

Part Number	Description
E3P2G48D25	25A, 600 Vac
E3P2G48D50	50A, 600 Vac
E3P2G48D75	75A, 600 Vac
E3P2G48D75-16	75A, 520 Vac

Part Number Explanation

E3P2G	48	D	75	-16
Series	Line Voltage ¹	Switch Type ²	Output Current ³	Feature ⁴

NOTES

- 1) Line Voltage (nominal): 48 = 480 Vac
- 2) Switch Type: D = Zero-cross turn-on
- 3) Output Current: 25 = 25Amps, 50 = 50 Amps, 75 = 75Amps
- 4) Features: -16 = RC+VDR

Mechanical Specification

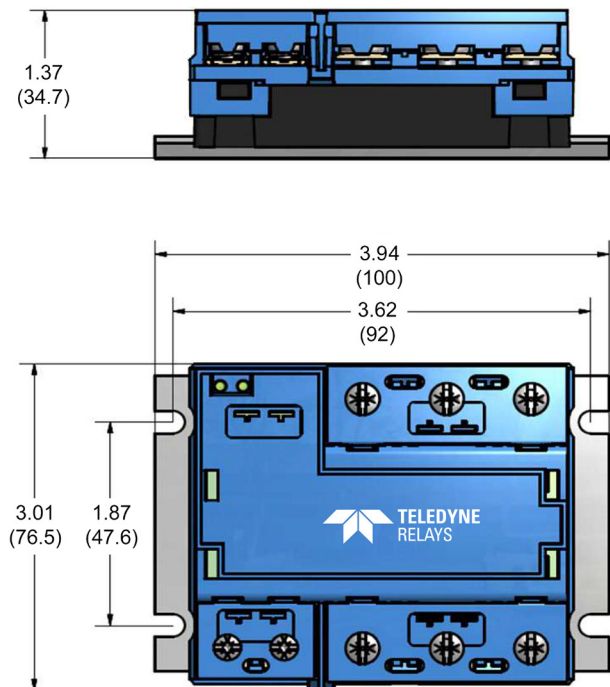


Figure 1 — Outline dimensions in inches (mm)

Housing Material — PA 6 UL94VO
Base Plate — Tin plated Aluminum



FEATURES / BENEFITS

- Three-phase power output
- Direct Copper Bonding
- Internal Over-Voltage protection
- Input Control LED
- Built in IP20 protection with flaps
- Excellent thermal performance
- Designed too IEC/ EN60947-4-3.
- High immunity to surges

DESCRIPTION

The E3P2G series, three-phase solid state relay is the 2nd generation of the discontinued E3P series. The new design incorporates a high efficiency back-to-back thyristor with direct copper bonding for a longer lifetime expectancy. Over-Voltage protection is provided internally with TVS diodes for the input and output. Additionally our -16 model is designed with an RC snubber and VDR for greater protection to the output to handle all types of loads. The industrial SSR utilizes optical isolation to protect the control from load transients for each phase and has tight zero-cross window for low EMI. A control status LED are standard on all models.

APPLICATIONS

- Heating control
- Motor control
- Uninterruptible power supplies
- Light dimmers
- Three-phase industrial and process control
- On/Off controls of AC equipment

APPROVALS

Conformity to IEC947-4-3
UL Pending

INPUT (CONTROL) SPECIFICATION

	Min	Typ.	Max	Units
Control Voltage	4		30	V _{dc}
Control Current			25	mA
Must Turn-Off Voltage	2			V _{dc}
Input Resistance	Current Regulator			Ω
Reverse Voltage Protection		30		V

OUTPUT (LOAD) SPECIFICATION

	Min	Typ.	Max	Units
Operating Voltage Range (+/- 10%)				
E3P2G48DXX	24	400	600	V _{rms}
E3P2G48D75-16	24	400	520	V _{rms}

Peak Voltage

E3P2G48D25			1200	V _{peak}
E3P2G48D50			1200	V _{peak}
E3P2G48D75			1200	V _{peak}
E3P2G48D75-16			1600	V _{peak}

