

Compact Controller type ER 2022 & ER 2022A

For Electronic Temperature Control

O-4.6.02-D

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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

Approx. 6,6 VA

Measuring rate: -200°C/+850°C or -328°F/+1562°F

Permissible ambient temperature

Operation -10 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

Arbitrary

Set-point values

4 available

ER 2022

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

ER 2022A

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

Measuring accuracy

0.1% of the measuring range

Overvoltage

Category III

Displays

18-segment LCD displays
24,8 mm x 12 mm

Alarm

Alarm functions work with a fixed limit value which corresponds to the limit value entered
ER 2022 1xAlarm and ER 2022A 2xAlarm

Relay (N/O)

3x switching capacity - 230 V AC/3A

Electric connection

Conductor cross section
wire min.0,2 mm², max 1,5 mm²

Data protection

Semi - conductor memory

Weight

Approx. 0,22 kg

Approvals

DNV GL - on request

Subject to change without notice.

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APPLICATIONS

The ER 2022 and ER 2022A 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 etc.

DESIGN

The device is characterized by a simple, clearly structured operation supported with texts. Process values and parameters are represented by two 18-segment LCD displays. The ER 2022 and ER 2022A type 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 2022 and ER 2022A 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. 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 2022 & ER 2022A can act as either a heating controller, the actuator closes at rising temperature, or as cooling controller, the actuator opens at rising temperature.

The ER 2022 & ER 2022A permits direct reading of the actual temperature value (PV) 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 Err appears in the LED display PV.

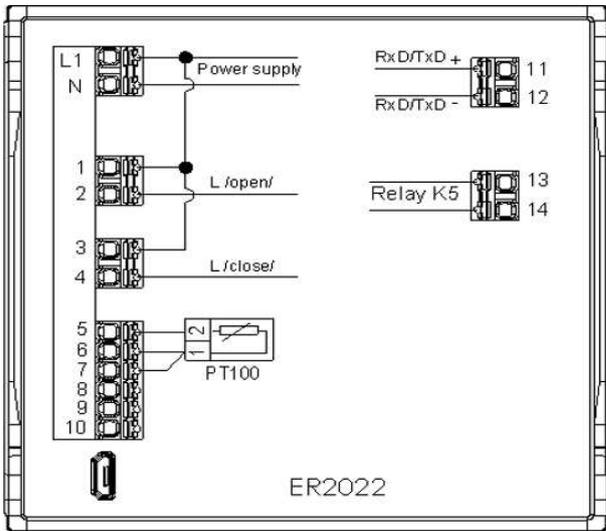
FEATURES

- PI and PID performance
- Easy operation
- For heating and cooling systems in maritime and industrial installations
- Manual and automatic changeover
- Robust self-optimization
- Alarm indicating a deviation from set point, positive or negative
- Only one sensor element Pt 100 required for control and temperature indication
- User-defined operation
- 3 positional output for controlling the actuator

COMMUNICATION

The controller is equipped with a RS 485 communication module.

WIRING DIAGRAM - ER 2022 - 3-POINT OUTPUT



ER 2022 TERMINALS	CONNECTION
L1 (+) - N	Voltage supply 24VAC/DC - 110-240VAC
1 - 2	Output 1 (relay)
3 - 4	Output 2 (relay)
5 (+) - 6 - 7	Input/Pt100 - three-wire
5 - 7	Input/Pt100-two-wire
6(+) - 7(-)	Input 0-20mA or 4-20mA
8(+) * 7(-)	Input 0-10V or 2-10V
8 - 9 - 10	Set point SP 1-4 changeover
11(+) - 12(-)	RS485
13 - 14	ALARM

ELECTRICAL CONNECTIONS POWERED 110-240VAC - OPTIONAL EXTERNAL UNITS 3-POINT OUTPUT

UNIT	TERMINALS	CAR	TERMINAL
ER 2022	Voltage supply	L	-
		N	3
	Output 1	2	10
		4	11

UNIT	TERMINALS	UNIT	TERMINAL
ER 2022	Voltage supply	L	-
		N	MM/N
	Output 1	2	.01
		4	.02

