



BrayLINE
CONTROLS

SERIES 52

2 PROXIMITY SENSORS IN 1 ENCLOSURE
DC, AC, NAMUR & BUS SMART VERSIONS

2N1™ PROXSENSOR

VALVE STATUS MONITOR

Bray 2N1™ ProxSensor THE FUTURE OF VALVE POSITION SIGNALING

Bray Controls proudly introduces the new 2N1™ ProxSensor valve status monitor. Bray's innovative engineering has uniquely combined 2 proximity sensors in 1 self-contained, fully sealed, compact enclosure. The line has been expanded to further meet the needs of today's discrete manufacturing and process industries. DeviceNet, PROFIBUS DP and AS-i BUS network units with solenoid drive are now available.

The Series 52 offers the bounce-free electronic valve signaling required for all PLC, computer and solid state circuitry vital to process control and information networks. Costly external junction boxes are eliminated and field wiring costs are greatly reduced. Bray's approach delivers the most compact, reliable and economical valve position monitoring system available.

ELECTRICAL CONNECTION

A multi-pin electrical connector is designed for full compatibility with today's industrial wiring requirements. Standardized factory pre-wiring prevents field wiring errors and provides quick-connect installation.

2N1 POLYMER ENCLOSURE

Bray's design of 2 sensors in 1 rugged enclosure greatly reduces space requirements and expensive housings needed for previous dual switch applications. The epoxy resin encapsulation protects the sensors against vibration or shock.



LOCAL POSITION INDICATION

A **Valve Position Pointer**, made of highly visible yellow ABS material, shows valve position locally throughout the full range of travel.

LED Indicators give positive verification that the sensors are electrically functioning and show the target position has been reached.

Bray offers a high visibility **Valve Position Display** as an option. Prominently labeled and color coded – yellow for open, black for closed – the display indicates valve position throughout the full range of travel.

MOISTURE, CHEMICAL AND CORROSION PROTECTION

The two proximity sensors are completely encapsulated with epoxy resin in a rigid polymer enclosure that is impervious to moisture and most chemical and corrosive agents. Once the multi pin connection is made, the cable link to plant wiring is completely sealed. No removable covers or conduit entries are used, eliminating the possibility of failure due to moisture. These protections make the 2N1 ProxSensor the best choice for hostile environments.

VALVE POSITION TARGETS

Unique, symmetrically designed targets are mounted inside the valve position carrier. The **Standard Targets** are factory pre-aligned for Bray products. No cams or set screws are required and time consuming field adjustment is eliminated. The standard targets are stainless steel and non-magnetic. The sensors will not attract and be falsely tripped by loose metal objects. Magnetic targets are used for BUS network sensors. The **Adjustable Target** allows the customer to individually set the valve position signal of both open and closed directions at incremental angles.



Standard Target with sensors set at 90° signaling the Open position.



Adjustable Target with sensors set signaling at the near Closed position.



SERIES 52 MODELS

Inductive Proximity Sensors

These sensors are solid state electronic controls which provide high resolution, are spark free and contain no moving electrical parts to wear out.

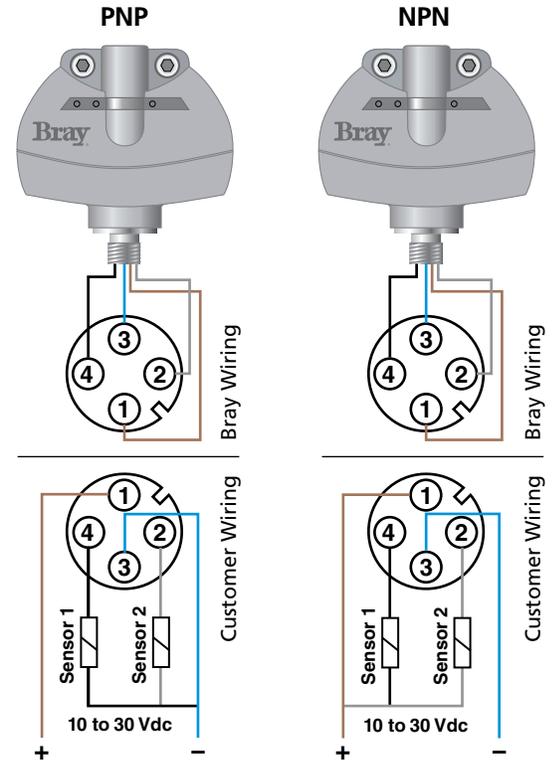
DC The standard DC sensors, offered as either PNP or NPN, have an economical internal amplifier and operate on 10 to 30 VDC. A NAMUR Intrinsically Safe DC sensor can be supplied for use with an IS barrier amplifier.

The DC connector is 4-pin, M12 thread.

AC AC sensors operate on 20 to 250 VAC. No external switching amplifier is needed for AC applications.

