Solid State Relays

- Single & 3-Phase Versions
- DIN Rail Mount Options
- Built-In Heatsink Version
- LED Indication On Most Types

CONTENTS

Solid State Relays

GN SERIES

- **Output current from 10 to 125A**
- **Output voltage from 24 to 660 Vac**
- **Built in transient protection and Rc filter**
- **Integrated IP20 cover**
- **LED indication of input status**
- **ac or dc input signal**

INPUT SPECIFICATIONS

	4-32 VDC	90-280VAC/DC
Drop out voltage	1V	10V
Max. regulated current (mA)	14	8.5
Turn-on time (ms) (zero voltage relay)	8.33 (60Hz) - 10 (50Hz)	20
Turn-off time (ms) (instantaneous relay)	0.1	0.1
Turn-on time (ms)	8.33 (60Hz) - 10 (50Hz)	30

CHARACTERISTICS

Operating temperature (°C)		-20 to + 80
Storage temperature (°C)		-40 to + 100
I/O insulation voltage (Vrms)		4000
Breakdown voltage (Vrms)		2500
Input/output capacitance (pF)		8
Frequency (Hz)		47 to 80
Material	**casing**	polycarbonate UL 94 V
Material	**Baseplate**	Zamak
Weight	**Ip 20**	114g

OUTPUT SPECIFICATIONS

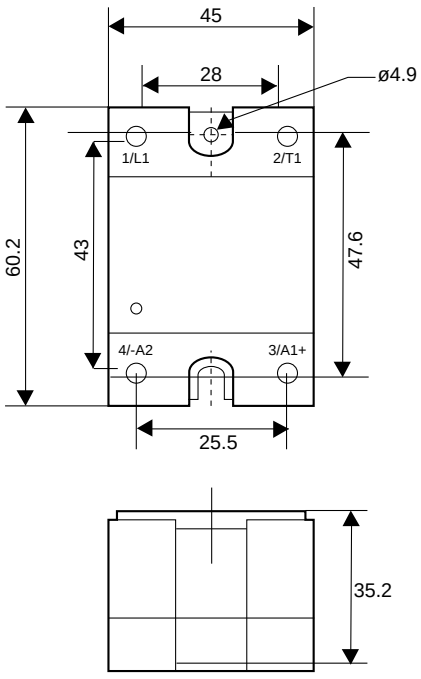
	24-280 VAC			48-660 VAC		
Peak voltage not rep. (Vp)	600			1200		
Off-state leakage (@ Vmax and T = 25 °C)	2.5 - 4.25			2.75 - 4.75		
Max. current (A)	**10**	**25**	**50**	**75**	**100**	**125**
Minimum current (mA)	100	100	100	100	100	100
Max. non-rep. 1 s surge (T = 25°C) (A)	80	150	235	300	360	510
Max. non-rep. 1-cycle surge (T = 25°C) (A)	300	500	780	1000	1200	1700
12t (50Hz-60Hz) (A^2s)	**375-450**	**1041-1250**	**2535-3042**	**4166-5000**	**6000-7000**	**12041-14450**
Voltage drop at Imax (T = 25°C) (V)	1.4	1.4	1.35	1.3	1.3	1.25
Static dV/dt (V/µs)	500	500	500	500	500	500
Thermal resistance Junction/to casing (°C/W)	0.4	0.4	0.25	0.155	0.155	0.15

ORDERING GUIDE (ZERO VOLT SWITCHING TYPES)

Current	Output voltage	Input voltage	
10A	24-280 VAC	4-32 VDC	**84 137 000**
		90-280 VAC/DC	**84 137 001**
10A	48-660 VAC	4-32 VDC	**84 137 100**
		90-280 VAC/DC	**84 137 101**
25A	24-280 VAC	4-32 VDC	**84 137 010**
		90-280 VAC/DC	**84 137 011**
25A	48-660 VAC	4-32 VDC	**84 137 110**
		90-280 VAC/DC	**84 137 111**
50A	24-280 VAC	4-32 VDC	**84 137 020**
		90-280 VAC/DC	**84 137 021**
50A	48-660 VAC	4-32 VDC	**84 137 120**
		90-280 VAC/DC	**84 137 121**
75A	24-280 VAC	4-32 VDC	**84 137 030**
		90-280 VAC/DC	**84 137 031**
75A	48-660 VAC	4-32 VDC	**84 137 130**
		90-280 VAC/DC	**84 137 131**
100A	24-280 VAC	4-32 VDC	**84 137 040**
		90-280 VAC/DC	**84 137 041**
100A	48-660 VAC	4-32 VDC	**84 137 140**
		90-280 VAC/DC	**84 137 141**
125A	24-280 VAC	4-32 VDC	**84 137 080**
		90-280 VAC/DC	**84 137 081**
125A	48-660 VAC	4-32 VDC	**84 137 180**
		90-280 VAC/DC	**84 137 181**

Above types are suitable for switching resistive loads or inductive loads with power factors greater than 0.8. Instantaneous switching types are available for inductive loads with power factor less than 0.8. Please enquire.

