INDUSTRIKOMPONENTER A/S
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HASTIGHEDSVAGTE JMNC

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APPLICATION

The electronic speed monitor relay JMNC is used in connection with a pulse sensor to monitor the rotational speed and standstill of drives.

Pulse sensors according to NAMUR EN 50227 as well as npn pulse transducer (model EOG) can be connected to the speedmonitor relay.

The pulse output is fed to the speed monitor relay where the pulse frequency is compared with the frequency set by the control of the relay. When the input frequency passes the set frequency, the internal output relay is switched.

Warning or control equipment can be connected to this output relay and operate when the speed either increases or decreases from the setpoint. The output relay contacts of JMNC are goldplated to improve true contact even in case of low voltage circuit operations.

The operation of the relay can be inhibited during start-up of the monitored drive by adjusting the start-up potentiometer to the time taken for the drive to reach operating speed.

CONSTRUCTION

The control unit JMNC is made of 2 parts. One forms the base and contains a combined edge connector and terminal block, five rubber inserts on three sides for cable entries and two knockout holes in the base are provided for mounting the control unit. The other and main component of the control unit is a printed circuit board which slides into the plastic case and is held in place by a plastic plate which clips into the open side.

The complete plug-in unit is secured to the base by two screws help captive by rubber washers. This arrangement allows withdrawal of the plug-in unit from the base without having to loosen the wiring on the terminal block.

Options

A special design is available to meet requirements where the speed monitor unit should be installed close to the monitored drive and its
pulse sensor.

The design consists of speed monitor relay EDO being installed in a plastic housing, of IP 65 protection. The true operation of the device can be readily observed through the transparent cover of the plastic housing.

The features of this arrangement are:

- Shortened length of screened cable between pulse sensor and relay adjustment at commisioning with visual contact to the drive.
- The output signal of the relay can be interference free transmitted to the control equipment without using the screened cable.

OPERATING PRINCIPLE

The circuit arrangements of the speed monitor relay JMNC makes se of the advantages of digital pulse input. There are no time lags normally encountered with analog devices. The unit compares the time between successive input pulses and its preset requency.

Differences result in immediate switch-off of the output relay. The output relay will switch, too, if the connected pulse sensor becomes damaged or the powersupply fails.

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SETTING CONTROLS

Start-up delay potentiometer

Operation of the relay can be inhibited during start-up by adjusting the potentiometer over the range of 0 to ≥ 45 sec. depending on the time taken for the monitored drive to reach operating speed.

Pulse range selector switch

The trip point can be adjusted within the range of 8 to 12.000 pulses per minute. This total range is divided into 3 continuously adjustable setting ranges.

Pulses / min.	Position of the pulse range switch	Cut-out delay in sec. Pick-up time of relay non considered
8 ... 120	I	7,5 ... 0,5
80 ... 1200	II	0,75 ... 0,05
800 ... 12000	III	0,075 ... 0,005

Please note: The indication beside the pulse range selector switch signifies pulses/min. and not r.p.m.

Pushbutton
Pressing of the pushbutton links the output relay during the adjustment of the trip point and prevents the drive from becoming cut-off during the adjustment.

Setpoint potentiometer, Coarse
Provides coarse trip point adjustment.

Setpoint potentiometer, Fine
Provides fine adjustment of trip point within the range of 10% of set coarse adjustment.

LED-diode, green

Indicates state of output relay.

- ● LED "lit" means operating speed above setpoint-output relay energized
- ○ LED "off" means fault, operating speed below trip point - output relay de-energized.

LED-diode, orange
This LED will be lit or flashes according to the received pulses. From 1500 pulses /min., the flashing will change to a continuous light. If the speed monitor relays is under operation, but the orange LED remains to be off (out), either the pulse transducer or he wiring between sensor and relay unit fails.

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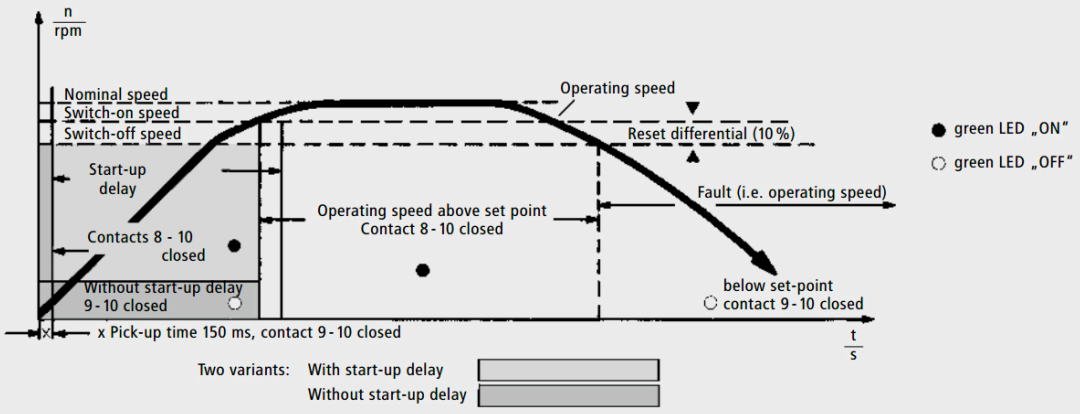
TEKNISKE DATA