UNIT	TERMINALS	CAR	TERMINAL
ER 2022	Voltage supply	L	-
		N	3
	Output 1	2	4
		4	5

UNIT	TERMINALS	UNIT	TERMINAL
ER 2022	Voltage supply	L	-
		N	N
	Output 1	2	2a
		4	2b

UNIT	TERMINALS	CAR	TERMINAL
ER 2022	Voltage supply	L	-
		N	5
	Output 1	2	11
		4	12

UNIT	TERMINALS	UNIT	TERMINAL
ER 2022	Voltage supply	L	21
		N	N
	Output 1	2	2a
		4	2b

UNIT	TERMINALS	CAR	TERMINAL
ER 2022	Voltage supply	L	X5-2
		N	X5-1 AND X1-2
	Output 1	2	X1-1
		4	X1-3

* AVM321/322/3215/3225 and AVM234: Please refer to instruction depending on the type

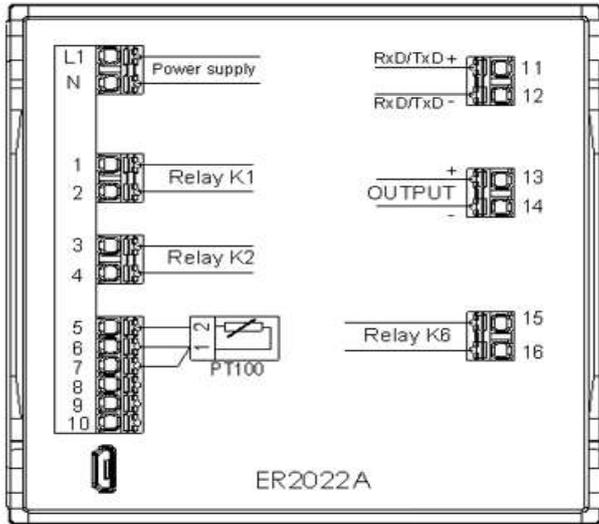
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WIRING DIAGRAM - ER 2022A- ANALOG



ER 2022 TERMINALS	CONNECTION
L1 (+) - N	Voltage supply 24 VAC/DC -110-240VAC
1 - 2	Output K1 (relay)
3 - 4	Output K2 (relay)
5 (+) - 6 - 7	Input/Pt100 - three-wire/
5 - 7	Input/Pt100-two-wire/
6(+)- 7(-)	Input 0-20mA or 4-20mA
8(+)- 7(-)	Input 0-10V or 2-10V
8 - 9 -10	Set point SP 1-4 changeover
11 (+) - 12 (-)	RS485
13(+)- 14(-)	Output analog signal
15-16	ALARM

ELECTRICAL CONNECTIONS 110 - 240VAC - OPTIONAL EXTERNAL UNITS

UNIT	TERMINALS	UNIT	TERMINAL
ER 2022A	Voltage supply	L	1
		N	2
	Control signal 4-20mA	13	5-6 (bridge)
		14	Input (-)
			Input (+)

UNIT	TERMINALS	UNIT	TERMINAL	
ER 2022A	Voltage supply	L	L	
		N	N	
	Control signal	13	3215K/3225K	03
		14		MM

UNIT	TERMINALS	UNIT	TERMINAL
ER 2022A	Voltage supply	L	2
		N	1
	Control signal 4-20mA	13	14
		14	15

UNIT	TERMINALS	UNIT	TERMINAL	
ER 2022A	Voltage supply	L	21 & 2a or 2b	
		N	N	
	Control signal	13	AVF2345K	3i
		14		1

UNIT	TERMINALS	UNIT	TERMINAL
ER 2022A	Voltage supply	L	13
		N	5
	Control signal 4-20mA	13	13-14 (bridge)
		14	19
			20

UNIT	TERMINALS	UNIT	TERMINAL	
ER 2022A	Voltage supply	L	2a or 2b	
		N	N	
	Control signal	13	AVM2345K	3i
		14		1

* AVM321/322/3215/3225 and AVM234: Please refer to instruction depending on the type

UNIT	TERMINALS	UNIT	TERMINAL
ER 2022A	Voltage supply	L	X5-2
		N	X5-1
	Control signal 4-20mA	13	X3-1
		14	X2-1

Subject to change without notice.

DIMENSIONS IN MM/INCH