Latching Voltage

All relays			10	V
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Load Current Range (@40 °C)¹

25A output current	.005		25	A _{rms}
50A output current	.005	42	50	A _{rms}
75A output current	.005	54	75	A _{rms}

Non-Repetitive Overload Current (tp=10ms)

25A output	320	420		A
50A output	700	750		A
75A output	1100	1200		A

On-State Voltage Drop (@ 25°C)

E3P2G48D25		0.85		V
All other relays		1		V

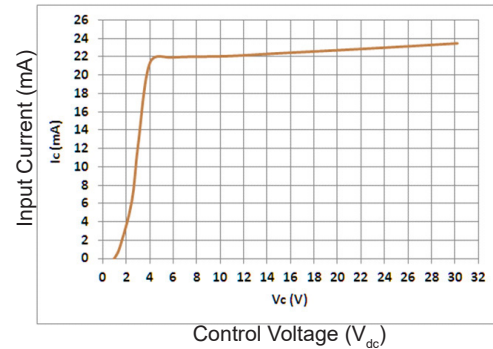
On State Dynamic Resistance

25A output		9.5		mΩ
50A output		7.5		mΩ
75A output		4.5		mΩ

Zero-Cross Window

E3P2G48D25			35	V
E3P2G48D50		30		V
E3P2G48D75-XX	10			V

CONTROL CHARACTERISTIC



Typical Application

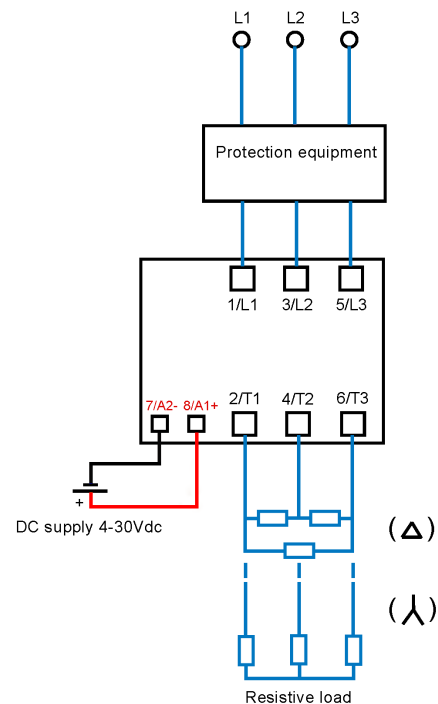


Figure 2 — Wiring Diagram

OUTPUT (LOAD) SPECIFICATION (Continued)

	Min	Typ.	Max	Units
Junction-Case Thermal Resistance				
25A output current		0.50		°C/W
50A output current		0.45		°C/W
75A output current		0.30		°C/W
Off-State Leakage Current (50 Hz)				
All relays			1	mA
Turn-On Time (50 Hz)				
All relays		10		ms
Turn-Off Time (50 Hz)				
All relays		10		ms
Off-State dv/dt				
All relays	500			V/μs
Maximum di/dt (Non-Repetitive)				
All relays			50	A/μs
Operating Frequency Range				
All relays	0.1	50-60	400	Hz
I²t for Match Fusing (<10ms)				
25A output	512	882		A ² s
50A output	2450	2800		A ² s
75A output	6000	7200		A ² s

ENVIRONMENTAL SPECIFICATION

	Min	Typ.	Max	Units
Operating Temperature				
E3P2G48DXX	-40		100	°C
E3P2G48D75-16	-40		85	°C
Storage Temperature²				
All relays	-40		125	°C
Input-Output Isolation				
		4000		V _{rms}
Output-Case Isolation				
		4000		V _{rms}
Isolation Resistance (@500V_{dc})				
		1000		MΩ
Vibration (IEC60068-2-6)³				
		1.5		mm
Shock (IEC60068-2-6)				
	30		50	g's
Protection Level				
		IP20		
Relative Humidity				
	40		85	%
Weight				
		200		g

