

Specification - M3001V10AI

Supply: 24-240v ac/dc.
 Supply Rating 2VA.
 Output FET
 Switching Capacity: .. 200mA max.
 Saturation Voltage: ... 5 volts max (output on).
 Ambient Temp: -15°C to +50°C.
 Output State: Normally closed (Volt drop 5 volts max) above set speed. Normally open (leakage current 1.5mA max).
 Calibration: Automatic. Initiated by magnet supplied.
 Sensing Range: Nominally 12mm on ferrous metal & 5mm on non-ferrous metal at 25°C.
 Input Pulse Range: ... 10 to 3600 p.p.m.
 Repeat Accuracy: 1%.
 Start Up Delay: Adjustable to 0 - 60 seconds.
 Operation Setting..... Automatic calibration by applying magnet to 'Cal' point. Relay de-energises at 20% under set speed .
 Enclosure: Moulded Nylon. DIN threaded 30mm by 1.5mm pitch.
 Protection: IP65.
 Relative Humidity: 90% RH.
 LED Indication Target Detected & Output.
 Cable Supplied with 5 metres 2 core 600/1000V flame retardant to EN60332-1.

Specification - M3005V10AI

Supply: 12-240V dc or 24-240V ac.
 Supply Rating 2VA.
 Output S.P.C.O. Relay
 Switching Capacity: ... 3A 240V non-inductive maximum.
 Ambeint Temp: -15°C to +50°C.
 Output State: Normally open. Closed above set speed.
 Calibration: Automatic. Initiated by magnet supplied.
 Sensing Range: Nominally 12mm on ferrous metal & 5mm on non-ferrous metal at 25°C.
 Input Pulse Range: ... 10 to 3600 p.p.m.
 Repeat Accuracy: 1%.
 Start Up Delay: Adjustable to 0 - 30 seconds.
 Operation Setting Automatic calibration by applying magnet to 'Cal' point. Relay de-energises at 20% under set speed .
 Enclosure: Moulded Nylon. DIN threaded 30mm by 1.5mm pitch.
 Protection: IP65.
 Relative Humidity: 90% RH.
 LED Indication Target Detected & Output.
 Cable Supplied with 5 metres 5 core 600/1000V flame retardant to EN60332-1.

Guarantee

The equipment is covered by a 12 months guarantee from the date of shipment. Any faults arising due to faulty materials or workmanship, within the guarantee period, will be corrected free of charge providing the equipment is returned to us carriage paid.

Health and Safety

Provided that the equipment covered by these instructions is installed and operated as directed, it presents no hazard and conforms fully to health and safety regulations.

**DECLARATION OF CONFORMITY****Equipment Description: 30mm Sensors - M3001V10AI & M3005V10AI**

This equipment has been manufactured to conform to the following applicable EU Directives and International Schemes, in accordance with all the required, relevant standards:-

LOW VOLTAGE DIRECTIVE: 2006/95/EC

BS EN61010-1: 2010 Safety requirements for electrical equipment
 BS EN60332-1: 2004 Single cable flame propagation test

EMC DIRECTIVE 2004/108/EC

BS EN61000-6-3 : 2007 + A1: 2011 Emission Light Standard
 BS EN61000-6-1 : 2007 Immunity Light Industrial

ATEX DIRECTIVE 94/9/EC

CERTIFICATE No.: Baseefa03ATEX0674X
 CLASSIFICATION: Ex II 1D T100°C IP65 Tamb -15°C to 50°C
 NOTIFIED BODY: No. 1180 Baseefa
 ADDRESS: Rockhead Business Park, Staden Lane, Buxton, Derbyshire, SK17 9RZ
 EN50281-1-1+amd.1: 1999 Electrical apparatus protected by enclosure

RoHS DIRECTIVE: No required or relevant standards

INTERNATIONAL SCHEME: IECEX

CERTIFICATE No.: BAS 04.0034X
 CLASSIFICATION: DIP A20 T100°C Tamb -15°C to 50°C
 NOTIFIED BODY: No. 1180 Baseefa
 ADDRESS: Rockhead Business Park, Staden Lane, Buxton, Derbyshire, SK17 9RZ

Each unit has a traceable number and has been designed, manufactured and tested in accordance with the following:-

1. The above equipment and components have been built and assembled in accordance with your order specification and perform to your order requirement.
 2. A functional test has been conducted on each unit.
 3. A physical inspection has been conducted on each unit.
 4. Design, manufacture and test have been carried out in accordance with our quality procedure.
- Drawings, software, material lists and data sheets are retained at our Company address (shown on this manual).

