MEASUREMENT & CONTROL TECHNOLOGY

HEATING & COOLING MATS

PREFABRICATED PRODUCTS

TUBES, SUPPLY & RETURN LINES

CONNECTION COMPONENTS

FITTINGS

MEASUREMENT & CONTROL TECHNOLOGY

SYSTEM SEPERATION PLASTIC MANIFOLD

FIXING MATERIAL

TOOLS & ASSEMBLY KIT

8 Measurement & Control Technology

8.1 Room Temperature Controller

Clina Room Temperature Controllers are equipped with a connection for Clina Dew Point Sensors. The actual operating mode (cooling/heating/ danger of dew point) is indicated by light-emitting diodes.

The room temperature is upheld by means of a simple 2-point-control mode (ON/OFF). By way of the room temperature controller, the temperature is recorded, and by a control signal the zone valve with actuator is activated. As a result of the low level water content and the spreading of 2-4 K, a constant control is not necessary. This type of room temperature control is preferentially applied for cooling and also heating purposes with the capillary tube system.

The Clina Room Temperature Controller TR1 B, TR2/3 and TR2/3 F is designed for temperature control of the room as well as for the protection of the cooling ceiling against damage resulting from condensation.

Room Temperature Controller Heating and Cooling

TECHNICAL DATA ROOM			
	TR1B	**TR2/3**	**TR2/3F**
DIMENSIONS:	78 x 83 x 25 mm	70 x 70 x 20 mm	81 x 85 x 16 mm
OPERATING VOLTAGE:	24 VAC/50 Hz, 24 VDC	24 VAC/50 Hz	24 VAC/50 Hz, 24 VDC
CONTROL RANGE:	13–29 °C	5–30 °C	13–29 °C
SWITCHING HYSTERESIS:	approx. 1 K	1 K	approx. 1 K
TEMPERATURE SENSOR:	internal NTC	internal NTC	internal NTC
SWITCHING OUTPUTS:	24 VAC/50 Hz, 24 VDC	TRIAC, 24 VAC/1 A	24 VAC/50 HZ, 24 VDC
HOUSING COLOUR:	alpine-white equal RAL 9010	signal white equal RAL 9003	alpine-white gloss equal RAL 9010
FUNCTIONS:	cooling or heating with switchover ECO-function	a) cooling or heating b) cooling and heating with set point remote adjustment	a) cooling or heating b) cooling and heating with set point remote adjustment
INSTALLATION:	on-wall mounting	in-wall mounting suitable for in-wall socket in accordance to DIN 49073 (mounting depth 28 mm)	in-wall mounting suitable for in-wall socket in accordance to DIN 49073 (mounting depth 28 mm)

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ROOM TEMPERATURE CONTROLLER TR1B

The controller TR1B (on-wall mounting) has an exit to actuate a valve and is switchable between heating **or** cooling.

TECHNICAL DATA	
DESCRIPTION	room temperature controller heating **or** cooling, on-wall mounting 24 VAC/50 Hz, 24 VDC
ITEM NO.	TR1B

ROOM TEMPERATURE CONTROLLER TR2/3

The controller TR2/3 (in-wall mounting) can actuate 1 valve (heating or cooling) and can also be switched internally to actuate 2 valves (heating **and** cooling). With the option of the external set point remote adjustment ± 5 K through a signal 0-10 V, the TR2/3 is used for two-pipe systems (heating **or** cooling) and four-pipe systems (heating **and** cooling).

TECHNICAL DATA	
DESCRIPTION	room temperature controller heating **and/or** cooling, in-wall mounting 24 VAC/50 Hz
ITEM NO.	TR2/3

ROOM TEMPERATURE CONTROLLER TR2/3F

The controller TR2/3F (in-wall mounting) for the integration in existing switch programs can actuate 1 valve (heating **or** cooling) and also be switched internally to actuate 2 valves (heating **and** cooling). An external set point remote adjustment of -3 K in case of heating and +3 K in case of cooling is possible.

TECHNICAL DATA	
DESCRIPTION	room temperature controller heating **and/or** cooling, in wall mounting 24 VAC/50 Hz, 24 VDC housing cover 50 x 50 mm with frame also for integration in different switch programs with adapter frames
ITEM NO.	TR2/3F*

HOUSING COVER VARIANT 55 X 55

TECHNICAL DATA	
DESCRIPTION	housing cover 55 x 55 mm for controller TR2/3F RAL 9010 gloss also for direct integration in different switch programs without adapter frames
ITEM NO.	VA55*

COVER FRAME

TECHNICAL DATA	
DESCRIPTION	cover frame for controller TR2/3 for flush mounted sockets Ø >65mm
ITEM NO.	VRR2/3

* Chart for selection and assignment of the controller to the various frame programs based on the size of the cover frame available on request.

