

TC3001

True Three Phase SCR Power Controller



The TC3001 is a universal high performance three phase power controller for all loads from 25A-1800A/690V max, including resistive, inductive and temperature dependent complex loads. Self-contained units are available up to 1000A. Above this the power and control electronics are separated to extend the range up to 1800A. The TC3001 provides precision control of direct and transformer connected heaters, variable temperature coefficient elements (platinum, tungsten, molybdenum disilicide and silicon carbide), short wave infrared lamps, induction and RF heating and immersed elements for direct glass heating. All protective features of the model TC3000 are included. Special features include: 5 selectable control modes, current limit, partial load fail for resistive and infrared loads, soft start/end ramping, partial load unbalance, analog retransmission of controlled parameter and multiple status alarms. The TC3001 can be totally controlled via the communications link, simplifying wiring, and saving money. EI-Bisynch, JBus, Modbus® and Profibus® protocols are available. The TC3001 can be used with the model 260 Diagnostic Unit.

Features

- 25-1800 amps, 690Vac max
- three or four wire loads
- selectable control and firing modes
- resistive, inductive and complex loads
- optional digital communications

Specifications

Dimensions (mm):

25 to 250A: 480H x 248W x 268D mm; 16kg
(250A:18kg)*

300 to 500A: 570H x 373W x 268D mm; 21kg*

700A to 1000A: 500H x 377W x 519D mm; 46kg

1150A to 1350A: 775H x 582W x 405D mm

1500A to 1800A: 790H x 641W x 471D mm

*Note, 690 volt units below 500amp rating are same size as standard 500 amp unit

Operating temperature:

0 to 45°C, 5 to 95% RH, non-condensing

Mounting:

Panel mounting

Load type:

Resistive, inductive, transformer and complex loads requiring current limit

Inputs:

DC voltage: 0 to 5V, 1 to 5V, 0 to 10V or 2 to 10V (impedance 100KΩ)

DC current: 0 to 20mA or 4 to 20mA (impedance 100Ω)

Logic: 5V, 10V, 20mA (>50% ON: <25% OFF) (impedance 100KΩ)

Firing mode:

Logic, phase angle, fast cycle and burst with phase angle start/finish



Ordering codes

TC3001	1	2	3	4	5	6
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1 Current			
25A	25 amps	400A	400 amps*
40A	40 amps	500A	500 amps*
60A	60 amp	700A	700 amps*
75A	75 amps	1000A	1000 amps*
100A	100 amps*	1150A	1150 amps†
150	150 amps*	1350A	1350 amps†
250A	250 amps*	1500A	1500 amps†
300A	300 amps*	1800A	1800 amps†

* Fan cooled 25VA per fan, 2 fans 100A-250A, 3 fans 300A-500A. 700 and 1000A one fan 115VA

† Above 1000A, SCRs are external to drive using MC3001 (690V not available). Fan supply of 220/240V required.

2 Max. line to line Voltage	
240V	240 volts
440V	440 volts
480V	480 volts
500V	500 volts
690V	690 volts

3 Auxiliary Supply	
110V120	110 to 120 volts
220V240	220 to 240 volts

4 Operating Voltage	
100V	100 volts
110V	110 volts
115V	115 volts
120V	120 volts
220V	220 volts
230V	230 volts
240V	240 volts
277V	277 volts
380V	380 volts
400V	400 volts
415V	415 volts
440V	440 volts
480V	480 volts
500V	500 volts
600V	600 volts
660V	660 volts
690V	690 volts

Other voltages available

5 Input	
0V5	0-5 volts
1V5	1-5 volts
0V10	0-10 volts
2V10	2-10 volts
0mA20	0-20mA
4mA20	4-20mA

6 Firing Mode	
LGC	Logic (On/Off)
PA	Phase angle
FC1	Single cycle
FC8	Burst 8 cycles
C64	64 cycles
255	255 cycles
HC8	Burst/phase angle 8 cycles
H64	64 cycles
H55	255 cycles

7	8	9	10	11	12	13	14	15	16	17	18
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For replacement fuses, see pages 3-47 to 3-49.

7 Ramp, soft start/end	
NRP	No ramp
URP	Soft start of burst
UDR	Soft start and end of burst

8 Load Connection	
3D	3 Wire delta
3S	3 Wire star
4S	4 Wire star with neutral
6D	6 Wire open delta

10 Partial Load Failure	
SD	Standard curve
IR	Shortwave †† infrared curve

9 Load Type	
IND	Inductive
RES	Other loads

11 Control Mode	
V2	V ²
I2	I ²
W	V x I
OL	Open loop
TR	I ² /V ² transfer††
EX	External (see Aux. inputs)

12 Current Limit	
Current limit for Phase Angle firing	
LCOM	Dig comms††
LINT	Fascia pot.
L0V5	Ext. 0-5V
L1V5	1-5V
L0V10	0-10V
L2V10	2-10V
L0mA20	0-20mA
L4mA20	4-20mA
Firing quench for Logic and Burst firing:	
CCOM	Dig comms††
CINT	Fascia pot.
C0V5	Ext. 0-5V
C1V5	1-5V
C0V10	0-10V
C2V10	2-10V
C0mA20	0-20mA
C4mA20	4-20mA

†† Only available with communications option

13 Aux. Inputs & Outputs	
RTR	Feedback retrans
External feedback (if mode EX is selected)	
E0V5	0-5V
E0V10	0-10V
E0mA20	0-20mA
E4mA20	4-20mA
Second setpoint input	
W0V5	0-5V
W0V10	0-10V
W0mA20	0-20mA
W4mA20	4-20mA

16 Comms Mode/Speed	
000	No comms
Read only at	
R96	9600 baud
R192	19200 baud
& write at	
W96	9600 baud
W192	19200 baud
RAUT	R/O Profibus
WAUT	R&W Profibus

14 Load Unbalance Alarm	
000	Detection disabled
PLU	Open in alarm
IPU	Closed in alarm

17 Comms Protocol	
-	None
EIP	El- Bisynch
JBP	JBUS®
MOP	MODBUS®
PFP	PROFIBUS®

15 Language	
ENG	English
FRA	French
GER	German

18 Fuse	
FUSE	Standard fuses
FUMS	Microswitch fuses

19 Options	
IPF	PLF closed in alarm (open as standard)