

PART NUMBERS

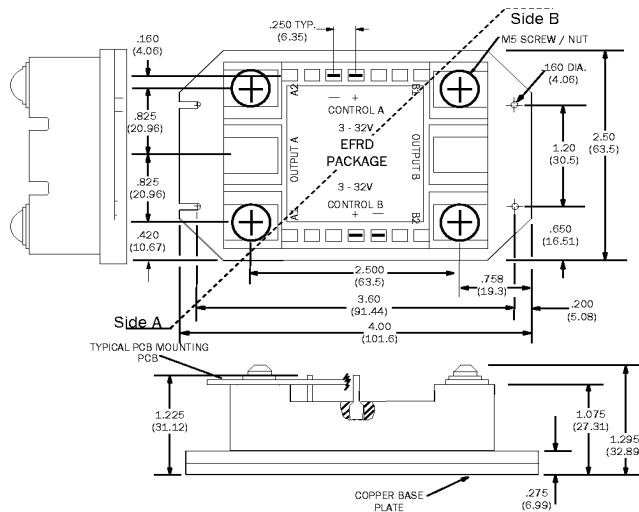
Package & Chip Type	Max Blocking Voltage (piv)/ Line Rating	Input Type	Output Current Amps	Options
EFRD-SCR	1600660 1200480 600240	D-DC Input	150	See Table
		Zero Cross		Below and
		Switching		Page 58
		R-DC Input		
		Random		
		Turn-On		
		A-AC Input Zero		
		Cross Switching		

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

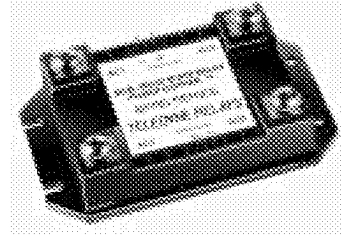
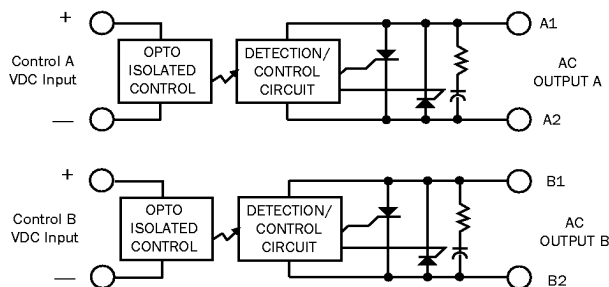
-012	EZ Mount™
-016	MOV
-021	TransAx™
-022	24VAC Control
-026	Non-Floating Output Terminals

Part Number Example: **EFRD600240A150**

MECHANICAL SPECIFICATIONS



BLOCK DIAGRAM



FEATURES/BENEFITS

- Two independently controlled solid state relays in a single package.
- Controls and outputs can be paralleled to achieve a SPST 250 amp rated relay.
- High temperature plastic housing for mechanical ruggedness.
- SCR outputs for high dv/dt, current and voltage capability.
- Choice of AC or DC inputs.
- Choice of Zero Cross and Random Turn-On versions.
- Constant Current Input minimizes source current requirement (standard on D and A inputs only)
- Constructed using Teledyne's unique Fused Copper™ process. This process yields superior thermal impedance and power cycling capabilities through reduced thermal interconnections, allowing for cooler, more reliable operation.
- Integral snubber circuit for additional transient immunity.
- Certifications:
 - UL and ULC Recognized File #E128555
 - CE # EN60947-1

TYPICAL APPLICATIONS

- On/Off controls of high 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.
- Uninterruptable Power Supplies.
- Robotics motor position and speed controls.
- Light dimmers.
- Transformer tap switch.

GENERAL DESCRIPTION

The EFRD series AC Solid State Relays are designed to provide independent control of high amounts of power in two separate circuits. Optical isolation ensures complete protection of each relay circuit's control elements from load transients in each load circuit. Teledyne's advanced design featuring the Fused Copper™ process offers users superior thermal management resulting in excellent performance, quality and reliability.

ELECTRICAL SPECIFICATIONS

INPUT (CONTROL) SPECIFICATIONS

Parameter	Load/Voltage		Min	Max	Units
	Input Code				
Control Voltage Range	600240D		3	32	
	1200480D		3	32	
	1600660D		4.5	32	
	600240R		4	26	Vdc
	1200480R		4	26	
	1600660R		5	26	
	A		90	280	Vac
Input Current	D,R(@5Vdc)		15		mA
	A(@90Vac)		15		
Must Turn-Off Voltage	D,R		1		Vdc
	A		10		Vac
Reverse Voltage Protection	D,R		-32		Vdc
	A		N/A		
Turn-Off Current	D,R		0.25		mA(DC)
	A		2.5		mA(AC)

OUTPUT (LOAD) SPECIFICATION

Parameter	Voltage Code	Min	Max	Units
Load Voltage Rating	600240	24	280	
	1200480	48	530	Vac
	1600660	60	660	
Frequency Range (Note 2)		47	400	Hz
Over Voltage Range	600240		600	
	1200480		1200	VPeak
	1600660		1600	
On-State Voltage Drop @ Max Rated Current		1.7		V
Turn-On Time	D,A		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 Per Output (Load Current @85°C)	150	0.05	150	A
Surge Current Rating See Fig 1 (Non- Repetitive 16.7 mS)	150		1600	A
Thermal Resistance Junction to Case (J _C)	150		0.25	°C/W

FIGURE 1 Max Non-Repetitive Surge Current

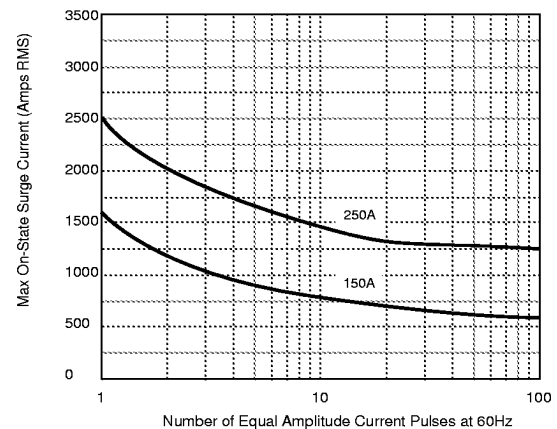
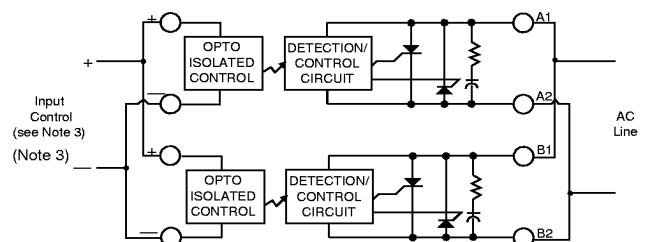


FIGURE 2. Wiring diagram for 250 amp single pole operation



NOTES:

- Where overvoltage transient spikes are present, suppression may be required. A suppressor and/or a snubber circuit across the AC terminals of the module will provide additional transient immunity.
- For 400 Hz inductive load, contact factory.
- Input control can also be wired in series.