

# Compact Controller type ER 2022S (Smart) & ER 2022SA (Smart Analog)

For Electronic Temperature Control

0-4.6.03-B

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## TECHNICAL DATA

### Line voltage

110-240 V AC -15 % /+10 %, 48-63 Hz  
20-30 V AC/DC -15 % /+10 %, 48-63 Hz - **optional**

### Power consumption

110-240V AC - approx. 8W  
Measuring rate: -200°C/+850°C or -328°F/+1562°F

### Permissible ambient temperature

Ambient 0 to +55°C  
Transport and storage -30 to +70°C

### Degree of protection

Front IP 65 according to DIN 60529  
IP20 on the back

### Design

For control panel installation 96 x 96 x 65 mm  
(W x H x D) panel cut out 92 x 92 mm

### Installation position

Horizontal

### Set-point values

4 available

### Measuring accuracy

0.1 % of the measuring range  
Over voltage cat. III

### Displays

18-segment LCD displays

### Alarm

Alarm functions work with a fixed limit value  
which corresponds to limit value entered

### Relay (N/O contact)

Switching capacity: 230V AC/5A

### ER 2022S

Input: Pt100, 0-10V, 2-10V, 0-20mA, 4-20mA  
Output: 3-point

### ER 2022SA

Analoge Input: Pt100, 0-10V, 2-10V, 0-20mA, 4-20mA  
Analoge output: 0-10V, 2-10V, load resistance >500Ω  
20mA, 4-20mA, load resistance >450Ω

### Electric connection

Conductor cross section  
via screw terminals - max 2.5mm<sup>2</sup>

### Interface

RS485 - **optional**

### Weight

Approx. 0,38 kg

## APPLICATIONS

The ER 2022S and ER 2022SA controller are used for constant temperature control. It is suitable for all heating and cooling control systems. The controller is primarily intended for marine installations and other industrial applications - such as cooling water and lubricating oil installations, flow temperature control and where it is needed to use remote set point function.

## DESIGN

The device is characterized by a simple, clearly structured operation supported with texts. Process values and parameters are represented by two 30-segment LCD displays. The ER 2022S and ER 2022SA types are additionally equipped with a pixel matrix LCD display for displaying text. In addition, the device have individual display elements for the switch positions of the outputs as well as for manual mode. The device is operated using a membrane keyboard with four buttons and can be used under harsh environmental influences thanks to the high IP65 protection.

The ER 2022S and ER 2022SA includes, a program controller, manual mode, limit value monitoring functions, digital control signals.

## FUNCTION

The temperature input comes via a Pt100 sensor with a single sensing element or from other devices/Remote set point. The measured value of the controlled variable is compared with the set point value and adjusted via a PI or a PID control structure.

The ER 2022S & ER 2022SA can act as either heating or cooling controller, the actuator closes at rising temperature, or as a cooling controller, the actuator opens at rising temperature. The controller permits direct reading of the actual temperature value and it is secured from failure in the measuring circuit, i.e. the controller can be set to give either a closing, an opening or remain in current position command in case of sensor short circuit or sensor break. The error message appears in the LED display.

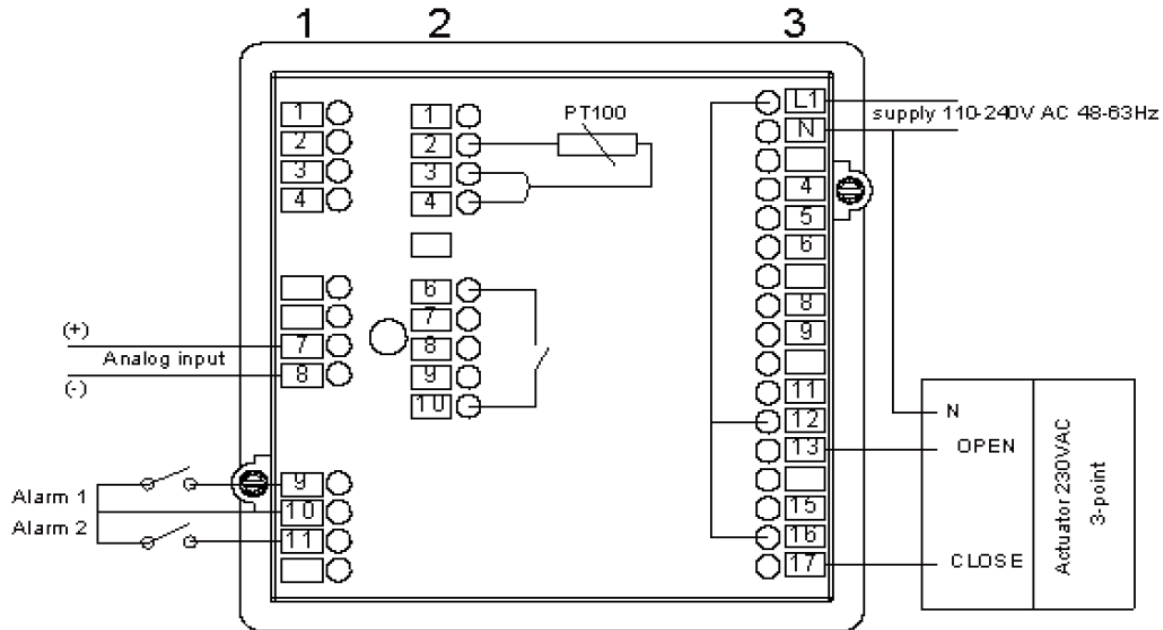
## FEATURES

- PI and PID performance
- Easy operation
- For heating and cooling systems in maritime and industrial installations
- Manual and automatic changeover
- Robust self-optimization
- Changeover from remote analog set point to local set point PT100 and vice versa
- User-defined operation
- 3 positional output for controlling the actuator

## COMMUNICATION

The controller is equipped with a RS 485 communication module.

