

# SERIES BNS-B20

## Coded-Magnet Sensor with 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** ... optional 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.
- **Integral LED** ... displays switch status (non-LED models also available).

### 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 standards. Their tamper-resistant design prevents bypassing with simple magnets. The unit also features an LED display of switch status and an optional 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 optional connector separately)

Part Number	Description	Termination
BNS-B20-12ZG-L	Sensor unit for left-hand hinged door	1 meter of bottom-mounted cable**
BNS-B20-12ZG-R	Sensor unit for right-hand hinged door	
BNS-B20-12ZG-H	Sensor unit for both right- and left-hand hinged door	1 meter of rear-mounted cable**
BNS-B20-12ZG-ST-L	Sensor unit for left-hand hinged door	Bottom-mounted M12 connector (M12x1, 8-pin)
BNS-B20-12ZG-ST-R	Sensor unit for right-hand hinged door	
BNS-B20-B-01	Actuator-door handle unit	N/A
M12-8P-5M	5m cable with M12x1, 8-pin connector	N/A

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 2335
AES 1165	AES 2285
AES 1235	AES 1102
AES 1265	AES 1112
AES 2135	SRB 207AN
AES 2165	SRB 301LCB

\*\* 3, 5, and 10 meter cable lengths available on request; add suffix “-XXm”



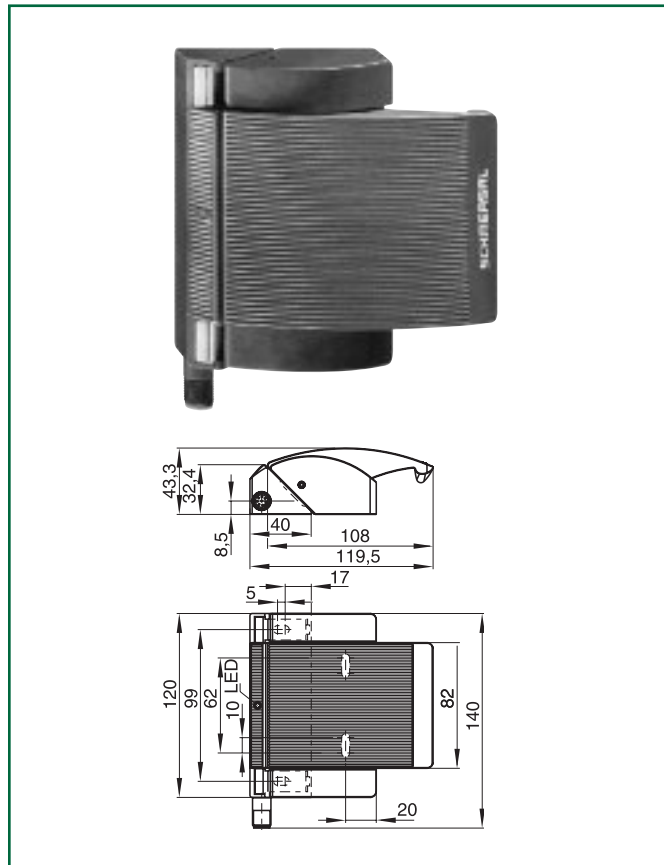
**USE WITH ANY OTHER SAFETY CONTROLLER MAY DAMAGE SENSOR AND/OR VOID WARRANTY.**

# SERIES BNS-B20 TECHNICAL DATA

## MECHANICAL SPECIFICATIONS

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

## DIMENSIONS



## ELECTRICAL SPECIFICATIONS

<b>Maximum Switching Voltage</b>	24 VDC
<b>Maximum Switching Current</b>	10mA
<b>Maximum Switching Capacity</b>	240mW
<b>Indication of Switching Condition</b>	LED (Illuminated when guard is closed)
<b>Termination</b>	M12x1 or cable (LiYY 6 x 0.25mm <sup>2</sup> )
<b>Contact Configuration</b>	1 N.O. & 2 N.C. (LED in N.C. circuit)

Note: Available in "ASI Safety-at-Work" configuration.

## WIRING DETAILS

(3) GY S13    S14 PK (4)  
 (1) GN S21    S22 YE (2)  
 (5) WH S31    S32 BN (6)

Contacts shown with gate closed

PIN configuration M12, 8 pins

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

