

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: 120VAC, 230VAC, 480VAC
- Rated operational current up to 30A or 50A AC1
- Current Loop Control: 0-20mA, 4-20 mA
- Voltage Control: 0-10 VDC
- Manual Control: 10 kohm 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 Trans-former	Analogue control input signal	Item number by 110-127VAC 50/60Hz Line Voltage	Item number by 208-240VAC 50/60Hz Line Voltage	Item number by 380-480VAC 50/60Hz Line Voltage	Module-width
30A	15A	30A	30A	0-20 / 20-0 mA, 4-20 / 20-4 mA 0-10 / 10-0 VDC, 0-10/10-0 kohm	SPC 1 AD 1230	SPC 1 AD 2330	SPC 1 AD 4030	45mm
50A	15A	30A	30A		SPC 1 AD 1250	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 / 120VAC	0-3.6kW	Load power by 50A / 120VAC	0-6kW
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. Max.cycle time 15min.		
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	Environment Degree of protection IP 20 Pollution degree 3 *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.		
Storage temperature EN 60947-4-2	-20C° to 80°C			
Max. operating temperature with current derating	60°C			

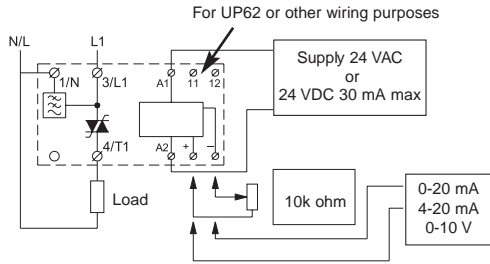
Insulation specifications

Rated insulation voltage	Ui 660 Volt	
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_{2t} of the fuse 1800 A₂S
Type 2: SPC 1 AD XX50 Protection max. I_{2t} of the fuse 1800 A₂S

Fuses from e.g. Ferraz, Siba, Bussmann can be used as short-circuit protection Type 2

More information concerning Co-ordination Type 2 see page 37

EMC

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

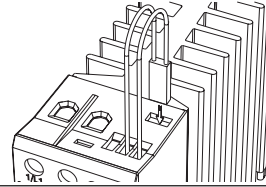
Mounting and cable wiring information

Mounting information see page 36 / Cable wiring see page 37

Application hints and general specifications

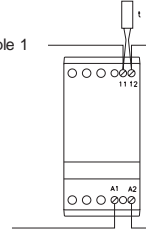
See page 32-33

Thermal overload protection (see also page 36)



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

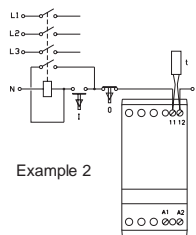
Example 1



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.



Example 2

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 (*No UL approval for AC 3 motor load)

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 (see 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