



ASHIDA

Under/Over Frequency Monitor Relay

Type: - AUOFMR2



Features :

- Accurate frequency monitoring with crystal controlled Reference.
- Remote Communication through RS-485 and RS232 port
- Trip frequency point can be selected with 0.01Hz Resolution.
- Built in 60.00Hz source to calibration check.
- Instrument tested to withstand as per IS 3231 , IS8686-1977 Specification.
- 2 Independent set points.
- Wide Frequency setting range 40.00Hz to 65.00Hz.
- Programmable Reset Frequency / Drop out.
- Wide operating range of PT 0.6 to 1.5 times of rated
- block tripping operation below 0.6 of rated

Applications:

Transmission equipment's, the nature of distributed loads over long distance makes difficult to control them. Overload results in the form of fall in frequency. Closely monitoring the frequency of supply at distribution centres can give efficient load control / shedding before grid / generator failure. This equipment AUOFMR2 is designed to suit load conditions of electrical utilities. The relay equipped with RS232 & RS485 communication ports, due to this it can be used in ASCADA schemes. Once connected to a suitable computer, it not only reports the current frequency, but also facilitates remote settings of the relay parameters. The Relay is also equipped with built in Real Time Clock and record fault information along with time.

Note: Due to our policy to upgrade our products constantly, we reserve the right to supply products which may vary slightly from that indicated above.

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Operation:

The in-come PT (110) can be used for frequency sensing. The sensed frequency is converted into square wave and sensed by Microcontroller. At negative edge internally timer started and time counts inverse is displayed as frequency. The TRIP frequency can be set by keyboard. The two set points are provided which can be set as under or over frequency. If frequency set point is set less than 60.00Hz is treated as under frequency set point and if set point is set above 60.00Hz it is treated as over frequency set point. Both channels are able to set independently. Under frequency range will be 40.00Hz to 60.00Hz & for over frequency setting will be 60.01Hz to 65.00Hz. Resolution of setting is 0.01Hz. The incoming frequency is compared with the set frequency and O/P then triggers the delay timer. The delay time can be adjusted from keyboard from 0.10sec to 9.9 seconds. The o/p of delay timer and comparator circuit controls the o/p relay. For under frequency, relay is TRIPPED only if the change / drop in frequency continuous for the set delay period. For under frequency, when relay trips stays in the tripped condition till frequency rises above the set hysteresis. For over frequency relay is TRIPPED only if the frequency increases above the set frequency continuously for the set delay period. The relay once tripped stays tripped till frequency drops below the set hysteresis. Three NO contacts of relay are available for external circuit controls. The calibration of the relay can be checked by pressing BYPASS push-button.

Technical Specifications:

Sr. No.	Specification	Particulars
I.	Frequency Sensing Input	: Rated 110VAC PT Secondary. : Range 0.6 to 1.5 times of rated. : Block operation below 0.6 of rated.
II.	Burden on PT	: 1VA Maximum on PT.
III.	Auxiliary Supply	: 18 to 52 VDC or 77 to 250VDC (To be specified while ordering)
IV.	Burden on Power Supply	: 10VA Maximum.
V.	Frequency setting range	: Under Frequency: 40.00Hz. to 60.00Hz : Over Frequency: 60.01Hz. to 65.00Hz in steps of 0.01Hz.
VI.	Centre Frequency	: 60.00 Hz the set point above centre is over set point and below is under set point.
VII.	Accuracy of setting	: ± 0.01 Hz. Repeat accuracy better than 0.05Hz
VIII.	Reset Frequency	: Programmable 0.1Hz to 5.0Hz
IX.	Drop-out Frequency	: Programmable 0.1Hz to 2.0Hz
X.	Delay Time adjustment	: 0.1 sec. to 10 sec. Instep of 0.05sec : Accuracy $\pm 5\%$ or $\pm 0.02s$ whichever is higher.
XI.	High Voltage Test	: 2KV for 60 sec. As per IS3231
XII.	Insulation Resistance	: More than 100 Mohms

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XIII.	Relay confirms	: IS : 3231 and IS : 8686 requirements	
XIV.	Output Contacts	: 3 NO, 2 NO + 1 NC, 1 No + 2 NC, 3 NC each stage. (Specify any one while ordering)	
XV.	Contact Type:	: SR or HR (Set using Function (FC 1 = SR 2 = HR)	
XVI.	Contact Rating	: Make and carry for 3sec.- 7500VA with max. 30A & 660VAC/DC : Make and carry for continuous - 1250VA with max. 5A & 660VAC/DC : Break AC - 1250VA DC – 100W resistive 50W inductive	
XVII.	LED's Indications		
	ON	: PT voltage is present	
	FAULT 1	: Flag for set point 1 (Hand reset)	
	FAULT 2	: Flag for set point 2 (Hand reset)	
	TIME 1	: Pickup for set point 1 (Self reset)	
	TIME 2	: Pickup for set point 2 (Self reset)	
	TRIP 1	: Trip for set point 1 (Self reset/ Hand Reset)	
	TRIP 2	: Trip for set point 2 (Self reset/ Hand Reset)	
XVIII.	Communication port	: RS-485 and RS232C port	
XIX.	Drawing Reference	: Cabinet Size	- MAC00302 CSC1 Vertical
		: Back Terminal	- ACD00802

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