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TECHNICAL MANUAL Humidity Controller — TAR x404 / x406

5310891-05/03E
Softw.vers.982901

Type Overview

TAR 1404 ..... input 0-10V ..... 12-24V AC/DC
TAR 1406 ..... input 4-20mA ... 12-24V AC/DC
TAR 4404 ..... input 0-10V ..... 230V / 50-60Hz
TAR 24404 ..... input 0-10V ..... 115V / 60Hz
TAR 4406 ..... input 4-20mA ... 230V / 50-60Hz
TAR 24406 ..... input 4-20mA ... 115V / 60Hz
TAR 5404 ..... input 0-10V ..... 230V / 50-60Hz
TAR 25404 ..... input 0-10V ..... 115V / 60Hz
TAR 5406 ..... input 4-20mA ... 230V / 50-60Hz
TAR 25406 ..... input 4-20mA ... 115V / 60Hz

General

The TAR x40x series controller is a universal controller for relative humidity with two output circuits and a warning output with built-in alarm buzzer. A variety of adjustable parameters allow the use of this controller in many different applications.

Function

The sensor unit measures the r.H. and converts it into a voltage or current signal. The controller displays the value, compares the value with the setpoint(s) and decides on the output relay action and the buzzer function.

Setpoints

The setpoints for both circuits are absolute values, there is no functional interconnection between the two output circuits. Parameter (P02) is the setpoint for the 1 st circuit (relay 1) and (P03) is the setpoint for the 2 nd circuit (relay 2). The switching hysteresis for each circuit is set individually with parameters (P04) and (P05).

Alarm Function

If the actual humidity is above (P13) or below (P14), a time delay (P15) is started before the warning relay (relay 3) and the buzzer are activated. The relay function (normaly energized or normaly de-energized) is set with parameter (P11). The buzzer function can be de-activated with parameter (P12).

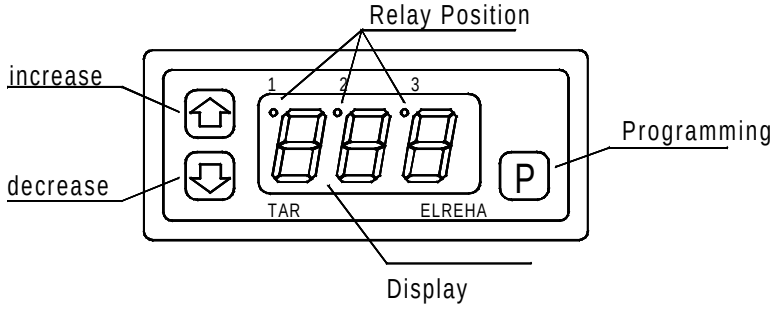
Pressing any key cancels an alarm.

If the over / under humidity situation stays on when the alarm was canceled, the alarm relay will come ON again after the set time delay. At any time you can look up the remaining time for an alarm to come ON under parameter (P16).

Setpoint Range

To prevent the user from changing the setpoint outside a certain range because this might cause any demage to the application, there is a possibility of limiting the accessable range with the parameters (P06) and (P07).

Operating Elements



All TAR's are marked in the same way but different locations

Operation

Operating the TAR controller is very easy with three keys allowing to select all parameters and changing 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 **P17**
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.

Installation

Before applying voltage to the controller, make sure that all electrical wiring has been made in accordance with this manual.
Sensor leads should be shielded type with the shield connected to ground at one side only. This minimizing the effect of irregular switching due to electro magnetic interference. Use wire size minimum 0.5 mm^2. If your sensor needs a supply voltage: There is a unregulated DC voltage available directly out of the controller.

Controller Set Up

Upon applying voltage to the controller, the display will read the actual humidity at the sensor.
If you enter now the access code (parameter P17), you can do the initial settings like 'Relay Actions', 'Alarm Mode', 'Buzzer Activation', and the operational settings like 'Setpoints', 'Hysteresis', etc.
If there is any reason for adding a correction factor to the reading of actual humidity, you can do this under parameter (P10).

