



### MODEL 11DZ/EZ

- **Description:** Solid State Relay
- **Product Range:** 120-550 VAC, 15-80 amps (single-phase), 15-150 amps (three-phase)
- **Application:** Constant Resistance Loads

### FEATURES

- All Solid State construction
- Tested for 200 million+ operations
- Capable of cycle rates to 600 times/minute with no derating
- 50°C ambient rating at full load
- No hazardous material content
- Noise-free switching

### TYPICAL APPLICATIONS

- Replace Mercury Contactors
- Replace Conventional SSRs
- Plastic Extruders and Molders
- Packaging Machinery
- Oven and Furnace Control

11DZ/EZ Solid State Relays provide on/off control of single-phase (11DZ) and three-phase (11EZ) resistive loads, outperforming mercury relays, electromechanical contactors, and solid state relays (SSRs) supplied without heatsinks.

### TRUE CURRENT RATINGS

The 11DZ/EZ is capable of continuous operation at nameplate current in ambient temperatures to 50°C (122°F), without thermal derating,

supplemental heatsinks, or fans. *Units include heatsinks to dissipate heat generated during operation. There are no thermal or performance derating curves.*

### RUGGED DESIGN

When operated within their voltage, current and temperature ratings, 11DZ/EZ solid state relays have no known life expectancy or MTBF rating. These units have been full-load tested for over 200 million operations, at cycle rates to 600 times/minute, with no effect on performance or service life. 11DZ/EZ relays require no regular or preventive maintenance, and contain no moving parts or hazardous materials. Semiconductor protection from transient voltages and dv/dt is provided by voltage break-over ( $V_{bo}$ ) clamping and resistor-capacitor (RC) networks. Integral chassis heatsinks cool the semiconductors by natural convection.

### SPECIFICATIONS

**Power Circuit:** Inverse-parallel thyristors (or TRIACs) with parallel RC circuit for dv/dt protection. Three phase units switch two poles.

**Control Circuit:** Optically isolated circuit triggers semiconductor gates.

**Mains Frequency:** 50/60 Hz standard. 16-2/3, 25, 400 Hz on application only.

**Output Voltage:** Nominal input.

**Overall Efficiency:** 98.5-99.5%.

**Power Loss:** Approximately 1-2 watts/amp/switched pole.

**Control Input:** 120 VAC standard.

**Control Power:** 5 watts maximum.

**Transient Voltage Protection:**  $V_{bo}$  clamping is standard on all units.

**Ambient Temperature Range:** -10° C to +50° C.

**Terminal Connections:** 10-30 amp units use thermoplastic blocks; 50 amps and larger use stud bolts.

**Switching Time:** ON: 1 millisecond; OFF: 0-8 milliseconds.

### FUSES

"2 ms" I<sup>2</sup>t fuses are optional. Fuses are factory tested and approved to provide short circuit protection for Model 11DZ/EZ semiconductors. A list of the approved fuses for each relay is provided on the reverse side of this publication. *Fuses must be supplied by the user, and mounted separately.*

### STANDARD OPTIONS

- 12, 24, 240 VAC/VDC Control
- 550 VAC Rated Operation

### SIZING CONSIDERATIONS

Model 11DZ/EZ Solid State Relays are rated for use with constant resistance loads. Size by actual load current, not kW.

1> Always use maximum possible load currents for sizing purposes.

2> Rated voltage of the connected load should match input voltage to the unit.

### SIZING EXAMPLE

**Application:** On/Off control of three-phase, 480 VAC, Delta-connected, 6 kW constant-resistance heating elements. Input voltage 480 VAC, three-phase, 60 Hz.

**Model Number Selection:**

a> On/Off control: 11

b> Three-phase power: EZ

c> 480 VAC input: - 4 -

d> Amp rating calculation:

$$\frac{6 \times 1000}{480 \times 1.73} = 7.22 \text{ amps/phase}$$

**Model number:** 11EZ-4-15

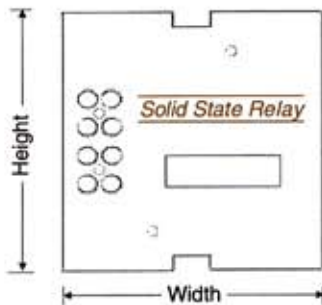
**Options:** as required

### WHEN ORDERING, SPECIFY:

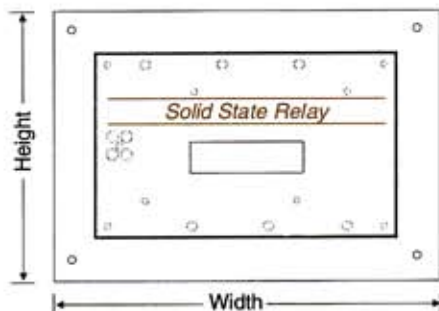
- Model number
- Control voltage
- Input line voltage
- Load specifications
- Options