Notes

¹With Heatsink

²10-150Hz, double amplitude

³No icing, no condensation

BLOCK DIAGRAMS

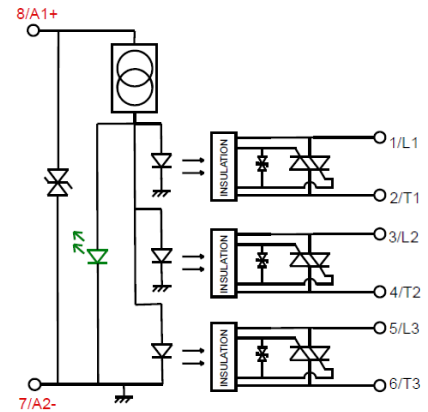


Figure 4a — E3P2G48DXX

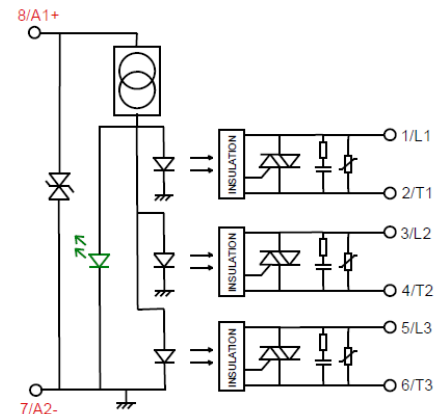


Figure 4b — E3P2G48DXX-16

THERMAL CHARACTERISTICS

Figure 5a — 25A output

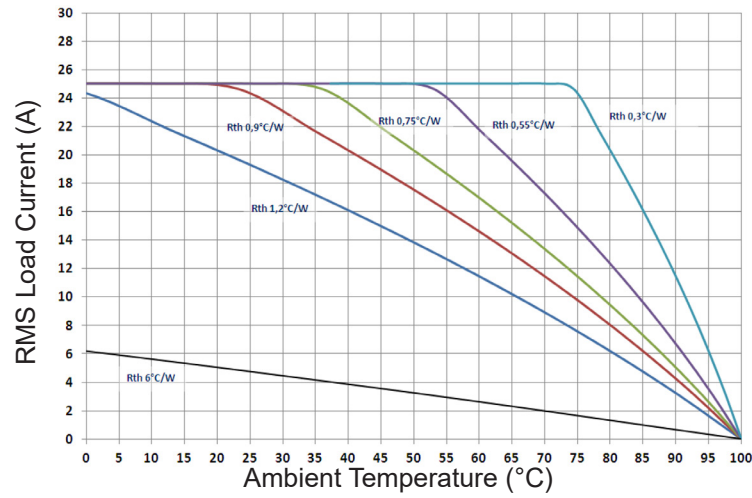


Figure 5b — 50A output

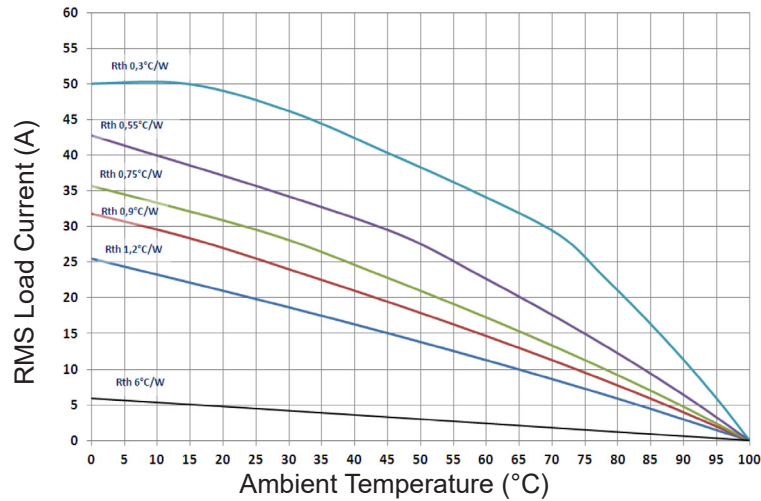
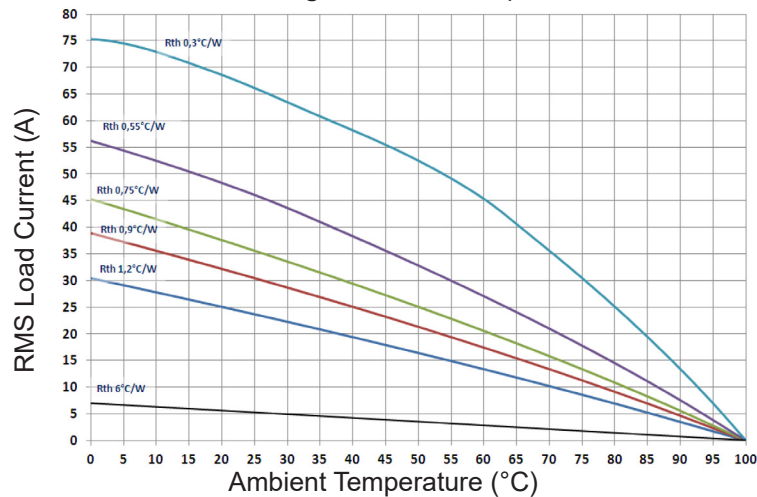


Figure 5c — 75A output



SURGE CURRENT

Curve Definitions

- 1: **Non Repetative** - is given without voltage reapplied. This curve is used to define the protection (fuses).
2: **Repetitive** - is given for inrush current with initial $T_j = 70^\circ\text{C}$. In normal operation, this curve mustn't be exceeded.
Caution, frequent over load currents will decrease the life expectancy of the SSR.

