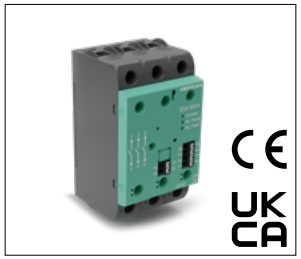
GEFRAN

GRZ from 10 to 75A

ULTRA-COMPACT THREE-PHASE SOLID STATE RELÈ UNITS WITH DC / AC LOGIC CONTROL



Cod 81094 *FGL_GRZ_01-2024_ENG*

WARNINGS

read the following warnings before installing, connecting or using the device:
- follow instructions precisely when connecting the device.
- always use cables that are suitable for the voltage and current levels indicated in the technical specifications.
- In applications with risk of damage to persons, machines or materials, you MUST install auxiliary alarm devices.
- It is advisable to verify frequently that the alarm device is functional even during the normal operation of the equipment.
- DO NOT operate the device in rooms with dangerous (inflammable or explosive) atmosphere.
- During continuous operation, the heat sink can reach up to 100°C, and stays at a high temperature even after the device is turned off due to thermal inertia; therefore, DO NOT touch it and avoid contact with electrical wires.
- Do not work on the power part without first disconnecting electrical power to the panel.
- Do not remove the cover when the device is powered!

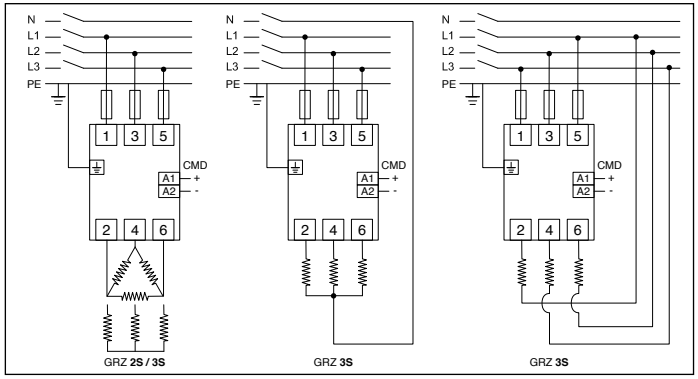
Installation:
- Correctly ground the device using the specific terminal.
- Power supply lines must be separated from device input and output lines; always check that the supply voltage matches the voltage indicated on the device label.
- Avoid dust, humidity, corrosive gases and heat sources.
- Respect the installation distances between one device and another (to allow for dissipation of generated heat).
- To keep air in movement, we advise you to install a fan near the GRZ(-H) group in the electrical panel containing the GRZ(-H).
- Respect the indicated dissipation curves

Maintenance:
at regular intervals, check operation of the cooling fans and clean all air ventilation filters.
- Repairs must be done out only by trained and specialized personnel. Cut power to the device before accessing internal parts.
- Do not clean the box with solvents derived from hydrocarbons (trichloroethylene, gasoline, etc.). Using such solvents will compromise the device's mechanical reliability. Use a clean cloth moistened with ethyl alcohol or water to clean external parts in plastic.

Service:
GEFRAN has a service department. The warranty excludes defects caused by any use not conforming to these instructions.

CE	This device conforms to European Union Directive 2014/30/EU and 2014/35/EU as amended with reference to generic standards: **EN 61000-6-2** (iammunity in industrial environment) **EN 61000-6-4** (emission in industrial environment) - **EN 61010-1** (safety regulations).
c UL us LISTED	cULus listed, Conformity UL508 - File: E243386

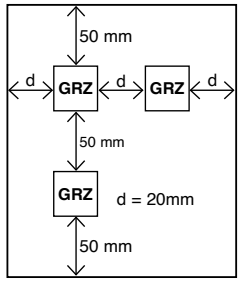
WIRING DIAGRAM



INSTALLATION

Use the extra-rapid fuse shown in the catalogue according to the connection example supplied.
Applications with uninterruptible power supply units must also include a safety circuit breaker for disconnecting the power line from the load.
To obtain high device reliability, it is essential to install it correctly inside the panel in order to obtain adequate heat exchange between the heat sink and the surrounding air under conditions of natural convection.
Mount the device vertically (maximum 10° inclination from the vertical axis).
Make sure that the cable ducts do not reduce these distances; in this case, mount the units overhanging the panel, so that the air can flow vertically on the heat sink without hindrance.

Minimum mounting distance



Limitations of use
- Ambient temperature limits, depending on derating curves.
- Need for air exchange with the outside or an airconditioner to transfer the dissipated power tothe outside of the panel.
- Installation limits (distances between devicesto ensure dissipation under natural convectionconditions)
- Maximum voltage limits and derivative of thetransients present on the line, for which thestatic unit provides internal protection devices(depending on the models).
- Presence of leakage current < 3mA (max.value with nominal voltage and junction temperatureof 125°C / 257°F).

Mounting procedure on the heatsink
The module-heatsink contact surface must have a maximum flatness error of 0.05mm and a maximum roughness of 0.02mm. The anchorage holes on the heatsink must be threaded and countersunk. Caution: Spread 1 gram of heatconducting silicone paste (DOW CORNING 340 HeatSink is recommended) on each dissipative metal surface of the modules. The surfaces must be clean, and there must be no impurities in the heatconducting paste. Tighten the fixing screws as in figure until a torque of 0,30 Nm / 2,65 lb.in for M4 screws is reached. Wait 30 minutes so that the excess paste can drain away. Repeat the operation until a torque of 1,3 Nm / 11,5 lb.in for M4 screws.