Other types of the a.m. room temperature controllers on request (e.g., room temperature controller heating and cooling on-wall mounting or room temperature controller heating and/or cooling, in-wall mounting TR2/3 as well as TR2/3F with LCD display)!

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Room Temperature Controller Heating

TECHNICAL DATA				
	TR24B/AP	**TR230B/AP**	**TR24B/UP**	**TR230B/UP**
DIMENSIONS:	78 x 83 x 15 mm	78 x 83 x 15 mm	81 x 85 x 16 mm	81 x 85 x 16 mm
OPERATING VOLTAGE:	24 VAC/50 Hz	230 VAC/50 Hz	24 VAC/50 Hz, 24 VDC	230 VAC/50 Hz
AVERAGE POWER INPUT:	<0,25 W	<0,25 W	<0,5 W	<0,5 W
CONTROL RANGE:	5–30 °C	5–30 °C	5–30 °C	5–30 °C
SENSOR:	bi-metal	bi-metal	bi-metal	bi-metal
SWITCHING HYSTERESIS:	approx. 1 K	approx. 1 K	approx. 1 K	approx. 1 K
MAX. SWITCHING VOLTAGE:	24 VAC/50 Hz	230 VAC/ 50 Hz	24 VAC/50 Hz, 24 VDC	230 VAC/50 Hz
HOUSING COLOUR:	alpine-white equal RAL 9010	alpine-white equal RAL 9010	alpine-white equal RAL 9010	alpine-white equal RAL 9010
FUNCTIONS:	heating	heating	heating	heating
INSTALLATION:	on-wall mounting	on-wall mounting	in-wall mounting suitable for flush mounted sockets in accordance to DIN 49073 (mounting depth 28 mm)	in-wall mounting suitable for flush mounted sockets in accordance to DIN 49073 (mounting depth 28 mm)

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BETTER HEATING & COOLING   Clina

ROOM TEMPERATURE CONTROLLER TR24B/AP

TECHNICAL DATA	
DESCRIPTION	room temperature controller heating, 24 VAC/50 Hz alpine-white, equal RAL 9010, on-wall mounting
ITEM NO.	TR24B/AP

ROOM TEMPERATURE CONTROLLER TR24B/UP

TECHNICAL DATA	
DESCRIPTION	room temperature controller heating, 24 VAC/50 Hz alpine-white, gloss, equal RAL 9010, in-wall mounting
ITEM NO.	TR24B/UP

ROOM TEMPERATURE CONTROLLER TR230B/AP

TECHNICAL DATA	
DESCRIPTION	room temperature controller heating, 230 VAC/50 Hz alpine-white, equal RAL 9010, on-wall mounting
ITEM NO.	TR230B/AP

ROOM TEMPERATURE CONTROLLER TR230B/UP

TECHNICAL DATA	
DESCRIPTION	room temperature controller heating, 230 VAC/50 Hz alpine-white, gloss, equal RAL 9010, in-wall mounting
ITEM NO.	TR230B/UP

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BETTER HEATING & COOLING

8.2   Dew Point Sensor

Clina Dew Point Sensors register any possible accumulation of condensation at the capillary tube mat or in its immediate surroundings, thereby changing their electric resistance. This resistance change in the sensor is recognised by the room temperature controller TR1 and TR2/3 and causes the control valve to close. It therefore protects the cooling surfaces effectively against damage.
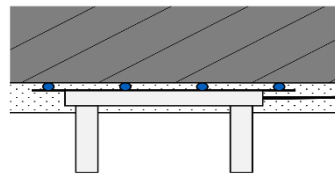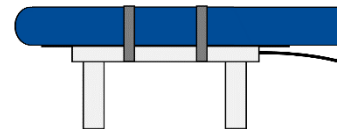
DEW POINT SENSOR TF 3 P/R-22

TECHNICAL DATA	
DESCRIPTION	dew point sensor **for plaster ceilings and piping**
ITEM NO.	TF3 P/R-22
DIMENSIONS	70 x 20 x 7 mm (sensor with housing)
CONNECTING CABLE	2-core cable length 10 m, 2 x 0,14 m² (extendable up to approx. 50 m with shielded cable), non-halogen
OPERATING VOLTAGE	24 VDC, 24 VAC/50 Hz
ALLOWED AMBIENT TEMPERATURE	0...50 °C
SWITCHING POINT FOR DEW POINT	approx. 8 MΩ, corresponds to approx. 95% rel. humidity
MATERIAL	housing: plastic, circuit board: gold plated