Special Conditions for Safe Use

1. These sensors are not suitable for mounting where they will be exposed to direct sunlight unless fitted with an auxiliary metal shield completely protecting the plastic enclosure from UV exposure.
2. When the sensor is moulded in opaque polycarbonate or opaque polyamide it is only suitable for use in areas with a low risk of impact. When the sensor is moulded in clear polycarbonate it is suitable for use in areas with a normal risk of impact.

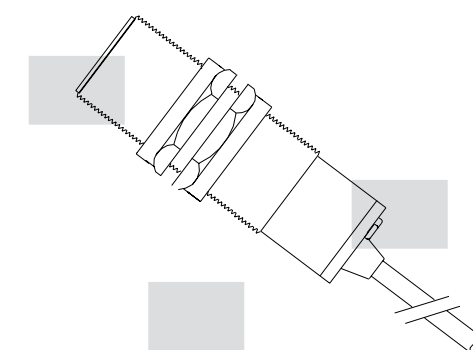
SIGNED:

DATE: 14th February 2011

NAME: R. ASHBY

Synatel Instrumentation Ltd. Cannock, Staffs. WS11 9TB UK

POSITION: Chief Engineer

**M300 (IECEX ATEX)
PROGRAMMABLE UNDERSPEED MONITOR**

SLIPSWITCH
Type M3001V10AI & M3005V10AI
IECEX & ATEX APPROVED,
SELF CONTAINED
UNDERSPEED MONITOR
Manual No: M2476
INSTALLATION
INSTRUCTIONS

TECHNICAL INFORMATION
UNDERSPEED MONITOR - M300 Series



BRAIME ELEVATOR COMPONENTS LTD.
 England. LS10 1JZ
 Telephone: (0113)2457491
 Fax: (0113)2435021
 Web: www.go4b.com



SETEM
 9, route de Corbie
 80800 LAMOTTE WARFUSEE
 Tél : (33) 03 22 42 32 26
 Fax : (33) 03 22 42 37 33
 Web: www.go4b.com

M2476(E) 646-046 > M300-AI-man

Introduction

The **SLIPSWITCH** series is designed to detect slippage or stoppage on elevators, conveyors, fans etc. The units require no connection with the shaft, have no moving parts and a virtually unlimited life. They incorporate microcontroller circuitry which automatically calibrates to 20% under normal speed and provides a programmable 0-30 second start up delay.

Installation

The Inductive sensor section detects a metal target on the shaft. The target can be an existing bolt head or similar.

Ideally, the target should be of ferrous metal but non ferrous metal will be detected at short range. Maximum range ferrous/non-ferrous materials is 12/5mm with a 30mm diameter circular target. Smaller targets may be used but operating distance will be reduced.

The **SLIPSWITCH** should be mounted adjacent to the target, ensuring that the distance to the target does not exceed the stated maximum. When mounted against a solid steel shaft, the target or bolt head should protrude from the shaft at least 15mm, otherwise the sensor will not be able to distinguish the target from the shaft and red input light would stay on permanently.

Wiring to the **SLIPSWITCH** can be any length as required, using ordinary unscreened cable. However, if long cable runs are to be used, the wiring should **not** be positioned adjacent to cables carrying high voltage or current.

Two locknuts are provided to mount the units in position. Mount securely to withstand vibration. Ensure that the unit and target are adequately guarded.

Two types of **SLIPSWITCH** are available.

M3001V10AI is a two wire, FET output type sensor.

The **M3001V10AI** must be wired through a load/resistor (see diagram) and not directly to the supply voltage. The supply polarity is not important and the load can be connected in either wire. The cable on the unit can be extended to virtually any length in ordinary 2 wire, cable.

M3005V10AI is a 5 wire, relay output type sensor rated at 3A 240V ac non-inductive.

When installing the **SLIPSWITCH** unit in an exterior location, a suitable UV shield must be fitted over the unit. If located in an area with a high risk of impact additional guarding/protection **MUST** be fitted.

Cabling

Connect the unit as shown in the connections diagram. The **M3001V10AI** is a two wire device. **Do not** connect directly across the supply without a load present.

