

MAIN APPLICATIONS

- Plastic extrusion, injection, blow moulding, thermoforming
- Packing and packaging
- Chemical and pharmaceutical industry
- Industrial electric furnaces
- Dryers for ceramics and construction elements
- Food industry processing plants
- Heating systems with infrared lamps (long, medium, short wave)
- Wood binding machines
- Medium and long wave infrared lamps



MAIN FEATURES

- Ultra-compact dimensions from 15A to 120A
- Load voltage 480V, 600V AC
- SCCR 100 kA
- IO-Link digital communication
- Zero voltage crossing (ZeroCrossing) or Phase angle control.
- On/Off control, optimised/fixed cycle time, HalfSingleCycle, PhaseAngle, soft-start ramps.
- Input command from V DC, Analogue signal (0..5V, 0..10V, 0..20mA, 4..20mA, potentiometer) or IO-Link logic.
- Connectors for push-in control signals; signal LED.
- Configuration and diagnostics via smartphone app with NFC technology.
- Alarm threshold calibration by button or digital input.
- Compact versions with expanded i²t.
- Cage clamps for power cables
- Advanced diagnostic option with partial load break (up to 8 loads in parallel), current measurement and energy meters.
- Internal over voltage protection

PROFILE

The correct management of electric heaters and infrared lamps for industrial heating applications requires robust, safe, fast and diagnostic-capable static contactors.

The range of solid state contactors GRP, meets all these needs, with current ratings from 15 to 120 Ampere, voltages up to 600Vac, in extremely compact dimensions in every single size.

The thermal design of all models guarantees the continuous supply of the rated current at an ambient temperature of 40°C / 104°F through high efficiency heat sinks, assisted by fans for the 90A and 120A models. For GRP-H with integrated heatsink, the derating curves show how higher current values can also be obtained for lower temperatures as well as the possibility of mounting various devices stacked on the DIN rail.

CONFIGURATION AND DIAGNOSTICS

For the configuration of the GRP series devices, an App is available for smartphones with Android and iOS operating systems, which can be downloaded free of charge from the relative stores. The App interfaces to the device via contactless NFC (Near Field Communication) technology via a small NFC Dongle (which can be ordered as part of the device or as an accessory).

It is also possible to read diagnostic data on the operation of the load and the device (energy meters, current peaks or over-temperatures), duplicate or share the configurations of multiple devices through this interface.

The IO-Link interface guarantees efficient communication, capable of powering, configuring, monitoring and controlling the device, via only 3 wires. Complete and simple device configuration is possible with IODD files.

The devices can also be configured using a special cable via PC and the GF_eXpress configuration tool. Alternatively, basic device configuration is made available by means of a button and LED on the front. The current thresholds for partial load break alarms can be adjusted by means of a front key or digital input, so that multiple objects can be configured at the same time with the electrical panel closed.

CONTROL

The GRP series can be controlled in three different ways based on the options chosen:

1. Logic signals in V DC, OnOff mode.
2. Analogue signal configurable as 0..5V, 0..10V, 0..20mA, 4..20mA and potentiometer, for proportional commands (Burstfiring, FixedCycleTime, HalfSingleCycle, PhaseAngle).
3. Control via the IO-Link point-to-point communication protocol for comprehensive process diagnostics.

All commands are managed via push-in connectors, for faster and easier connection, even without tools. The device status is always displayed by a multi-colour LED on the front panel, for an immediate view of its operation. In the event of an error in the command signal, a fault power can be programmed which the device will maintain until the signal is restored.

POWER CONNECTIONS

Both the line voltage terminal available on the upper part of the device and the load terminal on the lower part are of the "cage" type, which offers the best and safest seal even for cables of different cross-sections, whether mounted with a cable lug or simply stripped.

DIAGNOSTICS AND ALARMS

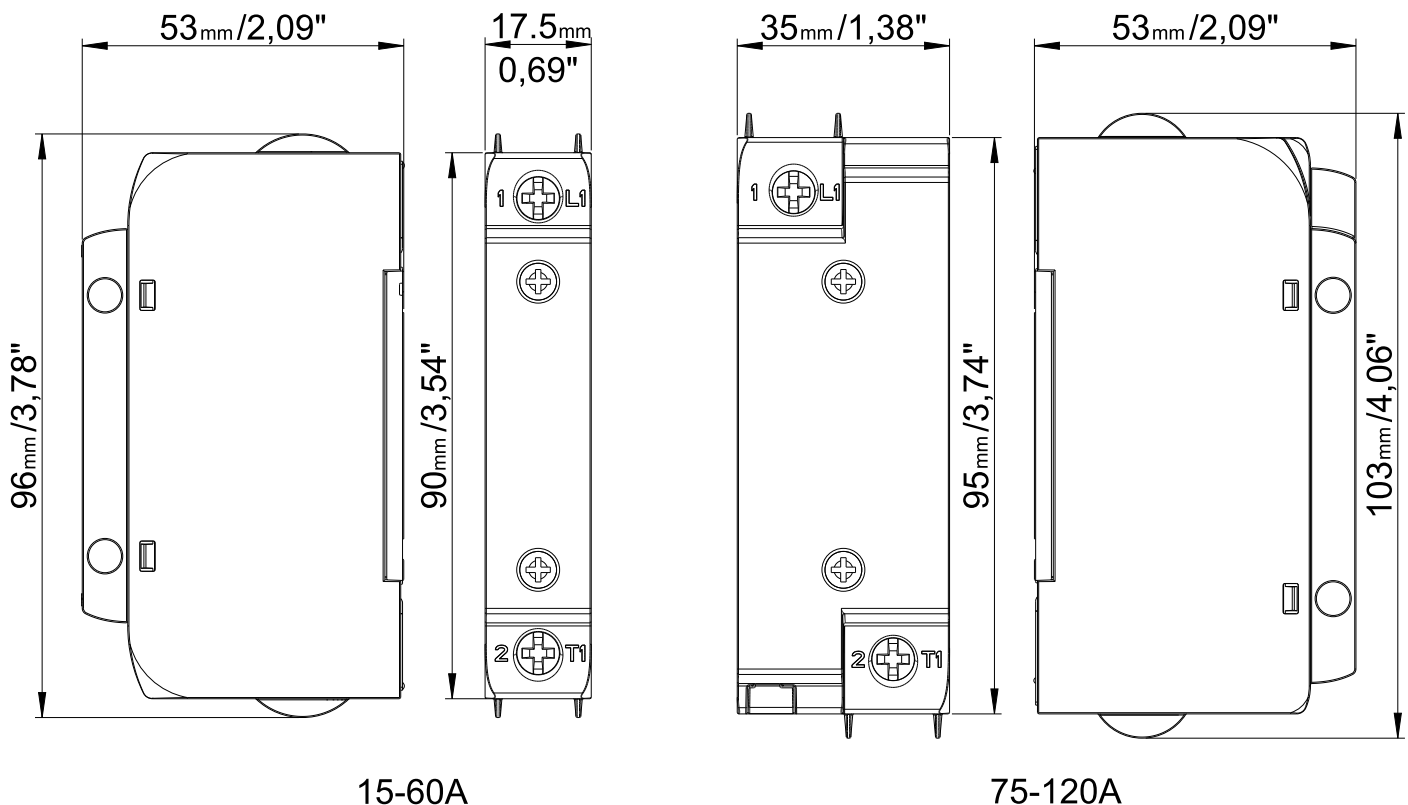
It is increasingly vital for operators and maintainers to recognize possible anomalies in the system immediately and solve them quickly in order to ensure the efficiency and profitability of machinery and plants. The GRP series offers complete availability of load information.

