

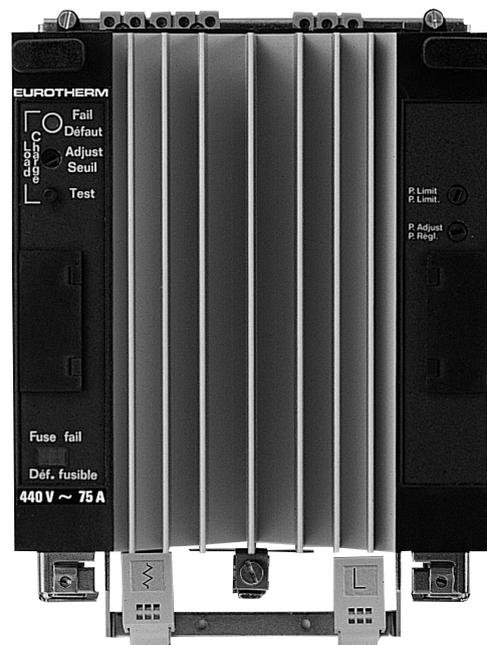
# 470

SERIES



EUROTHERM

## Single phase true power controller



Product  
data

# 470

## Single phase true power controller

A family of plug-in, low to medium current thyristor units giving true power control of single phase loads with voltages up to 500V and currents up to 150 amps. The current range can be extended by using a model 472 Driver Unit in conjunction with external thyristors.

These units are particularly useful in applications where the load characteristics may vary but it is necessary to maintain constant power. They are also used to maintain steady process conditions in situations where it is not possible to directly measure the load temperature.

### 470 Series Analogue Input power controllers

Suitable for high or low temperature coefficient resistive loads, inductive loads or transformers.

Plug-in for rapid maintenance.

Analogue input also allows manual control for open loop applications.

Configurable input, firing and feedback modes to suit most applications.

Self contained units have built in fuses, except 150 amp unit which has external fuse.

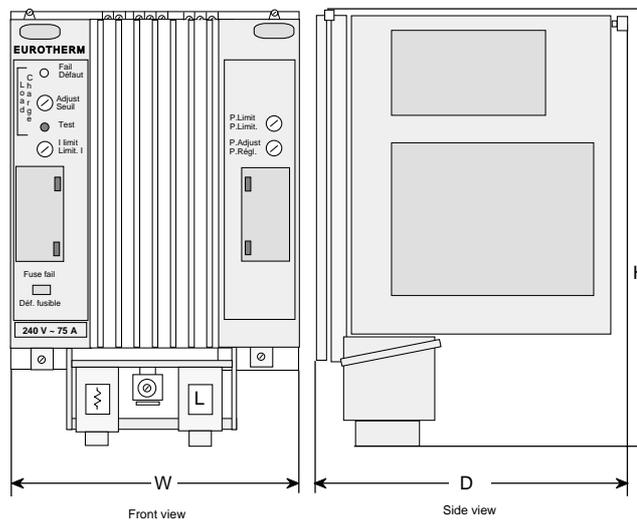
Current and power limit for protection of load and thyristors.

### CE Marking /safety

The CE mark on the 470 series products denotes that when they are installed and used in accordance with the User Manual HA175076, they 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).

The 470 Technical Construction File is approved by LCIE (Laboratoire Central des Industries Electriques), a Notified Body.

### Installation and maintenance



### Spare fuses

Unit current	Fuse part no.
75A	CH120114
125A	CH120154
150A*	CH340025

\* External fuse using CP171482 fuseholder.

Model	Height(H) mm	Width(W) mm	Depth(D) mm	Weight kg
470	249	170	236	3.5
471	282	170	236	5
472	249	115	236	2.5
150 amp Ext. fuseholder	220	50	110	-

## TECHNICAL SPECIFICATION

### Electrical

Current rating	Model 470: 15 Amps to 75 Amps Model 471: 100 Amps to 150 Amps Model 472: Driver unit for external thyristors up to 4000 Amps
Voltage	100 Volts to 500 Volts
Supply frequency	50 Hz or 60 Hz (+/- 2 Hz)
Auxiliary supply	100V and 230V, or 115V and 230V, or 200V and 230V, or 277V and 230V, or 380V, 400V, 415V and 230V or 440V and 230V or 480V, 500V and 230V. Consumption 7VA (470 and 472 models) 30VA (471 model)
Dissipated power	Allow 2 watts per amp dissipation from fuses and thyristors
Cooling	Model 470 - natural cooling. Model 471 - fan cooling; 23VA powered from the auxiliary supply Model 472 - natural cooling, driver unit only
Load type	Constant or variable resistance, inductive or transformer
Load configuration	Single phase: Line to Line or Line to Neutral

