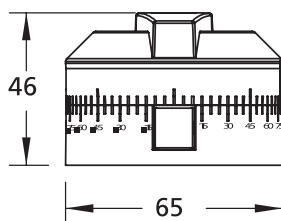


Series 92/93 Actuator



Series 98 Actuator

## DIMENSIONS



### Parts List

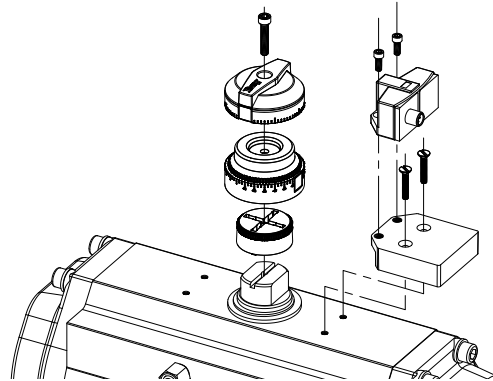
Qty	Imperial - 54063A-14800536	Metric - 54063A-14850536
1	Activator	Activator
1	Pinion adaptor	Pinion adaptor
1	Socket head capscrew M6x1x30mm,SS	Socket head capscrew M6x1x30mm,SS
2	Socket head capscrew #10-32X7/16,SS	Socket head capscrew M5X.8,12MM,SS
2	Socket head capscrew #10-32X5/8,SS	Socket head capscrew M5X.8,15MM,SS

See Series 54 IOM for full mounting details

## ACTIVATOR AND MOUNTING KITS

### 30 x 130mm mounting pattern, adjustable activator

Description	Hardware	Kit part number
Bray S92/93 Sizes 160 to 210	Imperial	54160A-14800536
Bray S92/93 Sizes 160 to 255 NAMUR VDI/VDE 3845 Compliant mounting	Metric	54160A-14850536



Series 92/93 Actuator

Qty.	Imperial - 54160A-14800536	Metric - 54160A-14850536
1	Activator	Activator
1	Pinion adaptor	Pinion adaptor
1	Series 54 sensor adaptor	Series 54 sensor adaptor
1	Socket head capscrew M6X1,40MM,SS	Socket head capscrew M6X1,40MM,SS
2	Socket head capscrew #10-32X7/16,SS	Socket head capscrew M5X.8,12MM,SS
2	Socket head capscrew #10-32X5/8,SS	Socket head capscrew M5X.8,15MM,SS
2	Counter sunk cross drive screw #10-32X1.00	Counter sunk slotted screw M5X35,18-8

See Series 54 IOM for full mounting details





## FEATURES

- > Two fixed operation surfaces offset by 180 degrees
- > Low resistivity plastic
- > Suitable for CW or CCW operation
- > 30 x 80mm actuator mounting
- > 30 x 130mm actuator mounting
- > Actuator mount parallel or perpendicular to pipe

## TECHNICAL DATA

Activator material	PA66 with carbon fiber
Pointer material	PA6
Hardware	304 stainless steel
Activator targets	304 stainless steel

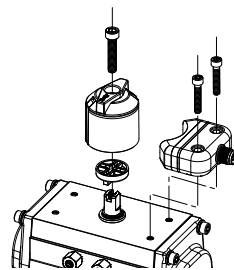
## ASSEMBLY



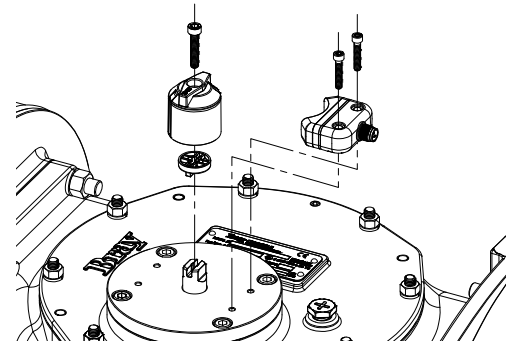
## ACTIVATOR AND MOUNTING KITS

### 30 x 80mm mounting pattern, non adjustable activator

Description	Hardware	Kit part number
Bray S92/93 Sizes 63 to 93	Imperial	54063B-14800536
Bray S92/93 Sizes 63 to 93 and Series 98 NAMUR VDI/VDE 3845 compliant mounting	Metric	54063B-14850536