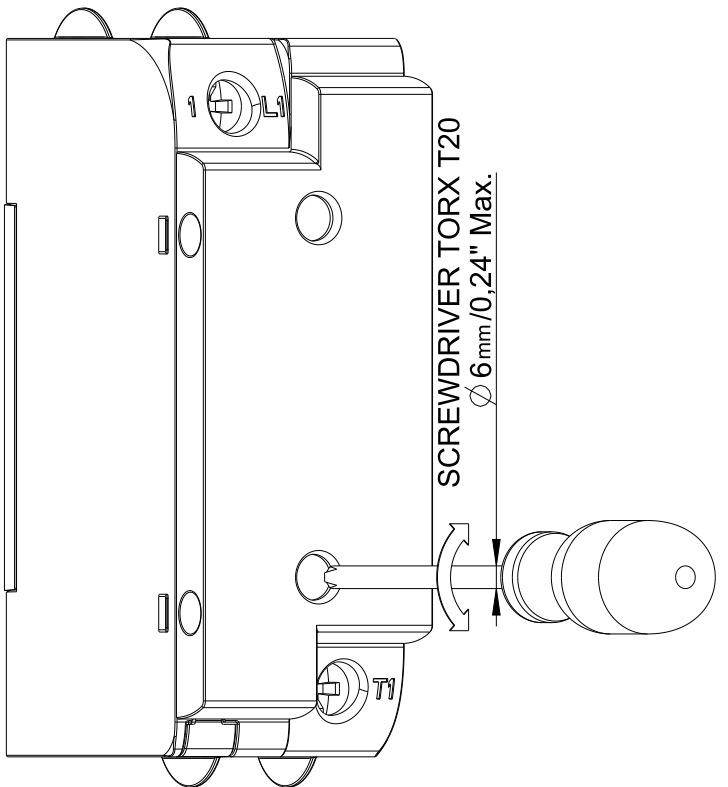
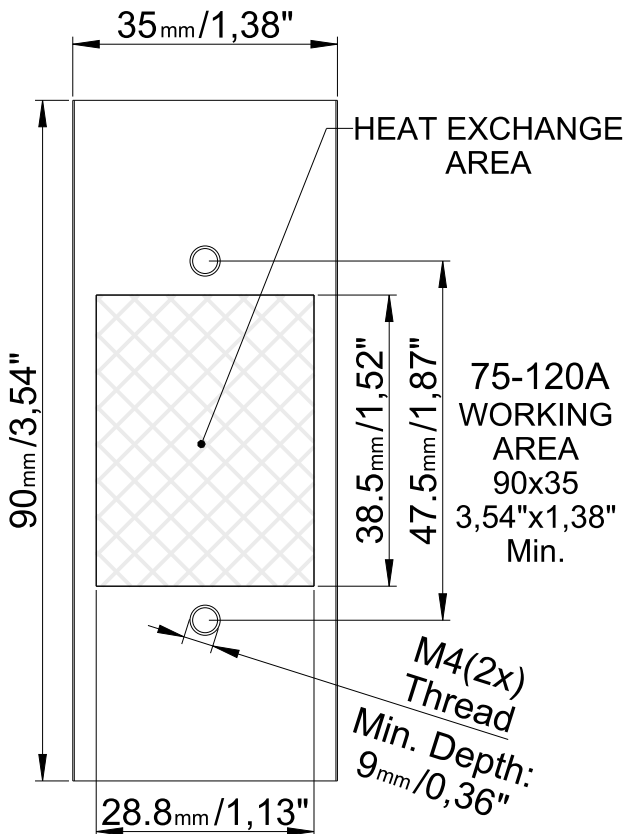
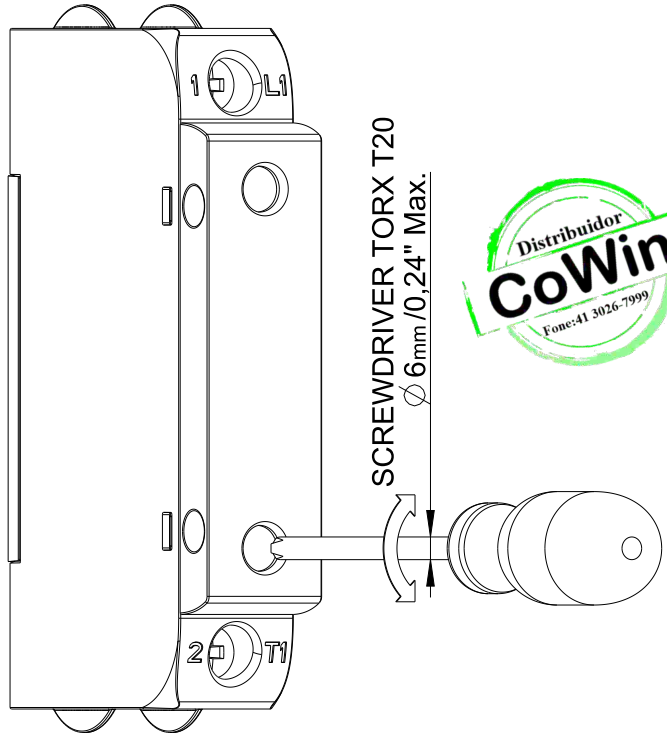
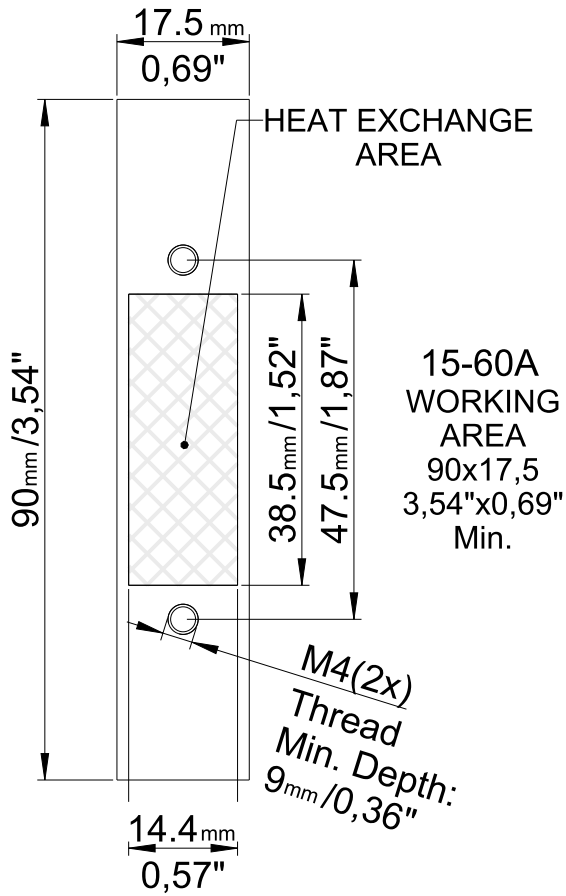
The physical alarm output, PNP type, is ready to diagnose partial or total load breaks, lack of voltage on the load and over-temperature (configurable output). The thermal alarm is triggered if heat dissipation exceeds a critical threshold, signalling it with a red led on the front panel, interrupting the power supply and triggering the alarm output.

