NEW! EFRQ Series

QUAD SCR OUTPUTS TO 55 AMPS PER OUTPUT, 1200 VOLTS

PART NUMBERS

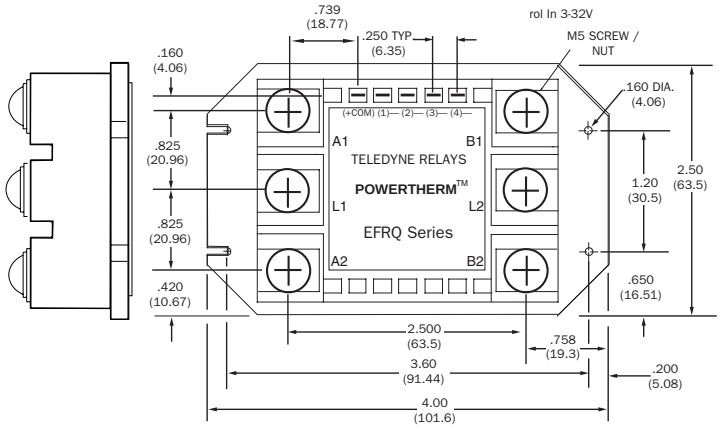
Package & Chip Type	Max Blocking Voltage (piv)/ Line Rating	Input Type	Output Current Amps	Options
EFRQ-SCR	**1200480** **600240**	**D**-DC Input Zero Cross Switching **R**-DC Input, Random Turn-On	**25** **40** **55**	See Table Below and Page 58

Options (Add Suffix to Part Number) - See Page 58 for full description

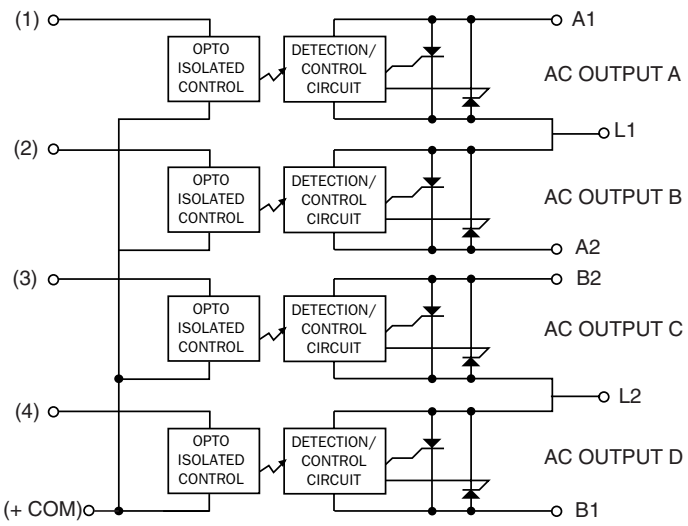
-012	EZ Mount™
-026	Non-Floating Output Terminals

Part Number Example: EFRQ120480D55

MECHANICAL SPECIFICATION



BLOCK DIAGRAM



FEATURES/BENEFITS

- Four independently controlled solid state relays in a single package.
- Screw type power terminals in a high temperature plastic housing for mechanical ruggedness.
- Constant Current Input minimizes source current requirement (standard on D input only)
- Exposed ceramic baseplate for reduced thermal resistance and best thermal performance.
- Constructed using Teledyne's unique Powertherm™ process. This process yields superior thermal impedance and power cycling capabilities through reduced thermal interconnections, allowing for cooler, more reliable operation.
- The logic drive circuitry section uses the latest in reliable surface mount technology.
- Certifications:
  - UL and ULC Recognized File #E128555
  - CE # EN60947-1

TYPICAL APPLICATIONS

- On/Off controls of medium power AC equipment.
- Interfacing of microprocessor controls to AC loads - lights, motors, heaters, valves, solenoids etc.
- Electromechanical line relay replacement.
- Mercury displacement relay replacement.
- Industrial and Process Controls.
- Programmable Controller interface.
- Robotics motor position and speed controls.
- Light dimmers; Transformer tap switch.

GENERAL DESCRIPTION

The EFRQ series 4-pole AC Solid State Relays are designed to save space while providing independent control of large amounts of power in four separate circuits. Optical isolation ensures complete protection of each relay's circuit control elements from load transients in each load circuit. Teledyne's advanced design featuring the Powertherm™ process offers users superior thermal management resulting in excellent performance, quality and reliability.

ELECTRICAL SPECIFICATIONS

INPUT (CONTROL) SPECIFICATIONS

Parameter	Input Type	Min	Max	Units
Control Voltage Range	D	3	32	Vdc
	R	4	26	
Input Current	D,R(@5Vdc)		15	mA
Must Turn-Off Voltage	D,R	1		Vdc
Reverse Voltage Protection	D,R		-32	Vdc
Turn-Off Current	D,R	0.25		mA(DC)

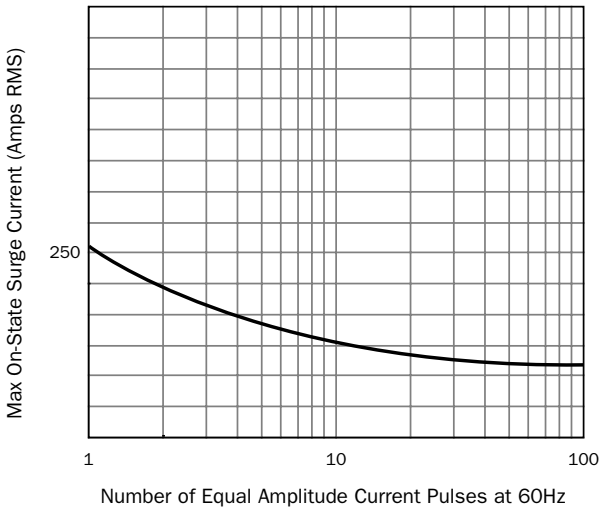
OUTPUT (LOAD) SPECIFICATION

Parameter	Voltage Code	Min	Max	Units
Load Voltage Rating	600240	24	280	Vac
	1200480	48	530	
Frequency Range (Note 2)		47	400	Hz
Over Voltage Range	600240		600	VPeak
	1200480		1200	
On-State Voltage Drop @ Max Rate Current	SCR Output	1.4		V
Turn-On Time	D		8.3	ms
	R		0.02	ms
Turn-Off Time			8.3	ms
Leakage Current (Off-State) @25 °C			0.5	mA
dV/dt (Typical)			500	V/µs
Isolation (All Terminals To Heatsink) = VRMS For 1 Min With Unit Mounted Properly			4000	V
Operating Temperature		-40	125	°C
Power Factor Range		0.5	1.0	

OUTPUT (LOAD) SPECIFICATIONS (Contd)

Parameter	Output Current	Min	Max	Units
Output Current Rating	25	0.05	25	
Per Output	40	0.05	40	A
(Load Current @85 °C)	55	0.05	55	
Surge Current Rating	25		250	
See Fig 1 (Non-	40		400	A
Repetitive 16.7 mS)	55		600	
Thermal Resistance	25		.40	
Junction to Case (J_C)	40		0.35	°C/W
Per Contact	55		0.35	

FIGURE 1 Max Non-Repetitive Surge Current



NOTES:

1.) Where overvoltage transient spikes are present, suppression may be required. An MOV suppressor and/or a snubber circuit across the AC terminals of the module will provide additional transient immunity.

2.) For 400 Hz inductive load, contact factory.

3.) Curve for 25 amp output shown. Contact factory for other outputs.