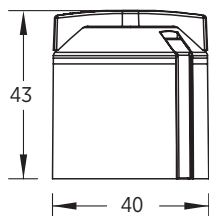


Series 92/93 Actuator



Series 98 Actuator

## DIMENSIONS



### Parts List

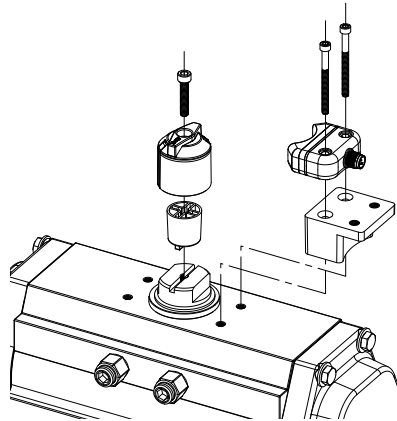
Qty	Imperial - 54063B-14800536	Metric - 54063B-14850536
1	Activator	Activator
1	Pinion adaptor	Pinion adaptor
1	Socket head capscrew M6x1x30mm,SS	Socket head capscrew M6x1x30mm,SS
2	Socket head capscrew #10-32X1.0,SS	Socket head capscrew M5X0.8X25mm,SS
2	Socket head capscrew #10-32X1.50,SS	Socket head capscrew M5X0.8X40mm,SS

See Series 54 IOM for full mounting details

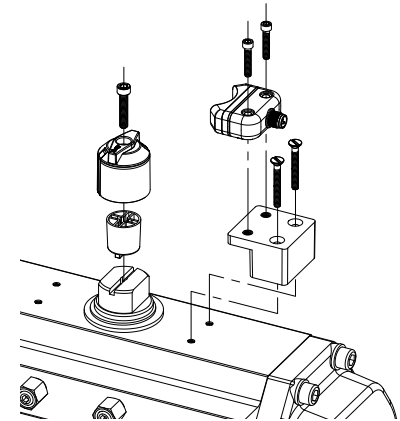
## ACTIVATOR AND MOUNTING KITS

### 30 x 80mm or 30 x 130mm mounting pattern, non adjustable activator

Description	Hardware	Kit part number
Bray S92/93 Sizes 119 to 210	Imperial	54119B-14800536
Bray S92/93 Sizes 119 to 255 NAMUR VDI/VDE 3845 compliant mounting	Metric	54119B-14850536



Series 92/93 Actuator (Size 119 to 128)



Series 92/93 Actuator (Size 160 to 255)

Qty.	Imperial - 54119B-14800536	Metric - 54119B-14850536
1	Activator	Activator
1	Pinion adaptor	Pinion adaptor
1	Series 54 sensor adaptor	Series 54 sensor adaptor
1	Socket head capscrew M6X1,45MM,SS	Socket head capscrew M6X1,45MM,SS
2	Socket head capscrew #10-32X1.0,SS	Socket head capscrew M5X0.8X25mm,SS
2	Socket head capscrew #10-32X1.5,SS	Socket head capscrew M5X0.8X40mm,SS
2	Socket head capscrew #10-32X2.25,SS	Socket head capscrew M5x0.8x55mm,SS
2	Socket head capscrew #10-32X2.75,SS	Socket head capscrew M5X0.8X70mm,SS
2	Counter sunk cross drive screw #10-32X1.5	Counter sunk slotted screw M5X35,18-8

See Series 54 IOM for full mounting details



## FEATURES

- > High-visibility display
  - > Three level adjustable activator
  - > Protection against contamination and damage
- > Suitable for CW and CCW operation
  - > 30 x 80mm actuator mounting
  - > 30 x 130mm actuator mounting

## TECHNICAL DATA

Housing material	PC
Activator material	PA
Valve status indicator	Red = Closed Yellow = Open
Indicator adjustments	5 degree increments
Activator adjustment - top level	5 degree increments
Activator adjustment - bottom level	90 degree increments
Hardware	316 stainless steel
Activator targets	303 stainless steel

