

PC338 3 PHASE AC to DC PHASE ANGLE THYRISTOR UNITS

With No Ramp & Water Cooling options For dc loads only

FEATURES

- ** Auto-adjust for 50 or 60Hz supply frequency
- ** Logic control for ON & OFF operation
- ** Fully isolated input from output
- ** Wide selection of supply voltages
- ** Voltage or mA input, user selectable
- ** Span & zero adjust for wide range of different process inputs.

The PC338 thyristor unit is a high specification, cost effective, compact and easy to install three phase thyristor unit for controlling the power to a dc load.

Voltage or mA source input is user selectable. Input span and offset are adjustable to allow flexibility for users to select different applications.

A 'LOGIC CONTROL' function allows to start/stop the output current/voltage. The 'Logic control' will quench the output to zero instantly when it is at logic high.

Protection Fuse Protection fuses are fitted for protecting the semi-conductors of a PC338.

FOR UNITS UP TO 600V SUPPLY

<u>Current Rating</u>	<u>IR TYPE</u>	<u>BRUSH TYPE</u>	<u>10x38mm HRC</u>
15A	E1000-25	25ET	20A, 600V
25A	E1000-40	40ET	30A, 600V
40A	E1000-56	63ET	
55A	EE1000-80	80ET	
75A	EE1000-110	110EET	
100A	EE1000-150	160EET	
150A		200MT	
200A		250MT	
250A		350FM	
300A		2 x 200FM	
350A		2 x 250FM	
400A		2 x 250FM	
500A		2 x 315FM or 630FFM	
600A		2 x 350FM or 700FFM	

Note: other manufacturers semi-conductors fuses may be used with similar current ratings.

Installation

The PC338 3-phase Phase Angle Thyristor Units should be mounted to allow air flow through the heatsink naturally as shown on the dimensional drawing (fig. 1). The maximum ambient temperature should not exceed 50 Deg. C.

Wiring

The PC338 should be connected according to the wiring diagram. Fig 2 shows the wiring diagram. The size of cables for controlling signals should be larger than 0.5 mm sq. and the cable to L1, L2 & L3 and cables to the loads must be sufficient to withstand the maximum current rating of the LOAD and meet the IEE WIRING REGULATIONS.

All the adjustment potentiometers are located behind the lid of the controller. Remove the two 3mm screws, the lid can be removed and the multi-turn potentiometers can be found. Fig. 3 shows the locations and functions of the connectors for the electronic control functions, LEDs and potentiometers.

1) INITIAL FACTORY SETTING

The following have been adjusted in our factory

Input signal: set for 0-10V with resistive load to give 0-100% output unless specified.

4-20mA selection: set for voltage input

2) Potentiometer Functions Refer to fig. 3 for the layout.

ZERO (OFFSET) POT : Trims output to zero power with zero or certain level input signal.

SPAN POT : Trims output to full power with maximum input signal.

3) LED Indicators

LED LOG I/P Green colour : Logic input status - logic low <0.7V, output is on; logic high >3.6V, output is off.

LED ON/OFF Yellow colour : Power on; normally on.

LED SYN Red colour : one phase supply loss, the PC338 will automatically quench to give no output.

4) 4-20mA selection header

A 3 way PIN header (refer to fig. 3) allows users to select 4-20mA input signal.

5) Logic control

This provides logic on/off control and start or stop ('quench') the PC338 output. This logic control may be used for emergency shutdown or remote control such as in welding applications. Refer to fig. 3 for connection.

If LOGIC CONTROL function is not used, connect a wire link across the LOGIC CONTROL +ve and -ve terminals (0V and LOG +ve terminals). Otherwise, the PC338 will be disabled and have no output.

Link the logic input terminals (LOG+ & LOG-) to enable the output; for remote operation, use an externally connected on/off switch; or an open collector transistor logic from a programmer as shown in fig. 3.

6) Potentiometer's and selection switch settings

6.1) I/P offset

Generally no adjustment is necessary, as this is normally pre-calibrated at the factory. However, if it is necessary to re-calibrate, follow the following procedure:

- a) Set the input signal to minimum.
- b) Use a voltmeter to measure the load voltage or a current meter to measure the load current.
- c) Adjust I/P OFFSET POT anti-clockwise until a minimum power is delivered to the load, then adjust I/P OFFSET POT clockwise until the output is zero.
- d) Note: Since RC snubber network is fitted, there is a residual current appeared in the load. This is quite acceptable.

6.2) I/P span pot

Set the input signal to maximum, adjust I/P SPAN POT until output just gives full output (power). Adjust SPAN POT clockwise will increase the output.

Set-up procedure

ALL STANDARD PC338 ARE FACTORY SET UP AS FOLLOW

After connecting the load to the PC338, 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.

- a) Adjust SPAN pot fully anti-clockwise.
- b) With the input at minimum (0V), switch on the mains supply to the PC338.
- c) 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.
- d) 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.
- f) Repeat steps c) and d) until the output is at maximum and zero.

For 4-20mA input, set 4-20mA PIN header set at mA input position,

- g) with 4.5mA input, adjust zero pot to have zero output voltage or current.
- h) with 19.5mA input, adjust span pot to have maximum output voltage or current.
- i) repeat steps g) and h) until the output is at maximum and zero.

Re-adjust these pots are necessary for other input range or inductive loads.

Ordering Information

You are welcome to order by description or product code.

PC338 - INPUT - SUPPLY VOLTAGE - O/P CURRENT - FAN SUPPLY - OPTIONS - 00

<u>INPUT</u>	<u>CODE</u>	<u>O/P CURRENT</u>	<u>CODE</u>
0-5V	11	15A	15
0-10V	12	25A	25
4-20mA	20	40A	40
		55A	55
		75A	75
		100A **	100
		150A **	150
		200A **	200
		250A **	250
		300A **	300
		400A **	400
		500A **	500
<u>SUPPLY VOLTAGE</u>	<u>CODE</u>	<u>FAN SUPPLY</u>	<u>CODE</u>
** Line to Line		(** for fan cooling only)	
220V	22	110/120Vac	10
240V	24	220/240Vac	20
380V	38		
415V	41		
440V	44		
480V	48		
500V	50		
600V	60		
660V	66		

** For other supply voltage or current ratings, please contact our sales office.

<u>OPTIONS</u>	<u>CODE</u>
NO RAMP	NR
CONSTANT VOLTAGE CONTROL	AVC
CONSTANT CURRENT CONTROL	AIC
HEATSINK OVER-TEMP. OUTPUT	TT
VOLTAGE LIMIT 20-100%	40
CURRENT LIMIT 20-100%	50
WATER COOLING	WC
Logic High	HLOG

Specification

Supply voltage (line to line)	Refer to ordering information +/-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, 100K min.; 4-20mA, 300 ohms max.
Aux 10V output	10V +/-5%, 3mA max. For local (manual) control
Isolation	2500Vrms between I/P & O/P
Relative humidity	0 to 85%
Logic low – standard	Active low, less than 0.7Vdc or input short-circuit
Logic high - standard	Output off, greater than 3.6Vdc (30Vdc max.) or input open-circuit
Optional High Logic	logic input signal active High, >18V, output enable, output switch ON Logic input signal < 15V, output disable, output OFF