Model Number	Amps	Height Inches(mm)	Width Inches (mm)	Depth Inches (mm)	Weight lbs. (kg)	Approved 2 Millisecond I <sup>2</sup> t Fuses (not included)		
						BRUSH	GOULD	BUSSMANN
<b>Single-Phase, 120/208/220/240 VAC, 50/60 Hz</b>								
11DZ-2-15	15	3-1/2 (89)	4 (102)	2-1/8 (54)	.75 (.35)	XL70P015	A25X15	FWH-15
11DZ-2-30	30	4-1/4 (108)	4 (102)	3-7/8 (99)	2.3 (1.1)	XL70P030	A25X30	FWH-30
11DZ-2-50	50	5 (127)	4 (102)	4-9/16 (116)	2.7 (1.2)	XL50F050	A50P50	FWH-50
11DZ-2-80	80	8 (204)	4 (102)	4-9/16 (116)	4.4 (2)	XL50F080	A50P80	FWH-80
<b>Single-Phase, 380/415/440/480 VAC, 50/60 Hz*</b>								
11DZ-4-15	15	3-1/2 (89)	4 (102)	2-1/8 (54)	.75 (.35)	XL70F020	—	FWH-15
11DZ-4-30	30	4-1/4 (108)	4 (102)	3-7/8 (99)	2.3 (1.1)	XL70F030P	—	FWH-30
11DZ-4-50	50	5 (127)	4 (102)	4-9/16 (116)	2.7 (1.2)	XL50F050	A50P50	FWH-50
11DZ-4-80	80	8 (204)	4 (102)	4-9/16 (116)	4.4 (2)	XL50F080	A50P80	FWH-80
<b>Three-Phase, 120/208/220/240 VAC, 50/60 Hz</b>								
11EZ-2-15	15	3-15/16 (100)	2-3/4 (70)	4-1/2 (114)	2.2 (1)	XL70P015	A25X15	FWH-15
11EZ-2-30	30	8 (204)	4 (102)	4-1/4 (108)	4.4 (2)	XL70P030	A25X30	FWH-30
11EZ-2-50	50	6 (153)	9 (229)	4-11/16 (119)	6.5 (3)	XL50F050	A50P50	FWH-50
11EZ-2-80	80	9 (229)	9 (229)	4-11/16 (119)	9.5 (4.3)	XL50F080	A50P80	FWH-80
11EZ-2-120	120	14 (356)	14 (356)	9 (229)	15 (6.8)	XL50F125	A50P125	FWH-125
11EZ-2-150	150	15 (381)	19 (483)	9 (229)	25 (11.3)	XL50F150	A50P150	FWH-150
<b>Three-Phase, 380/415/440/480 VAC, 50/60 Hz*</b>								
11EZ-4-15	15	3-15/16 (100)	2-3/4 (70)	4-1/2 (114)	2.2 (1)	XL70F020	—	FWH-15
11EZ-4-30	30	8 (204)	4 (102)	4-1/4 (108)	4.4 (2)	XL70F030P	—	FWH-30
11EZ-4-50	50	6 (153)	9 (229)	4-11/16 (119)	6.5 (3)	XL50F050	A50P50	FWH-50
11EZ-4-80	80	9 (229)	9 (229)	4-11/16 (119)	9.5 (4.3)	XL50F080	A50P80	FWH-80
11EZ-4-120	120	14 (356)	14 (356)	9 (229)	15 (6.8)	XL50F125	A50P125	FWH-125
11EZ-4-150	150	15 (381)	19 (483)	9 (229)	25 (11.3)	XL50F150	A50P150	FWH-150

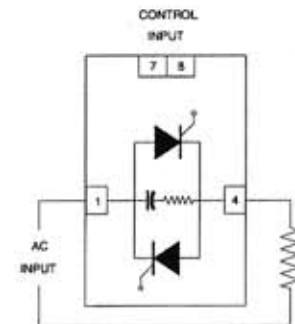
\* Dimensions for 550VAC-rated units are the same as 480VAC-rated units.



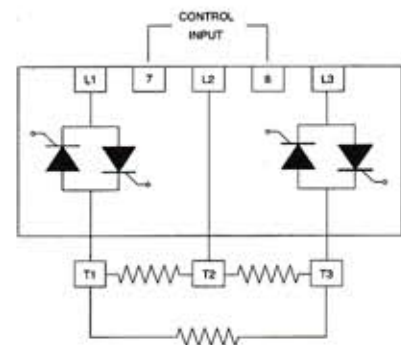
**MODEL 11DZ**  
**MODEL 11EZ (to 30 A)**



**MODEL 11EZ**  
**(50 A and up)**



**MODEL 11DZ: Power Circuit Schematic**



**MODEL 11EZ: Power Circuit Schematic**