

Installation Instructions

C2ZF & C3ZF Three Phase Solid State Relay



PK605
0037-75602
July 2024

Important Safeguards

⚠ WARNING

HIGH VOLTAGE is used in the operation of this equipment; DEATH ON CONTACT may result if personnel fail to observe safety precautions.

Learn the areas containing high-voltage connections when installing or operating this equipment.

⚠ WARNING

Be careful not to contact high-voltage connections when installing or operating this equipment.

Before working inside the equipment, turn power off and ground all points of high potential before touching them.

⚠ WARNING

ELECTRIC SHOCK HAZARD: Any installation involving control equipment must be performed by a qualified person and must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.

C2ZF & C3ZF Three-Phase Solid State Relay

General

This Series of solid state relays are an ideal, low cost power control solution for switching resistive 3-phase loads found in applications such as furnaces, ovens, heat treating, injection molding, thermoforming, press platens, commercial food equipment, semiconductor, lighting and drying, to name a few.

The C2ZF & C3ZF Series power controllers feature:

- Rugged, industrial design & touch-safe exterior
- Conservative, continuous service ratings at 40°C
- Up to 3 x 75 Amps and up to 600 VAC
- AC and DC Voltage command signals
- Zero cross firing
- Easy terminal access via removable covers
- Integrated heat sink and fan
- SCR thermal protection with LED indication
- Optional over temperature alarm
- Optional load / line interrupt alarm
- USA & Canadian UL Listed
- CE conformity

Installation and Operation

⚠ CAUTION

The owner/installer must provide all necessary safety and protection devices and follow all current electrical wiring standards and regulations. Failure to do so may compromise the integrity of the controller and / or cause product failure resulting in a safety risk to operational and service personnel.

⚠ CAUTION

This controller utilizes a heat sink which is designed to cool the unit during operation. Under no circumstance should air flow around the controller be compromised in any way. Failure to do so may result in the overheating of the controller, product failure, product temperatures and even fire.

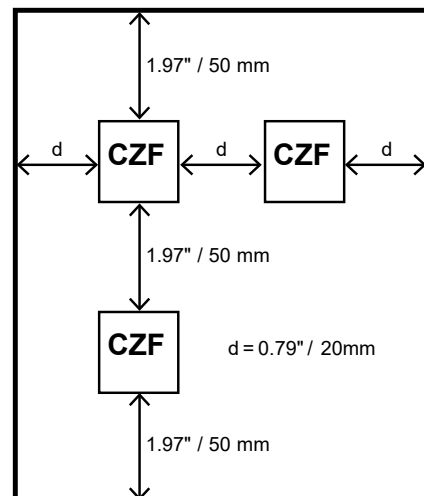
⚠ WARNING

During continuous operation, the heat sink can reach very high temperatures, and keeps a high temperature even after the unit is turned off due to its high thermal inertia.

Higher voltages may be present. DO NOT work on the power section without first cutting out electrical power to the panel. Failure to do so may cause serious injury or death.

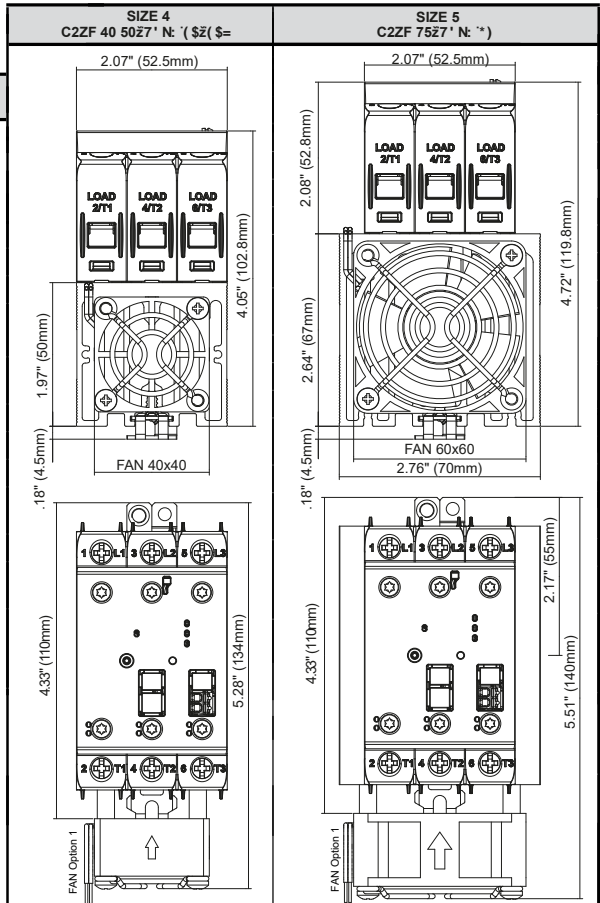
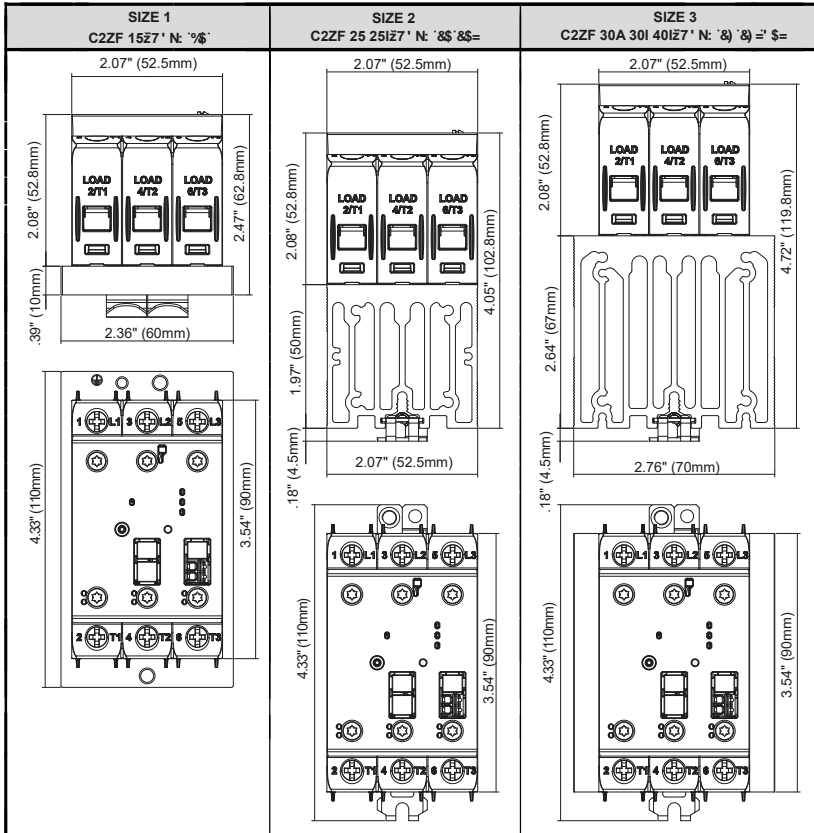
To ensure proper performance, maximum safety and reliability, it is essential to install the unit correctly. This includes proper mounting, spacing, hardware, grounding and wiring. See below:

1. Maximum surrounding air temperature is 40°C in “Open Type Equipment” which is suitable for use in pollution degree 2.
2. Install the unit vertically (max 10° inclination from vertical axis).
3. Spacing:
 - Minimum vertical distance between unit and panel wall or adjacent power control unit: 1.97” (50 mm)
 - Minimum horizontal distance between unit and panel wall or adjacent power control unit: .79” (20 mm)



