
SERIES 54

PROXIMITY SENSORS

TECHNICAL SALES MANUAL



Bray®

Table of Contents

Technical Data	3
Features & Benefits	4
AS-i Interface	6
Harsh Environments	7
Technical Information	8
Series 54 Inductive Proximity Sensor 540001-71104533 TM-1065	10
Series 54 Inductive Proximity Sensor 540003-71104533 TM-1073	12
Series 54 Inductive Proximity Sensor 540004-71104533 TM-1070	17
Series 54 Inductive Proximity Sensor 540005-71104533 TM-1066	19
Series 54 Inductive Proximity Sensor 540013-71104533 TM-1062	22
Series 54 Inductive Proximity Sensor 540015-71104533 TM-1069	26
Series 54 Inductive Proximity Sensor 540021-71104533 TM-1064	29
Series 54 Inductive Proximity Sensor 540022-71104533 TM-1068	31
Series 54 Inductive Proximity Sensor 540032-71104533 TM-1067	33
Series 54 Inductive Proximity Sensor 540041-71104533 TM-1063	35
Series 54 Inductive Proximity Sensor 540043-71104533 TM-1074	37
Series 54 Inductive Proximity Sensor 541102-71104533 TM-1076	43
Series 54 Activator - Adjustable 54063A-14800536 TM-1071	51
Series 54 Activator - Non Adjustable 54063B-14800536 TM-1072	53
Series 54 Activator - High Visibility 54063C-14800536 TM-1075	55

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	
Design	Extreme low profile	Compact	Intrinsically Safe	Non-Sparking
Housing Material	Thermoplastic PBT	Thermoplastic PBT	Thermoplastic PBT	Powder coated aluminum and polycarbonate (PC)
Mounting	30x80mm 30x130mm	30x80mm 30x130mm	30x80mm 30x130mm	30x80mm 30x130mm
Connectivity	Connector Cable gland	Connector Cable gland	Connector Cable gland	Cable gland
Temperature Range	-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
Ingress Protection	IP66/67	IP66/67	IP66/67	IP66/67/69K
Electrical Output	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
Solenoid Outputs	None	One	One	One
Activator	Non adjustable	Standard adjustable High visibility adjustable	Standard adjustable High visibility adjustable	High visibility adjustable
Certifications				

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.

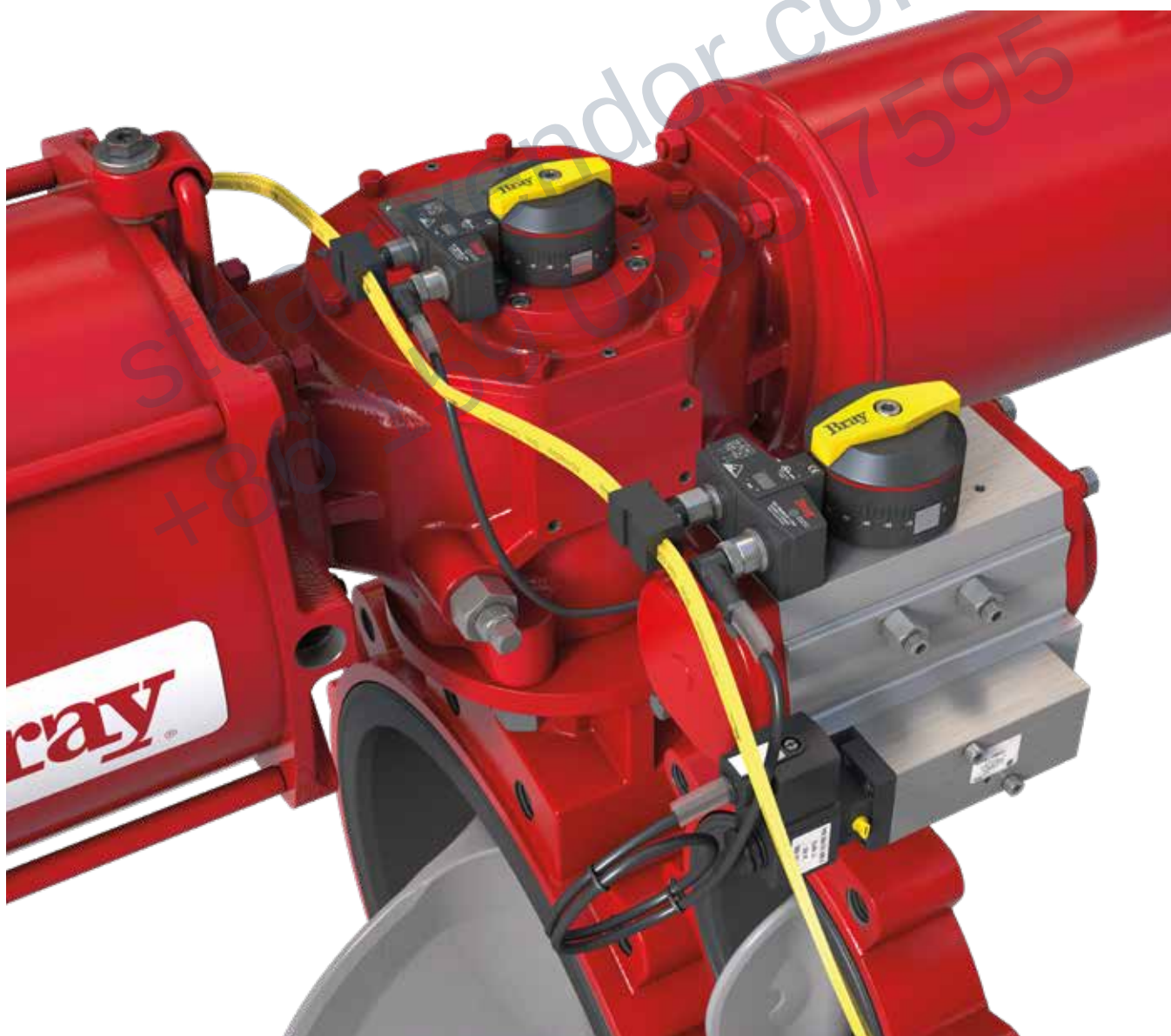
AS-i BENEFITS INCLUDE

- > 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
540013-71104533	NAMUR IS + Out	8 V	M20 x 1.5, qty 2 cable gland	Adjustable High Visibility
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

