

## → Ready to use SSR for General Purpose 22.5 mm

- Epoxy-free design eliminates internal component stress
- DIN-RAIL or panel mount
- Back-to-back SCR output
- Relay or contactor output terminal configuration
- Direct Bond Copper (DBC) substrate
- Built-in transient protection (TVS)
- 100k-cycle UL508 endurance rating
- 4000 V AC optical isolation
- UL / CSA / TUV approved, CE compliant
- EMC compliant (level 3)
- Rated current at 40°C ambient temperature



Relay



Contactor

### Part numbers

Type	Current (A)	Input voltage (V)	Output voltage (V)	Output	Switching	Code
22.5 mm	20	4-32 V DC	48-600 V AC	Relay	Zero	GNR20DHZ
	20	4-32 V DC	48-600 V AC	Contactor	Zero	GNR20DCZ
	20	4-32 V DC	48-600 V AC	Relay	Random	GNR20DHR
	20	4-32 V DC	48-600 V AC	Contactor	Random	GNR20DCR
	20	90-140 V AC	48-600 V AC	Relay	Zero	GNR20BHZ
	20	90-140 V AC	48-600 V AC	Contactor	Zero	GNR20BCZ
	20	180-280 V AC	48-600 V AC	Relay	Zero	GNR20AHZ
	20	180-280 V AC	48-600 V AC	Contactor	Zero	GNR20ACZ
	30	4-32 V DC	48-600 V AC	Relay	Zero	GNR30DHZ
	30	4-32 V DC	48-600 V AC	Contactor	Zero	GNR30DCZ
	30	4-32 V DC	48-600 V AC	Relay	Random	GNR30DHR
	30	4-32 V DC	48-600 V AC	Contactor	Random	GNR30DCR
	30	90-140 V AC	48-600 V AC	Relay	Zero	GNR30BHZ
	30	90-140 V AC	48-600 V AC	Contactor	Zero	GNR30BCZ
	30	180-280 V AC	48-600 V AC	Relay	Zero	GNR30AHZ
	30	180-280 V AC	48-600 V AC	Contactor	Zero	GNR30ACZ

### Output Specifications

Voltage range (Vrms max)	48-600	48-600
Non-rep. peak voltage (Vpeak)	1100	1100
Maximum off-state leakage at Vmax and T = 25 °C (µAeff per phase)	120	120
Current max @ 25°C (A)	20	30
Current max @ 40°C (A)	20	30
Minimum current (mArms)	100	100
On-state voltage drop at I max (Vpeak)	1.20	1.20
I <sup>2</sup> t (t = 10 ms) (A <sup>2</sup> s) (50 - 60 Hz)	1225-1020	2850-2350
Static (off-state) dv/dt (V/µs)	500	500
HP ratings at 120 V	1/2	3/4
HP ratings at 240 V	1	2
Utilization category AC 51 (A)	20	30
Utilization Category AC-53 (A)	6	9
Max. non-rep. 1 s surge (T=25 °C) (A)	100	150
Max. non-rep.1-cycle surge (T=25 °C) (A)	495	750

### Input Specifications

Input voltage (V)	4-32 V DC	90-140 V AC	180-280 V AC
Turn-off voltage (V)	1	10	10
Max. controlled current (mA)	20	6	8
Min. input current (mA)	16	5	6
Turn-on time (ms) (zero voltage relay)	8.33 (60Hz) - 10 (50Hz)	20	20
Turn-on-time (ms) (instantaneous relay)	0.1	-	-
Max. turn-off time (ms)	8.33 (60Hz) - 10 (50Hz)	30	30

## General characteristics

### General characteristics

Operating temperature (°C)	-20 → +80 -20 → +60 (90-140 V AC)
Storage temperature (°C)	-40 → +100
Input-to-Output isolation voltage (Vrms)	4200
Input/Output to ground isolation voltage (Vrms)	4000
Operating frequency (Hz)	47 → 63
Housing material	UL-94V0 Self extinguishing polycarbonate
Heatsink material	Anodized aluminum black
Protection (IEC 60529) - Casing	IP 20
Weight (g)	225
Altitude for nominal performance (/sea level)	2000 m
Input terminal capacity (stranded and solid wire)	16 AWG → 24 AWG
Input terminal tightening torque (Nm)	0.5
Min. output terminal capacity (IEC 941-1)	16 AWG
Max. output terminal capacity (IEC 941-1) stranded wire	8 AWG
Max. output terminal capacity (IEC 941-1) solid wire	10 AWG
Output terminal tightening torque (Nm)	1.3
Maximum cross section for output wire (mm <sup>2</sup> )	10