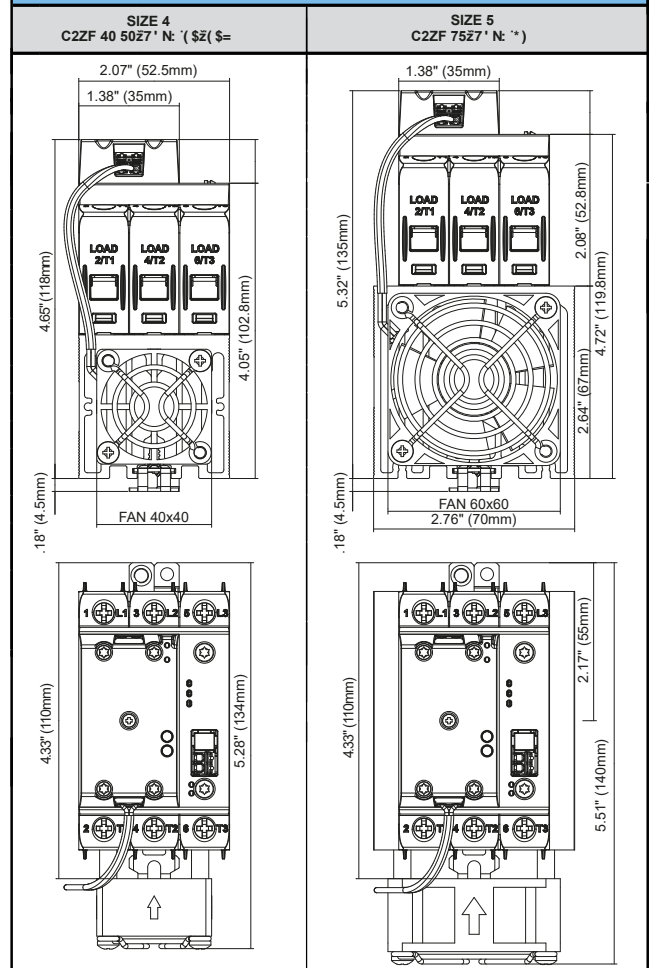
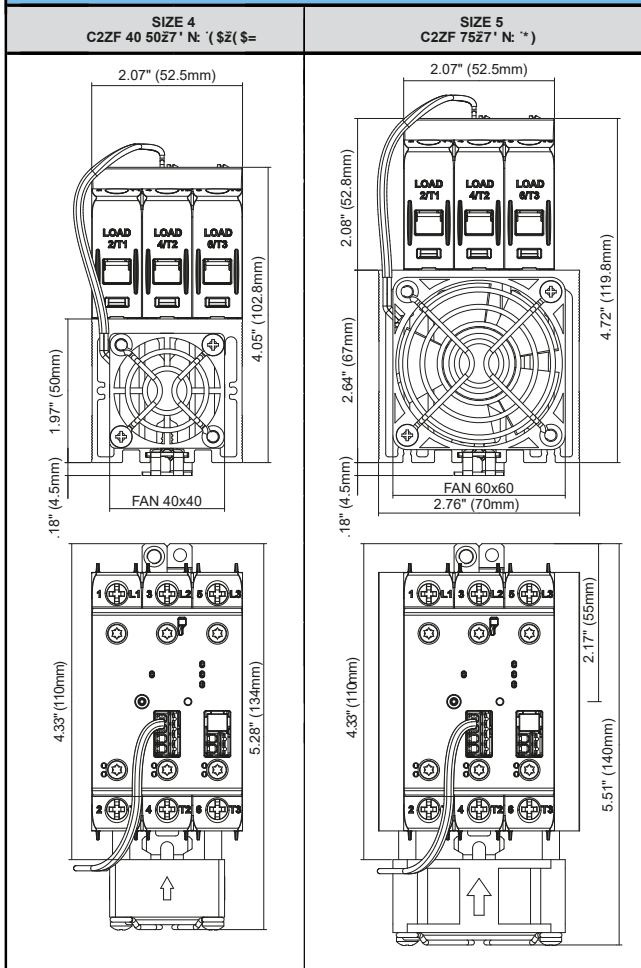
Dimensions and Weights

| MODEL: | SIZE 1 | SIZE 2 | SIZE 3 | SIZE 4 | SIZE 5 |
|---------|-------------------|------------------|------------------|-------------------|-------------------|
| WEIGHT: | 0.86 lb / 0.39 kg | 1.10 lb / 0.5 kg | 1.54 lb / 0.7 kg | 1.19 lb / 0.54 kg | 1.68 lb / 0.76 kg |

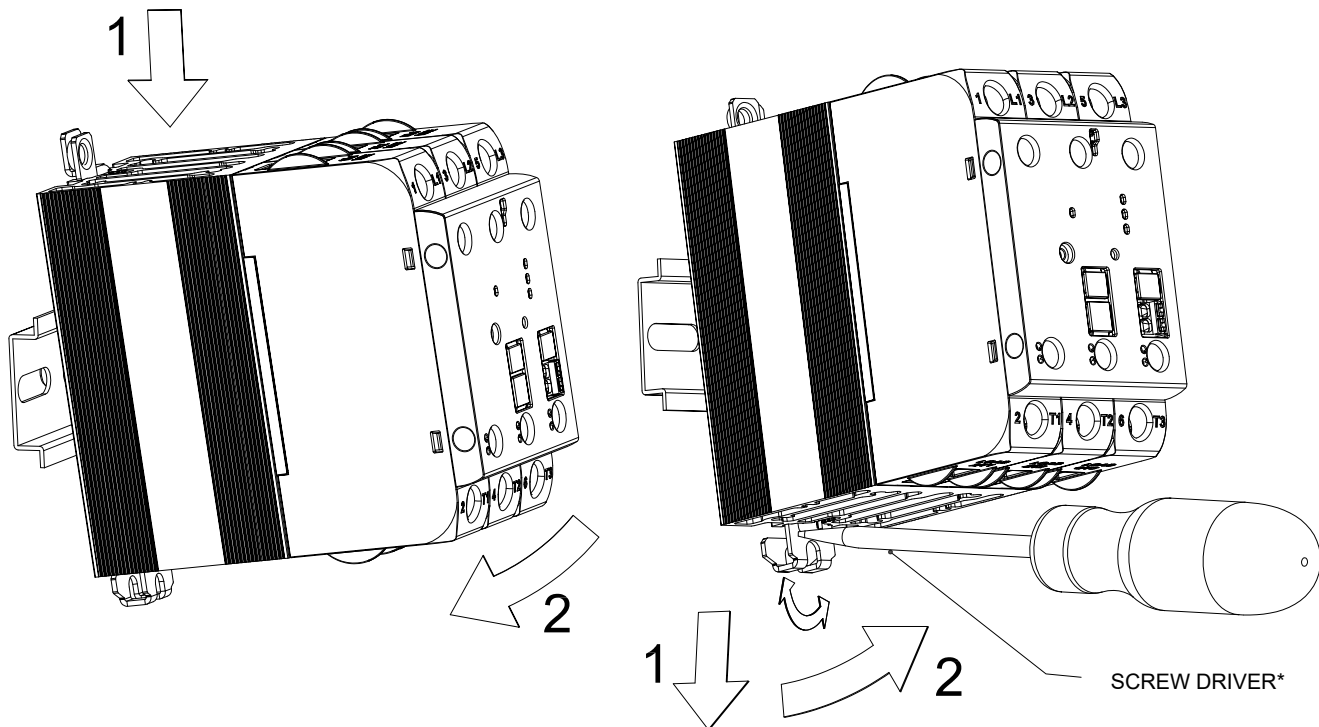
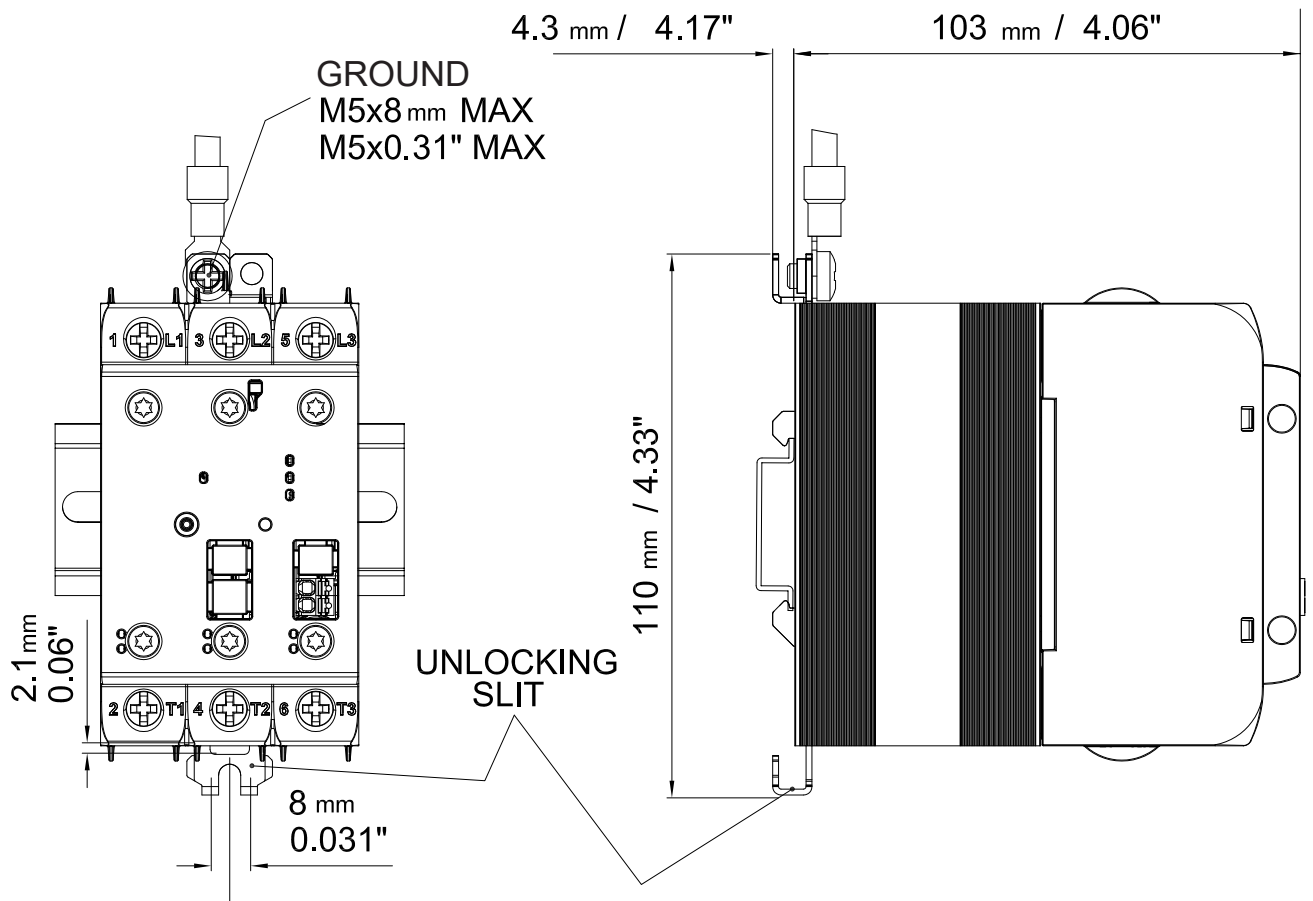