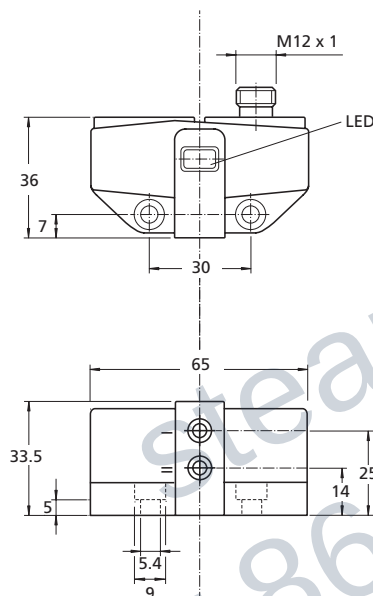
ACCESSORIES

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

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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

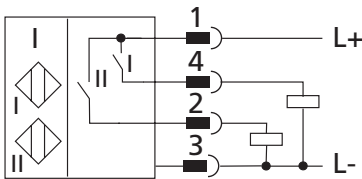
General specifications			
Switching function		2 x normally open (NO)	
Output type		PNP, 3-wire	
Rated operating distance	s _n	3 mm	
Installation		Flush mountable	
Output polarity		DC	
Assured operating distance	s _a	0 ... 2.43 mm	
Actual operating distance	s _r	2.7 ... 3.3 mm typ.	
Nominal ratings			
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	≤ 3 V	
Operating current	I _L	0 ... 100 mA	
Off-state current	I _r	0 ... 0.5 mA typ. 0.1 μA at 25 °C	
No-load supply current	I _O	≤ 25 mA	
Operating voltage indicator		LED, green	
Switching state indicator		LED, yellow	
Functional safety related parameters			
MTTF _d		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)		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 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	

ACTIVATORS

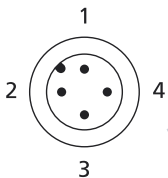


Activators sold separately

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

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

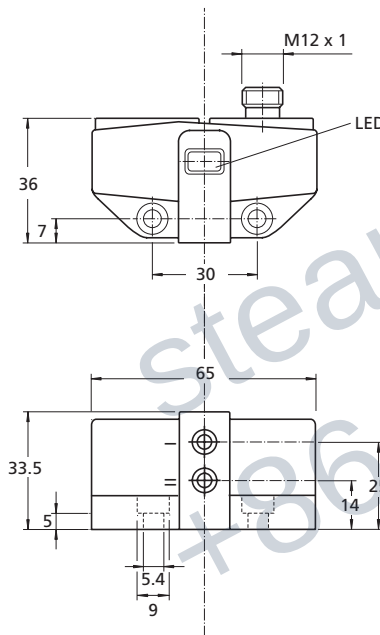
54160C-14800536	Fits Bray S92/93 Size 160 - Imperial
54160C-14850536	Fits Bray S92/93 Size 160 - Metric
54210C-14800536	Fits Bray S92/93 Size 210 - Imperial
54210C-14850536	Fits Bray S92/93 Sizes 210 to 255 - Metric

ACCESSORIES

090005-76145882	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



DIMENSIONS



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

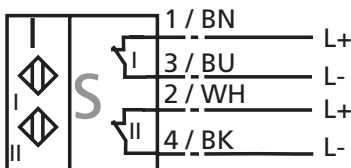
General specifications		
Switching function		2 x normally closed (NC)
Output type		NAMUR
Rated operating distance	s_n	3 mm
Installation		Flush mountable
Assured operating distance	s_a	0 ... 2.4 mm
Actual operating distance	s_r	2.7 ... 3.3 mm typ.
Actuating element		304 Stainless Steel
Nominal ratings		
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		≥ 3 mA
Measuring plate detected		≤ 1 mA
Time delay before availability	t_v	≤ 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

ACTIVATORS

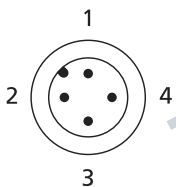


Activators sold separately

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	≤ 100 nF. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
Effective internal inductance	L_i	≤ 100 μ H. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
General		The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EU-type examination certificate has to be observed. 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 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..
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.
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		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. Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device. Additional requirements for gas group IIC. Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1

INSTRUCTION MANUAL - ATEX/IECEx (Gb)

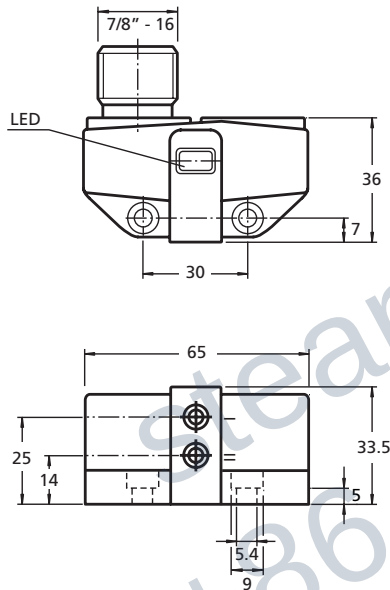
Equipment protection level Gb (ia)		
Instruction		Manual electrical apparatus for hazardous areas - gas group IIC
Device category		2G, for use in hazardous areas with gas, vapour and mist
Protection concept		Intrinsic safety
Standards		EN IEC 60079-0:2018, EN 60079-11:2012
CE marking		CE 2813
ATEX marking		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	≤ 100 nF. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
Effective internal inductance	L_i	≤ 100 μ H. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
General		The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EU-type examination certificate has to be observed. 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 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.
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.
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		No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible. 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		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.

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 ₂₀₀ 135°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 ₂₀₀ 135°C Da
IECEx certificate		IECEx TUN 17.0035X
Effective internal capacitance	C _i	< 100 nF. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
Effective internal inductance	L _i	< 100 µH. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
General		The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EU-type examination certificate has to be observed. Special conditions must be adhered to. The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions. The use in ambient temperatures of > 60 °C was tested with regard to hot surfaces by the mentioned certification authority. If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.
Ambient temperature	T _A	The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate. The maximum permissible ambient temperature of the data sheet must be noted, in addition, the lower of the two values must be maintained. Note: Use the temperature table for category 1.
Installation, commissioning		Laws and/or regulations and standards governing the use or intended usage goal must be observed. The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety. The associated apparatus must satisfy the requirements of category ia. Due to the possible danger of ignition, which can arise due to faults and/or transient currents in the equipotential bonding system, galvanic isolation of the power supply and signal circuit is preferable. Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met. Install the device in such a way that the resin surface is not exposed to mechanical hazards.
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		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. Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device. Additional requirements for dust group IIIC. Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1