### Safety standards

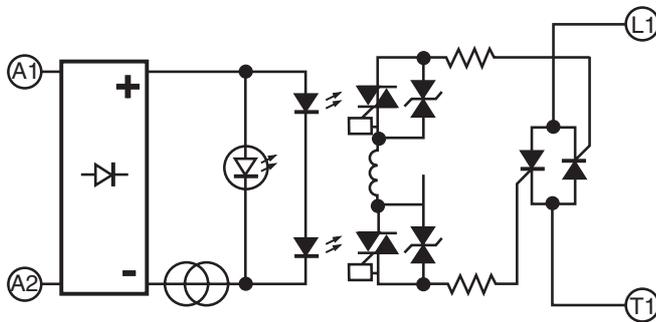
Conformity to standards	IEC 62314 IEC 60947-4-3 (AC 51) IEC 60947-4-2 (AC 53a) CE compliant with LVD 73/23/EEC TUV certified per EN 60950 CSA recognized per C22.2.no. 14-95 UL recognized per UL 508
Vibrations according to IEC/EN60068-2-6	35 mm / 10-55 Hz
Shock test IEC 60068-2-27	15 G / 11 ms
Immunity to electrostatic discharges acc. IEC/EN 61000-4-2	Level 3
Immunity to electrostatic fields acc. ENV 50140/204 (IEC 1000-4-3)	Level 3
Immunity to rapid transient bursts acc. to IEC 1000-4-4	Level 3
Immunity to shock waves according to IEC/EN 61000-4-5	Level 3
Immunity to radio frequency in common mode acc. to ENV (CEI 1000-4-6)	Level 3
Conducted and radiated noise for industrial environments per CISPR 11	Class A
Pollution	Degree 2
Overvoltage	Category III

### Comments

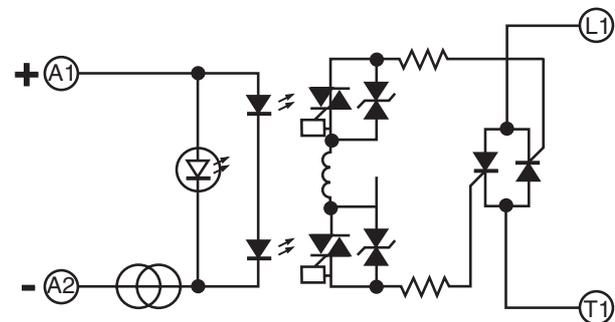
For multiple unit configuration consult our website [www.crouzet.com/cooltech](http://www.crouzet.com/cooltech).  
Relay style SSR's @280 V AC @60 C require #20 Control Wire.  
LED is not an absolute indicator of power being present.

