industrie technik®

HVAC PRODUCTS

A company from SÜDTIROL

About AB Industrietechnik

AB Industrietechnik Srl has been manufacturing for over 30 years control equipment and measuring instruments for all the measurable parameters in the field of thermo technical engineering in industrial, commercial and residential applications.
We offer a complete and diversified range of electrical, electronic and electromechanical applications for state of the art applications for temperature, pressure, humidity, air quality and flow control and monitoring, always focusing on sustainable resource use, energy saving and personal well-being.
Our product range is wide and complete; from valves for water with their own actuators, to damper actuators for building automation, as well as fan-coil and electromechanical thermostats, electronic room controllers and measuring sensors.
In particular, AB Industrietechnik Srl is among the European leading companies in the manufacturing of liquid flow switches and antifreeze thermostats and our products are famous for their material strength, reliability and high quality level.
All of these products are suitable for both industrial and residential applications in various sectors: thermoregulation, HVAC, automation, etc.
Our company is TÜV certified according to DIN EN ISO 9001:2008 and provides expert assistance in the implementation of control and monitoring solutions and applications. The headquarters are located in Brixen, South Tyrol and the 4,500 sqm of surface are distributed in a five story high building hosting all of the corporate functions: Administration and Finance, Sales Department, R&D and Design Department, Production and Logistics. At the moment the company has 45 employees.
Most of the product manufacturing processes are carried out internally, as the company owns all the necessary machinery for the production of both mechanical parts and electronic products.
From the very beginning the company was able to build a trust relationship with its clients, among which there are the most important European HVAC systems producers. Besides, an efficient sales network and system made it possible to be renowned and to distribute our products in over 70 countries all over the world.

Petra de Biase
Managing Director
with 25 years experience in the sector

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Why AB Industrietechnik?

Own production

Tradition

since 1981

Product development

Reliability

A company from SÜDTIROL

TÜV SÜD ISO 9001

Quality

INDEX

NEWS

A lot of things are happening in ITK, at this section you will find ALL NEWS in brief.

NEW MODERN LOOK

We have updated our complete range of products with a new modern color

ROOM CONTROLLERS / THERMOSTATS

A wide range to control different type of applications

- On/off, 3-point, 0-10V for thermal actuator control
- With or without display
- With communication

for more information see page **22**

TRIAC CONTROLLERS

A wide range of controllers to control electrical duct heaters

- Wall or DIN-rail mounting
- 1, 2 or 3 phase 200…415 V

for more information see page **54**

CONTROLLERS FOR AIR HANDLING AND HEATING

Different kinds of stand-alone controllers with or without communication

- Preprogrammed
- One to three 0-10V outputs
- Version for duct mounting or DIN rail



for more information see page **58**

TEMPERATURE SENSORS

A complete range of high quality temperature sensors

- Wide range of elements equivalent to most of the BMS manufacturers
- Room, bulb, duct, immersion, outdoor, average and clamp-on sensor
- With or without housing




for more information see page **64**

CO2 TRANSMITTERS

A new complete range of CO2 transmitters will be launched

- Duct and room versions
- With or without display
- Models with Modbus communication


for more information see page **82**

CO TRANSMITTER

A new range of high quality CO transmitters intended for demand-controlled ventilation

- Automatic zero adjustment
- TÜV approved

for more information see page **86**

HUMIDITY TRANSMITTERS

A range of humidity transmitters with high accuracy

- Wall and room versions
- With or without display

for more information see page **96**

HUMIDISTATS

A range of mechanical humidistats

- Room and duct version
- With hair element

for more information see page **96**

VALVE ACTUATORS

Easy to connect to a valve and user friendly

- 500N, 1000N, 1800N and 2500 N
- 3-point 0-10V or 2-10V
- Manual override

for more information see page **125**

VALVES

A wide range of control valves

- Gunmetal and cast iron
- Threaded and flanged
- DN15 to 150

for more information see page **126**

SMOKE DETECTORS

A complete range of smoke detectors including control unit

- Duct and ceiling mounting
- Duct version

for more information see page **136**

PRESENCE DETECTORS

For both ceiling and wall mounting

- With change over relay

for more information see page **136**

TRANSFORMERS

A wide range of transformers from 5VA up to 75VA

- Wall or DIN-rail mounting
- With built in fuse

for more information see page **140**

Chapter 1

Electromechanical thermostats

1. ELECTROMECHANICAL THERMOSTATS

1.1 ROOM THERMOSTAT, IP20 TA

TA33/I

1-stage room thermostat for wall mounting. Models with on/off switch or summer/winter switch.

TECHNICAL DATA

Sensitive element:	gas-filled bellows with membrane
Contacts:	NO/NC 250 Vac 16 (2,5) A
Differential:	fixed 1K
Protection:	IP20
Size:	80 x 80 x 44 mm

TYPE	RANGE °C	FUNCTIONS
TA31/I	+7...+30	
TA33/I	+7...+30	ON/OFF switch
TA34/I	+7...+30	summer/winter switch

1.2 ROOM THERMOSTATS, WITH FIXED DIFFERENTIAL, IP54 ET

ET060

ET06060U

A wide range of low cost room thermostats for wall mounting.

TECHNICAL DATA

Sensitive element:	liquid-filled coiled copper nickel
Switch capacity:	NC 16 (6) A, 250 Vac NO 6 (4) A, 250 Vac
Contacts:	dust-tight microswitches with switching SPDT contacts (heat/cool)
Protection:	IP54, class I
Size:	108 x 70 x 72 mm 132 x 88 x 70 mm (2 stage models)

TYPE	RANGE 1 °C	RANGE 2 °C	DIFFERENTIAL RANGE 1 K	DIFFERENTIAL RANGE 2 K	MAX. BULB TEMP. °C
ET060	0...+60		1.5±1		65
ET060U	0...+60		1.5±1		65
ET06060	0...+60	0...+60	1.5±1	1.5±1	65
ET06060U	0...+60	0...+60	1.5±1	1.5±1	65

Note: range 2 always under the cover
U range 1 under the cover

1.3 ROOM THERMOSTATS, WITH FIXED AND ADJUSTABLE DIFFERENTIAL, IP65 DBET

DBET-26

A wide range of high quality room thermostats for wall mounting.

TECHNICAL DATA

Sensitive element:	liquid-filled coiled copper
Switch capacity:	15 (8) A, 24...250 Vac
Contacts:	dust-tight microswitches with SPDT contacts (heat/cool)
Protection:	IP65, class I
Size:	108 x 70 x 72 mm

DBET-26U

TYPE	RANGE °C	STAGES	DIFFERENTIAL IN THE STAGE K	DIFFERENTIAL BETW. THE STAGES K	MAX. BULB TEMP. °C
DBET-22	-30...+30	1	2...15		60
DBET-22U	-30...+30	1	2...15		60
DBET-22/2	-30...+30	2	1	2...5	60
DBET-22/2U	-30...+30	2	1	2...5	60
DBET-23	-30...+30	1	1		60
DBET-23U	-30...+30	1	1		60
DBET-26	0...+60	1	2...15		75
DBET-26U	0...+60	1	2...15		75
DBET-26/2	0...+60	2	1	2...5	75
DBET-26/2U	0...+60	2	1	2...5	75
DBET-27	0...+60	1	1		75
DBET-27U	0...+60	1	1		75

U models with range under the cover

1.4 CAPILLARY THERMOSTATS, IP54 TC

TC090

A wide range of low cost thermostats.

TECHNICAL DATA

Sensitive element:	liquid-filled copper with capillary PVC protected
Switch capacity:	NC 16 (4) A 250 Vac NO 10 (6) A 250 Vac
Contacts:	dust-tight microswitches with SPDT contacts (heat/cool)
Dim. bulb:	Ø 6.8
Dim. capillary:	1,5 m length
Protection:	IP54, class I
Size:	108 x 70 x 72 mm

TYPE	RANGE °C	DIFFERENTIAL RANGE K	MAX. BULB TEMP. °C	CAPILLARY LENGTH m
TC060	0...+60	4±1	130	1,5
TC090	0...+90	4±1	130	1,5

ACCESSORIES	DBZ-30/14 - Brass pocket 120mm, 8 x 0.5
	DBZ-31/14 - Stainless steel AISI 301 pocket 120mm, 8 x 0.5

DBET-6

DBET-16U

High quality thermostat series.

TECHNICAL DATA

Sensitive element:	liquid-filled copper
Switch capacity:	15 (8) A, 24...250 Vac
Contacts:	dust-tight voltage free microswitches with SPDT contacts (heat/cool)
Dim. bulb:	Ø 9.5 (Ø 8 for range +50...+120 °C)
Dim. capillary:	length 1,5 m
Protection:	IP65, class I
Size:	108 x 70 x 72 mm

TYPE	RANGE °C	STAGES	DIFFERENTIAL IN THE STAGE K	DIFFERENTIAL BETW. THE STAGES K	MAX. BULB TEMP. °C	POCKET ON REQUEST
DBET-4	-30...+30	1	2...20		60	DBZ-01/02
DBET-4U	-30...+30	1	2...20		60	DBZ-01/02
DBET-4/2	-30...+30	2	1	2...5	60	DBZ-01/02
DBET-5	-30...+30	1	1		60	DBZ-01/02
DBET-5U	-30...+30	1	1		60	DBZ-01/02
DBET-6	-30...+30	1	FT		60	DBZ-01/02
DBET-7	0...+60	1	2...20		75	DBZ-01/02
DBET-7/2	0...+60	2	1	2...5	75	DBZ-01/02
DBET-8	0...+60	1	1		75	DBZ-01/02
DBET-16	+20...+80	1	2...20		100	DBZ-01/02
DBET-16U	+20...+80	1	2...20		100	DBZ-01/02
DBET-17	+20...+80	1	1		100	DBZ-01/02
DBET-18	+20...+80	1	ST		100	DBZ-01/02
DBET-10	+50...+120	1	2...20		150	DBZ-16/17
DBET-11	+50...+120	1	1		150	DBZ-16/17

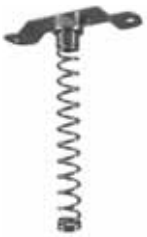
ACCESSORIES	DBZ-01 - Brass pocket 120 mm, 12 x 1
	DBZ-02 - Stainless steel AISI 301 pocket 120 mm, 12 x 1
	DBZ-16 - Brass pocket 120 mm, 10 x 0.5
	DBZ-17 - Stainless steel AISI 301 pocket 120 mm, 10 x 0.5

U models with range under the cover
FT manual minimal reset
ST manual maximum reset

1.6 DUCT THERMOSTAT, IP54 TZ

TZR6585

TZ090U



DBZ-25

A range of low cost duct thermostats.

TECHNICAL DATA

Sensitive element:	liquid-filled copper with 200 mm protection spring and mounting bracket
Switch capacity:	TZ090U: NC 250 Vca 16 (6) A - NO 250 Vca 6 (4) A TZR6585: NC 250 Vca 16 (2,5) A - NO 250 Vca 0,5 A
Contacts:	dust-tight microswitches with SPDT contacts (heat/cool)
Dim. spring:	length 200 mm, d = 21 mm
Protection:	IP54, class I
Size:	108 x 70 x 72 mm or 132 x 88 x 70 mm

TYPE	RANGE °C	DIFFERENTIAL RANGE K	MAX BULB TEMP. °C	FUNCTIONS
TZ090U	0...+90	4±1	120	TR
TZR6585	+65...+85	20±5	125	STB

ACCESSORY	DBZ-25 - Spiral protection bracket for capillary

Note: the thermostats are supplied with spiral protection bracket model DBZ-25
U models with range under the cover
TR with SPDT contact
STB with manual safety reset, SPDT contact

1.7 DUCT THERMOSTAT, IP65 DBTZ

DBTZ-7

DBTZ-12U

DBZ-25

A wide range of high quality thermostats with one or two stages.

TECHNICAL DATA

Sensitive element:	liquid-filled copper with 200 mm protection spring and mounting bracket
Switch capacity:	15 (8) A, 24...250 Vac
Contacts:	dust-tight microswitches with SPDT contacts (heat/cool)
Dim. spring:	length 200 mm, d = 21 mm
Protection:	IP65, class I
Size:	108 x 70 x 72 mm

TYPE	RANGE °C	STAGES	DIFFERENTIAL IN THE STAGE K	DIFFERENTIAL BETWEEN THE STAGES K	MAX. BULB TEMP. °C	INSERTION LENGTH mm
DBTZ-2U	-30...+30	1	1		60	200/ø21
DBTZ-7	10...+60	1	2...20		75	200/ø21
DBTZ-7/2	10...+60	2	1	2...5	75	200/ø21
DBTZ-8	10...+60	1	1		75	200/ø21
DBTZ-12U	+50...+120	1	ST		140	200/ø21

ACCESSORY	DBZ-25 - Spiral protection bracket for capillary

Note: the thermostats are supplied with spiral protection bracket model DBZ-25
U models with range under the cover
ST manual maximum reset

1.8 CLAMP-ON THERMOSTAT, IP30 AT

AT2090

Mechanical thermostat for clamp-on mounting. The thermostat is available with external knob or range under the cover.

TECHNICAL DATA

Sensitive element:	liquid-filled copper
Switch capacity:	NC 16 (2,5) A, 250 Vac NO 2,5 A, 250 Vac
Contacts:	dust-tight microswitches with SPDT contacts (heat/cool)
Protection:	IP30, class I
Size:	39 x 55 x 112 mm

TYPE	RANGE °C	DIFFERENTIAL K	FEATURE
AT2090	+20...+90	Fixed 8±3	external knob
AT2090U	+20...+90	Fixed 8±3	range under the cover

1.9 CLAMP-ON THERMOSTAT, IP65 DBAT

DBAT-5

DBAT-5U

Mechanical thermostat for clamp-on mounting. The thermostat is available with external or internal setpoint knob.

TECHNICAL DATA

Sensitive element:	liquid-filled copper with bulb for contact
Switch capacity:	15 (8) A, 24...250 Vac
Contacts:	dust-tight microswitches with SPDT contacts (heat/cool)
Protection:	IP65, class I
Size:	108 x 70 x 72 mm

TYPE	RANGE °C	DIFFERENTIAL K	FEATURE
DBAT-3	0...+60	2...20	external knob
DBAT-3U	0...+60	2...20	range under the cover
DBAT-5	+20...+90	2...20	external knob
DBAT-5U	+20...+90	2...20	range under the cover

TF30

TF60R

TF18

DBZ-05

The thermostat is especially designed to protect water coils in heating or cooling systems against freezing. The entire length of the capillary tube is sensitive to temperature.

TECHNICAL DATA

Sensitive element:	gas-filled copper
Switch capacity:	15 (8) A 24..250Vac
Contact type:	SPDT micro-switch
Protection:	IP 65, class I
Size:	140 x 62 x 65 mm (included cable gland)

TYPE	RANGE °C	DIFFERENTIAL K	RESET	CAPILLARY LENGTH m
TF30	-10...+10	2	auto	3
TF30R	-10...+10	FT	man	3
TF60	-10...+10	2	auto	6
TF60R	-10...+10	FT	man	6
TF18	-10...+10	2	auto	1.8
TF18R	-10...+10	FT	man	1.8

ACCESSORIES	DBZ-01 - Brass pocket 120mm, 12 x 1
	DBZ-02 - Stainless steel pocket AISI 304 120mm, 12 x 1
	DBZ-05 - Set of 6 mounting brackets for capillary of antifrost thermostats

FT manual minimal reset necessary if the setpoint is reached.

TV090

TV09090U

Temperature control in pipes for heating, cooling and air conditioning systems, boilers and heaters. Temperature monitoring and safety protection with manual reset (double models).

TECHNICAL DATA

Sensitive element:	copper bulb with 120 mm brass pocket (on request with 200 mm length)
Switch capacity:	TR NC 250 Vca 16 (6) A - NO 250 Vca 6 (4) A TW NC 250 Vca 16 (6) A - NO 250 Vca 6 (4) A STB NC 250 Vca 16 (2,5) A - NO 250 Vca 0,5 A
Contacts:	dust-tight microswitches with SPDT contacts (heat/cool)
Working:	-35...+65 °C 10...90 % r.h. (without condensing)
Protection:	IP54, class I
Size:	108 x 70 x 72 mm 132 x 88 x 70 mm (2 stage models)

TYPE	RANGE 1 °C	RANGE 2 °C	DIFFERENTIAL RANGE 1 K	DIFFERENTIAL RANGE 2 K	MAX BULB TEMP. °C	FUNCTIONS
TV090	0...+90		4±1		120	TR
TV090U	0...+90		4±1		120	TR
TVR6585	+65...+85		20±5		125	STB
TVR90110	+90...+110		20±5		125	STB
TV09090U	0...+90	0...+90	4±1	4±1	120	TR + TR
TV090UR85	0...+90	+65...+85	4±1	20±5	120	TR+ STB

ACCESSORIES	DBZ-30/14 - Brass pocket 120mm, 10 x 0.5
	DBZ-40/14 - Brass pocket 120mm, 16
	DBZ-31/14 - Stainless steel AISI 301 pocket 120mm, 10 x 0.5
	DBZ-41/14 - Stainless steel AISI 301 pocket 120mm, 16

Note: the thermostats are supplied with standard pocket models DBZ-30/14 and DBZ-40/14
U models with range under the cover
TR with SPDT contact
STB with manual security reset, SPDT contact

DBTV-16

DBTV-18U

Temperature control in pipes for heating, cooling and air conditioning systems, boilers and heaters. Models with setpoint adjustment by knob on or range under the cover and range calibration.

TECHNICAL DATA

Sensitive element:	liquid-filled coiled copper bulb
Switch capacity:	15 (8) A, 24...250 Vac
Contacts:	dust-tight microswitches with SPDT contacts (heat/cool)
Working:	-35...+65 °C 10...90% r.h. (without condensing)
Pocket lenght:	120mm d = 10mm
Protection:	IP65, class I
Size:	108 x 70 x 72 mm

TYPE	RANGE °C	DIFFERENTIAL K	MAX. BULB TEMP. °C	FEATURES
DBTV-1	-30...+30	2...20	60	
DBTV-2U	-30...+30	1	60	range under cover
DBTV-7	10...+60	2...20	75	
DBTV-7U	10...+60	2...20	75	range under cover
DBTV-8	10...+60	1	75	
DBTV-8U	10...+60	1	75	range under cover
DBTV-11	+50...+120	1	140	
DBTV-16	+20...+90	2...20	100	
DBTV-17	+20...+90	1	100	
DBTV-17U	+20...+90	1	100	range under cover
DBTV-18	+20...+90	ST	100	
DBTV-18U	+20...+90	ST	100	range under cover

ACCESSORIES	DBZ-16/14 - Brass pocket 120mm, 10 x 0.5
	DBZ-17/14 - Stainless steel AISI 301 pocket 120mm, 10 x 0.5

Note: the thermostats are supplied with standard pocket model DBZ-16/14
ST manual maximum reset

DBZ-01 DBZ-16/14

DBZ-02 DBZ-17/14

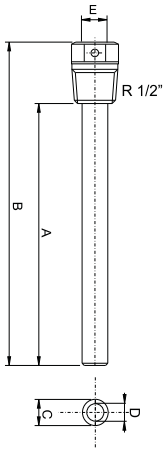
DBZ-18 DBZ-19

DBZ-30/14 DBZ-40/14

DBZ-31/14 DBZ-41/14

TYPE	A	B	C	D	E	MATERIAL TUBE/THREAD
DBZ-01*	120	140	11	10	15	brass/Cu Ni
DBZ-02*	120	148	12	10	15	stainless steel AISI 301
DBZ-16*	120	140	10	8.5	15	brass/Cu Ni
DBZ-16/14	120	140	10	8.5	15	brass/Cu Ni
DBZ-17*	120	148	10	8.5	15	stainless steel AISI 301
DBZ-17/14	120	148	10	8.5	15	stainless steel AISI 301
DBZ-18*	40	61	11	10	15	brass/Cu Ni
DBZ-19*	40	68	10	8.5	15	stainless steel AISI 301
DBZ-30/14	120	140	8	7	15	brass/Cu Ni
DBZ-31/14	120	148	9	7	15	stainless steel AISI 301
DBZ-40/14	100	128	16	15	15	brass/Cu Ni
DBZ-41/14	120	148	16	15	15	stainless steel AISI 301

* with fixing stopper for capillary



Chapter 2

Room controllers

2. ROOM CONTROLLERS

2.1 ROOM CONTROLLER evolution, FAN COIL AND AIR HANDLING TH

TH

The new room regulator evolution is well-suited for thermoregulation application. Thanks to a lot of I/O the unit is fit for driving 2-pipe, 2-pipe + electric heater, 4-pipe, 4-pipe + electric heater plants with 3-speed motor or EC motor. The outputs for valves can be on/off or modulating type. The large backlit display allows user to easily see temperatures, humidity, parameters setting, time bands and the state of unit. The unit implements also a RS485 line with Modbus slave RTU protocol for external communication and can be built-in wall mounted with a 3-module box.

TECHNICAL DATA

Power supply:	110...230 Vac ± 10%, 50/60 Hz
Input:	2 contacts free of potential 2 or 3 NTC10-02 sensors USB port for parameters setting and software update
Output:	3 analog outputs 0..10V (RL > 10Kohm) according to model 5 relays SPST 250Vac, 3A (AC1) according to model
Temperature range:	0...+50°C
Power cons.:	max 1.3 W
Visualization:	display with backlight
Communication:	Modbus RTU (slave)
Range of temperature reading:	0...+80°C
Installation:	3 modules built-in box
Protection:	IP30, class II
Size:	128 x 80 x 55,5 mm

TH-	X	X	X	S	X	1
Version:						
1 digital output + 3 analog outputs + 3 analog inputs	0					
2 digital outputs + 2 analog outputs + 3 analog inputs	1					
3 digital outputs + 1 analog output + 3 analog inputs	2					
3 digital outputs + 2 analog outputs + 2 analog inputs	3					
5 digital outputs + 0 analog output + 3 analog inputs	4					
Communication:						
Without communication		S				
Modbus		M				
Bacnet (next coming)		B				
Clock:						
Without clock			S			
With clock			C			
Internal sensor:						
Temperature					T	
Temperature + humidity					H	
Connector:						
Plug-in connectors						

Regio Midi are controllers with a built-in sensor and RS485 communication port. Controllers in different rooms can be connected to a bus line enabling communication with a central SCADA system via RS485 (EXOline, BACnet or Modbus).

Regio tool©

The room controllers are pre-programmed and can be configured to suit specific needs with the software Regio tool©, which can be downloaded free of charge from our ftp server. Please contact our commercial department for username and password, thanks.

RC-C3HI
RC-CTHI

RC-C3I
RC-CTI

RC-C3OI
RC-CTOI

RC-C3DOCI
RC-CDTOI

TECHNICAL DATA

Power supply:	18...30 Vac, 50...60 Hz
Inputs:	
Analogue inputs (AI):	PT1000, 0...50°C, 0...10 V (CO2)
Condensation input (CI):	Input for AB Industrietechnik's condensation detector RCKG-A/1
Digital inputs (DI):	Closing potential-free contact
Output:	
Digital output (DO):	24 Vac, max. 0.5 A
Universal output (UO):	Digital output (DO), 24 Vac, max. 2.0 A or analogue output (AO), 0...10 Vdc, max. 5 mA
+C power output for DI only:	24 Vdc, max. 10 mA, short-circuit protected
Power cons.:	2.5 VA
Built-in temperature sensor:	0...50°C NTC linearised 15 kΩ
Communication:	RS485 (EXOline or Modbus with automatic detection/change-over, or BACnet)
Modbus:	8 bits, 1 or 2 stop bits parity. Odd, even or none.
Communication speed:	9600, 19200, 38400 bps (EXOline, Modbus and BACnet) or 76800 bps (BACnet only)
Accuracy:	±0.5°C at 15...30°C
Protection:	IP20
Size:	95 x 95 x 31 mm

PRODUCT OVERVIEW REGIO MIDI

RC-C is the basic model in the range. The other models have various functions, indicated by the letters in the product name:

C = Communication
D = Display
F = Fan control (3-speed)
H = Hidden setpoint
O = Occupancy button
T = 3-point output
C (at the end) = CO2 input
3 = Three universal outputs

TYPE	DISPLAY	OCCUPANCY BUTTON / FORCED VENTILATION	FAN CONTROL	SETPOINT KNOB	HIDDEN SETPOINT	OUTPUT	AI	DI	UI	UO	TOTAL NUMBER OF I/OS
RC-C3I	No	No	No	Yes	No	0...10 Vdc or on/off	1	2	1	3	7
RC-C3HI	No	No	No	No	Yes	0...10 Vdc or on/off	1	2	1	3	7
RC-C3OI	No	Yes	No	Yes	No	0...10 Vdc or on/off	1	2	1	3	7
RC-C3DOCI	Yes	Yes	No	No	No	0...10 Vdc or on/off	2	2	-	3	7
RC-CFI	No	No	Yes	Yes	No	0...10 Vdc or on/off	1	2	1	2	10
RC-CFOI	No	Yes	Yes	Yes	No	0...10 Vdc or on/off	1	2	1	2	10
RC-CDFOI	Yes	Yes	Yes	No	No	0...10 Vdc or on/off	1	2	1	2	10
RC-C3DFOCI	Yes	Yes	Yes	No	No	0...10 Vdc or on/off	2	2	-	3	10
RC-CTI*	No	No	No	Yes	No	3-point	1	2	1	-	9
RC-CTHI*	No	No	No	No	Yes	3-point	1	2	1	-	9
RC-CTOI*	No	Yes	No	Yes	No	3-point	1	2	1	-	9
RC-CDTOI	Yes	Yes	No	No	No	3-point	1	2	1	-	9

* Non-stock item

RC-HI

RCI
RC-TI

RC-OI
RC-TOI

RC-DOI
RC-DTOI

RC-FI

RC-DFOI

The Regio Mini controllers are pre-programmed and can be configured for a specific application via the display or dipswitches. For control of 230 Vac fan motors, the relay unit RCRB3 or the power interface RCX1178 can be used together with the RC-...F... controllers.

TECHNICAL DATA

Power supply:	18...30 Vac, 50...60 Hz
Inputs:	
Analogue inputs (AI):	PT1000, 0...50°C
Condensation input (CI):	Input for AB Industrietechnik's condensation detector KG-A/1
Digital inputs (DI):	Closing potential-free contact
Output:	
Digital output (DO):	24 Vac, max. 0.5 A
Universal output (UO):	Digital output (DO), 24 Vac, max. 2.0 A or analogue output (AO), 0...10 Vdc, max. 5 mA
+C power output for DI only:	24 Vdc, max. 10 mA, short-circuit protected
Power cons.:	2.5 VA
Room temperature:	0...50°C
Storage temperature:	-20...+70°C
Built-in temperature sensor:	0...50°C NTC linearised 15 kΩ
Accuracy:	±0.5°C at 15...30°C
Mounting:	Wall
Protection:	IP20
Size:	95 x 95 x 31 mm

PRODUCT OVERVIEW REGIO MINI

RC is the basic model in the range. The other models have various functions, indicated by the letters in the product name:

D = Display
F = Fan control (3-speed)
H = Hidden setpoint
O = Occupancy button
T = 3-point output

TYPE	DISPLAY	OCCUPANCY BUTTON / FORCED VENTILATION	FAN COTNROL	SETPOINT KNOB	HIDDEN SETPOINT	OUTPUT	AI	DI	UI	DO	UO	TOTAL NUMBER OF I/OS
RCI	No	No	No	Yes	No	0...10 Vdc or on/off	1	2	1	1	2	7
RC-OI	No	Yes	No	Yes	No	0...10 Vdc or on/off	1	2	1	1	2	7
RC-HI	No	No	No	No	Yes	0...10 Vdc or on/off	1	2	1	1	2	7
RC-DOI	Yes	Yes	No	No	No	0...10 Vdc or on/off	1	2	1	1	2	7
RC-FI	No	No	Yes	Yes	No	0...10 Vdc or on/off	1	2	1	4	2	10
RC-FOI	No	Yes	Yes	Yes	No	0...10 Vdc or on/off	1	2	1	4	2	10
RC-DFOI	Yes	Yes	Yes	No	No	0...10 Vdc or on/off	1	2	1	4	2	10
RC-TI	No	No	No	Yes	No	3-point	1	2	1	5	-	9
RC-TOI*	No	Yes	No	Yes	No	3-point	1	2	1	5	-	9
RC-DTOI	Yes	Yes	No	No	No	3-point	1	2	1	5	-	9

* Non-stock item

2.4 ACCESSORIES

RCRB3

RCX1178

RCKG-A/1

RC-TEST

RC-CONN:10

Relay unit for controllers in fan-coil applications.