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

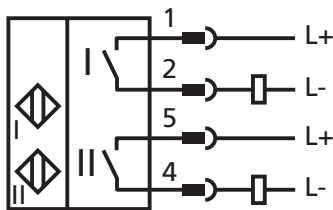
General specifications			
Switching function		2 x normally open (NO)	
Output type		Two-wire	
Rated operating distance	s _n	3 mm	
Installation		Flush mountable	
Output polarity		AC/DC	
Assured operating distance	s _a	0 ... 2.43 mm	
Output type		4-wire	
Nominal ratings			
Operating voltage	U _B	20 ... 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	≤8 V	
Operating current	I _L	4 ... 400 mA	
Off-state current	I _r	≤1.7 mA	
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 ... 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
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

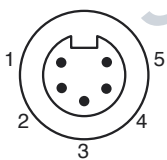


Activators sold separately

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

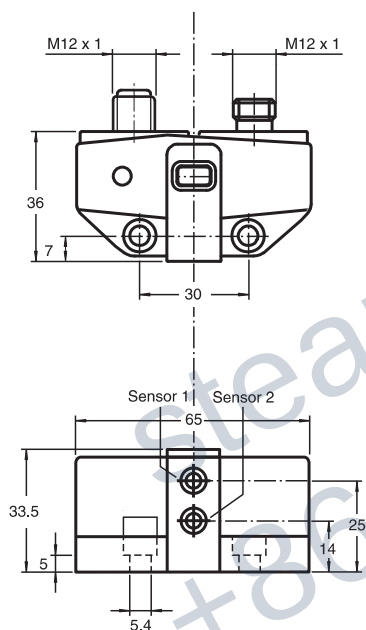
ACCESSORIES

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	≤ 35 mA

Functional safety related parameters

MTTF _d		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)
---------------------	-------	------------------------------

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

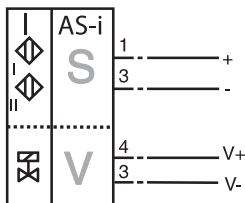


Activators sold separately

TECHNICAL DATA

Note		Valve voltage limited to 26,4 V max.; valve power 2,5 W max.	
Standard conformity			
Electromagnetic compatibility		EN 50295:1999-10	
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 ≤ 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

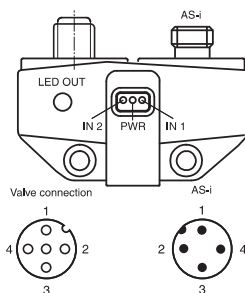
30 x 80 mm NAMUR Mounting, adjustable, High Visibility

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

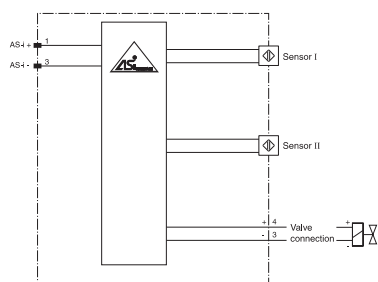
CONNECTOR PINOUT



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
0000	00000000
0001	00000001
0010	00000010
0011	00000011
0100	00000100
0101	00000101
0110	00000110
0111	00000111
1000	00001000
1001	00001001
1010	00001010
1011	00001011
1100	00001100
1101	00001101
1110	00001110
1111	00001111
1200	00010000
1201	00010001
1210	00010010
1211	00010011
1220	00010100
1221	00010101
1230	00010110
1231	00010111
1240	00011000
1241	00011001
1250	00011010
1251	00011011
1260	00011100
1261	00011101
1270	00011110
1271	00011111
1300	00100000
1301	00100001
1310	00100010
1311	00100011
1320	00100100
1321	00100101
1330	00100110
1331	00100111
1340	00101000
1341	00101001
1350	00101010
1351	00101011
1360	00101100
1361	00101101
1370	00101110
1371	00101111
1400	00110000
1401	00110001
1410	00110010
1411	00110011
1420	00110100
1421	00110101
1430	00110110
1431	00110111
1440	00111000
1441	00111001
1450	00111010
1451	00111011
1460	00111100
1461	00111101
1470	00111110
1471	00111111
1500	01000000
1501	01000001
1510	01000010
1511	01000011
1520	01000100
1521	01000101
1530	01000110
1531	01000111
1540	01001000
1541	01001001
1550	01001010
1551	01001011
1560	01001100
1561	01001101
1570	01001110
1571	01001111
1600	01010000
1601	01010001
1610	01010010
1611	01010011
1620	01010100
1621	01010101
1630	01010110
1631	01010111
1640	01011000
1641	01011001
1650	01011010
1651	01011011
1660	01011100
1661	01011101
1670	01011110
1671	01011111
1700	01100000
1701	01100001
1710	01100010
1711	01100011
1720	01100100
1721	01100101
1730	01100110
1731	01100111
1740	01101000
1741	01101001
1750	01101010
1751	01101011
1760	01101100
1761	01101101
1770	01101110
1771	01101111
1800	01110000
1801	01110001
1810	01110010
1811	01110011
1820	01110100
1821	01110101
1830	01110110
1831	01110111
1840	01111000
1841	01111001
1850	01111010
1851	01111011
1860	01111100
1861	01111101
1870	01111110
1871	01111111
1900	10000000
1901	10000001
1910	10000010

ID-code A

ID1-code 7

ID2-code E

Data bit

Bit	Function
7	Reserved
6	Reserved
5	Reserved
4	Reserved
3	Reserved
2	Reserved
1	Reserved
0	Reserved

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

D1 valve fault¹ (0=lead breakage/short circuit; 1=no fault)

D2 switch output sensor 1² (0=damped; 1=undamped)

D3 switch output sensor 2^2 (0=damped; 1=undamped)

Parameter bit

Bit	Function
7	Reserved
6	Reserved
5	Reserved
4	Reserved
3	Reserved
2	Reserved
1	Reserved
0	Reserved

P0 Watchdog (0=inactive; 1=active³)

P1 switching element function sensor II ⁴ (0=NO; 1= NC)

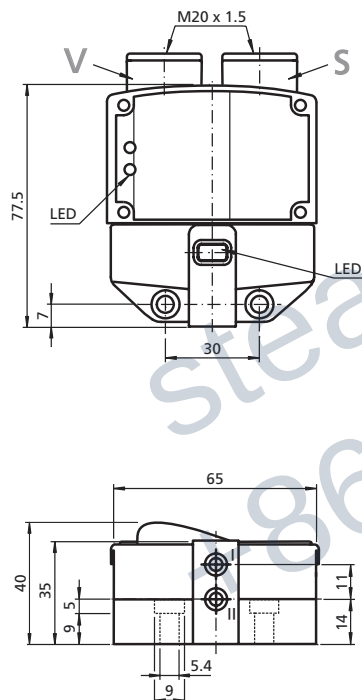
P2 switching element function sensor I⁴ (0=NO; 1= NC)