## Connections

### Equivalent AC input circuit

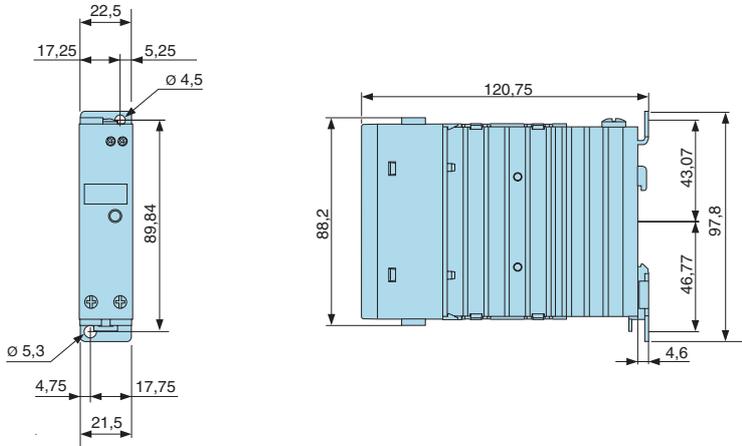


### Equivalent DC input circuit

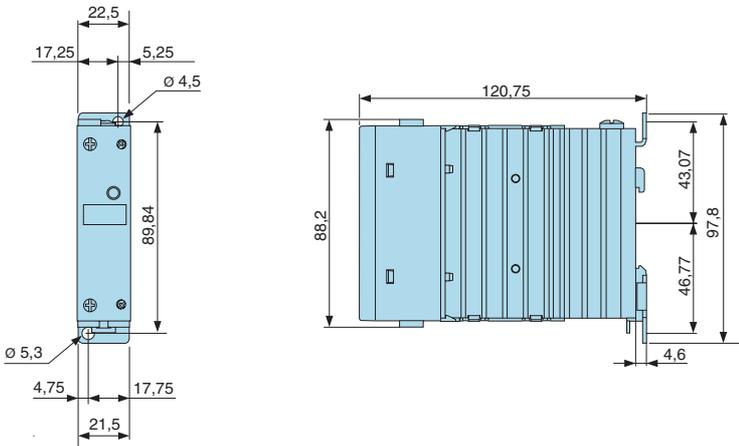


## Dimensions

### GNR 22.5 mm relay termination

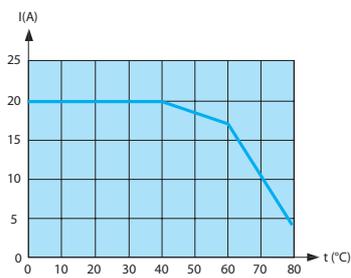


### GNR 22.5 mm contactor termination

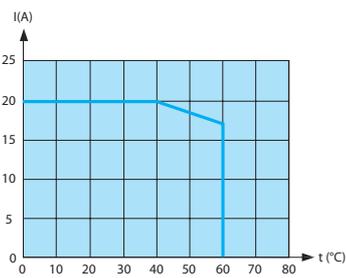


## Curves

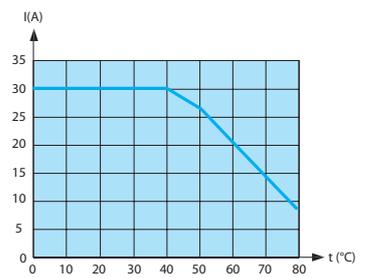
### GNR20B - GNR20D



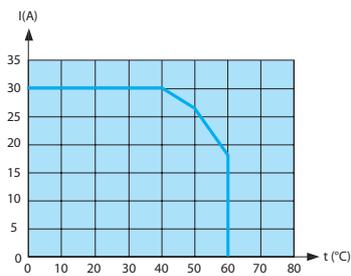
### GNR20A



### GNR30B - GNR30D



### GNR30A



## → Ready to use SSR for General Purpose 45mm wide Single Phase

- Epoxy-free design eliminates internal component stress
- DIN-RAIL or panel mount
- Back-to-back SCR output
- Relay or contactor output terminal configuration
- Direct Bond Copper (DBC) substrate
- Built-in transient protection (TVS)
- 100k-cycle UL508 endurance rating
- 4000 V AC optical isolation
- UL / CSA / TUV approved, CE compliant
- EMC compliant (level 3)
- Rated current at 40°C ambient temperature



Relay



Contactor

### Part numbers

Type	Current (A)	Input voltage (V)	Output voltage (V)	Output	Switching	Code
45 mm	35	4-32 V DC	48-600 V AC	Relay	Zero	GNR35DHZ
	35	4-32 V DC	48-600 V AC	Contactor	Zero	GNR35DCZ
	35	4-32 V DC	48-600 V AC	Relay	Random	GNR35DHR
	35	4-32 V DC	48-600 V AC	Contactor	Random	GNR35DCR
	35	90-140 V AC	48-600 V AC	Relay	Zero	GNR35BHZ
	35	90-140 V AC	48-600 V AC	Contactor	Zero	GNR35BCZ
	35	180-280 V AC	48-600 V AC	Relay	Random	GNR35AHZ
	35	180-280 V AC	48-600 V AC	Contactor	Random	GNR35ACZ
	45	4-32 V DC	48-600 V AC	Relay	Zero	GNR45DHZ
	45	4-32 V DC	48-600 V AC	Contactor	Zero	GNR45DCZ
	45	4-32 V DC	48-600 V AC	Relay	Random	GNR45DHR
	45	4-32 V DC	48-600 V AC	Contactor	Random	GNR45DCR
	45	90-140 V AC	48-600 V AC	Relay	Zero	GNR45BHZ
	45	90-140 V AC	48-600 V AC	Contactor	Zero	GNR45BCZ
	45	180-260 V AC	48-600 V AC	Relay	Zero	GNR45AHZ
	45	180-260 V AC	48-600 V AC	Contactor	Zero	GNR45ACZ