Solid State Relay Dissipated Power Calculation
Single-phase relay Pd = 1.2 * IRMS [W]*n
IRMS = single-phase load current
n=number of controlled phases, 2 for 2S models, 3 for 3S models

Heatsink Thermal Resistance Calculation
Rth[°C/W] = (90°C - max amb. T) / Pd where Pd = dissipated power
Max. amb. T = max air temperature inside the electrical cabinet.Use a heatsink with thermal resistance inferior to the calculated one (Rth).Maximum surrounding air temperature 40°C "Open Type Equipment" suitable for use in pollution degree 2 or better.

MOUNTING INSTRUCTIONS

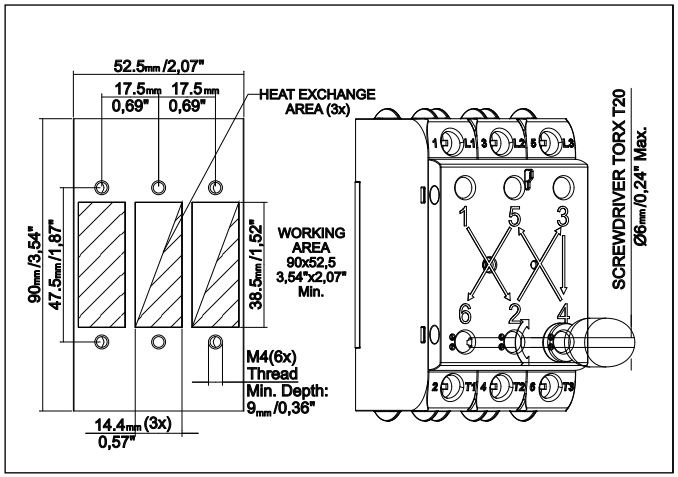


TABLE OF TERMINALS AND CONDUCTORS

POWER TERMINALS							
Rated load current	**10/15A**	**20/25A**	**30A**	**40A**	**50A**	**60/65A**	**75A**
Contact area (WxD) screw type	9,2 x 8 mm M5						
Stripping length	11 mm						
1 Conductor section 2 Conductors section (minimum section)	1 x 2.5 mm²/ 2 x 1.5 mm²	1 x 6 mm²/ 2 x 4 mm²		1 x 10 mm²/ 2 x 6 mm²	1 x 16 mm²/ 2 x 10 mm²	1 x 25 mm²/ 2 x 16 mm²	
	1 x 14 AWG/ 2 x 17 AWG	1 x 10 AWG/ 2 x 12 AWG		1 x 8 AWG/ 2 x 10 AWG	1 x 6 AWG/ 2 x 8 AWG	1 x 4 AWG/ 2 x 6 AWG	1 x 3 AWG/ 2 x 6 AWG
Maximum allowed section	1 x 25 mm2 /2 x 16 mm2 - 1 x 3 AWG /2 x 6 AWG						
Tightening torque	2,5-3 Nm (22-26,6lb-in)						
Note: Use 75°C (167°F) copper (CU), multi-stranded conductors							

CONTROL/SIGNAL TERMINALS Rigid/flexible / cable lug conductor cross section	
1 Conductor section 2 Conductors section	1 x 0.2-0.75 mm2 2 x 0.1-0.5 mm2
	1 x 24-18 AWG 2 x 27-20 AWG
Stripping length	8 mm
Note: Use 60/75°C (140/167°F) copper (CU), multi-stranded conductors	

EXTRARAPID FUSES

GRZ Model	Nominal current	Model and fuse size (manufacturer Bussmann Div Cooper (UK) Ltd)	Fuse order code (descr.)	Fuse holder order code (descr.)
10	10	FWC-10A10F 10x38	338238 (FUS-010-L)	337132 (PF-10x38)
15	16	FWC-16A10F 10x38	338470 (FUS-016)	
20,20I	20	FWC-20A10F 10x38	338469 (FUS-020)	
25,25I	25	FWC-25A10F 10x38	338474 (FUS-025)	
30,30I	32	FWC-32A10F 10x38	338483 (FUS-032)	
40,40I	40	FWP-40A14F 14x51	338147 (FUS-040)	337131 (PF-14x51)
50	50	FWP-50A14F 14x51	338079 (FUS-051)	
65	63	FWP-63A22F 22x58	338191 (FUS-063)	337130 (PF-22x58)
75	80	FWP-80A22F 22x58	338199 (FUS-080)	

PINOUT DESCRIPTION

1/L1, 2/L2, 3/L3	Mains power line connections
2/T1, 4/T2, 6/T3	Load connections
11/A2-	Ground On/Off Control signal
12/A1+	Positive On/Off signal command Vdc
11/A2	On/Off signal command Vac
12/A1~	On/Off signal command Vac
13/A2-	Ground (common with 11/A2-)
14/AL+	Alarm output
13 14	Alarm output
15/A2-	Ground (common with 11/A2-)
16/Us	Power supply, positiv signal

LED status description

Control (Green led)	Status of the command signal (*)
Al Fault (Red led)	Power Fault alarms (No Voltage, No current)
Al Temp. (Yellow led)	Over-temperature status

(*) In alarm conditions, the green Control LED goes off, even in the presence of an active command.