Overensstemmelse med følgende	EN 50178-94, EN 50081-1, EN 50082-2, EN 60204
Operating principles	Underspeed or standstill
Mechanics	The plug-in base is resistant to tracking and houses the cable entries and connection terminals The housing contains the plug-in PCB
Actuating supply voltage	AC 230 V, 50 til 60 cyc. (Other voltages by request)
Voltage tolerance	± 10%
Power consumption	Ca. 2,5 VA
Surrounding temperature	-25 °C til +70 °C
Storage temperature	-35 °C til +80 °C
Trip point accuracy	< 1% (på konstant omgivelsestemperatur)
Reset differential	10% at pre-set speed.
Pulse duration	≥ 1,5 ms
Pick up Time	For the internal output relay of the Speed Monitor unit with starting by-pass, it is 150 ms after having connected the JMNC to the actuating supply voltage.
Starting By-Pass	0-45 sec. adjustability
Tætningsgrad	IP 51 (dust and drip-proof) i overenstemmelse med EN 60529
Mounting position	Vertical
Output Contact	1 changeover contact
Contact rating I_e/U_e	AC 2 A/230 V

SWITCHING CHARACTERISTIC

Speed Monitor Relay type JMNC (underspeed monitoring)



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OPERATIONER

Monitoring of underspeed or standstill with start-up delay

Adjust the potentiometer to the required start up delay-time. The internal output relay is energized during the start-up time (contact 8-10 closed).

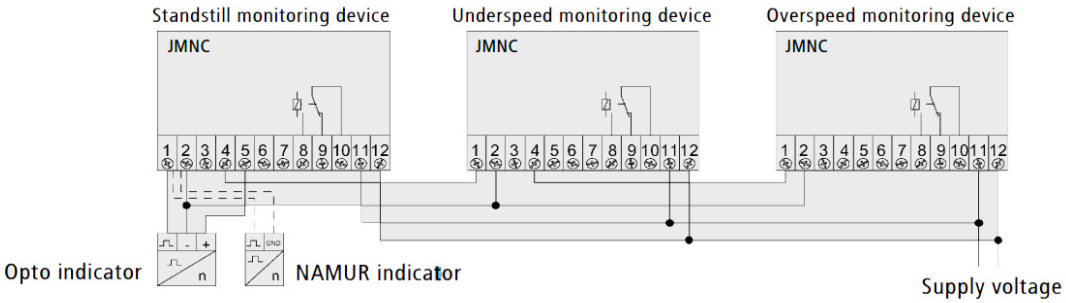
The relay will be cut off if teh operating speed is below the trip point (contacts 9-10 closed).

NOTE: In addition, if it is necessary to monitor pulse failure, the model EDO should be used.

Monitoring of overspeed (max speed) without start-up delay

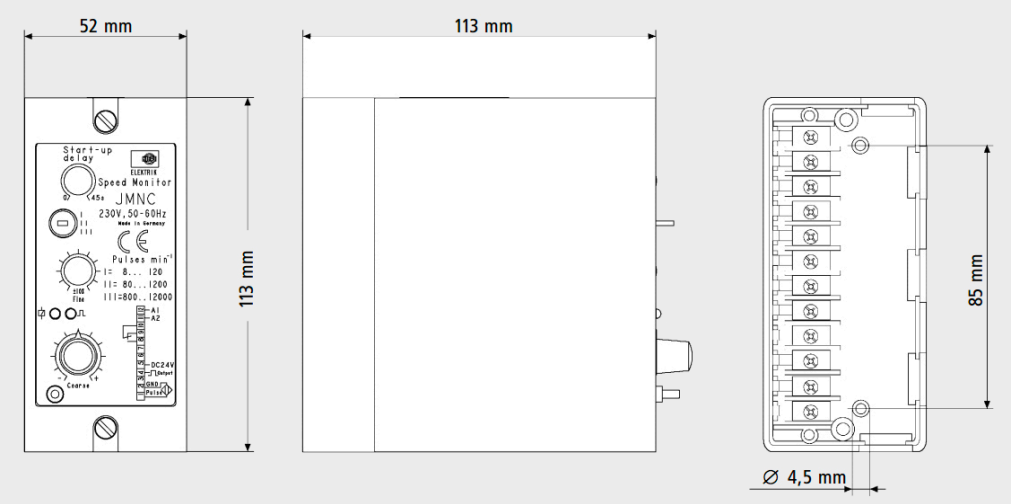
Set the start-up potentiometer to zero (fully left). The internal output relay will be energised (contact 8-10 closed) as soon as the operating speed is higher than the adjusted setpoint.

FORBINDELSESEKSEMPEL



Example: Several rotational speed monitoring devices JMNC connected to one pulse indicator.

DIMENSIONER



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