Products for HVAC applications in Building Automation

CATALOGUE 2015

REGIN
THE CHALLENGER

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THE CHALLENGER

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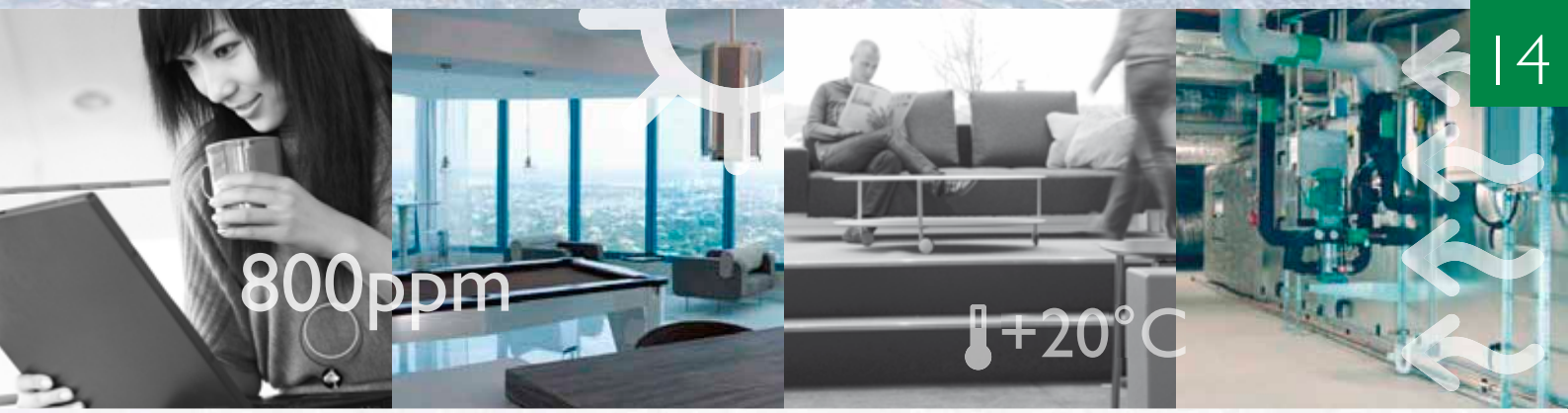


www.regincontrols.com

Product news

Tempero

Tempero is one of the widest ranges of temperature sensors available. In addition to our popular NTC 15k, PT100 and PT1000 elements, Regin now also offers clamp-on, immersion, duct, room and outdoor sensors with many different temperature elements, such as NTC 1.8, NTC 10k, NTC 20k and Ni1000, also suitable for other brands.

CLOUDigo

CLOUDigo is a cloud-based service that enables you to easily connect a Corrigo with integrated web server to a user account in order to view and administer your buildings. CLOUDigo supports multiple users with different levels of access and has an intuitive user interface. Work using a computer, tablet or phone; the choice is entirely up to you – and your changes always take effect immediately.

CLO-3G

Our customised CLO-3G modem consists of a 3G modem with a factory-installed SIM card. The modem is pre-set to connect to CLOUDigo via a mobile 3G/GPRS network. CLO3G also has a DHCP function, distributing an IP address to the connected Corrigo and handling the connection.

SS2U

A series of energy meters with ultrasonic flow meters, intended for smaller cooling and heating systems. The SS2U energy meters are compact and the calculator is detachable, making them easy to install. The construction of the meters, without any moving parts, minimises pressure drop and maintenance. Choose between different communication interfaces for remote reading.

RCF-230CTD-EC

The latest model in our series of fan-coil controllers can be used to control a 0...10 V EC fan. It has 230 V AC supply voltage and two outputs for two thermal or one 3-position actuator, or a function for electric heaters. It can be easily integrated into systems thanks to the communication protocols Modbus, BACnet or EXOline and can be configured with a few simple clicks using the Regio tool© software.

RTAN

A new series of thermal actuators for control of valves in heating or cooling systems. The RTAN actuators have position indication and can be mounted directly onto our VTTV/VTTR/VTTB valves.

RTA(O)M

The thermal actuators in the RTA(O)M series are intended for control of valves in HVAC systems. They have a force of 100 and 125 N. RTA(O)M100... och RTA(O)M125... have a low power consumption, offer 100 % protection against leaky valves as well as noiseless and maintenance-free operation. The actuators are intended for mounting on valves in heating or cooling systems and can be used to control radiator circuits, solar heating systems, heating or cooling coils, underfloor heating etc. They are suitable for our pressure independent PCTV/PCMTV/PCTVS valves and for most valves on the market, thanks to a wide range of adapters.

