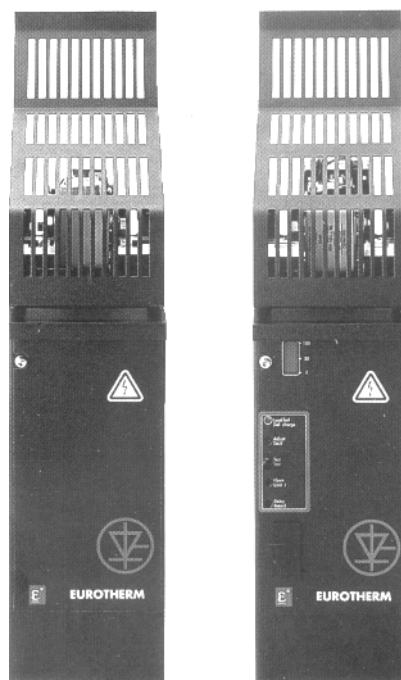


TC1027 TC1028



**EUROTHERM
CONTROLS**

Single phase thyristor units



CE

**Product
data**

TC1027 TC1028

Single phase thyristor units

TC1027 Burst firing unit for resistive loads

Compact, single phase thyristor units for controlling currents between 300 to 500 amps.
Voltage range; 120 to 500 volts.

The TC1027 accepts analogue or logic inputs and gives a burst firing output for the control of resistive loads.

TC1028 Phase angle or burst firing unit for all loads

Current range; 300 to 1200 amps as a self contained unit with voltage range; 100 to 690 volts.
Alternatively (option MC) the 750 to 1250 amp units can use a separate thyristor stack and MC1028 driver unit the voltage of which is restricted to 500V.

For currents higher than 1200 amps a separate MC1028 driver **MUST** be specified.

The TC1028 can operate in phase angle or burst firing modes and can therefore be used with resistive, inductive or transformer loads. Current limit also allows the TC1028 to be used with complex, temperature dependent loads.

CE marking / safety

The TC1027 and TC1028 installed and used in compliance with User Manuals HA174672 and HA174805 respectively meet the essential requirements of the European Low Voltage Directive 73/23/EEC dated 19/02/73 amended by Directive 93/68/EEC dated 22/07/93.
Installation category 3 (voltage transients must not exceed 4.0kV) EN61010.

Electromagnetic compatibility (EMC)

The TC1027 and TC1028 installed and used in compliance with the User Manuals stated above meet the following test standards and can enable the installation in which they are used to comply with the EMC Directive. Additional, external filters may be needed to ensure compliance of the complete system:

Immunity: EN61000-4-2, EN61000-4-4, prEN61000-4-3.

Emission: Radiated: EN55011, EN50081-2.

Conducted: EN55011, prEN61800-3, IEC1800-3*

*The product complies when used in the second (industrial) environment.

A copy of Eurotherm's Electromagnetic Compatibility Installation Guide (ref. HA025464) is available on request.

TECHNICAL SPECIFICATION

Current rating	300A, 400A and 500A units are self contained (compact). 750A, 900A and 1200A units can be compact or use an MC1028 driver with external thyristor stacks (option MC). The 1650 amp unit always uses the MC1028 driver.
Voltage	120V to 500V for TC1027, 100V to 690V for TC1028 (500V limit for units using the MC1028 driver).
Voltage compensation	Units with analogue inputs have automatic supply voltage compensation for variations of +10% to -15%
Supply frequency	50 or 60Hz (+/- 2Hz).
Auxiliary supply	Selected from 100V to 240V on TC1027 (35 VA). None required on TC1028.
Cooling	Permanent fan cooling. The fan supply is derived internally for self contained units up to 500 amps but needs to be specified (115V or 230V) for higher current units or units using MC1028 driver.
Thermal protection	Thermal safety switch on heatsink inhibits firing.
Power Dissipation	Allow 2 watts per amp of load current. This includes dissipation from thyristor and fuse.
Fuses	Internal high speed fuses are fitted.
Load	Resistive single phase (or line to line) for TC1027, resistive, inductive, transformer or temperature dependent single phase (or line to line) for TC1028.
Operating temperature	0 to 50 Deg.C (500 amp units; 0 to 45 Deg.C unless derated to 450 amps).
Storage temperature	-10 to +70 Deg. C.
Humidity	5% to 95% RH. Non condensing
Atmosphere	Electrically conductive pollution must be excluded from the cabinet in which the unit is mounted. The product is not suitable for use above 2000m or in corrosive or explosive atmospheres without further protection.
Pollution	Pollution degree 2 admissible, defined by IEC664.
Protection (mechanical)	IP20 in compliance with IEC529.

TC1027 burst firing unit

Input	DC logic, 10V : ON >5V(max 25V) OFF<1V DC logic, 20mA : ON >4mA(max 40mA) OFF<0.2mA AC logic, 100 to 240V : ON >85V(max 264V) OFF <10V Analogue: 0-5V, 0-10V, 1-5V, 2-10V. 0-20mA, 4-20mA. Manual: 5K potentiometer which can be powered from internal voltage supply. Input impedance DC Logic: 390 ohm. AC Logic: 10K. Analogue volts: 68K. Analogue mA: 250 ohm.
Firing mode	Logic (ON / OFF) for logic inputs. Zero crossing. Burst firing for analogue inputs with typical modulation time of 0.6 secs. Zero crossing.
Selection	Selection of input type and firing mode is by internal jumpers.
Dimensions	Dimensions: 570H x 133W x 268D (mm). Weight: 10 kg.

