

# SERIES BNS36

## Coded-Magnet Sensors



### Description

The Series BNS36 coded-magnet sensors are designed for use as a safety interlock switch on movable machine guards/articulating robot arms. Each sensor set consists of a multiple reed switch unit and a coded-magnet actuator. The reed switches, wired in series, will only close in the presence of their matched magnetic field array.

Both switch and magnet assemblies are sealed to IP67 (submersible) standards. Their tamper-resistant design prevents bypassing with a simple magnet or improperly coded magnetic field. In addition, the BNS module features an optional built-in LED display of switch status, and a 1-meter long prewired pigtail or an available connector.

### Operation

The reed switch assembly is typically mounted to a stationary portion of a guard structure, with the coded-magnet assembly mounted to the movable element of the machine guard. When the guard is closed, and the matched magnetic field aligns with the reed switch unit, the switches will close. When the guard is open, or the required magnetic-field array is not properly aligned with the reed switch assembly, the sensor output will remain "off."

### Typical Applications



The sealed, compact BNS36 is ideal for use on movable machine guards in hostile environments. Typical applications include food processing equipment, chemical processing equipment, woodworking machinery, packaging machinery, and articulating robot arm rest position sensing.

Note: See page 94 for appropriate M8 connector cables. 4 pole models accept either a screw-on or snap-on connector.

6 pole models (with signalling output) accept only a snap-on connector.

### Features & Benefits

- **Compact size** ... ideal for limited space applications.
- **Sealed for submersibility** ... assures long-term reliability in the most hostile environments.
- **Tamper-resistant** ... cannot be bypassed with simple magnets.
- **Rugged, corrosion-resistant housing** ... tolerates most industrial environments.
- **Integral LED status indicators** ... facilitate easy installation and provide visual indication of switch status.
- **Shock and vibration tolerant** ... designed to withstand mechanical abuse.
- **Satisfy CE & fail-to-safe requirements** ... when used with Series AES safety controllers.
- **Satisfy PL<sub>c</sub>, PL<sub>d</sub>, or PL<sub>e</sub> to EN ISO 13849-1, or Category 1, 3, or 4 to EN 954-1** ... when used with appropriate Schmersal safety controllers.

### AVAILABLE MODELS

(Actuator ordered separately)

Part Number	Contacts	Connection
BNS36-02Z-*	2 NC	prewired
BNS36-02ZG-*	2 NC	1 meter cable
BNS36-02Z-ST*	2 NC	M8, 4 pole connector
BNS36-02ZG-ST*	2 NC	
BNS36-11Z-*	1 NO & 1 NC	prewired
BNS36-11ZG-*	1 NO & 1 NC	1 meter cable
BNS36-11Z-ST*	1 NO & 1 NC	M8, 4 pole connector
BNS36-11ZG-ST*	1 NO & 1 NC	
With 1 NC signalling contact		
BNS36-02/01Z-*	2 NC	prewired
BNS36-02/01ZG-*	2 NC	1 meter cable
BNS36-02/01Z-ST*	2 NC	M8, 6 pole connector
BNS36-02/01ZG-ST*	2 NC	
BNS36-11/01Z-*	1 NO & 1 NC	prewired
BNS36-11/01ZG-*	1 NO & 1 NC	1 meter cable
BNS36-11/01Z-ST*	1 NO & 1 NC	M8, 6 pole connector
BNS36-11/01ZG-ST*	1 NO & 1 NC	

\*Please indicate hinge direction: -L (left) or -R (right)

### CODED MAGNET ACTUATORS & ACCESSORIES

Model Number	Description
BPS36-1	Standard Actuator
BPS36-2	Actuator for 90° operation
BNS36	Spacer for mounting reed switch or magnet on ferrous material

**Important Note:** Series BNS Coded-magnet sensors are for use in safety applications only when used with an electrically compatible safety controller or safety PLC. (For recommended compatible SCHMERSAL Series AES safety controller, see selection chart on Page 147.)



USE WITH ANY OTHER SAFETY CONTROLLER MAY DAMAGE SENSOR AND/OR VOID WARRANTY.

Housing	Fiberglass reinforced thermoplastic
Switching Distance "S"	"On": 7mm "Off": 17mm
Degree of Protection	IP67
Operating Temperature	-13°F to +158°F
Operating Principle	Magnetic
Shock Resistance	30g/11ms
Vibration Resistance	10 to 55 Hz, amplitude 1mm
Conformity to Standards	CE BG-GS-ET14 EN ISO 13849-1 EN 954-1 UL CSA

Maximum Operating Voltage	75V DC 24VDC for LED versions
Maximum Continuous Current Rating	400 mA without LED 10 mA with LED
Maximum Switching	10va without LED 240mW with LED
Type Connection*	1 meter long LiYY* 0.25mm <sup>2</sup> (23AWG) pre-wired pigtail or M8 4 or 6 pin connector (ST)

The image displays three sets of technical drawings for mechanical components, each with dimensions in millimeters.

- BNS36:** Shows a side view and a top view. The side view has a total length of 13 mm, a width of 6 mm, and a mounting hole diameter of  $\varnothing 4.5$ . The top view shows a U-shaped profile with a height of 88 mm, a base width of 25 mm, and a mounting hole diameter of  $\varnothing 4.5$ .
- BPS36:** Shows a side view and a top view. The side view has a total length of 13 mm, a width of 6 mm, and a mounting hole diameter of  $\varnothing 4.5$ . The top view shows a U-shaped profile with a height of 88 mm, a base width of 25 mm, and a mounting hole diameter of  $\varnothing 4.5$ .
- BNS36 Spacer:** Shows a side view and a top view. The side view has a total length of 13 mm, a width of 6 mm, and a mounting hole diameter of  $\varnothing 4.5$ . The top view shows a U-shaped profile with a height of 88 mm, a base width of 25 mm, and a mounting hole diameter of  $\varnothing 4.5$ .

5

The diagram illustrates the terminal box configurations for two motor models:

- BNS36 4-Pole:** A circular terminal box with four terminals labeled 1, 2, 3, and 4. Terminal 1 is at the bottom-left, 2 at the top-left, 3 at the bottom-right, and 4 at the top-right.
- BNS36 6-Pole:** A circular terminal box with six terminals labeled 1 through 6. Terminal 1 is at the bottom-left, 2 at the bottom-right, 3 at the top-right, 4 at the top, 5 at the top-left, and 6 at the bottom. A small rectangular block is located between terminals 1 and 6.

