

## POWERLINK

### PC537 3-PHASE POWER CONTROLLER OPERATING INSTRUCTIONS

#### 1) Installation

The PC537 3-phase Phase Angle Thyristor Units should be mounted to allow air flow through the heatsink naturally as shown on the dimensional drawing. The maximum ambient temperature should not exceed 50 Deg. C.

#### 2) Protection Fuse

Protection fuses are fitted for protecting the semi-conductors, external fuses with appropriate ratings are necessary for protecting cables from the power source to the thyristor unit and to the load.

##### FOR UNITS UP TO 250Vac SUPPLY

| Current Rating | IR TYPE    | BRUSH TYPE | 10x38mm  |
|----------------|------------|------------|----------|
| 15A            | L350-25    | 25LET      | 20A,600V |
| 25A            | L350-35    | 35LET      | 20A,600V |
| 40A            | L350-63    | 63LET      |          |
| 55A            | L350-80    | 75LET      |          |
| 75A            | L350-100   | 100LET     |          |
| 100A           | L350-125   | 125LET     |          |
| 125A           | EE1000-150 | 150EET     |          |
| 150A           |            | 160MT      |          |
| 200A           |            | 250MT      |          |
| 250A           |            | 350FM      |          |
| 300A           |            | 400FFM     |          |
| 400A           |            | 550FFM     |          |
| 500A           |            | 700FFM     |          |

##### FOR UNITS UP TO 600V SUPPLY

| Current Rating | IR TYPE    | BRUSH TYPE | 10x38mm  |
|----------------|------------|------------|----------|
| 15A            | E1000-25   | 25ET       | 20A,600A |
| 25A            | E1000-40   | 40ET       | 30A,600V |
| 40A            | E1000-56   | 56ET       |          |
| 55A            | E1000-80   | 80ET       |          |
| 75A            | EE1000-110 | 110EET     |          |
| 100A           | EE1000-150 | 150EET     |          |
| 125A           | EE1000-150 | 150EET     |          |
| 150A           |            | 160MT      |          |
| 200A           |            | 250MT      |          |
| 250A           |            | 350FM      |          |
| 300A           |            | 400FMM     |          |
| 400A           |            | 550FMM     |          |
| 500A           |            | 700FMM     |          |

#### 3) Wiring

The PC537 should be connected according to the different wiring diagram as shown in fig. 3 to 6. The size of cables for controlling signals should be larger than 0.5 mm sq. and the cable to L1, L2 (N) and cables to the load must be sufficient to withstand the maximum current rating of the LOAD and meet the IEE WIRING REGULATIONS.

#### 4) Set-up procedure

After connecting the load to the PC537, set the input signal to minimum (0V). Switch on the mains supply, the output voltage or current to the load should be zero (except the leakage current or snubber circuit current which is less than 10mA). Gradually increase the input signal and check that the voltage or current increases smoothly.

An adjustable input ramp for gradually ramping up the input signal is incorporated in each phase of the PC537. If the input signal increases suddenly, the output voltage or current will gradually increase to avoid a sudden surge of output power. However, a rapid ramp down is used in the PC537 for reducing the output rapidly when the input signal drops.

4a) Input Switch From 1996 onwards, a 4 way switch is used for selecting different inputs.

| <u>INPUT</u> | <u>SW1</u> | <u>SW2</u> | <u>SW3</u> | <u>SW4</u> |
|--------------|------------|------------|------------|------------|
| 0-10V        | 1          | 0          | 0          | 0          |
| 0-5V         | 0          | 1          | 0          | 0          |
| 4-20mA       | 0          | 0          | 1          | 1          |

'0' -- upward position, closer to the edge of the print circuit board.

'1' -- downward position.

**\*\*For 4-20mA or orther mA input, only set one of the three switch to 4-20mA input, the other two inputs set to 0-10V input. This configuration allows three PC537s input signals connected in series.**

#### 4d) 4-20mA (or other mA inputs) input adjustment

- Make sure the input select switch was selected for 4-20mA input option.
- with a 4.5mA input, adjust zero pot to have zero output voltage or current.
- with 19.5mA input, adjust span pot to have maximum output voltage or current.
- repeat steps (b) and (c), until the output is at zero and maximum.