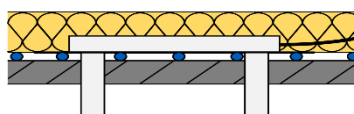dew point sensor TF3 P/R -22

mounting in plaster ceiling

mounting on pipe
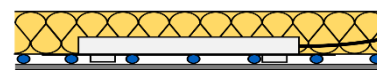
DEW POINT SENSOR TF 3 G/M-22

TECHNICAL DATA	
DESCRIPTION	dew point sensor **for gypsum board or metal panel ceilings**
ITEM NO.	TF3 P/R-22
DIMENSIONS	70 x 20 x 7 mm (sensor with housing)
CONNECTING CABLE	2-core cable length 10 m, 2 x 0,14 m² (extendable up to approx. 50 m with shielded cable), non-halogen
OPERATING VOLTAGE	24 VDC, 24 VAC/50 Hz
ALLOWED AMBIENT TEMPERATURE	0...50 °C
SWITCHING POINT FOR DEW POINT	approx. 8 MΩ, corresponds to approx. 95% rel. humidity
MATERIAL	housing: plastic, circuit board: gold plated

dew point sensor TF3 G/M-22

mounting in gypsum board ceiling

mounting in metal panel

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UNIVERSAL COVER TF

TECHNICAL DATA	
DESCRIPTION	Universal cover for dew point sensor TF3 P/R-22 and TF3 G/M-22
ITEM NO.	TF-UABD
DIMENSIONS	Ø 80 mm H 20 mm
MATERIAL	ABS plastic, white

8.3   Converter

The Clina Converter TK1-PF or TK2-PF evaluates the information from the allocated dew point sensor. On reaching the dew point, the integrated contact (voltage free change-over contact) is actuated. This information can, for example, be of service to the remote signal of a GLT on the customer´s side, or similar. Up to 5 dew point sensors (5 pieces parallel) can be hooked up to a converter. The converter is among others intended for the installation on electric installation rails (standard rails).

CONVERTER TK1-PF

TECHNICAL DATA	
DESCRIPTION	converter 24 VDC, 24 VAC/50 Hz volt free changeover contact
ITEM NO.	TK1-PF
MAX. CAPACITY OF THE OUTLET	48 VAC, 60 VDC
DIMENSIONS	86 x 36 x 59 mm

CONVERTER TK2-PF

TECHNICAL DATA	
DESCRIPTION	converter 230 VAC/50 Hz volt free changeover contact
ITEM NO.	TK2-PF
MAX. CAPACITY OF THE OUTLET	230 VAC
DIMENSIONS	86 x 36 x 59 mm

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8.4 Thermal Actuator

This thermal actuator is matching to zone valves and provides a two-point (OPEN/CLOSE) control for heating and air-conditioning systems. The thermal actuator keeps the valve shut in a de-energised state; it is equipped with a "First-Open" function and a function indicator. The thermal actuator is plugged on to a valve adapter (VA1) via bayonet closure. If requested by the customer, it can be supplied with an auxiliary switch for ON/OFF control of the circulating pump.

OPERATING VOLTAGE:	24 VAC or 230 VAC $\pm$ 10%, 50-60 Hz
OPERATING POWER:	1 Watt
AMBIENT TEMPERATURE:	max. 60 °C
CLOSING AND OPENING TIME:	approx. 3,5 min
ACTUATOR TRAVEL:	4,0 mm
ACTUATING FORCE:	100 N
DEGREE / CLASS OF PROTECTION:	IP54 / II
CONNECTING LINE:	2 x 0,75 mm² PVC (L = 1000 mm)
COLOUR:	light grey (RAL 7035)
DIMENSIONS H X W X D :	(50,5 + 5) x 44 x 48 mm
CE CONFORMITY ACCORDING TO:	EN 60730

THERMAL ACTUATOR TA24 (24 VAC)

TECHNICAL DATA	
DESCRIPTION	thermal actuator 24 VAC, normally closed (NC), 1 watt, bayonet closure, 4,0 mm-travel path, "first open" function, WITHOUT adapter for valve body (to be ordered separately)
ITEM NO.	TA24

THERMAL ACTUATOR TA230 (230 VAC)

TECHNICAL DATA	
DESCRIPTION	thermal actuator 230 VAC, normally closed (NC), 1 watt, bayonet closure, 4,0 mm-travel path, "first open" function, WITHOUT adapter for valve body (to be ordered separately)
ITEM NO.	TA230

ADAPTER

TECHNICAL DATA	
DESCRIPTION	adapter M30 x 1,5 for a.m. actuators suitable for Oventrop, Heimeier, SBK
ITEM NO.	VA1

- Other actuator types e.g., with a control voltage 0-10 VDC, are available on request.
- Adapters to attach the actuator to other valve bodies are also available on request.

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