**Series CZR**
Solid State Contactor
User’s Guide

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**Wiring**

Model number dependent

- **V** = (ac/dc) +
- **V** = (ac/dc) -

- Semiconductor
- Fuse
- Limiter Control
- Contacts (If Required)
- L1 and above
- L1
- Neutral
- 240V~ (ac)
- 120V~ (ac)
- and 277V~ (ac)

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**Warnings**

1. Wiring must conform to National Electric Code (NEC) safety standards, as well as locally applicable codes. Failure to do so could result in death or personal injury.

2. Wiring examples show **L2** in 240V~ (ac) or 480~ (ac) configuration. In 120V~ (ac) or 277V~ (ac) applications, **L2** is neutral and must not be fused or switched. Failure to follow this guideline could result in death or personal injury.

3. Installation and service by qualified personnel only. Failure to do so could result in death or personal injury.

4. Hot surface, do not touch heat sink. Failure to follow this guideline could result in personal injury.

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**Unit Dimensions**

**Front**

- Mounting Hole/Slot: 0.17 (4.3) Dia.
- CZ42
- CZ34
- CZ24
- CZ18

**Top**

- Pull to release from DIN rail

**Side**

- Heatsink: Black Anodized Aluminum

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**Output Rating Curves**

- Maximum Ambient Temperature °F
- Maximum Ambient Temperature °C

- Current (Amps)

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**Mounting Hole/Slot**

0.17 (4.3) Dia.
Control Mode
- Zero cross

Operator Interface
- Command signal input
- Input signal indication LED

Input Command Signal
- Input Type DC1
  - Turn ON voltage 4V (dc) max., turn OFF voltage 1V (dc) min.
- Input Type AC1
  - 90-140Vrms, must turn ON at 90V (ac), must turn OFF at 10V (ac)
  - Input current: DC typ. 10mA @ 4V (dc), 13mA @ 32V (dc)

Input Command Signal (Contactor)
- Input Type DC1
  - 4 to 32V (dc)
- Input Type AC1
  - 90 to 140V (ac)

Output Voltage
- 24 volt: 24V (ac) min. to 280V (ac) max.
- 48 volt: 48V (ac) min. to 530V (ac) max.
- 600 volt: 48V (ac) min. to 660V (ac) max. (not available on 18 amp version)
- Off State Leakage:
  - 1mA at 25°C/77°F max. for 600V (ac) models; 10mA at 25°C/77°F max. for 24 through 480V (ac) models
  - Holding current: 250mA max.

Output Amperage
- Max. surge current:
  - 16.6mSec:
    - 18 amp: 625
    - 24 amp: 250
    - 34 amp: 625
    - 42 amp: 1000
- Max. I²t for fusing:
  - 1620 for 18 amp
  - 260 for 24 amp
  - 1620 for 34 amp
  - 4150 for 42 amp

Agency Approvals
- Class II construction
- UL 508 recognition file number E73741
- CSA file LR 700195

Specifications (1992)

Ordering Information (1993)

Part Number: \[C - A - V - 0\]

Control Mode
- 2 = Zero cross

Output Amperage
- 18 = 18 amp
- 24 = 24 amp
- 34 = 34 amp
- 42 = 42 amp

Output Voltage
- 24 = 24 to 280V (ac)
- 48 = 48 to 530V (ac)
- 60 = 60 to 660V (ac)

Input Type (Contactor)
- DC1 = 4 to 32V (dc)
- AC1 = 90 to 140V (ac)

NOTE: Do not use the AC1 input type models with temperature control outputs that include an AC snubber filter. This could cause the CZR to stay full on.

Recommended Semiconductor Fuses

<table>
<thead>
<tr>
<th>CZR Model</th>
<th>Fuse*</th>
<th>Fuse Holder</th>
</tr>
</thead>
<tbody>
<tr>
<td>18A</td>
<td>17-8025</td>
<td>17-5110</td>
</tr>
<tr>
<td>24A</td>
<td>17-8030</td>
<td>17-5114</td>
</tr>
<tr>
<td>34A</td>
<td>17-8040</td>
<td>17-5114</td>
</tr>
<tr>
<td>42A</td>
<td>17-8063</td>
<td>17-5122</td>
</tr>
</tbody>
</table>

*Recommended at base rating.

Warranty

The Series CZR is warranted to be free of defects in material and workmanship for 24 months after delivery to the first purchaser for use, providing that the units have not been misapplied. Since Watlow has no control over their use, and sometimes misuse, we cannot guarantee against failure. Watlow’s obligations hereunder, at Watlow’s option, are limited to replacement, repair or refund of purchase price, and parts which upon examination prove to be defective within the warranty period specified. This warranty does not apply to damage resulting from transportation, alteration, misuse, abuse or improper fusing.