Accessories

Mounting bracket (TAR 1xxx and x5xxx)
Humidity Sensor FF 2520 (order separately)

Failure Modes

In case of a sensor fault, the display will flash and the relays K1 and K2 are de-energized. The alarm will come ON according to the settings.

Technical Data

Supply Voltage ..... see type overview
Power Consumption ..... appr. 3,5 VA
Contact Rating ..... 8A res, 3A ind./250V AC
Operating Temperature .. -10...+55°C
Storage Temperature ..... -30...+70°C
Data Storage ..... unlimited (EEPROM)
Display ..... LED-12 mm, red
Relay Indicator ..... 1.2 mm, red
Buzzer ..... 3,5 kHz / 0.5 Hz intervals
Electrical Connections..... Screw terminals 2,5mm
Protection TAR 140x ..... IP 54 from front
TAR 240x ..... IP 30
TAR 440x ..... IP 54
TAR 540x ..... IP 54 from front
Signal inputs
TAR xxx4 ..... 0-10V = 0-100% r.H.
TAR xxx6 ..... 4-20 mA = 0-100% r.H.

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Parameters

P01 ..... Actual Sensor Value in % R. H.
(display only)

P02 ..... Setpoint #1 (unlocked)
(Default 30% R.H.)

P03 ..... Setpoint #2 (unlocked)
(Default 70% R.H.)

P04 ..... Hysteresis #1
(Default 5% R.H., range 0... 10%)

P05 ..... Hysteresis #2
(Default 5% R.H., range 0...10%)

P06 ..... Upper Setpoint Limit
(Default 100% R.H., range 0...100%)

P07 ..... Lower Setpoint Limit
(Default 0% R.H., range 0...high limit)

P08 ..... Relay Action K1
1= De-Humidify
2= Humidify (default)

P09 ..... Relay Action K2
1= De-Humidify (Default)
2 = Humidify

P10 ..... Sensor Correction Factor
(range ±10% R.H., Default 0)

P11 ..... Alarm Mode
1 = Passive,
relay K3 normally energized
2 = Active,
relay K3 normally de-energized

P12 ..... Alarm Buzzer
1 = activated (default)
2 = de-activated

P13 ..... Alarm High Limit
(default 100 % R.H., range 0....100)

P14 ..... Alarm Low Limit
(default 0% R.H., range 0...high limit)

P15 ..... Alarm Delay
(default 30 minutes; range 1...99 minutes)

P16 ..... Remaining Alarm Delay
(minutes, display only)

P17 ..... Access Code
Code is --- **88** ---

Default values are factory settings.

Note:
If you keep the 'P' key pressed when applying voltage to the controller, all parameters are set back to default values.

Your Settings

Parameter	Description	Value / Setting
P02	Setpoint 1	
P03	Setpoint 2	
P04	Hysteresis 1	
P05	Hysteresis 2	
P06	Setpoint Upper Limit	
P07	Setpoint Lower Limit	
P08	Operation Mode Relay 1	
P09	Operation Mode Relay 2	
P10	Actual Correction	
P11	Alarm Mode	
P12	Buzzer	
P13	Upper Alarm	
P14	Lower Alarm	
P15	Alarm Delay	
P17	CODE	**88**

