

VARIMETER Standstill Monitor BD 5936

Translation
of the original instructions



Your Advantage

- Standstill monitoring without sensor

Features

- According to IEC/EN 60255-1, IEC/EN 60255-26
- For standstill monitoring of 3- and 1-phase asynchronous motors
- Line breakage detection in the measurement circuit
- Forcibly guided output contacts:
2 NO, 2 NC contacts for 250 V AC
- LED indicators for motor standstill, line breakage and operating voltage
- Wire connection: Also 2 x 1.5 mm² stranded ferruled (isolated),
DIN 46228-1/-2/-3/-4 or
2 x 2.5 mm² stranded ferruled DIN 46228-1/-2/-3
- Width 45 mm

Product Description

The BD 5936 detecting standstills of 3- and 1-phase asynchronous motors. At 2 terminals of the stator winding the BD 5936 measures the voltage of the slowing motor which has been induced.. If the induction voltage approaches 0 this indicates that the device is at a standstill and the output relay is activated.

Additional the monitor detects strand breaks between measurement inputs Z1 / Z2.. If a line breakage is detected, the output relay goes into the normal position (as when the motor is running). This state is saved and can only be cleared by (briefly) switching off the auxiliary voltage.

Approvals and Markings

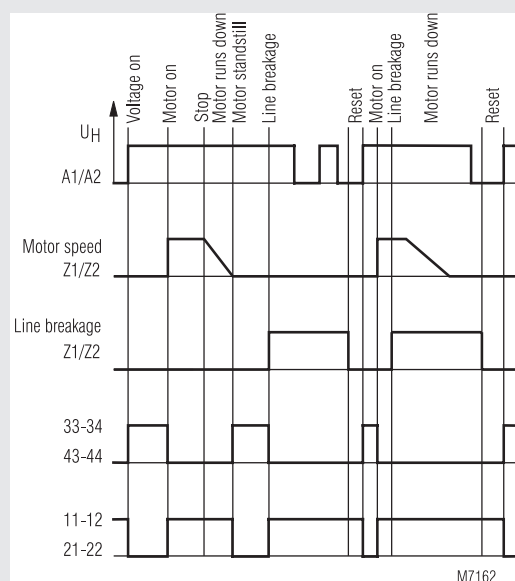


* see variants

Applications

For detecting standstills of 3- and 1-phase asynchronous motors, for example, for releasing protective door interlocks of machine tools or for activating stopping brakes.

Function Diagram



Notes

In the case on the motor wires the Z1 / Z2 connection wire should be installed separately from the motor supply and connected directly to the motor terminals. For longer distances please use twisted pair wires.

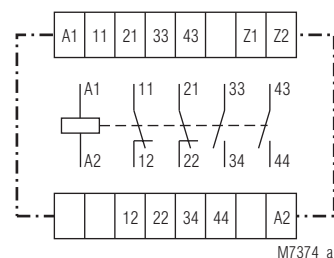
Indicators

- 1st green LED: Comes on when operating voltage present
- 2nd green LED: Comes on when motor at a standstill
- Red LED: Comes on in event of line breakage between Z1 and Z2

Connection Terminals

| Terminal designation | Signal description |
|----------------------|---------------------------------------|
| A1, A2 | Auxiliary voltage U_H |
| Z1, Z2 | Measuring input (connection on motor) |
| 11, 12, 21, 22 | Forcibly guided NC contacts |
| 33, 34, 43, 44 | Forcibly guided NO contacts |

Circuit Diagrams



Technical Data

Input

- Auxiliary voltage U_H :** AC 24, 48, 110, 120, 230 V, AC/DC 24 ... 60 V, 110 ... 230 V (other voltages on request)
- Voltage range:** 0.8 ... 1.1 U_N
- Nominal consumption:** Approx. 3 VA, 3 W
- Nominal frequency:** 50 / 60 Hz
- Measurement/motor voltage:** AC 690 V
- Response value:** Approx. 20 mV
- Release value:** Approx. 40 mV

| Technical Data | |
|---|---------------------------------------|
| Output | |
| Contacts | |
| BD 5936.17: | 2 NO, 2 NC contacts |
| Contact type: | Relay, forcibly guided |
| Output rated voltage: | 250 V AC |
| Thermal current I_{th}: | 5 A |
| Switching capacity | IEC/EN 60947-5-1 |
| To AC 15: | |
| NO contact: | 3 A / AC 230 V |
| NC contact: | 2 A / AC 230 V |
| Electrical life | IEC/EN 60947-5-1 |
| To AC 15 at 2 A, AC 230 V: | 10 ⁵ switching cycles |
| Short circuit strength | |
| max. fuse rating: | 6 A gG / gL IEC/EN 60947-5-1 |
| Mechanical life: | 10 x 10 ⁶ switching cycles |

General Data

| | |
|---------------------------|---|
| Operating mode: | Continuous operation |
| Temperature range: | - 15 ... + 55 °C at max. 90 % air humidity |

Clearance and creepage distances

| | | |
|---|-------------------------------------|-------------|
| Rated impulse voltage / pollution degree, | | |
| Terminals Z1/Z2: | | IEC 60664-1 |
| At AC-Auxiliary voltage U_H : | 6 kV / 2 (Overvoltage category III) | |
| At AC/DC-Auxiliary voltage U_H : | 4 kV / 2 (Overvoltage category II) | |

