

Technical Manual

Temperature Controller

Series **TAR - TARN**

5310891-02/03 E
Software Vers. 971031

Type Overview

TAR 1100	+/-50°C	12-24V AC/DC	TAR 2100	+/-50°C	230V / 50-60Hz
TAR 1103	0-100°C	12-24V AC/DC	TAR 2103	0-100°C	230V / 50-60Hz
TARN 1100	+/- 50°C	230V / 50-60Hz	TAR 4100	+/-50°C	230V / 50-60Hz
TARN 1103	0-100°C	230V / 50-60Hz			

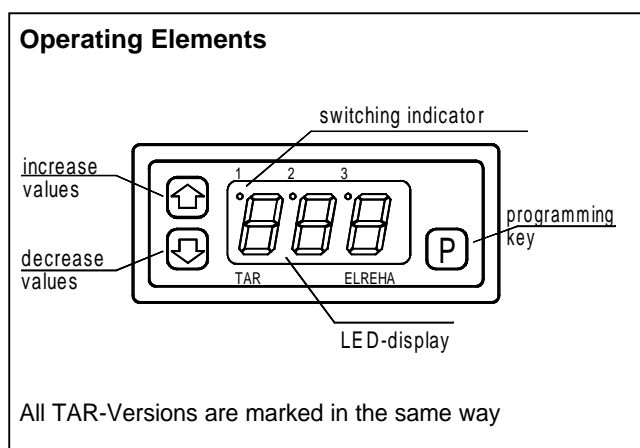
General

The TAR x10x series controller is a single circuit ON/OFF control with a single probe input and a digital display.
The adjustable parameters allow programming this controller to any application in the field.

Function

The controller senses the actual temperature with a temperature probe and displays the value on a digital display. This value is compared with the setpoint and according to the difference the output relay switches ON or OFF.

Operation



Operating the TAR controller is very easy. Three keys allow to select all parameters and to change their values.
Three seconds after connecting power to the controller, the actual sensor temperature is being displayed.

Call-up and changing of parameters

- Push key "P" Parameter number will be displayed
- Push keys "↑/↓" Select parameter
- Push key "P" again Parameter value will be displayed
- Push keys "↑/↓" Change parameter value
- Push key "P" again New value is stored, back to parameter-No.

Operator Code

To prevent parameters from being changed by unauthorized persons, you can change those only after entering an access code.

Only the code itself and the control setpoint are available without prior identification.

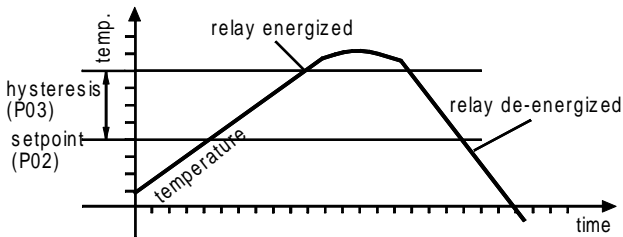
The access code for all TAR controllers is "88"

- Push key "P" Parameter number will be displayed
- Push keys "↑/↓" Select parameter **P09**
- Push key "P" again Code value will be displayed
- Push keys "↑/↓" Change code to --88--
- Push key "P" again Access code is stored, back to parameter-No.

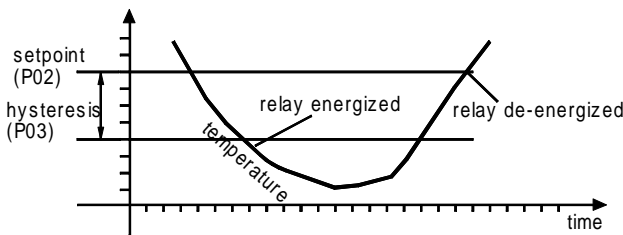
All parameters are available now and can be changed as explained above.
If you don't press any key for about one minute, the access to the parameters will be denied again.