Pressure independent control valves DN15...DN32

PCTV/PCMTV/PCTVS is a new series of 2-way valves with a built-in differential pressure regulator and flow limiter. The valves require no authority calculation and feature three functions in one; control valve, balance and constant flow limiter. The control is flexible and exact, and selecting the desired flow is easy thanks to the control knob. PCTV/PCMTV/PCTVS are intended for control of hot/cold water in facilities with fan-coil units, chilled beams and air handling units and are intended for use with Regin's RTA(O)M actuators.

EC controller

Regin's AL230 controllers are a new range of stand-alone controllers with integrated sensor. They complement our range of pre-programmed and freely programmable controllers and are ideal for simpler installations requiring, for instance, demand controlled ventilation. Four models are available for control of heating/cooling, temperature/CO_2, humidification/dehumidification or of an optional sensor.

1

MEET THE CHALLENGER

The Challenger!

A history of knowledge, experience and constant product development

Regin was established in the city of Gothenburg, Sweden, in 1947. Ever since, we have developed and marketed products and systems that create good levels of indoor comfort. Today, we offer one of the widest ranges of building automation in the market. You will also find that we have the knowledge, experience and resources to give you first-class support and guidance.

What makes Regin stand out the most is probably our undivided commitment and our motivation to do our best for our customers and partners. Many see us as the challenger in building automation. That stimulates us to work even harder.

- Swedish quality and energy-efficient solutions since 1947
- Wide range of products & constant development
- We do not carry out any installations, we offer a network of partners who compete under equal conditions
- Wide technical competence – from electromechanics to system development

The year 1947.
The foundation of Regin and launch of its first product – a humidistat.

The early 70s
Regin's first electric heating controllers.

The mid-80s
A new module-based controller system.

The beginning of the 2000s
The first controllers with complete Internet access.

2006.
Regio. *An entirely new concept for zone control. Awarded the IF Award in 2007.*

Commitment and motivation

Our goal is to make Regin your leading supplier of solutions contributing to improved energy consumption and a sustainable development.

Therefore, we all share the same values. Our mission is to always do our utmost to solve your problems. As a customer, you will therefore have constant access to our knowledgeable staff in product development, technical sales support, training, logistics etc., who will always be there for you.

Our guiding values

Listen
We always listen before we act and react

Being knowledgeable
We must be knowledgeable and good at what we do

Simplicity
It must be easy doing business with us

Commitment
We commit ourselves to what we do

2007.
Optigo. *The universal controller for all fundamental control functions.*

2008.
Regin launches a series of energy-saving valves that are 100 % tight

2013.Third generation Corrigo and EXOcompact. *Mobile control with CLOUDigo.*

2014.
Controller Builder. *Graphical programming without limitations.*

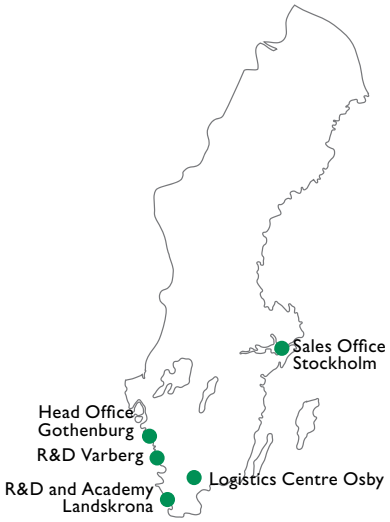
Global strength, strong local presence

Regin is a Swedish corporation with representation in more than 70 countries worldwide. The head office is located in Kållered (Gothenburg, Sweden). Our product development centres are located in Varberg, Landskrona, Gothenburg, Berlin and Bressanone.

Landskrona also houses a sales office and technical support, as well as our training centre Regin Academy. Our main warehouse, logistics unit and valve division are located in Osby.

Thanks to our global presence with strong local representation, we are well aware of market requirements as well as of how our products and systems function under the most varying conditions.

- Sales offices in Stockholm, Gothenburg, Aarhus, Paris, Berlin, Madrid, Pousada de Saramagos, Bressanone, Kiev, Singapore, Hong Kong, Tunis and Jakarta
- Reference installations located worldwide
- A global network of local distributors and integrators



Professional partners

Integrators

Regin does not perform any installations on our own. Instead, we offer a network of certified integrators who are responsible for planning, installation, commissioning and maintenance. The integrators are certified upon having completed training at Regin Academy. You can choose whichever integrator you wish to work with – they all compete under the exact same conditions.

