

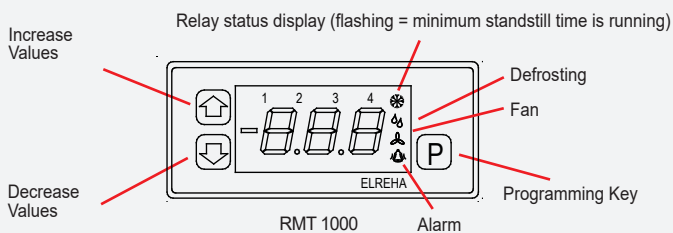
Temperature Controller with Control Unit for Door Installation

Type: **TAR 3174 + RMT 1000**

Brief Description

- ▶ This product consists of a housing for switch cabinet installation and a control unit for door installation
- ▶ Designed for Freezers, Refrigerators, Refrigerated Counters with one Evaporator to control, Evaporator Fan, Defrost Heater, Airflow Defrost or Hot Gas Defrost
- ▶ Networkable via RS-485 Interface to ELREHA Gateway
- ▶ Temperatur Control, selectable switching function
- ▶ Day Night Switching of the Setpoint by Realtime Clock
- ▶ Defrost Control by Realtime Clock
- ▶ Defrost by Electric Heaters or Hot Gas
- ▶ Defrost Termination by Time and/or Temperature
- ▶ Manual Defrost by a simple keypress possible
- ▶ Fan Control by Time / Temperature
- ▶ Temperature Alarm, High/Low, Time Delay
- ▶ Digital Inputs selectable for Door Contact, 2nd Setpoint, External Defrost or Controller Shut-Down
- ▶ Adjustable parameters with such as: Setpoint, 2nd Setpoint, Hysteresis, Switching Characteristic, Alarm Limits, Alarm Delay, Control Range, Defrost Mode, 8 Defrost Times, Defrost Cycle, Drain Time, Fan Delay

Operating Elements



Operation

After switching on, the display shows the current temperature. The standard setpoint can be changed without code.

Change Setpoint

- „P“ parameter number appears
- „↑/↓“ select desired parameter
- „P“ parameter value appears
- „↑/↓“ adjust parameter value
- „P“ value is stored, back to parameter no.

Access Code

Almost all parameters are protected by a code. The code number can be entered as follows:

- Press key „P“
- With „↑/↓“ select P53
- Press key „P“ again
- Set the matching code **88** (or P21 **70**)
- Press key „P“ again, the parameter number will be shown again

Error Message

„- -“

In case of sensor break or short circuit or other errors, messages will be displayed on P52.

„ _ _ _ “

With this information there is no connection between TAR and RMT on this screen.

Change the display from °F to °C

The TAR 3174 comes with a °C setting, but the display can be changed from °F to °C or vice versa.

- Select P22 with „↑/↓“
- Select 0 = °C or 1 = °F
- Press key „P“ again, the parameter number will be shown again

Technical Data (see parameter listing for more information)

Supply Voltage TAR 3174.....	110...240 VAC / 50-60 Hz (+10% / -15%)
Supply Voltage RMT 1000.....	5 V
Power Consumption	max. 4,0 VA
Relay Outputs.....	1x 12A, 3x 8 A, 250 VAC res.
Temperature Range ..Ambient	-10...+55°C (14...131 °F)
Storage	-20...+60°C (-4...140 °F)
Relative Humidity	max. 80% r.H., not condensing
Display Range.....	± 100 °C / -148...212 °F (TF 501)
Control Range	± 100 °C / -148...212 °F (TF 501)
	-55...+105 °C / -67...+221 °F (TF 201)
Hysteresis	0,3...20K
Resolution, Accuracy	0,1 K
Temperature Sensors	2x TF 201 or 2x TF 501
Digital Input.....	2x potential free
Display	LED red 1/2"
Relay Position Indicator	1,2 mm red
Electrical Connection	screw terminals 2,5mm ² (.1 inch)
Protection Class	IP 30 (3174), IP 55 (RMT 1000)

Please read these instructions carefully before applying power. Your attention is drawn to the fact that the warranty is subject to the application of power sources that are within the limits specified in this manual. This documentation was compiled with utmost care, however, we cannot guarantee for its correctness in every respect. Technical details can be changed without notice, especially the software. Please note that the described functions are only valid for units containing the software with the version-number shown on page 1. Units with an other software number can work a little bit different. You will find this software number on the label of the unit too.

