

1 Phase electronic analogue power controller (SPC 1)



- Analogue controller for accurate process control
- Phase angle or burst firing control of heaters, lamps, trafos
- Rated operational voltage range: 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

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 208-230VAC 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 2330	SPC 1 AD 4030	45mm
50A	15A	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 / 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
Current Loop Control Voltage drop 3 Volt Max.	4 - 20 mA / 20 - 4 mA		
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 60947-4-3	-5°C to 40°C	Environment		
Max. operating temperature with current derating	60°C	Degree of protection	IP 20	Pollution degree
Storage temperature EN 60947-4-3	-20°C to 80°C			3

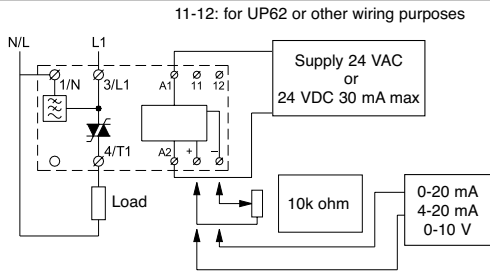
Insulation specifications

Rated insulation voltage	Ui 660 Volt	cUL Std No. 508 (*No UL approval for AC 3 motor load) 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 category	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

SPC 1 AD XX30 Protection max. 50A gL/gG
 SPC 1 AD XX50 Protection max. 50A gL/gG

Co-ordination Type 2: Short-circuit protects the installation and the semi-conductors inside the motor controller

SPC 1 AD XX30 Protection max. i^2t of the fuse 1800 A²S
 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 45

EMC

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

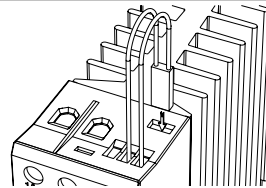
Mounting and cable wiring information

Mounting information see page 44 / Cable wiring see page 45

Application hints and general specifications

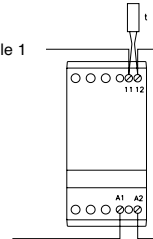
See page 40-41

Thermal overload protection (see also page 44)



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



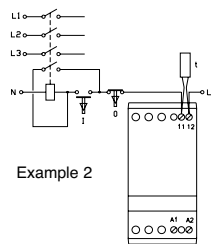
The thermostat can be connected in series with the control circuit of the electronic contactor.

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.

Note:

A manual reset is necessary to restart this circuit.

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 44)

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