TECHNICAL DATA

Inputs:	Three inputs, 24 Vac, from an RC-...F... unit
Outputs:	Three closing relays, 230 Vac, 4 A
Mounting:	DIN-rail
Protection:	IP00

TYPE	DESCRIPTION
RCRB3	Relay unit for RC-...F... controllers

POWER INTERFACE FOR REGIO RC-...F... CONTROLLERS IN FAN-COIL APPLICATIONS

TYPE	DESCRIPTION
RCX1178	Power interface for RC-...F... controllers

MISCELLANEOUS

TYPE	DESCRIPTION
RCKG-A/1	Condensation detector for Regio controllers, 1 m cable length
RC-CONN:10	A set of 10 connector plates for RC units

SERVICE ADAPTER

TYPE	DESCRIPTION
RC-TEST	Service adapter for Regio Midi units

2.5 FAN-COIL THERMOSTAT WITH ON/OFF OUTPUTS — RCF(M)-230(C)DI

RCF-230(C)DI

RCFM-230DI

Electronic fan-coil thermostats for room temperature control. Automatic or manual change-over between heating and cooling. The thermostats have a function for 3-speed fan control (for fan-coil), a built-in temperature sensor, backlit display, and an input for a window contact or an occupancy detector. RCF-230CDI has communication via RS485 (Modbus, EXOline or Bacnet) for integration into communication systems BMS.

TECHNICAL DATA

Power supply:	230 Vac ±10 %, 50/60 Hz
Inputs:	Analogue input (AI) - PT1000 Digital input (DI) - closing potential-free contact Universal input (UI) (RCF-230DI and RCF-230CDI) - PT1000 or closing potential-free contact
Output:	Fan control, relay 230 Vac, 3 A Actuators for valves, Triac 230 Vac max. 300 mA
Power cons.:	< 3 VA
Setpoint:	5...35°C
Differential:	±0.5 K
Mounting:	Wall
Protection:	IP20
Size:	102 x 120 x 29 mm

TYPE	DESCRIPTION	INSTALLATIONS	CHANGE-OVER FUNCTION
RCF-230DI	Fan-coil thermostat	2- or 4-pipe	Automatic
RCF-230CDI	Fan-coil thermostat with communication via RS485 (Modbus or EXOline)	2- or 4-pipe	Automatic
RCFM-230DI	Fan-coil thermostat	2-pipe	Manual

2.6 FAN-COIL CONTROLLER FOR ELECTROTHERMAL OR 3-POINT ACTUATORS RCF(M)-230(C)TDI

RCF-230(C)TDI

RCFM-230TDI

Electronic fan-coil controllers for room temperature control. Automatic or manual change-over between heating and cooling. The controllers have a function for 3-speed fan control (for fan-coil), a built-in temperature sensor, backlit display, and an input for a window contact or an occupancy detector. RCF-230TDI and RCF-230CTDI also have a function for control of an electric heater. RCF-230CTDI has communication via RS485 (Modbus, EXOline or Bacnet) for integration into a system. The differential is adjustable.

TECHNICAL DATA

Power supply:	230 Vac ±10 %, 50/60 Hz
Inputs:	Analogue input (AI) - PT1000 Digital input (DI) - closing potential-free contact Universal input (UI) (RCF-230TDI and RCF-230CTDI) - PT1000 or closing potential-free contact
Output:	Fan control, relay 230 Vac, 3 A Actuators for valves, Triac 230 Vac max. 300 mA
Power cons.:	< 3 VA
Setpoint:	5...35°C
Differential:	±0.5 K
P-band:	10°C
I-time:	300 s
Mounting:	Wall
Protection:	IP20
Size:	102 x 120 x 29 mm

TYPE	DESCRIPTION	INSTALLATIONS	CHANGE-OVER FUNCTION
RCF-230TDI	Fan-coil thermostat	2- or 4-pipe	Automatic
RCF-230CTDI	Fan-coil controller with communication via RS485 (Modbus or EXOline)	2- or 4-pipe	Automatic
RCFM-230TDI	Fan-coil thermostat	2-pipe	Manual

2.7 FAN-COIL CONTROLLER WITH 0...10 V CONTROL SIGNAL RCF-230(C)ADI

RCF-230(C)ADI

Electronic fan-coil controllers for room temperature control. The controllers have automatic change-over between heating and cooling and can be used for 2- or 4-pipe systems. They have a function for 3-speed fan control (for fan-coil), a built-in temperature sensor, backlit display, and an input for a window contact or an occupancy detector. RCF-230CADI has communication via RS485 (Modbus, EXOline or Bacnet) for integration into a system. The differential is adjustable.

TECHNICAL DATA

Power supply:	230 Vac ±10 %, 50/60 Hz
Inputs:	Analogue input (AI) - PT1000 Digital input (DI) - closing potential-free contact Universal input (UI) - PT1000 or closing potential-free contact
Output:	Fan control, relay 230 Vac, 3 A Actuators for valves, 0...10 Vdc max. 1 mA
Power cons.:	< 3 VA
Setpoint:	5...35°C
Differential:	±0.5 K
P-band:	10°C
I-time:	300 s
Mounting:	Wall
Protection:	IP20
Size:	102 x 120 x 29 mm

TYPE	DESCRIPTION
RCF-230ADI	Fan-coil controller
RCF-230CADI	Fan-coil controller with communication via RS485 (Modbus or EXOline)

2.8 0...10 V DC OR 3-POINT ROOM TEMPERATURE CONTROLLER CA1

CA1

CA1 is a room controller with 0...10 Vdc or 3-point output. The controller is primarily intended for control of heating or cooling in zone control systems. It has an digital input for a presence detector (occupancy control). CA1 also has an input for change-over, which makes it possible for the control function to switch between heating and cooling.

TECHNICAL DATA

Power supply:	24 Vac, ±15 % 50...60 Hz, 2 VA
Inputs:	Two digital and one NTC sensor
Output:	0...10 Vdc, 1 mA or 3-point, 24 Vac, 1 A
Setpoint:	0...40°C
P-band:	0.5...50 K
Protection:	IP20
Size:	102 x 120 x 29 mm

TYPE	DESCRIPTION
CA1	Room temperature controller

2.9 ELECTRONIC ROOM THERMOSTAT, 1-STAGE TAE1

TAE1

Electronic thermostats for wall mounting. The thermostat can be set to heating or cooling. The thermostat has a built-in sensor and an input for an external sensor.

TECHNICAL DATA

Power supply:	230 Vac ±10 %, 1 VA
Sensor input:	NTC sensor
Output:	16 A, 230 Vac, change-over relay
Setpoint:	0...30°C, 20...50°C
Differential:	1 K
Mounting:	Wall
Protection:	IP30
Size:	86 x 86 x 30 mm

TYPE	DESCRIPTION	TEMPERATURE RANGE
TAE1	Electronic thermostat	0...30°C

2.10 ROOM CONTROLLERS WITHOUT DISPLAY

INDEX for models DB-TA-3:

zn dead zone
▲ continuous fan/thermostatic fan/ off switch
auto s/w change over with water sensor
⏦ on/off/electric heater switch
m/a min speed/automatic speed switch
A sensor NT0220-NTC10-02
B sensor NT0220-NTC100

RANGE +5...+30°C **DB-TA-**		PIPE	OUTPUTS		SWITCHES			REMOTE S/W	REMOTE SENSOR	POWER SUPPLY	PAGE
			RELAY	0... 10 VDC	ON/OFF	3-SPEED	S/W				
323-	199	2	•		•				B	24/230 Vac	29
	435	2	•		▲	•		•	A		29
	995	2	•					•	B		29
	998	2	•				•		B		29
335-	933	2/4		•/••		•	•/zn		B	24 Vac	29
	993	2/4		•/••			•/zn				29
343-	139	4	••		•	•	zn		B	24/230 Vac	30
	199	4	••		•		zn				30
	999	4	••				zn				30
345-	139	4		••	•	•	zn		B	24 Vac	30
	199	4		••	•		zn				30
	999	4		••			zn				30
347-	439	4	3 point control		▲	•	zn		A	24 Vac	31
363-	436	2	•		▲	•	auto		A	230 Vac	31
367-	439	2	3 point control		▲	•	zn		A	24 Vac	32
383-	433	2/4	•		▲	•	•		A	24/230 Vac	32
387-	10A	2/4	•••••		•	m/a	auto		A	230 Vac	33
	566	4	•••••		⏦	m/a	zn		A		33
	866	2	•••••		⏦	m/a	auto		A		33

2.11 ROOM CONTROLLERS FOR 2-PIPE SYSTEMS, ON-OFF — DB-TA-323

DB-TA-323-199

DB-TA-323-435

DB-TA-323-995

DB-TA-323-998

2-pipe systems (typically fan coil) control for room temperature.

TECHNICAL DATA

Power supply:	24/230 Vac ± 10%, 50/60 Hz
Max load:	6 A
Output:	1 SPDT relay 6 A 24/250 Vac
Power cons.:	1 W
Sensor:	thermoresistor NTC 100K (for DB-TA-323-435 -> NTC 10K)
Setpoint:	+5...+30 °C; mechanical limitation of the setpoint adjustment
Differential:	0.5 K
Protection:	IP30, class II
Size:	144 x 82 x 27 mm

TYPE	ON/OFF	3-SPEED	LOCAL S/W	REMOTE S/W
DB-TA-323-199	•			
DB-TA-323-435 (*)	•	•		•
DB-TA-323-995				•
DB-TA-323-998			•	

On request:
optional 2 m cable remote sensor, selectable by jumper; ordering code: NT0220-NTC100 (for DB-TA-323-435 -> NT0220-NTC10-02).

(*) for DB-TA-323-435 switch off/fan based on temp./continuous fan.

2.12 ROOM CONTROLLERS WITH 0-10 V OUTPUT FOR 2 OR 4-PIPE SYSTEMS — DB-TA-335

DB-TA-335-933

DB-TA-335-993

2- or 4-pipe fan coil control for room temperature.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Max load:	6 A (speeds)
Output:	proportional 0...10 Vdc (R_L > 10 kOhm)
Power cons.:	1 W
Sensor:	NTC 100K
Setpoint:	+5...+30 °C; mechanical limitation of the setpoint adjustment
Differential:	0.5 K
Prop. band:	1...5 K
Dead zone:	1...4 K
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	3-SPEED	LOCAL S/W (2-PIPE)	LOCAL S/W (4-PIPE)
DB-TA-335-933	•	•	zn
DB-TA-335-993		•	zn

zn dead zone

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC100.

2.13 ROOM CONTROLLERS FOR 4-PIPE SYSTEMS, ON-OFF — DB-TA-343

DB-TA-343-139

DB-TA-343-199

DB-TA-343-999

4-pipe fan coil control for room temperature.

TECHNICAL DATA

Power supply:	24/230 Vac ± 10%, 50/60 Hz
Max load:	6 A
Output:	2 SPDT relays 6 A 24/250 Vac
Power cons.:	1 W
Sensor:	NTC 100K
Setpoint:	+5...+30 °C; mechanical limitation of the setpoint adjustment
Differential:	0.5 K
Dead zone:	1...4 K
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	LOCAL S/W
DB-TA-343-139	•	•	zn
DB-TA-343-199	•		zn
DB-TA-343-999			zn

zn dead zone

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC100.

2.14 ROOM CONTROLLERS WITH 0-10 V OUTPUTS FOR 4-PIPE SYSTEMS — DB-TA-345

DB-TA-345-139

DB-TA-345-199

DB-TA-345-999

4-pipe fan coil control for room temperature.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Max load:	6 A (speeds)
Output:	2 proportional 0...10 Vdc (R_L > 10 kOhm)
Power cons.:	1 W
Sensor:	NTC 100K
Setpoint:	+5...+30 °C; mechanical limitation of the setpoint adjustment
Prop. band:	1...5 K
Dead zone:	1...4 K
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	LOCAL S/W
DB-TA-345-139	•	•	zn
DB-TA-345-199	•		zn
DB-TA-345-999			zn

zn dead zone

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC100.

2.15 ROOM CONTROLLERS FOR 4-PIPE-SYSTEMS, 3- POINT OUTPUT — DB-TA-347

DB-TA-347-439

3- point valve control on 4-pipe fan coil for room temperature.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Output:	triac 24 Vac valves: max 0.5 A, min 0.025 A speed: max 1 A, min 0.040 A
Power cons.:	1 W
Sensor:	NTC 100K
Setpoint:	summer: +24 ± 5 °C winter: +20 ± 5 °C mechanical limitation of the setpoint adjustment
Prop. band:	1...10 K
Dead zone:	4 K
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	VT/VC/OFF	3-SPEED	LOCAL S/W
DB-TA-347-439	•	•	zn

zn dead zone

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.16 ROOM CONTROLLERS WITH AUTOMATIC SEASON CHANGEOVER, ON-OFF — DB-TA-363

DB-TA-363-436

2-pipe fan coil with 3-speed motor fan control for room temperature.

TECHNICAL DATA

Power supply:	230 Vac ± 10%, 50/60 Hz
Max load:	6 A
Output:	1 relay 6 A 250 Vac
Power cons.:	1 W
Sensor:	NTC 10K, air sensor and water sensors
Setpoint:	+5...+30 °C; mechanical limitation of the setpoint adjustment
Differential:	< 0.5 K
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	VT/VC/OFF	3-SPEED	LOCAL S/W
DB-TA-363-436	•	•	auto

auto season changeover selection (S/W) by water sensor

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.17 3- POINT ROOM CONTROLLERS WITH AUTOMATIC SEASON CHANGEOVER DB-TA-367

DB-TA-367-439

3-point valve control on 2-pipe fan coil for room temperature.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Max load:	triac 24 Vac valves: max 0.5 A, min 0.025 A speed: max 1 A, min 0.040 A
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	summer: +24 ± 5 °C winter: +20 ± 5 °C mechanical limitation of the setpoint adjustment
Prop. band:	1...10 K
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	VT/VC/OFF	3-SPEED	LOCAL S/W
DB-TA-367-439	•	•	auto

auto season changeover selection (S/W) by air sensor

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.18 ROOM CONTROLLERS FOR 2- OR 4-PIPE FAN COILS, ON-OFF DB-TA-383

DB-TA-383-433

2- or 4-pipe fan coil with 3-speed motor fan control for room temperature.

TECHNICAL DATA

Power supply:	24/230 Vac ± 10%, 50/60 Hz (jumpers allow the choice of power supply)
Max load:	6 A
Output:	1 relay SPDT 6 A 250 Vac
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C; mechanical limitation of the setpoint adjustment
Differential:	0.5 K
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	VT/VC/OFF	3-SPEED	LOCAL S/W
DB-TA-383-433	•	•	•

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.19 ROOM CONTROLLERS WITH AUTOMATIC SPEED AND SEASON CHANGEOVER, ON-OFF

DB-TA-387-10A

DB-TA-387-10A

2- and 4-pipe and 3-speed fan coil control with room temperature regulation.

TECHNICAL DATA

Power supply:	230 Vac ± 10%, 50-60 Hz
Max load:	6 A for motor output and valves or electric heater relay
Output:	5 relays 6 A 250 Vac
Power cons.:	1 W
Sensor:	NTC 10K, air sensor and water sensor
Setpoint:	+12...+28 °C mechanical limitation of the setpoint adjustment
Differential:	0.4 K
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	SYSTEM (PIPE)	ON/OFF	I/II/AUTO	S/W	3-SPEED
DB-TA-387-10A	2/4	•	•	auto	auto

auto working season selection (W/S) by water sensor for 2-pipe systems
working season selection (W/S) by air sensor for 4-pipe systems

On request:
optional remote sensor, selectable by jumper, with cable length 2 m, model: NT0220-NTC10-02.

2.20 ROOM CONTROLLERS WITH AUTOMATIC MOTOR SPEED AND SEASON CHANGEOVER, ON-OFF

DB-TA-387

DB-TA-387-566
DB-TA-387-866

2- or 4-pipe fan coil with 3-speed motor fan control for room temperature.

TECHNICAL DATA

Power supply:	230 Vac ± 10%, 50-60 Hz
Max load:	6 A for motor output, valves or electric heater relay
Output:	5 relays 6 A 250 Vac
Power cons.:	1 W
Sensor:	NTC 10K, air sensor and water sensor
Setpoint:	summer: +24 ± 5 K winter: +20 ± 5 K mechanical limitation of the setpoint adjustment
Differential:	0.5 K
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	SYSTEM (PIPE)	ON/OFF/RES.	AUTO/SILENT	S/W	3-SPEED
DB-TA-387-566	4	•	•	zn	auto
DB-TA-387-866	2	•	•	auto	auto

auto working season (W/S) selection by water sensor for 2-pipe system
working season (W/S) selection by air sensor for 4-pipe system

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.21 ROOM CONTROLLERS WITH DISPLAY

INDEX for models DB-TA-3:

Vct continuous fan/thermostatic fan
zn dead zone
❑ proportional-integral action
▲ continuous fan/thermostatic fan/off switch
auto s/w change-over with water sensor
heat heating
par setting by keys and display
A sensor NT0220-NTC10-02
❖ ECONOMY version: replace last number of code with "A"
◗ only for ECONOMY version

RANGE +5...+30°C DB-TA-		PIPE	OUTPUTS		SWITCHES			REMOTE S/W	ECONOMY	REMOTE SENSOR	POWER SUPPLY	PAGE
			RELAY	0... 10 VDC	ON/OFF	3-SPEED	S/W					
31A-	100	2/4		❑	•					A	24 Vac	35
	110	2/4		❑	•		•					35
33A-	10A	2/4		❑	•		par	•	❖	A	24 Vac	35
	13A	2/4		❑	•	•	par	•	❖			35
393-	435	2/4	•		▲	•	•			A	230 Vac	36
	436	2	•		▲	•		•				36
3A3-	000	4	••••				zn			A	230 Vac	36
	139	4	••		•	•	zn		❖			37
	199	4	••		•		zn		❖			37
	700	4	••••			•Vct	zn					36
	939	4	••			•	zn		❖			37
	999	4	••				zn		❖			37
3A5-	000	4		••			zn		❖	-	24 Vac	38
	100	4		••	•		zn		❖			38
	130	4		••	•	•	zn		❖			38
3A8-	000	4	• heating	••			zn		❖	-	24 Vac	39
	100	4	• heating	••	•		zn		❖			39
	130	4	• heating	••	•	•	zn		❖			39
3A9-	000	4	•	•			zn		❖	-	24 Vac	40
	100	4	•	•	•		zn		❖			40
	130	4	•	•	•	•	zn		❖			40
3B5-	000	2		•			par	◗	❖	-	24 Vac	41
	100	2		•	•		par	◗	❖			41
	130	2		•	•	•	par	◗	❖			41
3B8-	100	2	•	•	•		par	◗	❖	-	24 Vac	42
	130	2	•	•	•	•	par	◗	❖			42
3C3-	139	2	••		•	•	par		❖	A	230 Vac	43
	199	2	••		•		par		❖			43
	999	2	••				par		❖			43
3D3-	00A	2	•••••		on/off/res (par)	out/cont1/cont2/ cont3 (par)	par	par	❖	A	230 Vac	44
		4					auto					
3E3-	139	2	• (cooling)		•	•			❖	A	230 Vac	44/45
	199	2	• (cooling)		•				❖			44/45
3F3-	139	2	•		•	•			❖	A	230 Vac	45/46
	199	2	•		•				❖			45/46
	939	2	•			•			❖			45/46
	999	2	•						❖			45/46
3G3-	700	2/4	3 point control			•Vct	par			A	230 Vac	46

2.22 ROOM CONTROLLERS FOR AIR HANDLING UNIT — DB-TA-31A

DB-TA-31A-100

DB-TA-31A-110

The DB-TA-31A series can control temperature in room applications on heating, cooling, ventilation 2-pipe or 4-pipe systems.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Inputs:	- season changeover - limit sensor (to define during order) - remote air sensor (optional)
Output:	1 or 2 prop. outputs 0...10 Vdc (R_L > 10 kOhm)
Power cons.:	< 1.5 W
Sensor:	- internal or remote NTC 10K air sensor, - remote NTC 10K for limit sensor (cod. STC11)
Setpoint:	+6...+45 °C
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	S/W
DB-TA-31A-100	•	
DB-TA-31A-110	•	•

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.23 ROOM CONTROLLERS FOR FAN COIL WITH 0-10 V OUTPUT(S) FOR 2- AND 4-PIPE SYSTEM WITH ECONOMY FUNCTION — DB-TA-33A

DB-TA-33A-10A

DB-TA-33A-13A

Proportional integral temperature control in heating, ventilation, refrigeration and air conditioning for tipically 2- and 4-pipe fan coil systems with proportional valves.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Inputs:	- external contact for economy - external contact or water sensor for remote season changeover function (2-pipe)
Output:	1 or 2 outputs 0...10 Vdc (R_L > 10 kOhm) speeds: 6 A 24...230 Vac
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °
Economy:	adjustable range between +5...+30 °C
Prop. band:	1...30 K
Integral time:	1...30 minutes
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	S/W
DB-TA-33A-10A	•		setting by keys and display
DB-TA-33A-13A	•	•	setting by keys and display

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.24 ROOM CONTROLLERS FOR 2- OR 4-PIPE FAN COILS — DB-TA-393

DB-TA-393-435

DB-TA-393-436

2- and 4-pipe fan coil with 3-speed motor fan control for room temperature.

TECHNICAL DATA

Power supply:	230 Vac ± 10%, 50/60 Hz
Max load:	6 A
Inputs:	external contact or water sensor for remote season changeover function (DB-TA-393-436)
Output:	1 relay SPDT 6 A 250 Vac
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential:	0.5 °C
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	VT/VC/OFF	3-SPEED	S/W
DB-TA-393-435	•	•	•
DB-TA-393-436	•	•	

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.25 ROOM CONTROLLERS FOR 4-PIPE SYSTEM WITH 2 STAGES HEATING AND 2 STAGES COOLING — DB-TA-3A3..0

DB-TA-3A3-700

DB-TA-3A3-000

4-pipe fan coil control for room temperature.

TECHNICAL DATA

Power supply:	230 Vac ± 10%, 50/60 Hz
Output:	valves: 4 relays SPST 5 A 250 Vac speeds: 5 A 230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential between the stages:	0.5...4 K
Differential in stages:	0.5...4 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	3-SPEED	DIFF. BETWEEN STAGES K	DIFF. IN THE STAGE K
DB-TA-3A3-700	•	0.5...4	0.5...4
DB-TA-3A3-000		0.5...4	0.5...4

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.26 ROOM CONTROLLERS FOR 4-PIPE SYSTEM DB-TA-3A3..9

DB-TA-3A3-139

DB-TA-3A3-199

DB-TA-3A3-939

DB-TA-3A3-999

4-pipe fan coil control for room temperature.

TECHNICAL DATA

Power supply:	230 Vac ± 10 %, 50/60 Hz
Output:	valves: 2 relays SPDT 6 A 250 Vac speeds: 6 A 230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential:	0.5...4 K
Dead zone:	1...4 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	S/W
DB-TA-3A3-139	•	•	zn
DB-TA-3A3-199	•		zn
DB-TA-3A3-939		•	zn
DB-TA-3A3-999			zn

zn dead zone

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.27 ROOM CONTROLLERS FOR 4-PIPE SYSTEM WITH ECONOMY FUNCTION DB-TA-3A3..A

DB-TA-3A3-13A

DB-TA-3A3-19A

DB-TA-3A3-93A

DB-TA-3A3-99A

4-pipe fan coil control for room temperature.

TECHNICAL DATA

Power supply:	230 Vac ± 10 %, 50/60 Hz
Input:	ext. contact for economy function
Output:	valves: 2 relays SPDT 6 A 250 Vac speeds: 6A 230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential:	0.5...4 K
Dead zone:	1...4 K
Economy:	adjustable range between 0...+5 °C
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	S/W
DB-TA-3A3-13A	•	•	zn
DB-TA-3A3-19A	•		zn
DB-TA-3A3-93A		•	zn
DB-TA-3A3-99A			zn

zn dead zone

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.28 ROOM THERMOSTATS FOR FAN COIL WITH TWO 0-10 V OUTPUTS FOR 4-PIPE SYSTEM

DB-TA-3A5

DB-TA-3A5-130

DB-TA-3A5-100

DB-TA-3A5-000

Temperature control in heating, ventilation, refrigeration and air conditioning for tipically 4-pipe fan coil systems with proportional valves.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Output:	valves: 2 0-10 V outputs (R_L>10 kOhm) speeds: 6 A 24...230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Prop. band:	± 0.5...± 2.5 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DEAD ZONE K
DB-TA-3A5-130	•	•	1...4
DB-TA-3A5-100	•		1...4
DB-TA-3A5-000			1...4

2.29 ROOM THERMOSTATS FOR FAN COIL WITH TWO 0-10 V OUTPUTS FOR 4-PIPE SYSTEM WITH ECONOMY FUNCTION

DB-TA-3A5..A

DB-TA-3A5-13A

DB-TA-3A5-10A

DB-TA-3A5-00A

Temperature control in heating, ventilation, refrigeration and air conditioning for typically 4-pipe fan-coil systems with proportional valves.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50-60 Hz
Input:	external contact for economy function
Output:	valves: 2 0-10 V outputs (R_L > 10 kOhm) speeds: 6 A 24...230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Prop. band:	± 0,5...± 2,5 K
Economy:	adjustable range between 0...+5 °C
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DEAD ZONE K
DB-TA-3A5-13A	•	•	1...4
DB-TA-3A5-10A	•		1...4
DB-TA-3A5-00A			1...4

2.30 ROOM THERMOSTATS FOR FAN COIL WITH TWO 0-10 V OUTPUTS FOR 4-PIPE SYSTEM AND HEATING RELAY OUTPUT

DB-TA-3A8

DB-TA-3A8-130

DB-TA-3A8-100

DB-TA-3A8-000

Temperature control in heating, ventilation, refrigeration and air conditioning for tipically 4-pipe fan coil systems with proportional valves.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Output:	valves: 2 0-10 V outputs (R_L > 10 kOhm) 1 relay 6 A 250 Vac speeds: 6 A 24/230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential:	0.4 K (relay)
Prop. band:	± 0.5...± 2.5 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DEAD ZONE K
DB-TA-3A8-130	•	•	1...4
DB-TA-3A8-100	•		1...4
DB-TA-3A8-000			1...4

2.31 ROOM THERMOSTATS FOR FAN COIL WITH TWO 0-10 V OUTPUTS FOR 4-PIPE SYSTEM AND HEATING RELAY OUTPUT WITH ECONOMY FUNCTION

DB-TA-3A8..A

DB-TA-3A8-13A

DB-TA-3A8-10A

DB-TA-3A8-00A

Temperature control in heating, ventilation, refrigeration and air conditioning for tipically 4-pipe fan coil systems with proportional valves.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Input:	external contact for economy function
Output:	valves: 2 0-10 V outputs (R_L > 10 kOhm) 1 relay 6 A 250 Vac speeds: 6 A 24...230 Vac ±10%, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential:	0.4 K (relay)
Prop. band:	± 0,5...± 2,5 K
Economy:	adjustable range between 0...+5 °C
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DEAD ZONE K
DB-TA-3A8-13A	•	•	1...4
DB-TA-3A8-10A	•		1...4
DB-TA-3A8-00A			1...4

2.32 ROOM CONTROLLERS FOR FAN COIL WITH ONE 0-10 V OUTPUT AND 1 RELAY OUTPUT FOR 4-PIPE SYSTEM

DB-TA-3A9

DB-TA-3A9-130

DB-TA-3A9-100

DB-TA-3A9-000

Temperature control in heating, ventilation, refrigeration and air conditioning for tipically 4-pipe fan coil systems.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Output:	valves: 1 0-10 V output (R_L > 10 kOhm) 1 relay 6 A 250 Vac speeds: 6 A 24/230 Vac
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential:	0.5...2 K (relay)
Prop. band:	± 0.5...± 2.5 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DEAD ZONE K
DB-TA-3A9-130	•	•	1...4
DB-TA-3A9-100	•		1...4
DB-TA-3A9-000			1...4

2.33 ROOM THERMOSTATS FOR FAN COIL WITH ONE 0-10 V OUTPUT AND 1 RELAY OUTPUT FOR 4-PIPE SYSTEM WITH ECONOMY FUNCTION

DB-TA-3A9..A

DB-TA-3A9-13A

DB-TA-3A9-10A

DB-TA-3A9-00A

Temperature control in heating, ventilation, refrigeration and air conditioning for tipically 4-pipe fan coil systems.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Input:	external contact for economy function
Output:	valves: 1 0-10 V output 0…10 Vdc (R_L > 10 kOhm) 1 relay 6 A 250 Vac speeds: 6 A 24/230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential:	0.5...2 K (relay)
Prop. band:	± 0,5...± 2,5 K
Economy:	adjustable range between 0...+5 °C
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DEAD ZONE K
DB-TA-3A9-13A	•	•	1...4
DB-TA-3A9-10A	•		1...4
DB-TA-3A9-00A			1...4

2.34 ROOM THERMOSTATS FOR FAN COIL WITH ONE 0-10 V OUTPUT FOR 2-PIPE SYSTEM

DB-TA-3B5

DB-TA-3B5-130

DB-TA-3B5-100

DB-TA-3B5-000

Temperature control in heating, ventilation, refrigeration and air conditioning for tipically 2-pipe fan coil systems with proportional valve.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Output:	valves: 1 0-10 V output (R_L > 10 kOhm) speeds: 6 A 24/230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Prop. band:	± 0,5...± 2,5 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	S/W
DB-TA-3B5-130	•	•	local
DB-TA-3B5-100	•		local
DB-TA-3B5-000			local

2.35 ROOM THERMOSTATS FOR FAN COIL WITH ONE 0-10 V OUTPUT FOR 2-PIPE SYSTEM WITH ECONOMY FUNCTION AND REMOTE SEASON CHANGEOVER

DB-TA-3B5..A

DB-TA-3B5-13A

DB-TA-3B5-10A

DB-TA-3B5-00A

Temperature control in heating, ventilation, refrigeration and air conditioning for tipically 2-pipe fan coil systems with proportional valve.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Input:	external contacts for economy and season changeover functions
Output:	valves: 1 0-10 V output (R_L > 10 kOhm) speeds: 6 A 24...230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Prop. band:	± 0,5...± 2,5 K
Economy:	adjustable range between 0...+5 °C
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	S/W
DB-TA-3B5-13A	•	•	remote
DB-TA-3B5-10A	•		remote
DB-TA-3B5-00A			remote

2.36 ROOM THERMOSTATS FOR FAN COIL WITH ONE 0-10 V OUTPUT FOR 2-PIPE SYSTEM AND RELAY OUTPUT

DB-TA-3B8

DB-TA-3B8-130

DB-TA-3B8-100

Temperature control in heating, ventilation, refrigeration and air conditioning for tipically 2-pipe fan coil systems with proportional valve.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Output:	valves: 1 0-10 V output (R_L > 10 kOhm) 1 relay 6 A 250 Vac speeds: 6 A 24...230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential:	0.4 °C (relay)
Prop. band:	± 0,5...± 2,5 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	S/W
DB-TA-3B8-130	•	•	local
DB-TA-3B8-100	•		local

2.37 ROOM THERMOSTATS FOR FAN COIL WITH ONE 0-10 V OUTPUT FOR 2-PIPE SYSTEM AND RELAY OUTPUT WITH ECONOMY FUNCTION AND REMOTE SEASON CHANGEOVER

DB-TA-3B8..A

DB-TA-3B8-13A

DB-TA-3B8-10A

Temperature control in heating, ventilation, refrigeration and air conditioning for tipically 2-pipe fan coil systems with proportional valve.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Input:	external contacts for economy and season changeover functions
Output:	valves: 1 0-10 V output (R_L > 10 kOhm) 1 relay 6 A 250 Vac speed: 6 A 24...230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential:	0.4 °C (relay)
Prop. band:	± 0,5...± 2,5 K
Economy:	adjustable range between 0...+5 °C
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	S/W
DB-TA-3B8-13A	•	•	remote
DB-TA-3B8-10A	•		remote

2.38 2 STAGES ROOM THERMOSTATS FOR FAN COIL DB-TA-3C3..9

DB-TA-3C3-139

DB-TA-3C3-199

DB-TA-3C3-999

Temperature control in heating, refrigeration and air conditioning for tipically fan coil systems with 2 stages.