Returns

2. Make sure the RMA number is on the outside of the carton, and on all paperwork returned. Ship on a freight prepaid basis.
3. A restocking charge of 20% of the net price applies for all returned stock controls and accessories in like new condition and within 120 days after shipment. Non-stock and modified stock items are not returnable.
4. If the unit is unrepairable, it will be returned to you with a letter of explanation. Repair costs will not exceed 50% of the original cost.

2006/95/EC CE Low Voltage Directive

Output Terminals
- Compression type
- For 18 amp models:
  - Maximum wire size 3.0mm (10 AWG), torque to 0.6Nm (5.3 in. lbs.)
- For 24 to 42 amp models:
  - Maximum wire size 16.0mm (6 AWG stranded), torque to 1.5-1.7Nm (13-15 in. lbs.)

Operating Environment
- Up to 80°C/176°F. See output rating curves for your application.
- 0 to 90% RH, non-condensing.
- Units are suitable for “Pollution degree 2.”
- Cycle time should be less than 3 seconds.

Mounting

Options include DIN rail or standard back panel mounting.
- The DIN rail specification: DIN EN 50022, 35mm x 7.5mm.
- Min. clipping distance: 34.8mm (1.37 in).
- Max. clipping distance: 35.3mm (1.39 in).
- Mount cooling fins vertical

Weight/Dimensions
- 260g (9.2 oz.)
- 24 to 42 amp models: 100 mm (3.95 in) high x 45 mm (1.75 in) wide x 109 mm (4.3 in) deep
- 18 amp models: 100 mm (3.95 in) high x 22.6 mm (0.89 in) wide x 99 mm (3.9 in) deep

Specification subject to change without notice.

Recommended Semiconductor Fuses

CZR Model | Fuse* | Fuse Holder
-----------|-------|------------|
18A        | 17-8025 | 17-5110 |
24A        | 17-8030 | 17-5114 |
34A        | 17-8040 | 17-5114 |
42A        | 17-8063 | 17-5122 |

*Recommended at base rating.
### Declaration of Conformity

**Series CZR**  
Watlow Controls  
1241 Bundy Boulevard  
Winona, Minnesota  55987 USA

Declares that the following product:

<table>
<thead>
<tr>
<th>English</th>
<th>Deutsch</th>
<th>Français</th>
<th>Español</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Designation:</strong> Series CZR</td>
<td>Beschreibung: Serie CZR</td>
<td>Désignation : Série CZR</td>
<td>Designación: Serie CZR</td>
</tr>
<tr>
<td><strong>Model Number(s):</strong> (CZ) (18, 24, 34, 42)- (A) (24, 48 or 60) (V)- (AC10 or DC10)</td>
<td>Modellnummer(n): (CZ) (18, 24, 34, 42) (A) (24, 48 oder 60) (V)- (AC10 oder DC10)</td>
<td>Numéro(s) de modèle(s): (CZ) (18, 24, 34, 42)- (A) (24, 48 ou 60) (V)- (AC10 ou DC10)</td>
<td>Números de modelo: (CZ) (18, 24, 34, 42)-(A)(24, 48 ó DC10)</td>
</tr>
<tr>
<td><strong>Classification:</strong> Solid State Contactor</td>
<td>Klassifikation: Halbleiterschütz</td>
<td>Classification : Contacteur à semi-conducteur</td>
<td>Clasificación: Contactor de estado sólido</td>
</tr>
<tr>
<td><strong>Rated Voltage:</strong> 24 to 660V~ (ac)</td>
<td>Nennspannung: 24 bis 660V~ (ac)</td>
<td>Tension nominale : 24 à 660V~ (ac)</td>
<td>Tensión nominal: 24 a 660V~ (ac)</td>
</tr>
<tr>
<td><strong>Rated Frequency:</strong> 50/60 Hz</td>
<td>Nennfrequenz: 50/60 Hz</td>
<td>Fréquence nominale : 50/60 Hz</td>
<td>Frecuencia nominal: 50/60 Hz</td>
</tr>
</tbody>
</table>

Meets the essential requirements of the following European Union Directive(s) using the relevant section(s) of the normalized standards and related documents shown:

#### 2006/95/EC Low-Voltage Directive
EN 60950 Safety of Information Technology Equipment Including Electrical Business Equipment

#### 2006/95/EC EWG Niederspannungsrichtlinie
EN 60950 Sicherheit von Informationstechnikprodukten einschließlich elektrischer Büroausrüstungen

#### 2006/95/EC Directive sur les basses tensions
EN 60950 Sécurité du matériel informatique, matériel électrique de gestion inclus

#### 2006/95/EC Directiva de Baja Tensión
EN 60950 Seguridad de equipos de tecnología de la información, entre los que figuran equipos eléctricos comerciales

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Raymond D. Feller III  
Name of Authorized Representative  
Winona, Minnesota  USA  
Place of Issue

General Manager  
Title of Authorized Representative  
August, 2001  
Date of Issue

Signature of Authorized Representative