This function is always present, on all current sizes.

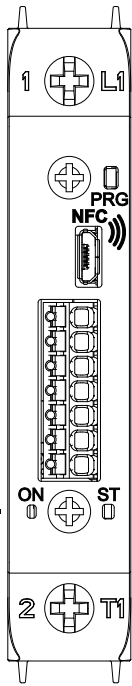


DIMENSIONS AND MOUNTING MEASUREMENTS





GRP
15-60A



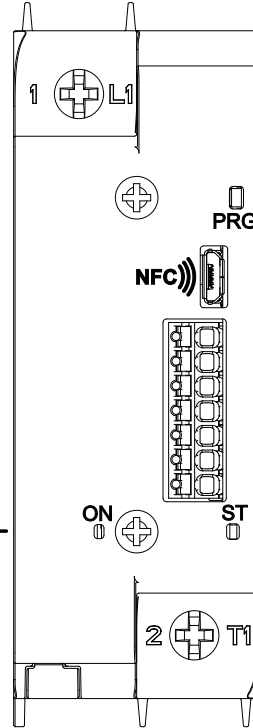
SCR ON-
LED
GREEN

PROGRAM
BUTTON
-
USB/NFC

LED GREEN RUN
LED RED ALARM
LED BLUE STATUS



GRP
75-120A

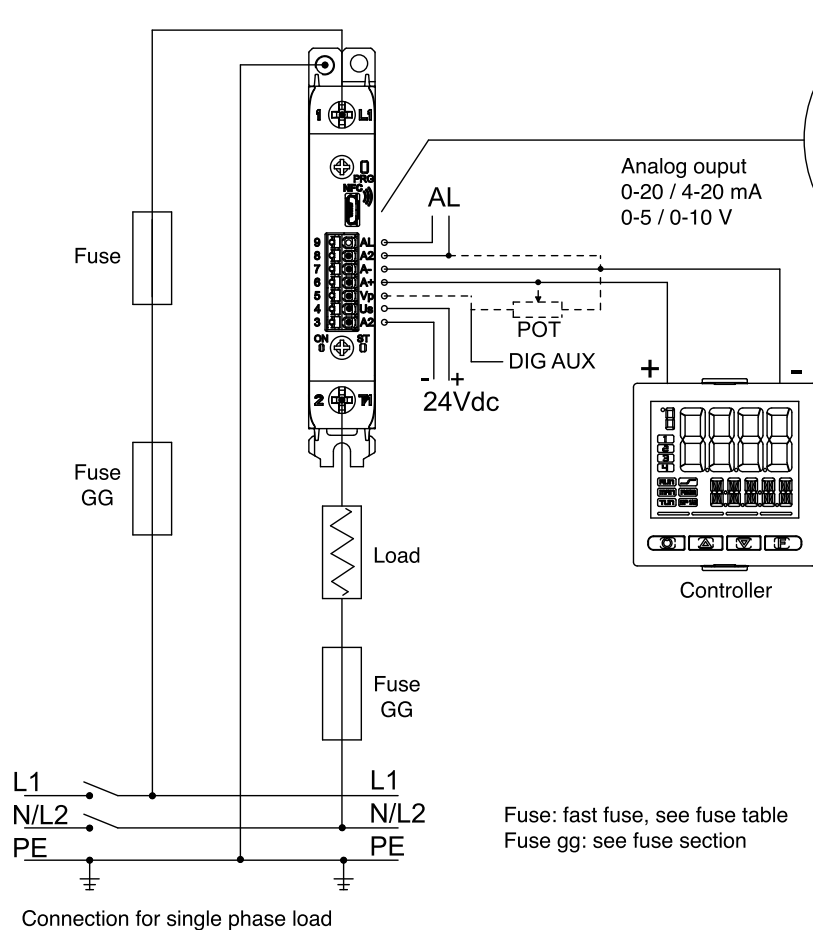


SCR ON-
LED
GREEN

PROGRAM
BUTTON
-
USB/NFC

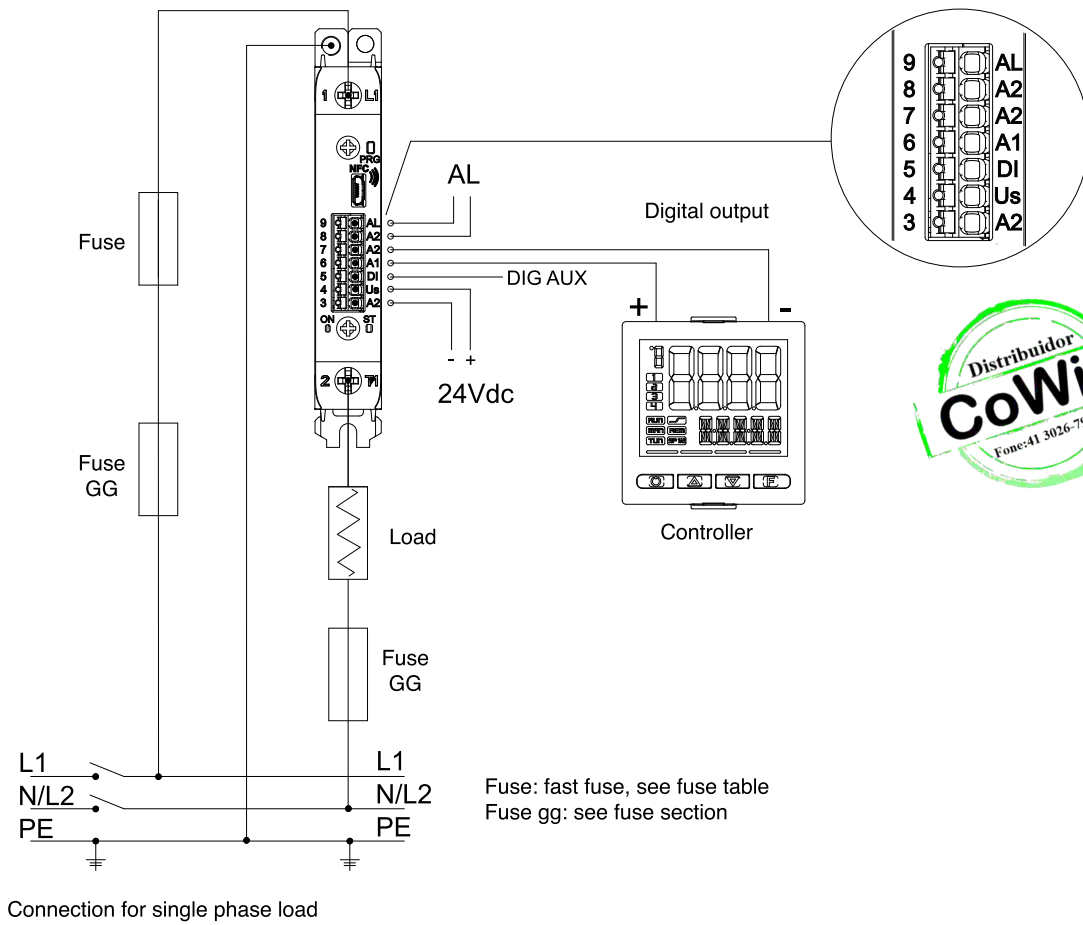
LED GREEN RUN
LED RED ALARM
LED BLUE STATUS

VERSION WITH ANALOGUE INPUT



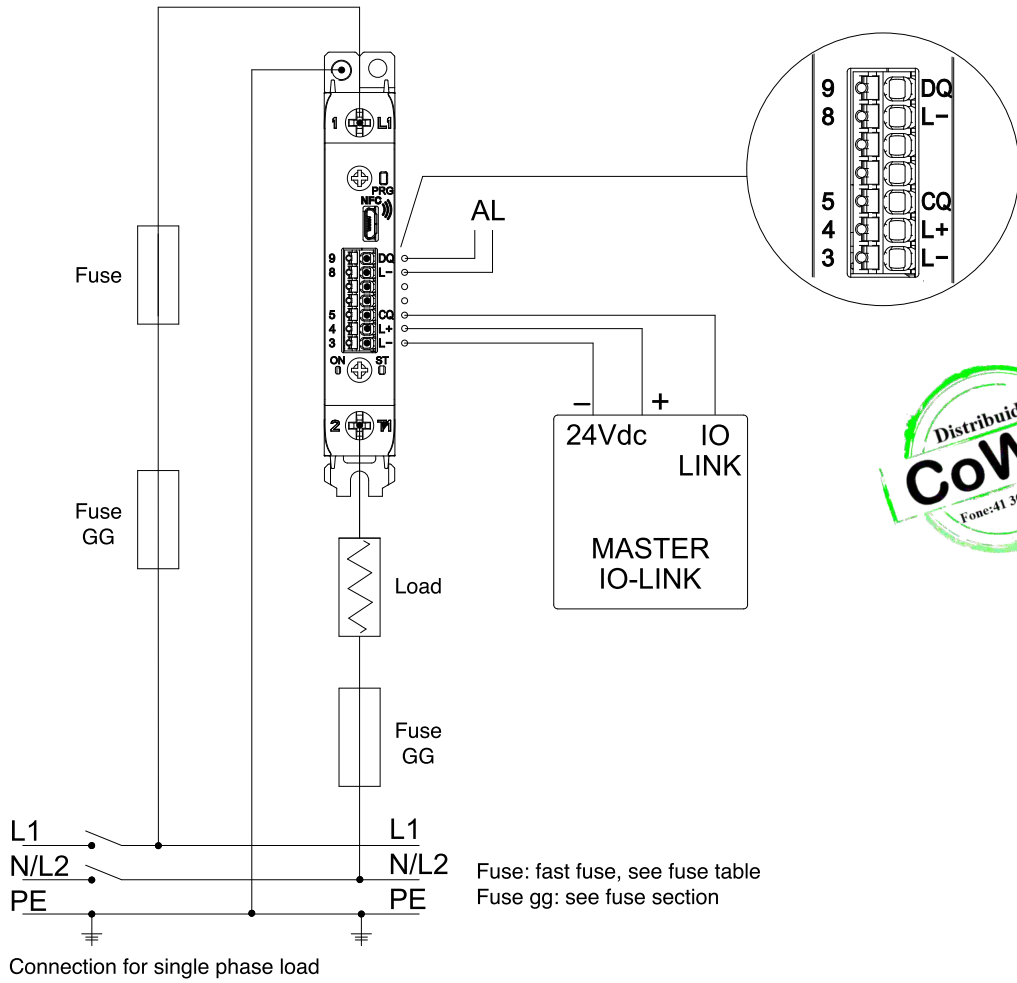
| Power terminals | | |
|--|--|---|
| Ref. | Description | Notes |
| 1/L1 | Line Connection | |
| 2/T1 | Load Connection | |
| AN version signal connector (analogue input) | | |
| 3/A2- | Power GND | |
| 4/Us | + V DC power supply | GRP power supply (Range from 10 to 30 V DC, I _{max} = 20 mA at 24V) GRP-H-90 ..120A...FAN63: GRP-H + Fan power supply (Range from 20 to 27 V DC, I _{max} <150 mA at 24V with Fan active) |
| 5/Vp | Potentiometer power supply output (+ 5Vdc) / Auxiliary digital input | Potentiometer output voltage: 5V DC, I _{out} max = 10mA Digital input: 5-30V max 3 mA |
| 6/A+ 7/A- | Analogue differential command input | |
| 8/A2- | GND alarm output (common to terminal 3/A2-) | |
| 9/AL | Alarm output | Digital output normally off (settable with normally on). PNP type, output voltage: Us(24Vdc)-0.7Vdc, I _{out} max =15mA |