TECHNICAL DATA

Power supply:	230 Vac ± 10 %, 50/60 Hz
Output:	valves: 2 relays SPDT 6 A 250 Vac speeds: 6 A 230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential between stages:	0.5...4 K
Differential in stages:	0.5...4 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DIFFERENTIAL K
DB-TA-3C3-139	•	•	0.5...4
DB-TA-3C3-199	•		0.5...4
DB-TA-3C3-999			0.5...4

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.39 2 STAGES ROOM THERMOSTATS FOR FAN COIL WITH ECONOMY FUNCTION DB-TA-3C3..A

DB-TA-3C3-13A

DB-TA-3C3-19A

DB-TA-3C3-99A

Temperature control in heating, refrigeration and air conditioning for tipically fan coil systems with 2 stages.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Input:	ext. contact for economy function
Output:	valves: 2 relays SPDT 6 A 250 Vac speeds: 6 A 230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential between stages:	0.5...4 K
Differential in stages:	0.5...4 K
Economy:	adjustable range between +5...+30 °C
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DIFFERENTIAL K
DB-TA-3C3-13A	•	•	0.5...4
DB-TA-3C3-19A	•		0.5...4
DB-TA-3C3-99A			0.5...4

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.40 ROOM CONTROLLERS WITH AUTOMATIC SPEED AND ECONOMY FUNCTION DB-TA-3D3-00A

DB-TA-3D3-00A

2-, 4-pipe and 3-speed fan coils control for room temperature.

TECHNICAL DATA

Power supply:	230 Vac ± 10%, 50/60 Hz
Output:	5 relays SPST 5 A 250 Vca speed: 5 A 230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Water sensor:	NTA020-027P (optional)
Setpoint:	+5...+30 °C
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	PIPE	ON/OFF	3-SPEED	S/W
DB-TA-3D3-00A	2	on/off/res (par) •	out/cont1/cont2/ cont3 (par)	par
	4			auto

par setting by keys and display
auto s/w change-over with water sensor

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.41 ONE STAGE ROOM THERMOSTATS FOR FAN COIL DB-TA-3E3..9

DB-TA-3E3-139

DB-TA-3E3-199

Temperature control for tipically 2-pipe fan coil systems with one stage in cooling mode.

TECHNICAL DATA

Power supply:	230 Vac ± 10 %, 50/60 Hz
Output:	1 relay SPDT 6 A 250 Vac speed: 6 A 230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential in stages:	0.5...4 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DIFFERENTIAL K
DB-TA-3E3-139	•	•	0.5...4
DB-TA-3E3-199	•		0.5...4

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.42 ONE STAGE ROOM THERMOSTATS FOR FAN COIL WITH ECONOMY FUNCTION DB-TA-3E3..A

DB-TA-3E3-13A

DB-TA-3E3-19A

Temperature control for tipically 2-pipe fan coil systems with one stage in cooling mode.

TECHNICAL DATA

Power supply:	230 Vac ± 10 %, 50/60 Hz
Input:	ext. contact for economy function
Output:	1 relay SPDT 6 A 230 Vac speed: 230 Vac 6 A, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential in stages:	0.5...4 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DIFFERENTIAL K
DB-TA-3E3-13A	•	•	0.5...4
DB-TA-3E3-19A	•		0.5...4

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.43 ONE STAGE ROOM THERMOSTATS FOR FAN COIL DB-TA-3F3..9

DB-TA-3F3-139

DB-TA-3F3-199

DB-TA-3F3-939

DB-TA-3F3-999

Temperature control for tipically 2-pipe fan coil systems with one stage.

TECHNICAL DATA

Power supply:	230 Vac ± 10 %, 50/60 Hz
Output:	1 relay SPDT 6 A 250 Vac speed: 6 A 230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential in stages:	0.5...4 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DIFFERENTIAL K
DB-TA-3F3-139	•	•	0.5...4
DB-TA-3F3-199	•		0.5...4
DB-TA-3F3-939		•	0.5...4
DB-TA-3F3-999			0.5...4

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.44 ONE STAGE ROOM THERMOSTATS FOR FAN COIL WITH ECONOMY FUNCTION DB-TA-3F3..A

DB-TA-3F3-13A

DB-TA-3F3-19A

DB-TA-3F3-93A

DB-TA-3F3-99A

Temperature control for tipically 2-pipe fan coil systems with one stage.

TECHNICAL DATA

Power supply:	230 Vac ± 10 %, 50/60 Hz
Input:	ext. contact for economy function
Output:	1 relay SPDT 6 A 250 Vac speed: 6 A 230 Vac, 50/60 Hz
Power cons.:	1 W
Sensor:	NTC 10K
Setpoint:	+5...+30 °C
Differential in stages:	0.5...4 K
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	ON/OFF	3-SPEED	DIFFERENTIAL K
DB-TA-3F3-13A	•	•	0.5...4
DB-TA-3F3-19A	•		0.5...4
DB-TA-3F3-93A		•	0.5...4
DB-TA-3F3-99A			0.5...4

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

2.45 ROOM CONTROLLERS WITH 3-POINT OUTPUT DB-TA-3G3-700

DB-TA-3G3-700

3- point valves control on 2- or 4-pipe fan coil for room temperature.

TECHNICAL DATA

Power supply:	230 Vac ± 10 %, 50/60 Hz
Output:	5 relays SPST 5 A 250 Vac
Speed selector:	5 A 230 Vac
Power cons.:	1 W
Sensor:	NTC 10K
Water sensor:	NTA020-027P (optional)
Setpoint:	+5...+30 °C
Display:	resolution 0.1 °C
Protection:	IP30, class II
Size:	144 x 82 x 34 mm

TYPE	3-SPEED	2- OR 4-PIPE
DB-TA-3G3-700	•	•

On request:
optional remote 2 m cable sensor, selectable by jumper; ordering code: NT0220-NTC10-02.

Chapter 3

Electronic thermostats

3. ELECTRONIC THERMOSTATS

3.1 ELECTRONIC THERMOSTATS 1- AND 2-STAGE — DB-I1D, -I2D

DB-I2D/1

Temperature control in heating or cooling systems.

TECHNICAL DATA

Power supply:	230 Vac ± 10%, 50/60 Hz
Input:	for 1 NTC 10K sensor remote setpoint controller
Output:	1 or 2 relays SPDT 10 A 250 Vac
Power cons.:	< 1.5 W
Precision:	± 1 K
Working:	-20...+50 °C 10...90% r.h. (without condensing)
Protection:	IP65, class II
Size:	132 x 85 x 88 mm

TYPE	STAGES	RANGE °C	DIFF. IN THE STAGE K	DIFF. BETW THE STAGES K	TEMPERATURE SENSOR
DB-I1D/1	1	-10...+40	+0.5...+6		NTC 10K
DB-I1D/2	1	+30...+80	+0.5...+6		NTC 10K
DB-I2D/1	2	-10...+40	+0.5...+6	+0.5...+6	NTC 10K
DB-I2D/2	2	+30...+80	+0.5...+6	+0.5...+6	NTC 10K

On request:
remote setpoint control; SAP model with potentiometer 10kΩ.

3.2 DIGITAL CONTROLLERS — DB-I4D

DB-I4D/02/001

Temperature and humidity control in heating, cooling, humidification and dehumidification systems with mode of operating for each relay.

TECHNICAL DATA

Power supply:	230 Vac ± 10%, 50/60 Hz
Input:	- NTC 10K sensor and/or humidity-current transmitter 4...20 mA - remote setpoint controller (optional); (see SAP model with potentiometer 10kΩ) - serial channel (only model DB I4D/02/004)
Output:	4 or 8 SPDT relays 10 A 250 Vac
Power cons.:	< 3 W
Visualization:	2 lines with 3 digit (7 segments display)
Working:	-10...+50 °C 10...90% r.h. (without condensing)
Protection:	IP65, class II
Size:	200 x 120 x 75 mm

TYPE	RANGE	STAGES	DIFFERENTIAL IN THE STAGE	DIFFERENTIAL BETWEEN THE STAGES	INPUT
DB-I4D/02/001	-50...+110 °C	4	0...+10 K	+5…+6 K	NTC 10K
DB-I4D/02/002	0...100 % r.h.	4	0...100 % r.h.	0.5…6% r.h.	4...20 mA
DB-I4D/02/003	-50...+110 °C 0...100 % r.h.	4	0...+10 K 0...10 % r.h.	+5…+6 K 0.5…6% r.h.	NTC 10K 4...20 mA
DB-I4D/02/004	-50...+110 °C	8	0...10 K	+5…+6 K	NTC 10K

DB-IDD

Temperature control in solar heating systems, for the regulation of circulation pumps, heating pumps and all the systems depending on a differential temperature.

TECHNICAL DATA

Power supply:	230 Vac ± 10%, 50-60 Hz
Input:	2 NTC 10K sensors (NTA020-040) included
Output:	1 SPDT relay 10 A 250 Vac
Power cons.:	< 1.5 W
Precision:	± 1 K
Working:	-20...+50 °C 10...90% r.h. (without condensing)
Protection:	IP65, class II
Size:	132 x 85 x 88 mm

TYPE	WORKING RANGE °C	SETPOINT (ΔT) °C	DIFF. IN THE STAGE K	TEMPERATURE SENSOR
DB-IDD	-10...+85	0...+20	+0.5...+6	NTC 10K

DB-R/1

Control of 1 or 2 indipendent physical quantities with:
- 2 relay outputs;
- 1 output for power supply of active transducer (17 Vdc, max 44 mA);
- 3 digit display;
- red LED, output state indicator;
- push buttons for parameters setting;
- optical alarms;
- password and two access levels.

TECHNICAL DATA

Output:	2 SPDT relays 8 A 250Vac
Power cons.:	< 3 W
Working:	0...+45 °C 10...90% r.h. (without condensing)
Protection:	IP52 (only front plate), class II
Size:	96 x 48 x 122 mm
Mounting hole:	92 x 45 mm

PART NUMBER SELECTION

	Input 1			Input 2				
DB-R	X	X	XX	X	X	XX	X	1
INPUT 1								
NTC 10K	1	1	07 (1)					
PT1000	2	1	08 (1)					
PTC 2K	3	1	09 (1)					
Ni1000	4	1	10 (1)					
0...1000 Ohm (DBKH-44)	5	2	06 (1)					
0...1 Vdc (**)	6							
0....10 Vdc (**)	7							
0...20 mA (**) (R_{in} = 100 Ohm)	8							
4...20 mA (**) (R_{in} = 100 Ohm)	9							
UNIT 1								
°C		1						
% r.h.		2						
bar		3						
mbar		4						
Pa		5						
RANGE 1								
0...+50 °C			01					
-30...+50 °C			02					
-10...+40 °C			03					
0...+100 °C			04					
-20...+80 °C			05					
0...+100% r.h.			06					
-50...+110 °C			07					
-60...+600 °C			08					
-50...+150 °C			09					
-60...+200 °C			10					
Range on request (*)			99					
INPUT 2								
None				0	0	00		
NTC 10K				1	1	07 (1)		
PT1000				2	1	08 (1)		
PTC 2K				3	1	09 (1)		
Ni1000				4	1	10 (1)		
0...1000 Ohm (DBKH-44)				5	2	06 (1)		
0...1 Vdc (**)				6				
0...10 Vdc (**)				7				
0...20 mA (**) (R_{in} = 100 Ohm)				8				
4...20 mA (**) (R_{in} = 100 Ohm)				9				
UNIT 2								
None					0			
°C					1			
% r.h.					2			
bar					3			
mbar					4			
Pa					5			
RANGE 2								
None						00		
0...+50 °C						01		
-30...+50 °C						02		
-10...+40 °C						03		
0...+100 °C						04		
-20...+80 °C						05		
0...+100% r.h.						06		
-50...+110 °C						07		
-60...+600 °C						08		
-50...+150 °C						09		
-60...+200 °C						10		
Range on request (*)						99		
POWER SUPPLY								
230 Vac ±10% 50/60 Hz							1	
12 Vac ±10% 50/60 Hz							2	
OUTPUT								
2 SPDT relay 8A 230Vac								

(*) to specify during the ordering process
(1) fixed ranges
(**) working range can be choosen only for models with current (mA) or voltage (Vdc) inputs

DB-R/2

Regulation of 1 or 2 indipendent physical quantities with:
- 2 proportional outputs 0...10 Vdc;
- 1 output for power supply of active transducer (17 Vdc, max 44 mA);
- 3 digit display;
- red led, output state indicator;
- push buttons for parameters setting;
- optical alarms;
- password and two access levels.

TECHNICAL DATA

Output:	2 proportional 0...10 Vdc (R_L>10 KOhm)
Power cons.:	< 3 W
Working:	0...+45 °C 10...90% r.h. (without condensing)
Protection:	IP52 (only front plate), class II
Size:	96 x 48 x 122 mm
Mounting hole:	92 x 45 mm

PART NUMBER SELECTION

	Input 1			Input 2				
DB-R	X	X	XX	X	X	XX	X	2
INPUT 1								
NTC 10K	1	1	07 (1)					
0....10 Vdc (**)	7							
4...20 mA (**) (R_{in} = 100 Ohm)	9							
UNIT 1								
°C		1						
% r.h.		2						
bar		3						
mbar		4						
Pa		5						
RANGE 1								
0...+50 °C			01					
-30...+50 °C			02					
-10...+40 °C			03					
0...+100 °C			04					
-20...+80 °C			05					
0...+100% r.h.			06					
-50...+110 °C			07					
-60...+600 °C			08					
-50...+150 °C			09					
-60...+200 °C			10					
Range on request (*)			99					
INPUT 2								
None				0	0	00		
NTC 10K				1	1	07 (1)		
0...10 Vdc (**)				7				
4...20 mA (**)				9				
UNIT 2								
None					0			
°C					1			
% r.h.					2			
bar					3			
mbar					4			
Pa					5			
RANGE 2								
None						00		
0...+50 °C						01		
-30...+50 °C						02		
-10...+40 °C						03		
0...+100 °C						04		
-20...+80 °C						05		
0...+100% r.h.						06		
-50...+110 °C						07		
-60...+600 °C						08		
-50...+150 °C						09		
-60...+200 °C						10		
Range on request (*)						99		
POWER SUPPLY								
230 Vac ±10% 50/60 Hz							1	
12 Vac ±10% 50/60 Hz							2	
OUTPUT								
2 proportional 0...10 Vdc								

(*) to specify during the ordering process
(1) fixed ranges
(**) working range can be choosen only for models with current (mA) or voltage (Vdc) inputs

DB-R/3

Regulation of 1 or 2 indipendent physical quantities with:
- 1 proportional output 0...10 Vdc;
- 1 relay output;
- 1 output for power supply of active transducer (17 Vdc, max 44 mA);
- 3 digit display;
- red led, output state indicator;
- push buttons for parameters setting;
- optical alarms;
- password and two access levels.

TECHNICAL DATA

Output:	1 proportional 0...10 Vdc (RL>10 KOhm) 1 SPDT relay 8 A 250 Vac
Power cons.:	< 3 W
Working:	0...+45 °C
	10...90% r.h. (without condensing)
Protection:	IP52 (only front plate), class II
Size:	96 x 48 x 122 mm
Mounting hole:	92 x 45 mm

PART NUMBER SELECTION

	Input 1			Input 2				
DB-R	X	X	XX	X	X	XX	X	3
INPUT 1								
NTC 10K	1							
0....10 Vdc (**)	7							
4...20 mA (**) (R_{in} = 100 Ohm)	9							
UNIT 1								
°C		1						
% r.h.		2						
bar		3						
mbar		4						
Pa		5						
RANGE 1								
0...+50 °C			01					
-30...+50 °C			02					
-10...+40 °C			03					
0...+100 °C			04					
-20...+80 °C			05					
0...+100% r.h.			06					
-50...+110 °C			07					
-60...+600 °C			08					
-50...+150 °C			09					
-60...+200 °C			10					
Range on request (*)			99					
INPUT 2								
None				0	0	00		
NTC 10K				1	1	07 (1)		
PT1000				2	1	08 (1)		
PTC 2K				3	1	09 (1)		
Ni1000				4	1	10 (1)		
0...1000 Ohm (DBKH-44)				5	2	06 (1)		
0...1 Vdc (**)				6				
0...10 Vdc (**)				7				
0...20 mA (**)				8				
4...20 mA (**)				9				
UNIT 2								
None					0			
°C					1			
% r.h.					2			
bar					3			
mbar					4			
Pa					5			
RANGE 2								
None						00		
0...+50 °C						01		
-30...+50 °C						02		
-10...+40 °C						03		
0...+100 °C						04		
-20...+80 °C						05		
0...+100% r.h.						06		
-50...+110 °C						07		
-60...+600 °C						08		
-50...+150 °C						09		
-60...+200 °C						10		
Range on request (*)						99		
POWER SUPPLY								
230 Vac ±10% 50/60 Hz							1	
12 Vac ±10% 50/60 Hz							2	
OUTPUT								
1 proportional 0...10 Vdc and 1 relay SPDT 8 A, 230 Vac								

(*) to specify during the ordering process

(1) fixed ranges

(2) Input 2 only in addition with input 1. If the input 2 is different from "none", then the input 1 works with proportional output, input 2 works with the relay ouput. If only one sensor is used for both the ouput, use the sensor 1.

(**) working range can be choosen only for models with current (mA) or voltage (Vdc) inputs

Chapter 4

Triac controllers

4. TRIAC CONTROLLERS

4.1 ELECTRIC HEATING CONTROLLER, 1- OR 2-PHASE, 200...415 V CTR

CTR
CTR-ADD
CTR220X010
CTR380X010

CTR/D
CTR-X/D

Controllers intended for control of radiators or electric heating coils.

TECHNICAL DATA

Power supply:	200...415 Vac, 50...60 Hz, 1- or 2-phase, automatic adaptation
Input/outputs (I/Os)	
Setpoint:	0...30°C (the sensor determines the scale range (NTC sensor))
Night setback:	0...10 K
Output (load) :	16 A (min. 1 A) 1-phase max. 3.6 kW, 2-phase max. 6.4 kW
Room temperature:	Max. 30°C (Note: CTR generates 20 W heating at full load.)
Pulse period:	60 s
P-band:	20 K (rapid temperature changes) 1.5 K (slow temperature changes)
I-time:	6 min (rapid temperature changes)
Protection:	IP30
Size:	93 x 153 x 40 mm (CTR/D e CTR-X/D 115 x 88 x 59 mm)

With automatic adaptation to 230 VAC or 400 VAC

TYPE	DESCRIPTION	MOUNTING
CTR	Electric heating controller	Wall
CTR/D	Electric heating controller	DIN-rail
CTR-X/D	Electric heating controller for external 0...10 Vdc control signal	DIN-rail
CTR-ADD	Add-on unit	Wall

1-phase, 230 V AC or 2-phase, 400 VAC

TYPE	DESCRIPTION	SUPPLY VOLTAGE	MOUNTING
CTR220X010	Electric heating controller for external 0...10 Vdc control signal	230 VAC	Wall
CTR380X010	Electric heating controller for external 0...10 Vdc control signal	400 VAC	Wall

CTR2000

CTR is designed for wall mounting and can be used with internal or external setpoint. Can also be set to be controlled by an external 0...10 V DC signal. To control extra loads, the slave board CTR-S1 can be easily mounted into the unit.

TECHNICAL DATA

Power supply:	3-phase, 210...255 / 380...415 Vac, automatic adaptation
Sensor inputs:	Two, main and min./max. limiting sensors (NTC type)
Setpoint:	0...30°C (the sensor determines the range)
Max. load:	Max. 25 A, min. 3 A/phase
Control signal:	0...10 Vdc (external signal)
P-band:	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time (supply air temp. control):	6 min, fixed
Pulse period:	6...120 s
Protection:	IP30
Size:	160 x 207 x 94 mm

TYPE	DESCRIPTION
CTR2000	Controller for electric heating

Slave board for CTR2000

CTR-S1

TYPE	DESCRIPTION
CTR-S1	Slave board for control of extra loads (+17 kW)

CTR25

CTR40

Electric heating controllers intended for control of electric heating coils or radiators. The controllers can also be set to be controlled by an external 0...10 Vdc signal.

TECHNICAL DATA

Supply voltage:	CTR25, CTR40 : 3-phase, 210...255 / 380...415 Vac, automatic adaptation CTR63, CTR80: 3-phase, 400 Vac
Input	
Sensor:	Two, main and max./min. limiting sensors (NTC sensor).
Setpoint:	0...30°C (the sensor determines the range).
Control signal:	0...10 Vdc
Output	
CTR25:	25 A, 3 x 400 Vac, 17 kW (3 x 230 V, 10 kW)
CTR40:	40 A, 3 x 400 Vac, 27 kW (3 x 230 V, 16 kW)
CTR63:	63 A, 3 x 400 Vac, 43 kW
CTR80:	80 A, 3 x 400 Vac, 55 kW
Room temperature:	0...40°C
Pulse period:	CTR25, CTR40: 6...60 s CTR63, CTR80: 6...120 s
P-band:	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time:	6 min, fixed
Protection:	IP20
Size:	CTR25, CTR40: 195 x 200 x 95 mm CTR63, CTR80: 195 x 220 x 105 mm

TYPE	DESCRIPTION	LOAD	INPUT NTC SENSOR	EXTERNAL 0...10 VDC CONTROL SIGNAL OPTION
CTR25	Electric heating controller with temperature control	25 A	Yes	Yes
CTR40	Electric heating controller with temperature control	40 A	Yes	Yes
CTR63	Electric heating controller with temperature control	63 A	Yes	Yes
CTR80	Electric heating controller with temperature control	80 A	Yes	Yes

Note: To control larger electrical loads, see the step controllers SC4 and SC6.

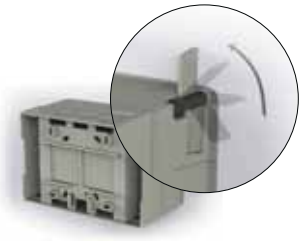
Chapter 5

Controllers

5. CONTROLLERS

5.1 HEATING CONTROLLER CR19x

CR19x



Controller for district heating, boiler or heat pump combined with solar panels, heating and domestic hot water.

CR19x is a range of digital controllers suitable for all types of heating systems. They can be used stand-alone or as part of a network.
The web-based CR19x tool enables you to easily select your configuration from out of more than 650 pre-configured system diagrams / applications via a graphical interface.

EASY INSTALLATION
CR19x is suitable for different types of installation:

Wall mounting
As a stand-alone controller, CR19x has a power supply of 230 V. The output relays are all on-board. The controller has prefabricated holes in the socket and can be mounted directly onto the wall using screws; no extra panel is needed.

DIN-rail mounting
CR19x has a mounting adapter on the back of the socket for DIN-rail mounting.

Panel door mounting
CR19x's casing has standard dimensions of 192 x 138 mm. The case is extremely flat and will fit into any standard panel cut-outs. CR19x comes equipped with flaps secure the controller to the door. No extra installation tools are needed.

COMMUNICATION
CR19x can be fitted with communication ports:
- USB service interface: Enables uploading of firmware or configuration files, downloading backup or trend files and communicating via a service PC
- RS-485 with R+S-Bus: Enables connecting to other networks or controllers
- Ethernet with TCP/IP: Enables network connection (to the Internet or an intranet)

WEB SERVER (HC...W MODELS)
Models with a built-in web server can communicate with different kinds of Internet browsers.

APPLICATIONS

Heat producer
One primary heat producer can be selected; a district heating circuit, boiler or heat pump. Applications using a heat pump may also have solar panels added to them.

Buffer tank
Control of a buffer tank can be added to a system.

Domestic hot water
CR19x can control all kinds of DHW systems. A solar system can also be added to this application.

Heating circuit
CR19x can control up to 2 heating circuits.

Miscellaneous
CR19x has additional programs like double pump or trend functions.