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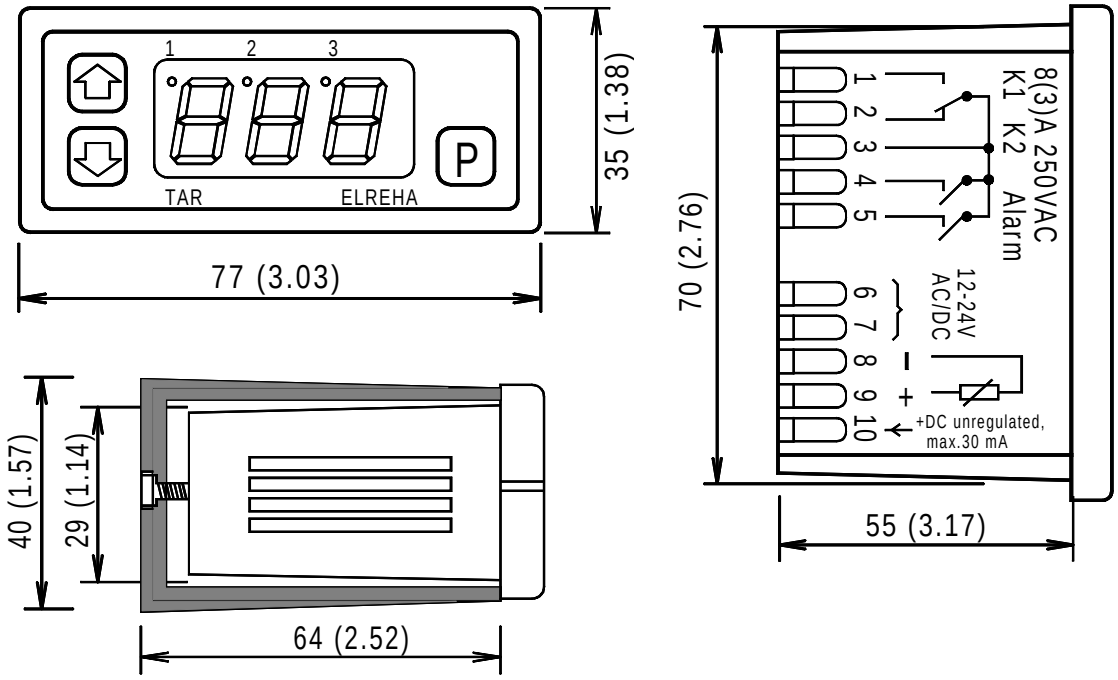
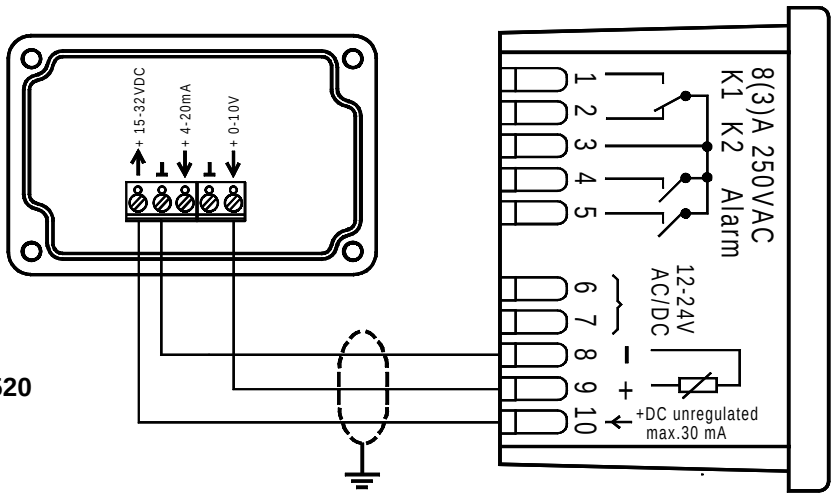
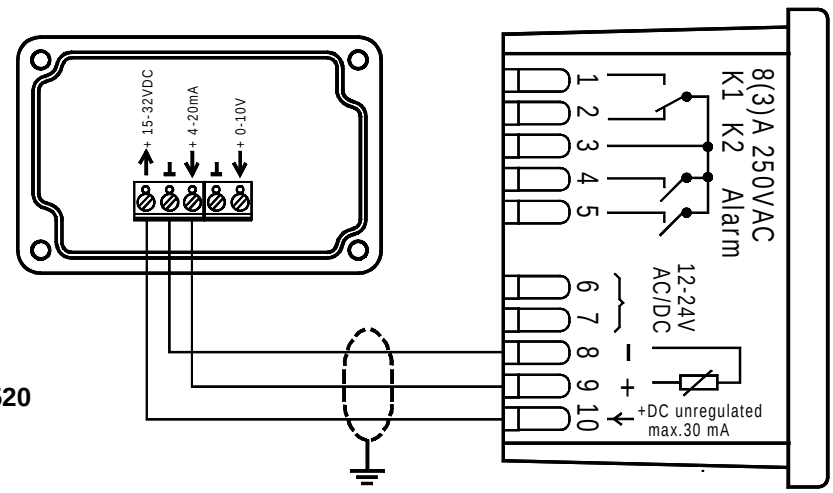
Outline Dimensions / Wiring TAR 140x



