



## SERIES 2000 FLUSH LONG RANGE INDUCTIVE PROXIMITY SENSORS

### Installation, Operation and Instruction Manual

#### Product Description

The Series 2000 Flush mounting Inductive Proximity Sensors are built specifically for installation in the harshest of industrial environments. They are ideal for mounting flush or slightly below the floor pan of roller tables and other conveyor systems.

The combination of large sensing distances with base mounting onto or embedded in steel surround allows their installation with complete physical protection. Available in a wide variety of configurations, these sensors offer a very practical solution to the detection of metal product, regardless of its shape and size.

The Integral sensors are available with a variety of base plates or fixing bolts to ensure straightforward installation and allow replacement of old line equipment. The Flat pack detectors allow the user to specify the required length of detector to suit the roller bed width while remote controllers facilitate safe access.

Available in AC and DC formats for direct feedback to PLC systems, while at the same time capable of switching contactors or relays.

The Red LED indicates power on and the Yellow LED indicates the sensor has detected.

#### Mounting Instructions

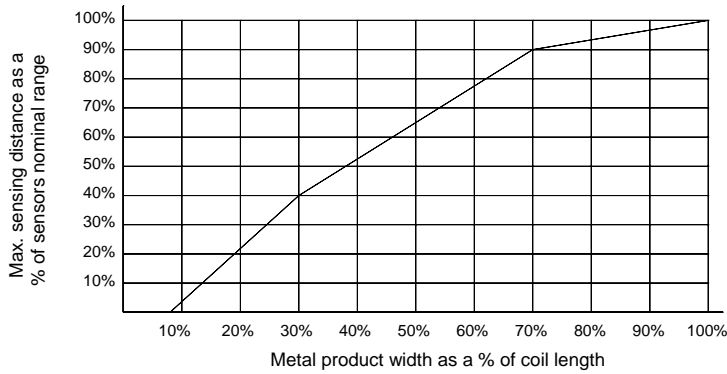
1. Firmly mount the detector coil ensuring that "closely" surrounding metalwork is no higher than the top face of the flush sensor.
2. Where surrounded by metalwork on all four sides a short slot should be cut in one edge. Ensure all surrounding metalwork is firmly secured. Metalwork above the face of the sensor should be preferably 50 mm away from the edge of the sensor coil.
3. Where the sensor is mounted close to a steel roller or other moving metalwork position a fixed metalwork beam between the coil and roller. The Coil and the roller the sensor should be calibrated with these items in motion.
4. Where Remote Controller used ensure the coax cable is run away from mains AC Supply or drive motors. Ensure no stress on the cable or its connectors.
5. Ensure the Detector coil is firmly bolted down onto a "rigid metalwork" as any movement will effect its performance.

#### Adjustment Instructions

1. Loosen locking nut on fine sensitivity potentiometer (1 turn type) and adjust to mid-way point.
2. Slowly adjust course sensitivity potentiometer (20 turn type) clockwise until sensor switches as indicated by yellow LED.
3. Adjust the course sensitivity potentiometer slowly counter-clockwise until the sensor un-switches and then de-sensitise by further 1/2 turn counter-clockwise. Check that the sensor switches cleanly on and off and de-sensitise further if necessary. The sensor is now set to maximum sensitivity.
4. Determine the sensing range of the sensor by using the smallest product to be detected and ensure this is at least 20% greater than product pass line. Raise sensor accordingly if this not the case.
5. Where the sensing range is greater than required, the sensitivity should be further reduced but the adjustment of fine sensitivity potentiometer as this will ensure more stable performance.
6. Finger tighten (not with spanner) locking nut on fine adjuster sensitivity potentiometer.
7. Check sensor for repetitive performance with product passing over. The sensor adjustment is now completed.

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## Sensing Range Performance Establishing sensing range relative to product



As a general guideline, to detect the product as it passes by the sensor, the product should cover at least 20% of the sensor length as well as be within 70% of the affective sensor range.

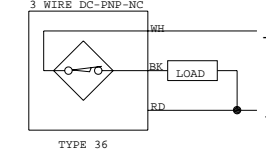
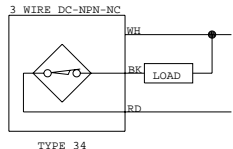
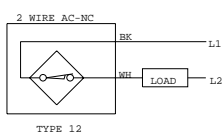
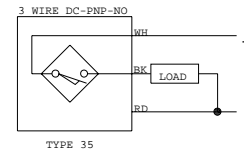
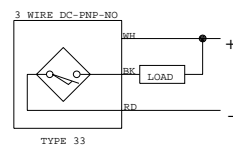
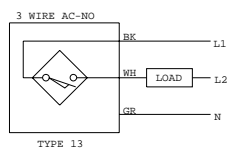
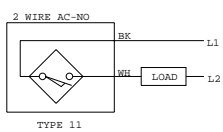
Sensing distance correction factors for various materials:  
 Fe: 1.0                      CrNi: 0.85                      Brass: .54  
 Al: 0.5                        Cu: .46

Where the product is expected to be above 100°C , ceramic insulation should be placed across the top face of the sensor. With guidance, it is practical to protect the sensor with steel straps across the top of the sensor. Sensors mounted end to end will necessitate the utilization of alternate frequency units.

## Technical Specifications

<b>Mechanical</b>		
Temperature Range	-10°C to +70°C	Self-contained Sensor
Enclosure Material	ABS or Marine Glass Fiber	
Encapsulation Material	Polyurethane Resin	Sensors are fully encapsulated.
Enclosure Rating	IP66	
Vibration & Shock Rating	Better than DIN 89011 Cat 2	
<b>Electrical</b>	<b>AC Models</b>	<b>DC Models</b>
Operating Voltage	80 - 250VAC, 50/60 Hz	24VDC +/- 15%
Short Circuit Protection	350 mA	450 mA
Minimum Load 2 Wire Models	7 mA	-
Leakage Current at 110 VAC 2 Wire Models	5 mA	-
Voltage Drop at 110 VAC 2 Wire Models	16V for 30 mA load, 21V for 220 mA load	-
Supply Connection Cable	-C Cable, 1.5-meter length -Q Brad Harrison (or equivalent) Connector with mating Plug provided on self-contained sensors	

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We reserve the right to alter specifications without prior notice. Specifications without tolerances are typical values.



Bul. IM-S2000F-07-01  
February 2007