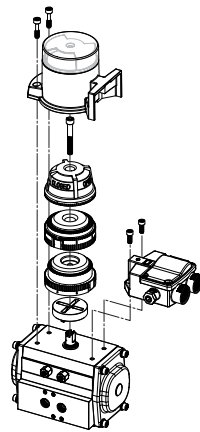
## ASSEMBLY



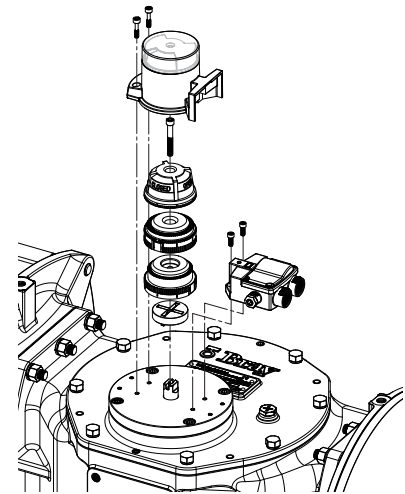
## ACTIVATOR AND MOUNTING KITS

### 30 x 80mm mounting pattern, adjustable activator

Description	Hardware	Kit part number
Bray S92/93 Sizes 63 to 128	Imperial	54063C-14800536
Bray S92/93 Sizes 63 to 128 and Series 98 NAMUR VDI/VDE 3845 Compliant mounting	Metric	54063C-14850536



Series 92/93 Actuator



Series 98 Actuator

### Parts List

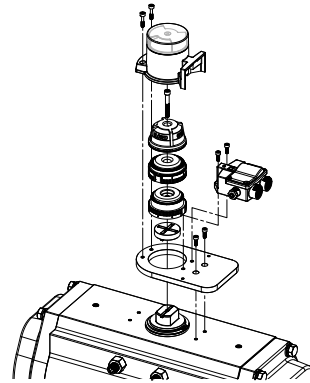
Qty	Imperial - 54063C-14800536	Metric - 54063C-14850536
1	Activator assembly	Activator assembly

See Series 54 IOM for full mounting details

## ACTIVATOR AND MOUNTING KITS

### 30 x 130mm mounting pattern, adjustable activator

Description	Hardware	Kit part number
Bray S92/93 Sizes 160	Imperial	54160C-14800536
Bray S92/93 Sizes 160 NAMUR VDI/VDE 3845 Compliant mounting	Metric	54160C-14850536
Bray S92/93 Sizes 210	Imperial	54210C-14800536
Bray S92/93 Sizes 210 to 255 NAMUR VDI/VDE 3845 Compliant mounting	Metric	54210C-14850536

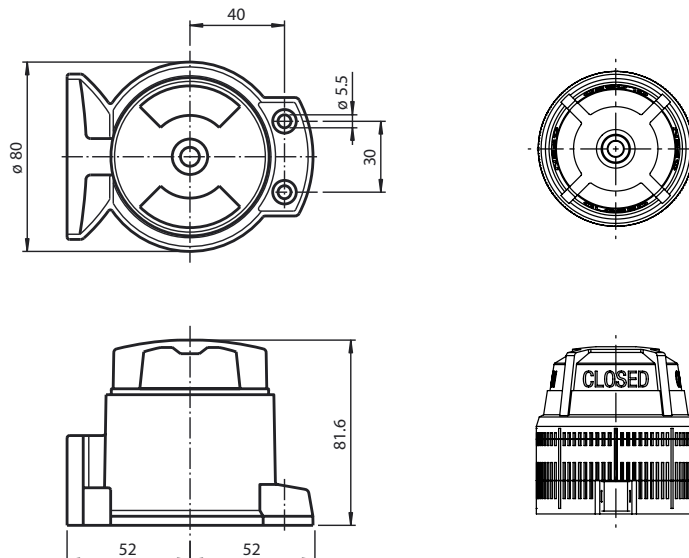


Series 92/93 Actuator

Qty.	Imperial - 54160C-14800536	Metric - 54160C-14850536
1	Activator assembly	Activator assembly
1	Mounting plate assembly	Mounting plate assembly

See Series 54 IOM for full mounting details

## DIMENSIONS



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