DIMENSIONS (mm)



GMS - DIN RAIL MOUNT 17.5MM

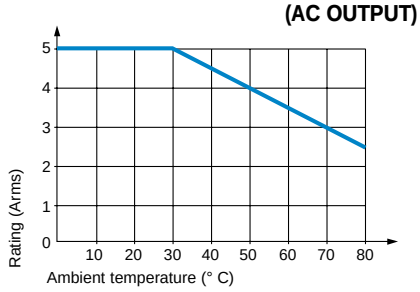
- **DIN rail clip built in**
- **Replaceable protection fuse**
- **3A dc or 5A ac output switching**
- **LED display of input status**
- **Output voltage 12-280Vac or 5-48Vdc**
- **Input voltage 4-32Vdc**

OUTPUT SPECIFICATIONS

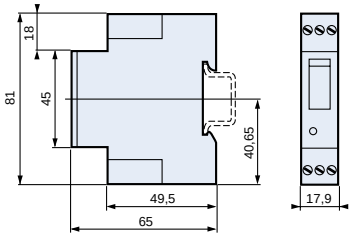
	Triac	Transistor
Voltage range (Vrms max)	12-280 ac	5-48 dc
Peak voltage (t=1 min.) (V peak)	600 Vac	60 Vdc
Maximum current (Arms)	5 A	3 A
Maximum off- state leakage (at Vmax and T=25 °C)	2 mArms	10µA
Minimum current (mArms)	50 mA	10 mA
Max. 1-cycle surge T=25°C (V peak)	100 A	5 A
On-state voltage drop at Imax and T=25°C (V peak)	1.6 V	1.6 Vdc
Static (off-state) dv/dt (V/µs)	200	n/a

CURVES FOR TEMPERATURE-DEPENDENT DERATING

(AC OUTPUT)



DIMENSIONS



INPUT SPECIFICATIONS

Input voltage (V)	4-32 dc	4-32 dc
Voltage drop	1 Vdc	1 Vdc
Maximum current (at Vmax)	22 mA	16 mA
Nominal input resistance	Regulated input	
Response time (close)	8.33 ms	50 µs
Response time (open)	8.33 ms	50 µs

CHARACTERISTICS

Operating temperature	-30 to +80°C
Storage temperature	-40 to +100°C
Input to output insulation voltage	4000 Vrms
Input/output capacitance	8 pF
Replaceable protection fuse	Yes
LED display of input status	Yes

Rating	Input	Output	Part No
3 A	4-32 Vdc	5-48 Vdc	84 130 104
5 A	4-32 Vdc	12-280 Vac	84 130 105

GNDC SERIES

- **For dc switching applications**
- **FET output (10, 15 or 30A) or Bipolar (10A)**
- **3-32 Vdc input**
- **Finger proof cover included**

OUTPUT SPECIFICATIONS

	FET 10A	FET 15A	FET 30A	Bipolar 10A
Voltage range	1 - 200	1 - 100	1 - 50	3 - 60
Peak voltage (Arms)	**10**	**15**	**30**	**10**
Maximum current (mArms)	1	1	1	10
Max. non-rep. surge for 10 µs (T=25°C) (A)	90	120	160	
Max. non-rep. surge for 1 s (T=25°C) (A)				90
Thermal resistance Junction/to casing (°C/W)	2.25	2.25	2.45	3.75

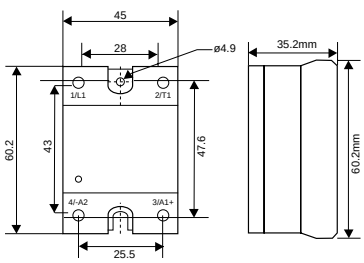
INPUT SPECIFICATIONS

	FET version	Bipolar version
Range	**3-32 V ⎓**	**3-32 V ⎓**
Maximum current (V)	1	1
Max. regulated current (mA)	20	14.5
Turn-on time (µs)	2	100
Turn-off time (µs)	100	200