Parameter explanation

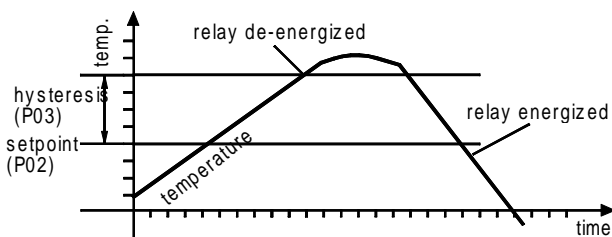
- P01** **Actual sensor temp.** in °C /°F (display only)
- *P02** **Control setpoint**, can be changed at any time within the limits set by P04 and P05
- P03** **Switching differential (hysteresis)** default 2K, range 0...10K / 0...17F
- P04** **Setpoint high limit** (TAR xxx0: Default = +50°C, Range -50...+50°C resp. - 57...121°F) (TAR xxx3: Default = +100°C, Range 0...+100°C resp. - 32...212°F)
- P05** **Setpoint low limit** (TAR xxx0: Default = -50°C, Range -50°C/ -57°F ...high limit) (TAR xxx3: Default 0°C, Range 0°C/ 32°F ...high limit)
- P06** **Relay action**
 1= Refrigeration (Default)
 Relay is energized with increasing temperature. Connect load to N/O contact.



- 2= Heating
 Relay is energized with decreasing temperature. Connect load to N/O contact.



- 3= Freezing
 Relay is de-energized with increasing temperature. Connect load to N/C contact.



P07 **Display Mode**, 1= °C (default), 2= °F
 While changing display mode 'CEL' resp. 'FAH' appears.

!!! Attention: While changing display mode, all temperature parameters will be set to default !!!

P08 **Sensor Correction**
 (range ±10K or ±17F)

P09 **Access Code**, Code is --- **88** ---

Installation

Before applying voltage to the controller, make sure that all electrical wiring has been made in accordance with the wiring diagram in this manual.

Sensor leads should be shielded type with one end of the shield connected to ground. This minimizes the effect of irregular switching events caused by electromagnetic interference. The sensor leads may be up to some hundred meters long. Any wire size from 0.5 sqmm up can be used.

After the power has been switched on, the controller will display the actual sensor temperature. After programming the access code, you can set the configuration according to the application.

- Set the hysteresis with **P03**,
- Set the setpoint range limits with **P04/P05**,
- Set the relay action with **P06** and
- the display mode with **P07**.

If the displayed value of sensor temperature shows any off-set from the actual value you can use parameter "**P08**" to add a corrective value.

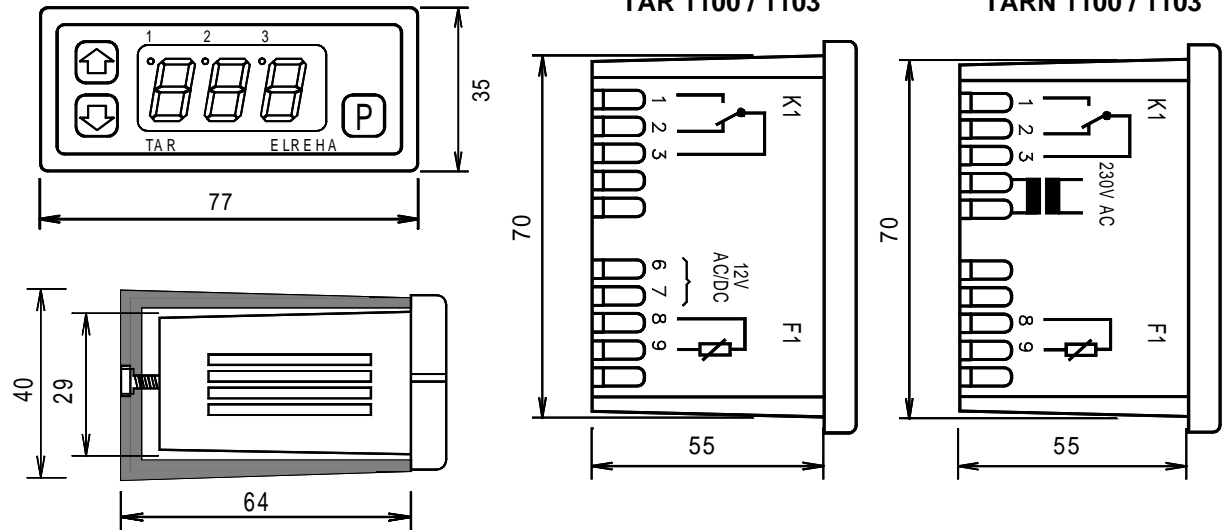
Failure Mode

If the controller detects a broken or shorted sensor, the relay will be de-energized immediately and the display starts flashing.