The AC connector is 5-pin, 7/8" thread.

DC Inductive Proximity Sensors



BUS Network Powered Proximity Sensors with Solenoid Drive

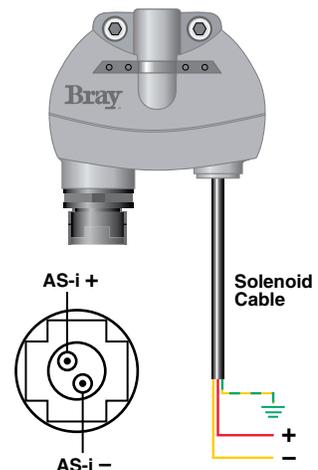
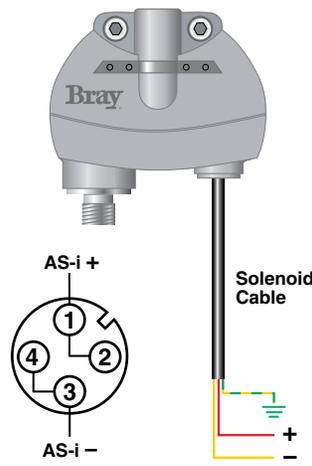
Bray's BUS intelligent valve status monitors offer all the standard Series 52 features plus network communication and remote access to valve position and diagnostics. AS-i, DeviceNet and PROFIBUS DP units are available. All network units contain two BUS powered proximity sensors, applicable network pin connection and a solenoid drive connection. They can be supplied with a Bray solenoid which may be powered by the network.

AS-i Proximity Sensors with Solenoid Drive

M12 Connector



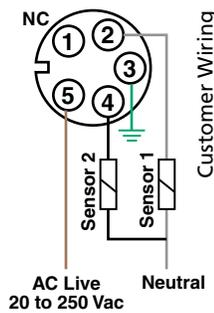
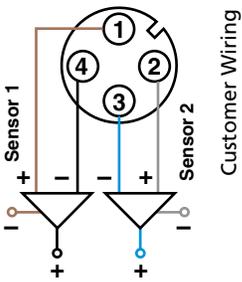
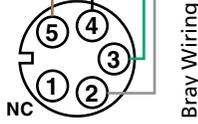
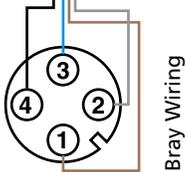
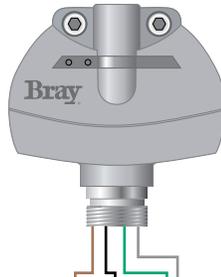
Flat Cable Connector



2N1
Drox Sensor™

AC Inductive Proximity Sensors

NAMUR Intrinsically Safe



DIMENSIONS

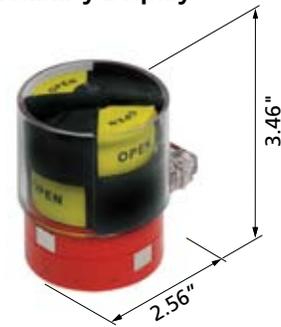
Sensor Unit



Target Carrier



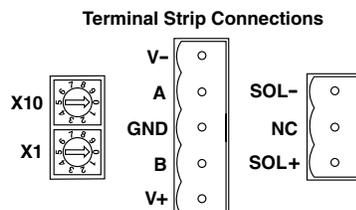
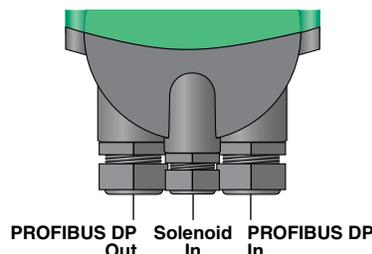
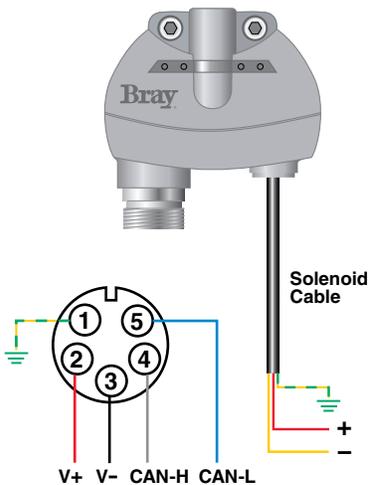
Target with High Visibility Display



DeviceNet Proximity Sensors with Solenoid Drive



PROFIBUS DP Proximity Sensors with Solenoid Drive



ACCESSORIES

Cordsets: Quick-connect cable connections to matching pins of the Series 52 and flying leads for traditional customer connections.

Extension Cords/Receptacles: Quick-connect cable connections at both ends, mates with receptacle at the junction box.

Cordsets and Extension Cords/Receptacles are available for all Series 52 Sensors.