TECHNICAL DATA

Power supply:	85...265 Vac, 50/60 Hz
Inputs	
Analogue inputs:	8 x For Pt1000, NI1000 or NI1000LG sensors (accuracy ± 0.4°C). Can also be used as digital inputs. 2 x 0...10 Vdc (accuracy ± 0.15 % of full output signal).
Digital inputs:	2 x contact input for potential free contacts
Outputs	
Analogue outputs:	2 x 0...10 Vdc, 1 mA, short-circuit proof
Digital outputs	7 x relay, 230 Vac, 1 A inductive. Totally max. 7 A.
Collective alarm:	The output can be configured
Power consumption:	Max. 8 VA (depending on model)
Room temperature:	0...50°C
Storage temperature:	-40...+50°C
Room humidity:	Max. 90 % RH
Memory backup:	Long life battery (>8 years). All settings are stored in the event of power failure.
Connection:	Terminals in a socket
CR19x tool:	
System requirements:	Computer, Internet tablet or smartphone with Internet browser
Interface:	
USB:	Service interface with micro USB connector
Display:	Backlit, LCD, four rows of 20 characters
Protection:	IP20 (mounted on the wall) IP40 (mounted in cabinet)
CE:	**EMC emissions & immunity standards:** This product conforms to the requirements of the EMC Directive 2004/108/EC through product standards EN 61000-6-1:2001 and 61000-6-3:2001. **RoHS:** This product conforms to the Directive 2011/65/EU of the European Parliament and of the Council.
Size:	146,7 x 97,6 x 76 mm

Options / additional interfaces:

2 ports with RS-485 interface

- Terminals for network connection (R+S Bus)

1 port with Ethernet interface

- TCP/IP for internet or intranet

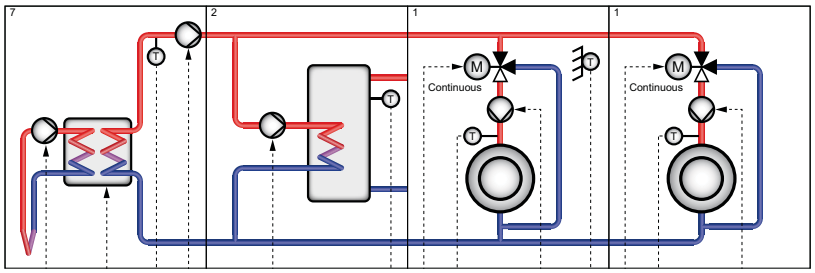
Web server

TYPE	DISPLAY	DUAL PORT	WEB	USB
CR190D-1	Yes	No	No	Yes
CR192D-1	Yes	Yes	No	Yes
CR192-1	No	Yes	No	Yes
CR190DW-1	Yes	No	Yes	Yes
CR190W-1	No	No	Yes	Yes
CR192W-1	No	No	Yes	Yes
CR192DW-1	Yes	Yes	Yes	Yes

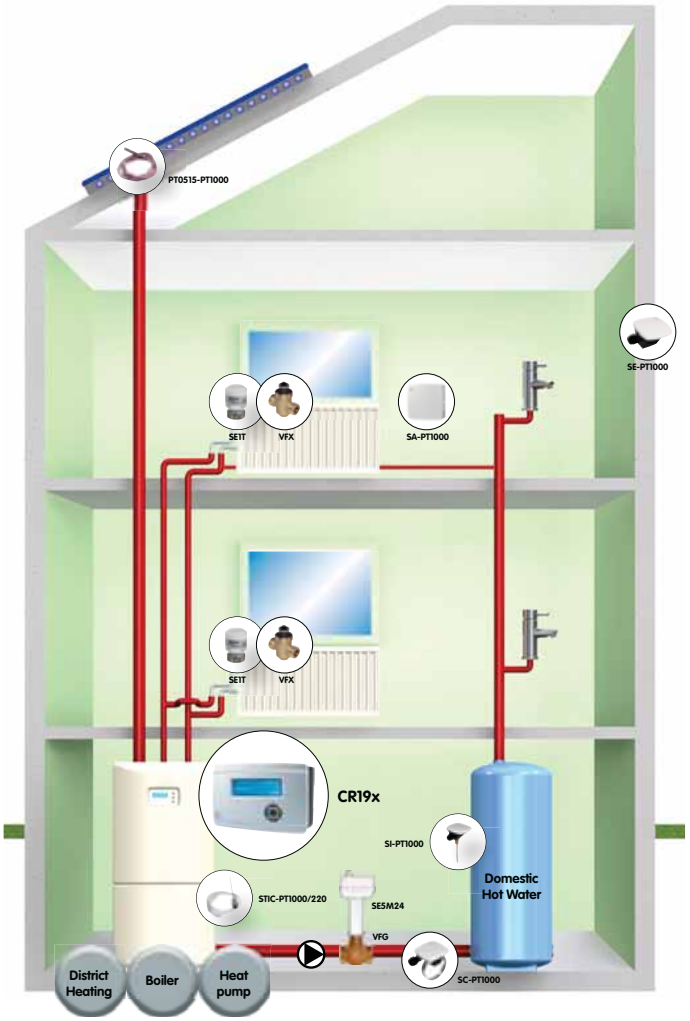
Configure your system according to your needs

Easy to configure and operate
CR19x comes with pre-installed heating control programs which can be combined freely, depending on the needs, offering a choice of more than 554 applications / system diagrams.
Simply enter the code of the selected application at start-up. The controller is then automatically configured according to the selected system diagram. No programming is required!

Functions
CR19x has four timers; one for each consumer circuit (1 x domestic hot water and 2 x heating) as well as one additional free timer for various functions. CR19x also has a trend function for storing values over time. Another function is the internal energy manager which calculates the heat demand of the heating or domestic hot water circuits; this information is then sent to the heat producer, so that it can run in the most effective way.



Example: application 70211
1 heat pump circuit, 1 domestic hot water circuit, 2 heating circuits



CR19x controls district heating units, boilers or heat pumps in combination with solar thermal collectors, two heating circuits and domestic hot water.

CDC1

Compact controller for mounting in ventilation ducts. The controller has a built-in sensor and setpoint control. An external setpoint potentiometer can be connected if required. It can be used to control either heating or cooling. P- or PI-control optional.
The controller has an input for change-over between heating and cooling. The change-over function can be activated by means of an external closing contact or a sensor mounted on the supply-water side of the heating/cooling unit.

TECHNICAL DATA

Power supply:	24 Vac, 2 VA
Output:	One, 0...10 Vdc
Setpoint:	0...30°C
P-band:	0.5...50 K
I-time:	2 min/20 min, selectable
Change-over:	Input for closing contact or sensor (0...30°C)
Insertion lenght:	20...220 mm
Diameter tube:	Ø 12 mm
Protection:	IP65
Size:	80 x 80 x 255 mm

TYPE	DESCRIPTION
CDC1	Duct controller, with 0...10 Vdc output

5.3 PRE-PROGRAMMED, STAND-ALONE CONTROLLERS — CMF

CMF5U

A range of pre-programmed controllers for small HVAC-applications. The controllers are extremely easy to install, commission and control.

It has a choice of five different control modes:
- Temperature control
- CO2 control
- Humidity control
- Pressure control
- Pressure control with outdoor compensation

TECHNICAL DATA

Power supply:	24 Vac ±15 % CMF10-230: 230 Vac
Inputs	
Analogue inputs (AI):	PT1000
Digital inputs (DI):	Closing potential-free contact
Universal input (UI):	0...10 Vdc or digital
Setpoint input (SPI):	For an external PT1000 setpoint device, e.g. SAP-PT1000-1 or SET-PT1000
Outputs	
Analogue outputs (AO):	0...10 Vdc, short-circuit protected
Digital outputs (CMF10 and CMF10-230 only):	Triac 24 Vac, 0.5 A (3-point control or alarm output) and one change-over relay 230 Vac, 5 A (fan start)
Power consumption:	4 VA
Display:	Backlit LCD, numeric/graphic, language-indipendent symbols
Clock (CMF10 only):	Week-based 24-hour clock
Mounting:	DIN-rail, 7 modules
Protection:	IP20
Size:	123 x 123 x 60 mm, 7 modules

TYPE	SUPPLY VOLTAGE	NUMBER OF I/OS
CMF5U	24 Vac	5
CMF10	24 Vac	10
CMF10-230	230 Vac	10

Inputs/outputs (I/Os)

	CMF5	CMF10	CMF10-230
AI	1	2	2
DI	1	2	2
UI	1	1	1
AO	2	2	2
DO	0	3	3
TOTAL NUMBER OF I/OS	5	10	10

5.4 FRONT MOUNTING KIT FOR CMF — CMF-KIT

CMF-KIT

Mounting kit for easier mounting of CMF in a control panel or cabinet door.

TYPE	DESCRIPTION	PROTECTION
CMF-KIT	Front mounting kit, room for one CMF unit	IP40

5.5 PLUG-IN TERMINAL BLOCKS FOR CMF — CMF-PLUG

CMF-PLUG

A set of angled plug-in terminal blocks for simple wiring of CMF when using the front mounting kit CMF-KIT.

TYPE	DESCRIPTION
CMF-PLUG	Plug-in terminal blocks for CMF unit

Chapter 6

Temperature sensors

6. TEMPERATURE SENSORS

6.1 CLAMP-ON SENSOR WITH HOUSING SC

SC

Clamp-on sensor for surface temperature measurement, including a metal strap for easy fastening and a tube of heat-conductive contact paste.

TECHNICAL DATA

Time constant:	5 s
Protection:	IP42 (or IP40 depending on the mounting position)
Size:	93 x 70 x 35 mm

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
SC-PT100	PT100, 100 Ohm/0°C	-20...+120 °C	
SC-PT1000	PT1000, 1000 Ohm/0°C	-20...+120 °C	
SC-NTC1.8	NTC 1.8, 1800 Ohm/25°C	-20...+120 °C	Tac
SC-NTC2.2	NTC 2.2k3A1, 2252 Ohm/25°C	-20...+120 °C	Johnsson Controls
SC-NTC10-01	NTC 10k3A1, 10kOhm/25°C	-20...+120 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
SC-NTC10-02	NTC 10k, 10kOhm/25°C	-20...+110 °C	Carel - Evco - Eliwell - AB Industrietechnik
SC-NTC10-03	NTC 10k4A1, 10kOhm/25°C	-20...+120 °C	Andover - Delta Controls - Siebe - York
SC-NTC20	NTC 20k6A1, 20kOhm/25°C	-20...+120 °C	Honeywell
SC-NI1000-01	Ni1000, 1000 Ohm/0°C	-20...+120 °C	Siemens - Landis & Staefa
SC-NI1000-02	Ni1000, 1000 Ohm/0°C	-20...+120 °C	Sauter

SCC

For surface temperature measurement, including clamp (Ø 40 mm max.).

TECHNICAL DATA

Time constant:	13 s
Cable length:	1.5 m
Protection:	IP65
Size:	36 x 10,5 x 7,5 mm (SCC-NTC10-02-BR-J: 23,5 x 6 x 9,5)

SCC-NTC15

SCC-NT10-02-BR-J

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
SCC-PT100	PT100, 100 Ohm/0°C	-30...+150 °C	
SCC-PT1000	PT1000, 1000 Ohm/0°C	-30...+150 °C	
SCC-NTC1.8	NTC 1.8, 1800 Ohm/25°C	-30...+120 °C	Tac
SCC-NTC2.2	NTC 2.2k3A1, 2252 Ohm/25°C	-30...+150 °C	Johnsson Controls
SCC-NTC10-01	NTC 10k3A1, 10kOhm/25°C	-30...+150 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
SCC-NTC10-02	NTC 10k, 10kOhm/25°C	-30...+110 °C	Carel - Evco - Eliwell - AB Industrietechnik
SCC-NTC10-02-BR-J	NTC 10k, 10kOhm/25C	-50...+110 °C	Carel - Evco - Eliwell - AB Industrietechnik
SCC-NTC10-03	NTC 10k4A1, 10kOhm/25°C	-30...+150 °C	Andover - Delta Controls - Siebe - York
SCC-NTC15-01	NTC 15k, 15kOhm/0°C	0...+30 °C	Regin
SCC-NTC20	NTC 20k6A1, 20kOhm/25°C	-30...+150 °C	Honeywell
SCC-NI1000-01	Ni1000, 1000 Ohm/0°C	-30...+150 °C	Siemens - Landis & Staefa
SCC-NI1000-02	Ni1000, 1000 Ohm/0°C	-30...+150 °C	Sauter

STC

Duct sensor for air temperature measurement in ventilation ducts.

TECHNICAL DATA

Time constant:	16 s
Insertion length:	60...230 mm
Diameter tube:	8 mm
Protection:	IP65
Size:	93 x 70 x 260 mm (STC-PT1000/430: 93 x 70 x 460)

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
STC-PT100	PT100, 100 Ohm/0°C	-30...+70 °C	
STC-PT1000	PT1000, 1000 Ohm/0°C	-30...+70 °C	
STC-PT1000/430	PT1000, 1000 Ohm/0°C	-30...+70 °C	
STC-NTC1.8	NTC 1.8, 1800 Ohm/25°C	-30...+70 °C	Tac
STC-NTC2.2	NTC 2.2k3A1, 2252 Ohm/25°C	-30...+70 °C	Johnsson Controls
STC-NTC10-01	NTC 10k3A1, 10kOhm/25°C	-30...+70 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
STC-NTC10-02	NTC 10k, 10kOhm/25°C	-30...+70 °C	Carel - Evco - Eliwell - AB Industrietechnik
STC-NTC10-03	NTC 10k4A1, 10kOhm/25°C	-30...+70 °C	Andover - Delta Controls - Siebe - York
STC-NTC20	NTC 20k6A1, 20kOhm/25°C	-30...+70 °C	Honeywell
STC-NI1000-01	Ni1000, 1000 Ohm/0°C	-30...+70 °C	Siemens - Landis & Staefa
STC-NI1000-02	Ni1000, 1000 Ohm/0°C	-30...+70 °C	Sauter

STCC

Duct sensor for air temperature measurement in ventilation ducts.

TECHNICAL DATA

Time constant:	50 s including dead time
Insertion length:	15...130 mm, adjustable
Diameter tube:	9 mm
Cable length:	1.5 m
Protection:	IP65

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
STCC-PT100	PT100, 100 Ohm/0°C	-30...+70 °C	
STCC-PT1000	PT1000, 1000 Ohm/0°C	-30...+70 °C	
STCC-NTC1.8	NTC 1.8, 1800 Ohm/25°C	-30...+70 °C	Tac
STCC-NTC2.2	NTC 2.2k3A1, 2252 Ohm/25°C	-30...+70 °C	Johnsson Controls
STCC-NTC10-01	NTC 10k3A1, 10kOhm/25°C	-30...+70 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
STCC-NTC10-02	NTC 10k, 10kOhm/25°C	-30...+70 °C	Carel - Evco - Eliwell - AB Industrietechnik
STCC-NTC10-03	NTC 10k4A1, 10kOhm/25°C	-30...+70 °C	Andover - Delta Controls - Siebe - York
STCC-NTC15-01	NTC 15k 15kOhm/0°C	0...+30 °C	Regin
STCC-NTC15-02	NTC 15k, 15kOhm/0°C	0...+60 °C	Regin
STCC-NTC15-03	NTC 15k, 15kOhm/20°C	+20...+50 °C	Regin
STCC-NTC15-04	NTC 15k, 15kOhm/0°C	0...+40 °C	Regin
STCC-NTC20	NTC 20k6A1, 20kOhm/25°C	-30...+70 °C	Honeywell
STCC-NI1000-01	Ni1000, 1000 Ohm/0°C	-30...+70 °C	Siemens - Landis & Staefa
STCC-NI1000-02	Ni1000, 1000 Ohm/0°C	-30...+70 °C	Sauter

STM

Average temperature sensor for air duct mounting. It has a 3 m cable with four sensor elements. The cable is mounted with clamps and is held in place inside the duct by an end spring.

TECHNICAL DATA

Diameter tube:	8 mm
Protection:	IP65
Size:	93 x 70 x 100 mm

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
STM-PT100	PT100, 100 Ohm/0°C	0...+70 °C	
STM-PT1000	PT1000, 1000 Ohm/0°C	0...+70 °C	
STM-NTC1.8	NTC 1.8, 1800 Ohm/25°C	0...+70 °C	Tac
STM-NTC2.2	NTC 2.2k3A1, 2252 Ohm/25°C	0...+70 °C	Johnsson Controls
STM-NTC10-01	NTC 10k3A1, 10kOhm/25°C	0...+70 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
STM-NTC10-02	NTC 10k, 10kOhm/25°C	0...+70 °C	Carel - Evco - Eliwell - AB Industrietechnik
STM-NTC10-03	NTC 10k4A1, 10kOhm/25°C	0...+70 °C	Andover - Delta Controls - Siebe - York
STM-NTC20	NTC 20k6A1, 20kOhm/25°C	0...+70 °C	Honeywell
STM-NI1000-01	Ni1000, 1000 Ohm/0°C	0...+70 °C	Siemens - Landis & Staefa
STM-NI1000-02	Ni1000, 1000 Ohm/0°C	0...+70 °C	Sauter

SI

Immersion sensor with R1/4" thread.

TECHNICAL DATA

Time constant:	4 s
Insertion length:	90 mm
Connection:	R1/4"
Material, probe:	Stainless steel
Diameter, probe:	5 mm
Pressure class:	PN16
Protection:	IP65
Size:	93 x 70 x 152 mm

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
SI-PT100	PT100, 100 Ohm/0°C	-20...+120 °C	
SI-PT1000	PT1000, 1000 Ohm/0°C	-20...+120 °C	
SI-NTC1.8	NTC 1.8, 1800 Ohm/25°C	-20...+120 °C	Tac
SI-NTC2.2	NTC 2.2k3A1, 2252 Ohm/25°C	-20...+120 °C	Johnsson Controls
SI-NTC10-01	NTC 10k3A1, 10kOhm/25°C	-20...+120 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
SI-NTC10-02	NTC 10k, 10kOhm/25°C	-20...+110 °C	Carel - Evco - Eliwell - AB Industrietechnik
SI-NTC10-03	NTC 10k4A1, 10kOhm/25°C	-20...+120 °C	Andover - Delta Controls - Siebe - York
SI-NTC20	NTC 20k6A1, 20kOhm/25°C	-20...+120 °C	Honeywell
SI-NI1000-01	Ni1000, 1000 Ohm/0°C	-20...+120 °C	Siemens - Landis & Staefa
SI-NI1000-02	Ni1000, 1000 Ohm/0°C	-20...+120 °C	Sauter

6.7 IMMERSION SENSOR WITH HOUSING AND POCKET STI

STI

Immersion sensor with well. The sensor part has a clip fastening which makes it easy to mount.

TECHNICAL DATA

Time constant:	18 s (12 s with heat-conductive paste)
Insertion length:	90 mm
Connection, pocket:	R1/2"
Material, probe and pocket:	Stainless steel
Diameter, pocket:	8 mm
Pressure class:	PN25
Protection:	IP65
Size:	93 x 70 x 150 mm

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
STI-PT100	PT100, 100 Ohm/0°C	-20...+120 °C	
STI-PT1000	PT1000, 1000 Ohm/0°C	-20...+120 °C	
STI-NTC1.8	NTC 1.8, 1800 Ohm/25°C	-20...+120 °C	Tac
STI-NTC2.2	NTC 2.2k3A1, 2252 Ohm/25°C	-20...+120 °C	Johnsson Controls
STI-NTC10-01	NTC 10k3A1, 10kOhm/25°C	-20...+120 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
STI-NTC10-02	NTC 10k, 10kOhm/25°C	-20...+110 °C	Carel - Evco - Eliwell - AB Industrietechnik
STI-NTC10-03	NTC 10k4A1, 10kOhm/25°C	-20...+120 °C	Andover - Delta Controls - Siebe - York
STI-NTC20	NTC 20k6A1, 20kOhm/25°C	-20...+120 °C	Honeywell
STI-NI1000-01	Ni1000, 1000 Ohm/0°C	-20...+120 °C	Siemens - Landis & Staefa
STI-NI1000-02	Ni1000, 1000 Ohm/0°C	-20...+120 °C	Sauter

6.8 IMMERSION SENSOR WITH DIN HEAD DPTD

DPTD

Immersion sensor for industrial applications.

TECHNICAL DATA

Material, pocket:	Stainless steel Aisi304
Diameter, pocket:	10 mm
Pressure class:	PN6
Protection:	IP65
Max size:	Ø 82 x h 107 mm

TYPE	SENSOR ELEMENT	RANGE
DPTD-PT100	PT100, 100 Ohm/0°C	-50...+600 °C
DPTD-PT1000	PT1000, 1000 Ohm/0°C	-50...+600 °C

STIC

Immersion sensor with well. The sensor part has a clip fastening which makes it easy to mount.

TECHNICAL DATA

Time constant:	4 s
Cable length:	1.5 m
Connection:	R1/4"
Material:	Stainless steel
Diameter:	4 mm
Pressure class:	PN10
Protection:	IP65

TYPE	SENSOR ELEMENT	INSERTION LENGTH	RANGE
STIC-PT100/135	PT100, 100 Ohm/0°C	135 mm	-30...+70 °C
STIC-PT1000/135	PT1000, 1000 Ohm/0°C	135 mm	-30...+70 °C
STIC-NTC1.8/135	NTC 1.8, 1800 Ohm/25°C	135 mm	-30...+70 °C
STIC-NTC2.2/135	NTC 2.2k3A1, 2252 Ohm/25°C	135 mm	-30...+70 °C
STIC-NTC10-01/135	NTC 10k3A1, 10kOhm/25°C	135 mm	-30...+70 °C
STIC-NTC10-02/135	NTC 10k, 10kOhm/25°C	135 mm	-30...+70 °C
STIC-NTC10-03/135	NTC 10k4A1, 10kOhm/25°C	135 mm	-30...+70 °C
STIC-NTC20/135	NTC 20k6A1, 20kOhm/25°C	135 mm	-30...+70 °C
STIC-NI1000-01/135	Ni1000, 1000 Ohm/0°C	135 mm	-30...+70 °C
STIC-NI1000-02/135	Ni1000, 1000 Ohm/0°C	135 mm	-30...+70 °C
STIC-PT100/220	PT100, 100 Ohm/0°C	220 mm	-30...+70 °C
STIC-PT1000/220	PT1000, 1000 Ohm/0°C	220 mm	-30...+70 °C
STIC-NTC1.8/220	NTC 1.8, 1800 Ohm/25°C	220 mm	-30...+70 °C
STIC-NTC2.2/220	NTC 2.2k3A1, 2252 Ohm/25°C	220 mm	-30...+70 °C
STIC-NTC10-01/220	NTC 10k3A1, 10kOhm/25°C	220 mm	-30...+70 °C
STIC-NTC10-02/220	NTC 10k, 10kOhm/25°C	220 mm	-30...+70 °C
STIC-NTC10-03/220	NTC 10k4A1, 10kOhm/25°C	220 mm	-30...+70 °C
STIC-NTC20/220	NTC 20k6A1, 20kOhm/25°C	220 mm	-30...+70 °C
STIC-NI1000-01/220	Ni1000, 1000 Ohm/0°C	220 mm	-30...+70 °C
STIC-NI1000-02/220	Ni1000, 1000 Ohm/0°C	220 mm	-30...+70 °C
STIC-PT100/300	PT100, 100 Ohm/0°C	300 mm	-30...+70 °C
STIC-PT1000/300	PT1000, 1000 Ohm/0°C	300 mm	-30...+70 °C
STIC-NTC1.8/300	NTC 1.8, 1800 Ohm/25°C	300 mm	-30...+70 °C
STIC-NTC2.2/300	NTC 2.2k3A1, 2252 Ohm/25°C	300 mm	-30...+70 °C
STIC-NTC10-01/300	NTC 10k3A1, 10kOhm/25°C	300 mm	-30...+70 °C
STIC-NTC10-02/300	NTC 10k, 10kOhm/25°C	300 mm	-30...+70 °C
STIC-NTC10-03/300	NTC 10k4A1, 10kOhm/25°C	300 mm	-30...+70 °C
STIC-NTC20/300	NTC 20k6A1, 20kOhm/25°C	300 mm	-30...+70 °C
STIC-NI1000-01/300	Ni1000, 1000 Ohm/0°C	300 mm	-30...+70 °C
STIC-NI1000-02/300	Ni1000, 1000 Ohm/0°C	300 mm	-30...+70 °C

DF

ACCESSORY	DF - Mounting flange for STIC... for mounting in ventilation ducts

6.10 POCKET

DBZ

DBZ-90W DBZ-135

DBZ-135R

DBZ-AD1

Well for immersion sensors.

TECHNICAL DATA

Connection:	R1/2"
Pressure class:	PN25

TYPE	DESCRIPTION	MATERIAL	INSERTION LENGHT
DBZ-90	Pocket	Brass	90 mm
DBZ-90R	Pocket	Stainless steel	90 mm
DBZ-90W	Pocket for STI...	Stainless steel	90 mm
DBZ-135	Pocket	Brass	135 mm
DBZ-135R	Pocket	Stainless steel	135 mm

ACCESSORY	DBZ-AD1 - Adapter 1/4" to 1/2". For mounting STIC... in 1/2".

6.11 ROOM SENSOR

SA

SA

For room temperature measurement.

TECHNICAL DATA

Protection:	IP30
Size:	86 x 86 x 30 mm

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
SA-PT100	PT100, 100 Ohm/0°C	0...+50 °C	
SA-PT1000	PT1000, 1000 Ohm/0°C	0...+50 °C	
SA-NTC1.8	NTC 1.8, 1800 Ohm/25°C	0...+50 °C	Tac
SA-NTC2.2	NTC 2.2k3A1, 2252 Ohm/25°C	0...+50 °C	Johnsson Controls
SA-NTC10-01	NTC 10k3A1, 10kOhm/25°C	0...+50 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
SA-NTC10-02	NTC 10k, 10kOhm/25°C	0...+50 °C	Carel - Evco - Eliwell - AB Industrietechnik
SA-NTC10-03	NTC 10k4A1, 10kOhm/25°C	0...+50 °C	Andover - Delta Controls - Siebe - York
SA-NTC15-01	NTC 15k 15kOhm/0°C	0...+30 °C	Regin
SA-NTC15-02	NTC 15k, 15kOhm/0°C	0...+60 °C	Regin
SA-NTC15-03	NTC 15k, 15kOhm/20°C	+20...+50 °C	Regin
SA-NTC15-04	NTC 15k, 15kOhm/0°C	0...+40 °C	Regin
SA-NTC20	NTC 20k6A1, 20kOhm/25°C	0...+50 °C	Honeywell
SA-NI1000-01	Ni1000, 1000 Ohm/0°C	0...+50 °C	Siemens - Landis & Staefa
SA-NI1000-02	Ni1000, 1000 Ohm/0°C	0...+50 °C	Sauter

6.12 ROOM SENSOR WITH SETPOINT ADJUSTMENT SAP

SAP

For room temperature measurement with setpoint adjustment.

TECHNICAL DATA

Protection:	IP30
Size:	86 x 86 x 30 mm

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
SAP-PT100-X	PT100, 100 Ohm/0°C	+5...+30 °C	
SAP-PT1000-X	PT1000, 1000 Ohm/0°C	+5...+30 °C	
SAP-NTC1.8-X	NTC 1.8, 1800 Ohm/25°C	+5...+30 °C	Tac
SAP-NTC2.2-X	NTC 2.2k3A1, 2252 Ohm/25°C	+5...+30 °C	Johnsson Controls
SAP-NTC10-01-X	NTC 10k3A1, 10kOhm/25°C	+5...+30 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
SAP-NTC10-02-X	NTC 10k, 10kOhm/25°C	+5...+30 °C	Carel - Evco - Eliwell - AB Industrietechnik
SAP-NTC10-03-X	NTC 10k4A1, 10kOhm/25°C	+5...+30 °C	Andover - Delta Controls - Siebe - York
SAP-NTC15-01-X	NTC 15k, 15kOhm/0°C	+5...+30 °C	Regin
SAP-NTC20-X	NTC 20k6A1, 20kOhm/25°C	+5...+30 °C	Honeywell
SAP-NI1000-01-X	Ni1000, 1000 Ohm/0°C	+5...+30 °C	Siemens - Landis & Staefa
SAP-NI1000-02-X	Ni1000, 1000 Ohm/0°C	+5...+30 °C	Sauter

X : 1 = Potentiometer range 5...31 °C 1020...1120 Ohm
2 = Potentiometer range 5...30°C 0...10 kOhm

6.13 OUTDOOR SENSOR SE

SE

For outdoor temperature measurement.