### Output Specifications

Voltage range (Vrms max)	48-600	48-600
Non-rep. peak voltage (Vpeak)	1100	1100
Maximum off-state leakage at Vmax and T = 25 °C (µAeff per phase)	120	120
Current max @ 25°C (A)	35	45
Current max @ 40°C (A)	35	45
Minimum current (mArms)	100	100
On-state voltage drop at I max (Vpeak)	1.35	1.35
I <sup>2</sup> t (t = 10 ms) (A <sup>2</sup> s) (50 - 60 Hz)	3000-2500	3200-2600
Static (off-state) dv/dt (V/µs)	500	500
HP ratings at 120 V	1.5	1.5
HP ratings at 240 V	2	3
HP ratings at 480 V	5	5
Utilization category AC 51 (A)	35	45
Utilization Category AC-53 (A)	9	10
Max. non-rep. 1 s surge (T=25 °C) (A)	150	160
Max. non-rep.1-cycle surge (T=25 °C) (A)	770	800

### Input Specifications

Input voltage (V)	4-32 V DC	90-140 V AC	180-280 V AC*
Turn-off voltage (V)	1	10	10
Max. controlled current (mA)	20	6	8
Min. input current (mA)	16	5	6
Turn-on time (ms) (zero voltage relay)	8.33 (60Hz) - 10 (50Hz)	20	20
Turn-on-time (ms) (instantaneous relay)	0.1	-	-
Max. turn-off time (ms)	8.33 (60Hz) - 10 (50Hz)	30	30

\*(GNR45AHZ, GNR45ACZ : 180-260 V AC)

## General characteristics

### General characteristics

Operating temperature (°C)	-20 → +80 -20 → +60 (90-140 V AC)
Storage temperature (°C)	-40 → +100
Input-to-Output isolation voltage (Vrms)	4200
Input/Output to ground isolation voltage (Vrms)	4000
Operating frequency (Hz)	47 → 63
Housing material	UL-94V0 Self extinguishing polycarbonate
Heatsink material	Anodized aluminum black
Protection (IEC 60529) - Casing	IP 20
Weight (g)	400
Altitude for nominal performance (/sea level)	2000 m
Input terminal capacity (stranded and solid wire)	16 AWG → 24 AWG
Input terminal tightening torque (Nm)	0.5
Min. output terminal capacity (IEC 941-1)	16 AWG
Max. output terminal capacity (IEC 941-1) stranded wire	8 AWG
Max. output terminal capacity (IEC 941-1) solid wire	10 AWG
Output terminal tightening torque (Nm)	1.3
Maximum cross section for output wire (mm <sup>2</sup> )	10

### Safety standards

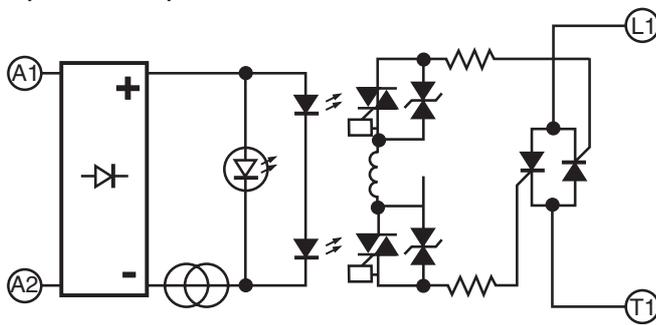
Conformity to standards	IEC 62314 IEC 60947-4-3 (AC 51) IEC 60947-4-2 (AC 53a) CE compliant with LVD 73/23/EEC TUV certified per EN 60950 CSA recognized per C22.2.no. 14-95 UL recognized per UL 508
Vibrations according to IEC/EN60068-2-6	35 mm / 10-55 Hz
Shock test IEC 60068-2-27	15 G / 11 ms
Immunity to electrostatic discharges acc. IEC/EN 61000-4-2	Level 3
Immunity to electrostatic fields acc. ENV 50140/204 (IEC 1000-4-3)	Level 3
Immunity to rapid transient bursts acc. to IEC 1000-4-4	Level 3
Immunity to shock waves according to IEC/EN 61000-4-5	Level 3
Immunity to radio frequency in common mode acc. to ENV (CEI 1000-4-6)	Level 3
Conducted and radiated noise for industrial environments per CISPR 11	Class A
Pollution	Degree 2
Overvoltage	Category III