FAN Option 2 2F(XWdfYk jYga UHizbt.

FAN Option 3 3'fl 15-230Jac'dfYk jYga UHizbt.




Mounting

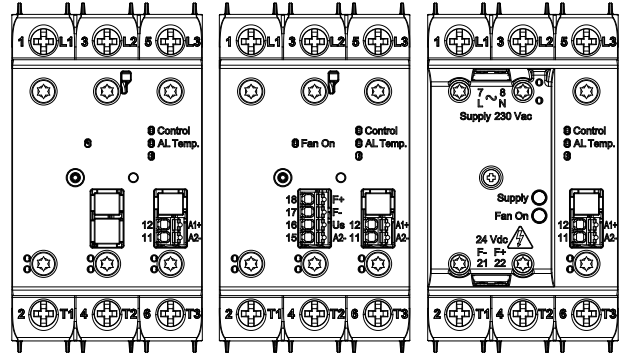


*Use of a slotted screwdriver with a max. diameter of 6mm is recommended

Connections and Descriptions

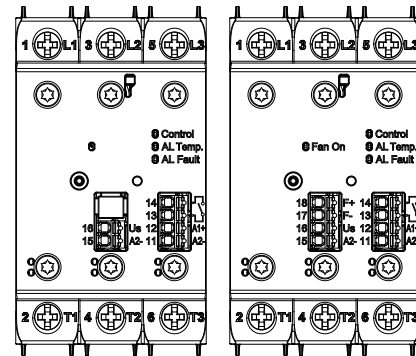
| | |
|--|---|
| 1/L1, 2/L2, 3/L3 | Main power line connections |
| 2/T1, 4/T2, 6/T3 | Load connections |
| 7/L | Vac Fan Supply FAN Option 3 |
| 8/N | Vac Fan Supply FAN Option 3 |
| 11/A2- | Ground On/Off Control signal |
| 12/A1+ | Positive On/Off signal command Vdc |
| 13/A2- | Ground (common with 11/A2-) |
| 14/AL+ | Alarm output (..13.. version; PNP output) |
| 13 | Alarm output (..11...,..12.. version; NO,NC contacts) |
| 14 | |
| 15/A2- | Ground (common with 11/A2-) |
| 16/Us | Power supply, positive signal |
| 17/F- | Ground of output power supply fan (pre-wired) FAN Option 2 |
| 18/F+ | Positive of output power supply fan (pre-wired) FAN Option 2 |
| 21/F- | Ground of output power supply fan (pre-wired) FAN Option 3 |
| 22/F+ | Positive of output power supply fan (pre-wired) FAN Option 3 |
|  | Remove the power supply in case of replacement or maintenance of pre-wired fans |
| Control (Green led) | Status of the command signal |
| AI Fault (Red led) | Power Fault alarms (No Voltage, No current) |
| AI Temp. (Yellow led) | Over-temperature status |
| Fan On (Yellow led) | Cooling fan activated |
| Supply (Green led) | presence of Vac power supply for fan |

Input Control Signal 1 (6-32VDC) without Alarm option (C2ZF/C3ZF-###-##-10...)




NO FAN / FAN Option 1 FAN Option 2 FAN Option 3

Input Control Signal 1 (6-32V) with Alarm option (C2ZF/C3ZF-###-##-1(1/2/3)...)

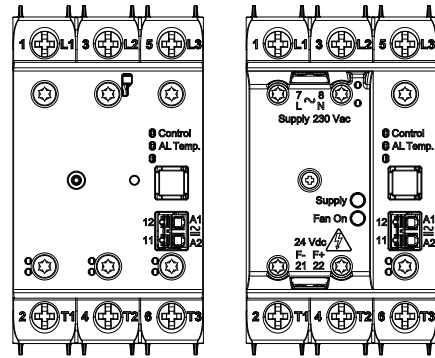


NO FAN / FAN Option 1 FAN Option 2

Connections and Descriptions Continued

| | |
|---|---|
| 1/L1 , 2/L2 , 3/L3 | Mains power line connections |
| 2/T1 , 4/T2 , 6/T3 | Load connections |
| 7/L | Vac Fan Supply FAN Option 3 |
| 8/N | Vac Fan Supply FAN Option 3 |
| 11/A2 ~ | On/Off signal command Vac |
| 12/A1~ | On/Off signal command Vac |
| 13 14 | Alarm output |
| 21/F- | Ground of output power supply fan FAN Option 3 (pre-wired) |
| 22/F+ | Positive of output power supply fan FAN Option 3 (pre-wired) |
|  | Remove the power supply in case of replacement or maintenance of pre-wired fans |
| Control (Green led) | Status of the command signal |
| AI Fault (Red led) | Power Fault alarms (No Voltage, No current) |
| AI Temp. (Yellow led) | Over-temperature status |
| Fan On (Yellow led) | Cooling fan activated |
| Supply (Green led) | presence of Vac power supply for fan |

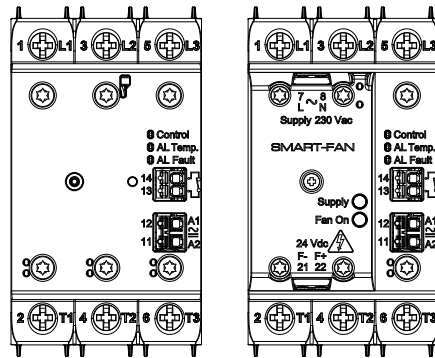
Input Control Signal 2 (20-260V) without Alarm option (C2ZF/C3ZF-###-##-20...)



NO FAN / FAN Option 1

FAN Option 3

Input Control Signal 2 (20-260V) with Alarm option (C2ZF/C3ZF-###-##-22...)