TECHNICAL DATA

Protection:	IP65
Size:	93 x 70 x 46 mm

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
SE-PT100	PT100, 100 Ohm/0°C	-30...+70 °C	
SE-PT1000	PT1000, 1000 Ohm/0°C	-30...+70 °C	
SE-NTC1.8	NTC 1.8, 1800 Ohm/25°C	-30...+70 °C	Tac
SE-NTC2.2	NTC 2.2k3A1, 2252 Ohm/25°C	-30...+70 °C	Johnsson Controls
SE-NTC10-01	NTC 10k3A1, 10kOhm/25°C	-30...+70 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
SE-NTC10-02	NTC 10k, 10kOhm/25°C	-30...+70 °C	Carel - Evco - Eliwell - AB Industrietechnik
SE-NTC10-03	NTC 10k4A1, 10kOhm/25°C	-30...+70 °C	Andover - Delta Controls - Siebe - York
SE-NTC20	NTC 20k6A1, 20kOhm/25°C	-30...+70 °C	Honeywell
SE-NI1000-01	Ni1000, 1000 Ohm/0°C	-30...+70 °C	Siemens - Landis & Staefa
SE-NI1000-02	Ni1000, 1000 Ohm/0°C	-30...+70 °C	Sauter

6.14 CABLE TEMPERATURE SENSOR, METAL HOUSING NT04

NT04

TECHNICAL DATA

Material, tube:	Steel
Material, cable:	Silicone
Sensor length bulb:	40 mm
Cabel length:	2 m
Diameter:	6 mm
Protection:	IP67

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
NT0420-NTC1.8	NTC 1.8, 1800 Ohm/25°C	-30...+70 °C	Tac
NT0420-NTC2.2	NTC 2.2k3A1, 2252 Ohm/25°C	-30...+70 °C	Johnsson Controls
NT0420-NTC10-01	NTC 10k3A1, 10kOhm/25°C	-30...+70 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
NT0420-NTC10-02	NTC 10k, 10kOhm/25°C	-30...+70 °C	Carel - Evco - Eliwell - AB Industrietechnik
NT0420-NTC10-03	NTC 10k4A1, 10kOhm/25°C	-30...+70 °C	Andover - Delta Controls - Siebe - York
NT0420-NTC20	NTC 20k6A1, 20kOhm/25°C	-30...+70 °C	Honeywell
NT0420-NI1000-01	Ni1000, 1000 Ohm/0°C	-30...+70 °C	Siemens - Landis & Staefa
NT0420-NI1000-02	Ni1000, 1000 Ohm/0°C	-30...+70 °C	Sauter

6.15 CABLE TEMPERATURE SENSOR, PLASTIC HOUSING NT02

NT02

TECHNICAL DATA

Material, tube:	PP
Material, cable:	PVC
Sensor length bulb:	23 mm
Cabel length:	2 m
Diameter:	6 mm
Protection:	IP67

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
NT0220-NTC1.8	NTC 1.8, 1800 Ohm/25°C	-30...+70 °C	Tac
NT0220-NTC2.2	NTC 2.2k3A1, 2252 Ohm/25°C	-30...+70 °C	Johnsson Controls
NT0220-NTC10-01	NTC 10k3A1, 10kOhm/25°C	-30...+70 °C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
NT0220-NTC10-02	NTC 10k, 10kOhm/25°C	-30...+70 °C	Carel - Evco - Eliwell - AB Industrietechnik
NT0220-NTC10-03	NTC 10k4A1, 10kOhm/25°C	-30...+70 °C	Andover - Delta Controls - Siebe - York
NT0220-NTC20	NTC 20k6A1, 20kOhm/25°C	-30...+70 °C	Honeywell
NT0220-NTC100	NTC100K, 20kOhm/25°C	-30...+70 °C	
NT0220-NI1000-01	Ni1000, 1000 Ohm/0°C	-30...+70 °C	Siemens - Landis & Staefa
NT0220-NI1000-02	Ni1000, 1000 Ohm/0°C	-30...+70 °C	Sauter

6.16 CABLE TEMPERATURE SENSOR, METAL HOUSING NT05

NT05

TECHNICAL DATA

Material, tube:	Nickel plated brass
Material, cable:	Silicone
Sensor length bulb:	50 mm
Cabel length:	1,5 m
Diameter:	6 mm
Protection:	IP65

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
NT0515-NTC15	NTC 15k, 15kOhm/0°C	0...+30 °C	Regin

6.17 CABLE TEMPERATURE SENSOR, METAL HOUSING PT04

PT05

TECHNICAL DATA

Material, tube:	Nickel plated brass
Material, cable:	Silicone
Sensor length bulb:	40 mm
Cable length:	1.5 m
Diameter:	6 mm
Protection:	IP65

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
PT0415-PT100	PT100, 100 Ohm/0°C	-30...+100°C	General use
PT0415-PT1000	PT1000, 1000 Ohm/0°C	-30...+100°C	General use

6.18 CABLE TEMPERATURE SENSOR -50...+200C, METAL HOUSING — PT10

PT10

TECHNICAL DATA

Material, tube:	Steel
Material, cable:	Silicone
Sensor length bulb:	100 mm
Cabel length:	2 m
Diameter:	6 mm
Protection:	IP67

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
PT1020-PT100	PT100, 100 Ohm/0°C	-50...+200°C	General use
PT1020-PT1000	PT1000, 1000 Ohm/0°C	-50...+200°C	General use

6.19 CABLE TEMPERATURESENSOR -50...+350C, METAL HOUSING — PT10xxC

PT10xxC

Special cable sensor for high temperature.

TECHNICAL DATA

Material, tube:	Steel with ceramic insert
Material, cable:	Fiberglass
Sensor length bulb:	100 mm
Cabel length:	2 m
Diameter:	6 mm
Protection:	IP44

TYPE	SENSOR ELEMENT	RANGE	EQUIVALENT
PT1020C-PT100	PT100, 100 Ohm/0°C	-50...+350°C	General use
PT1020C-PT1000	PT1000, 1000 Ohm/0°C	-50...+350°C	General use

6.20 SETPOINT DEVICE FOR PANEL MOUNTING — SET-PT1000

SET-PT1000

Setpoint device which gives resistance corresponding to the standard PT1000 table for the temperature range 5...30°C. Panel mounting.

TECHNICAL DATA

Temperature range:	+5...+30°C
Protection:	IP20
Size:	60 x 60 x 38 mm

TYPE	DESCRIPTION
SET-PT1000	Setpoint device

6.21 ACCESSORIES

PASTA

PASTA-20

TYPE	DESCRIPTION
PASTA	Heat-conductive paste in tube, 1 g
PASTA-20	Heat-conductive paste in tube, 20 g

6.22 SENSOR CHARACTERISTICS

Sensor element	PT100	PT1000	NTC 1,8K	NTC 2,2K	NTC 10K-01	NTC 10K-02	NTC 10K-03	NTC 15K-01	NTC 15K-02	NTC 15K-03	NTC 20K	NI 1000-01	NI 1000-02
Equivalent to			Tac	Johnsson Controls	Aquatrol Johnson Controls Satchwell Trend Cylon Honeywell	Carel Evco Eliwell Industrietechnik	Andover Delta Controls Siebe York	Regin	Regin	Regin	Honeywell	Siemens Landis & Staefa	Sauter
Temp. °C	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω
150	157,3	1573											
140	153,6	1536	71	53							351	1737	1909
130	149,8	1498	87	68							459	1675	1833
120	146,1	1461	110	90	388		482				609	1615	1760
110	142,3	1423	139	115	510	767	624				818	1557	1688
100	138,5	1385	178	153	678	973	817				1114	1500	1618
90	134,7	1347	230	207	916	1266	1084				1541	1444	1549
80	130,9	1309	303	283	1256	1668	1458				2166	1390	1483
70	127,1	1271	403	395	1752	2228	1990				3099	1337	1417
65	125,2	1252	468	469	2082	2588	2339				3732	1311	1385
60	123,2	1232	545	560	2467	3020	2760		10000		4517	1285	1353
55	121,3	1213	638	673	2985	3536	3271				5494	1260	1322
50	119,4	1194	750	811	3601	4160	3893		10830	10000	6718	1235	1291
45	117,5	1175	885	984	4367	4911	4656			10830	8259	1210	1260
40	115,5	1155	1049	1200	5325	5827	5594		11670	11670	10211	1186	1230
35	113,6	1136	1250	1471	6530	6940	6754			12500	12698	1162	1200
30	111,7	1117	1496	1814	8056	8313	8196	10000	12500	13330	15887	1138	1171
29	111,3	1113	1552	1893	8408	8622	8525	10170			16628	1132	1165
28	111,0	1110	1610	1977	8777	8944	8869	10330			17407	1128	1159
27	110,5	1105	1671	2064	9165	9281	9229	10500			18228	1123	1153
26	110,1	1101	1734	2156	9572	9632	9606	10670			19092	1119	1147
25	109,7	1097	**1800**	**2252**	**10000**	**10000**	**10000**	10830		14170	**20000**	1114	1141
24	109,3	1093	1869	2353	10450	10380	10413	11000			20962	1109	1136
23	109,0	1090	1941	2458	10923	10780	10845	11170			21973	1105	1130
22	108,6	1086	2017	2572	11420	11200	11297	11330			23039	1100	1124
21	108,2	1082	2095	2689	11943	11630	11771	11500			24164	1095	1118
20	107,8	1078	2177	2813	12493	12080	12268	11670	13330	15000	25350	1091	1112
19	107,4	1074			13073	12560	12788	11830			26600	1086	1107
18	107,0	1070			13662	13060	13334	12000			27920	1081	1101
17	106,6	1066			14324	13580	1306	12170			29320	1077	1095
16	106,2	1062			15001	14120	14506	12330			30790	1072	1089
15	105,9	1059	2649	3538	15714	14690	15136	12500			32346	1068	1084
14	105,5	1055			16465	15280	15797	12370				1063	1078
13	105,1	1051			17257	15800	16490	12830				1058	1072
12	104,7	1047			18092	16560	17219	13000				1054	1067
11	104,3	1043			18973	17240	17983	13170				1049	1061
10	103,9	1039	3241	4482	19903	17960	18787	13330	14170		41567	1045	1056
9	103,5	1035			20885	18700	19631	13500				1040	1050
8	103,1	1031			21921	19480	20518	13670				1036	1044
7	102,7	1027			23016	20300	21450	13830				1031	1039
6	102,3	1023			24172	21150	22431	14000				1027	1033
5	101,9	1019	3989	5718	25395	22050	23462	14170			53812	1022	1028
4	101,6	1016			26787	23000	24547	14330			56720	1018	1022
3	101,2	1012			28054	23990	25689	14500			59790	1013	1016
2	100,8	1008			29500	25030	26891	14670			63060	1009	1011
1	100,4	1004			31031	26130	28157	14830			66520	1004	1005
0	**100,0**	**1000**	4940	7353	32651	27280	29490	15000	15000		70203	**1000**	**1000**
-5	98,0	980	6159	9533	42317	33900	37316				92322	978	973
-10	96,1	961	7730	12460	55304	42470	47549				122431	956	946
-15	94,1	941	9771	16428	72911	53410	61031				163777	935	919
-20	92,2	922	12443	21860	97006	67770	78930				221088	914	893
-25	90,2	902	15969	29398	130306	86430	102889				301297	893	867
-30	88,2	882	20659	39908	176803	111300	135233				414698	872	842
-35	86,3	863	26955	54751	242427	144100	179282				576763	851	816
-40	84,3	843	35480	75953	336098	188500	239828				810861	831	791

6.23 TEMPERATURE ROOM TRANSMITTER, IP30 TTA

TTA0xx

TTA

TTA-D

TECHNICAL DATA

Power supply:	see table below	
Output:	see table below	
Power cons.:	< 1 W	
Protection:	IP30, class II	
Size:	TTA0xx: 144 x 82 x 34 mm	TTA: 100 x 85 x 30 mm

TYPE	RANGE °C	ACCURACY	POWER SUPPLY	WITH DISPLAY	OUTPUT
TTA011	0...+50	± 1 °C	18...35 Vdc 24 Vac	No	0...10 Vdc
TTA012	-30...+50	± 1,5 °C	18...35 Vdc 24 Vac	No	0...10 Vdc
TTA013	0...+100	± 2 °C	18...35 Vdc 24 Vac	No	0...10 Vdc
TTA021	0...+50	± 1 °C	11...30 Vdc	No	4...20 mA
TTA022	-30...+50	± 1,5 °C	11...30 Vdc	No	4...20 mA
TTA023	0...+100	± 2 °C	11...30 Vdc	No	4...20 mA
TTA	0...+50	± 1 °C	15...35 Vdc 24 Vac	No	0...10 Vdc
TTA-D	0...+50	± 1 °C	15...35 Vdc 24 Vac	Yes	0...10 Vdc
TTA-M	0...+50	± 1 °C	15...35 Vdc 24 Vac	No	Modbus
TTA-D-M	0...+50	± 1 °C	15...35 Vdc 24 Vac	Yes	Modbus

6.24 TEMPERATURE TRANSMITTER FOR WALL MOUNTING, IP65 TTE

TTE

TECHNICAL DATA

Power supply:	see table below
Output:	see table below
Power cons.:	< 1 W
Protection:	IP65 (sensor excluded)
Size:	75 x 75 x 36 mm

TYPE	RANGE °C	ACCURACY	POWER SUPPLY	OUTPUT
TTE011	0...+50	± 1 °C	18...35 Vdc 24 Vac	0...10 Vdc
TTE012	-30...+50	± 1,5 °C	18...35 Vdc 24 Vac	0...10 Vdc
TTE013	0...+100	± 2 °C	18...35 Vdc 24 Vac	0...10 Vdc
TTE021	0...+50	± 1 °C	11...30 Vdc	4...20 mA
TTE022	-30...+50	± 1,5 °C	11...30 Vdc	4...20 mA
TTE023	0...+100	± 2 °C	11...30 Vdc	4...20 mA

6.25 TEMPERATURE TRANSMITTER FOR DUCT MOUNTING, IP65 TTC

TTC

DBZ-22

TECHNICAL DATA

Power supply:	see table below
Output:	see table below
Power cons.:	< 1 W
Insertion length:	60...230 mm
Protection:	IP65
Size:	75 x 75 x 36 mm (housing)

TYPE	RANGE °C	ACCURACY	POWER SUPPLY	OUTPUT
TTC011	0...+50	± 1 °C	18...35 Vdc 24 Vac	0...10 Vdc
TTC012	-30...+50	± 1,5 °C	18...35 Vdc 24 Vac	0...10 Vdc
TTC013	0...+100	± 2 °C	18...35 Vdc 24 Vac	0...10 Vdc
TTC021	0...+50	± 1 °C	11...30 Vdc	4...20 mA
TTC022	-30...+50	± 1,5 °C	11...30 Vdc	4...20 mA
TTC023	0...+100	± 2 °C	11...30 Vdc	4...20 mA

ACCESSORY	DBZ-22 - Mounting bracket for air duct transmitters TTC

6.26 TEMPERATURE TRANSMITTER FOR IMMERSION MOUNTING, IP65 TTI

TTI

TECHNICAL DATA

Power supply:	see table below
Output:	see table below
Power cons.:	< 1 W
Connection:	R1/2"
Insertion length:	120 mm
Protection:	IP65
Size:	75 x 75 x 36 mm (housing)

TYPE	RANGE °C	ACCURACY	POWER SUPPLY	OUTPUT
TTI011	0...+50	± 1 °C	18...35 Vdc 24 Vac	0...10 Vdc
TTI012	-30...+50	± 1,5 °C	18...35 Vdc 24 Vac	0...10 Vdc
TTI013	0...+100	± 2 °C	18...35 Vdc 24 Vac	0...10 Vdc
TTI021	0...+50	± 1 °C	11...30 Vdc	4...20 mA
TTI022	-30...+50	± 1,5 °C	11...30 Vdc	4...20 mA
TTI023	0...+100	± 2 °C	11...30 Vdc	4...20 mA

Chapter 7

CO2 transmitters

7. CO2 TRANSMITTERS

7.1 ROOM CO2 TRANSMITTER — TCO2A

TCO2A

TCO2A-D

The TCO2A series with patented automatic calibration sets new standards in CO2 measuring for HVAC applications. It combines measurement of carbon dioxide level, temperature and relative humidity. There are models with or without display and relay.

TECHNICAL DATA

Power supply:	24 Vac ±15 %, 50...60 Hz or 15...35 Vdc, < 1 VA (Peak 4,5 VA)
Output:	CO_2: 0...10 Vdc referring to 0...2000 ppm Temperature: 0...10 Vdc referring to 0...50°C, resistive outputs Humidity: 0...10 Vdc referring to 0...100 % RH
Working range, CO_2:	0...2000 ppm
Working range, temperature:	0...50°C
Working range, humidity:	10...90 % RH
Accuracy, CO_2:	< ±(50 ppm +2 % of the working range)
Accuracy, humidity:	±3 %
Mounting:	Wall
Protection:	IP30
Size:	100 x 85 x 30 mm

TYPE	DESCRIPTION	DISPLAY	OUTPUT SIGNAL	ACCU-RACY °C
TCO2A	CO_2 + temperature	No	0...10 V + 0...10 V	± 1
TCO2A-PT100	CO_2 + PT100, 100 Ohm/0°C	No	0...10 V + ohm	± 0,3
TCO2A-PT1000	CO_2 + PT1000, 1000 Ohm/0°C	No	0...10 V + ohm	± 0,6
TCO2A-NTC1.8	CO_2 + NTC 1.8, 1800 Ohm/25°C	No	0...10 V + ohm	± 0,5
TCO2A-NTC2.2	CO_2 + NTC 2.2k3A1, 2252 Ohm/25°C	No	0...10 V + ohm	± 0,2
TCO2A-NTC10-01	CO_2 + NTC 10k3A1, 10kOhm/25°C	No	0...10 V + ohm	± 0,2
TCO2A-NTC10-02	CO_2 + NTC 10k, 10kOhm/25°C	No	0...10 V + ohm	± 0,3
TCO2A-NTC10-03	CO_2 + NTC 10k4A1, 10kOhm/25°C	No	0...10 V + ohm	± 0,25
TCO2A-NTC20	CO_2 + NTC 20k6A1, 20kOhm/25°C	No	0...10 V + ohm	± 0,2
TCO2A-NI1000-01	CO_2 + Ni1000, 1000 Ohm/0°C	No	0...10 V + ohm	± 0,5
TCO2A-NI1000-02	CO_2 + Ni1000, 1000 Ohm/0°C	No	0...10 V + ohm	± 0,5
TCO2A-D	CO_2 + temperature	Yes	0...10 V + 0...10 V	± 1
TCO2A-D-PT100	CO_2 + PT100, 100 Ohm/0°C	Yes	0...10 V + ohm	± 0,3
TCO2A-D-PT1000	CO_2 + PT1000, 1000 Ohm/0°C	Yes	0...10 V + ohm	± 0,6
TCO2A-D-NTC1.8	CO_2 + NTC 1.8, 1800 Ohm/25°C	Yes	0...10 V + ohm	± 0,5
TCO2A-D-NTC2.2	CO_2 + NTC 2.2k3A1, 2252 Ohm/25°C	Yes	0...10 V + ohm	± 0,2
TCO2A-D-NTC10-01	CO_2 + NTC 10k3A1, 10kOhm/25°C	Yes	0...10 V + ohm	± 0,2
TCO2A-D-NTC10-02	CO_2 + NTC 10k, 10kOhm/25°C	Yes	0...10 V + ohm	± 0,3
TCO2A-D-NTC10-03	CO_2 + NTC 10k4A1, 10kOhm/25°C	Yes	0...10 V + ohm	± 0,25
TCO2A-D-NTC20	CO_2 + NTC 20k6A1, 20kOhm/25°C	Yes	0...10 V + ohm	± 0,2
TCO2A-D-NI1000-01	CO_2 + Ni1000, 1000 Ohm/0°C	Yes	0...10 V + ohm	± 0,5
TCO2A-D-NI1000-02	CO_2 + Ni1000, 1000 Ohm/0°C	Yes	0...10 V + ohm	± 0,5
TCO2A-M	CO_2 + temperature	No	Modbus	± 1
TCO2A-D-M	CO_2 + temperature	Yes	Modbus	± 1

TYPE	DESCRIPTION	DISPLAY	OUTPUT SIGNAL	ACCU-RACY °C
TCO2AU	CO_2, + humidity + temperature	No	0...10 V + 0...10 V + 0...10 V	± 1
TCO2AU-PT100	CO_2, + RH + PT100, 100 Ohm/0°C	No	0...10 V + 0...10 V + ohm	± 0,3
TCO2AU-PT1000	CO_2, + RH + PT1000, 1000 Ohm/0°C	No	0...10 V + 0...10 V + ohm	± 0,6
TCO2AU-NTC1.8	CO_2, + RH + NTC 1.8, 1800 Ohm/25°C	No	0...10 V + 0...10 V + ohm	± 0,5
TCO2AU-NTC2.2	CO_2, + RH + NTC 2.2k3A1, 2252 Ohm/25°C	No	0...10 V + 0...10 V + ohm	± 0,2
TCO2AU-NTC10-01	CO_2, + RH + NTC 10k3A1, 10kOhm/25°C	No	0...10 V + 0...10 V + ohm	± 0,2
TCO2AU-NTC10-02	CO_2, + RH + NTC 10k, 10kOhm/25°C	No	0...10 V + 0...10 V + ohm	± 0,3
TCO2AU-NTC10-03	CO_2, + RH + NTC 10k4A1, 10kOhm/25°C	No	0...10 V + 0...10 V + ohm	± 0,25
TCO2AU-NTC20	CO_2, + RH + NTC 20k6A1, 20kOhm/25°C	No	0...10 V + 0...10 V + ohm	± 0,2
TCO2AU-NI1000-01	CO_2, + RH + Ni1000, 1000 Ohm/0°C	No	0...10 V + 0...10 V + ohm	± 0,5
TCO2AU-NI1000-02	CO_2, + RH + Ni1000, 1000 Ohm/0°C	No	0...10 V + 0...10 V + ohm	± 0,5
TCO2AU-D	CO_2, + humidity + temperature	Yes	0...10 V + 0...10 V + 0...10 V	± 1
TCO2AU-D-PT100	CO_2, + RH + PT100, 100 Ohm/0°C	Yes	0...10 V + 0...10 V + ohm	± 0,3
TCO2AU-D-PT1000	CO_2, + RH + PT1000, 1000 Ohm/0°C	Yes	0...10 V + 0...10 V + ohm	± 0,6
TCO2AU-D-NTC1.8	CO_2, + RH + NTC 1.8, 1800 Ohm/25°C	Yes	0...10 V + 0...10 V + ohm	± 0,5
TCO2AU-D-NTC2.2	CO_2, + RH + NTC 2.2k3A1, 2252 Ohm/25°C	Yes	0...10 V + 0...10 V + ohm	± 0,2
TCO2AU-D-NTC10-01	CO_2, + RH + NTC 10k3A1, 10kOhm/25°C	Yes	0...10 V + 0...10 V + ohm	± 0,2
TCO2AU-D-NTC10-02	CO_2, + RH + NTC 10k, 10kOhm/25°C	Yes	0...10 V + 0...10 V + ohm	± 0,3
TCO2AU-D-NTC10-03	CO_2, + RH + NTC 10k4A1, 10kOhm/25°C	Yes	0...10 V + 0...10 V + ohm	± 0,25
TCO2AU-D-NTC20	CO_2, + RH + NTC 20k6A1, 20kOhm/25°C	Yes	0...10 V + 0...10 V + ohm	± 0,2
TCO2AU-D-NI1000-01	CO_2, + RH + Ni1000, 1000 Ohm/0°C	Yes	0...10 V + 0...10 V + ohm	± 0,5
TCO2AU-D-NI1000-02	CO_2, + RH + Ni1000, 1000 Ohm/0°C	Yes	0...10 V + 0...10 V + ohm	± 0,5
TCO2AU-M	CO_2, + humidity + temperature	No	Modbus	± 1
TCO2AU-D-M	CO_2, + humidity + temperature	Yes	Modbus	± 1

TCOC1111

DBZ-22

Measures the concentration of carbon dioxide in ducts. Exempt from periodic calibration.

TECHNICAL DATA

Power supply:	24..35 Vdc / 24 Vac ± 10% 50-60 Hz
Accuracy:	±(50ppm +2% of value)
Mounting:	Duct
Protection:	IP65, sensor IP20, class III
Size:	140 x 62 x 65 mm (pipe L= 230mm, diameter= 12mm)

TYPE	RANGE CO_2	RANGE CO_2	OUTPUT (TEMP.)	OUTPUT (CO_2)	APPLICATION
TCOC1111	-5...+50	0..2000 ppm	NTC10-02	0...10 Vdc	air duct

Accessory	DBZ-22 - Mounting bracket for air duct transmitters TCOC

Note: the transmitters model TCOC are supplied with mounting bracket model DBZ-22

Chapter 8

CO, VOC transmitters

8. CO, VOC TRANSMITTERS

8.1 CARBON MONOXIDE TRANSMITTER, ROOM MOUNTING — TCO1

TCO1

TCO1 is a detector intended for demand-controlled ventilation in parking garages and road tunnels etc. The detector is installed for both safety and energy-saving reasons. It measures the carbon monoxide concentration using an electrochemical method of measurement characterised by high selectivity even in low concentrations. The output signals are linear representations of the gas concentration.

TECHNICAL DATA

Power supply:	12...28 Vdc
Outputs:	4...20 mA, two-wire 0...10 Vdc, three-wire
Measuring range:	0...300 ppm
Calibration:	Automatic zero adjustment
Protection:	IP56
Size:	80 x 82 x 86 mm

TYPE	DESCRIPTION
TCO1	CO transmitter

8.2 DUCT AND ROOM AIR QUALITY TRANSMITTERS, VOC — DB-xLQ

DB-KLQ

DB-RLQ

Analysis of the air quality based on a mixed gas VOC (Volatile Organic Compounds) sensor.

Detectable gases:
- carbon monoxide CO
- Hydrogen sulfide H2S
- solvent vapours
- alkane vapours
- cigarette smoke
- car exhaust
- air produced by human breathing
- combustion smoke from wood, paper and plastics.

TECHNICAL DATA

Power supply:	15...36 Vdc or 24 Vac/dc ± 10%, 50-60 Hz, 120 mA current consumption
Outputs:	0...10 Vdc, 0...20 mA or 4...20 mA, selectable by jumpers
Sensor:	VOC
Working:	-10...+50 °C 10...95% r.h. (without condensing)
Protection:	room: IP30, class III duct: IP65, class III, GS-RO-16 filter
Size:	room: 75 x 75 x 25 mm duct: 65 x 59 x 36 mm (tube L = 206 mm, diameter = 16 mm)

TYPE	OUTPUT	APPLICATION
DB-RLQ	0...10 Vdc, 0...20 mA, 4...20 mA	room
DB-RLQ5	0...5 Vdc, 0...20 mA, 4...20 mA	room
DB-KLQ	0...10 Vdc, 0...20 mA, 4...20 mA	duct
DB-KLQ5	0...5 Vdc, 0...20 mA, 4...20 mA	duct

Chapter 9

Flow, air and liquid

9. FLOW, AIR AND LIQUID

9.1 LIQUID FLOW SWITCHES

DB...MI

DB25MI

Liquid flow control.

Well-suited in:
- heating and air conditioning systems;
- refrigeration systems.

TECHNICAL DATA

Switch capacity:	5 A, 250 Vac
Contacts:	dust-tight microswitch with SPDT contacts
Working fluid temp:	-20...+110 °C
Max pressure:	25 bar
Differential:	min. 0,7 l/min
Plug:	connector female DIN 43650-A
Body:	brass
Paddle:	stainless steel
Sealing:	NBR
Protection:	IP65, class II
Size:	103,6 x 31 x 36,3 mm

TYPE	CONNECTION G	SETTING RANGE L/MIN H_2O	MAX RECOMMENDED FLOW L/MIN H_2O	PRESSURE LOSS (Q MAX) BAR	TOLERANCE ± % ES(*)
DB10MI	3/8"	5 - 6	10	0.01	15
DB15MI	1/2"	6 - 7	20	0.01	15
DB20MI	3/4"	7,5 - 11	40	0.01	15
DB20MI/1	3/4"	13 - 16	40	0.01	15
DB25MI	1"	19 - 24	60	0.01	15
DB32MI	1 1/4"	30 - 50	80	0.01	15
DB40MI	1 1/2"	50 - 60	100	0.01	15
DB50MI	2"	70 - 90	150	0.01	15

* end of scale
Note: the values indicated on schedule have been measured with the flow switch mounted on horizontal position.

Flow control of water and aggressive media (depending on model).
Alarm signal of flow shortage.
Available in brass, suitable for not aggressive media, and in stainless steel AISI316L for aggressive media.

SF1E

SF2E

SF3E

DBZ-09

Well-suited in pipes of general industrial plants:
- heating and air conditioning systems;
- refrigeration systems;
- sprinkler or anti-fire systems;
- heat pumps.

TECHNICAL DATA

Switch capacity:	15 (8) A, 24...250 Vac
Contacts:	dust-tight microswitch with switching contacts SPDT
Max liquid temperature:	-40...+120 °C
Max pressure:	11 bar (SF2: 30 bar)
Connection:	standard R1" (DIN 2999) for series SF1 and SF2
Paddles:	stainless steel AISI 316L
Housing:	Base in ABS, transparent PC cover
Protection:	IP65, class I
Size:	140 x 62 x 65 mm

TYPE	PIPE Ø	MAX . PRESSURE BAR	NORMAL MEDIA (BODY IN BRASS)	AGGRESSIVE MEDIA (BODY IN STAINLESS STEAL AISI 316L)	BODY WITH PIPE FITTING	FLOW RATE
SF1K	1…8"	11	•			1
SF1E*	1…8"	11	•			1
SF1RE	1…8"	11	•			2
SF2E*	1…8"	30		•		1
SF2RE	1…8"	30		•		2
SF3E	1/2"	11	•		•	3
SF4E	3/4"	11	•		•	3
SF6E	1"	11	•		•	3

ACCESSORY	DBZ-09 - Stainless steel Aisi 316L paddles for liquid flow switch

***** models with TÜV approval

Notes: the flow switches are supplied with paddels model DBZ-09
on request available 1" NPT connection version (product code "SFxx/NPT") for series SF1 and SF2
the values indicated on schedule have been measured with the flow switch mounted on horizontal position.