CHARACTERISTICS

		FET	Bipolar
Operating temperature (°C)		-20 to +80	-20 to +80
Storage temperature (°C)		-55 to +125	-40 to +100
I/O insulation voltage (Vrms)		4000	4000
Breakdown voltage (Vrms)		2500	2500
Input/output capacitance (pF)		8	8
Material	**Casing**	UL 94 V	
	Baseplate	Zamak	
Weight (g)	**With cover**	114	
	Without cover	97	

DIMENSIONS



Rating	Output Voltage	Input Voltage	Part No
10A (FET)	1 - 200 Vdc	3-32 Vdc	84 137 850
15A (FET)	1 - 100 Vdc	3-32 Vdc	84 137 860
30A (FET)	1 - 50 Vdc	3-32 Vdc	84 137 870
10A (Bipolar)	3 - 60 Vdc	3-32 Vdc	84 137 750

GRD - INCORPORATED HEATSINK

- **Heatsink and DIN rail clip built in**
- **Varistor and RC protection for outputs**
- **12 to 45A single phase or 3 x 25A 3 phase**
- **LED display of input status**
- **Output voltage 48-660Vac (24-280Vac for triac types)**
- **UL, cUL approved and CE marked**

OUTPUT SPECIFICATIONS

	Triac 24-280Vac	Thyristor 48-660Vac
Maximum off-state leakage (at Vmax and T = 25°C)	15 mArms	20 mArms per phase
Minimum current (mArms)	50	100
Max. 1-cycle surge T=25°C (A peak)	100-250	750 (single phase) 500 ($^{2}/_{3}$ phase)
Max. 1-second surge T=25°C (A peak)	30-75	135
On-state voltage drop at Imax and T=25°C (Vpeak)	1.6	1.6
Supply frequency range (Hz)	47 to 80	47 to 80
cos φ (Zero voltage)	> 0.5	> 0.5

INPUT SPECIFICATIONS

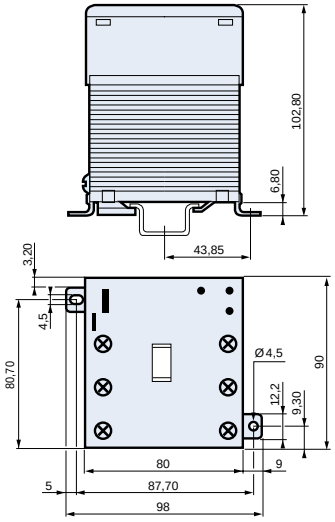
Input voltage (V)	90-280 ac/dc	4-32dc
Voltage drop	10Vrms	1Vdc
Maximum current (at Vmax)	10 mArms	10 mA
Nominal input resistance	45 kΩ	3 kΩ
Response time (close)	20 ms	0.5 cycle max.
Response time (open)	30 ms	0.5 cycle max.

GENERAL CHARACTERISTICS

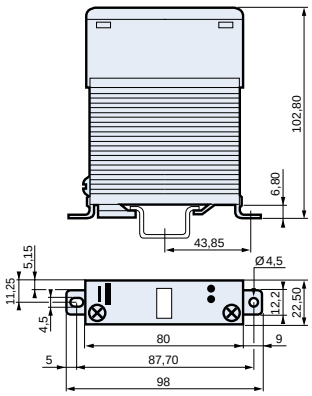
Operating temperature	-20 to +80°C
Storage temperature	-40 to +100°C
Input to output insulation voltage	4000 Vrms
Breakdown voltage	2500 Vrms (turn-off)

DIMENSIONS

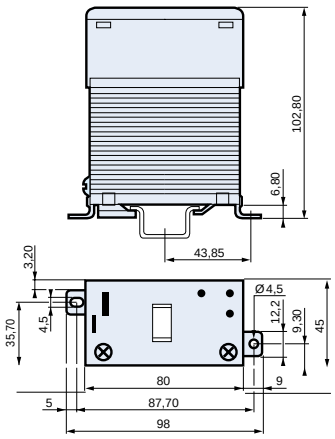
(a) GRD range two and three-phase with SCR