#### 4b) Ramp Up & Ramp Down Adjust

The ramp up period is factory set to maximum (Ramp Up Pot fully clockwise) such that when the input signal changes from zero to maximum, the time required for the output voltage and current to increase gradually from zero to maximum will also be the longest. If shorter ramp period is required, adjust "Ramp Up Pot" anti-clockwise to shorten the ramp up period.

#### 4c) ALL STANDARD PC537s ARE FACTORY SET UP AS FOLLOW

- Adjust SPAN pots fully anti-clockwise.
- With the input at minimum (0V), switch on the mains supply to the PC537.
- With an input of 9.5V for 0-10V input range (for other input range, set the input to 95% of the max. input), adjust the SPAN pot clockwise until the output voltage or current is maximum.
- With the input at 0.5V for 0-10V input range (for other input range, set the input to 5% of the max. input), adjust ZERO POT until the output is zero.
- Repeat steps c) and d) until the output is at maximum and zero.

#### 5) Optional current or voltage limit (factory set to 20% of max. output current or voltage)

- First set LIM pot to fully counter clockwise.
- Set input signal to give full power.
- Use a current meter or voltage meter to monitor the desired output current or output voltage.
- Gradually adjust LIM pot clockwise, to increase the current or voltage limit level to the desired value. If long ramp up period is set, allow sufficient time for the input to ramp up to its maximum value before adjusting LIM pot.
- This completes the current or voltage limit setting.

**Ordering information** You are welcome to order by description or product code.

#### **PC537 - INPUT - SUPPLY VOLTAGE - O/P CURRENT - FAN SUPPLY - OPTIONS -00**

| <u>INPUT</u> | <u>CODE</u> |
|--------------|-------------|
| 0-5V         | 11          |
| 0-10V        | 12          |
| 4-20mA       | 20          |

| <u>SUPPLY VOLTAGE ***</u> | <u>CODE</u> |
|---------------------------|-------------|
| 240V                      | 20          |
| 380V                      | 38          |
| 400V                      | 40          |
| 415V                      | 41          |
| 440V                      | 44          |
| 480V                      | 48          |
| 500V                      | 50          |
| 600V                      | 60          |
| 660V                      | 66          |
| 800V                      | 80          |

| <u>O/P CURRENT</u> | <u>CODE</u> |
|--------------------|-------------|
| 15A                | 15          |
| 25A                | 25          |
| 40A                | 40          |
| 55A                | 55          |
| 75A                | 75          |
| 100A               | 100         |
| 150A (FAN COOLING) | 150         |
| 200A (FAN COOLING) | 200         |
| 250A (FAN COOLING) | 250         |
| 300A (FAN COOLING) | 300         |
| 400A (FAN COOLING) | 400         |
| 500A (FAN COOLING) | 500         |

| <u>FAN SUPPLY VOLTAGE, fan cooling unit only</u> | <u>CODE</u> |
|--|-------------|
| 240V   | 24          |
| 110V   | 11          |

| <u>OPTIONS</u>                   | <u>CODE</u> |
|----------------------------------|-------------|
| O/P VOLTAGE LIMIT 20-100%        | 49          |
| CURRENT LIMIT 20-100%            | 50          |
| CONSTANT VOLTAGE CONTROL         | AVC         |
| CONSTANT CURRENT CONTROL         | AIC         |
| CONSTANT POWER CONTROL           | APC         |
| HEATSINK OVER-TEMPERATURE OUTPUT | TT          |

\*\*\* The supply voltage is the maximum supply voltage across the load. For example,

