

# 1 Phase electronic analogue power controller



- Analogue controller for accurate process control
- Phase angle or burst firing control of heaters, lamps, trafos
- Rated operational voltage range: 230 VAC or 480 VAC
- Rated operational current up to 30A or 50A AC1
- Current Loop Control: 0-20mA, 4-20 mA
- Voltage Control: 0-10 VDC
- Manual Control: 10k Ohm Potentiometer
- Reverse action operation possible
- Built-In EMC Filter

## Item selection and technical specifications

Load AC-1/51 Heating-element	Load AC-3 Motor	Load AC-55b Lamp	Load AC-56a Transformer	Analogue control input signal	Item number by 208-240VAC 50/60Hz Line Voltage	Item number by 380-480VAC 50/60Hz Line Voltage	Module-width
30A		30A	30A	0-20 mA / 20-0 mA, 4-20 mA / 20-4 mA 0-10 VDC / 10-0 VDC, 0-10 kohm / 10-0 kohm	SPC 1 AD 2330	SPC 1 AD 4030	45mm
50A		30A	30A		SPC 1 AD 2350	SPC 1 AD 4050	90mm

## Output load specification

Leakage current	1mA ACmax.	Min. operational current	10mA
Duty cycle	100%		
Load power by 30A / 230VAC	0-6.9kW	Load power by 50A / 230VAC	0-11.5kW
Load power by 30A / 400VAC	0-12kW	Load power by 50A / 400VAC	0-20kW

## Control terminal specifications

Current Loop Control Voltage drop 3 Volt Max.	0 - 20 mA / 20 - 0 mA	Manual Control with potentiometer	0-10 kohm / 10-0 kohm
Voltage Control Input resistance 300 kohm min.	0-10 V / 10-0 V	Control Voltage supply	24VAC/24VDC max. 30 mA

## Thermal specification

Power dissipation for continuous operation PDmax	1.2 W/A	Operation in ambient temperatures exceeding 40°C is possible if the power dissipation is limited either by reducing the steady-state current or by reducing the duty-cycle as shown in the table.		
Power dissipation for intermittent operation PD	1.2 W/A x dutycycle			
Cooling method	Natural convection	By 40°C	By 50°C	By 60°C
Mounting	Vertical +/-30°	100% load Duty-cycle 100%	80% load Duty-cycle max. 0.8	70% load Duty-cycle max. 0.65
Operating temperature range EN 60947-4-2	-5C° to 40°C	<b>Environment</b>		
Storage temperature EN 60947-4-2	-20C° to 80°C	Degree of protection	IP 20	Pollution degree
Max. operating temperature with current derating	60°C			3

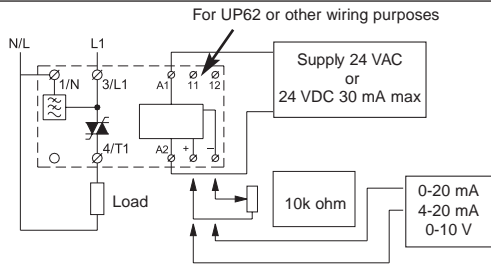
## Insulation specifications

Rated insulation voltage	Ui 660 Volt	*This products has been designed for class A equipment. Use of the product in domestic environments may cause radio interference, in which case the user may be required to employ additional mitigation methods.  *UL: Use thermal overload protection as required by the National Electric Code. When protected by a non-time delay K5 or H Class fuse, rated 266% of motor FLA, this device is rated for use on a circuit capable of delivering not more than 5,000 rms. symmetrical amperes, 600 V maximum. Maximum surrounding temperature 40°C.
Rated impulse withstand voltage	Uimp. 4 kVolt	
Installation catagory	III	

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## Wiring specifications

### SPC 1 AD



## Short-circuit protection by fuses

Two type of short-circuit protection can be used:  
Short-circuit protection by fuses.

Short-circuit protection is divided into 2 levels **Type 1** or **Type 2**

**Co-ordination Type 1:** Short-circuit protects the installation

**Co-ordination Type 2:** Short-circuit protects the installation and the semiconductors inside the motor controller

## Short-circuit protection by fuses

Type 1: SPC 1 AD XX30	Protection max. 50A gl/gG.
Type 1: SPC 1 AD XX50	Protection max. 50A gl/gG.
Type 2: SPC 1 AD XX30	Protection max. I <sub>2t</sub> of the fuse 1800 A <sub>2</sub> S
Type 2: SPC 1 AD XX50	Protection max. I <sub>2t</sub> of the fuse 1800 A <sub>2</sub> S
<b>Recommended fuse :</b>	<b>Ferraz</b> <b>Siemens</b>
SPC 1 AD XX30	660 RB 10-30                      Sillized 5SD4 60 Max. 500V
SPC 1 AD XX50	6.621CP URGA 22x58/80                      Sillized 5SD4 60 Max. 500V

## EMC

This component meets the requirements of the product standard EN 60947-4-3 and is CE marked according to this standard.

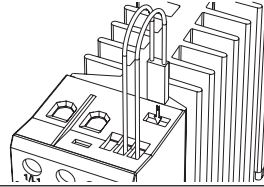
## Mounting and cable wiring information

Mounting information see page 36 / Cable wiring see page 37

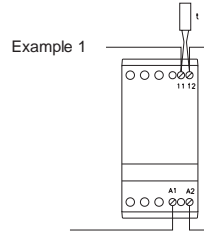
## Application hints and general specifications

See page 32-33

## Thermal overload protection



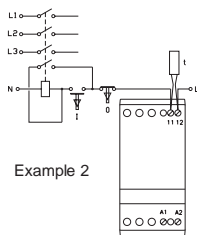
Optional thermal overload protection is possible by inserting a thermostat in a slot on the right hand side of the electronic contactor. Type number UP62



The thermostat can be connected in series with the control circuit of the electronic contactor.  
When the temperature of the heatsink exceeds 90°C the electronic contactor will switch Off.

### Note:

When the temperature has dropped approx. 30°C the electronic contactor will automatically be switched on again.



The thermostat is connected in series with the control circuit of the main contactor.  
When the temperature of the heatsink exceeds 90°C the main contactor will switch Off.

A manual reset is necessary to restart this circuit.

## Approval

ULc Std No. 508

## Utilisation Categories (EN 60947-4-3)

- AC - 51** Switching of resistive loads
- AC - 55a** Switching of electric discharge lamp controls
- AC - 55b** Switching of incandescent lamps
- AC - 56a** Switching of transformers

## Dimensions (se also page 36)

Type	H	D	W
45 mm module	94 mm	124.3 mm	45 mm
90 mm module	94 mm	124.3 mm	90 mm