(b) GRD range single phase with Triac or SCR



(c) GRD range single phase with SCR



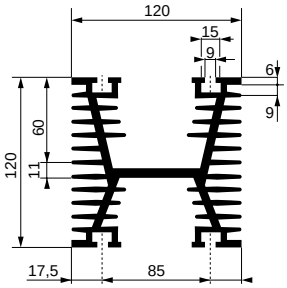
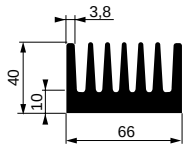
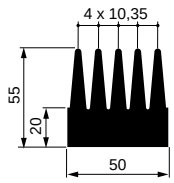
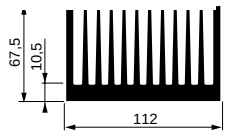
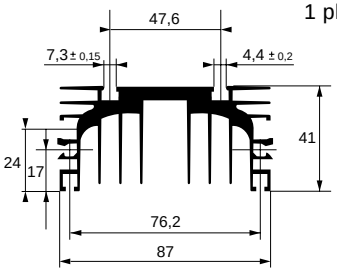
ORDERING GUIDE

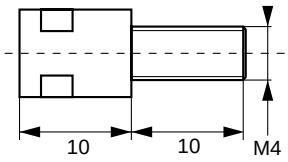
Load current	Control voltage	Load voltage: Single phase 24-280 Vac	Load voltage: Single phase 48-660 Vac	Load voltage: 2-phase 48-660 Vac	Load voltage: 3-phase 48-660 Vac	Drawing See above
Zero voltage switching (synchronous) **						
12 A Triac	4-32 Vdc	84 130 101				b
	180-280 Vac/dc	84 130 100				b
	90-140Vac	84 130 150				
25 A Triac	4-32 Vdc	84 130 103				b
	180-280 Vac/dc	84 130 102				b
	90-140Vac	84 130 152				
25 A Thyristor	4-32 Vdc		84 130 116		84 130 310	b,a
	180-280 Vac/dc		84 130 118		84 130 311*	b,a
	90-140Vac		84 130 158			
35 A Thyristor	4-32 Vdc			84 130 220		b,a
	90-280 Vac/dc			84 130 222		b,a
45 A Thyristor	4-32 Vdc		84 130 113			c
	90-280 Vac/dc		84 130 115			c

*84130311 is 90-280 Vac / dc Control Voltage
** for instantaneous switching please enquire

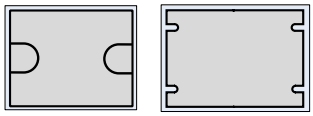
ACCESSORIES

HEATSINKS

		Range	Thermal resistance	Length	Weight	Part number
	1 phase	GN , GNA, GNDC Material : black anodised aluminium	0.6°C/W 1°C/W	L = 100 mm L = 60 mm	950 g 570 g	**26 532 790** **26 532 759**
	1 phase	GN, GNA, GNDC Material : black anodised aluminium	2°C/W	L = 70 mm	260 g	**26 532 760**
	1 phase	GN, GNA, GNDC Material : black anodised aluminium	3°C/W	L = 58 mm	250 g	**26 532 761**
	3 phases or 2 x 1 phase	2x GN, GNA, GNDC Material : black anodised aluminium	0.7°C/W	L = 75 mm	655 g	**26 532 762**
	1 phase	GN, GNA, GNDC Material : black anodised aluminium	2°C/W	L = 50 mm	150g	**26 532 758**

Adaptors for fixing on panel (set of 4)		**Part number**
	Heatsink 26 532 758	**26 532 801**

THERMAL INTERFACE

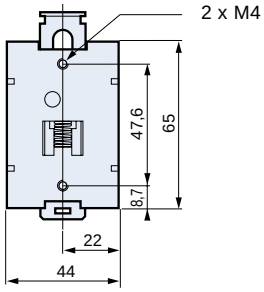


Thermstrate® thermal interface pads (packs of 25)

Characteristics	**Part number**
- For GN, GNA5, GNDC	**26 532 720**
- For the 3-phase GA0 range and the GA3 range	**26 532 721**

DIN RAIL ADAPTOR

Characteristics	**Weight**	**Part number**
Suitable for use with heatsinks 26 532 760, 26 532 761 and 26 532 762	55 g	**26 532 764**



FUSING OF SSR'S

To ensure that the solid state relay is fully protected, we recommend the use of solid state "quick - blow" fuses. Their role is to protect the solid state relay against short circuits. The fuse rating (I^2t value) should be less than the I^2t specification for the relay.