

## Fault Diagnosis

Should the MODUSTOP fail to operate, the following points should be checked:-

- 1) Re-check all connections, see connections diagram.
- 2) Using a Multimeter, check that there is 24V dc supply from the module to the sensor (Pins 1 (+Volts) and 3 (0Volts)).
- 3) Connect the meter across pins 2 and 3 on the MODUSTOP. With the sensor not detecting, the voltage reading should be 7 Volts. On detection, this should immediately fall to zero Volts. If the voltage remains at 7 Volts and does not fall, it may be necessary to move the sensor closer to the object being detected. If the voltage remains at zero all the time, it may be necessary to move the sensor further away from the object being detected.
- 4) The MODUSTOP operation can be checked by removing the sensor and shorting pins 2 and 3 together. This action simulates the switching action of the sensor, and the operating sequence as listed under (d) of the commissioning instructions should occur.

## 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.

## Certificate of Conformity

The equipment covered by these instructions has been manufactured and tested in accordance with our quality assurance procedures and conforms fully with our published specification.

## 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.



THIS PRODUCT CONFORMS TO THE REQUIREMENTS FOR CE MARKING

When this product is incorporated into other machinery or apparatus, that apparatus must not then be put into service (in the E.C) until it has been declared in conformity with the appropriate E.C Directive/s.



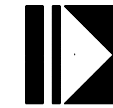
**SYNATEL**  
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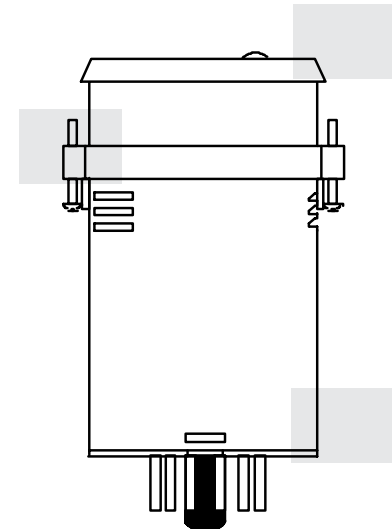
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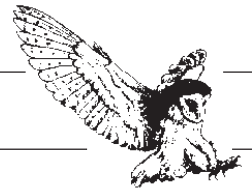


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**MODUSTOP - LSM48**  
**48mm DIN Standard**  
**Stopped Motion Module**

**OPERATING**  
**INSTRUCTIONS**



## Introduction

The MODUSTOP is a Stopped Motion Monitor housed in a 48mm din standard package, which can be either front panel mounted or plugged into a standard 11 pin relay base. The MODUSTOP provides a simple and inexpensive method of detecting a stopped motion condition on a wide range of rotating plant and machinery. Typical applications include motor drive shafts, conveyor lines, ventilation fans, process material mixers and grinders etc. The equipment requires no contact with the rotating shaft being monitored, a proximity sensor detects a stud or bolt on the plant or machinery. The MODUSTOP is simple to install, requires no maintenance, once installed, and is fail-to-safe.

The Stopped Motion Detector System consists of the MODUSTOP with 11 pin base and a remote mounting proximity sensor. (Typically 10-30Vdc supply with npn output). Alternatively, a contact input from a reed or limit switch can be used. The proximity sensor should be mounted to detect a metal stud or bolt on a revolving or reciprocating section of the machinery being monitored. The output from the proximity sensor provides a pulse every time it detects the target, these pulses are fed into the MODUSTOP which incorporates a pulse reset timer circuit with an adjustable time delay period. With the machinery running and the proximity sensor detecting the target, the sensor continuously resets the MODUSTOP timer circuit, therefore it will not time out. Should the shaft stop, with the sensor either in the on or off state, the timer will elapse and the output relay will operate. The output relay mode is fail-to-safe, the relay being energised with the machinery operating. On switch on, the internal timer is automatically reset, therefore no external interlocking is required to allow initial start up.

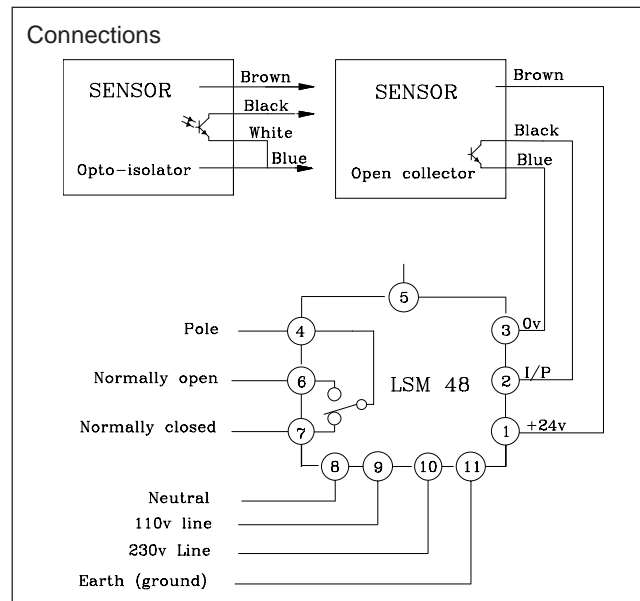
## Installation

MODUSTOP should be wired as shown in the connection diagram. When using a proximity sensor as the input to the MODUSTOP, the machinery to be monitored should be fitted with a stud or bracket to provide the detection pulse. A typical method is to drill and tap a M6(1/4)" blind hole in the machinery being monitored and screw in a hexagon headed screw so that the head is at least 10mm from the

shaft. In the case of slow moving shafts, the response time can be reduced by fitting more than one stud on the machinery. The proximity sensor should be mounted securely and within the specified operating distance. Syantel proximity sensors are fitted with 2 metres of cable as standard, this can be extended using similar cable provided the voltage at the proximity sensor does not fall below 10 Volts dc. In the case of mechanical contact inputs there is virtually no limitation on the cable length between contact and MODUSTOP.

## Commissioning

Check that all connections are correct before applying power. The MODUSTOP is provided with LED indication for input and output states. Standard supply voltage for the MODUSTOP is 110/240V ac (other voltages to order). Non-standard ac supply connections are



across terminals 9 (Neutral) and 10 (Live).

- Rotate time control fully anti-clockwise & apply power. The relay & output LED will energise.
- Providing that the machine starts, the output should remain energised indefinitely.
- The response of the unit should be optimised by rotating the time control slowly anti-clockwise until the output LED flickers or goes out. At this point, rotate the control back 15° to 20° clockwise.
- Check that the start-up delay is sufficient by stopping & then re-starting the machine. If it starts but fails to keep running, rotate the control a further 15° to 20° clockwise & repeat the test.

## Specification

|                        |  |
|------------------------|--|
| Supply in:             | 110/230V ac (-15% to + 7.5%).                            |
| Supply out:            | 24V dc.  |
| Operating Temperature: | -15°C to +50°C.  |
| Max. Speed:            | 10,000 R.P.M.  |
| Operating Distance:    | Dependant upon sensor used.                              |
| Output:                | Voltage Free S.P.C.O. Rated at 5A 240V ac non-inductive. |
| Time Range:            | 1.5 to 15 seconds as standard.                           |
| Enclosure:             | Moulded Noryl (modified PPO) & Acrylic.                  |
| Connection:            | 11 pin international relay base.                         |