NO FAN / FAN Option 1

FAN Option 3

Input

| Input Control Signal Type | Type 1 | | Type 2 |
|---------------------------|-----------------|--------------|--------------------------|
| Pin | 11/A2- , 12/A1+ | | 11/A2 , 12/A1~ |
| Alarm Options | 0 | 1/2/3 | 0/2 |
| Control voltage | 4,9V...32Vdc | 3...32Vdc | 20...260 Vac/Vdc |
| Max. command absorption | < 15mA @32V | <5mA @32V | < 8 mAac/dc @260 Vac/Vdc |
| Maximum reverse voltage | 36Vdc | 36Vdc | - |
| Voltage of guaranteed ON | ≥4,9Vdc | ≥ 3Vdc | ≥ 15Vac/Vdc |
| Voltage of guaranteed OFF | ≤4,3Vdc | ≤ 1,8Vdc | ≤ 6Vac/ |
| Impedance input | 500 kΩ | 7,26 kΩ | - |

Power Supply and Fan

| Smart Fans | |
|--|---|
| Power supply (needed with alarm options 1/2/3) (pin 15/A2-,16/Us) | 6..32 Vdc, I _{max} <15 mA @32V |
| Power supply with FAN Option 2 (pin 15/A2-,16/Us) | 20..27 Vdc, I _{max} <100 mA @24V (FAN ON) For 2S-50, 3S-40/40I |
| | 20..27 Vdc, I _{max} <150 mA @24V (FAN ON) For 2S-75, 3S-65 |
| Power supply with FAN Option 3 (pin 7/L, 8/N) | 110-230Vac I _{max} <20mA @ 230Vac I _{max} <40mA @110Vac |
| Fan directly powered | |
| FAN Option 1 direct power supply (FAN Option 1 must be connected via the two supplied 30cm power cables) | 20..27 Vdc, I _{max} <100 mA @24V (FAN ON) For C2ZF-50, C3ZF-40/40I |
| | 20..27 Vdc, I _{max} <150 mA @24V (FAN ON) For C2ZF-75, C3ZF-65 |

Alarm Output

| Function | No Voltage OR No Current OR Overtemperature | | | |
|--|--|---------------------|------------------------------|---------------------|
| | 11 | 12 | 13 | 22 |
| Control+Alarm option | 11 | 12 | 13 | 22 |
| Pin | 13,14 | 13,14 | 13/A2-, 14/AL+ | 13,14 |
| Output Type | Contact | Contact | PNP | Contact |
| State | Normally open (NO) | Normally Close (NC) | Normally Inactive (NO) | Normally Close (NC) |
| Rated voltage | 30Vdc/25Vac | 30Vdc/25Vac | Us - 0.7Vdc | 30Vdc/25Vac |
| Conduction impedance | ≤ 1Ω | ≤ 15Ω | - | ≤10hm |
| Maximum current | 150mA | 50mA | I _{out max.} = 15mA | 150mA |
| Maximum alarm intervention delay | < 400ms | | | |
| OR combination of multiple alarm signals | A single alarm signal equivalent to the logical OR of alarms of multiple devices can be obtained. Connect the alarm outputs (pins 13 and 14) in parallel (in the case of diagnostic option «1» and «3», NO) or in series (in the case of option «2», NC). | | | |

Technical Specifications

| POWER OUTPUT | | |
|--|---|---------------|
| Controlled phases | 3 controlled phases in the C3ZF version 2 controlled phases and one passing trough in the C2ZF version | |
| Category of use (Tab. 2 EN60947-4-3) | AC 51: resistive or low-inductance loads | |
| Trigger modes | Zero crossing | |
| Activation time | 1/2 cycle | |
| Deactivation time | 1/2 cycle | |
| Potential drop at rated current | < 1,2Vrms | |
| Power factor | 1 | |
| Rated working voltage | 480 Vac | 600 Vac |
| Working voltage range | 24...530Vac | 24 ... 660Vac |
| Non-repetitive voltage (Surge protection level) | 1200 Vp | 1400 Vp |
| Switching voltage for zero | < 20V | |
| Rated frequency | 50/60 Hz | |
| critical dv/dt with output disabled | 1000 V/μs | |
| Nominal insulation voltage I/O | 4kVac rms for 1 minut | |
| Rated current in short circuit | 5kA | |
| Minimum load current | 150 mA | |
| Potential drop at rated current | = < 1,2Vrms | |
| Presence of leakage current | < 3mA (Maximum value with nominal Voltage and Junction temperature of 125°C / 257°F). | |
| Calculation of power dissipation | Pd = 1,2 * Irms[W]*n Irms = single-phase load current. n=number of controlled phases, 2 for C2ZF models, 3 for C3ZF models | |
| Thermal protection | The temperature of the SCR module is constantly monitored inside the device. When the maximum temperature threshold of the internal SCR is exceeded, current conduction to the load is interrupted and the yellow thermal protection LED comes on to signal the condition. | |

Technical Specifications Continued

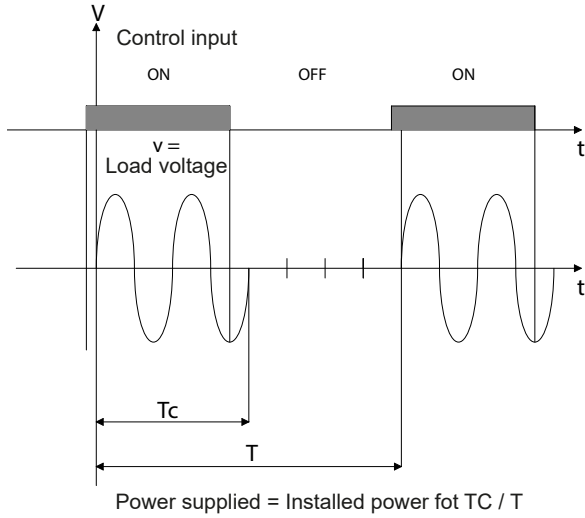
| Model | Nominal current (@40°C) for each phase [A] | Non-repetitive overcurrent (t=20msec) [A] | I2t for blowout (t=1...10msec) [A2s] | Dimensions [in / mm] See drawings for details and FAN Option 3 versions | | |
|-------------|--|---|--------------------------------------|---|-----------------|--------------|
| | | | | Width | Height | Depth |
| C2ZF | | | | | | |
| 15 | 15 | 620 | 1800 | 2.36 / 60 | 4.33 / 110 | 2.47 / 62.8 |
| 25 | 25 | 620 | 1800 | 2.067 / 52.5 | 3.54 / 90 | 4.05 / 102.8 |
| 25I | 25 | 1600 | 12800 | 2.067 / 52.5 | 3.54 / 90 | 4.05 / 102.8 |
| 30 | 30 | 620 | 1800 | 2.76 / 70 | 3.54 / 90 | 4.72 / 119.8 |
| 30I | 30 | 1600 | 12800 | 2.76 / 70 | 3.54 / 90 | 4.72 / 119.8 |
| 40 | 40 | 620 | 1800 | 2.067 / 52.5 | 5.3 / 134 (fan) | 4.05 / 102.8 |
| 40I | 40 | 1600 | 12800 | 2.76 / 70 | 3.54 / 90 | 4.72 / 119.8 |
| 50 | 50 | 1600 | 12800 | 2.067 / 52.5 | 5.3 / 134 (fan) | 4.05 / 102.8 |
| 75 | 75 | 1600 | 12800 | 2.76 / 70 | 5.5 / 140 (fan) | 4.72 / 119.8 |
| C3ZF | | | | | | |
| 10 | 10 | 620 | 1800 | 2.36 / 60 | 4.33 / 110 | 2.47 / 62.8 |
| 20 | 20 | 620 | 1800 | 2.067 / 52.5 | 3.54 / 90 | 4.05 / 102.8 |
| 20I | 20 | 1600 | 12800 | 2.067 / 52.5 | 3.54 / 90 | 4.05 / 102.8 |
| 25 | 25 | 620 | 1800 | 2.76 / 70 | 3.54 / 90 | 4.72 / 119.8 |
| 25I | 25 | 1600 | 12800 | 2.76 / 70 | 3.54 / 90 | 4.72 / 119.8 |
| 30I | 30 | 1600 | 12800 | 2.76 / 70 | 3.54 / 90 | 4.72 / 119.8 |
| 40 | 40 | 620 | 1800 | 2.067 / 52.5 | 5.3 / 134 (fan) | 4.05 / 102.8 |
| 40I | 40 | 1600 | 12800 | 2.067 / 52.5 | 5.3 / 134 (fan) | 4.05 / 102.8 |
| 65 | 65 | 1600 | 12800 | 2.76 / 70 | 5.5 / 140 (fan) | 4.72 / 119.8 |

GENERAL CHARACTERISTICS

| | | |
|---------------------------------|--|------------------|
| Protection rating | IP20 | |
| Working temperature | 0...70°C (32 ... 158°F) (see derating curves) | |
| Storage temperature | -20°C - +85°C (-4 ... 185°F) average temperature in a period of 24H not higher than 35°C (95°F)(according to EN 60947-4-3 § 7.1.1) | |
| Maximum relative humidity | 90% non-condensing a 40°C | |
| Environmental conditions of use | Indoor use, maximum altitude 2000m For higher altitudes consider: - Derating of 1% of the rated current every 100m above 2000m altitude - Derating of the maximum voltage by correction factor 0.88 from 2000 to 3000m 0.77 from 3001 to 4000m 0.68 from 4001 to 5000m Example for C2ZF/C3ZF-..25-60.. at 2800 masl - 25 nominal derated by 1%*8-->23A - 600 ac nominal, maximum voltage 660Vac derated to 660*0,88=580,8Vac. | |
| Installation | DIN EN50022 bar or panel mount by screws | |
| Installation requirements | Installation category II, pollution degree 2 Maximum air temperature around the device 40°C / 104°F (for Temperature >40°C / 104°F see derating curves) | |
| Weight | C2ZF 15A, C3ZF 10A | 390 g / 13.76 Oz |
| | C2ZF 25/25I , C3ZF 20/20I | 500 g / 17.64 Oz |
| | C2ZF 30/30I/40I , C3ZF 25/25I/30I | 700 g / 24.69 Oz |
| | C2ZF 40/50 , C3ZF 40/40I | 540 g / 19.05 Oz |
| | C2ZF 75, C3ZF 65 | 760 g / 26.81 Oz |