### Environment

Temperature	Operating: 0 to 50 Deg. C. Storage: -10 to +70 Deg.C
Humidity	5% to 95% RH. Non condensing
Atmosphere	Electrically conductive pollution must be excluded. Not suitable for use above 2000 metres or in corrosive or explosive atmospheres
Pollution	Pollution degree 2 admissible, defined by IEC664
Protection (mechanical)	IP00, can be opened without tools according to IEC529

### Operating

Inputs	0-5V, 1-5V, 0-10V. Input impedance >50K 0-5mA, 0-10mA, 0-20mA, 4-20mA. Input impedance 250 ohm (20mA) or 1K (5mA and 10mA) Manual: Using 10K external pot which can be supplied from 10V internal supply
Firing modes	Phase Angle, Single Cycle, Fast Cycle (0.8s), Slow Cycle (8s). Soft start and end are available with Fast and Slow Cycle firing. Delayed firing of first cycle of a burst is available for inductive loads
Control mode	True Power, Squared Voltage or Squared Current
Retransmission	Instantaneous load current (full wave rectified 0-2.5V mean), True Power (0-10VDC) Load Current (0-2.5VAC) Load Voltage (0-2.5VAC)
Current limit	Threshold limit using front panel pot, external pot or external voltage Available with phase angle firing or soft start modes only
Power limit	Threshold limit of controlled parameter (True Power, Squared Voltage or Squared Current) using front panel pot, external pot or external voltage
Partial load failure	Detects 20% current decrease and gives a visual and relay alarm output. Setting is by a front panel pot and test button
Inhibit	Firing of the 470 series can be inhibited by the application of a 10 volt signal to the "inhibit" input. This signal can be obtained from the internal 10V supply

### Safety and EMC standards

The CE mark on the 470 series products denotes that when installed and used in compliance with their User Manual HA175076, they comply with the Low Voltage Directive 73/23/EEC dated 19/02/73 (amended by Directive 93/68/EEC dated 22/07/93). The Technical Construction File is approved by LCIE (Laboratoire Central des Industries Electriques), a Notified Body

Immunity: EN 61000-4-2, EN 61000-4-3, EN 61000-4-4  
Radiated Emission: EN 55011  
Conducted Emission: EN 50081-2 (with external filter), EN 61800-3 (without external filter)

## ORDERING CODE

Model	Nominal Voltage	Auxiliary Power Supply	Nominal Current	Input Signal	Firing Mode	Control Mode	Language	Options
								96/00

Model	Code	Nominal Current	Code	Control Mode	Code	
Thyristor unit:		470 model:	15A	081	True power	28
470 (75A max)	470/113		25A	082	Squared load voltage	26
471 (125A max)	471/117		40A	083	Squared load current	29
471 (150A max)*	471/100		55A	062		
Driver for external thyristors:			75A	113	<b>Language</b>	<b>Code</b>
472	472/000	471 model:	100A	114	English	ENG
			125A	117	French	FRA
			150A*	100	German	GER
		472 model:	external thyristors	000	Italian	ITA
					Dutch	NED
					Swedish	SWE
<b>Nominal Voltage</b>		<b>Input Signal</b>			<b>Options</b>	
100 volts	26	0-5V		008	Current limit (available in Phase angle and soft start)	55
110 volts	10	1-5V		068	Frequency 60Hz	69
115 volts	51	0-10V		060	PLF alarm contact closed in alarm state	83
120 volts	24	0-5mA		069	No backplate	76
200 volts	27	0-10mA		071		
220 volts	12	0-20mA		072		
230 volts	52	4-20mA		073		
240 volts	13					
277 volts	32	<b>Firing Mode</b>				
380 volts	22	Phase angle		002		
400 volts	53	Single cycle		160		
415 volts	23	Fast cycle (0.8s)		001		
440 volts	28	Fast cycle with soft start		055		
480 volts	15	Fast cycle with soft start and end		SDF		
500 volts	29	Slow cycle (8s)		050		
		Slow cycle with soft start		056		
		Slow cycle with soft start and end		SDS		
<b>Aux. Power Supply</b>						
100V and 230V	41					
115V and 230V	19					
200V and 230V	42					
277V and 230V	46					
380/400/415V and 230V	43					
440V and 230V	47					
480/500V and 230V	44					

\* 150 amp unit requires external fuse CH340025 and fuseholder CP171482.

## EUROTHERM CONTROLS LIMITED <http://www.eurotherm.co.uk>

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