**WIRING DIAGRAM - ER 2022S - 3-POINT OUTPUT**



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TERMINAL STRIP 1	CONNECTION	
7	Input signal 4-20mA (+)	Set point controller signal
8	Input signal 4-20mA (+)	
9	ALARM 1	-
10	ALARM common	-
11	ALARM 2	-

TERMINAL STRIP 2	CONNECTION	
2	Input/PT100- three wire/E	
3	Input/PT100 - two wire/S	
4	Input/PT100- two wire/A	
6	Binary PT100/input 4-20mA	-
10		-

TERMINAL STRIP 3	CONNECTION	
L1(+) and N(-)	Voltage supply 110-240VAC	-
8 (+)	Supply voltage for 2-wire transmitter (off-load voltage approx. 25V)	17V/20mA
9 (-)		
13	OPEN	-
17	CLOSE	-

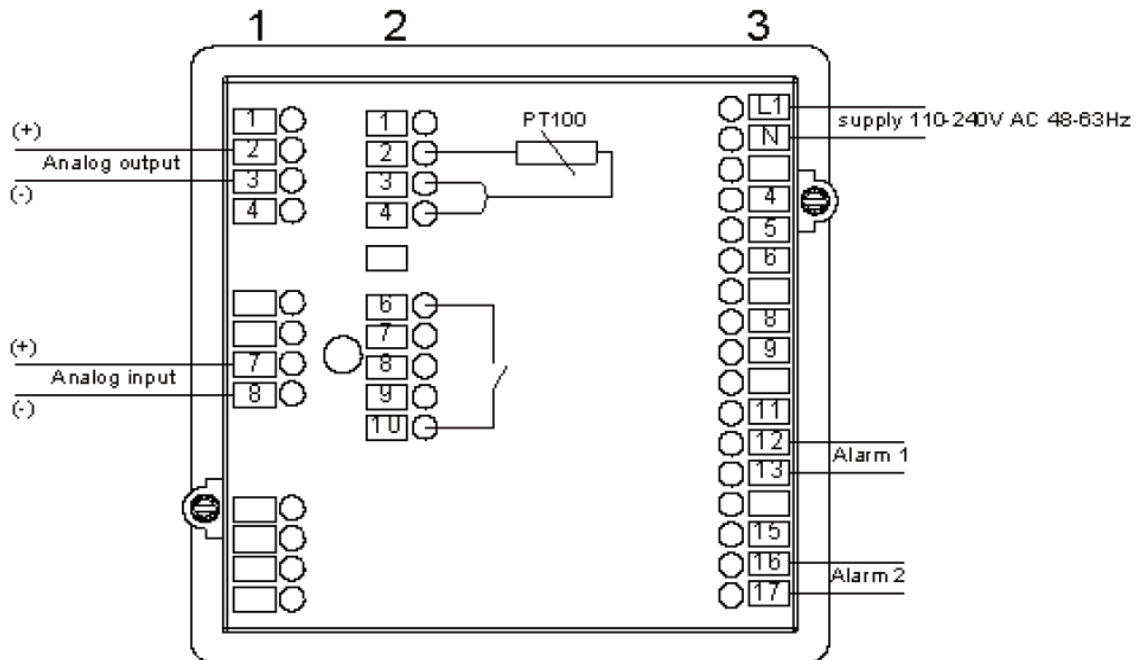
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## WIRING DIAGRAM - ER 2022SA- ANALOG



TERMINAL STRIP 1	CONNECTION	
2	Output signal (+)	Factory setting 4-20mA
3	Output signal (-)	
7	Input signal 4-20mA(+)	Set point signal 4mA +65°C/ 20mA - 95°C
8	Input signal 4-20mA(-)	

TERMINAL STRIP 2	CONNECTION	
2	Input/PT100- three wire/E	
3	Input/PT100 - two wire/S	
4	Input/PT100- two wire/A	
6	Binary PT100/input 4-20mA	
10		

TERMINAL STRIP 3	CONNECTION	
L1(+) and N(-)	Voltage supply 110-240 V AC	
8 (+)	Supply voltage for 2-wire transmitter (off-load voltage approx. 25 V)	17 V/20mA
9 (-)		
12	ALARM 1	
13		
16		
17	ALARM 2	

### CAUTION:

Use always shielded cables.

It is recommended to use the cable end clamps when installing wire.

### ELECTRIC CONNECTION:

At the back, via screw terminals, conductor cross-section up to 2.5mm<sup>2</sup> With core ferrules (length: 10mm)

Subject to change without notice.

**DIMENSIONS IN MM/INCH**