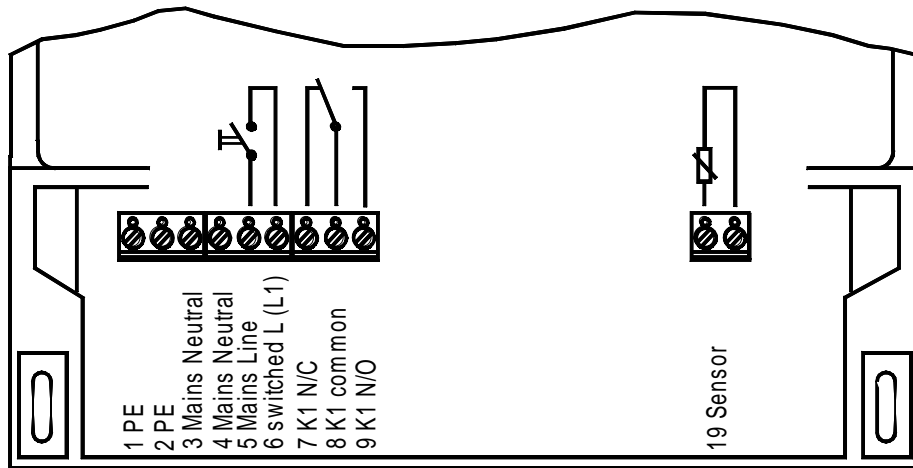
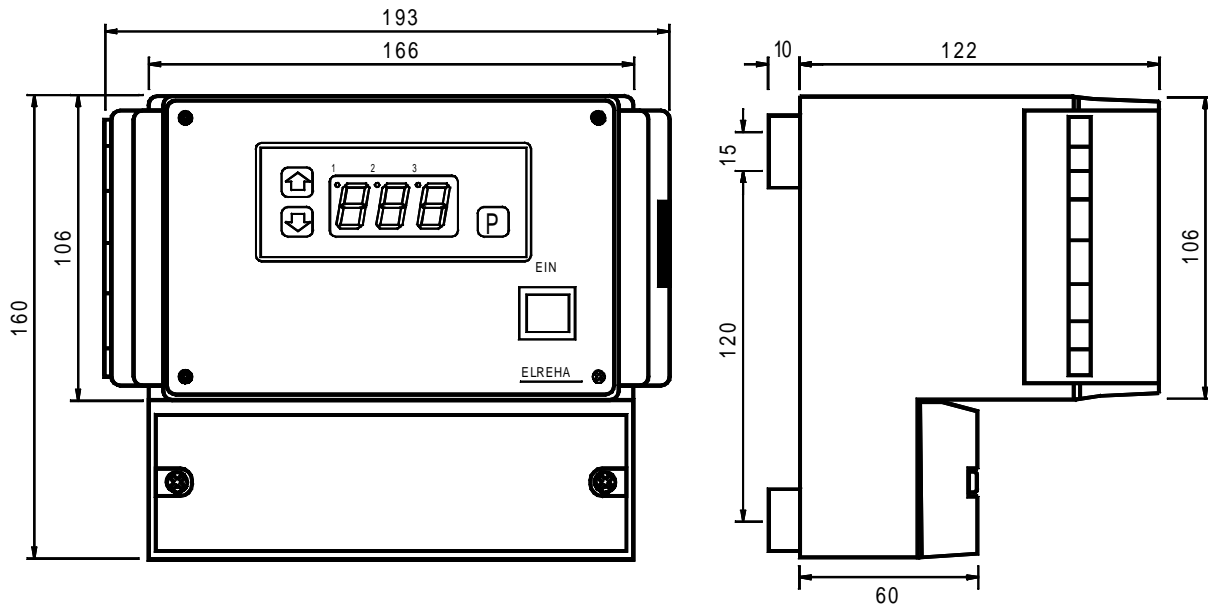
Technical Data

Supply Voltage see type overview
Power Consumption appr. 3,5 VA
Contact Rating 8A (3A ind.) / 250V
	TAR 4xx 10A (4A ind.)
Operating Temperature -10...+55°C
Storage Temperature -30...+70°C
Display LED, red, 13mm
Screw Terminals 2,5mm
Protection	TAR/TARN 11x IP 54 from front
	TAR 410x IP 54
	TAR 210x IP 30