VERSION WITH DIGITAL INPUT



| Power terminals | | |
|--|--|---|
| Ref. | Description | Notes |
| 1/L1 | Line Connection | |
| 2/T1 | Load Connection | |
| Connettore di segnale versioni D (ingresso digitale) | | |
| 3/A2- | Power GND | |
| 4/Us | + V DC power supply | GRP power supply (Range from 10 to 30 V DC, I _{max} = 20 mA at 24V) GRP-H-90..120A..FAN63: GRP-H + Fan power supply (Range from 20 to 27 V DC, I _{max} <150 mA at 24V with Fan active) |
| 5/DI | Auxiliary digital input | Digital input: 5-30V max 3 mA |
| 6/A1+ | Command digital input | Digital input: 5-30V max 3 mA |
| 7/A2- | GND command input (common to terminal 3/A2-) | |
| 8/A2- | GND alarm output (common to terminal 3/A2-) | |
| 9/AL | Alarm output | Digital output normally off (settable with normally on). PNP type, output voltage: Us(24Vdc)-0.7Vdc, I _{out} max =15mA |

VERSION WITH IO-LINK INPUT



| Power terminals (common to all versions) | | |
|--|---|--|
| Ref. | Description | Notes |
| 1/L1 | Line Connection | |
| 2/T1 | Load Connection | |
| I version signal connector (IO-LINK) | | |
| 3/L- | Power GND | |
| 4/L+ | + V DC power supply | GRP power supply (Range from 10 to 30 V DC, I _{max} = 20 mA at 24V) GRP-H-90..120A..FAN63: GRP-H + Fan power supply (Range from 20 to 27 V DC, I _{max} <150 mA at 24V with Fan active) |
| 5/CQ | IO-LINK communication line | |
| 8/L- | GND alarm output (common to terminal 3/L-) | |
| 9/DQ | Alarm output | Digital output normally off (settable with normally on). PNP type, output voltage: U _s (24Vdc)-0.7Vdc, I _{out} max =15mA |

TECHNICAL SPECIFICATIONS

INPUTS

Analogue command input (Versions with AN input type)

| | |
|----------------------------|---|
| Function | Command power command |
| Maximum Error | 1% f.s. \pm 1 scale point at an ambient temperature of 25°C/ 77°F |
| Thermal shift | <100 ppm/° C on f.s. |
| Sampling time | 10 ms |
| 0-10V scale | Input impedance > 500 K Ω |
| 0-5V scales | Input impedance > 500 K Ω |
| 0-20mA or 4-20mA scale | Internal Shunt Resistance: 250 Ω |
| Potentiometer input | Potentiometer resistance: 1 K Ω at 47 K Ω Potentiometer power supply: + 5V (provided by GRP, max 10mA) |
| Linear input reading scale | 0 ... 100.0 % |
| Common mode immunity | -60V, +60V |

Command digital input (Versions with input type D)

| | |
|---------------------------------|------------------|
| Function | Command input |
| Voltage range | 5-30V (max 3 mA) |
| Safe voltage reading status "0" | < 2 V |
| Safe voltage reading status "1" | > 5 V |
| Input impedance | 13 K Ω |

IO-LINK input (Versions with input type I)

| | |
|---------------------|---|
| Function | IO-LINK fieldbus communication line |
| Protocol | IO-LINK Type of transmission: COM2 (38.4 kBaud) IO-Link version: 1.1.2 SIO mode: No Auxiliary output: Pin DQ Alarm output |
| Process data input | 14 bytes |
| Process data output | 2 bytes |

Line voltage and load current measurement

| | |
|-----------------------------------|---|
| Load current measurement function | Measurement range (full-scale f.s.): 0 ... 1.5 * Irated_product |
| RMS current measurement accuracy | 2% f.s. at room temperature of 25°C / 77°F Thermal shift: <200 ppm/° C |
| Line voltage measurement function | Working voltage range (full-scale f.s.): 60...660Vac |
| RMS voltage measurement accuracy | 2% f.s. at room temperature of 25°C / 77°F Thermal shift: <100 ppm/° C |
| Current and voltage sampling time | 10 ms |
| Line frequency | 50/60 Hz |

OUTPUTS

Alarm output (optional)

| | |
|----------|---|
| Function | Configurable alarm output |
| Type | Digital output normally off (settable with normally on). PNP type, output voltage: Us(24Vdc)-0.7Vdc, Iout max =15mA (not protected against short circuit) |

COMMUNICATIONS PORTS

Porta microUSB di servizio

| | |
|---------------------------------|---|
| Functions with TTL serial cable | Only for initial product configuration, via PC. Use a PC connected to the GRP, ONLY via the Gefran adapter cable. The adapter powers the GRP. Cod. F060800 (PC with USB). |
| Type | Micro USB type B connector |
| Insulation | TTL serial NOT isolated |
| Dongle NFC Function | Available for configuration, reading Product Information and diagnostic data. Use App downloadable from PlayStore and AppleStore and NFC Dongle (see accessories table) NOTE: From FW 1.24 GRP-H and GRP products with IO-Link communication do not support NFC function. |



