



Monitoring relays - GAMMA series

Frequency- and voltage monitoring in 3-phase and single phase mains in accordance with Guida alle Connessioni ala rete elettrica di ENEL Distribuzione (ex DK5940)

Quick net error recognition

Connection of neutral wire recommended

Supply voltage selectable via power modules or switching power supply

2 change over contacts

Width 22.5mm

Industrial design



Technical data

1. Functions

Frequency monitoring in Phase L1 in accordance with Guida alle Connessioni ala rete elettrica di ENEL Distribuzione (ex DK5940) with adjustable ON-Delay and two adjustable thresholds.

WIN_F (Frequency) Monitoring the window between Min and Max

Voltage monitoring in 3-phase or single phase mains in accordance with Guida alle Connessioni ala rete elettrica di ENEL Distribuzione (ex DK5940) with adjustable ON-Delay and fixed thresholds.

WIN_V (Voltage) Monitoring the window between Min and Max

2. Time ranges

ON-Delay:	Adjustment range
OFF-Delay:	0.3s to 30s
$U \leq 80\%$ of U_N	< 100ms
$U \geq 120\%$ of U_N	< 100ms
$f \leq 49.7$ or 49Hz	< 100ms
$f \geq 50.3$ or 51Hz	< 100ms

3. Indicators

3.1 Indicators for voltage monitoring

Red LED U_{Guasto} ON: One of the 3-phases (L-N) is beyond the fixed voltage thresholds

3.2 Indicators for frequency monitoring

Red LED $>f$ ON: indication of failure for maximum threshold
 Red LED $<f$ ON: indication of failure for minimum threshold
 Red LED $>f$ and $<f$ ON: invalid measurement voltage to phase L1

3.3 Indicators for relay outputs

Yellow LED ON/OFF: indication of relay output
 Yellow LED flashes: indication of ON-Delay

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
 Mounted on DIN rail TS 35 according to EN 60715
 Mounting position: any.
 Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20.
 Tightening torque: max. 1Nm
 Terminals capacity:
 1 x 0.5 to 2.5mm² with/without multicore cable end
 1 x 4mm² without multicore cable end
 2 x 0.5 to 1.5mm² with/without multicore cable end
 2 x 2.5mm² flexible without multicore cable end

5. Input circuit

Supply voltage: 230V AC
 terminals A1-A2 (galvanically separated)

Possible from: 12 to 400V AC or 24V DC
 terminals A1-A2 (galvanically separated)
 selectable via power module type TR2 or switching power supply type SNT2

Tolerance:

according to specification of power module type TR2 or switching power supply type SNT2

Rated frequency:

according to specification of power module type TR2 or switching power supply type SNT2

Rated consumption:

2VA (1.5W)

Duty cycle:

100%

Reset time:

85ms

Residual ripple of DC:

-

Drop-out voltage:

>30% of supply voltage

Overvoltage category:

III (in accordance with IEC 60664-1)

Rated surge voltage:

4kV

6. Output circuit

2 potential free change over contacts

Rated voltage: 250V AC

Switching capacity: 750VA (3A / 250V AC)

If the distance between the devices is less than 5mm!

Switching capacity: 1250VA (5A / 250V AC)

If the distance between the devices is greater than 5mm!

Fusing: 5A fast acting

Mechanical life: 20×10^6 operations

Electrical life: 2×10^5 operations

at 1000VA resistive load

max. 60/min at 100VA resistive load

max. 6/min at 1000VA resistive load

(in accordance with IEC 60947-5-1)

III (in accordance with IEC 60664-1)

Rated surge voltage: 4kV

7. Measuring circuit

Fusing:

max. 20A (in accordance with UL 508)

Frequency monitoring

Measured variable: frequency of phase L1

Measurement input:

50Hz

terminal N-L1

Switching threshold:

Max:

50.3Hz or 51Hz

Min:

49.7Hz or 49Hz

Voltage monitoring

Measured variable:

AC Sinus

Measurement input:

3~ 400/230V

1~ 230V

terminals L1-L2-L3-(N)

terminals N-L1, N-L2, N-L3

Overload capacity:

3~ 520/300V permanent

Input resistance:

1MΩ

Switching threshold U_s :

Max:

120% of U_N (276V)

Min:

80% of U_N (184V)

Overvoltage category:

III (in accordance with IEC 60664-1)

Rated surge voltage:

4kV

Technical data

8. Accuracy

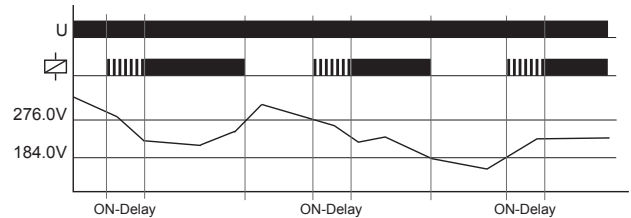
Base accuracy:	≤2%
Adjustment accuracy:	-
Repetition accuracy:	≤1%
Voltage influence:	-
Temperature influence:	≤0.05% / °C ≤0.01Hz / °C

9. Ambient conditions

Ambient temperature:	-25 to +55°C (in accordance with IEC 60068-1) -25 to +40°C (in accordance with UL 508)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	3 (in accordance with IEC 60664-1)
Vibration resistance:	10 bis 55Hz 0.35mm (in accordance with IEC 60068-2-6)
Shock resistance:	15g 11ms (in accordance with IEC 60068-2-27)

Window function WIN_v (Voltage):

When the supply voltage U is applied, the output relay R switches into on-position after the set interval of the tripping delay (ON-Delay) has expired and if the measured voltage is within the fixed adjusted window. When the measured voltage leaves the window between the fixed adjusted range, the output relay R switches into off-position. As soon as the voltage reenter the adjusted window, the output relay R switches into on-position after the set interval of the tripping delay (ON-Delay) has expired.