TC1028 Phase angle or burst firing unit

Input	Analogue: 0-5V, 1-5V, 0-10V, 2-10V. 0-20mA, 4-20mA. Manual: 5K potentiometer which can be powered from internal voltage supply.
Input impedance	Analogue volts: 50K. Analogue mA: 250 ohm.
Firing mode	Phase angle, Single cycle, Fast cycle (0.6 sec. Modulation time), Slow cycle (10 sec. Modulation time), Fast cycle with soft start or Slow cycle with soft start. Additionally delayed firing of fast or slow cycle is possible for use with inductive loads.
Selection	Selection of input type and firing mode is by internal jumpers.
Feedback type	Automatic selection of V^2 or I^2 whichever is the highest.
Diagnostics	Connector for model 260 diagnostic unit used for adjustment and monitoring of operating parameters.
RMS display (Option)	Gives a retransmission (0 -10V) of load current and a display of RMS current on the ten segment bargraph.
Bargraph	In addition to displaying RMS current in both phase angle and fast cycle modes, the bargraph can also display instantaneous current (filtered mean value). This is used when setting the first cycle firing delay for driving inductive loads with fast cycle firing.
Current limit	Linear limit: Proportional to load current limit. Range 20% to 100% of nominal current. Threshold limit: Maximum load current limit set by external potentiometer.
Partial Load Failure	Detects 20% decrease in current and operates an indicator light and relay. The relay is open in alarm or optionally (IPF) closed in alarm.
Dimensions	Dimensions: Up to 500A: 570H x 133W x 268D (mm). Weight: 10 kg. Compact 750A: 560H x 373W x 510D(mm). Compact 900A and 1200A: 560H x 381W x 510D (mm). Above 500A the system can consist of an MC1028 driver plus thyristor stack. MC1028: 360H x 243W x 163D (mm) 750A stack: 560H x 373W x 400D (mm) 900A and 1200A stack: 560H x 381W x 400D (mm) 1650A stack: 560H x 381W x 471D (mm) (Not available as a compact unit)

ORDERING CODE - TC1027 Burst firing unit

Basic product	Current	Voltage	Auxiliary supply	Input	Manual language	Option	
TC1027							96/00

Basic product	Code	Auxiliary supply	Code	0-10Vdc	0V10
	TC1027	100 volts	100V	2-10Vdc	2V10
Current		110 volts	110V	0-20mA	0mA20
300 amps	300A	115 volts	115V	4-20mA	4mA20
400 amps	400A	120 volts	120V	Manual language	
500 amps	500A	200 volts	200V	English	ENG
Voltage		220 volts	220V	French	FRA
120 volts	120V	230 volts	230V	German	GER
240 volts	240V	240 volts	240V	Option	
277 volts	277V	Input		Fuse fail switch	FUMS
440 volts	440V	DC Logic	LGC		
480 volts	480V	AC Logic	ACL		
500 volts	500V	0-5Vdc	0V5		
		1-5Vdc	1V5		

ORDERING CODE - TC1028 Phase angle or Burst firing unit

Basic product	Current	Voltage	Fan supply	Input	Firing	Manual language	Options	
TC1028								96/00

Basic product	Code	380 volts	380V	Firing mode	Code
	TC1028	400 volts	400V	Phase angle	PA
Current		415 volts	415V	Single cycle	SGL
300 amps	300A	440 volts	440V	Fast cycle (0.6s)	FC
400 amps	400A	480 volts	480V	Fast cycle with soft-start	SFC
500 amps	500A	500 volts	500V	Fast cycle with soft-start & end	SDF
750 amps*†	750A	690 volts†	690V	Slow cycle (10s)	SC
900 amps*†	900A	Fan supply		Slow cycle with soft-start	SSC
1200 amps*†	1200A	None (up to 500 amps)	000	Slow cycle with soft-start & end	SDS
1650 amps*†	1650A	115 volts	115V	Manual language	
Voltage		240 volts	240V	English	ENG
100 volts	100V	Input		French	FRA
110 volts	110V	0-5Vdc	0V5	German	GER
115 volts	115V	1-5Vdc	1V5	Options	
120 volts	120V	0-10Vdc	0V10	Frequency 60Hz	60H
200 volts	200V	2-10Vdc	2V10	RMS retransmission & display	RMS
220 volts	220V	0-20mA	0mA20	PLF relay closed in alarm	IPF
230 volts	230V	4-20mA	4mA20	Fuse fail microswitch	FUMS
240 volts	240V			Separate MC1028 driver for units above 500A	MC
277 volts	277V			(1650A unit MUST use this option)	

* Can use separate MC1028 Driver call up option MC.
1650 amp unit MUST use MC1028
† 690 volts not available for units using MC1028 driver.

TC1027 & TC1028 SPARE FUSES

Thyristor	Fuse
300 amps	LA172468U400
400 amps	LA172468U500
500 amps	LA172468U630
750 amps	2 off LA172468U630
900 amps	2 off CS175632U800
1200 amps	2 off CS175632U1000
1650 amps	2 off CS175632U1400

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