POWER (STATIC GROUP)

| | | | | | | | | | | | | |
|--|---|------|-------|------|-------|------|-----------|-------|-------|-------|-------|--|
| CATEGORY OF USE (Tab. 2 EN60947-4-3) | AC 51: resistive or low-inductance loads AC 55b: infrared lamps | | | | | | | | | | | |
| Trigger modes | OnOff - Zero crossing firing. FCT- Fixed Cycle Time - Zero Crossing with constant cycle time (settable in the range 1...200 sec). BF - Burst Firing with optimised minimum variable cycle time (Zero crossing firing). HSC - Half Single Cycle, corresponds to a Burst Firing which handles half on/off cycles (Zero crossing firing). PA - load management by adjusting the power-on phase angle. It is useful for reducing flicker with medium-long wave infrared loads. Softstart ramp in Phase Angle configurable with any configured Firing mode, only for products with Trigger option = 2 or 3 . | | | | | | | | | | | |
| Max. rated voltage | 480 V AC | | | | | | 600 V AC | | | | | |
| Working voltage range | 60-530Vac | | | | | | 60-660Vac | | | | | |
| Non-repetitive voltage (Surge protection level) | 1200 Vp | | | | | | 1400 Vp | | | | | |
| Rated frequency | 50/60Hz with auto-determination | | | | | | | | | | | |
| Rated current | GRP Model | | | | | | | | | | | |
| | 15 | 25 | 25I | 30 | 30I | 40 | 50 | 60 | 75 | 90 | 120 | |
| | 15A | 25A | 25A | 30A | 30A | 40A | 50A | 60A | 75A | 90A | 120A | |
| Non-repetitive over-current, (t=20 msec) | 620A | 620A | 1600A | 620A | 1600A | 620A | 1600A | 1600A | 1600A | 1500A | 1500A | |
| I2t for melting (t = 1... 10msec) A²s | 1800 | 1800 | 12800 | 1800 | 12800 | 1800 | 12800 | 12800 | 12800 | 11250 | 11250 | |
| critical dv/dt with output disabled | 1000 V/µs | | | | | | | | | | | |
| Rated impulse withstand voltage | 4kV | | | | | | | | | | | |
| Rated current in short circuit condition | 5kA | | | | | | | | | | | |
| Minimum load current: | 1 A | | | | | | | | | | | |
| Voltage drop over rated current: | = < 1,2Vrms | | | | | | | | | | | |
| Presence of leakage current: | < 3mA (Maximum value with nominal Voltage and Junction temperature of 125°C / 257°F) | | | | | | | | | | | |
| Calculation Of The Power Dissipated By The Solid State Relay | Single-phase static relay Pd = 1.2 * IRMS [W] (for GRP) IRMS = single-phase load current | | | | | | | | | | | |
| Calculation Of The Power Dissipated By The Solid State Relay | Single-phase static relay Pd = 1.2 * IRMS [W] IRMS = single-phase load current Example: load current=20Arms, Thermal power dissipated: Pd=20*1,2= 24 W | | | | | | | | | | | |
| Calculation Of The Heatsink's Thermal Resistance | $R_{th} = (90^{\circ}\text{C} - T_{\text{amb. max}}) / P_d$ with Pd = power dissipation Max amb. T.= maximum air temperature in the electrical cabinet. Use a heatsink with lower than calculated heat resistance (Rth). Example: Thermal power dissipated: Pd=20*1,2= 24 W T.amb.max = 40°C $R_{th} = (90-40)/24=2,08[^{\circ}\text{C}/\text{W}]$ | | | | | | | | | | | |



| OPTIONS | | |
|---|---|------------------|
| Basic Diagnostics on PNP digital output (Option 0) | - Power failure for: SCR open / Load interrupted / No line voltage - Overheating alarm | |
| Advanced Diagnostics on digital output PNP (Option 1) | - Power failure for: SCR open / Load interrupted / No line voltage - Overheating alarm SCR short circuit (current presence with OFF command). HB (Heat Break) Alarm: - HB alarm load interrupted or partially interrupted, up to 8 loads in parallel. - Automatic calibration of the HB alarm threshold based on the current load level. The alarm threshold default is 90%, of the current read in calibration. Value corresponding to the recommended threshold to intercept the breakdown up to 1/5 of the total load. Threshold can be changed with the appropriate parameter via NFC App, IO-Link and GF_eXpress, or via front button. Note 1: with Digital command turn ON minimum time = 50 ms to detect load. Note 2: For proper operation of the partial load failure alarm even under the most critical conditions (8 equal loads in parallel), it is necessary that the total load current (non-fault) is at least 30% of the rated current of the GRP (on a 15A GRP -->4.5A) Example: a 15A GRP of nominal size drives 8 equal resistors in parallel. To diagnose the failure of only one of the 8 loads in parallel, the single load must have a draw of at least 0.56A, the total load must draw at least 4.5A (0.56A *8 loads). | |
| GENERAL CHARACTERISTICS | | |
| Power supply | 10... 30 V DC \pm 10%, absorption 20 mA at 24 V DC (Range from 20 to 27 V DC, I _{max} <150 mA at 24V with Fan active) | |
| Indications | 2 leds: ON (Green LED): Control status of the thyristor STATUS (RGB LED): State of operation | |
| Protection rating | IP20 | |
| Working temperature | 0...80°C (32 ... 176°F) (see derating curves) | |
| Storage temperature | -20°C - +85°C (-4 ... 185°F) average temperature in a period of 24H not higher than 35°C (95°F) (according to EN 60947-4-3 § 7.1.1) | |
| Maximum relative humidity | 90% non-condensing | |
| Environmental conditions of use | Indoor use, maximum altitude 2000m For higher altitudes consider: -Decreasing 1% of rated current for every 100m (328ft) above elevation 2000m (6562ft). -Decreasing of maximum voltage by correction factor: 0.88 from 2000 (6562ft) to 3000m (9842ft) 0.77 from 3001 (9846ft) to 4000m (13123ft) 0.68 from 4001 (13127ft) to 5000m (16404ft) Example for GRP-..25-60.. at 2800 mslm (9186ft) - 25A nominal derated by 1%*8-->23A - 600Vac nominal, maximum voltage 660Vac derated to 660*0.88=580.8Vac | |
| Installation | DIN EN50022 bar or panel mount by screws | |
| Installation requirements | Installation category II, pollution degree 2 Maximum air temperature around the device 40°C / 104°F (for Temperature > 40°C / 104°F see derating curves) | |
| Weight | GRP-H 15, 25A, 25I | 194 g / 6.84 Oz |
| | GRP-H 30A, 30I | 237 g / 8.36 Oz |
| | GRP-H 40, 50A | 388 g / 16.69 Oz |
| | GRP-H 60, 75A | 688 g / 24.27 Oz |
| | GRP-H 90A | 796 g / 28.09 |
| | GRP-H 120A | 796 g / 28.09 |
| | GRP 15, 25, 30, 40, 50, 60A | 108 g / 3.81Oz |
| GRP 75, 90, 120A | 156 g / 5,50 Oz | |