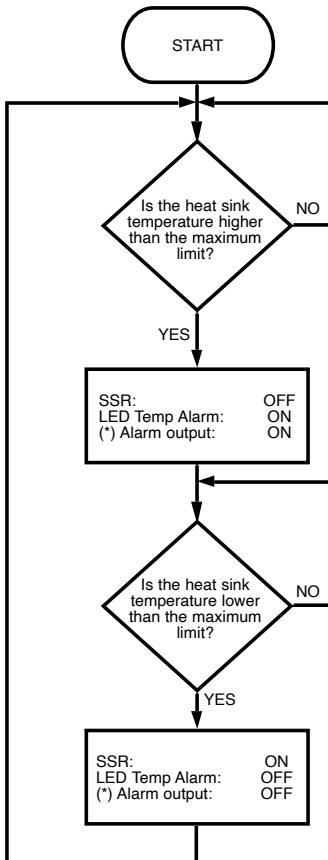
Operation

Logic voltage output command

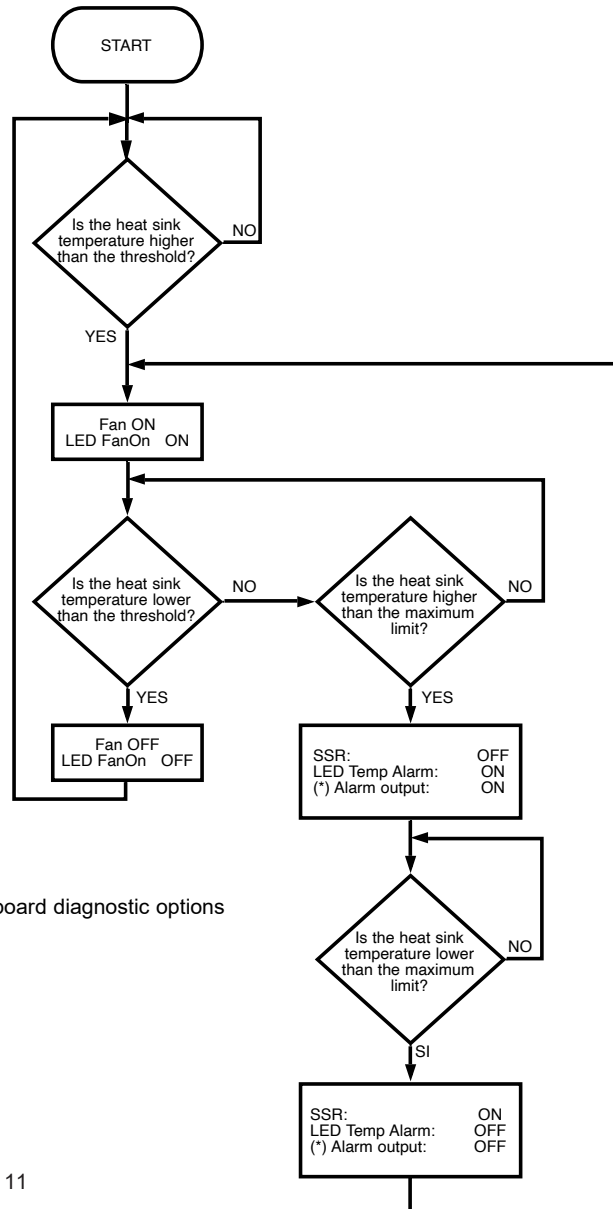


OVER TEMPERATURE PROTECTION AND SMART FANS

All Models



Models with FAN Option 2 / FAN Option 3






(*) Turned on alarm output only in case of versions with on-board diagnostic options (11/2/3 and 22) on pins 14 and 15.

Alarms

| | Starting | OK | No voltage | OK | NO Current | OK | Over Temperature | OK | | | | | | | | | |
|---|------------------------------|-----------------------------|-----------------------------|---|---------------------------|-------------------------------|-------------------------------|--|-----------------------------|---------------------------------------|-------------------------|----------------|---|----------------------------------|--|-------------------------|-------------------|
| | Device off, Voltage Line Off | Device off, Voltage Line On | Device on, Voltage Line Off | Load connected, Voltage Line On, active cmd | Line loss with active cmd | Loss 2 lines, with active cmd | Loss 3 lines, with active cmd | Line loss without cmd, retentive alarm | Ripristino condizione linea | Faulty load, Line On, activea control | Two-phase power failure | Total breakage | Total breakage, no command, retentive alarm | Reset alarm condition no current | Internal overtemperature, active control blocked | Retentive thermal alarm | Temperature reset |
| LINE / LOAD / TEMP. STATUS | | (*1) | (*1) | | (*3) | (*1) (*2) | (*2) | (*2) | (*3) | | | | | | | | |
| Voltage Supply L1 / T1 | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| Voltage Supply L2 / T2 | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| Voltage Supply L3 / T3 | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| Current L1 / T1 | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| Current L2 / T2 | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| Current L3 / T3 | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| Over-temperature status | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| INPUTS STATUS | | | | | | | | | | | | | | | | | |
| Power supply (pin 15/A2-, 16/Us) | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| Control command (pin 11/A2, 12/A1) | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| ALARMS OUTPUTS | | | | | | | | | | | | | | | | | |
| Alarm Output (pin 13,14) NO | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| Alarm Output (pin 13,14) NC | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| LEDS STATUS | | | | | | | | | | | | | | | | | |
| Control (Green led): Status of the command signal | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| AI Fault (Red led); Power Fault alarms (No Voltage, No current) | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |
| AI Temp. (Yellow led): Over-temperature status | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active | Active |

Legend

-  Active
-  Not active
-  Any state is irrelevant

(*1) The C2ZF models detect the current or voltage fault only on the 2 controlled phases (L2/T2, L3/T3). C3ZF detects the faults on all three (L1/T1, L2/T2, L3/T3).

(*2) Each controlled phase is able to monitor the presence of current. In the case of star connection (with or without neutral) or open delta, it is sufficient for one of the 3 load branches to fail to detect total absence of current. For close delta type loads, it is necessary that at least two sides of the delta are faulty in order to detect the total absence of current on at least one branch.

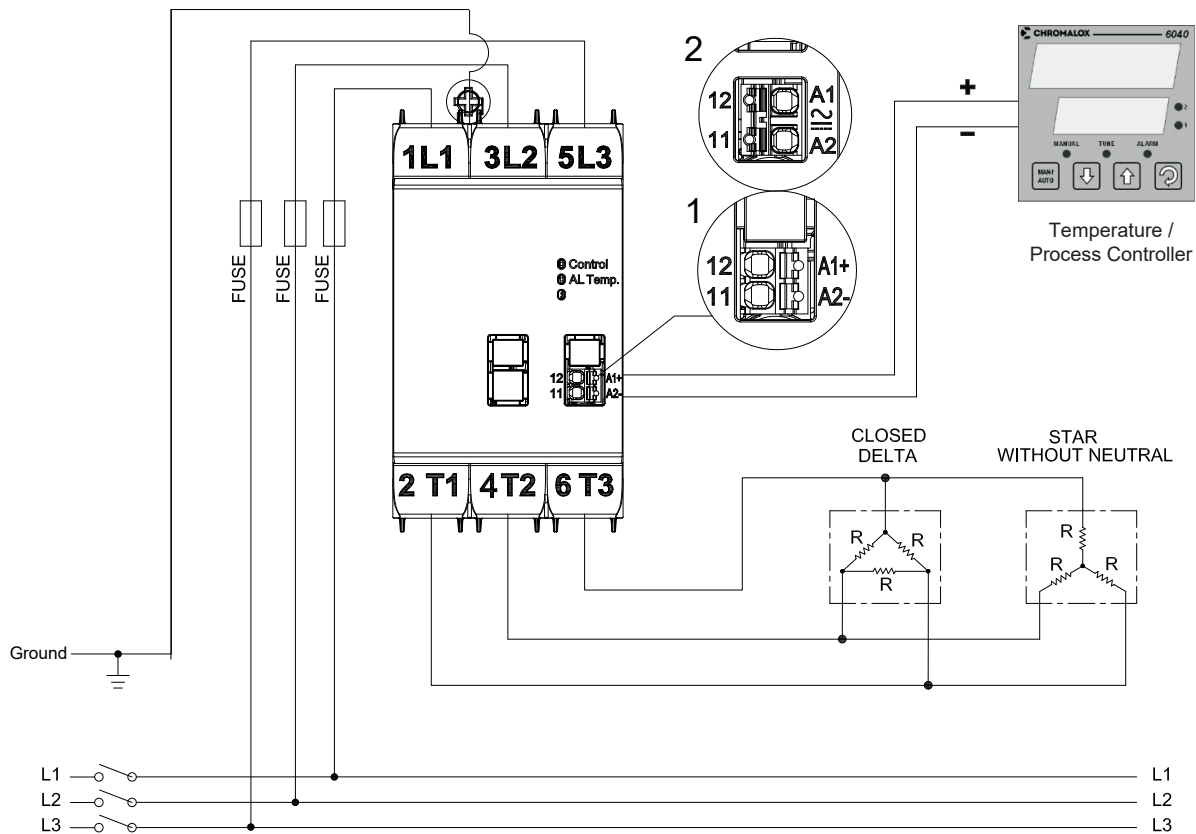
(*3) Only for ...11/2/3... versions (which needs power supply) the alarm is kept active even in conditions in which there is no command signal. For the ...22... versions (which do not have a power supply) the alarms are managed only with the command active.