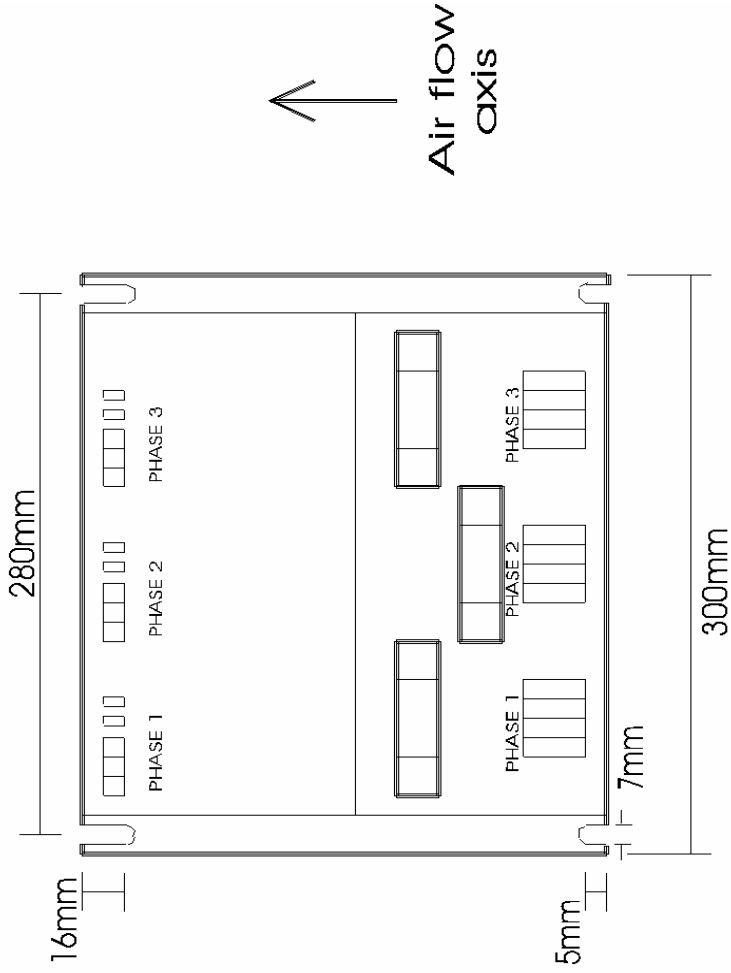
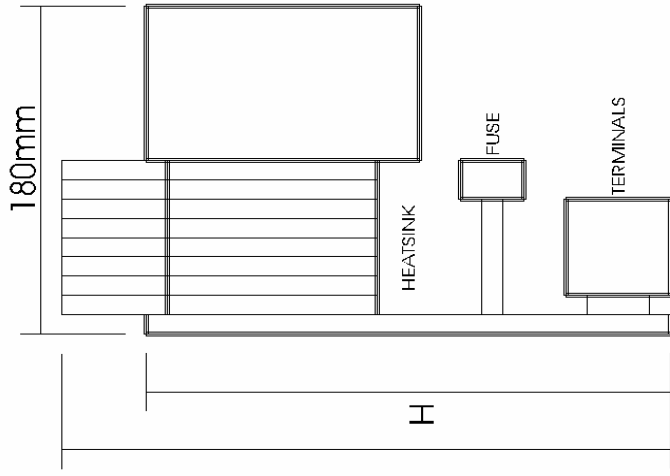
a) For a 3 phase load, connected to a 415V 3 phase supply as a STAR/4 WIRE LOAD, the supply voltage for a PC537 is 240V. It is the same maximum voltage applied to the load.

b) For a 3 phase load, connect to a 415V 3 phase supply as a OPEN DELTA LOAD, the supply voltage for a PC537 is 415V. It is the same maximum voltage applied to the load.

**Specification**

|                                 |   |
|---------------------------------|---|
| Supply voltage (for each phase) | 110V, 240V, 380V, 415V, 440V, 500V & 600V (+/- 10%) |
| Supply frequency                | 47Hz to 63Hz  |
| operating temp.                 | 0 to 50 Deg. C                                      |
| Storage temp.                   | -10 to 80 Deg. C                                    |
| Input signal                    | 0-5V, 0-10V, 4-20mA as standard                     |
| Current ratings,                | Natural cooling 15A, 25A, 40A, 55A, 75A, and 100A   |
|                                 | Fan cooling 125A to 500A                            |
| Adjustable ramp up & down time  | 1 sec. to 20 sec. (min.)                            |

**DIMENSIONS OF PC535 & PC537, UP TO 100A UNITS  
(FOR NATURAL COOLING)**



NOTE: FOR 15A TO 55A UNITS, H IS 250mm.  
 FOR 65A & 75A UNITS, H IS 300mm MAX.  
 FOR 100A UNITS, H IS 350mm MAX.

ALL HEAVY CURRENT CONNECTION ARE VIA DIN RAIL CONNECTORS