Sensor Connections

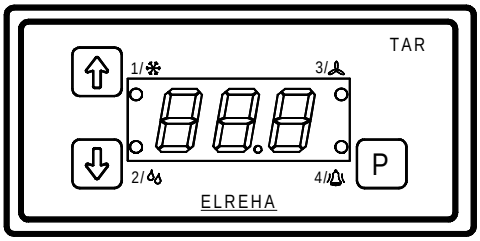


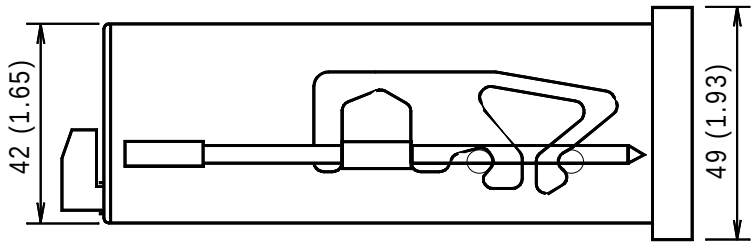
TAR 1404 with FF 2520

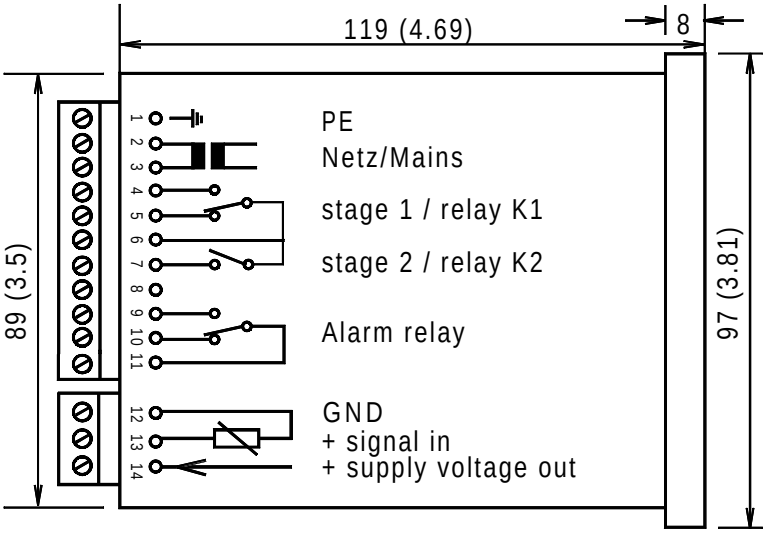


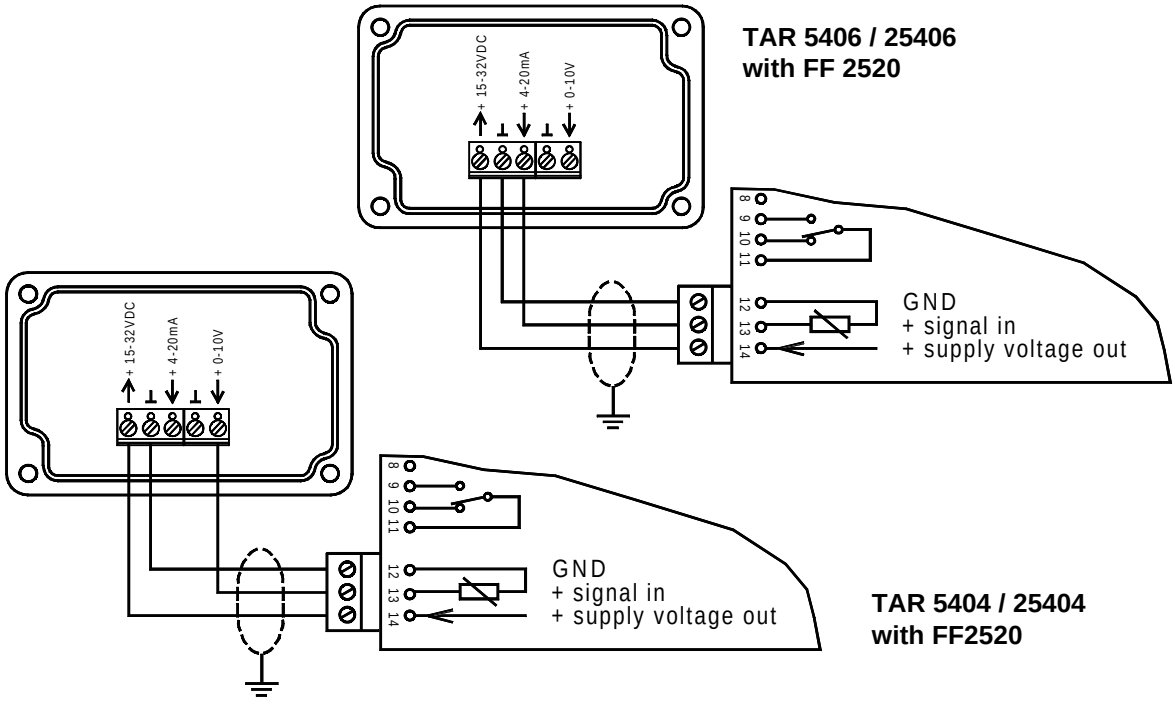
TAR 1406 with FF2520

Outline Dimensions / Wiring TAR 540x / 2540x









TAR 5406 / 25406
with FF 2520

TAR 5404 / 25404
with FF2520

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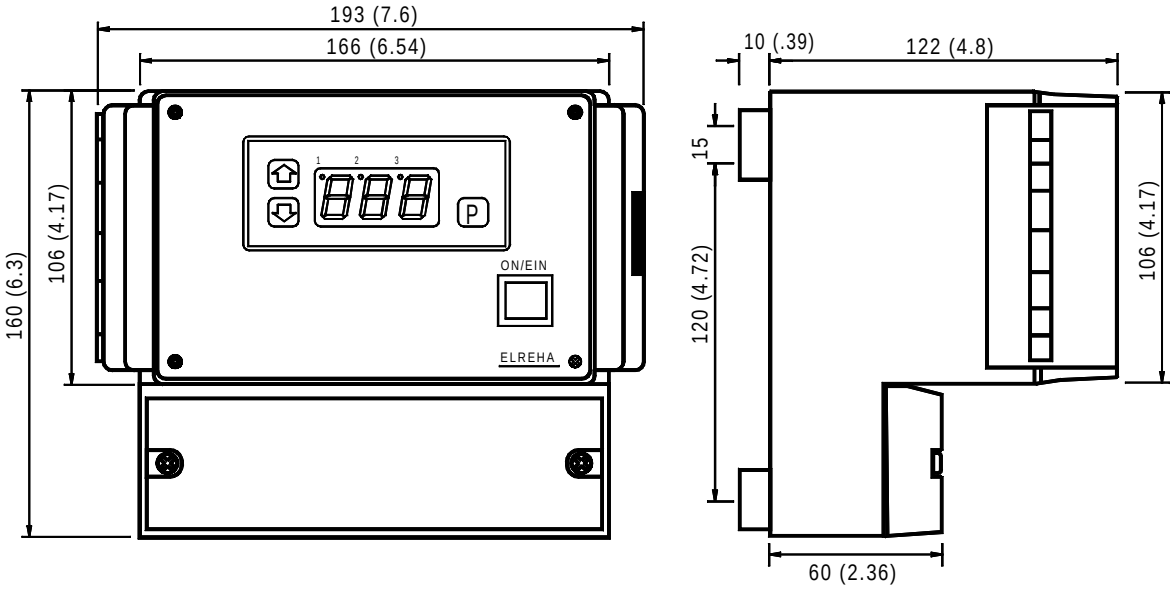
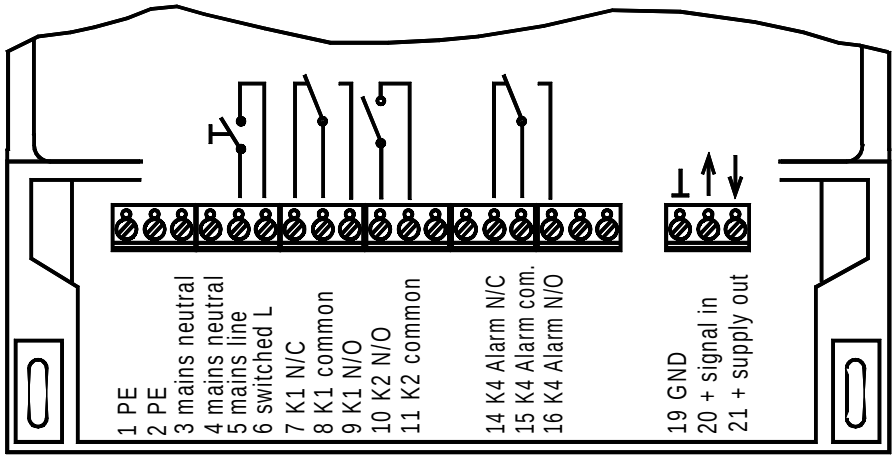
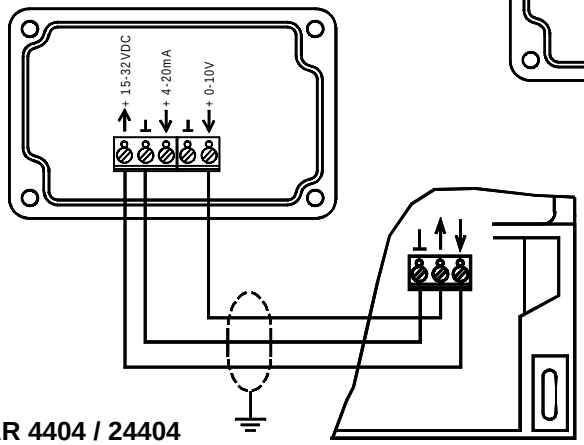
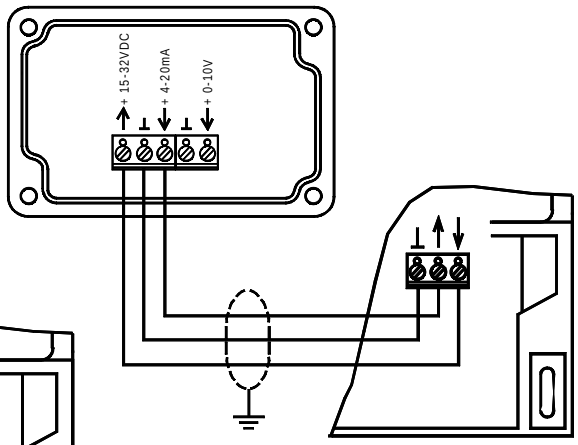
Outline Dimensions / Wiring TAR 440x / 2440x







TAR 4404 / 24404
with FF2520



TAR 5406 / 25406
with FF2520

EG-Statement of Conformity

We state the following: When operated in accordance with the technical manual, the CE *criteria have been met that are outlined in the guidelines of the council for alignment of statutory orders of the member states on electro-magnetic 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 confirmity 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, Teil 1 und 2; EN 50082, Teil 1 und 2

This statement is made from the manufacturer / importer by:

ELREHA Elektronische Regelungen GmbH
68766 Hockenheim

(Name / Anschrift / *name / adress*)

Klaus Birkner, **Developement and and leader of the EMC-Laboratory**

Hockenheim **19.6.97**

Ort/*city* Datum/*date* Unterschrift/*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. If you have any problems, difficulties or questions please don't hesitate asking our technical support. 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 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

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Technical
Support..... 0 62 05 / 2009-25
or 2009-26

set up: 29.1.98	by: tkb/jr
checked: 29.1.98	by: tkb/sha
approved: 29.1.98	by: tl/wr

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