(*4) When the internal overtemperature condition is detected, the device goes into protection condition and does not actuate the command, avoiding further overheating

(*5) In alarm conditions, the green Control LED goes off, even in the presence of an active command.

Wiring Examples

Three-phase Delta or Star connection without neutral on Three phases - with V DC or AC input control ("1" or "2")
Valid for C2ZF (3PH, 2 controlled 1 pass through) models and for C3ZF (3PH, 3 controlled) models



Three-phase Wye connection with neutral with V DC or AC input control ("1" or "2").
Valid **ONLY** for C3ZF (3PH, 3 controlled) models. **NOT FOR** C2ZF type (3ph, 2 leg controlled and 1 pass through)

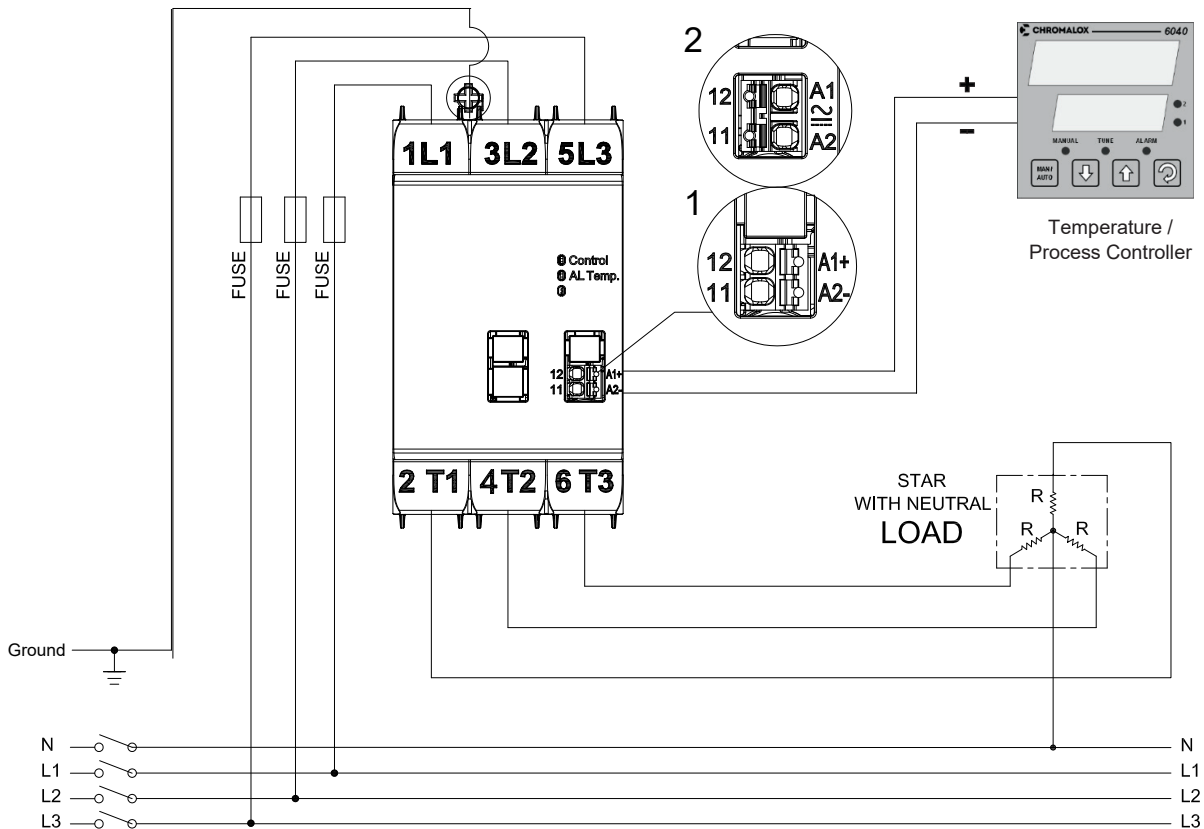


Table of Terminals and Conductors

| POWER TERMINALS | | | | | | | |
|--|--|--|---|--|--|--------------------------|-----|
| Rated load current | 10/15A | 20/25A | 30A | 40A | 50A | 60/65A | 75A |
| Contact area (WxD) screw type | 9,2 x 8 mm M5 | | | | | | |
| Stripping length | 11 mm | | | | | | |
| 1 Conductor section 2 Conductors section (minimum section) | 1 x 2.5 mm ² / 2 x 1.5 mm ² | 1 x 6 mm ² / 2 x 4 mm ² | 1 x 10 mm ² / 2 x 6 mm ² | 1 x 16 mm ² / 2 x 10 mm ² | 1 x 25 mm ² / 2 x 16 mm ² | | |
| | 1 x 14 AWG / 2 x 17 AWG | 1 x 10 AWG / 2 x 12 AWG | 1 x 8 AWG / 2 x 10 AWG | 1 x 6 AWG / 2 x 8 AWG | 1 x 4 AWG / 2 x 6 AWG | 1 x 3 AWG / 2 x 6 AWG | |
| Maximum allowed section | 1 x 25 mm ² / 2 x 16 mm ² 1 x 3 AWG / 2 x 6 AWG | | | | | | |
| Tightening torque | 2,5-3 Nm (22-26,6lb-in) | | | | | | |
| <i>Note: Use 75°C (167°F) copper (CU), multi-stranded conductors</i> | | | | | | | |

| CONTROL/SIGNAL TERMINALS | |
|--|---|
| Rigid/flexible / cable lug conductor cross section | |
| 1 Conductor section 2 Conductors section | 1 x 0.2-0.75 mm ² 2 x 0.1-0.5 mm ² |
| | 1 x 24-18 AWG 2 x 27-20 AWG |
| Stripping length | 8 mm |
| <i>Note: Use 60/75°C(140/167°F) copper (CU) conductors, rigid or multi-stranded.</i> | |

| GROUND TERMINAL (*) | |
|-------------------------------|---------------------------------------|
| Contact area (WxD) screw type | 9 x 9 mm M5 |
| Tightening torque | 1,5-2,5 Nm (13.3 lb-in – 22 lb-in) |