① H_2O FLOW RATE SF1K/SF1E/SF2E

Pipe connector Ø	Qmax m^3/h recommended	Min. adjustment m^3/h cut-off (cut-in)	Max. adjustment m^3/h cut-off (cut-in)
1"	3,6	0,6 (1,0)	2,0 (2,1)
1 1/4"	6,0	0,8 (1,3)	2,8 (3,0)
1 1/2"	9,0	1,1 (1,7)	3,7 (4,0)
2"	15,0	2,2 (3,1)	5,7 (6,1)
2 1/2"	24,0	2,7 (4,0)	6,5 (7,0)
3"	36,0	4,3 (6,2)	10,7 (11,4)
4"	60,0	11,4 (14,7)	27,7 (29,0)
4" Z	60,0	6,1 (8,0)	17,3 (18,4)
5"	94,0	22,9 (28,4)	53,3 (55,6)
5" Z	94,0	9,3 (12,9)	25,2 (26,8)
6"	120,0	35,9 (43,1)	81,7 (85,1)
6" Z	120,0	12,3 (16,8)	30,6 (32,7)
8"	240,0	72,6 (85,1)	165,7 (172,5)
8" Z	240,0	38,6 (46,5)	90,8 (94,2)

For models with suffix "Z" the longest paddle must be used to obtain the values indicated on the table.
Pressure drop at the maximum flow (Qmax): 0,08 bar

Note: the values indicated on schedule have been measured with the flow switch mounted on horizontal position.

② H_2O FLOW RATE SF1RE/SF2RE

Pipe connector Ø	Min. adjustment m^3/h cut-off (cut-in)	Max. adjustment m^3/h cut-off (cut-in)
1"	0,2 (0,6)	1,0 (1,1)
1 1/4"	0,25 (0,9)	1,4 (1,6)
1 1/2"	0,5 (1,2)	1,6 (2,2)
2"	0,9 (2,3)	3,6 (4,1)
2 1/2"	1,2 (3,1)	4,9 (5,5)
3"	2,1 (4,9)	7,4 (8,2)
4"	4,9 (11,3)	17,1 (19,1)
4" Z	3,3 (7,7)	11,6 (13,0)
5"	9,7 (22,4)	34,0 (37,9)
5" Z	5,0 (11,5)	17,5 (19,6)
6"	13,6 (31,5)	47,6 (53,2)
6" Z	6,1 (14,1)	21,4 (23,9)
8"	25,7 (59,6)	90,1 (100,7)
8" Z	21,7 (36,5)	55,3 (61,8)

Note: the values indicated on schedule have been measured with the flow switch mounted on horizontal position.

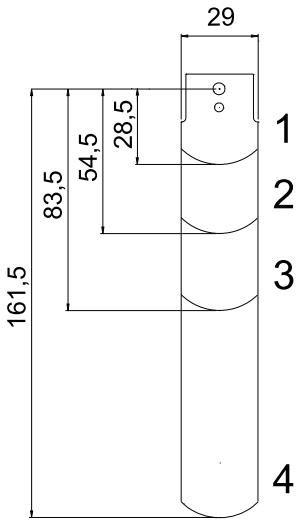
③ FLOW RATE WITH „T" PIPE FITTING SF3E /4E /6E

SF-	Pipe connector with „T" pipe fitting Ø	Min. adjustment m^3/h cut-off (cut-in)	Max. adjustment m^3/h cut-off (cut-in)
3E	1/2"	0,174 (0,48)	0,846 (0,948)
4E	3/4"	0,138 (0,408)	0,768 (0,858)
6E	1"	0,2 (0,6)	1,0 (1,1)

The "T" connectors have cylindrical GAS thread.

Note: the values indicated on schedule have been measured with the flow switch mounted on horizontal position.

Paddles (models without "T" pipe fitting)



PIPE	PADDLES
1"	1
1 1/4"	1
1 1/2"	1
2"	1,2
2 1/2"	1,2
3"	1,2,3
4"	1,2,3
4" Z	1,2,3,4
5"	1,2,3
5" Z	1,2,3,4
6"	1,2,3
6" Z	1,2,3,4
8"	1,2,3
8" Z	1,2,3,4

9.3 AIR FLOW SWITCHES

SL

SL1E

Air or non-aggressive gas flow control.
Alarm signal for flow shortage.

Well-suited in air ducts, air conditioning and air handling systems.

TECHNICAL DATA

Switch capacity:	15 (8) A, 24...250 Vac
Contacts:	dust-tight microswitch with SPDT contacts (n.c./n.o.)
Internal duct temperature:	-10...+85 °C
Level:	brass
Paddles:	stainless steel AISI 301
Housing:	Base in ABS, transparent PC cover
Protection:	IP65, class I
Size:	265 x 140 x 100 mm

TYPE	MIN. CUT-OUT VALUE m/s	MIN. CUT-IN VALUE m/s	MAX. CUT-OUT VALUE m/s	MAX. CUT-IN VALUE m/s	MAX. AIR TEMP °C
SL1E	1.0	2.5	8.0	9.2	85

DBZ-08

ACCESSORY	DBZ-08 - Stainless steel AISI 301 paddle for air flow switch

Note: the flow switches are supplied with paddels model DBZ-08

9.5 AIR VELOCITY TRANSMITTER

TVA

TVA

Specially designed thin film sensor elements with high degree of mechanical and electrical repeatability.
The working range is selected by a jumper on the circuit board.

TECHNICAL DATA

Power supply:	24 Vac ±20 %, 4 VA
Output signal:	0...10 V (max. 1 mA), 4...20 mA
Working range:	0...10 m/s, 0...15 m/s, 0...20 m/s
Time constant:	1.5 s at 10 m/s
Accuracy:	±(0.3 m/s + 3 % of the value) at 0...10 m/s ±(0.3 m/s + 3 % of the value) at 0...15 m/s ±(0.3 m/s + 4 % of the value) at 0...20 m/s
Damping:	0.2 or 2 s (selectable)
Insertion length:	50...200 mm, adjustable
Mounting:	Duct
Protection:	IP65
Size:	90 x 85 x 255 mm

TYPE	DESCRIPTION
TVA	Air velocity transmitter

Chapter 10

Level

10. LEVEL

10.1 LEVEL SWITCHES

SQ

SQ01

Level control of normal liquids contained in tanks and barrels.
Alarm signal of minimum or maximum level.

TECHNICAL DATA

Switch capacity:	15 (8) A, 24...250 Vac
Contacts:	dust-tight microswitch with SPDT contacts
Max liquid temperature:	-40...+85 °C
Max pressure:	11 bar
Level length:	200 mm
Working:	-40...+85 °C 10...90% r.h. (without condensing)
Housing:	Base in ABS, transparent PC cover
Protection:	IP65, class I
Size:	140 x 62 x 65 mm

TYPE	DIFF. MM	MAX. PRESS. BAR	MAX TEMP. °C	THREA-DED BODY 1"R	FLOAT
SQ01	10/14	11	85	brass	acrylic

Chapter 11

Humidistats and transmitters

11. HUMIDISTATS AND TRANSMITTERS

11.1 ROOM HUMIDISTATS — DBZH

DBZH-101

DBZH-102

Electromechanical humidistat for room mounting with synthetic element.

TECHNICAL DATA

Switch capacity:	DBZH-101 (U): Humidity 2A , 250 Vac Dehumidity 5A, 230 Vac DBZH-102: 5A 230 Vac
Protection:	DBZH-101 (U): IP30, class II DBZH-102: IP30
Size:	DBZH-101 (U): 115 x 70 x 35 mm DBZH-102: 86 x 86 x 30 mm

TYPE	SETPOINT	DIFFERENTIAL	FEATURES	SIZE
DBZH-101	30...100%	4% RH		115x70x35 mm
DBZH-101U	30...100%	4% RH	range under cover	115x70x35 mm
DBZH-102	35...95%	7% RH		86x86x30 mm

11.2 DUCT HUMIDISTAT — DBKH

DBKH-10

DBKH-10H

Humidistat to be mounted on a wall or in the duct.

TECHNICAL DATA

Switch capacity:	DBKH-10 (U): 15 (2)A 24…250 Vac, 0,25A 230 Vdc DBKH-10H and 20: 10A 250 Vac, change over contact
Step differential (only DBKH-20):	0…25% RH
Protection:	DBKH-10 (U): IP65, class I DBKH-10H and 20: IP54, class I
Size:	DBKH-10 (U): 108 x 70 x 72 mm DBKH-10H and 20: 80 x 85 x 88 mm

TYPE	SETPOINT	DIFFERENTIAL	STAGES	ELEMENT	MOUNTING	ELEMENT
DBKH-10	30...100%	5% RH	1	Syntetic	Duct	IP65
DBKH-10U	30...100%	5% RH	1	Syntetic	Duct	IP65
DBKH-10H	10...100%	3% RH	1	Human hair	Wall/Duct	IP54
DBKH-20	10...100%	3% RH	2	Human hair	Wall/Duct	IP54

Notes: version DBKH-10U , set point under the cover

TUA
TTUA

TUA-D
TTUA-D

Models with and without display.

TECHNICAL DATA

Power supply:	0...10 Vdc: 24 Vac / 15...35 Vdc, 1 VA
Output:	0...10 Vdc
Working range:	Humidity: 0...90 % RH Temperature: 0...10 Vdc referring 0...50°C, resistive outputs
Accuracy:	Humidity: ±3 % RH
Mounting:	Wall
Protection:	IP30
Size:	100 x 85 x 30 mm

TYPE	DESCRIPTION	DISPLAY	OUTPUT	ACCU-RACY °C
TUA	humidity	No	0...10 Vdc	± 1
TUA-D	humidity	Yes	0...10 Vdc	± 1
TUA-M	humidity	No	Modbus	± 1
TUA-D-M	humidity	Yes	Modbus	± 1
TTUA	humidity + temperature	No	0...10 V + 0...10 V	± 1
TTUA-PT100	RH + PT100, 100 Ohm/0°C	No	0...10 V + ohm	± 0,3
TTUA-PT1000	RH + PT1000, 1000 Ohm/0°C	No	0...10 V + ohm	± 0,6
TTUA-NTC1.8	RH + NTC 1.8, 1800 Ohm/25°C	No	0...10 V + ohm	± 0,5
TTUA-NTC2.2	RH + NTC 2.2k3A1, 2252 Ohm/25°C	No	0...10 V + ohm	± 0,2
TTUA-NTC10-01	RH + NTC 10k3A1, 10kOhm/25°C	No	0...10 V + ohm	± 0,2
TTUA-NTC10-02	RH + NTC 10k, 10kOhm/25°C	No	0...10 V + ohm	± 0,3
TTUA-NTC10-03	RH + NTC 10k4A1, 10kOhm/25°C	No	0...10 V + ohm	± 0,25
TTUA-NTC20	RH + NTC 20k6A1, 20kOhm/25°C	No	0...10 V + ohm	± 0,2
TTUA-NI1000-01	RH + Ni1000, 1000 Ohm/0°C	No	0...10 V + ohm	± 0,5
TTUA-NI1000-02	RH + Ni1000, 1000 Ohm/0°C	No	0...10 V + ohm	± 0,5
TTUA-D	humidity + temperature	Yes	0...10 V + 0...10 V	± 1
TTUA-D-PT100	RH + PT100, 100 Ohm/0°C	Yes	0...10 V + ohm	± 0,3
TTUA-D-PT1000	RH + PT1000, 1000 Ohm/0°C	Yes	0...10 V + ohm	± 0,6
TTUA-D-NTC1.8	RH + NTC 1.8, 1800 Ohm/25°C	Yes	0...10 V + ohm	± 0,5
TTUA-D-NTC2.2	RH + NTC 2.2k3A1, 2252 Ohm/25°C	Yes	0...10 V + ohm	± 0,2
TTUA-D-NTC10-01	RH + NTC 10k3A1, 10kOhm/25°C	Yes	0...10 V + ohm	± 0,2
TTUA-D-NTC10-02	RH + NTC 10k, 10kOhm/25°C	Yes	0...10 V + ohm	± 0,3
TTUA-D-NTC10-03	RH + NTC 10k4A1, 10kOhm/25°C	Yes	0...10 V + ohm	± 0,25
TTUA-D-NTC20	RH + NTC 20k6A1, 20kOhm/25°C	Yes	0...10 V + ohm	± 0,2
TTUA-D-NI1000-01	RH + Ni1000, 1000 Ohm/0°C	Yes	0...10 V + ohm	± 0,5
TTUA-D-NI1000-02	RH + Ni1000, 1000 Ohm/0°C	Yes	0...10 V + ohm	± 0,5
TTUA-M	humidity + temperature	No	Modbus	± 1
TTUA-D-M	humidity + temperature	Yes	Modbus	± 1

TUE
TTUE

Transmitter for relative humidity and temperature measurement.

TECHNICAL DATA

Power supply:	voltage output model: 18...24 Vac / 18...35 Vdc current output model: 11...30 Vdc
Working temperature:	-5...+50 °C
Working humidity:	10...95 % r.h. (without condensing)
Protection:	IP65
Size:	75 x 172 x 36 mm

TYPE	RANGE °C	RANGE % r.h.	OUTPUT (TEMPERATURE)	OUTPUT (HUMIDITY)	ACCURACY °C	ACCURACY % r.h.
TUE1		0…100		0…10 Vdc		± 3
TUE2		0…100		4…20 mA		± 3
TUE3		0…100		0…5 Vdc		± 3
TUTE0111	0…+50	0…100	0…10 Vdc	0…10 Vdc	± 1	± 3
TUTE0121	-30…+50	0…100	0…10 Vcc	0…10 Vdc	± 1.5	± 3
TUTE0131	0…+100	0…100	0…10 Vcc	0…10 Vdc	±2	± 3
TUTE0212	0…+50	0…100	4…20 mA	4…20 mA	± 1	± 3
TUTE0222	-30…+50	0…100	4…20 mA	4…20 mA	± 1.5	± 3
TUTE0232	0…+100	0…100	4…20 mA	4…20 mA	± 2	± 3
TUTE1101	-5…+50	0…100	NTC 10K	0…10 Vdc	± 0.6	± 3
TUTE1102	-5…+50	0…100	NTC 10K	4…20 mA	± 0.6	± 3
TUTE1103	-5…+50	0…100	NTC 10K	0...5 Vdc	± 0.6	± 3
TUTE1301	-5…+50	0…100	NTC 1K8	0…10 Vdc	± 0.6	± 3
TUTE1302	-5…+50	0…100	NTC 1K8	4…20 mA	± 0.6	± 3
TUTE1401	-5…+50	0…100	NTC 10K3A1	0…10 Vdc	± 0.2	± 3
TUTE1402	-5…+50	0…100	NTC 10K3A1	4…20 mA	± 0.2	± 3
TUTE1501	-5…+50	0…100	NTC 10K4A1	0…10 Vdc	± 0.2	± 3
TUTE1502	-5…+50	0…100	NTC 10K4A1	4…20 mA	± 0.2	± 3
TUTE1601	-5…+50	0…100	NTC 20K	0…10 Vdc	± 0.6	± 3
TUTE1602	-5…+50	0…100	NTC 20K	4…20 mA	± 0.6	± 3
TUTE2101	-5…+50	0…100	PT100	0…10 Vdc	± 0.3	± 3
TUTE2102	-5…+50	0…100	PT100	4…20 mA	± 0.3	± 3

Operating temperature limit -5…+50 °C.

TUC
TTUC

Transmitter for relative humidity and temperature measurement.

TECHNICAL DATA

Power supply:	voltage output model: 18...24 Vac / 18...35 Vdc current output model: 11...30 Vdc
Working temperature:	-5...+50 °C
Working humidity:	10...95 % r.h. (without condensing)
Protection:	IP65
Size:	75 x 172 x 36 mm

TYPE	RANGE °C	RANGE % r.h.	OUTPUT (TEMPERATURE)	OUTPUT (HUMIDITY)	ACCURACY °C	ACCURACY % r.h.
TUC1		0…100		0…10 Vdc		± 3
TUC2		0…100		4…20 mA		± 3
TUC3		0…100		0…5 Vdc		± 3
TUTC0111	0…+50	0…100	0…10 Vdc	0…10 Vdc	± 1	± 3
TUTC0121	-30…+50	0…100	0…10 Vdc	0…10 Vdc	± 1.5	± 3
TUTC0131	0…+100	0…100	0…10 Vdc	0…10 Vdc	± 2	± 3
TUTC0212	0…+50	0…100	4…20 mA	4…20 mA	± 1	± 3
TUTC0222	-30…+50	0…100	4…20 mA	4…20 mA	± 1.5	± 3
TUTC0232	0…+100	0…100	4…20 mA	4…20 mA	± 2	± 3
TUTC1101	-5…+50	0…100	NTC 10K	0…10 Vdc	± 0.6	± 3
TUTC1102	-5…+50	0…100	NTC 10K	4…20 mA	± 0.6	± 3
TUTC1103	-5…+50	0…100	NTC 10K	0...5 Vdc	± 0.6	± 3
TUTC1301	-5…+50	0…100	NTC 1K8	0…10 Vdc	± 0.6	± 3
TUTC1302	-5…+50	0…100	NTC 1K8	4…20 mA	± 0.6	± 3
TUTC1401	-5…+50	0…100	NTC 10K3A1	0…10 Vdc	± 0.2	± 3
TUTC1402	-5…+50	0…100	NTC 10K3A1	4…20 mA	± 0.2	± 3
TUTC1501	-5…+50	0…100	NTC 10K4A1	0…10 Vdc	± 0.2	± 3
TUTC1502	-5…+50	0…100	NTC 10K4A1	4…20 mA	± 0.2	± 3
TUTC1601	-5…+50	0…100	NTC 20K	0…10 Vdc	± 0.6	± 3
TUTC1602	-5…+50	0…100	NTC 20K	4…20 mA	± 0.6	± 3
TUTC1701	-5…+50	0…100	PT1000	0…10 Vdc	± 0.6	± 3
TUTC2101	-5…+50	0…100	PT100	0…10 Vdc	± 0.3	± 3
TUTC2102	-5…+50	0…100	PT100	4…20 mA	± 0.3	± 3

DBZ-22

Accessory	DBZ-22 - mounting bracket for air duct transmitters TUC and TUTC

Operating temperature limit -5…+50 °C.

Note: the transmitters model TUE and TUTE are supplied with mounting bracket model DBZ-22

Chapter 12

Pressure switches and transmitters

12. PRESSURE SWITCHES AND TRANSMITTERS

12.1 DIFFERENTIAL PRESSURE SWITCHES — DBL

DBL-205E

DBZ-06

DBZ-14A

DBZ-14B

Differential pressure for air or non-aggressive and non-inflammable gas control.

TECHNICAL DATA

Switch capacity:	1.5 (0.4) A, 250 Vac
Contact:	according to EN 1854 (EN 60730) microswitch with SPDT contacts
Working temperature:	-20...+85 °C 10...90% r.h. (without condensing)
Protection:	IP54, class II
Max size:	Ø 118 x h 57,5 mm

TYPE	RANGE MBAR	DIFFERENTIAL MBAR	MAX PRESSURE MBAR
DBL-205A	0.3...4.0 (30...400 Pa)	0.15 ± 15%	100
DBL-205B	0.5...5.0 (50...500 Pa)	0.2 ± 15%	100
DBL-205C	0.2...3.0 (20...300 Pa)	0.1 ± 15%	100
DBL-205D	2...10 (200...1000 Pa)	1.0 ± 15%	100
DBL-205E	5...25 (500...2500 Pa)	1.5 ± 15%	100

ACCESSORIES	DBZ-06 - Connection set with 2 PVC duct connectors, 2 m flexible PVC pipe and 4 screws
	DBZ-14A - Set with mounting bracket and screws
	DBZ-14B - Set with mounting bracket and screws

12.2 FILTES MANOMETERS AND AIR DIFFERENTIAL PRESSURE SWITCHES — DB-M...P...

DB-M6P6

Differential pressure visualization of air or non aggressive and non inflammable gases with alarm at a pre-set value.

The compact unit is complete of:
- a differential manometer with an inclined liquid pipe, complete of tank to allow temporary over-pressure,
- a bottle containing indication liquid and 2 stickers (red/green);
- a differential pressure switch connected to the manometer with PVC hose, complete of pressure adjustment knob, terminals for electrical connections and cable gland PG 9 (protection class according to EN 60529: IP54);
- PVC hose Ø 4 x 7 - 2,2 m length, pipes and fixing screws.

TECHNICAL DATA

Switch capacity:	3 (2) A, 250 Vac
Contact:	dust-tight microswitch with SPDT contacts
Working temperature:	-20...+60 °C 10...90% r.h. (without condensing)
Protection:	IP54, class II
Size:	290 x 140 x 64 mm

TYPE	MANOMETER RANGE PA	PRESSURE SWITCH RANGE PA	DIFFERENTIAL PA	MAX. PRESSURE KPA
DB-M6	0...600			200
DB-M6P6	0...600	40...600	30	50
DB-M10	0...1500			200
DB-M10P13	0...1500	100...1300	80	50

984M.323204

Monitoring differential gaseous pressure, non-aggressive media.
Possible areas of applications are:
- air-conditioning and clean rooms;
- building automation;
- valve and flap control;
- fluid and level monitoring;
- control of air flows.

TECHNICAL DATA

984M.343714

Power supply:	see order selection table
Supply current:	max 30 mA for AC (0...10 Vdc), max 20 mA for DC (0...10 Vdc), max 30 mA (4...20 mA) for 2-, 3- wire
Outputs / load:	0...10 Vdc (max 10 mA) 4...20 mA < 20...500 Ohm
Sensor:	piezoresistive pressure transducer
Accuracy:	< ± 0,2 % of end of scale
Typical long term stability:	< ± 0,5 % to ± 2,5 % of end of scale/year
Working temp.:	0...+50 °C
Response time:	100 ms or 1 sec., selectable
Installation:	can be mounted in any position
Protection:	IP54 (with cover), class I
Max size:	Ø 118 x h 57,5 mm

TYPE	RANGE 1	RANGE 2	OUTPUT SIGNAL	DISPLAY
984M.323204	0...100 Pa (1.0 mbar)	0...250 Pa (2.5 mbar)	4...20 mA	No
984M.343304	0...500 Pa (5.0 mbar)	0...1.000 Pa (10 mbar)	4...20 mA	No
984M.343714	0...500 Pa (5.0 mbar)	0...1.000 Pa (10 mbar)	0...10 Vdc	Yes
984M.353704	0...1 kPa (10 mbar)	0...2.5 kPa (25 mbar)	0...10 Vdc	No
984M.353D04	0...1 kPa (10 mbar)	0...2.5 kPa (25 mbar)	4...20 mA	No

For other models see the list below:

DBZ-06

DBZ-14A

DBZ-14B

984M.3 X 3 X X 4

Pressure range (Pa):

Range 1		Range 2		overload max	
0...100 Pa	(1.0 mbar)	0...250 Pa	(2.5 mbar)	20 kPa	2
0...250 Pa	(2.5 mbar)	0...500 Pa	(5.0 mbar)	20 kPa	3
0...500 Pa	(5.0 mbar)	0...1.000 Pa	(10 mbar)	20 kPa	4
0...1 kPa	(10 mbar)	0...2.5 kPa	(25 mbar)	40 kPa	5
0...5 kPa	(50 mbar)	0...10 kPa	(100 mbar)	60 kPa	7
0...25kPa	(250 mbar)	0...50 kPa	(500 mbar)	300 kPa	9
0...100 kPa	(1000 mbar)	0...250 kPa	(2500 mbar)	1.2 MPa	B
-50 Pa...+50 Pa	(-0.5...+0.5 mbar)				x
Pressure unit		Pascal			

Outputs and power supply

0...10 Vdc	24 Vac/dc, with open collector NPN output, 3- wire cable	1
4...20 mA	24 Vdc, without open collector NPN output, 2- wire cable	2
4...20 mA	24 Vac/dc, with open collector NPN output, 3- wire cable	3
0...10 Vdc	24 Vac/dc, without open collector NPN output, 3- wire cable	7
4...20 mA	24 Vac/dc, without open collector NPN output, 3- wire cable	D

Display

None	0
With LED-display, 3.5 digits (not for output 4...20 mA, 2 wire)	1

Electrical connections

Screw terminal block

Accessories on request

Connection set	DBZ-06
Mounting bracket	DBZ-14A
Mounting bracket	DBZ-14B
Test certificate	104552

TPDA

TPDA has four different measuring ranges in the same unit, 0...100 Pa, 0...300 Pa, 0...500 Pa and 0...1000 Pa. Other functions are zero-point adjustment and electronic damping of the signal. Supplied with 2 m plastic tube and two pressure outlets.

TECHNICAL DATA

Power supply:	24 Vac or DC, 5 VA
Outputs signal:	0...10 Vdc or 4...20 mA, selectable
Working range:	0...100 Pa, 0...300 Pa, 0...500 Pa and 0...1000 Pa, selectable
Accuracy:	Better than ±1 % at 20°C
Electronic damping:	0...20 s
Display:	LED, 3 digits
Protection:	IP54
Size:	129 x 89 x 58 mm

TYPE	DESCRIPTION
TPDA	Differential pressure transmitter with display

TPL

Pressure transmitter for measurement of liquids (also glycol-mixed) and gases (not ammonia).

TECHNICAL DATA

Power supply:	24 Vac / 18...33 Vdc (output signal 0...10 V dc), 0.1 VA 11...33 Vdc, two-wire (output signal 4...20 mA), 0.5 VA
Outputs signal:	0...10 Vdc or 4...20 mA (two-wire)
Room temperature:	-15...+80°C*
Accuracy:	±0.3 %
Connection:	R1/4"
Packing:	EPDM
Lenght:	70 mm
Diameter:	Ø 40 mm
Connector:	DIN EN 175301 803-A
Protection:	IP65
Size:	Ø 40 x h 101,5 mm

TYPE	DESCRIPTION	OUTPUT SIGNAL	WORKING RANGE	
TPL1	Pressure transmitter	0...10 Vdc	0...100 kPa	0...1 bar
TPL1-420	Pressure transmitter	4...20 mA	0...100 kPa	0...1 bar
TPL2	Pressure transmitter	0...10 Vdc	0...200 kPa	0...2 bar
TPL2-420	Pressure transmitter	4...20 mA	0...200 kPa	0...2 bar
TPL5	Pressure transmitter	0...10 Vdc	0...500 kPa	0...5 bar
TPL5-420	Pressure transmitter	4...20 mA	0...500 kPa	0...5 bar
TPL10	Pressure transmitter	0...10 Vdc	0...1000 kPa	0...10 bar
TPL10-420	Pressure transmitter	4...20 mA	0...1000 kPa	0...10 bar
TPL16	Pressure transmitter	0...10 Vdc	0...1600 kPa	0...16 bar
TPL16-420	Pressure transmitter	4...20 mA	0...1600 kPa	0...16 bar
TPL25	Pressure transmitter	0...10 Vdc	0...2500 kPa	0...25 bar
TPL25-420	Pressure transmitter	4...20 mA	0...2500 kPa	0...25 bar
TPL40	Pressure transmitter	0...10 Vdc	0...4000 kPa	0...40 bar
TPL40-420	Pressure transmitter	4...20 mA	0...4000 kPa	0...40 bar
TPL100	Pressure transmitter	0...10 Vdc	0...10 MPa	0...100 bar
TPL100-420	Pressure transmitter	4...20 mA	0...10 MPa	0...100 bar

TPL105074

ACCI10

ACCESSORIES	TPL105074 - * Mounting spacer which lowers the temperature at higher media temperatures than the sensor can handle
	ACCI10 - Adapter 1/4" to 1/2"

For other models please contact our commercial department.

TPDL

Differential pressure transmitter for measurement of liquids (also glycol-mixed) and gases (not ammonia).