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



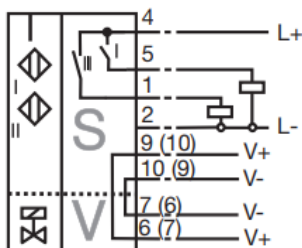
FEATURES

- > 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	≤ 3 V
Operating current	I_L	0 ... 100 mA
Off-state current	I_r	0 ... 0.5 mA typ. 0.1 μ A
No-load supply current	I_o	≤ 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)

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



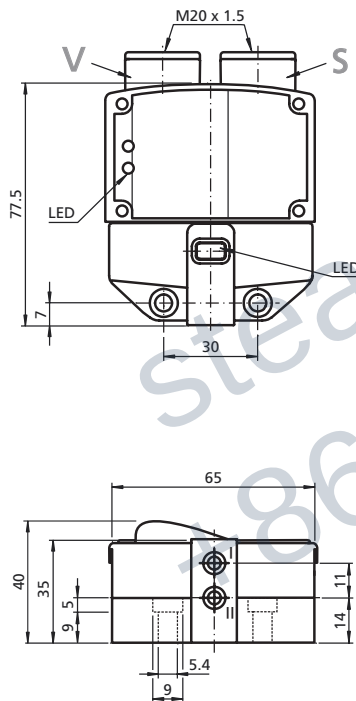
FEATURES

- > 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	≥ 3 mA
Measuring plate detected	≤ 1 mA
Time delay before availability	t_v ≤ 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 ² Flexible: 0.14 ... 1.5 mm ² Flexible with core-end sleeve: 0.25 ... 1.5 mm ²
Housing material	PBT
Sensing face material	PBT
Degree of protection	IP67
Tightening torque, housing screws	1 Nm

DIMENSIONS



ACTIVATORS



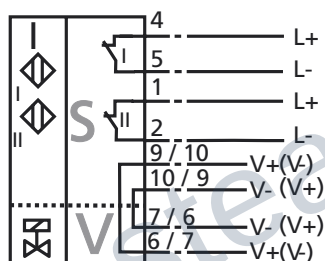
Activators sold separately

TECHNICAL DATA

Tightening torque, cable gland	M20 x 1.5 ; ≤ 7 Nm
Note	LED switch-off
General information	
Use in the hazardous area -ATEX	See instruction manuals for categories 1G & 2G
Use in hazardous area - N.A.	See control drawing: WD-000455
Compliance with standards and directives	
Standard conformity	EN IEC 60947-5-2:2020-03 EN 60947-5-6:2000-01
Approvals and certificates	
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

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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)

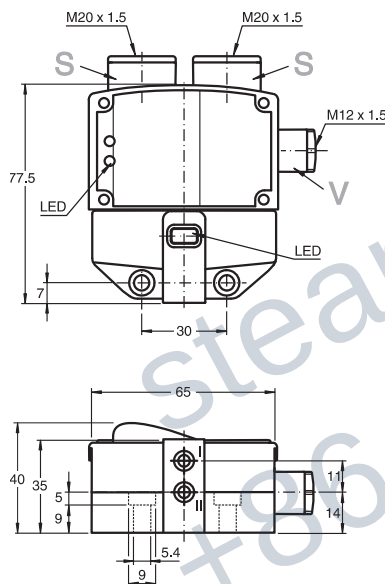
Equipment protection level Ga (ia)		
Instruction		Manual electrical apparatus for hazardous areas
Device category		1G, for use in hazardous areas with gas, vapour and mist
Protection concept		Intrinsic safety
Standards		EN IEC 60079-0:2018, IEC 60079-0:2017, EN 60079-11:2012, IEC 60079-11:2011
CE marking		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	≤ 100 nF. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
Effective internal inductance	L_i	≤ 100 μ H. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
General		The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EU-type examination certificate has to be observed. The special conditions must be adhered to. The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions. The use in ambient temperatures of $> 60^\circ\text{C}$ 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 EC-Type Examination Certificate. Note: Use the temperature table for category 1.
Installation, commissioning		Laws and/or regulations and standards governing the use or intended usage goal must be observed. The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety. The associated apparatus must satisfy the requirements of category ia. Due to the possible danger of ignition, which can arise due to faults and/or transient currents in the equipotential bonding system, galvanic isolation of the power supply and signal circuit is preferable. Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met.
Maintenance		No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.
Special conditions		
Protection from mechanical danger		When used in the temperature range below -20°C the sensor should be protected from knocks by the provision of an additional housing.
Electrostatic charge		Additional requirements for gas group IIB/IIC. Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device. Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1.
Lead insertion		The connection cables should either be fixed when laid and mechanically protected or installed in such a way, that a force of 30 N applied in the direction of the cable inlet for one hour, does not lead to any visible displacement of the cable connections, even though the cable sheathing is displaced, see also IEC 60079-11. Depending on the type of installation, a suitable cable in accordance with Type A or B of IEC 60079-14, must be used.

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	≤ 100 nF. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
Effective internal inductance	L_i	≤ 100 μ H. A cable length of 10 m is considered. The value is applicable for one sensor circuit.
General		The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EU-type examination certificate has to be observed. The special conditions must be adhered to. The ATEX directive and therefore the EU-type examination certificates apply in general only to the use of electrical apparatus under atmospheric conditions. The use in ambient temperatures of $> 60^\circ\text{C}$ 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 EC-Type Examination Certificate.
Installation, commissioning		Laws and/or regulations and standards governing the use or intended usage goal must be observed. The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety.
Maintenance		No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.
Special conditions		
Protection from mechanical danger		When used in the temperature range below -20°C the sensor should be protected from knocks by the provision of an additional housing.
Electrostatic charge		Additional requirements for gas group IIC. Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device. Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1.
Lead insertion		The connection cables should either be fixed when laid and mechanically protected or installed in such a way, that a force of 30 N applied in the direction of the cable inlet for one hour, does not lead to any visible displacement of the cable connections, even though the cable sheathing is displaced, see also IEC 60079-11. Depending on the type of installation, a suitable cable in accordance with Type A or B of IEC 60079-14, must be used.



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		≥ 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	≤ 35 mA
Functional safety related parameters		
MTTF _d		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)
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 ² 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 ² 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.

