SERIES BNS-B20

Coded-Magnet Sensor
Safety Door Handle

Features & Benefits

- **Tamper-resistant …** cannot be bypassed with simple magnets
- **Sealed for submersibility …** assures long-term reliability in the most hostile environments.
- **Dual-function latch & sensor …** integral magnetic holding latch (with force of 100N).
- **Application flexibility …** 3-contact design compatible with 35mm, 40mm, and 45mm aluminum profiles
- **Long-life …** no mechanical wear due to non-contact design.
- **Satisfies EN 954 Safety Control Category 4 …** when used with compatible SCHMERSAL Series AES safety controller.
- **Easy-to-install …** M12 x 1 quick disconnect & LED status indicator in NC circuit
- **Application diversity …** suitable for hinged & sliding guards, available for left- or right-hand doors/guards.

Description

The Series BNS-B20 is designed for use as a combination door handle and safety interlock switch for use on light to medium weight hinged and sliding machine guards. Each unit consists of a door handle assembly equipped with two multiple reed switch arrays and coded magnet actuators. In addition, the unit features two latching magnets that attract pole pieces in the sensor unit—providing a holding force of approximately 100 Newtons.

The reed switches will only close in the presence of their matched magnetic field array … thus enabling machine operation. Both switch and magnet assemblies are sealed to IP67 (submersible) standards. Their tamper-resistant design prevents bypassing with simple magnets. The unit also features an LED display of switch status and an M12x1 quick-connect for ease of wiring and installation.

Operation

The unit consists of two components … the door handle unit and the sensor unit. The sensor unit is typically mounted to the stationary portion of the guard structure, with the coded-magnet/handle assembly mounted to the movable element of the machine guard.

When the guard is closed, the matched magnetic fields align with the reed switch arrays, closing the switches and enabling machine operation. When the guard is open, or the magnetic fields are not properly aligned with their reed switch arrays, the sensor output will remain “off.”

Typical Applications

The sealed low-profile, ergonomic door handle system is ideal for use on movable machine guards in hostile environments. The absence of protruding elements eliminate/reduce risk of injury and unintentional opening of the guard. Typical applications include food processing equipment, chemical processing equipment, woodworking machinery, packaging machinery, and printing equipment.

AVAILABLE STANDARD MODELS & ACCESSORIES*

(Please order sensor, actuator-door handle unit and cable separately)

Part Number	Contact Configuration	Maximum Contact Rating	Description
BNS-B20-12ZG-ST-L	1 NO & 2 NC	24 VDC (10mA)	Sensor unit for left-hand doors
BNS-B20-12ZG-ST-R	1 NO & 2 NC	24 VDC (10mA)	Sensor unit for right-hand doors
BNS-B20-B-01	N/A	N/A	Actuator-door handle unit
M12-B-5M	N/A	N/A	5m cable with M12x1 8-pin connector

Note: Sensor unit is also available for ASI Safety-at-Work bus systems. Please add suffix “-AS” to sensor part number.

***Important Note:** Series BNS coded-magnet sensors are for use in safety applications only when used with a SCHMERSAL Series safety controller. Compatible models include:

AES 1135
AES 1165
AES 1235
AES 1265
AES 2135
AES 2165
AES 2335
AES 1337
AES 2285
AES 1102
AES 1112

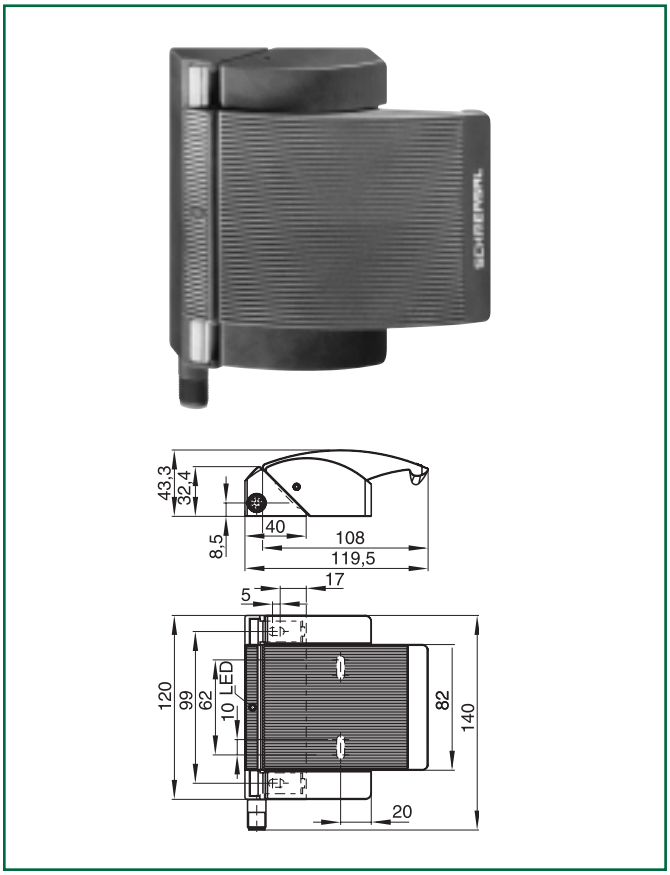
USE WITH ANY OTHER SAFETY CONTROLLER MAY DAMAGE SENSOR AND/OR VOID WARRANTY.

SERIES BNS-B20 TECHNICAL DATA

MECHANICAL SPECIFICATIONS

Housing	Glass fiber reinforced thermoplastic
Operating Principle	Magnetic
Maximum Sensing Gap (S_{ar}) (S_{ao})	15mm 0mm
Protection Class	IP67
Ambient Operating Temperature	–25°C to +70°C
Maximum Storage Temperature	–25°C to +70°C
Switching Frequency	< 1Hz
Resistance to Shock	30g/11ms
Resistance to Vibration	10-55Hz, amplitude 1mm
Max. door/guard weight	Hinged guard: 5Kg Sliding guard: 3Kg
Conformity to Standards	IEC 60947-5-3 BG-GS-ET-14 UL CSA
Maximum Latching Force	Approx. 100N (22 lbs.)
Safety Control Category	Up to Safety Control Category 4 per EN 954-1 when used with appropriate SCHMERSAL Series AES safety controller
Compatible Extrusion Frames	35mm, 40mm, 45mm

DIMENSIONS



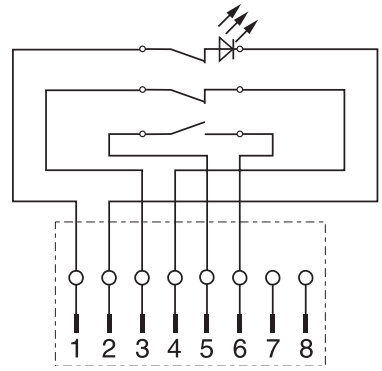
ELECTRICAL SPECIFICATIONS

Maximum Switching Voltage	24 VDC
Maximum Switching Current	10mA
Maximum Switching Capacity	240mW
Indication of Switching Condition	LED (Illuminated when guard is closed)
Termination	Connector M12x1
Contact Configuration	1 N.O. & 2 N.C. (LED in N.C. circuit)

Note: Available in “ASI Safety-at-Work” configuration.

WIRING DETAILS

Connector PIN Configuration



PIN configuration M12, 8 pins

Note: Loads with high switch-on or switch-off voltage spikes must be suppressed by an appropriate protective circuit.