Direction for use of Programmable Speed Monitor with Microprocessor	WE M/Ex-DW-T

Safety precaution to be strictly observed are marked with following symbols in the operating instructions.

Contents

1. PLEASE READ FIRST

To operate the unit correctly, it is important that the operating instructions are read carefully. In addition, it is equally critical that the safety warnings are understood and followed completely.

6. Mounting
7 Electrical connections
9 Commissioning

Handling of the unit should be strictly restricted to persons trained and who are familiar in working in electrical installations.

2. Scope of supply

Power supply for NAMUR switch
Type WE M/Ex-DW-T
Direction of use

3. POWER SUPPLY

Connect 110V AC external power supply on terminals 17 & 18.

4. BRIEF DESCRIPTION

The precision microcontroller based speed monitoring unit is field-set to match different motor speeds raging between 0.06-5940 RPM. Setting of the trip speed is through thumbwheel switches located on the top of the unit. Inbuilt softaware timer is incorporated for override/bypass, to allow the motor to come to full speed, before under speed sensing mode is actuated.

OPERATION :

When jumper in between terminals 5 & 6 is connected the output relay energises when the input speed increases beyond preset speed & de-energises when input speed falls below preset speed. By removing the jumper from terminals 5 & 6 the condition reverses.

Settings : Out of three thumbwheel switches the first two are for setting the preset frequency while the third one is an exponent multiplier of first two digit and override timer range selector.

START UP OVERRIDE

Timer is initiated by linking terminals 2 & 3. It may be acutated by an external switch and the circuit is designed to be intrinsically safe.

Approximated setting of timer follow from the setting of exponent of the frequency. Potentiometer is used for fine settings - clockwise rotation increases the time.

Exp.	Frequency Multiplier	Start-up override	
		Start-up Time range in sec.	at power ON
0	X 1	1-50	No
1	X 0.1	4-200	No
2	X 0.01	16-800	No
3	X 0.001	64-3200	No
4	X1	1-50	Yes
5	X 0.1	4-200	Yes
6	X 0.01	16-800	Yes
7	X 0.001	64-3200	Yes

Setting up Frequency in (f) Hz can calculated by $F = \dfrac{n \times z}{60}$

Where in n = speed in revolutions per minute.
z = No. of Impulse (i.e. targets)

Let No. of Pulse per revolution = 5
Trip speed required = 5

$$f = \frac{60 \times 5}{60} = 5$$

If overspeed is to be monitor switch setting shall be in the order of 050.

Jumper on Terminal 5 & 6	Output Relay	
	Overspeed	Energised
	Underspeed	De-Energised
No Jumper	Overspeed	De-Energised
	Underspeed	Energised

APPLICATION :

The unit is used to monitor overspeed, underspeed and zero speed in hazardous or non-hazardous areas on shafts, agitators, conveyors etc.

5. TECHNICAL DETAILS

Power Supply
Supply Voltage	110,-10% +15%, 45-65Hz.
Current Consumption	approx. 4VA

Hazardous Area Section
Inputs (Intrinsically Safe)
Nominal data	as per DIN 19234 equip - ment with suffix **NAMUR**
Open circuit voltage	approx. 8 V.DC
short circuit current	approx. 8 mA
Switching point / Hysteresis	1.2 mA...2.1 mA / $\approx$ 0.2 mA
Output Voltage (max.)	10,6 VDC
Output Current (max.)	26mA
Output power (max.)	70mW

Permissible circuit values ignition protection class/
	[EEx ia]
Explosion group	II C

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Max. External Capacitance   540µF ⚡

Max. External Inductance   0,5 mH

Safe Area Section

Contact rating of relay   250 V / 4A / 500VA Cos φ ≥ 0.7

Weight   **420 gm**

Ambient Temperature   **Max. 55ºC**

Housing Material   **NORYL SE O (Self Extinguishing)**

Fig. 1

7. ELECTRIC CONNECTIONS

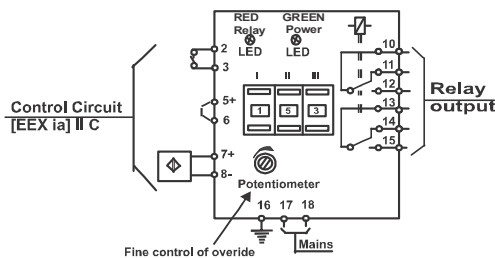Make sure the cables are not live when making the connection.

Fig. 2

INPUT

Different motor speed ranging between 0.06-5940 RPM at terminals 7(+) & 8(-).

OUTPUT

Relay output with changeover contacts rated for 4A at 250V AC, 50Hz.
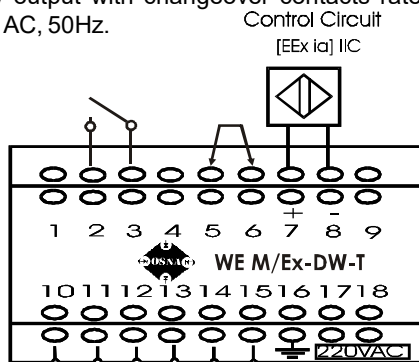

Fig. 3

8. RELEASING THE UNIT

Release the unit from a screw driver shown in Fig. 4.

Fig. 4

9. COMMISSIONING

Kindly read the undermentioned instructions carefully prior to commissioning.

Do not connect any external power supply to terminals other than to 17, 18.

Do not connect input other than terminal 7(+) & 8(-).

Connect a load to terminals 10, 11, 12 & 13, 14, 15.

10. MAINTENANCE

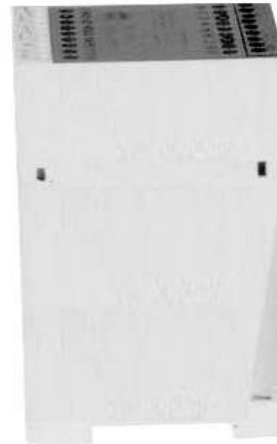This unit requires no maintenance.

Fig. 5.

The unit can be open while equally pressing both side of the unit.
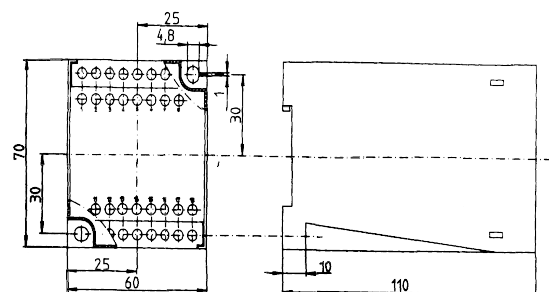
11. DIMENSIONS

Fig. 5a.