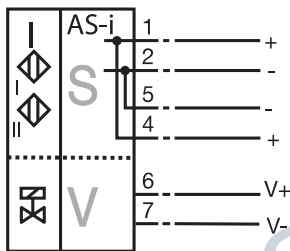
Standard conformity

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

Approvals and certificates

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

WIRING DIAGRAM



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

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 fault¹ (0=lead breakage/short circuit; 1=no fault)

D2 switch output sensor 1² (0=damped; 1=undamped)

D3 switch output sensor 2² (0=damped; 1=undamped)

Parameter bit

Bit Function

P0 Watchdog (0=inactive; 1=active³)

P1 switching element function sensor II⁴ (0=NO; 1= NC)

P2 switching element function sensor I⁴ (0=NO; 1= NC)

P3 not used

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

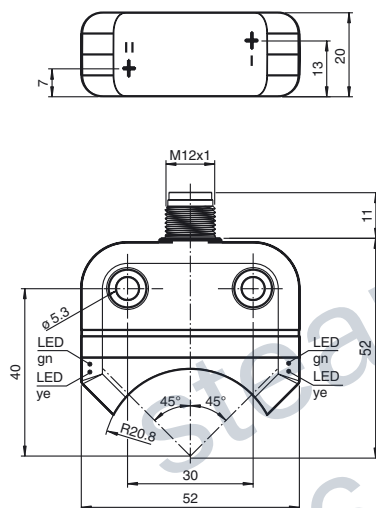
2) Applies to NC function (P2/P3=1; preset), with NO function (P2/P3=0) reversed characteristics

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	≤ 2.5 V
Operating current	I_L	0 ... 200 mA
Off-state current	I_r	0 ... 0.5 mA typ. 0.1 μ A at 25°C
No-load supply current	I_O	≤ 22.5 mA
Time delay before availability	t_v	≤ 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 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



Activator sold separately

ACTIVATOR AND MOUNTING KITS

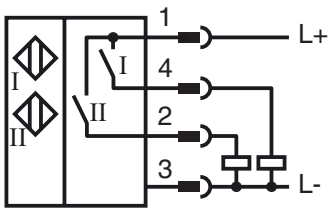
30 x 80 mm NAMUR Mounting, non adjustable

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

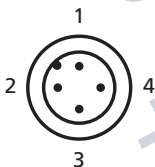
WIRING DIAGRAM



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

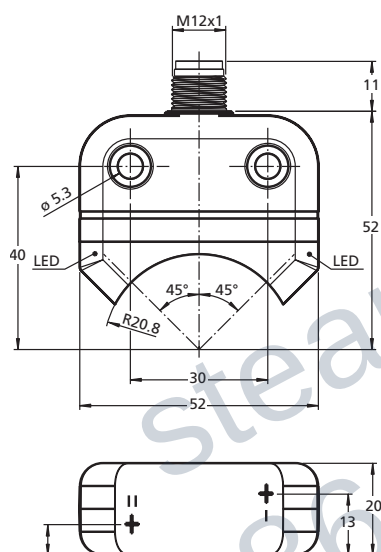


Wire colors in accordance with
EN 60947-5-2

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



DIMENSIONS



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 ≤ 4.5 V
Operating current	I_L 4 ... 100 mA
Off-state current	I_r 120 ... 200 μ A typ. 175 μ A at 25°C
Time delay before availability	t_v ≤ 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 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

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

ACTIVATOR



Activator sold separately

ACTIVATOR AND MOUNTING KITS

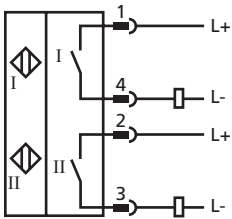
30 x 80 mm NAMUR Mounting, non adjustable

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

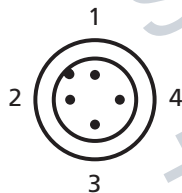
WIRING DIAGRAM



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

CONNECTOR PINOUT

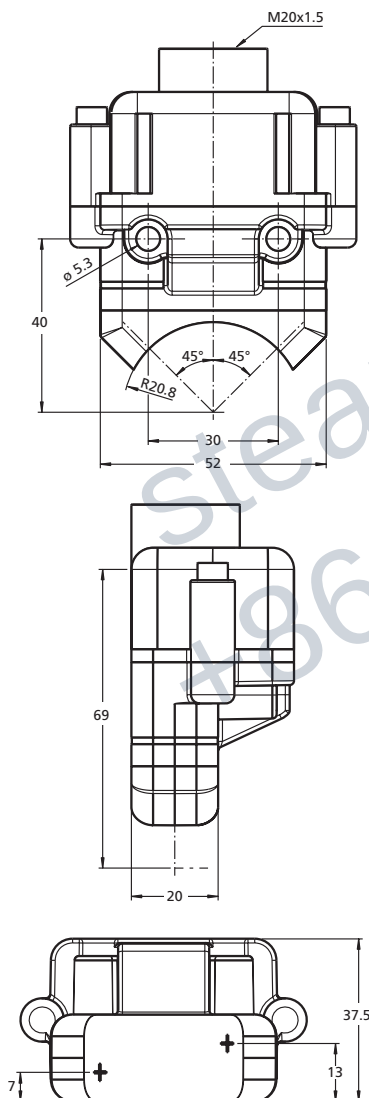


Wire colors in accordance with
EN 60947-5-2

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



DIMENSIONS



FEATURES

- > DC 2-wire sensor with plug-in 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	≤ 4.5 V
Operating current	I_L	4 ... 100 mA
Off-state current	I_r	120 ... 200 μ A typ. 175 μ A at 25°C
Time delay before availability	t_v	≤ 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 ≤ 36 V

ACTIVATOR



ACTIVATOR AND MOUNTING KITS

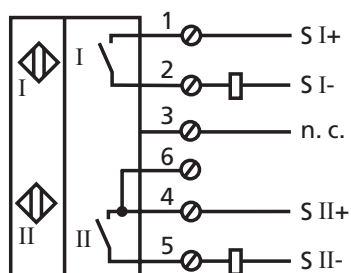
30 x 80 mm NAMUR Mounting, non adjustable

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

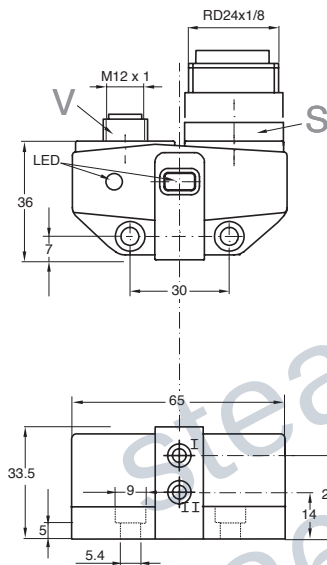
54119B-14800536	Fits Bray S92/93 Sizes 119 to 210 - Imperial
54119B-14850536	Fits Bray S92/93 Sizes 119 to 255 - Metric