### Comments

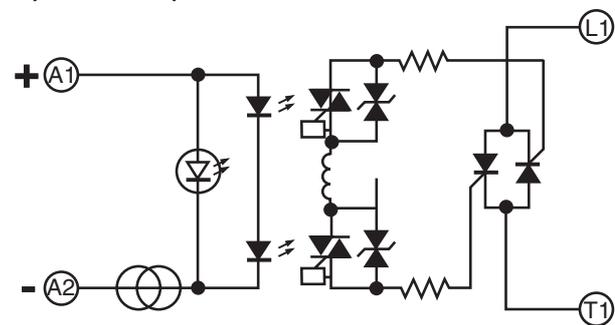
For multiple unit configuration consult our website [www.crouzet.com/cooltech](http://www.crouzet.com/cooltech).  
Relay style SSR's @280 V AC @60 C require #20 Control Wire.  
LED is not an absolute indicator of power being present.

## Connections

Equivalent AC input circuit

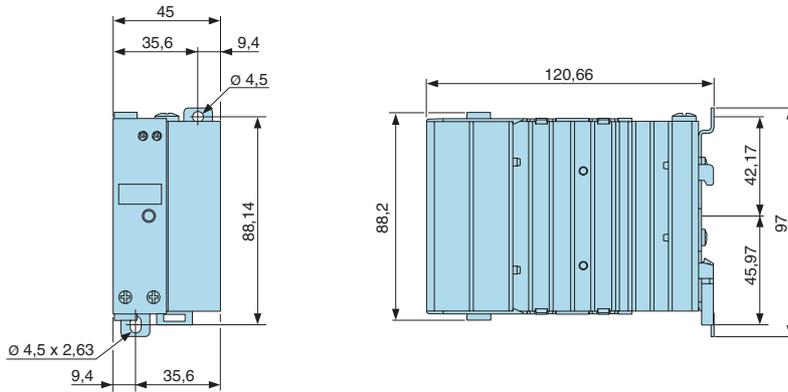


Equivalent DC input circuit

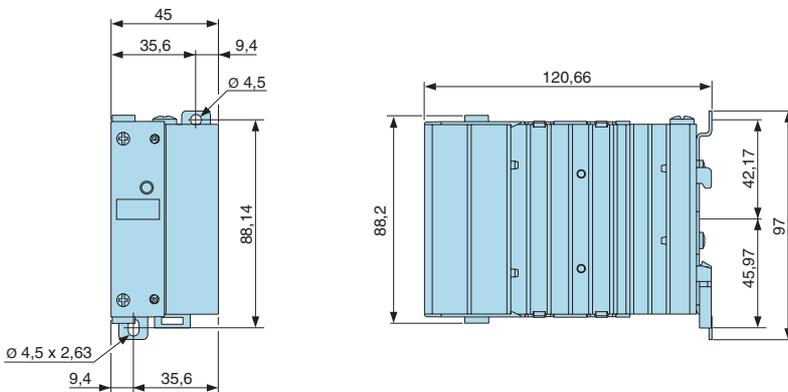


## Dimensions

### GNR 45 mm relay termination

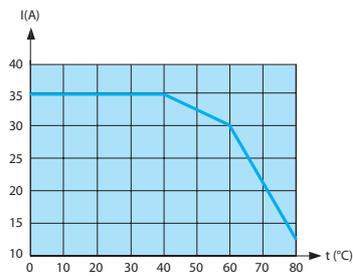


### GNR 45 mm contactor termination

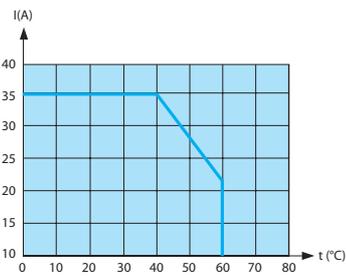


## Curves

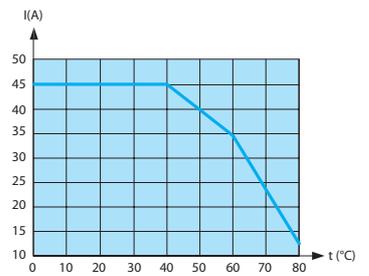
### GNR35B - GNR35D



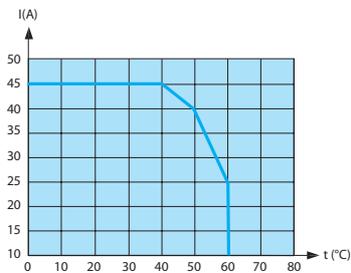
### GNR35A



### GNR45B - GNR45D



### GNR45A



## → Ready to use SSR for General Purpose 90mm wide Three Phase

- Epoxy-free design eliminates internal component stress
- DIN-RAIL or panel mount
- Back-to-back SCR output
- Direct Bond Copper (DBC) substrate
- Built-in transient protection (TVS)
- 100k-cycle UL508 endurance rating
- 4000 V AC optical isolation
- UL / CSA / TUV approved, CE compliant
- EMC compliant (level 3)
- Rated current at 40°C ambient temperature



### Part numbers

Type	Current (A)	Input voltage (V)	Output voltage (V)	Output	Switching	Code
90 mm	3x25	4-32 V DC	48-600 V AC	Contactar	Zero	GNR25DCZ
	3x25	4-32 V DC	48-600 V AC	Contactar	Random	GNR25DCR
	3x25	90-140 V AC	48-600 V AC	Contactar	Zero	GNR25BCZ
	3x25	180-280 V AC	48-600 V AC	Contactar	Zero	GNR25ACZ

### Output Specifications

Voltage range (Vrms max)	48-600
Non-rep. peak voltage (Vpeak)	1100