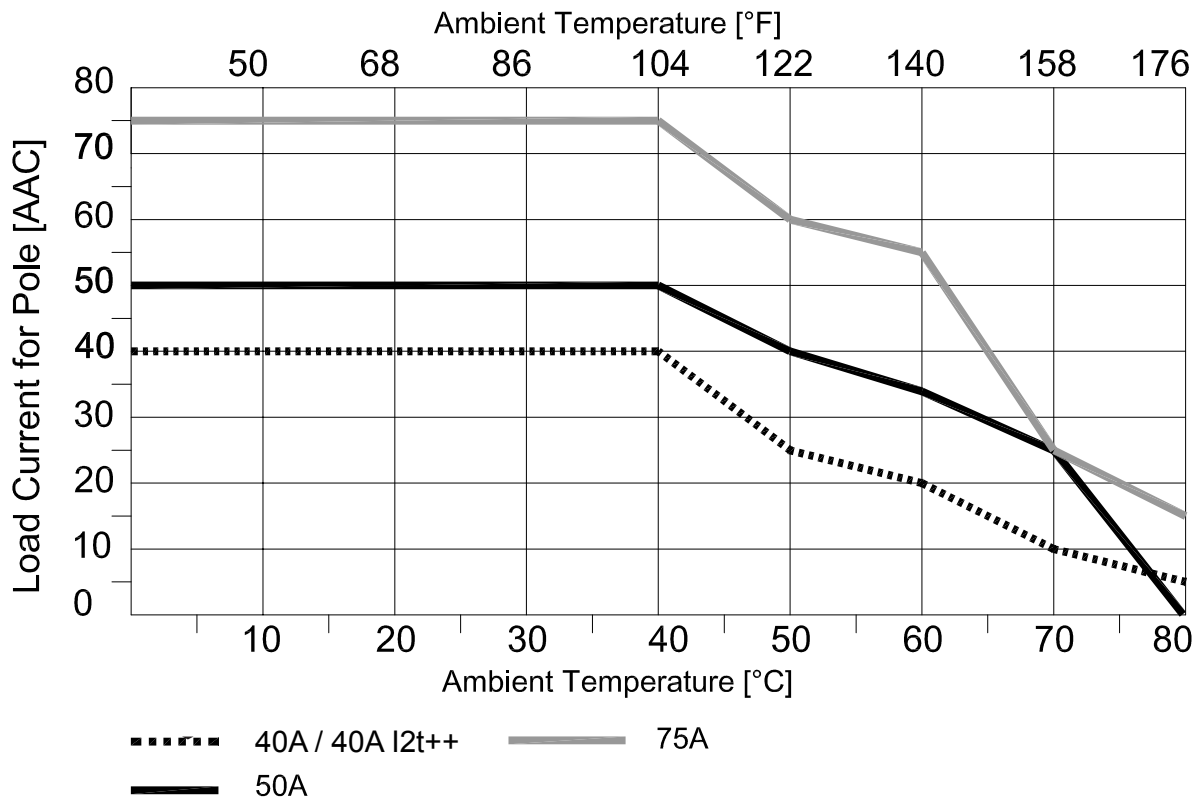
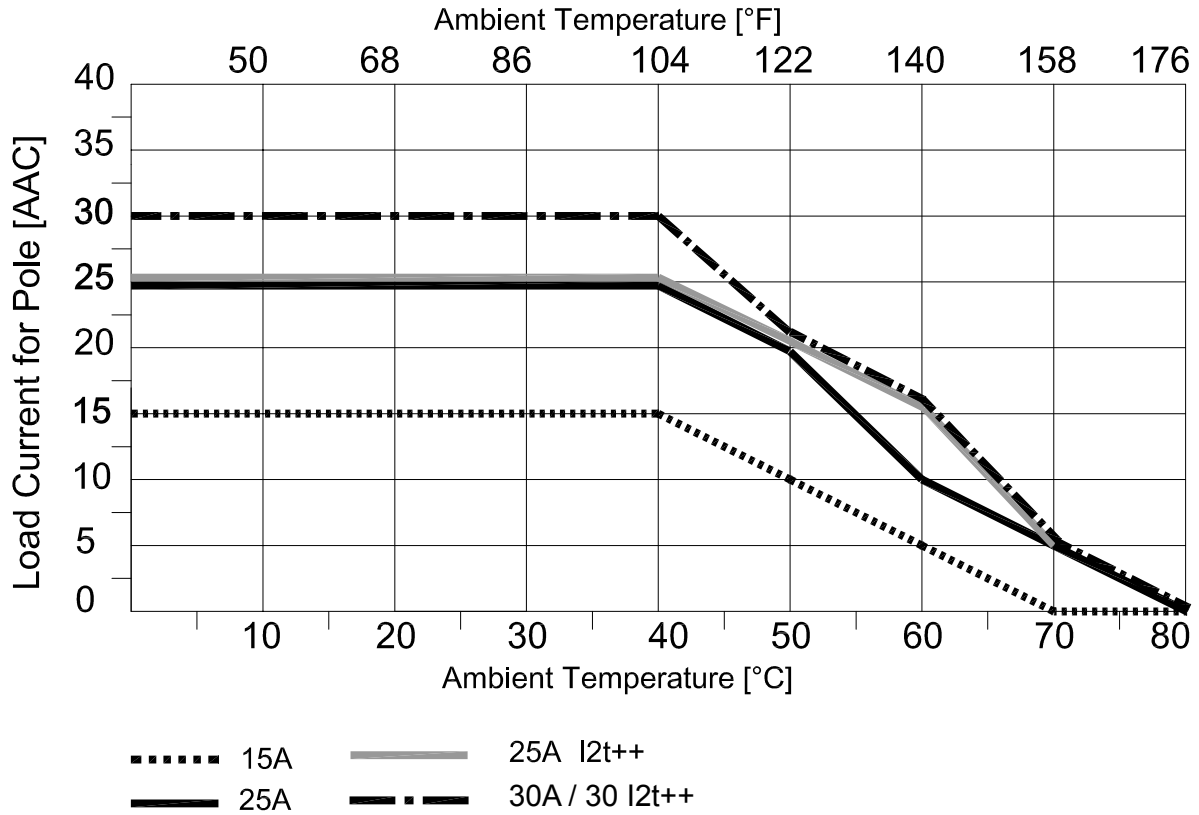
(*) The screw terminals are only suitable for on-site wiring connection when the wire is equipped with a tube terminal with eyelet. It is possible to make ground connection using a copper bar suitably ground connected and fixed to the heatsink.

Extrarapid Fuses

| C2ZF / C3ZF Model | Nominal current | Model and fuse size (manufacturer Bussmann Div Cooper (UK) Ltd) |
|-------------------|-----------------|---|
| 10 | 10 | FWC-10A10F 10x38 |
| 15 | 16 | FWC-16A10F 10x38 |
| 20,20I | 20 | FWC-20A10F 10x38 |
| 25,25I | 25 | FWC-25A10F 10x38 |
| 30,30I | 32 | FWC-32A10F 10x38 |
| 40,40I | 40 | FWP-40A14F 14x51 |
| 50 | 50 | FWP-50A14F 14x51 |
| 65 | 63 | FWP-63A22F 22x58 |
| 75 | 80 | FWP-80A22F 22x58 |