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

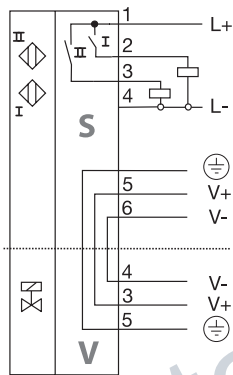
General specifications		
Switching function		2 x normally open (NO)
Output type		PNP, 3-wire
Rated operating distance	s_n	3 mm
Installation		Flush mountable
Output polarity		DC
Assured operating distance	s_a	0 ... 2.43 mm
Nominal ratings		
Operating voltage	U_B	10 ... 30 V DC
Switching frequency	f	0 ... 500 Hz
Hysteresis	H	Typ. 5%
Reverse polarity protection		All connections
Short-circuit protection		Pulsing
Voltage drop	U_d	≤ 3 V
Operating current	I_L	0 ... 100 mA
Off-state current	I_r	0 ... 0.5 mA typ. 0.1 μ A at 25°C
No-load supply current	I_o	≤ 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 ≤ 36 V

ACTIVATORS

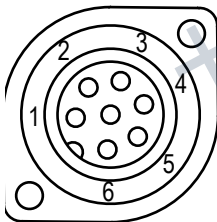


Activators sold separately

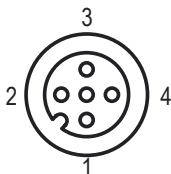
WIRING DIAGRAM



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		≥ 3 mA
Measuring plate detected		≤ 1 mA
Time delay before availability	t_v	≤ 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

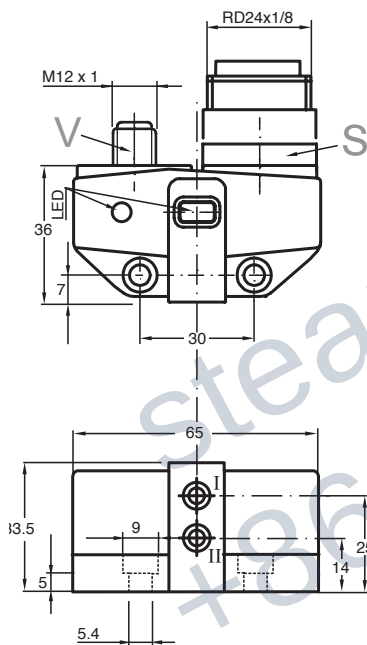
Ambient conditions

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



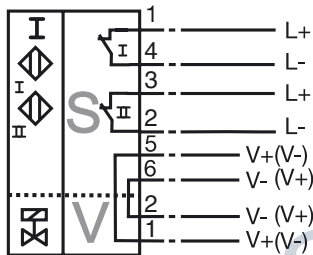
Activators sold separately

TECHNICAL DATA

Sensing face material	PBT
Degree of protection	IP67
Use in the hazardous area	See instruction manuals
Standard conformity	
Standards	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	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

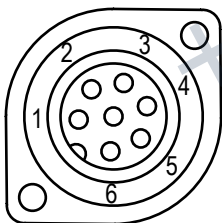
30 x 80 mm NAMUR Mounting, adjustable, High Visibility

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

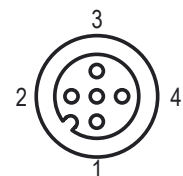
30 x 130 mm NAMUR Mounting, adjustable, High Visibility

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.
090001-76174580	S-Connector Cordset (S60) - M12 male right angle 2-pins + PE) to Form A solenoid connector (DIN 43650), 0.3 meters
600250-21526536	Series 60, Solenoid Valve NAMUR mount 3/2 or 5/2, Form A connector, Single coil 24VDC, Intrinsically Safe
600250-21536536	Series 60, Solenoid Valve NAMUR mount 3/2 or 5/2, Form A connector, Dual coil 24VDC, Intrinsically Safe

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		Ex 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	≤ 100 nF The value is applicable for one sensor circuit. A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 100 μ 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	≤ 10 nF
Internal inductance	L_i	≤ 20 μ H
Voltage	U_i	≤ 32 V
Current	I_i	≤ 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°C the sensor should be protected from knocks by the provision of an additional housing.

Electrostatic charge	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. Avoid electrostatic charges that can cause electrostatic discharge when installing or operating the device. Additional requirements for gas group IIC. Information on electrostatic hazards can be found in the technical specification IEC/TS 60079-32-1
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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		Ex 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	≤ 100 nF The value is applicable for one sensor circuit. A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 100 μ 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	≤ 10 nF
Internal inductance	L_i	≤ 20 μ H
Voltage	U_i	≤ 32 V
Current	I_i	≤ 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°C the sensor should be protected from knocks by the provision of an additional housing.



Electrostatic charge	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. 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
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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	≤ 3 V
Operating current	I_L	0 ... 100 mA
Off-state current	I_R	0 ... 0.5 mA typ. 0.1 μ A at 25 °C
No-load supply current	I_o	≤ 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

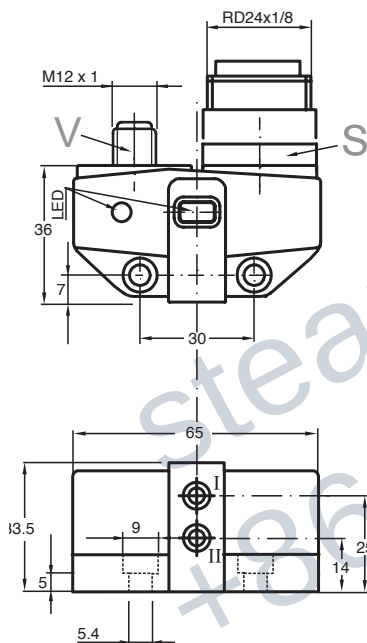
Ambient conditions

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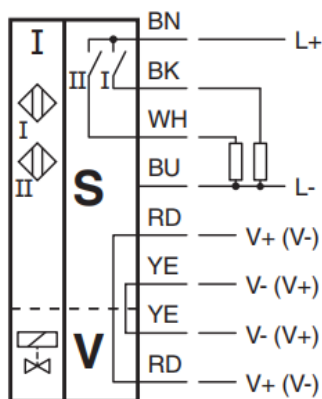
Mechanical specifications