Conduit Adapter: Quick-connect conduit adapters for connection of conduit to the Series 52 (AC sensors only).

SERIES 52 ADVANTAGES

The 2N1 ProxSensor offers the following advantages:

vs. Mechanical Snap Acting Switches

- No switch sparking (arcing or wear)
- No contact bounce
- No moving switch elements
- Fully sealed enclosure

vs. Magnetic Reed Switches

- No switch sparking (wear)
- No contact bounce
- No moving switch elements
- Not fragile to vibration or shock

vs. Externally Mounted Proximity Switches

- 2 sensors in 1 enclosure
- No brackets required
- More compact design
- Reduced installation cost

vs. Two Inductive Proximity Switches in standard switchbox

- Lower cost
- More compact design
- Fully encapsulated enclosure
- Reduced installation cost

DIRECT MOUNTING TO BRAY PNEUMATIC ACTUATORS

The 2N1™ ProxSensor mounts directly to Bray pneumatic actuators without using external brackets and adapters, eliminating contamination buildup between sensor and actuator. The mounting pattern complies with VDI/VDE 3845 (NAMUR recommendations).

MANUAL VALVES

As an option, the 2N1 Proxsensor can be configured to signal valve position of manually operated Bray butterfly valves and a wide variety of other manual quarter turn valves.



APPLICATIONS

The Series 52 is the best solution for applications where:

- remote valve position indication is needed.
- fast electronic control systems require an input signal with no contact bounce and low energy consumption.
- rapid response capability and a high sensing rate are needed.
- hostile environments demand excellent moisture, chemical and corrosion resistance.
- long service life and reliability are expected.

INDUSTRIES

Bray's 2N1 Proxsensor is applicable to a wide range of industries world-wide including: Chemical, Pharmaceutical, Petroleum Refining, Microelectronics, Pulp and Paper, Water and Waste Water Treatment, Brewing, Food Processing, Beverages, Power Generation, Mining, Marine, Textile and HVAC.

INTEGRAL Y-CONNECTION

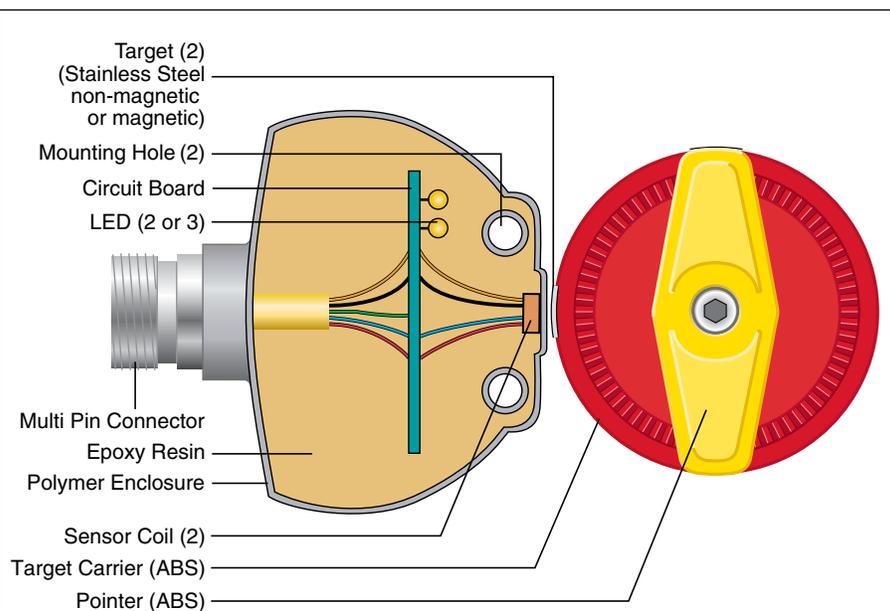
Bray offers a "Y" cable to combine a Series 52 and DIN solenoid into a single connection. The Y-Connection can be wired to a remote electrical junction box by either cordset, extension cord or conduit adapter. Bray can supply a Series 52, solenoid and actuator as a completely assembled system.



FULL 5-YEAR WARRANTY

Bray's confidence in the reliability and long service life of the Series 52 is demonstrated by a unique **5-year warranty** against material or workmanship defects.

COMPONENTS & MATERIALS



Bray connectors are stainless steel for high corrosion resistance and feature gold plated contact pins, longer threads which completely cover the contact pins, and positive keying that prevents improper assembly. Connections between the Series 52 and cord sets / extension cords provide a secure, weatherproof fit.

