

## POWERLINK

### PC527 SINGLE PHASE POWER CONTROLLER OPERATING INSTRUCTIONS

Note: As from August-91, PC527 will replace our standard PC525 which includes some additional features. For the PC525 supplied before August 91, please refer to the instruction manual No. : PC525BA.INS 900724. From 1996 onward, all PC527s have a 4 way switch for selecting different input signals.

#### **1) Installation**

The PC527 Single 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 HRC
15A	--	25ET	20A, 600V
25A	--	40ET	30A, 600V
40A	L350-63	63LET	
55A	L350-63	63LET	
75A	L350-100	100LET	
100A	L350-125	125LET	

#### FOR UNITS UP TO 600V SUPPLY

Current Rating	IR TYPE	BRUSH TYPE	10X38mm HRC
15A	--	25ET	20A, 600V
25A	--	40ET	30A, 600V
40A	E1000-56	63ET	
55A	EE1000-80	80ET	
75A	EE1000-110	110EET	
100A	EE1000-150	160EET	

#### **3) Wiring**

The PC527 should be connected according to the wiring diagram as shown in fig. 1 (& fig. 2 if the unit with constant voltage or current control options.). 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 PC527, 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 the PC527. 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 PC527 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.

INPUT	SW1	SW2	SW3	SW4
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.

**4b) Ramp Up 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 PC527s ARE FACTORY SET UP AS FOLLOW**

- Adjust SPAN pots fully clockwise.
- With the input at minimum (0V), switch on the mains supply to the PC527.
- 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 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.

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

- Make sure the input select switch was selected for 4-20mA input as shown in (4a).
- 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.

**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.

**6) Constant voltage or constant current control options**

With these control options, a option control board is fitted to the main control board. Please refer to fig. 2 for wiring the feedback signal.

**6a) AVC or AIC control option**

For options, AVC or AIC, the voltage or current signal is factory connected to "CH 1". "CH 2" is used for voltage or current limit option (order code '49' or '50').

The load voltage or current applied to the inputs of 'CH 1' or 'CH 2' has been converted to RMS dc voltage.

The 'ZERO 1', 'ZERO 2', 'SPAN 1' and 'SPAN 2' pots are used to calibrate the zero and span of the input signals from 'CH 1' and 'CH 2'. They are factory set as follows, the 'CH 1' and 'CH 2' output dc voltage are calibrated as, 0V dc represents 0% and 5V dc as 100% of the 'CH 1' and 'CH 2' input signal.

Follow the procedures as in section 4 and 5 to set up the zero, span and voltage or current limit of the controller.

**6b) ACVC, ACIC; DCVC, DCIC control**

All these constant voltage or constant current control as normally associated with transformer coupled load or applications where isolated sensors are used to monitor current or voltage signal.

'CH 1' is assigned for feedback signals which used to have a constant output voltage or current control.

'CH 2' is assigned for current or voltage limit with 0 to 10V range signal.

The 'ZERO 1', 'ZERO 2', 'SPAN 1' and 'SPAN 2' pots are used to calibrate the zero and span of the input signals from 'CH 1' and 'CH 2'. They are factory set as follows, the 'CH 1' and 'CH 2' output dc voltage are calibrated as, 0V dc represents 0% and 5V dc as 100% of the 'CH 1' and 'CH 2' input signal.

The span adjust allows the input feedback signal of a minimum of 2V rms. Without connecting the PC527 to the load, applied the supply voltage, use a dc or ac signal source, with the known maximum feedback or limit signal, adjust 'SPAN 1' or 'SPAN 2' to give -5V dc voltage across 'CH 1' or 'CH 2' output terminals accordingly.

Follow the procedures as in section 4 and 5 to set up the zero, span and voltage or current limit of the controller.

**Specification**

Supply voltage	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
Current ratings	15A, 25A, 40A, 55A, 75A, 100A
Adjustable ramp up time	2 sec. to 20 sec. (min.)
Fix ramp down time	2 sec. max.

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

**PC527 - INPUT - SUPPLY VOLTAGE - OUTPUT CURRENT - OPTIONS - 00**

		<b><u>CODE</u></b>
<b>INPUT</b>	0-5V	11
	0-10V	12
	4-20mA	20
<b>SUPPLY VOLTAGE</b>	110V	10
	240V	20
	380V	38
	415V	41
	440V	44
	500V	50
	600V	60
<b>OUTPUT CURRENT</b>	15A	15
	25A	25
	40A	40
	55A	55
	75A	75
	100A	100
<b>OPTIONS</b>		
O/P VOLTAGE LIMIT 20-100%		49
CURRENT LIMIT 20-100%		50
CONSTANT VOLTAGE CONTROL (LOAD AC VOLTAGE)		AVC
CONSTANT CURRENT CONTROL (LOAD AC CURRENT)		AIC
CONSTANT VOLTAGE CONTROL (DC f/b 0-10V)		DCVC
CONSTANT CURRENT CONTROL (DC f/b 0-10V)		DCIC
CONSTANT VOLTAGE CONTROL (AC f/b 0-10V)		ACVC
CONSTANT CURRENT CONTROL (AC f/b 0-10V)		ACIC
EMC, EMC FILTER TO MEET CE REQUIREMENT		EMC

**Dimensions**