Figure 6a— 25A output

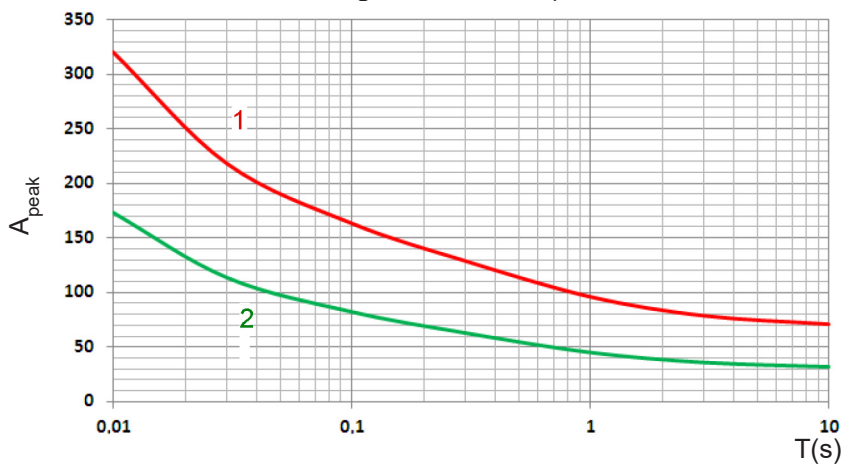


Figure 6b— 50A output

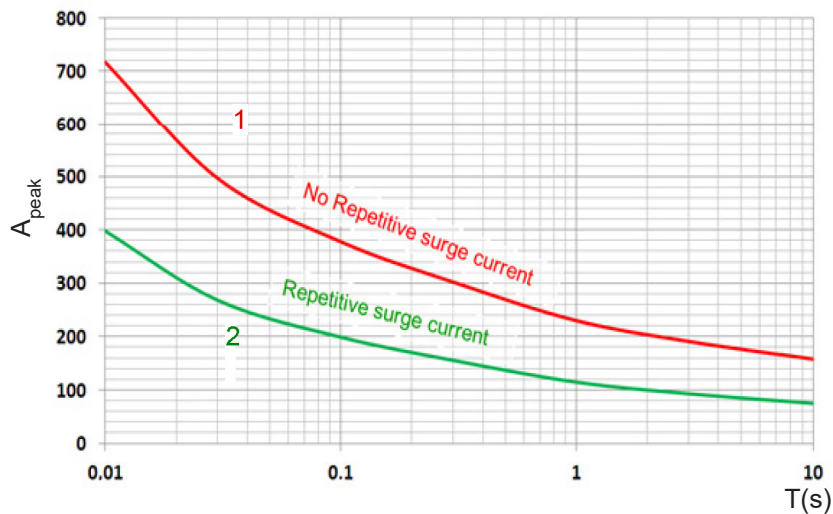
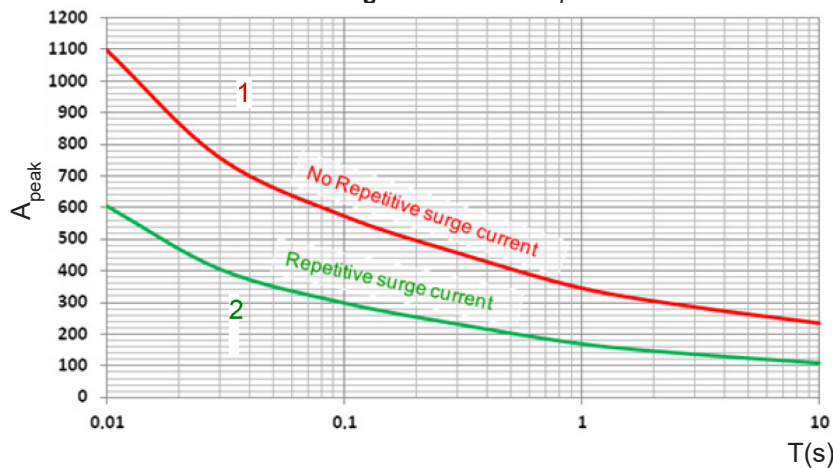
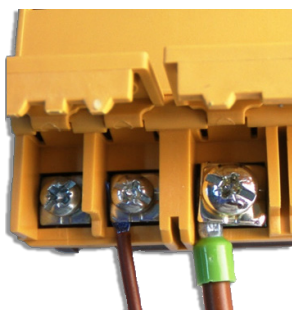


Figure 6c— 75A output



CONNECTIONS

Direct connection with wires
with or without ferrules



With ring terminals



Control Wiring				
Number of wires				Screwdriver type
1		2		
SOLID (No ferrule)	FINE STRANDED (With ferrule)	SOLID (No ferrule)	FINE STRANDED (With ferrule)	POZIDRIV 2
AWG18 -- AWG14 0.75 -- 2.5 mm ²	AWG18 -- AWG14 0.75 -- 2.5 mm ²	AWG18 -- AWG14 0.75 -- 2.5 mm ²	AWG18 -- AWG14 0.75 -- 2.5 mm ²	Recommended tightening torque for M4 screw: Min 1.2 / Typ 1.5 / Max 2 N.M

Power Wiring				
Number of wires				Screwdriver type
1		2		
SOLID (No ferrule)	FINE STRANDED (With ferrule)	SOLID (No ferrule)	FINE STRANDED (With ferrule)	POZIDRIV 2
AWG16 -- AWG8 1.5 -- 10 mm ²	AWG16 -- AWG8 1.5 -- 10 mm ²	AWG16 -- AWG8 1.5 -- 10 mm ²	AWG16 -- AWG8 1.5 -- 10 mm ²	Recommended tightening torque for M5 screw: Min 2 / Typ 2.4 / Max 3 N.M

Power with ring terminal
<u>W max = 12.6mm</u> AWG6 (16 mm²) AWG4 (25 mm²) AWG2 / AWG3 (35mm²) AWG0 / AWG1 (50mm²)

IP20 flaps
Flaps are delivered mounted on the relay. Marking labels are available for mounting on flaps.

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