Maximum off-state leakage at Vmax and T = 25 °C (µAeff per phase)	120
Current max @ 25°C (A)	25
Current max @ 40°C (A)	25
Minimum current (mArms)	100
On-state voltage drop at I max (Vpeak)	1.20
I <sup>2</sup> t (t = 10 ms) (A <sup>2</sup> s) (50 - 60 Hz)	1250-1040
HP ratings at 480 V	3
Static (off-state) dv/dt (V/µs)	500
Utilization category AC 51 (A)	20
Utilization Category AC-53 (A)	5
Max. non-rep. 1 s surge (T=25 °C) (A)	100
Max. non-rep.1-cycle surge (T=25 °C) (A)	500

### Input Specifications

Input voltage (V)	4-32 V DC	90-140 V AC	180-280 V AC
Turn-off voltage (V)	1	10	10
Max. controled current (mA)	62	19	24
Min. input current (mA)	50	15	19
Turn-on time (ms) (zero voltage relay)	8.33 (60Hz) - 10 (50Hz)	20	20
Turn-on-time (ms) (instantaneous relay)	0.1	-	-
Max. turn-off time (ms)	8.33 (60Hz) - 10 (50Hz)	30	30

## General characteristics

### General characteristics

Operating temperature (°C)	-20→+80 -20→+60 (90-140 V AC)
Storage temperature (°C)	-40→+100
Input-to-Output isolation voltage (Vrms)	4200
Input/Output to ground isolation voltage (Vrms)	4000
Operating frequency (Hz)	47→63
Housing material	UL-94V0 Self extinguishing polycarbonate
Heatsink material	Anodized aluminum black
Protection (IEC 60529) - Casing	IP 20
Weight (g)	600
Altitude for nominal performance (/sea level)	2000 m
Input terminal capacity (stranded and solid wire)	16 AWG→24 AWG
Input terminal tightening torque (Nm)	0.5
Min. output terminal capacity (IEC 941-1)	16 AWG
Max. output terminal capacity (IEC 941-1) stranded wire	8 AWG
Max. output terminal capacity (IEC 941-1) solid wire	10 AWG
Output terminal tightening torque (Nm)	1.3
Maximum cross section for output wire (mm <sup>2</sup> )	10