ELREHA GmbH

D-68766 Hockenheim, Germany, Schwetzingen Str. 103

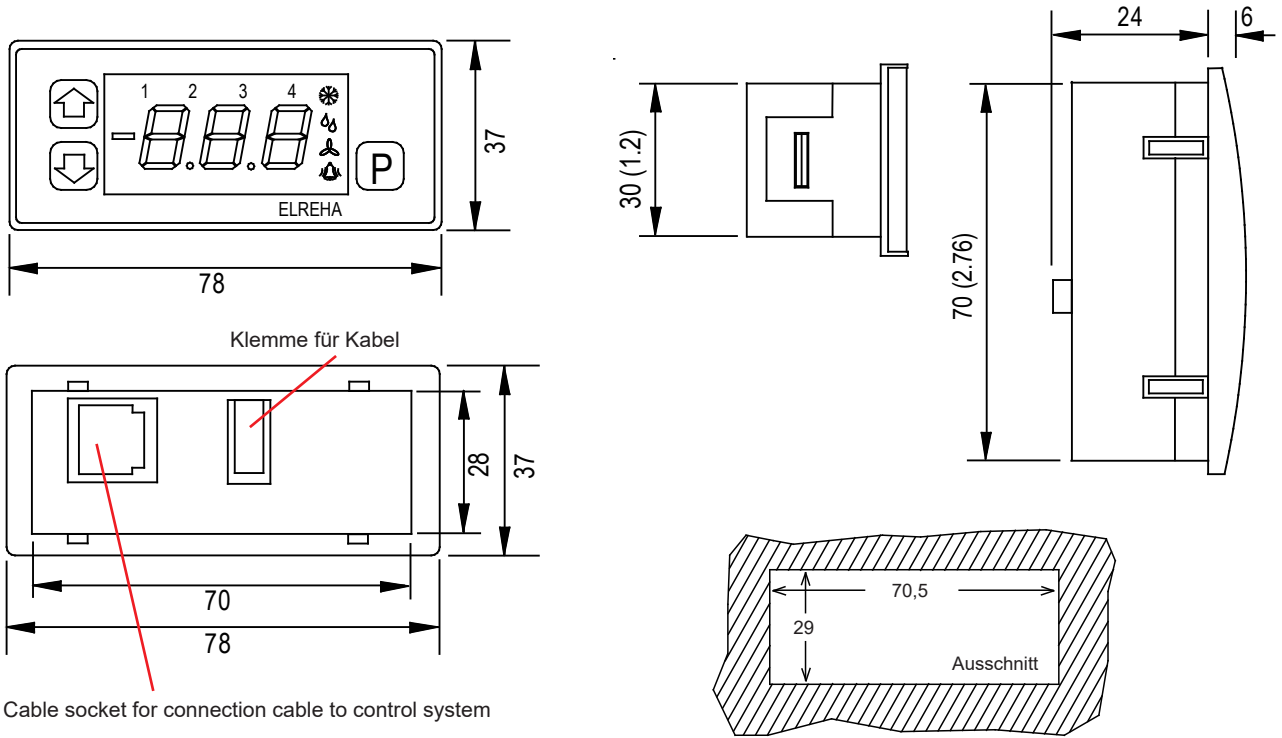
Phone (+49) (0) 6205 / 2009-0 - Fax (+49) (0) 6205 / 2009-39 - sales@elreha.de