Connection (system side)		PVC cable 5 m
Core cross-section (system side)		0.75 mm ²
Connection (valve side)		PVC cable 0.5 m
Core cross-section (valve side)		0.75 mm ²
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

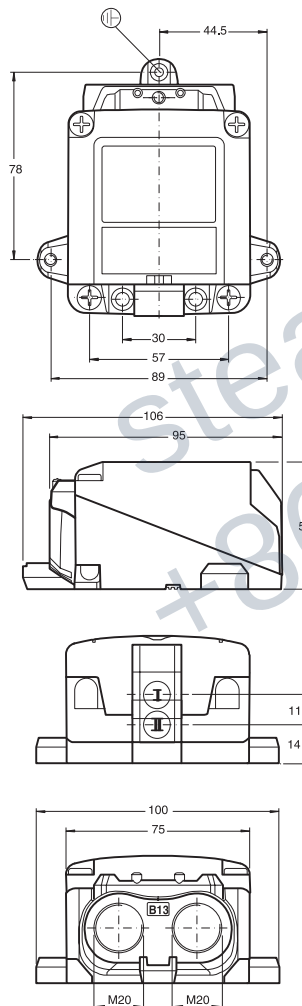
Note: The connections to this sensor are sealed with stopping plugs to protect against dirt and moisture. If your application does not require the use of all connections, permanently seal stopping plugs onto unused connections or ensure that stopping plugs are secure and impermeable during initial installation 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 ≤ 6 V
Operating current	I_L 4 ... 100mA
Off-state current	I_r 100 ... 200 μ A, typical 160 μ 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 ² , 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 ² , flexible/rigid. For Multiple-wire connection: two wires of equal cross-section per 0.25...1 mm ²
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

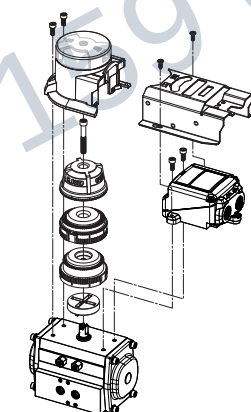
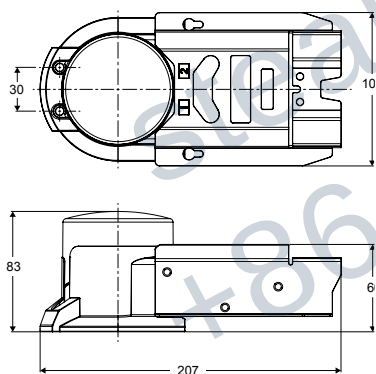
General specifications	
Housing material	PC
Activator material	PA
Protective cover material	V4A/316L
Valve status indicator	Red = CLOSED Green = OPEN
Indicator adjustments	5 degree increments
Activator adjustment - top level	5 degree increments
Activator adjustment - bottom level	90 degree increments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

INDUCTIVE SENSOR KIT

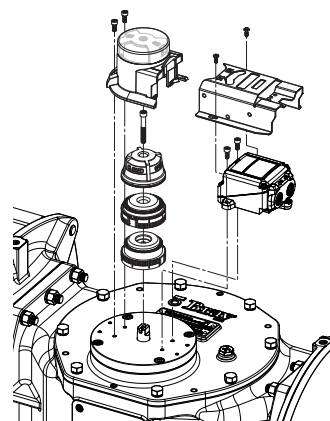
30 x 80mm mounting pattern, adjustable activator

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



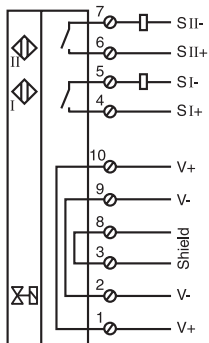
Series 98 Actuator

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

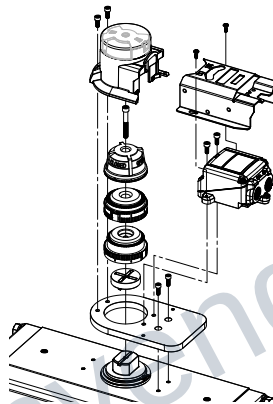
WIRING DIAGRAM



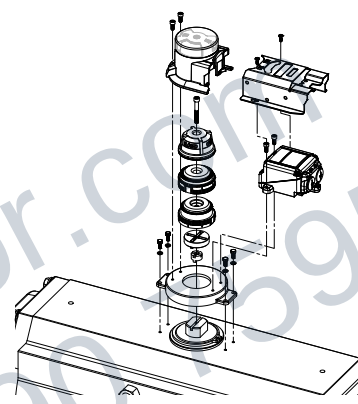
INDUCTIVE SENSOR KIT

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 IIIC
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	Ex 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 www.bray.com . 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.
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 [TUmaz]	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

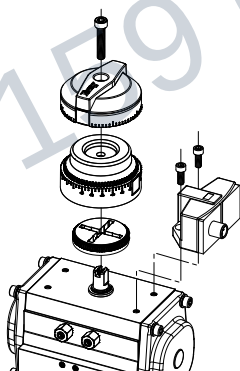
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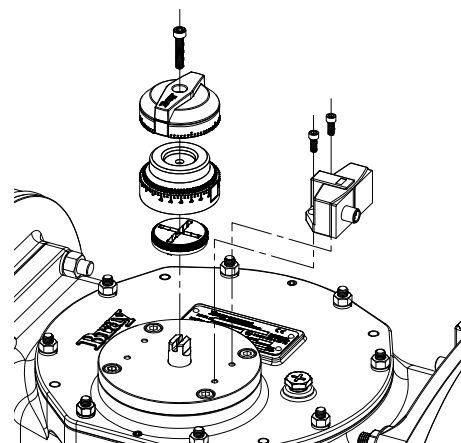
ACTIVATOR AND MOUNTING KITS