PROTECTION FUSES

Type 1 and Type 2 coordination are ratings based on the level of protection and resilience provided during a high current fault. Device is designed to protect people and equipment during a short circuit fault, but the differences between the two levels can be explained as follows:

Type 1 : after a short circuit event it may be too damaged for further use.

Type 2 : after a short circuit event device will still be in working.

Protection co-ordination (Type 2)

| Size device | Fuse nominal Current | Model and fuse size (manufacturer Bussmann Div Cooper (UK) Ltd) | Fuse code (descr.) | Fuse holder accessory code (descr.) |
|-------------|----------------------|---|--------------------|-------------------------------------|
| 15 | 16 | FWC-16A10F 10x38 | 338470 (FUS-016) | 337132 (PF-10x38) |
| 25,25I | 25 | FWC-25A10F 10x38 | 338474 (FUS-025) | |
| 30,30I | 32 | FWC-32A10F 10x38 | 338483 (FUS-032) | |
| 40 | 40 | FWP-40A14F 14x51 | 338147 (FUS-040) | 337131 (PF-14x51) |
| 50 | 50 | FWP-50A14F 14x51 | 338079 (FUS-051) | |
| 60 | 63 | FWP-63A22F 22x58 | 338191 (FUS-063) | 337130 (PF-22x58) |
| 75 | 80 | FWP-80A22F 22x58 | 338199 (FUS-080) | |
| 90 | 100 | FWP100A22F 22x58 | 338478 (FUS-100) | |
| 120 | 125 | 170M1418 000-TN/80 | 338106 (FUS-100) | 337092 (PF-DIN) |

Protection co-ordination (Type 1) according to UL 508

The devices are suitable For Use On A Circuit Capable Of Delivering Not More Than 100,000 A rms Symmetrical Amperes, 600 Volts Maximum when Protected by UL Listed fuses with size and class as specified in the table below:

| Size device | Fuse Class | Fuse Current Max Size [A] | Prospective short circuit current [kArms] |
|-------------|------------|---------------------------|---|
| 15, 25 , 30 | J | 40 | 100 |
| | CC | 30 | |
| 40 | J | 40 | |
| 25I | | 80 | |
| 30I | | 80 | |
| 50 | | 80 | |
| 60 | | 80 | |
| 75 | | 80 | |
| 90 | | 125 | |
| 120 | | 125 | |

Use Fuses Only.

GG FUSES

An electrical protection device known as a GG FUSE must be used to ensure protection against short-circuit of the electrical cable (see EN 60439-1, paragraph 7.5 Short-circuit protection and short-circuit withstand strength" and 7.6 "Switching devices and components installed in ASSEMBLIES", or the equivalent paragraphs of standard EN 61439-1).



MCB protection

| Protection co-ordination (Type 2) with Siemens Miniature Circuit Breaker (MCB / Thermal-Magnetic) 5SY4 series, curve A, 1P and 2P | | | | | | | |
|---|---|--|--------------------------|--------------------------|--------------------------|--------------------------|-----|
| Current size model (I2t) | Current size model (I2t) | Current size model (I2t) | Current size model (I2t) | Current size model (I2t) | Current size model (I2t) | Current size model (I2t) | |
| GRP(-H)-15,25,30,40 (1800 A²s) | 5SY4110-5 (10) | 1,0 | 6,0 | 5SY4210-5 (10) | 1,0 | 6,0 | |
| | | 1,5 | 9,0 | | 1,5 | 10,0 | |
| | | 2,5 | 14,0 | | 2,5 | 14,0 | |
| | 5SY4116-5 (16) | 1,0 | 6,0 | 5SY4216-5 (16) | 1,0 | 6,0 | |
| | | 1,5 | 9,0 | | 1,5 | 10,0 | |
| | | 2,5 | 14,0 | | 2,5 | 14,0 | |
| | | 4,0 | 15,0 | | 4,0 | 25,0 | |
| | 5SY4120-5 (20) | 1,5 | 9,0 | 5SY4220-5 (20) | 1,5 | 10,0 | |
| | | 2,5 | 15,0 | | 2,5 | 21,0 | |
| | | 4,0 | 30,0 | | 4,0 | 30,0 | |
| | 5SY4125-5 (25) | 2,5 | 18,0 | 5SY4225-5 (25) | 2,5 | 18,0 | |
| | | 4,0 | 30,0 | | 4,0 | 30,0 | |
| | 5SY4132-5 (32) | 2,5 | 21,0 | 5SY4232-5 (32) | 2,5 | 36,0 | |
| | | 4,0 | 35,0 | | - | - | |
| | GRP(-H)-25I, 30I, 50, 60,75 (12800 A²s) | For MCBs smaller than those indicated in the lines below, there are no section and length constraints. | | | | | |
| 5SY4132-5 (32) | | 2,5 | 2,0 | 5SY4232-5 (32) | 2,5 | 2,0 | |
| | | 4,0 | 4,0 | | 4,0 | 4,0 | |
| | | 6,0 | 7,0 | | 6,0 | 7,0 | |
| 5SY4140-5 (40) | | 4,0 | 4,0 | 5SY4240-5 (40) | 4,0 | 4,0 | |
| | | 6,0 | 7,0 | | 6,0 | 7,0 | |
| | | 10,0 | 10,0 | | 10,0 | 10,0 | |
| 5SY4150-5 (50) | | 6,0 | 7,0 | 5SY4250-5 (50) | 6,0 | 7,0 | |
| | | 10,0 | 10,0 | | 10,0 | 10,0 | |
| | | 16,0 | 18,0 | | 16,0 | 18,0 | |
| 5SY4163-5 (63) | | 6,0 | 7,0 | 5SY4263-5 (63) | 6,0 | 7,0 | |
| | | 10,0 | 10,0 | | 10,0 | 10,0 | |
| | | 16,0 | 18,0 | | 16,0 | 18,0 | |
| GRP(-H)-90,120 (11250 A²s) | | For MCBs smaller than those indicated in the lines below, there are no section and length constraints. | | | | | |
| | | 5SY4132-5 (32) | 2,5 | 2,0 | 5SY4232-5 (32) | 2,5 | 2,0 |
| | | | 4,0 | 4,0 | | 4,0 | 4,0 |
| | | | 6,0 | 7,0 | | 6,0 | 7,0 |
| | | 5SY4140-5 (40) | 4,0 | 4,0 | 5SY4240-5 (40) | 4,0 | 4,0 |
| | 6,0 | | 7,0 | 6,0 | | 7,0 | |
| | 10,0 | | 10,0 | 10,0 | | 10,0 | |
| | 5SY4150-5 (50) | 6,0 | 7,0 | 5SY4250-5 (50) | 6,0 | 7,0 | |
| | | 10,0 | 10,0 | | 10,0 | 10,0 | |
| | | 16,0 | 18,0 | | 16,0 | 18,0 | |
| | 5SY4163-5 (63) | 6,0 | 7,0 | 5SY4263-5 (63) | 6,0 | 7,0 | |
| | | 10,0 | 10,0 | | 10,0 | 10,0 | |
| | | 16,0 | 18,0 | | 16,0 | 18,0 | |