EMC

| | | |
|--------------------------|------------|------------------|
| Electrostatic discharge: | 8 kV (air) | IEC/EN 61000-4-2 |
| HF irradiation: | 10 V/m | IEC/EN 61000-4-3 |
| Fast transients: | 2 kV | IEC/EN 61000-4-4 |

Surge voltages

| | | |
|--------------------------|------|------------------|
| Between | | |
| wires for power supply: | 2 kV | IEC/EN 61000-4-5 |
| Between wire and ground: | 4 kV | IEC/EN 61000-4-5 |
| HF-wire guided | 10 V | IEC/EN 61000-4-6 |

Interference suppression

| | | |
|--------------------------|-----------------------|----------|
| Auxiliary voltage AC: | Limit value class B | EN 55011 |
| Auxiliary voltage AC/DC: | Limit value class A*) | EN 55011 |

*) The device is designed for the usage under industrial conditions (Class A, EN 55011).
When connected to a low voltage public system (Class B, EN 55011) radio interference can be generated. To avoid this, appropriate measures have to be taken.

Degree of protection:

| | | |
|------------|-------|--------------|
| Housing: | IP 40 | IEC/EN 60529 |
| Terminals: | IP 20 | IEC/EN 60529 |

Housing: Thermoplastic with V0 behaviour to UL Subj. 94

| | | |
|------------------------------|---|------------------|
| Vibration resistance: | Amplitude 0,35 mm frequency 10 ... 55 Hz | IEC/EN 60068-2-6 |
| | 15 / 055 / 04 | IEC/EN 60068-1 |

Climate resistance:

Terminal designation: EN 50005

Wire connection: 1 x 4 mm² solid or
1 x 2.5 mm² stranded ferruled (isolated) or

2 x 1.5 mm² stranded ferruled (isolated)
DIN 46228-1/-2/-3/-4 or
2 x 2.5 mm² stranded ferruled
DIN 46228-1/-2/-3

Line attachment:

Plus-minus terminal screws M 3,5 box terminal with wire protection

| | | |
|------------------|----------|--------------|
| Mounting: | DIN rail | IEC/EN 60715 |
| Weight: | 325 g | |

Dimensions

| | |
|--------------------------------|------------------|
| Width x height x depth: | 45 x 74 x 121 mm |
|--------------------------------|------------------|

| UL-Data | |
|---|---|
| Switching capacity: | |
| NO contacts: | Pilot duty A300 5A 250Vac G.P. 5A 24Vdc |
| NC contacts: | 5A 250Vac G.P. 5A 24Vdc |
| <div> <div></div> <div> Info </div> </div> Technical data that is not stated in the UL-Data, can be found in the technical data section. | |

| CCC-Data | | |
|-----------------------------------|----------------|------------------|
| Thermal current I _{th} : | 5 A | |
| Switching capacity | | |
| To AC 15: | 2 A / AC 230 V | IEC/EN 60947-5-1 |
| To DC 13: | 1 A / DC 24 V | IEC/EN 60947-5-1 |

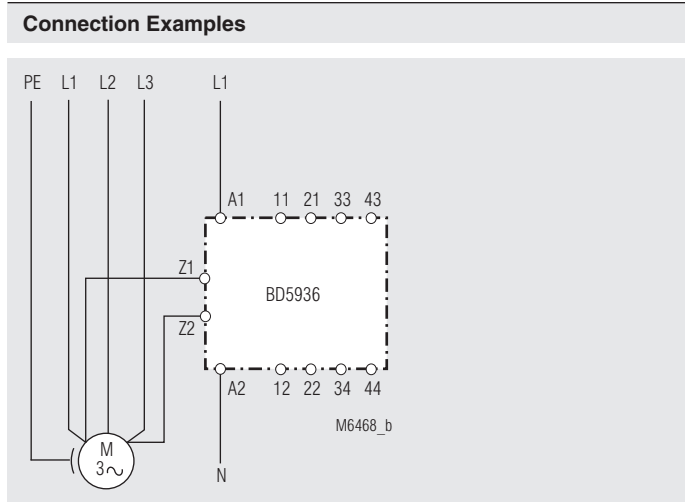
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|--|--|

| Standard Type | |
|--|---------------------|
| BD 5936.17/001 | AC 230 V 50/60 Hz |
| Article number: | 0049069 |
| • Output: | 2 NO, 2 NC contacts |
| • Auxiliary voltage U_H : | AC 230 V |
| • With automatic reset for broken wire detection | |
| • Width: | 45 mm |

| Variants | |
|----------------|---|
| BD 5936.17: | Without automatic reset for broken wire detection |
| BD 5936.17/61: | With UL-approval (Canada/USA) |
| BD 5936: | With CCC-approval on request |

Ordering example for variants

| | | | | | | |
|---------|-----|---|---|----------|------------|----------------------|
| BD 5936 | .17 | / | — | AC 230 V | 50 / 60 Hz | |
| | | | | | | Nominal frequency |
| | | | | | | Auxiliary voltage |
| | | | | | | Variant, if required |
| | | | | | | Contacts |
| | | | | | | Type |



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