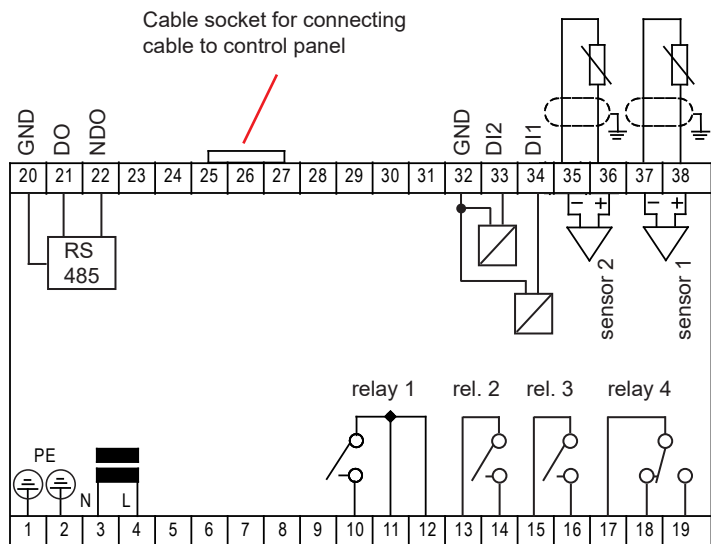
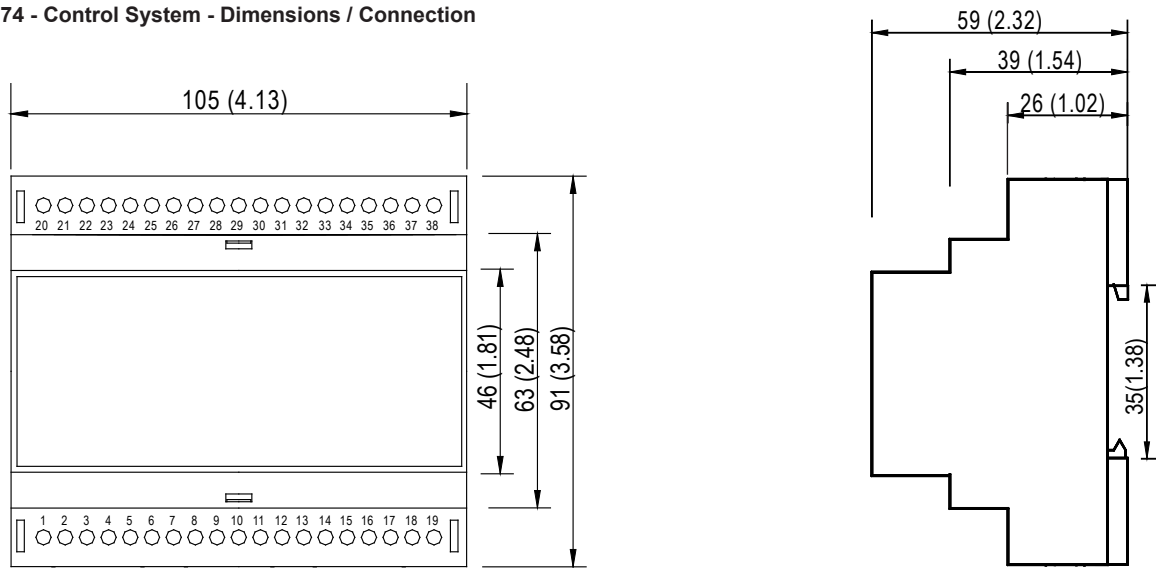
Please note Safety Instructions !