- * The sizing is valid for a 230Vac phase-neutral line with an assumed short-circuit current of 2,5KA
- ** The sizing is valid for a 400Vac phase-to-phase line with an assumed short-circuit current of 5KA
- *** The length of the cable is intended between MCB and load, including the return to neutral (1P case), or to the second pole of the MCB (2P case).

Example, for a GRP-H-50- ..., with line voltage of 230Vac, controlled load of 45 A nominal, with a section of 6mm² of cable, an MCB 5SY4150-5 (50 A) the minimum length of the cables is 7m (cable length is intended between MCB and load, including return).



EMC STANDARDS**EMC emissions**

| | | |
|---|--------------------------------------|-----------------|
| AC semiconductor motor controllers and conductors for non-motor loads | EN 60947-4-3 | Class A Group 2 |
| Emission enclosure CI compliant in firing mode single cycle and phase angle if external filter fitted | EN 60947-4-3 CISPR-11 EN 55011 | |

EMC Immunity

| | | |
|--|---|--|
| Generic standards, immunity standard for industrial environments | EN 60947-4-3 | |
| ESD immunity | EN 61000-4-2 | 4 kV contact discharge 8 kV air discharge |
| RF interference immunity | EN 61000-4-3 /A1 | 10 V/m amplitude modulated 80 MHz-1 GHz 10 V/m amplitude modulated 1.4 GHz-2 GHz |
| Conducted disturbance immunity | EN 61000-4-6 | 10 V/m amplitude modulated 0.15 MHz-80 MHz |
| Burst immunity | EN 61000-4-4 | 2 kV power line 2 kV I/O signal line |
| Surge immunity | EN 61000-4-4/5 | Power line-line 1 kV Power line-earth 2 kV Signal line-earth 2 kV Signal line-line 1 kV |
| Magnetic fields immunity | Test are not required. Immunity is demonstrated by the successfully completion of the operating capability test | |
| Voltage dips, short interruptions and voltage immunity tests | EN 61000-4-11 | 100%U, 70%U, 40%U |

LVD safety

| | |
|--|------------|
| Safety requirements for electrical equipment for measurement, control and laboratory use | EN 61010-1 |
|--|------------|

CAUTION

This product has been designed for class A equipment. Its use in a domestic environment may cause radio interference, in which case the user may be required to use additional attenuation methods.

EMC filters are required in PA operating mode (Phase Angle, i.e., SCR triggering with a modulated phase angle). The filter model and current size depend on the configuration and the load used. It is important that the power filter is connected as close as possible to the GRP(-H).



ORDER CODE

GRP - A - B - C - D - E - F - G - H - I

| Rated current | |
|---------------|-----|
| 15Aac | 15 |
| 25Aac | 25 |
| 25Aac I2t++ | 25I |
| 30Aac | 30 |
| 30Aac I2t++ | 30I |
| 40Aac | 40 |
| 50Aac | 50 |
| 60Aac | 60 |
| 75Aac | 75 |
| 90Aac | 90 |
| 120Aac | 120 |

| Rated voltage | |
|----------------------------|----|
| 480 Vac (60Vac...530Vac) | 48 |
| 600 Vac (60Vac...660vac) | 60 |

| Control type | |
|---------------------------------------|------|
| Digital with advanced diagnostics | D-1 |
| Analogue with basic diagnostics | AN-0 |
| Analogue with advanced diagnostics | AN-1 |
| IO-Link with advanced diagnostics (*) | I-1 |

| | |
|---|--|
| 0 | |
|---|--|

| NFC Dongle accessory | |
|----------------------|-------------------------|
| 0 | Absent |
| 1 | NFC Dongle included (*) |

| Trigger | |
|---------------------------------------|---|
| with D-1 type control | |
| 0 | OnOff (Zero Crossing) |
| with AN-0 type control | |
| 1 | Burst Firing (ZC optimised or fixed cycle time) |
| with AN-1 and I-1 type control | |
| 1 | Burst Firing (ZC optimised or fixed cycle time) |
| 2 | Half Single Cycle (default),also configurable as Phase Angle or Burst Firing |
| 3 | Phase Angle (default), also configurable as Half Single Cycle or Burst Firing |

| Control terminal | |
|------------------|---------|
| 0 | Push In |

| | |
|---|--|
| 0 | |
|---|--|




Note:

Basic diagnostics: includes thermal safety, thermal alarm, total load break, no line voltage

Advanced diagnostics: Basic diagnostics, current reading, partial load break.

(*) NFC function not available with Control type I (IO-Link communication)

CE Conformity Declaration is available on web site www.gefran.com

| | |
|---|--|
|  | 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 (immunity in industrial environment) EN 61000-6-4 (emission in industrial environment) - EN 61010-1 (safety regulations). |
|  | Conformity UL508 - File: E243386 |
|  | Short Circuit Current Rating 100KA / 600V according to UL 508 |