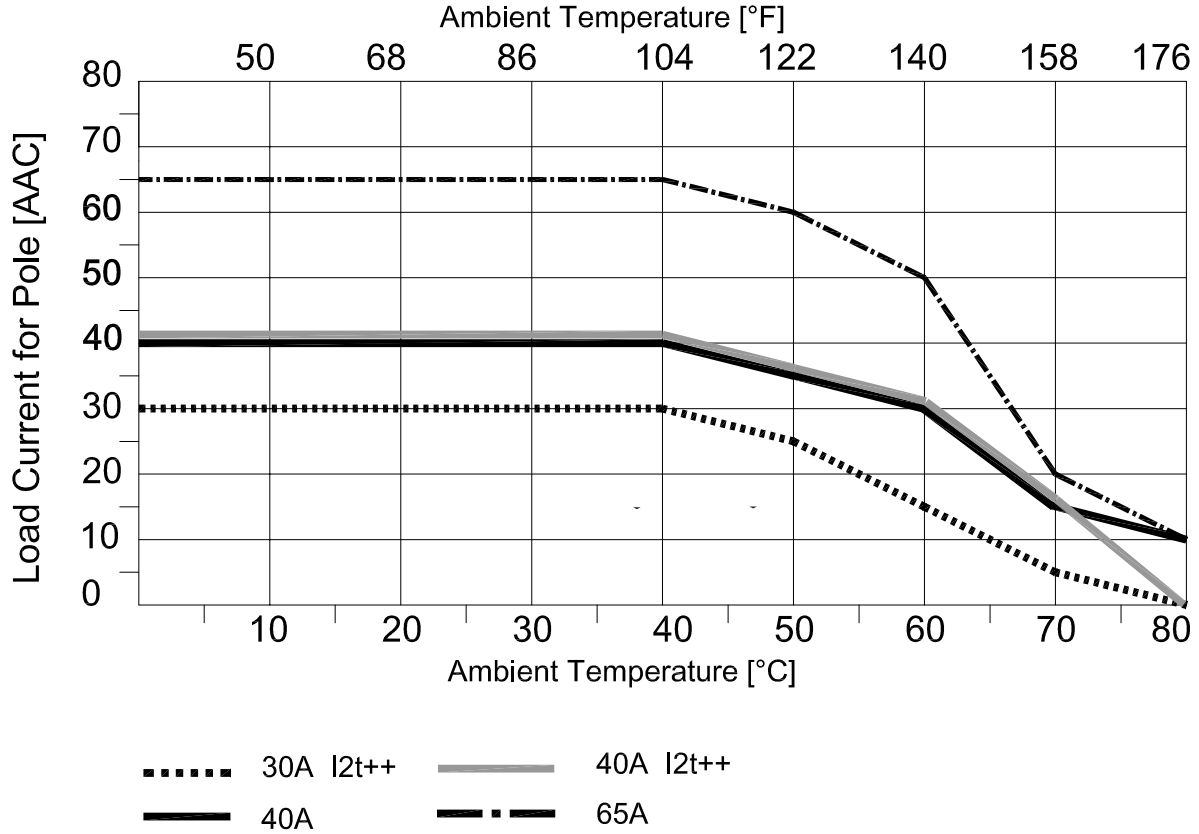
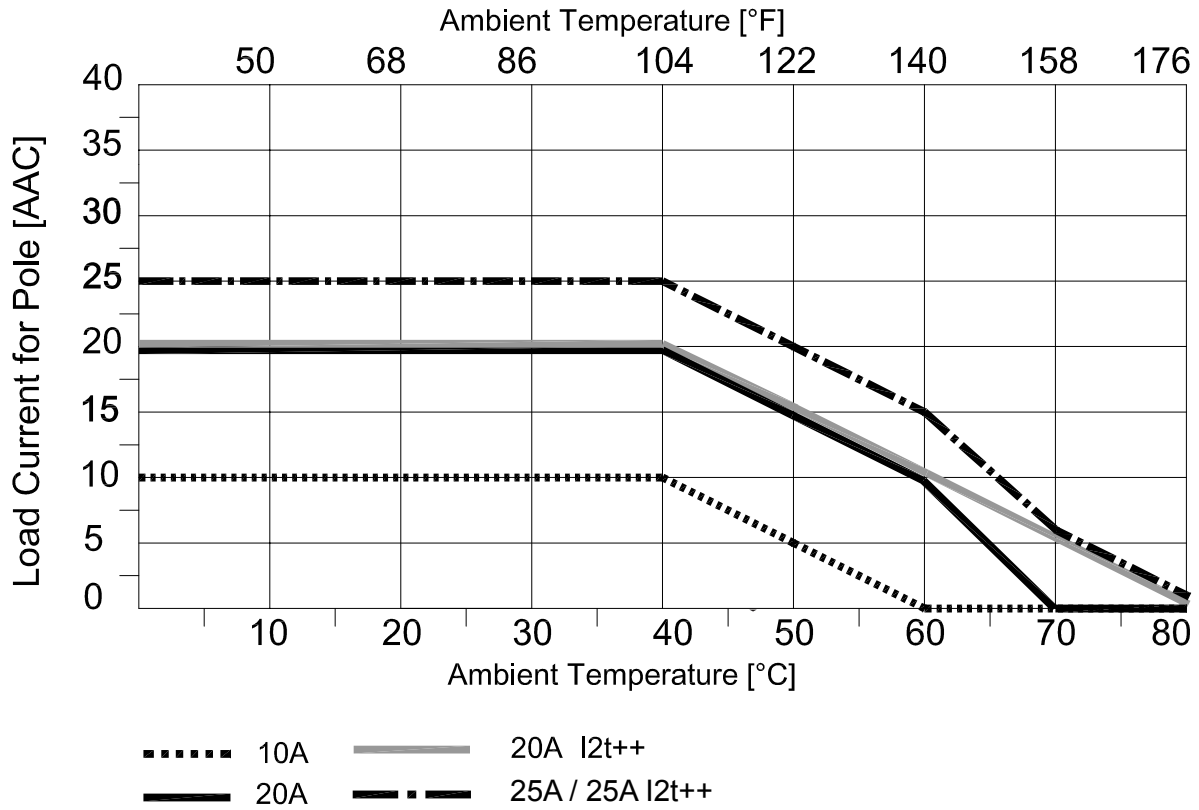
Derating Curves for C2ZF

Rated current curves as a function of ambient temperature (minimum distance between units of 20mm).



Note: The curves of the 50A/75A refer to the device complete with a working specified fan.

Derating Curves for C3ZF



Note: The curves of the 40A/ 65A refer to the device complete with a working standard fan.

Ordering Information

Model 3-Phase, 2- Leg Solid State Relay Power Controller - DIN Rail Mount

C2ZF The C2ZF Series are DIN Rail mounted 3-phase, 2-leg solid state relays with integrated heatsink for switching resistive loads in industrial applications. Standard features: Zero-voltage turn-on, LED input status indicator, IP20 touch protection, two different input control signal choices, integrated SCR thermal protection with LED signal indication, operating voltage up to 600 VAC. Optional features: Alarms for over temperature protection and load/line interruption* conditions. Approvals: CE, UL, cUL

Code Current @ 104°F (40°C) Ambient, continuous service

| | |
|------------|------------------------|
| 025 | 25 Amps |
| 030 | 30 Amps |
| 040 | 40 Amps (FAN Required) |
| 050 | 50 Amps (FAN Required) |
| 075 | 75 Amps (FAN Required) |

Code Voltage

| | |
|-----------|---------------------|
| 48 | 480 VAC (24-530VAC) |
| 60 | 600 VAC (24-660VAC) |

Code Input Control Signal

| | |
|----------|-----------------|
| 1 | 5 - 32 VDC |
| 2 | 20 - 260 VAC/DC |

Code Alarm Options

| | |
|-----------|--|
| 0 | None |
| 1* | Solid State Relay Switch (normally open) |
| 2 | Solid State Relay Switch (normally closed) |
| 3* | Digital Logic PNP Output (normally open) |

External 24 V Power Supply is Required to Power the Alarms

Code Fan

| | |
|------------|--|
| 0 | No Fan (25 & 30 Amp Only) |
| 1 | Fan (24 VDC Power Supply Requirement) |
| 2* | Fan (24 VDC Internal Power Supply) |
| 3** | Fan (115-230VAC Internal Power Supply) |

C2ZF - 040- 48- 1 1 2 -00 Typical Model Number

Notes:

* Available ONLY for input control signal code 1

** NOT available for input control signal code 1

The following Chromalox Temperature Controllers offer a suitable 24 VDC power supply for the alarm option:

40 Series: 6040 / 8040 / 4040

50 Series: 6050 / 4050

60 Series: 6060

80 Series: 4080 / 4081 / 4082

Model 3-Phase, 3- Leg Solid State Relay Power Controller - DIN Rail Mount

C3ZF The C3ZF Series are DIN Rail mounted 3-phase, 3-leg solid state relays with integrated heatsink for switching resistive loads in industrial applications. Standard features: Zero-voltage turn-on, LED input status indicator, IP20 touch protection, two different input control signal choices, integrated SCR thermal protection with LED signal indication, operating voltage up to 600 VAC. Optional features: Alarms for over temperature protection and load/line interruption* conditions. Approvals: CE, UL, cUL

Code Current @ 104°F (40°C) Ambient, continuous service

| | |
|------------|------------------------|
| 010 | 10 Amps |
| 020 | 20 Amps |
| 025 | 25 Amps |
| 040 | 40 Amps (FAN Required) |
| 065 | 65 Amps (FAN Required) |

Code Voltage

| | |
|-----------|---------------------|
| 48 | 480 VAC (24-530VAC) |
| 60 | 600 VAC (24-660VAC) |

Code Input Control Signal

| | |
|----------|-----------------|
| 1 | 5 - 32 VDC |
| 2 | 20 - 260 VAC/DC |

Code Alarm Options

| | |
|-----------|--|
| 0 | None |
| 1* | Solid State Relay Switch (normally open) |
| 2 | Solid State Relay Switch (normally closed) |
| 3* | Digital Logic PNP Output (normally open) |

External 24 V Power Supply is Required to Power the Alarms

Code Fan

| | |
|------------|--|
| 0 | No Fan (25 & 30 Amp Only) |
| 1 | Fan (24 VDC Power Supply Requirement) |
| 2* | Fan (24 VDC Internal Power Supply) |
| 3** | Fan (115-230VAC Internal Power Supply) |

C3ZF - 040- 48- 1 1 2 -00 Typical Model Number

Notes:

- * Available ONLY for input control signal code 1
- ** NOT available for input control signal code 1

The following Chromalox Temperature Controllers offer a suitable 24 VDC power supply for the alarm option:

- 40 Series: 6040 / 8040 / 4040
- 50 Series: 6050 / 4050
- 60 Series: 6060
- 80 Series: 4080 / 4081 / 4082

Limited Warranty:

Please refer to the Chromalox limited warranty applicable to this product at <http://www.chromalox.com/customer-service/policies/termsofsale.aspx>.

Chromalox, Inc.
1347 Heil Quaker Boulevard
Lavergne, TN 37086
(615) 793-3900
www.chromalox.com