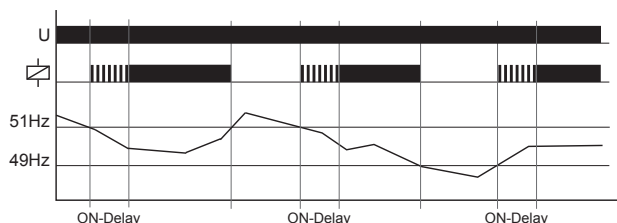
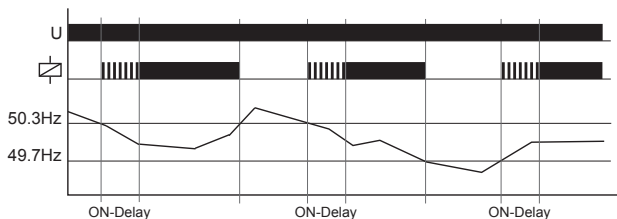
Functions

In case of selection of frequency threshold $\pm 0.3\text{Hz}$ it is suggested to connect the neutral wire.

If a failure already exists when the device is activated, the output relay R remains in off-position and the red LEDs $>f$, $<f$ and U_{Guasto} illuminate. The monitoring of frequency and voltage is executed simultaneous due to the fixed thresholds of the window function.

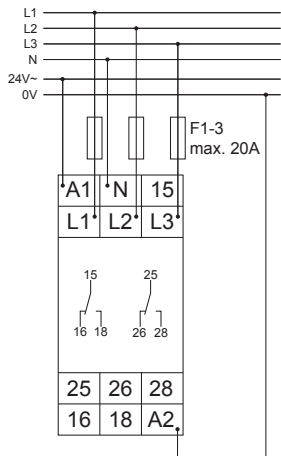
Window function WIN_f (Frequency):

When the supply voltage U is applied, the output relay R switches into on-position after the set interval of the tripping delay (ON-Delay) has expired and if the frequency is within the fixed adjusted window. As soon as the frequency exceeds or leaves the adjusted range, the output relay R switches into off-position. The output relay R switches into on-position again (yellow LED illuminated), after the frequency reenter the adjusted window and interval of the tripping delay (ON-Delay) has expired.

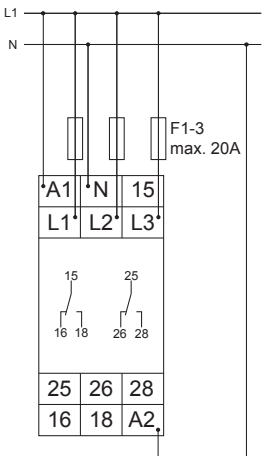


Connections

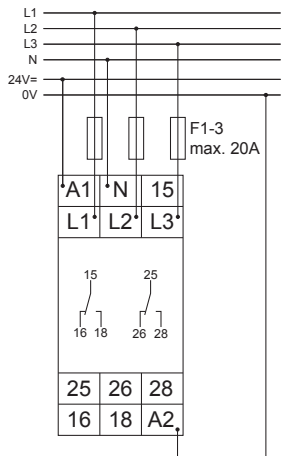
G2FW50HzYFA02-Italia 3-phase mains with power module TR2 24V AC



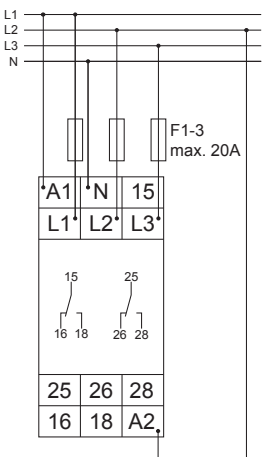
G2FW50HzYFA02-Italia 1-phase mains with standard supply 230V AC



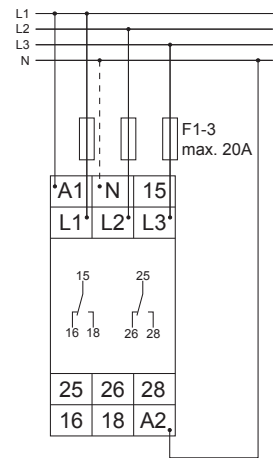
G2FW50HzYFA02-Italia 3-phase mains with switching power supply SNT2 24V DC



G2FW50HzYFA02-Italia with power module TR2 400V AC



G2FW50HzYFA02-Italia 3-phase mains with standard supply 230V AC



Dimensions