SPECIFICATIONS

Inductive Proximity Sensors

Parameter	DC Sensor PNP	DC Sensor NPN	NAMUR Sensor Intrinsically Safe	AC Sensor
Operating Voltage	10 - 30 VDC	10 - 30 VDC	7 - 12 VDC from IS barrier	20 - 250 VAC
Power Frequency	N/A	N/A	N/A	50 - 60 Hz
Switch Type	Inductive	Inductive	Inductive	Inductive
Target Type	Metal (non-magnetic)	Metal (non-magnetic)	Metal (non-magnetic)	Metal (non-magnetic)
Electrical Configuration	DC - PNP - NO	DC - NPN -NO	(IS) NAMUR - NC	AC
Maximum Load Current	200 mA DC	200 mA DC	Limited by IS barrier	500 mA AC
Output Voltage Drop (powered)	< 2 VDC	< 2 VDC	8 VDC	< 5 VAC
Residual Current (not powered)	< 0.02 mA DC	< 0.02 mA DC	N/A	< 1 mA AC
Output Protection	Short Circuit & Overload	Short Circuit & Overload	N/A	None
Maximum Switching Frequency	400 Hz	400 Hz	400 Hz	10 Hz
Power Indicator	LED (green)	LED (green)	Uses the Position LEDs	None
Sensor Position Indicator	2 LEDs (yellow)	2 LEDs (yellow)	2 LEDs (yellow)	2 LEDs (yellow)
Housing Material	PBT VO Polymer	PBT VO Polymer	PBT VO Polymer	PBT VO Polymer
Protection Class	NEMA 4 / IP67	NEMA 4 / IP67	NEMA 4 / IP67	NEMA 4 / IP67
Output Connector	4-pin M12	4-pin M12	4-pin M12	5-pin 7/8"
Operating Temperature	-13°F (-25°C) to 158°F (70°C)	-13°F (-25°C) to 158°F (70°C)	-13°F (-25°C) to 158°F (70°C)	-13°F (-25°C) to 158°F (70°C)

BUS Network Powered Proximity Sensors with Solenoid Drive

Parameter	AS-i Flat Connector	AS-i M12 Connector	DeviceNet	PROFIBUS DP
Operating Voltage	30.5 VDC AS-i Network	30.5 VDC AS-i Network	24 VDC DN Network	24 VDC DP Network
Consumption Current	< 30 mA DC	< 30 mA DC	< 20 mA DC	< 30 mA DC
Switch Type	Hall Effect	Hall Effect	Hall Effect	Hall Effect
Target Type	Magnetic	Magnetic	Magnetic	Magnetic
Electrical Configuration	AS-i Spec 3.2 *	AS-i Spec 3.2 *	DeviceNet	PROFIBUS DP
Addressing	62 Addresses	62 Addresses	0 to 63 MAC ID	0 to 99 programmable
Data Bits	Input Bit 0: Sensor 1 Input Bit 1: Sensor 2 Output Bit 0: Solenoid Drive	Input Bit 0: Sensor 1 Input Bit 1: Sensor 2 Output Bit 0: Solenoid Drive	Input Bit 0: Sensor 1 Input Bit 1: Sensor 2 Output Bit 0: Solenoid Drive	Input Bit 0: Sensor 1 Input Bit 1: Sensor 2 Output Bit 0: Solenoid Drive
I/O and ID	I/O=3h, ID=Ah, ID2=1h	I/O=3h, ID=Ah, ID2=1h	N/A	N/A
Diagnostics	Solenoid Coil Fault	Solenoid Coil Fault	Solenoid Coil Fault Power Supply Fault	Solenoid Coil Fault Power Supply Fault
Watchdog Timer		Solenoid Output turns Off without Network Communication		
Network Indicator	Bicolor LED (red/green)	Bicolor LED (red/green)	Bicolor LED (red/green)	Bicolor LED (red/green)
Network Communication Type	Master / Slave	Master / Slave	Polled	Master / Slave
Network Comm. Connector	AS-i Flat Displacement	4-pin M12 thread	5-pin 7/8" thread	5-pin inline plug
Network Speed	N/A	N/A	125 / 250 / 500 Kbaud	Up to 1.5 Mbaud
Sensor Position Indicator	2 LEDs (yellow)	2 LEDs (yellow)	2 LEDs (yellow)	2 LEDs (yellow)
Solenoid Drive Output	24 VDC (3.6 W max.)			
Solenoid Output Indicator	LED (yellow)	LED (yellow)	LED (yellow)	LED (yellow)
Solenoid Connection	3-wire PVC cable 0.7 m long, 6.0 mm diameter black, 20 AWG copper conductors			
Housing Material	PBT VO Polymer	PBT VO Polymer	PBT VO Polymer	PBT VO Polymer
Protection Class	NEMA 4 / IP67			
Operating Temperature	-13°F (-25°C) to 158°F (70°C)			

* **Note:** Hardware AS-i version 3.2 configured as AS-i version 2.1.

All Series 52 Valve Status Monitors are manufactured under ISO 9001 conditions.

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 **Bray** CONTROLS

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