The **M3001V10AI** is designed to operate into any type of PLC input and as such it only requires approximately 5 milli-watts to operate correctly eg 5 volts at 1 milliamp. Therefore the cabling **MUST** be arranged in such a way as to prevent even the smallest amount of induced voltage from adjacent ac cables being present at the sensor. Failure to do so will cause the sensor to be continually powered and the start-up timer will not operate at true power-on.

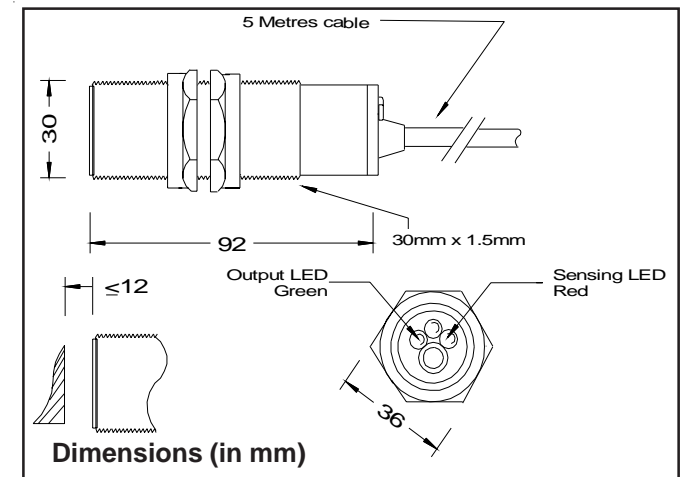
Commissioning & Auto-calibration

Two LED's are provided for information purposes, on the **SLIPSWITCH**. The input LED is red and flashes everytime a target passes the face of the sensor. The output LED is green. With normal running, the output LED is a static green and the output is on (energised). With an underspeed condition both the LED and output will be off (de-energised). The **SLIPSWITCH** is factory set to a speed of 10PPM and a start up time of 5 seconds. If the time delay required is greater than 5 seconds, see 'Recalibration for a Different Setting', otherwise, proceed as follows-

Apply power to the machine and **SLIPSWITCH**. Ensure that the machine has reached normal running speed and then place the magnet on the 'Cal' point, Count flashes of the green LED to set the start delay required in seconds, then remove magnet. The output LED will echo the setting in seconds, during which time, automatic calibration to 20% below normal speed will be carried out.

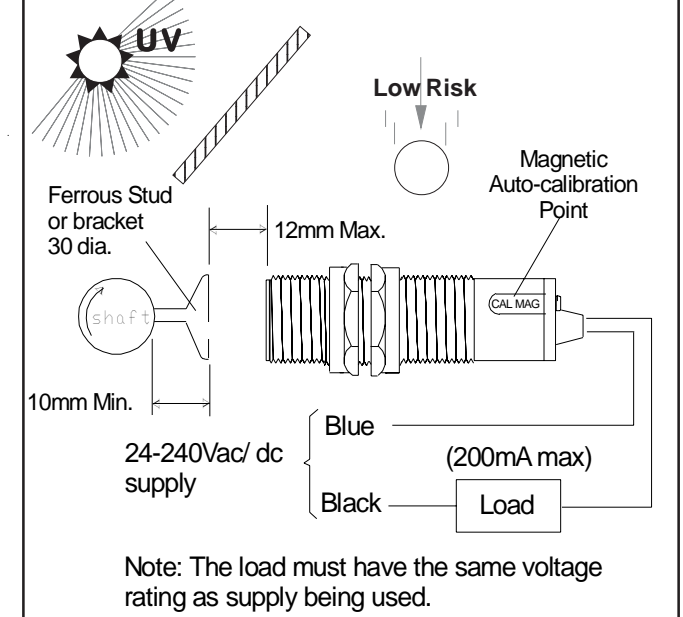
Recalibration for a Different Setting

If the unit is to be used for a slower speed or with longer time delay than previously set, the unit may trip out before it can be calibrated. This can be avoided by applying power while holding the magnet on the Cal point and removing the magnet only when the machine has reached normal speed. Wait for the green LED to illuminate permanently and then recalibrate as above.



Dimensions (in mm)

Connections - M3001V10AI



Connections - M3005V10AI

Operating distances and calibration point etc. as M3001V10AI above, connections shown below.

