

**PC223 3-PHASE BURST FIRING POWER CONTROLLER OPERATING INSTRUCTIONS****For 4 Wire Star or 6 Wire Delta Loads only**

For 3 wire load, please refer to PC222

***From May-96 onward, all PC223s have a 4 way switch for selecting different input signals.***

In order to simplify the order code, easy for product identification and production applications, From June-1996, PC223s replace the PC220s for 4 wire star or 6 wire delta control units.

**Installation**

The PC223 3-phase Burst Firing 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.

**Protection Fuse**

Protection fuses are fitted for protecting the semi-conductors except 15A & 25A units, 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 600V SUPPLY**

| <u>Current Rating</u> | <u>IR TYPE</u> | <u>BRUSH TYPE</u> | <u>10x38mm HRC</u> |
|-----------------------|----------------|-------------------|--------------------|
| ** 15A                | L350-25        | 25LET             | 20A, 600V          |
| ** 25A                | L350-35        | 35LET             | 30A, 600V          |
| 40A                   | E1000-56       | 56ET              |                    |
| 55A                   | E1000-80       | 80ET              |                    |
| 75A                   | EE1000-110     | 110EET(120FEE)    |                    |
| 100A                  | EE1000-150     | 140EET(140FEE)    |                    |
| 125A                  | EE1000-150     | 150EET            |                    |
| 150A                  | 160MT          |                   |                    |
| 200A                  | 250MT          |                   |                    |
| 250A                  | 350FM          |                   |                    |
| 300A                  | 400FFM         |                   |                    |
| 350A                  | 450FFM         |                   |                    |
| 400A                  | 550FFM         |                   |                    |
| 500A                  | 700FFM         |                   |                    |

\*\* NOT FITTED WITH THE UNIT, 10x38mm HRC fuse and DIN rail mounted fuse holder can be supplied separately.

**Wiring**

The PC223 should be connected according to the wiring diagram as shown in fig. 4. The size of cables for controlling signals or auxiliary supply (for 15A and 25A units only) 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.

**Set-up procedure**

After connecting the load to the PC223, 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 gradually.

**INPUT SWITCH** A 4 way switch is used for selecting different inputs.

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

**ALL STANDARD PC223s ARE FACTORY SET UP AS FOLLOW**

- Adjust SPAN pot fully anti-clockwise.
- With the input at minimum (0V), switch on the mains supply to the PC223.
- The CYCLE TIME 'CT' pot is adjusted to the middle position.
- 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.

For 4-20mA input, switch SW1, SW3, SW4 to on position and SW2 to off position,

- with 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 g) and h) until the output is at maximum and zero.

### **CYCLE TIME ADJUST**

Units are factory set as slow cycle unless customer has specified the cycle time, in order to reduce mains disturbance. If fast cycle is required, remove SW1 shorting link.

All PC222 units 'CYCLE TIME' pots (CT pot) are set to mid position, for faster cycle time, adjust the CT pot clockwise.

### **Specification**

|   |   |
|---|---|
| Supply voltage<br>(line to line voltages) | 208V, 380V, 415V, 440V,<br>500V, 600V & 660V (+/- 10%)                                      |
| Supply frequency                          | 47Hz to 63Hz  |
| operating temperature                     | 0 to 50 Deg. C, 0 to 45 Deg. C for fan cooling units  |
| Storage temperature                       | -10 to 80 Deg. C  |
| Input signal                              | 0-5V, 0-10V\; 47 kilo-ohms min.<br>4-20mA\; 300 ohms max.<br>Logic dc\; >5V - ON, <1V - OFF |

Note: logic input: PC223 operates as solid-state relay but with complete cycle on-off for less disturbance to the

mains supply.

|  |   |
|--|---|
| Load current per line                                |   |
| Natural cooling                                      | 15A, 25A, 40A, 55A, 75A, 100A and 125A                          |
| Fan cooling  | 200A, 250A, 300A, 400A & 500A                                   |
| Cycle time at half power, for units up to 100A.      | fast cycle: 120mS to 700mS<br>slow cycle: 0.8 sec. to 5 sec.    |
| Cycle time at half power, for units from 100A onward | fast cycle: 0.8 sec. to 5 sec.<br>slow cycle: 10 sec. to 2 min. |
| Isolation  | control inputs are completely isolated from the load supplies\; |
| 2500V rms.   |   |