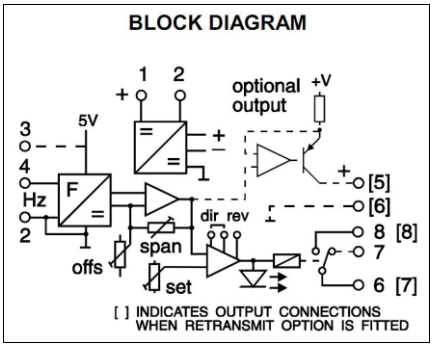
Frequency Alarm v2 BFRA251

DESCRIPTION

The BFRA251 offers an adjustable trip-point with voltage-free 8A contact output, and a retransmit analogue output representing input signal range. The BFRA251 offers an economical solution to monitoring applications for signals from pulsing devices, such as proximity sensors, combining compactness with accuracy and flexibility. Power supply can be 12 or 24Vdc or low level (non-isolated) AC voltage. Double surge protection is standard as with all Series 200 modules to prevent failure due to spikes induced by DC switched inductive loads. A variety of frequency or pulse input signals are supported such as signals from turbine flow meters, NAMUR proximity sensors. Frequency range is 5Hz up to 5kHz with amplitude of 0.1Vpp. up to 50V pulses. The trip-point and switching hysteresis are adjustable from the front of the module. A 2mm test socket is used for trip adjustment within a 0 - 5V trip set range calibrated to correspond to the input signal range. Trip status is indicated by a red L.E.D. on the front. High or low setting is selectable internally by coding plugs.

GENERAL SPECIFICATIONS



Size:	23.5W x 71.5H x 109D (mm).
Mounting:	Clip for 35mm DIN-Rail.
Housing material:	ABS.
Termination:	Top mounted screw terminals.
Protection class:	IP40 (IP65 Enclosure Opt).
Weight:	100 g.
Protection class:	IP40.
Load change effect:	0.1% up to RL max.
Input range:	5Hz up to 5kHz.
Input level:	0.1Vpp Sine up to 70Vdc pulse.
Excitation NAMUR/Contact:	5Vdc.
3-wire proximity sensor:	12Vdc/24Vdc.
Internal span adjust:	±50%.
Accuracy error:	<0.5%.
Response time:	for 0.5% ripple at 10% of signal $T_{90} = \frac{20\ \text{sec}}{F_{max}}$
Linearity:	<0.5% of range.
Temperature drift:	0.02% /°C within operating range.
Ambient operating range:	-20...+70°C.
Relay contact:	Change-over 8A/250Vac resistive. 3.5A/250Vac inductive.
Switching hysteresis (DB):	0.5 - 5%.
Power supply swing:	-20...+30%.
Input/output isolation:	None.
Electromagnetic compatibility:	Complies with EN 50081-1, EN 50082-2, EN 61010-1

CE

For input / output combinations refer to TYPE NO. DESIGNATION overleaf.

BFRA251 - X X X X

TYPE NO. DESIGNATION

Power Supply:

1 = 12Vdc	(30mA - 50mA).	#	3 = 12Vac (not isolated).
2 = 24Vdc	(30mA - 50mA).	#	4 = 24Vac (not isolated).
		*)	5 = Other <48V dc/ac (Specify).

Input:

(Specify calibration).
1 = Low level sine or sawtooth (0.1 to 5Vpp).
2 = 24Vdc pulse (external source: 5 to 70Vdc).
3 = 5Vdc pulse (external source: 0.2 to 50Vdc).
4 = NAMUR proximity sensor or pulsing contact.
5 = 3-wire proximity sensor NPN (12, 24V).
6 = 3-wire proximity sensor PNP (12, 24V).
*) 9 = Other Sensor (Specify).

***) Retransmit Output:**

For 24Vdc supply only - 12Vdc models have reduced output drive).

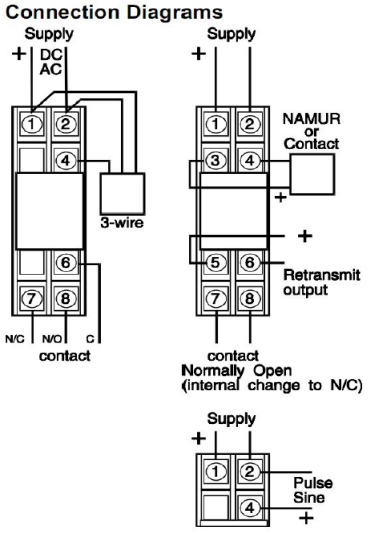
0 = None.		5 = 0 - 10V	(500kΩ min).
1 = 0 - 1mA	(10kΩ max).	6 = 1 - 5V	(100kΩ min).
2 = 0 - 5mA	(2kΩ max).	7 = 4 - 20mA	(500Ω max).
3 = 0 - 1V	(100kΩ min).	8 = 10 - 50mA	(200Ω max).
4 = 0 - 5V	(100kΩ min).	*) 9 = Other	(Specify).

Options:

0 = None.
2 = Open collector transistor output.
*) 4 = External trip adjustment (20kΩ).
*) 5 = Trip delay.
*) 9 = Other (Specify).

#) = Not suitable for units with retransmit output.
*) = Price Extra.

Connection Diagrams



Front Control Explanation

1. Test socket - reference to terminal 2 for trip adjustment.
2. Status indicator ON - relay energised.
3. Trip set - adjust 15 turns.
4. Dead band (Hysteresis) - adjust 15 turns.

Trip set example:

Input Range:	0 - 100Hz
Trip set range:	0 - 5Vdc (test socket to terminal 2)
Required trip point:	20Hz
Set trip to:	$\frac{20}{100} \times 5V = 1V$

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