TECHNICAL DATA

Power supply:	24 Vac / 18...33 Vdc (output signal 0...10 Vdc), 0.1 VA 11...33 Vdc, two-wire (output signal 4...20 mA), 0.5 VA
Outputs signal:	0...10 Vdc or 4...20 mA (two-wire)
Room temperature:	-15...+80°C*
Accuracy:	DPTL10...DPTL250: ±1.3 % fs DPTL400: ±0.8 % fs DPTL600...DPTL2500: ±0.5 % fs
Connection:	Screw fitting for Ø 6 mm pipe included
Lenght:	79 mm
Diameter:	Ø 40 mm
Connector:	DIN EN 175301 803-A
Protection:	IP65
Size:	68 x 40 x 113 mm

TYPE	DESCRIPTION	OUTPUT SIGNAL	WORKING RANGE	
TPDL10	Differential pressure transmitter	0...10 Vdc	0...10 kPa	0...0,1 bar
TPDL10-420	Differential pressure transmitter	4...20 mA	0...10 kPa	0...0,1 bar
TPDL20	Differential pressure transmitter	0...10 Vdc	0...20 kPa	0...0,2 bar
TPDL20-420	Differential pressure transmitter	4...20 mA	0...20 kPa	0...0,2 bar
TPDL40	Differential pressure transmitter	0...10 Vdc	0...40 kPa	0...0,4 bar
TPDL40-420	Differential pressure transmitter	4...20 mA	0...40 kPa	0...0,4 bar
TPDL100	Differential pressure transmitter	0...10 Vdc	0...100 kPa	0...1 bar
TPDL100-420	Differential pressure transmitter	4...20 mA	0...100 kPa	0...1 bar
TPDL250	Differential pressure transmitter	0...10 Vdc	0...250 kPa	0...2,5 bar
TPDL250-420	Differential pressure transmitter	4...20 mA	0...250 kPa	0...2,5 bar
TPDL400	Differential pressure transmitter	0...10 Vdc	0...400 kPa	0...4 bar
TPDL400-420	Differential pressure transmitter	4...20 mA	0...400 kPa	0...4 bar
TPDL600	Differential pressure transmitter	0...10 Vdc	0...600 kPa	0...6 bar
TPDL600-420	Differential pressure transmitter	4...20 mA	0...600 kPa	0...6 bar
TPDL1000	Differential pressure transmitter	0...10 Vdc	0...1000 kPa	0...10 bar
TPDL1000-420	Differential pressure transmitter	4...20 mA	0...1000 kPa	0...10 bar
TPDL1600	Differential pressure transmitter	0...10 Vdc	0...1600 kPa	0...16 bar
TPDL1600-420	Differential pressure transmitter	4...20 mA	0...1600 kPa	0...16 bar
TPDL2500	Differential pressure transmitter	0...10 Vdc	0...2500 kPa	0...25 bar
TPDL2500-420	Differential pressure transmitter	4...20 mA	0...2500 kPa	0...25 bar

TPDL-NIPPEL

TPDL-R

ACCESSORIES	TPDL-NIPPEL - Nipple (R=1/8" 27NPT) for connection of Ø 6 mm copper pipe
	TPDL-R - Copper pipe, Ø 6 mm, length 30 cm

For other models please contact our commercial department.

TPDA-C

For control of dampers, frequency converters, VAV systems, gases etc. TPDA-C has four range of measurement in the same unit, 0...100 Pa, 0...300 Pa, 0...500 Pa and 0...1000 Pa.

TECHNICAL DATA

Power supply:	24 Vac or DC, 5 VA
Outputs signal:	pressure: 0...10 Vdc or 4...20 mA controller: 0...10 Vdc
Working range:	0...100 Pa, 0...300 Pa, 0...500 Pa and 0...1000 Pa, selectable
Accuracy:	±1 % at 20°C
P-band:	0...300 %
I-time:	0...999 s
D-factor:	0...999
Electronic damping:	0...20 s
Display:	LED, 3 digits
Mounting:	Wall
Protection:	IP54
Size:	129 x 89 x 58 mm

TYPE	DESCRIPTION
TPDA-C	Differential pressure transmitter with built-in controller, with display

Chapter 13

Damper actuators

13. DAMPER ACTUATORS

13.1 DAMPER ACTUATORS WITHOUT SPRING RETURN

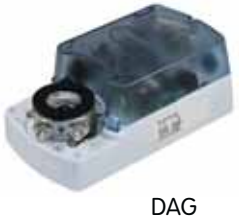
DAK
DMK

DAN
DMN

DAS
DMS

DA
DM

DAL
DML



DAG
DMG

TYPE	TORQUE NM	DAMPER AREA m^2	RUNNING TIME s	POWER SUPPLY	AUX. SWITCHES	ACTION			
						ON/OFF	3-POINT	PROPOR-TIONAL VDC	PROPOR-TIONAL mA
DAK24	2	0.5	25...35	24 Vac/dc		•	•		
DAK24S	2	0.5	25...35	24 Vac/dc	•	•	•		
DAK230	2	0.5	25...35	230 Vac		•	•		
DAK230S	2	0.5	25...35	230 Vac	•	•	•		
DMK24	2	0.5	80...110	24 Vac/dc				0...10	
DAN24	4	1	35	24 Vac/dc		•	•		
DAN24S	4	1	35	24 Vac/dc	•	•	•		
DAN230	4	1	35	230 Vac		•	•		
DAN230S	4	1	35	230 Vac	•	•	•		
DMN24	4	1	35	24 Vac/dc				0 (2)...10	
DAS24	8	2	30	24 Vac/dc		•	•		
DAS24S	8	2	30	24 Vac/dc	•	•	•		
DAS230	8	2	30	230 Vac		•	•		
DAS230S	8	2	30	230 Vac	•	•	•		
DMS24	8	2	30	24 Vac/dc				0(2)...10	0(4)...20
DMS24S	8	2	30	24 Vac/dc	•			0(2)...10	0(4)...20
DMS230	8	2	30	230 Vac				0(2)...10	
DMS230S	8	2	30	230 Vac	•			0(2)...10	
DA24	16	4	80	24 Vac/dc		•	•		
DA24S	16	4	80	24 Vac/dc	•	•	•		
DA230	16	4	80	230 Vac		•	•		
DA230S	16	4	80	230 Vac	•	•	•		
DM24	16	4	80	24 Vac/dc				0(2)...10	0(4)...20
DM24S	16	4	80	24 Vac/dc	•			0(2)...10	0(4)...20
DM230	16	4	80	230 Vac				0(2)...10	
DM230S	16	4	80	230 Vac	•			0(2)...10	
DAL24	24	6	125	24 Vac/dc		•	•		
DAL24S	24	6	125	24 Vac/dc	•	•	•		
DAL230	24	6	125	230 Vac		•	•		
DAL230S	24	6	125	230 Vac	•	•	•		
DML24	24	6	125	24 Vac/dc				0(2)...10	0(4)...20
DML24S	24	6	125	24 Vac/dc	•			0(2)...10	0(4)...20
DML230	24	6	125	230 Vac				0(2)...10	
DML230S	24	6	125	230 Vac	•			0(2)...10	
DAG24	32	8	160	24 Vac/dc		•	•		
DAG24S	32	8	160	24 Vac/dc	•	•	•		
DAG230	32	8	160	230 Vac		•	•		
DAG230S	32	8	160	230 Vac	•	•	•		
DMG24	32	8	240	24 Vac/dc				0(2)...10	0(4)...20
DMG24S	32	8	240	24 Vac/dc	•			0(2)...10	0(4)...20

13.2 DAMPER ACTUATORS WITH SPRING RETURN

DAN230F

DAT230F

DB-DA230F

AF230SE

NF24SE

DB-SF1.90TA/12

TYPE	TORQUE NM	DAMPER AREA m^2	RUNNING TIME s	POWER SUPPLY	AUX. SWITCHES	ACTION	
						2-POINT	PROPORTIONAL VDC
MODELS WITH SPRING RETURN							
DAN24F	5	1	50...70	24 Vac/dc		•	
DAN24FS	5	1	50...70	24 Vac/dc	•	•	
DAN230F	5	1	50...70	230 Vac		•	
DAN230FS	5	1	50...70	230 Vac	•	•	
DAT24F	10	2	75	24 Vac/dc		•	
DAT24FS	10	2	75	24 Vac/dc	•	•	
DAT230F	10	2	75	230 Vac		•	
DAT230FS	10	2	75	230 Vac	•	•	
DB-DA24F	20	3	150	24 Vac/dc		•	
DB-DA24F-S2	20	3	150	24 Vac/dc	•	•	
DB-DA230F	20	3	150	230 Vac		•	
DB-DA230F-S2	20	3	150	230 Vac	•	•	
DB-DM24F	20	3	150	24 Vac/dc			0...10
MODELS FOR FIRE DAMPERS							
AF24SE	5	1	50...70	24 Vac/dc	•	•	
AF230SE	5	1	50...70	230 Vac	•	•	
NF24SE	8	1.5	75...95	24 Vac/dc	•	•	
NF230SE	8	1.5	75...95	230 Vac	•	•	
DB-SF1.90/12	20	3	150	24 Vac/dc	•	•	
DB-SF2.90/12	20	3	150	230 Vac	•	•	
DB-SF1.90T/12 *	20	3	150	24 Vac/dc	•	•	
DB-SF2.90T/12 *	20	3	150	230 Vac	•	•	
DB-SF1.90TA/12 **	20	3	150	24 Vac/dc	•	•	
DB-SF2.90TA/12 **	20	3	150	230 Vac	•	•	

* Thermal protection 72°C on the cable

** Thermal protection 72°C on the duct

13.3 POSITION TRANSDUCER DB-P

DB-PA

DB-PF

TYPE	MOUNTING	POWER SUPPLY	OUTPUT
DB-PA	wall-mounted	24 Vac/dc	0(2)...10 Vdc
DB-PF	front-end mounted	24 Vac/dc	0(2)...10 Vdc

Chapter 14

Valves and valve actuators

14. VALVES AND VALVE ACTUATORS

14.1 ACTUATORS AND VALVE BODIES COUPLING

														
					ELECTRIC VALVE ACTUATORS									
					SM	**SE1**	**SE4**	**SE6**	**SE5**	**SE10**	**SE18**	**SE25**	**DAL, DML**	**DAG, DMG**
					synchro-nous, 2 pos. 24 Vac, 230 Vac	thermostatic, 2 pos. 24 Vac, 230 Vac 0...10 24 Vac	2, 3-point 24 Vac, 230 Vac 0...10 24 Vac		3-point/ 24/230 Vac 0...10 / 2...10 Vdc, 24 Vac				2-, 3-point/ 0...10 Vdc, 24 Vac, 230 Vac	
						100-140N	400 N	600 N	500 N	1000 N	1800 N	2500 N	24 Nm	32 Nm
	VALVE BODIES PN 16													
	**DB-VZ**	threaded 2-, 3-way		G 1/2-1										
	**VFX2**	threaded 2-way	stroke 2.5 mm	G 1/2-3/4										
	**VFX3**	threaded 3-way												
	**VFX4**	threaded 3-way, 4 port												
	**VFZ2**	threaded 2-way	stroke 5.5 mm	G 1/2-1 1/2										
	VFZ3	threaded 3-way												
	**VFS2**	threaded 2-way,	stroke 16.5 mm	G 1/2-2										
	VFS3	threaded 3-way												
	**VFSF2**	flanged 2-way	stroke 16.5 mm	DN 20-50										
	VFSF3	flanged 3-way												
	**VFG2**	female threaded 2-way	stroke 20 mm	DN 15-50										
	VFG3	female threaded 3-way												
	**VFD2**	male threaded 2-way	stroke 20 mm	DN 15-50										
	VFD3	male threaded 3-way												
	**VFSG2**	flanged 2-way	stroke 20-40 mm	DN 16-310										
	VFSG3	flanged 3-way												
	**VFDH**	flanged 2-way	stroke 20-40 mm	DN 15-150										
	**VF**	butterfly valves		DN 32-80										

SE1C

Thermal actuator to be used on manifolds.

TECHNICAL DATA

Power supply:	SE1C24, SE1C24S: 24 Vac ± 10% 50/60 Hz SE1C230, SE1C230S: 230 Vac ± 10% 50/60 Hz
Control signal:	on/off NC
Power cons.:	3 VA
Closing/opening time:	SE1C230, SE1C230S: 3.5 min (3.5 mm at 20 °C) SE1C24, SE1C24S: 4.5 min (3.5 mm at 20 °C)
Force:	90 N
Stroke:	3,5 mm
Connection to valve:	metal ring M30 x 1.5
Working temperature:	0...50 °C
Cable:	PVC, section 2(4) x 0,50 mm2, length 1 m
Protection:	IP40, IP44 if mounted vertically SE1C230, SE1C230S: class II SE1C24, SE1C24S: class III
Size:	Ø 48,5 x h 65 mm

TYPE	FORCE N	POWER SUPPLY VAC 50/60 HZ	ACTION	POWER CONSUMPTION VA	WITH AUXILIARY SWITCH
SE1C24	90	24	On-Off	3.0	
SE1C230	90	230	On-Off	3.0	
SE1C24S	90	24	On-Off	3.0	•
SE1C230S	90	230	On-Off	3.0	•

ADVFX

ACCESSORY	ADVFX - Adapter for SE1C/VFX coupling up to KVS 2,5 to allow the valve to be normally open on direct way

S with 1 auxiliary microswitch 230 Vac, 3A

SM24/CA

DB-VZ2

DB-VZ3

On-off control of heat or cool water flow.

TECHNICAL DATA

ACTUATOR:	
Power supply:	SM230/CA: 230 Vac ± 10% SM24/CA: 24 Vac ± 10%
Power cons.:	7 VA
Working temperature:	+2...+60 °C
Protection:	IP40, class II
Size:	77 x 65 x 62 mm
VALVE:	
Material:	valve body: forged brass valve rod: stainless steel Aisi 302
Seal material:	NBR
Fluid temperature:	0...+105 °C

TYPE	CON-NECTION	WAY/ MODEL	POWER SUPPLY 50/60 HZ	KVS m³/h	MAX. DIFF. PRESS. BAR	RUNNING TIME s	
						OPEN	CLOSED
DB-VZ2-15	G 1/2	2		1.6	2.5	≤10	≤5
DB-VZ2-20	G 3/4	2		3.5	1.0	≤10	≤5
DB-VZ2-25	G 1	2		5.5	0.6	≤10	≤5
DB-VZ3-15	G 1/2	3		1.6	2.5	≤10	≤5
DB-VZ3-20	G 3/4	3		3.5	1.0	≤10	≤5
DB-VZ3-25	G 1	3		5.5	0.6	≤10	≤5
SM230/CA		with auxiliary switch	230 Vac ± 10%				
SM24/CA		with auxiliary switch	24 Vac ± 10%				

FCM-2

FCM-3

The FCM fan-coil valves are intended for on/off control of hot or cold water in heating and cooling systems. The actuator has a synchronous motor and is equipped with a spring return mechanism. The actuator is detachable from the valve.

TECHNICAL DATA

Power supply:	230 Vac
Control signal:	On/off
Opening time:	9...11 s
Closing time, spring:	4...5 s
Fluid temperature:	-10...+94°C
Pressure rating:	PN16
Connection:	BSP female threaded
Body material, valve:	Forged brass
Housing material:	Plastic (EFCM, steel)
Protection:	IP44
Size:	91 x 68 x 65 mm

TYPE	CONNECTION	KVS	MAX. DIFF. PRESSURE
2-WAY			
FCM-215X	DN15	3.2	0.2 MPa
FCM-220X	DN20	4.6	0.15 MPa
FCM-225X	DN25	5.7	0.1 MPa
FCM-232X	DN32	10	0.08 MPa
3-WAY			
FCM-315X	DN15	3.2	0.15 MPa
FCM-320X	DN20	4.6	0.1 MPa
FCM-325X	DN25	5.7	0.1 MPa
FCM-332X	DN32	8.4	0.08 MPa

VFX2

VFX237

VFX3

VFX337

VFX4

VFX437

VFX valves series are used in heating, cooling and air-conditioning systems.

TECHNICAL DATA

Stroke:	2,5 mm
Control flow characteristic:	linear
Valve body:	forged brass
Fluids type:	water with max. 40% of glycol
Fluid temperature:	+2...+95 °C
Nominal pressure:	PN16

TYPE	WAYS	CONNEC-TION	KVS m³/h		MAX. DIFF. PRESS. BAR
			DIRECT WAY	ANGLE WAY	
VFX210	2	DN15 (G 1/2)	0.25	-	2.5
VFX211	2	DN15 (G 1/2)	0.4	-	2.5
VFX212	2	DN15 (G 1/2)	0.6	-	2.5
VFX213	2	DN15 (G 1/2)	1.0	-	2.5
VFX214	2	DN15 (G 1/2)	1.6	-	2.5
VFX235	2	DN20 (G 3/4)	2.5	-	2.5
VFX237*	2	DN20 (G 3/4)	4.0	-	0.8
VFX239*	2	DN20 (G 3/4)	6.0	-	0.8
VFX310	3	DN15 (G 1/2)	0.25	0.25	2.5
VFX311	3	DN15 (G 1/2)	0.4	0.4	2.5
VFX312	3	DN15 (G 1/2)	0.6	0.6	2.5
VFX313	3	DN15 (G 1/2)	1.0	0.8	2.5
VFX314	3	DN15 (G 1/2)	1.6	1.0	2.5
VFX335	3	DN20 (G 3/4)	2.5	1.6	2.5
VFX337*	3	DN20 (G 3/4)	4.0	2.5	0.8
VFX339*	3	DN20 (G 3/4)	6.0	4.0	0.8
VFX410	3 (4 port)	DN15 (G 1/2)	0.25	0.25	2.5
VFX411	3 (4 port)	DN15 (G 1/2)	0.4	0.4	2.5
VFX412	3 (4 port)	DN15 (G 1/2)	0.6	0.6	2.5
VFX413	3 (4 port)	DN15 (G 1/2)	1.0	0.8	2.5
VFX414	3 (4 port)	DN15 (G 1/2)	1.6	1.0	2.5
VFX435	3 (4 port)	DN20 (G 3/4)	2.5	1.6	2.5
VFX437*	3 (4 port)	DN20 (G 3/4)	4.0	2.5	0.8
VFX439*	3 (4 port)	DN20 (G 3/4)	6.0	4.0	0.8

ADVFX

VTP

ACCESSORIES	VTP - Override control
	ADVFX - Adapter for SE1C/VFX coupling up to KVS 2,5 to allows the valve to be normally open on direct way

* 140 N actuator needed (product code "SE1TP...")

SE1T230

SE1T230S

SE1M24

Electrothermal actuator SE1 is used to control zone and fan-coil valves in HVAC systems. SE1 is suitable to drive VFX valve bodies series.
When actuators are not powered the valves are normally closed on direct way.
When actuators are powered opens the direct way and close the third way.
The assembly actuator/valve body is done easily with a metal ring nut.
The actuator is fitted with a position valve indication.

TECHNICAL DATA

Power supply:	SE1M24, SE1MP24: 24 Vac ± 10% 50/60 Hz SE1T24, SE1TP24: 24 Vac ± 10% 50/60 Hz SE1T230, SE1TP230: 230 Vac ± 10% 50/60 Hz
Peak current:	SE1M24, SE1MP24: < 0.25 A SE1T24, SE1TP24: < 0.25 A SE1T230, SE1TP230: < 0.70 A
Aux. switch rating:	250 Vac 3 A
Sensing element:	special wax
Timing:	SE1T230, SE1TP230: 3.5 min (2.5 mm at 20 °C) SE1T24, SE1TP24: 4.5 min (2.5 mm at 20 °C)
Stroke:	2,5 mm
Working temperature:	0...50 °C
Connection:	metal ring M30 x 1.5
Cable:	PVC, section 2 (4) x 0,50 mm2, length 2 m
Protection:	IP40, IP44 if mounted vertically SE1T230, SE1TP230: class II SE1T24, SE1TP24, SE1M24, SE1MP24: class III
Size:	SE1T: Ø 40 x 61 mm SE1M: Ø 40 x 78 mm

TYPE	FORCE N	POWER SUPPLY VAC 50/60 HZ	ACTION	WITH AUXILIARY SWITCH	POWER CONSUMPTION VA
SE1T24	100	24	On-Off		3.0
SE1T230	100	230	On-Off		3.0
SE1T24S	100	24	On-Off	•	3.0
SE1T230S	100	230	On-Off	•	3.0
SE1TP24	140	24	On-Off		3.0
SE1TP230	140	230	On-Off		3.0
SE1TP24S	140	24	On-Off	•	3.0
SE1TP230S	140	230	On-Off	•	3.0
SE1M24	100	24	prop. 0…10 Vdc		3.5
SE1MP24	140	24	prop. 0…10 Vdc		3.5

VFZ2

VFZ3

VFZ valve bodies are used in HVAC systems to control fluid in heating, cooling, refrigeration, ventilation in civil or industrial plants.
VFZ valve bodies are motorized by SE4 series electric actuators.

TECHNICAL DATA

Connections:	threaded female GAS
Stroke length:	5.5 mm
Control flow characteristic:	linear
Leakage:	direct way A-AB perfect sealing angle way B-AB 0,2% KVs
Rangeability:	50:1
Fluid temperature:	-10...+120 °C
Fluids type:	water, water with glycol max. 50%
Valve body:	cast-iron G25
Nominal pressure:	PN16 (ISO7268/EN1333)

TYPE		CONNECTION	KVS m³/h	MAX. DIFF. PRESS. BAR *
2 WAYS	3 WAYS			
VFZ210	**VFZ310**	DN15 (G 1/2)	0.25	2.5 (10.0)
VFZ211	**VFZ311**	DN15 (G 1/2)	0.4	2.5 (10.0)
VFZ212	**VFZ312**	DN15 (G 1/2)	0.63	2.5 (10.0)
VFZ213	**VFZ313**	DN15 (G 1/2)	1.0	2.5 (10.0)
VFZ214	**VFZ314**	DN15 (G 1/2)	1.6	2.5 (10.0)
VFZ215	**VFZ315**	DN15 (G 1/2)	2.5	2.5 (10.0)
VFZ218	**VFZ318**	DN20 (G 3/4)	4.0	2.0 (5.0)
VFZ220	**VFZ320**	DN20 (G 3/4)	6.3	2.0 (5.0)
VFZ225	**VFZ325**	DN25 (G 1)	10.0	2.0 (2.5)
VFZ232	**VFZ332**	DN32 (G 1 1/4)	13.0	2.0 (2.5)
VFZ240	**VFZ340**	DN40 (G 1 1/2)	18.0	2.0 (2.0)

*** dPmax** The values in brackets are the max. differential pressure when the valve is fully closed. The servomotor can open and close the valve safely. The values out of brackets are the suggested max. pressure drop (valve fully open).

SE4M24

Electric actuator SE4 is suitable to drive VFZ valve body series in HVAC systems.
Actuator is equipped with a torque limit device, to power off motor when end stops are reached.
The actuator SE4M24 is self-adjusting. When it is powered-on the stroke is automatically adapted to the valve, no calibration is required. Actuator is fitted with manual override by a hexagonal key. An internal LED indicates the current state of the actuator: adjustment, control, end stop position, error condition.

TECHNICAL DATA

Power supply:	SE4M24: 24 Vac ± 10% 50/60 Hz SE4F24: 24 Vac ± 10% 50/60 Hz SE4F230: 110...240 Vac ± 10% 50/60 Hz
Running time:	approx. 70 sec.
Manual override:	by 3 mm hexagonal key
Action:	direct / reverse selectable by jumper
Working conditions:	0...50 °C, 10…90 r.h.% (without condensing)
Connection:	metal ring 3/4" (on request M30 x 1.5)
Cable:	plug-in type in PVC, section 3 x 0.50 mm^2, 1,5 m length
Protection:	IP54 SE4F230: class II SE4M24, SE4F24: class III
Size:	90 x 70 x 104,5 mm

TYPE	FORCE N	STROKE mm	POWER SUPPLY VAC 50/60 HZ	ACTION	POWER CONSUMP. VA
SE4F24	400	5.5	24	2-, 3-point	5.0
SE4F230	400	5.5	230	2-, 3-point	7.0
SE4M24	400	5.5	24	0...10 Vdc 4...20 mA	5.5

VFS2

VFS3

VFS valve bodies are used in HVAC systems to control and regulate fluids.
VFS valve bodies are motorized by SE6 series electric actuators.

TECHNICAL DATA

Connections:	female threaded GAS
Stroke length:	16.5 mm
Control flow characteristic:	direct way A→AB equal-percentage angle way B→AB linear
Leakage:	direct way A→AB perfect sealing angle way B→AB max 0,2% KVs
Rangeability:	50:1
Fluid temperature:	-10...+130 °C
Fluids type:	water, water with max 50% glycol, saturated steam max 2,5 ata
Valve body:	cast-iron G25
Nominal pressure:	PN16 (ISO7268/EN1333)

TYPE		CONNECTION	KVS m^3/h	MAX. DIFF. PRESS. BAR *
2-WAY	3-WAY			
VFS215	**VFS315**	DN15 (G 1/2)	2.5	2.2 (11.0)
VFS218	**VFS318**	DN20 (G 3/4)	4.0	2.2 (11.0)
VFS220	**VFS320**	DN20 (G 3/4)	6.3	2.2 (11.0)
VFS225	**VFS325**	DN25 (G 1)	10.0	2.2 (7.0)
VFS232	**VFS332**	DN32 (G 1 1/4)	16.0	2.2 (4.4)
VFS240	**VFS340**	DN40 (G 1 1/2)	25.0	2.2 (2.7)
VFS250	**VFS350**	DN50 (G 2)	40.0	2.2 (2.2)
VFS252	**VFS352**	DN50 (G 2)	30.0	2.2 (2.2)

*** dPmax** The values in brackets are the max. differential pressure when the valve is fully closed. The servomotor can open and close the valve safely. The values out of brackets are the suggested max. pressure drop (valve fully open).

VFSF2

VFSF3

VFZ valve bodies are used in HVAC systems to control fluid in heating, cooling, refrigeration, ventilation in civil or industrial plants. VFSF are motorized by SE6 series electric actuators.

TECHNICAL DATA

Connections:	flanged
Stroke length:	16.5 mm (max 18.3)
Control flow characteristics:	VFSF2-VFSF3: direct way A→AB equal-percentage VFSF3: angle way B→AB linear
Leakage:	VFSF2-VFSF3: direct way A→AB 0…0.05% of KVs VFSF3: angle way B→AB 0…1% of KVs
Rangeability:	50:1
Fluid temperature:	-10...+130°C
Nominal pressure:	PN16

TYPE		CONNECTION	KVS m^3/h	MAX. DIFF. PRESS. BAR *
2 WAYS	3 WAYS			
VFSF215	**VFSF315**	DN15	2.5	2.2 (11.0)
VFSF220	**VFSF320**	DN20	6.3	2.2 (11.0)
VFSF225	**VFSF325**	DN25	10.0	2.2 (7.0)
VFSF232	**VFSF332**	DN32	16.0	2.2 (4.4)
VFSF240	**VFSF340**	DN40	25.0	2.2 (2.7)
VFSF250	**VFSF350**	DN50	40.0	2.2 (2.2)

*** dPmax** The values in brackets are the max. differential pressure when the valve is fully closed. The servomotor can open and close the valve safely. The values out of brackets are the suggested max. pressure drop (valve fully open).

SE6F230

Electric actuators are suitable to drive valves VFS/VFSF.
Actuator is fitted with manual override by a hexagonal key.
Actuator is equipped with a torque limit device to power off motor when end stop is reached. The SE6M24 has an additional feedback signal output. An internal LED indicates the current state of the actuator: adjustment, control, end stroke position, error condition.

TECHNICAL DATA

Power supply:	SE6M24: 24 Vac ± 10% 50/60 Hz SE6F24: 24 Vac ± 10% 50/60 Hz SE6F230: 110...240 Vac ± 10% 50/60 Hz
Auxiliary switches:	3(1) A 230 Vac
Running time:	approx. 80 sec.
Manual override:	by 3 mm hexagonal key
Action:	direct / reverse selectable by jumper
Working conditions:	0...50 °C, 10…90 r.h.% (without condensing)
Connection:	cable section 1 mm^2 length 1 m
Protection:	IP54 SE6F230: class II SE6M24, SE6F24: class III
Size:	112 x 85 x 148 mm

TYPE	FORCE N	STROKE mm	POWER SUPPLY VAC 50/60 HZ	ACTION	POWER CONSUMPTION VA
SE6F24	600	16.5	24	2-, 3-point	5.0
SE6F24S	600	16.5	24	2-, 3-point	5.0
SE6F230	600	16.5	230	2-, 3-point	8.0
SE6F230S	600	16.5	230	2-, 3-point	8.0
SE6M24	600	16.5	24	0...10 Vdc 4...20 mA	6.0

ADV1

ACCESSORIES	ADV1 - Adapter for 2S and 3S valves series Industrietechnik (gray body, obsolete models)
	ADV2 - Adapter for 2S- and 3S- valves series Industrietechnik (black body, obsolete models)
	ADV3 - Adapter for VMB/VSB valves series Controlli

S with 2 auxiliary microswitches 230 Vac 3A (not for model SE6M24)

SE5
SE10

SE18
SE25

Actuators available in models with a force of 500, 1000, 1800 or 2500 N. Models with 3-point or 0(2)...10 V control signal. The actuators have manual override on the cover.

