

Electronic Measuring Relays for Automation

FUR frequency measuring relays for converters



Type FUR1/210ab - 2.60 - (Uv)

Ref. no. 17.04-54

Task

Monitors frequencies for exceeding an adjustable threshold S.

Application

Overfrequency monitor for motors driven by static frequency converters or other quasi sinusoidal or rectangular wave power sources.

Function

The motor voltage is connected directly to E0 and E1 (up to 250 V AC or E0 and E2 (up to 500 V AC). The device can be operated with or without latching behaviour. In latching mode, a recognized over-frequency is reset by means of either an electrically isolated contact between terminals P and E3 or an external voltage (e. g. the output of a PLC) on terminals E3 and M. For operation without latching, terminals P and E3 must be bridged.

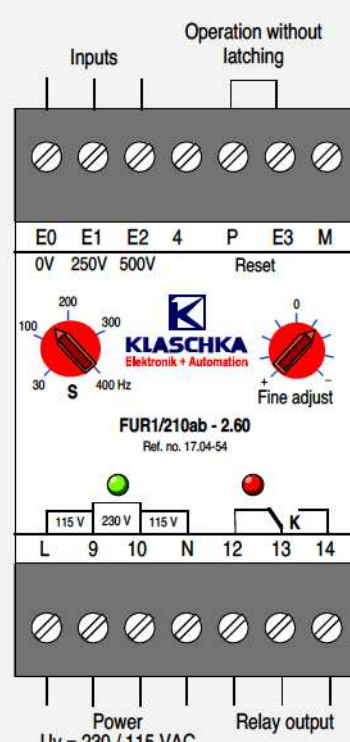
Operating mode

Relay drops out when threshold S is exceeded.

Measuring relays for DC and AC voltages

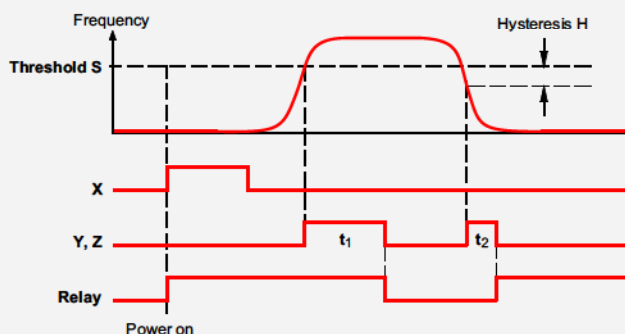
Type	Ref. no.	Page	Frequency range (version)	Operating voltage	
				U _V	
FUR1/210ab - 2.60 - 24VDC	17.04-54-006	3.1.1	30 ... 400 Hz (B)	24 V DC	
FUR1/210ab - 2.60 - 115/230VAC	17.04-54-007	3.1.1	30 ... 400 Hz (B)	115 / 230 V AC	
FUR1/210ab - 2.60 - 24VDC	17.04-54-016	3.1.1	5 ... 100 Hz (A)	24 V DC	

Device		FUR frequency measuring relays for converters	
Please see on page 3.0.1 for the exact type designation and ref. no.		FUR1/210ab-2.60 - (Uv) (range B)	
		17.04-54-xxx	
Technical Data			
Line voltage Uv	please indicate when ordering		
Alternating voltage	230 / 115, 42, 24 V AC		
Tolerance	± 10 %		
Direct voltage	24 V DC		
Tolerance range	± 10 %		
Ripple voltage	max. 10 %		
Power consumption	approx. 4 VA		
Housing size	.60 (page 0.0.1)		
Weight	approx. 300 g		
(see table) Inputs E1, E2			
Range B (100, 400)	please indicate when ordering		
Version A: Threshold S (adjustable)	5 ... 100 Hz		
Version B: Threshold S (adjustable)	30 ... 400 kHz		
- Fine adjustment	≤ ± 5 % of S		
Input current	max. 10 mA		
Electrical isolation	yes		
max. input frequency	800 Hz		
min. clock frequency of the converter	3 kHz		
Input E3			
Signal level lo	0 ... 4 V DC		
Signal level hi	18 ... 30 V DC		
Input current	approx. 10 mA		
Output			
Relay output	1 changeover switch		
Switching voltage	24 ... 250 V AC or DC		
Switching current	0.05 ... 6 A		
Switching capability, AC	max. 1250 VA		
Switching capability, DC	max. 50 W		
Switching frequency	max. 5.000 / h		
Mech. lifetime	30 x 10 ⁶		
Indicators			
1 green LED	power on		
1 red LED	relay pulled-in		
Hysteresis H (operation without fault memory)	fixed approx.10 % of S		
Start time delay X	approx. 150 ms		
Pull-in delay Y	approx. 50 ms		
Dropout delay Z	approx. 150 ms		

Inputs		Operation without latching	
			
Uv = 230 / 115 VAC		Relay output	

Input	Input voltage	Input resistance	Range (Version)	Frequency
E1	25 ... 250 V AC	30 kΩ	100 (A)	5 ... 100 Hz
			400 (B)	30 ... 400 Hz
E2	50 ... 500 V AC	60 kΩ	100 (A)	5 ... 100 Hz
			400 (B)	30 ... 400 Hz

Diagram



x = Start time delay t₁
y = Pull-in delay t₂
z = Dropout delay t₃

Wiring
AC 2-pole

Frequency and pulse rate measuring relay
with LED