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

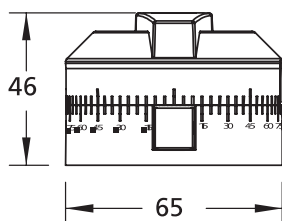


Series 92/93 Actuator



Series 98 Actuator

DIMENSIONS



Parts List

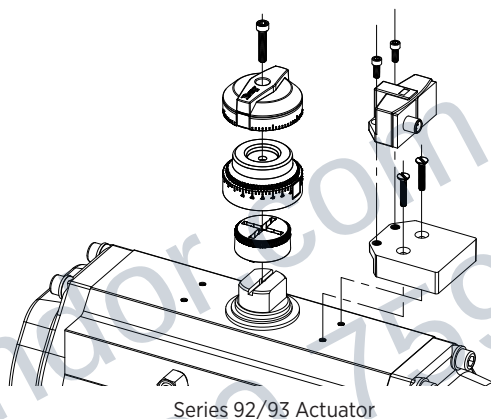
Qty	Imperial - 54063A-14800536	Metric - 54063A-14850536
1	Activator	Activator
1	Pinion adaptor	Pinion adaptor
1	Socket head capscrew M6x1x30mm,SS	Socket head capscrew M6x1x30mm,SS
2	Socket head capscrew #10-32X7/16,SS	Socket head capscrew M5X.8,12MM,SS
2	Socket head capscrew #10-32X5/8,SS	Socket head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



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

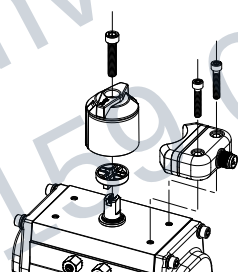
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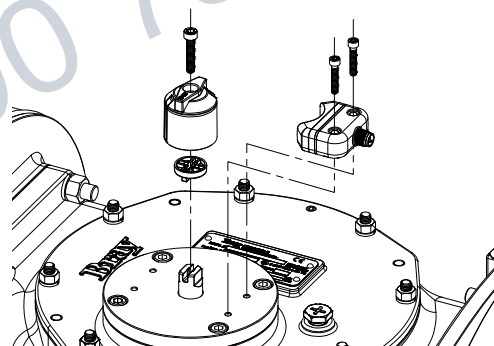
ACTIVATOR AND MOUNTING KITS

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

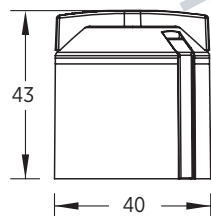


Series 92/93 Actuator



Series 98 Actuator

DIMENSIONS



Parts List

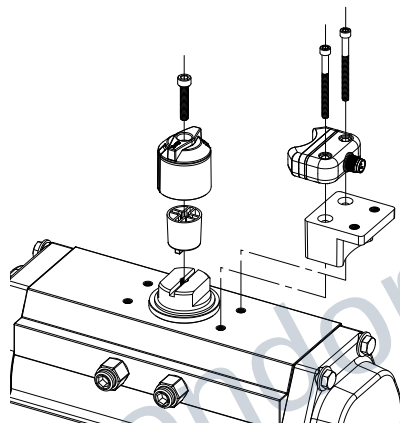
Qty	Imperial - 54063B-14800536	Metric - 54063B-14850536
1	Activator	Activator
1	Pinion adaptor	Pinion adaptor
1	Socket head capscrew M6x1x30mm,SS	Socket head capscrew M6x1x30mm,SS
2	Socket head capscrew #10-32X1.0,SS	Socket head capscrew M5X0.8X25mm,SS
2	Socket head capscrew #10-32X1.50,SS	Socket head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

See Series 54 IOM for full mounting details

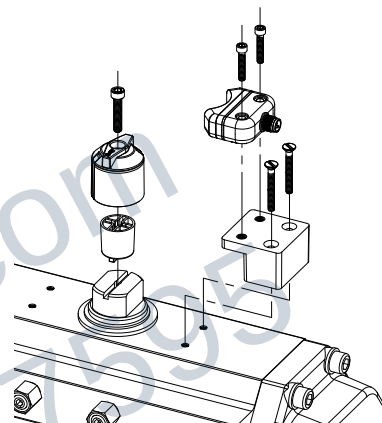
ACTIVATOR AND MOUNTING KITS

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

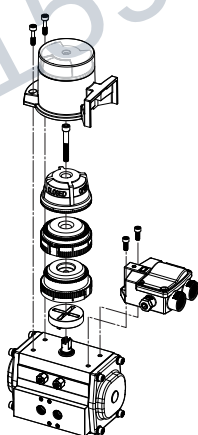
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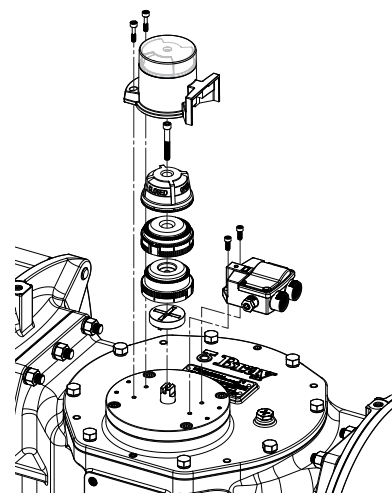
ACTIVATOR AND MOUNTING KITS

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

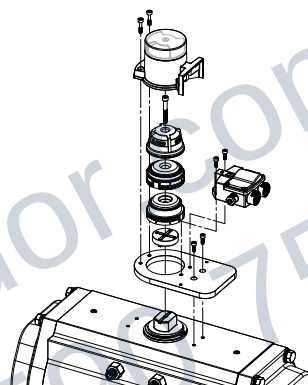
Qty	Imperial - 54063C-14800536	Metric - 54063C-14850536
1	Activator assembly	Activator assembly

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

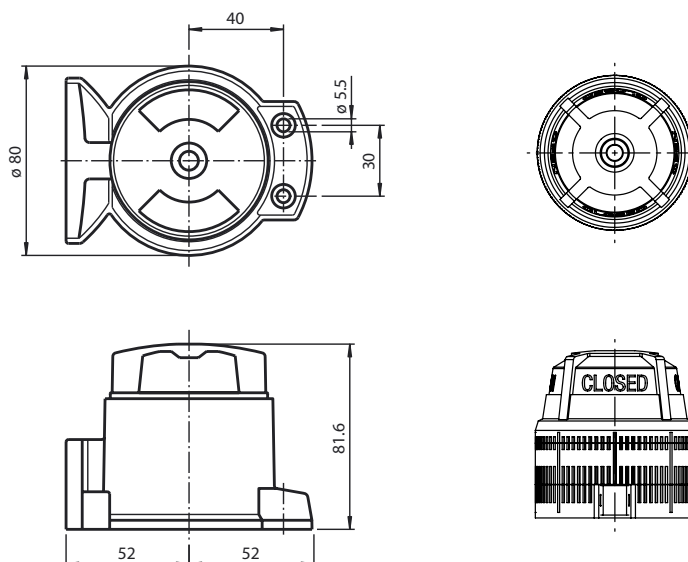


Series 92/93 Actuator

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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