### Safety standards

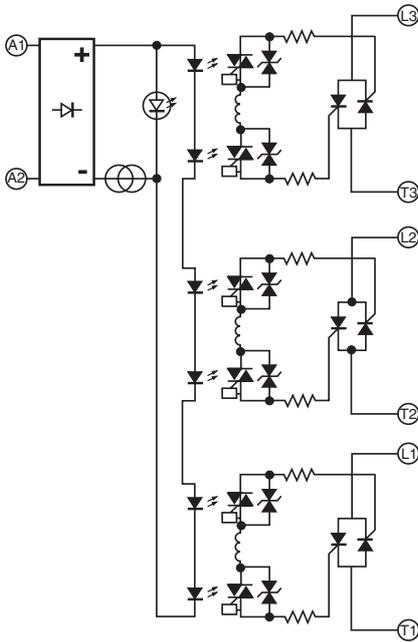
Conformity to standards	IEC 62314 IEC 60947-4-3 (AC 51) IEC 60947-4-2 (AC 53a) CE compliant with LVD 73/23/EEC TUV certified per EN 60950 CSA recognized per C22.2.no. 14-95 UL recognized per UL 508
Vibrations according to IEC/EN60068-2-6	35 mm / 10-55 Hz
Shock test IEC 60068-2-27	15 G / 11 ms
Immunity to electrostatic discharges acc. IEC/EN 61000-4-2	Level 3
Immunity to electrostatic fields acc. ENV 50140/204 (IEC 1000-4-3)	Level 3
Immunity to rapid transient bursts acc. to IEC 1000-4-4	Level 3
Immunity to shock waves according to IEC/EN 61000-4-5	Level 3
Immunity to radio frequency in common mode acc. to ENV (CEI 1000-4-6)	Level 3
Conducted and radiated noise for industrial environments per CISPR 11	Class A
Pollution	Degree 2
Overvoltage	Category III

### Comments

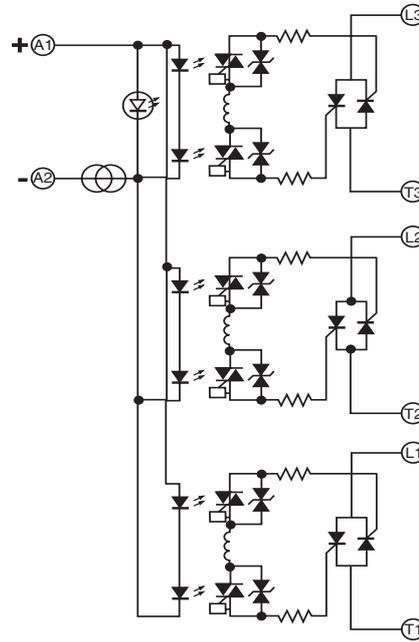
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Relay style SSR's @280 V AC @60 C require #20 Control Wire.  
LED is not an absolute indicator of power being present.

## Connections

Equivalent AC input circuit

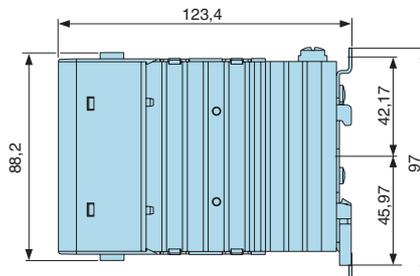
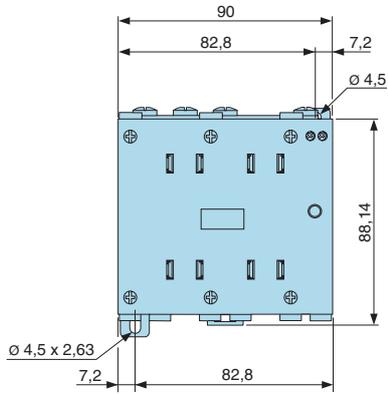


Equivalent DC input circuit



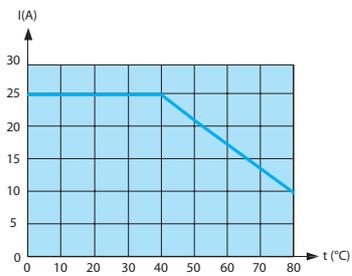
## Dimensions

GNR 90 mm contactor termination

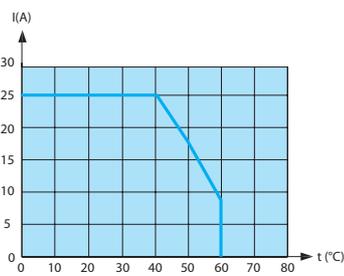


## Curves

GNR25B - GNR25D



GNR25A



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