Para. No.	Disp. only	Code	Description	Range	Default (factory settings)
P01	X		Actual temperature control sensor (°C / °F)		
P02	X		Actual temperature evaporator sensor (°C / °F)		
P03		.no	Control setpoint	Low limit / high limit	0°C
P04		.88	Control setpoint 2 (night setpoint)	Low limit / high limit	0° C
P05		.88	ON-time control setpoint 2 (e.g. 193=19:30)	0...235, oFF	oFF
P06		.88	OFF-time control setpoint 2 (e.g. 060=06:00)	0...235, oFF	oFF
P07		.88	Highest adjustable control setpoint	P08...+100 °C (-148...212 °F)	+50 °C
P08		.88	Lowest adjustable control setpoint	-100°C / -148°F up to (P07)	-50°C
P09		.88	Control differential (Hysteresis) of control setpoint	0,3...20,0 K resp. F	2 K
P10		.88	Switching mode of cooling relay K1	1= refrigeration, 2= freezing, 3= Heat	1 (refrigeration)
P11		.88	Refrigeration/Compressor Idle Time	0...59 minutes	2 minutes
P12		.88	Fan stop/go temperature	-100°C... +100°C (Hyst. 3K fixed)	50°C
P13		.88	Fan modes	1=, 2=, 3=, 4= see text	1
P14		.88	Fan delay after defrost	0...30 minutes	3 minutes
P15	X		Minutes remaining until defrost termination		
P16	X		Minutes remaining until refig. restarts after defrost		
P17	X		Minutes remaining until fan restarts		
P18	X		Minutes remaining until alarm is activated		
P19		.88	Control sensor correction	+/-10,0 K/F	0 K
P20		.88	Evaporator sensor correction, switch off	+/-10,0 K/F, oFF	0 K
P21		.70	Sensor type	0= TF 201, -55...+105°C 1= TF 501, -110...+120°C	0
P22		.88	Unit display	0= °C, 1= °F	0
P23		.88	Defrost termination temperature	0,0...30,0°C / 118,0°F	10°C
P24		.88	Automatic defrost	0= cyclical, 1= start time	0
P25		.88	Defrost cycle (Defrost can be initiated every hour)	1...99 hours	4 hours
P26		.88	Defrost method	1= electric, 2= hot gas, 3= electric+AZV, 4= hot gas+AZV	1
P27		.88	Defrost time 1 000...235, oFF	(1.+ 2 position = hours, 3rd position = minutes x 10)	oFF
P28		.88	Defrost time 2 000...235, oFF		oFF
P29		.88	Defrost time 3 000...235, oFF		oFF
P30		.88	Defrost time 4 000...235, oFF		oFF
P31		.88	Defrost (safety) time	1...120 minutes	30 minutes
P32		.88	Drain time (refrigeration delay after defrost)	0...99 minutes	0 minutes
P33		.88	Alarm mode	0= Alarm relay active ON 1= Alarm relay active OFF 2= like "0", but internal buzzer OFF 3= like "1", but internal buzzer OFF 4= Alarm relay sw. like internal buzzer 5= Rel.4 switches with contr. setpoint 2 alarm message by buzzer/LED 6= Alarm relay switched via DDC	1
P34		.88	Alarm delay	1...99 minutes, if sensor fails always automatically < 1 minute	5 minutes
P35		.88	Alarm high limit temperature (relative to P03)	0...100 K	100K
P36		.88	Alarm low limit (absolute value)	± 100 °C (-148...212 °F)	-100°C
P37		.88	Digital input DI1	oFF = input de-activated 1= door contact active (fan OFF immediately, refig OFF after minutes, alarm after P39) 2= door contact passive (like 1) 3= alarm input active (alarm after P39) 4= alarm input passive (like 3) 5= control setpoint 2 ON (after P39, priority higher than by time) 6= defrost ON (after delay P39) 7= controller OFF	oFF
P38		.88	Digital input DI2	like DI1	oFF
P39		.88	Digital input DI1 delay	0...99 minutes	2
P40		.no	Date year		
P41		.no	Date month		
P42		.no	Date day		
P43		.no	Time hours		
P44		.no	Time minutes		
P45		.no	Time seconds		
P46		.88	Baudrate (data transfer speed via interface)	1= 1200, 2= 2400, 3= 4800, 4=9600 5= 19200, 6= 28800, 7= 57600	4
P47		.88	Address of the unit in a network	1...78	78
P48		.88	Interface protocol	0= E-Link, 1= MODBus	0
P49		.no	Manual defrost	"↑"= start defrost cycle, "↓"= terminate	
P50		.88	"Display Hold" (DH) while defrost	0 = on, 1 = off	0
P51		.88	ON-time of the cooling relay while a sensor failure (emergency operat.). Part depends on a 30 min.-interval	0...100%	50
P52		.no	Current failure + failure listing	Multiple failures: Scroll by arrow keys	
P53		.no	Access code	0...99	00