TECHNICAL DATA

Power supply:	24 Vac	
Protection:	IP54	
Size:	SE5, SE10:	198 x 133 x 282 mm
	SE18, SE25:	198 x 133 x 309 mm

TYPE	FORCE N	CONTROL SIGNAL	STROKE mm	STROKE TIME	POWER CONSUMP. W	AUTOMATIC SELF STROKE ADJUSTMENT
SE5F24	500	3-point	10...30	3 s/mm	Max. 4.5	No
SE5F230	500	3-point	10...30	3 s/mm	Max. 4.5	No
SE5M24	500	0...10 Vdc or 2...10 Vdc	10...30	3 s/mm	Max. 4.5	Sì
SE10F24	1000	3-point	10...30	3 s/mm	Max. 6	No
SE10F230	1000	3-point	10...30	3 s/mm	Max. 6	No
SE10M24	1000	0...10 Vdc or 2...10 Vdc	10...30	3 s/mm	Max. 6	Sì
SE18F24	1800	3-point	10...52	3 s/mm	Max. 8	No
SE18F230	1800	3-point	10...52	3 s/mm	Max. 8	No
SE18M24	1800	0...10 Vdc or 2...10 Vdc	10...52	3 s/mm	Max. 8	Sì
SE25F24	2500	3-point	10...52	3 s/mm	Max. 12	No
SE25F230	2500	3-point	10...52	3 s/mm	Max. 12	No
SE25M24	2500	0...10 Vdc or 2...10 Vdc	10...52	3 s/mm	Max. 12	Sì

VFG2

Valves for control of hot, cold or glycol-mixed water in heating and ventilation systems. The valves are pressure balanced (from DN20-50, not DN15), which means that they can handle differential pressure with low force.
The valves are intended for use together with actuators of the type SE5... They should not be used in sanitary water systems.

TECHNICAL DATA

Connections:	BSP female threaded
Stroke lenght:	20 mm
Control flow characteristic:	Equal percentage
Max. leakage:	0.0 % of kvs (PTFE 25 % carbon seal, no leakage)
Rangeability:	100:1
Fluid temperature:	-5...+140°C
Fluids type:	Hot, cold, glycol-mixed (max. 50 %) water or steam
Max. diff. pressure:	1.6 MPa
Pressure rating:	PN16
Valve body:	Brass
Plug:	Stainless steel
Stem:	Stainless steel
Packing box:	O-ring EPDM

TYPE	CONNECTION	KVS m³/h	ACTUATOR
VFG215-0,6	DN15	0.6	SE5...
VFG215-1,0	DN15	1.0	SE5...
VFG215-1,6	DN15	1.6	SE5...
VFG215-2,5	DN15	2.5	SE5...
VFG220-3,9	DN20	3.9	SE5...
VFG225-6,3	DN25	6.3	SE5...
VFG225-10	DN25	10.0	SE5...
VFG232-10	DN32	10.0	SE5...
VFG232-16	DN32	16.0	SE5...
VFG240-16	DN40	16.0	SE5...
VFG240-27	DN40	27.0	SE5...
VFG250-39	DN50	39.0	SE5...

IS02420001

IS6321457301

ACCESSORIES	IS02420001 - Spare parts kit, O-ring kit for valves from DN15 to DN25
	IS6321457301 - Spare parts kit, packing box for valves from DN32 to DN50


VFG3

Valves intended for use in domestic hot water systems together with the SE5... actuators.

TECHNICAL DATA

Connections:	BSP female threaded
Stroke lenght:	20 mm
Control flow characteristic:	Equal percentage
Rangeability:	100:1
Fluid temperature:	-5...+140°C
Fluids type:	Hot, cold, glycol-mixed (max. 50 %) water or steam
Pressure rating:	PN16
Valve body:	Rg5 (gun metal SS 5204)
Plug:	Rg5 (gun metal SS 5204)
Stem:	Stainless steel
Packing box:	Auto adjusted, teflon (O-ring Viton)

TYPE	CONNECTION	MAX. DIFF. PRESS.	KVS m³/h	ACTUATOR
VFG315-0,63	DN15	1600 kPa	0.63	SE5...
VFG315-1,0	DN15	1600 kPa	1.0	SE5...
VFG315-1,6	DN15	1600 kPa	1.6	SE5...
VFG315-2,1	DN15	1600 kPa	2.1	SE5...
VFG315-2,7	DN15	1600 kPa	2.7	SE5...
VFG320-4,2	DN20	1600 kPa	4.2	SE5...
VFG320-5,6	DN20	1600 kPa	5.6	SE5...
VFG325-10	DN25	1600 kPa	10.0	SE5...
VFG332-16	DN32	1000 kPa	16.0	SE5...
VFG340-27	DN40	800 kPa	27.0	SE5...
VFG350-39	DN50	500 kPa	39.0	SE5...


IS0603080300

ACCESSORY	IS0603080300 - Spare parts kit, packing box for the VFG3 valves

VFD2

The VFD2 valves are intended for control of cold, hot and glycol-mixed water, steam. Ideal for district heating systems. They are intended for use together with SE5... actuators.

TECHNICAL DATA

Connections:	Male threaded according to ISO 228/1; supplied with connections
Stroke lenght:	20 mm
Control flow characteristic:	Equal percentage
Rangeability:	100:1
Fluid temperature:	-5...+150°C
Fluids type:	Hot, cold or glycol-mixed water or steam
Max. diff. pressure:	1600 kPa
Pressure rating:	PN16
Valve body:	Gunmetal 1400 LG2
Plug:	Stainless steel 303S31
Seat:	Stainless steel 304S15
Stem:	Stainless steel 303S31
O-rings:	Viton
Packing box:	Self-adjusting teflon

TYPE	CONNECTION	KVS m³/h	ACTUATOR
VFD215-0,63	DN15	0.63	SE5...
VFD215-1,25	DN15	1.25	SE5...
VFD215-1,6	DN15	1.6	SE5...
VFD215-2,5	DN15	2.5	SE5...
VFD215-4,0	DN15	4.0	SE5...
VFD220-5,0	DN20	5.0	SE5...
VFD220-6,3	DN20	6.3	SE5...
VFD225-8,0	DN25	8.0	SE5...
VFD225-10	DN25	10.0	SE5...
VFD232-12,5	DN32	12.5	SE5...
VFD232-16	DN32	16.0	SE5...
VFD240-20	DN40	20.0	SE5...
VFD240-25	DN40	25.0	SE5...
VFD250-31,5	DN50	31.5	SE5...
VFD250-40	DN50	40.0	SE5...

VFD3

The VFD3 valves are intended for control of cold, hot and glycol-mixed water. Ideal for district heating systems. They are intended for use together with SE5... actuators.

TECHNICAL DATA

Connections:	Male threaded according to ISO 228/1; supplied with connections
Stroke lenght:	20 mm
Control flow characteristic:	Equal percentage
Rangeability:	100:1
Fluid temperature:	-5...+185°C
Fluids type:	Hot, cold or glycol-mixed water and steam
Max. diff. pressure:	1600 kPa
Pressure rating:	PN16
Valve body:	Gunmetal 1400 LG2
Plug:	Dezincification resistant brass
Stem:	Stainless steel 303S31
O-rings:	Viton
Packing box:	Self-adjusting teflon

TYPE	CONNECTION	KVS m³/h	ACTUATOR
VFD315-0,63	DN15	0.63	SE5...
VFD315-1,25	DN15	1.25	SE5...
VFD315-1,6	DN15	1.6	SE5...
VFD315-2,5	DN15	2.5	SE5...
VFD315-4,0	DN15	4.0	SE5...
VFD320-5,0	DN20	5.0	SE5...
VFD320-6,3	DN20	6.3	SE5...
VFD325-8,0	DN25	8.0	SE5...
VFD325-10	DN25	10.0	SE5...
VFD332-12,5	DN32	12.5	SE5...
VFD332-16	DN32	16.0	SE5...
VFD340-20	DN40	20.0	SE5...
VFD340-25	DN40	25.0	SE5...
VFD350-31,5	DN50	31.5	SE5...
VFD350-40	DN50	40.0	SE5...

VFG2

VFG2

IS0603080300

Control valves intended for use in heating and ventilation systems, suitable for cold and hot water, glycol-mixed water or steam.

TECHNICAL DATA

Control flow characteristic:	Square
Max. leakage:	0.1 % of kvs
Rangeability:	50:1
Fluid temperature:	-5...+120°C
Fluids type:	Hot, cold, glycol-mixed water or steam
Pressure rating:	PN16
Valve body:	Cast iron SS 0120
Plug and seat:	Gun metal SS 5204
Stem and cone:	Stainless steel SS 2346
O-rings:	Viton
Packing box:	Self-adjusting teflon
Bonnet:	Brass SS 5170
Seal flange:	Steel SS 2172

TYPE		CONNECTION	KVS m^3/h	ACTUATORS MAX DIFF. PRESS. IN BAR (**)			
2 WAYS	3 WAYS			SE5	SE10	SE18	SE25
VFSG232	**VFSG332**	DN32	16	5 (5)	**5 (11)**	N/A	N/A
VFSG240	**VFSG340**	DN40	27	3,3 (3,3)	**5 (7)**	N/A	N/A
VFSG250	**VFSG350**	DN50	39	N/A	N/A	**5 (8)**	5 (12)
VFSG265	**VFSG365**	DN65	63	1,0 (1,0)*	2,3 (2,3)*	**4,4 (4,4)**	4,4 (6,3)
VFSG280	**VFSG380**	DN80	100	N/A	N/A	**3,4 (3,4)**	3,4 (4,5)
VFSG2100	**VFSG3100**	DN100	160	N/A	N/A	**2,1 (2,1)**	2,1 (3)
VFSG2125	**VFSG3125**	DN125	215	N/A	N/A	1,3 (1,3)	**1,7 (1,7)**
VFSG2150	**VFSG3150**	DN150	310	N/A	N/A	0,9 (0,9)	**1,2 (1,2)**

ACCESSORY	IS0603080300 - Spare parts kit, packing box for the VFSG valves

red Recommended actuator
N/A Not selectable because of valve stroke and plug design.
***** Actuator needs to be complemented with stem connection OVA-F3.
(**) The values in the brackets are the max diff. pressures when the valve is fully closed and actuator is still able to open or close the valve with security. The values outside the brackets are the suggested max pressure drop (valve fully open).

VFDH

The VFDH series is intended to control hot and cold water, glycol-mixed water, steam. Ideal for district heating systems within the temperature range -5...+185°C. The valves from DN20 to DN150 are pressure balanced. The VFDH valves meet the requirements of DIN-standard DIN 3202/F1 and ISO 5752 table 1.

TECHNICAL DATA

Connections:	Flanges according to SS 335 table 6
Control flow characteristic:	Equal percentage
Max. leakage:	0.00 % of kvs
Rangeability:	100:1
Fluid temperature:	-5...+185°C
Fluids type:	Hot, cold or glycol-mixed water and steam
Max. diff. pressure:	1600 kPa
Pressure rating:	PN16
Valve body:	Nodular cast iron SS 0727
Plug and seat:	Stainless steel SS 2333
Stem:	Stainless steel SS 2346
Cone:	Gun metal/Stainless steel
O-rings:	Viton
Packing box:	Self-adjusting teflon
Bonnet:	Brass SS 5170
Seal flange:	Steel SS 2172
Soft seal:	PTFE 25 % carbon seal

TYPE	CONNECTION	KVS m³/h	STROKE mm	ACTUATOR
VFDH15-1,6	DN15	1.6	20	SE5...
VFDH15-2,7	DN15	2.7	20	SE5...
VFDH20-6,3	DN20	6.3	20	SE5...
VFDH25-10	DN25	10.0	20	SE5...
VFDH32-16	DN32	16.0	20	SE5...
VFDH40-27	DN40	27.0	20	SE5...
VFDH50-39	DN50	39.0	20	SE5...
VFDH65-63	DN65	63.0	20	SE5...
VFDH80-100	DN80	100.0	20	SE5...
VFDH100-160	DN100	160.0	38	SE18...
VFDH125-215	DN125	215.0	40	SE25...
VFDH150-310	DN150	310.0	40	SE25...

IS0603080300

ACCESSORY	IS0603080300 - Spare parts kit, packing box for the VFDH valves

14.19 BUTTERFLY VALVES VF

VF65

The VF series of butterfly valves are designed for use in LPW (low pressure water) heating and air conditioning systems.

TECHNICAL DATA

Fluid temperature:	-15...+90°C
Pressure rating:	PN16
Valve body:	Cast-iron
Seat:	EPDM
Shaft:	Stainless steel (AISI - 416)
Disc:	Nickel iron (GGG40)

TYPE	DN mm	KVS m^3/h	MAX. DIFF. PRESS. BAR	ACTUATOR
VF32	32	40	10	DAL.../ DML24
VF40	40	50	10	DAL.../ DML24
VF50	50	99	8	DAL.../ DML24
VF65	65	170	6	DAL.../ DML24
VF80	80	261	6	DAG.../ DMG24

KIT-VF32/80

ACCESSORY	KIT-VF32/80 - assembly kit for butterfly valves VF

Note: the valves are supplied with assembly kit model KIT-VF32/80

14.20 ELECTRIC ACTUATORS FOR VF VALVES SERIES DAL, DML, DAG, DMG

DAL
DML

DAG
DMG

TYPE	TORQUE Nm	TIMING SEC.	POWER SUPPLY VAC	ACTION	CHARACTERISTICS
DAL24S	24	125	24	2 / 3 point	bi-directional actuator, manual override, 2 SPDT auxiliary adjustable switches, selectable rotation direction, IP44 or IP54 with cable glands.
DAL230S	24	125	230	2 / 3 point	
DML24S	24	125	24	0 (2)...10 Vdc 0 (4)...20 mA	
DAG24S	32	160	24	2 / 3 point	
DAG230S	32	160	230	2 / 3 point	
DMG24S	32	160	24	0 (2)...10 Vdc 0 (4)...20 mA	

HEATER1

Heating valve stem to be used in systems with liquid at temperatures < 0 °C. For use in environments with extreme conditions to prevent the blockage from ice formation of valves series VFSF and VFS.

TECHNICAL DATA

Power supply:	24 Vac ± 10%, 50/60 Hz
Power cons.:	30W
Limits of use:	Fluid temperature: 0...-10 °C Working temperature: 5...40 °C
Protection:	IP65
Size:	six-sided polygon 60 mm

TYPE	DESCRIPTION
HEATER1	heater for stem valves series VFS and VFFS

Chapter 15

Presence and smoke detectors

15. PRESENCE AND SMOKE DETECTORS

15.1 PRESENCE DETECTOR — SIR24

SIR24-P

SIR24-PC

Detectors which give a signal when someone enters the room. The detector has a pulse-detecting function that minimizes the risk of false alarms. Settable on/off delays.

TECHNICAL DATA

Power supply:	24 Vac/dc, 0.1 VA
Alarm output:	200 mA, 24 Vac/dc 0,2A Max., change-over contact
Power cons.:	15 mA
Temperature range:	-20°C...+50°C
Room humidity:	Max. 95 % RH
Mounting:	Wall/ceiling
Protection:	SIR24-P: IP20 SIR24-PC: IP20
Size:	SIR24-P: 112 x 66 x 45 mm SIR24-PC: Ø 110 x h 44 mm

TYPE	DESCRIPTION	MOUNTING	DETECTION AREA
SIR24-P	Presence detector	Wall	15 x 15 m, 110° angle
SIR24-PC	Presence detector	Ceiling	Height x 2.5 = diameter of detection to ground

15.2 SMOKE DETECTOR FOR DUCT MOUNTING — SSDD

SSDD

Smoke detector with single pipe.

TECHNICAL DATA

Power supply:	9...33 Vdc (via control unit CABV...) 24 Vac ±15 % for RAC models
Power cons., incl. end resistor (not RAC):	Normal operation: 11 mA at 24 Vdc Alarm condition: 50 mA at 24 Vdc Service alarm condition: 20 mA at 24 Vdc
Mounting:	Duct
Insertion lenght:	540 mm
Diameter tube:	Ø 30 mm
Protection:	IP54
Size:	155 x 115 x 75 mm

TYPE	DESCRIPTION
SSDD-OE65	Optical detector
SSDD-OE50	Optical detector with service alarm
SSDD-OE65-R	Optical detector with built-in relay (24 V)
SSDD-OE65-RAC	Optical detector with AC power supply and relay output only

ACCESSORIES	SSDD-TDS - Mounting spacer for insulated pipe ducts
	SSDD-VR600 - Venturi tube for SSDD-S... models, 600 mm length (standard)
	SSDD-VR2000 - Venturi tube for SSDD-S... models, 2000 mm length

SSDD-TDS

15.3 SMOKE DETECTOR FOR CEILING MOUNTING — SSDC

SSDC

TECHNICAL DATA

Power supply:	15...30 Vdc (via control unit, CABV...)
Power cons.:	0.14 mA (50 mA if an alarm occurs)
Mounting:	Ceiling
Protection:	IP20
Size:	Ø 100 x h 50 mm

TYPE	DESCRIPTION
SSDC65-OE	Optical detector
SSDC50-OE-GA4	Optical detector with service alarm

SSDC-BPR-S50

SSDC-BP

ACCESSORIES	SSDC-BP - Socket for IS65 detectors
	SSDC-BPR-S50 - Socket for SSDC50 detectors with built-in change-over relay (24 Vac)
	SSDC-BPR-S65 - Socket for SSDC65 detectors with built-in change-over relay (24 Vac)

15.4 CONTROL UNIT FOR SMOKE DETECTORS — CABV

CABV24-300D

CABV24-S-300D

CABV-300D

CABV-S-300D

Control units for the SSDD and SSDC series. Provides power supply and alarm handling for smoke detectors, with or without service alarm. Ideal for DIN-rail mounting.

TECHNICAL DATA

Power supply:	24 Vac or 230 Vac
Alarm output:	CABV...-S-300/D: One change-over contact (smoke) One closing contact (smoke) One closing contact (service) CABV...-300/D: Two change-over contacts (smoke alarms)
Power cons.:	30 mA (70 mA if an alarm occurs), 1 VA (1.7 VA if an alarm occurs)
Mounting:	DIN-rail, 3 modules
Protection:	IP20
Size:	53 x 85 x 75 mm

TYPE	DESCRIPTION
CABV24-300/D	Control unit, 24 Vac
CABV24-S-300/D	Control unit with service alarm, 24 Vac
CABV-300/D	Control unit, 230 Vac
CABV-S-300/D	Control unit with service alarm, 230 Vac

15.5 SMOKE SPRAY — SPRAY-260

SPRAY-260

Gas for control of smoke detectors. Suitable for both ionisation and optical detectors.

TYPE	DESCRIPTION
SPRAY-260	Smoke spray, 260 ml

Chapter 16

Accessories, transformers and step controllers

16. ACCESSORIES, TRANSFORMERS AND STEP CONTROLLERS

16.1 TRASFORMER 15 VA — TR15

TR15

With built-in thermal protection.

TECHNICAL DATA

Power supply:	230 Vac
Output voltage:	24 Vac
Max. load:	15 VA
Mounting:	DIN-rail, 3 modules
Protection:	IP20
Size:	53 x 85 x 75 mm

TYPE	DESCRIPTION
TR15	Transformer

16.2 TRASFORMER 40 VA — TR40

TR40

With built-in PTC fuse. Overload and short-circuit proof.

TECHNICAL DATA

Power supply:	230 Vac
Output voltage:	12 Vac and 24 Vac
Max. load:	40 VA
Mounting:	DIN-rail, 4 modules
Protection:	IP44
Size:	71 x 85 x 63 mm

TYPE	DESCRIPTION
TR40	Transformer

16.3 TRASFORMER 60 VA — TR60

TR60

With built-in PTC fuse. Overload and short-circuit proof.

TECHNICAL DATA

Power supply:	230 Vac
Output voltage:	24 Vac
Max. load:	60 VA
Mounting:	Wall
Protection:	IP44
Size:	73 x 124 x 61 mm

TYPE	DESCRIPTION
TR60	Transformer

16.4 STEP CONTROLLER, 1- OR 2-STAGE SC1, SC2

SC1

SC2

Suitable for heating/cooling or alarm applications. Convert a 0...10 Vdc input signal to a relay output. The controllers are suitable for DIN-rail and have adjustable switching points. SC2 can be set to either binary or sequential control. Individually settable on/off levels.

TECHNICAL DATA

Power supply:	24 Vac, 2 VA
Input signal:	0...10 Vdc
Output signal:	SC1: One relay, change-over, 10 A, 250 Vac SC2: Two relays, closing, 10 A, 250 Vac
Settings:	0...10 Vdc
Step differential:	SC2: 0...2 Vdc
Mounting:	DIN-rail, 3 modules
Protection:	IP20
Size:	53 x 85 x 75 mm

TYPE	DESCRIPTION
SC1	Step controller with 1 relay (change-over)
SC2	Step controller with 2 relays (closing)

16.5 STEP CONTROLLER, 4- OR 6-STAGE SC4, SC6

SC4

SC6

Controllers intended for control of electric heating coils, four or six relays. The controller can be set to sequential or binary control. It can be used together with any controller with 0...10 Vdc or 10...2 Vdc output signal.
The required number of steps is set by means of the rotating switch on the front. The 0...10 Vdc input signal is divided up into the number of steps, thus setting the switch-on point for each step. Relay 6 on SC6 can be used as a time-lag relay to delay shut-off of the fan when shutting down the system (3 min. delay).
The step controllers also have an analogue output (0…10 V) for control of an electric heating controller (CTR or similar) to give proportional heating between steps.

TECHNICAL DATA

Power supply:	24 Vac, 6 VA
Input signal:	0...10 Vdc
Output signal:	0...10 Vdc
Outputs:	4 alt. 6 relays (closing), binary or sequential control SC4: 2 A, 240 Vac SC6: 2 A, 250 Vac
Run-on time:	SC6: 3 min.
Mounting:	DIN-rail, 6 modules
Protection:	IP20
Size:	101 x 85 x 75 mm

TYPE	DESCRIPTION
SC4	Step controller with 1 relay (change-over)
SC6	Step controller with 2 relays (closing)

FV

The electronic frost protection unit FV is mainly intended for use in air handling systems. If the temperature falls below the setpoint, the relays will fall and an alarm LED lights up. The unit should be connected to a NTC sensor placed on the heating coil or return water pipe. The sensor must have 0...30°C temperature range, suitable sensors are SCC-NTC15-01 and NT0515-NTC15. When there is frost risk, FV has a 0...10 Vdc control output that can be used to control the valve.

TECHNICAL DATA

Power supply:	24 Vac
Inputs	
Sensor input:	One, 0...30°C (NTC sensor)
Control signal:	0...10 Vdc (from the controller)
Outputs	
Relays:	One, 0...30°C (NTC sensor)
Output signal (Y1):	0...10 Vdc (from the controller)
Power cons.:	2 VA
Setpoint:	0...15°C
P-band, control signal override:	5 K (fixed)
Mounting:	DIN-rail, 3 modules
Protection:	IP20
Size:	53 x 85 x 75 mm

TYPE	DESCRIPTION
FV	Frost protection unit (delivered without a sensor)

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GENERAL SALES CONDITIONS

THIS ISSUE SUBSTITUTES AND CANCELS ANY PREVIOUS ONE AND IS SUBJECT TO MODIFICATIONS WITHOUT NOTICE

PRICES

The prices mentioned in our current price list are in Euro (€) do not include VAT and, even if confirmed, can be subject to variations due to increases in raw materials and labour costs. If the price is tied to parity between the Euro and a foreign currency, the rate of exchange value is specified by publication by the Banca d'Italia, as indicated in the „Il Sole 24 Ore" daily newspaper. If the rate of exchange varies by more than 5%, we reserve the right to modify at any time our prices and the discounts applied to current orders. In such a case the buyer is entitled to withdraw immediately from the order. The said prices do not include transport and insurance costs, import license expenses, customs charges, etc., and are considered chargeable to the Buyer.
Our quotations are not binding for the order; the Buyer accepts our delivery terms. After issuing our order acknowledgement, the order is confirmed.
For invoices under € 50,00 net will be applied € 10,00 for management cost.
Neutral products are supplied without a surcharge but minimum 50 pieces/part number.
Branding at cost:

- one price only for single colour cliché: € 75,00
- Product branding for min. 100 pieces per order: surcharge of € 1,50 net/piece. For higher quantities, the surcharge could be discussed. All products can be supplied with a test certificate (part number 103999) at the net price of **€ 25,00 + VAT** requiring during ordering process. Certificates of origine issued by Chamber of Commerce € 50,00. Certificates legalized by foreign embassy min. € 250,00.

PACKING

Packing is included in the sale price. Packing different from standard will be invoiced at cost (standard plastic pallets at € 11,00 net each).

DOCUMENTS

We reserve rights on all documents referring to the products and/or made available with quotations, acknowledgements or on delivery. Such documents may neither be copied nor made available to third parties without our written agreement. They must be returned to us on request.

SHIPMENT

Shipment is ex our works in Bressanone, unless otherwise agreed. **As soon as the goods are handed over to the forwarder, all our obligations are considered fulfilled. Therefore, all expenses and risks will be the Buyer's responsibility without any exceptions, even if the shipping charges are prepaid by us. It is the Buyer's responsibility to insure the goods against damage and/or loss. We therefore cannot be held liable for damage and/or loss.**
The shipping rates for Italy are at cost price, and we reserve the right to select the most suitable means of transport. In case of payment by cash on delivery, the fees are always incurred by us and debited to the Buyer.

DELIVERY TERMS

Delivery terms are indicative and are not binding. We cannot be held liable for any production or shipment delay, if such a delay is caused by one of the following reasons: a commercial blockade, difficulties in obtaining raw materials and/or other circumstances beyond our control. In that case we do not accept any penalties and the Buyer renounces any claims for indemnity and/or reimbursement of damages.
We reserve the right to delivery the goods before the agreed date.

CLAIMS

Clams have to be brought to our attention within 8 days after the receipt of the goods, otherwise we will not accept the said claims. Claims do not authorise delays in payment or further price reductions. In case of packing received damaged, the Buyer must inform the forwarder immediately, and send a copy to us for information.

PAYMENT TERMS

Invoices are payable in the currency specified in the invoice.
Payments must be remitted within the agreed expiry data. **We reserve ownership of the goods until the invoice and any accessory expenses have been fully paid.** Failure by the Buyer to pay by the due date automatically gives rise to interest, giving us the right to deem the contract cancelled because of such failure, unless we prefer to ask for settlement of the amount due, by recourse to law if necessary, with bank interest and damages added. If the Buyer stops a payment, the outstanding amount becomes immediately due and we will file a petition for bankruptcy. Interest on arrears: in the case of delayed payments, interest on arrears will be calculated at the rate of 7 (seven) points above the official rate of discount of the Banca d'Italia in force at the time such interest was applied.

WARRANTY

All the products supplied by us are guaranteed against construction faults or defects of material for 24 months from the date of delivery, the term by which we shall repair the faulty parts in order to restore correct operation of the appliances. We do not accept any responsibility for direct or indirect damage caused by the use of the said appliances. Any return of material must be requested from us in writing, must reach us free our works and will be returned ex our works.
The guarantee is restricted exclusively to the repair at our plant, of appliances acknowledged to be defective, whereas all other costs of transport or labour for technical operations on the appliances are charged to the Buyer. The guarantee is voided if the appliances are found to have been tampered with or dismantled. If interventions on appliances not considered to be under guarantee are requested, we reserve the right to debit the Buyer for management of the return € 40,00 spare parts, manpower etc. not included. Errors caused by improper or incorrect use, installation and/or commissioning are not subject to any kind of warranty.

In the event of a dispute, the Buyer accepts that the Bolzano Court of Law is competent and accepts the laws in force in Italy.

INSTRUCTIONS FOR USE OR ASSEMBLY

The customers agrees to comply with the instructions for use and installation that may be delivered together with the goods and to inform any third parties about them. The total or partial non-compliance with the instructions may lead to the loss of all buyer's rights.

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Sales network

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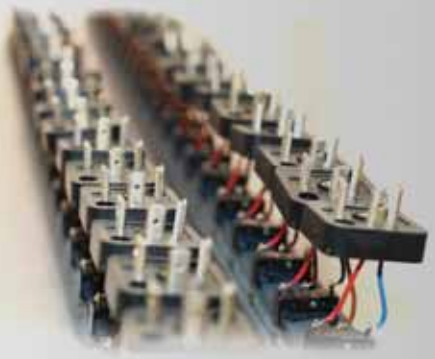

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