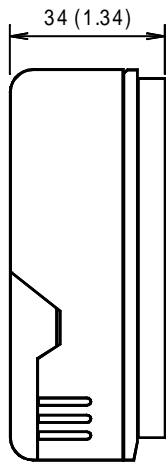
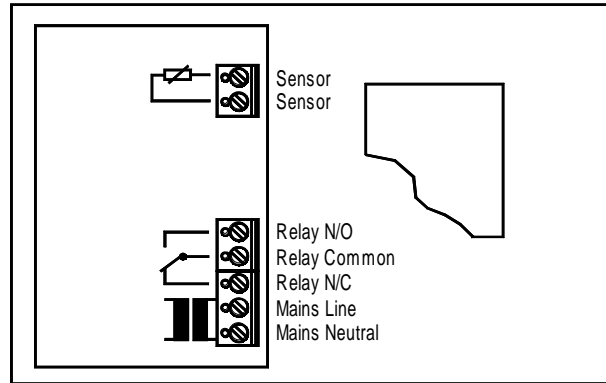
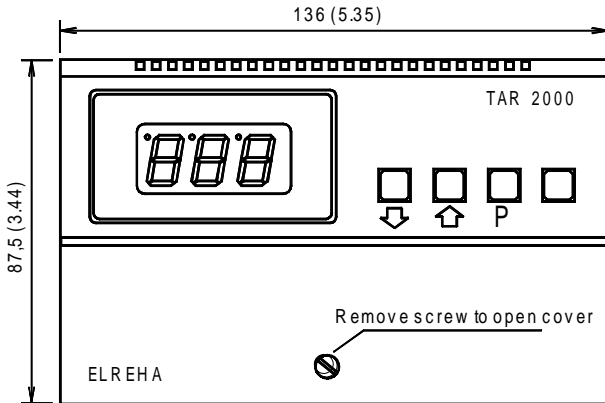
Dimensions / Wiring Version 110x



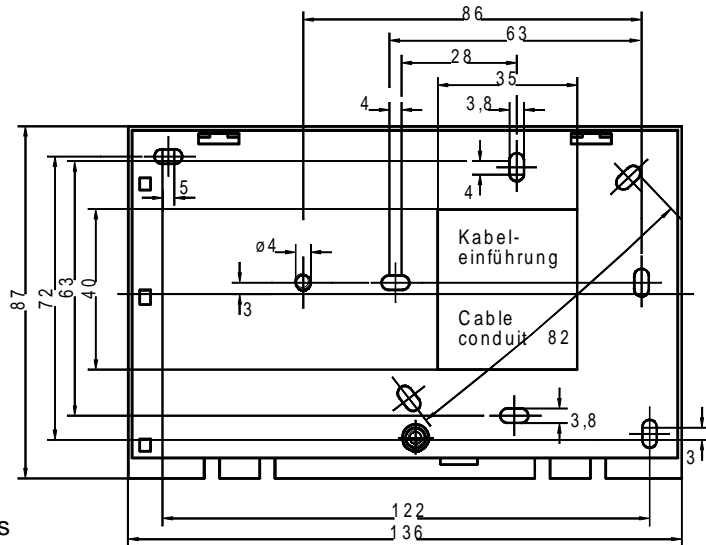
Dimensions / Wiring TAR 4100



Dimensions / Wiring
TAR 2100



Mounting Dimensions



EG-Statement of Conformity

We state the following: When operated in accordance with the technical manual, the criteria have been met that are outlined in the guidelines of the council for alignment of statutory orders of the member states on electromagnetic consistency (89/336/EWG).

This declaration is valid for those products covered by the technical manual which itself is part of the declaration. Following standards were consulted for the conformity testing with regard to electromagnetic consistency :

IEC 1000-4-1, IEC 1000-4-2, IEC 1000-4-3*, IEC 1000-4-4, IEC 1000-4-5, EN 55011 B, EN 50081, Part 1 and 2; EN 50082, Part 1 and 2

This statement is made from the manufacturer

ELREHA Elektronische Regelungen GmbH
D-68766 Hockenheim

Hockenheim **18.12.1995**
(City) (Date)

by:

Klaus Birkner, QL / Leader EMC-Lab

.....*K. Birkner*.....
(Sign)

*The conformity with IEC 1000-4-3 is derived from the IEC 1000-4-2 and IEC 1000-4-4 test results. The correlation with IEC 1000-4-3 is based on test results which are located on site at the manufacturer.

This manual has been set up with care and to our best knowledge, but mistakes are still possible. Technical details and the software, can be changed without notice. Please note that this manual is only valid for controllers containing the software-version shown on page 1. You can find this version-no. on the type label too. If there are still problems or difficulties or questions please don't hesitate asking our technical support.

set up: 8.1.98 mv/jr

checked: 8.1.98 ek/al

approved: 8.1.98 tl/wr