RMT 1000 - Control Panel - Dimensions



TAR 3174 - Control System - Dimensions / Connection



i Note Protective Earth
 Earth
 Dimensions in mm,
 (in brackets = inches)

CONNECTION INFORMATION & SAFETY INSTRUCTIONS



Notice

Product warranty does not cover damage caused by failure to comply with these operating instructions! Nor will ELREHA be held liable for any personal injury or damage to property caused by improper handling or failure to observe the safety instructions and recommendations contained in this or any other ELREHA supplied document related to this product! This manual contains additional safety instructions throughout the functional description. Please pay close attention to these instruction!



Caution

- Before installation, verify that the control specifications suit the application details. Damage may occur to the device when operated if the aforementioned conditions are not within the device specifications.
Examples:
 - Supply voltage (printed on the type label).
 - Environmental limits for temperature/humidity.
 - Maximum current rating for the relays.
- Sensor/probe cables must be shielded. Don't install them in parallel to high-current cables. Shielding must be connected to PE at the end close to the controller. If not, inductive interferences may occur.
- Note related to wire lengths connected to the device: Wire should be 0,5mm² at a minimum.
- Mounting the device in close proximity to power relays is NOT recommended. Strong electro-magnetic interference may cause the device to malfunction!
- All line interface wiring must meet the specified requirements.



Danger

TO AVOID RISK TO HEALTH OR POSSIBLE LOSS OF LIFE, DO NOT OPERATE IF:

- The device has visible damage or doesn't work
- After a long storage period under unfavourable conditions
- The device is heavily soiled or wet
- When shipped under inadequate conditions
- Never use this product in equipment or systems that are intended to be used in applications or under circumstances that may affect human life. For applications requiring extremely high reliability, please contact the manufacturer before use.
- **This product may only be used in the applications described on page 1.**
- **Electrical installation and placement into service must be performed by qualified personnel only.**
- **To avoid the risk of Electrical Shock, all 'PE' terminals must be connected to ground. Without adequately grounding the unit, the internal noise filter will not work, which can cause faulty readings, or inaccurate displayed values to occur.**
- **To prevent electrical shock, the device may only be operated in a closed control cabinet or control box.**
- **Be sure to observe all local, state, or federal safety regulations in the location that the unit is installed.**

EC Declaration of Conformity



For the devices **TAR 3174** and **RMT 1000** we state the following:
When operated in accordance with the technical manual, the criteria have been met that are outlined in the EMC Directive **2014/30/EC** and the Low Voltage Directive **2014/35/EC**. 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 to meet the requirements of EMC and Low Voltage Guidelines:

EN 55011:2016+A1:2017, EN 61010-1:2010, EN 61326-1:2013 **CE marking of year: 2018**

This statement is made for the manufacturer / importer

by:

ELREHA Elektronische Regelungen GmbH
D-68766 Hockenheim

Werner Roemer, Technical Director

www.elreha.de

Hockenheim**2018-05-08**.....

(Name / Address)

City

Date

Signature



Notice

This manual, which is part of the product, has been set up with care and our best knowledge, but mistakes are still possible. Technical details can be changed without notice, especially the software. Please note that the described functions are only valid for units containing the software with the version-number shown on page 1 of this manual. Units with an other version number may work a little bit different. This version number can be read on the device in the mode list.