Regin Gold Certified Integrators

- *Have mastered all of Regin's products and systems*
- *Carry RGCI certification issued by Regin Academy, having completed all of its courses.*
- *Have access to reference plants (for study visits).*
- *Have access to extensive technical support from Regin.*

Regin Certified Integrators

- *Have primarily mastered Regin's system products.*
- *Are RCI certified by the Regin Academy and have completed courses in Regin's systems.*
- *Can advance to RGCI – Gold Certified Integrator, by completing all courses.*

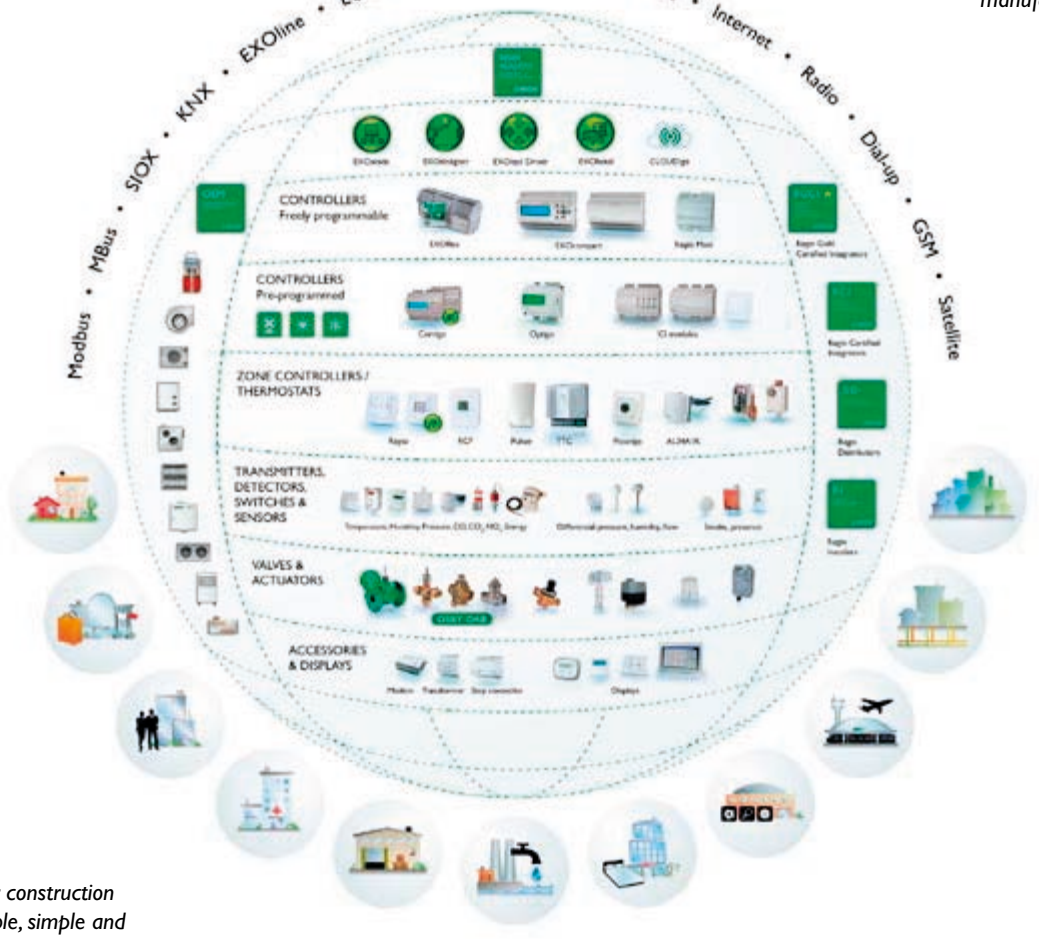
Distributors

Our products and systems are kept in stock by distributors in about 70 countries around the world. They represent Regin's basic range (not systems or system products) and are responsible for marketing the products locally to consultants, installation engineers, real estate companies, as well as to companies working in integration and system solutions.

Regin Systems offer total freedom

A complete range – from stand-alone products to building automation systems

Open systems, capable of integration with systems using other standards and products by other manufacturers



Modular construction for flexible, simple and cost-effective system expansion

Backwards compatibility

Regin's energy-efficient solutions can be found the world over

Regin's products and systems save energy and facilitate operation and maintenance in buildings in all parts of the world under the most variable conditions.

Tenants and anyone working or staying in the buildings always enjoy a comfortable indoor climate.

Lindholmen Science Park, Sweden

Mövenpick Hotel, Turkey

MAS University Hospital, Sweden

Aqua Mundo, the Netherlands

Pacific Place Mall, Indonesia

Guiyang stadium, China

Visit our website for more information, www.regincontrols.com

A comprehensive product range...

Controllers

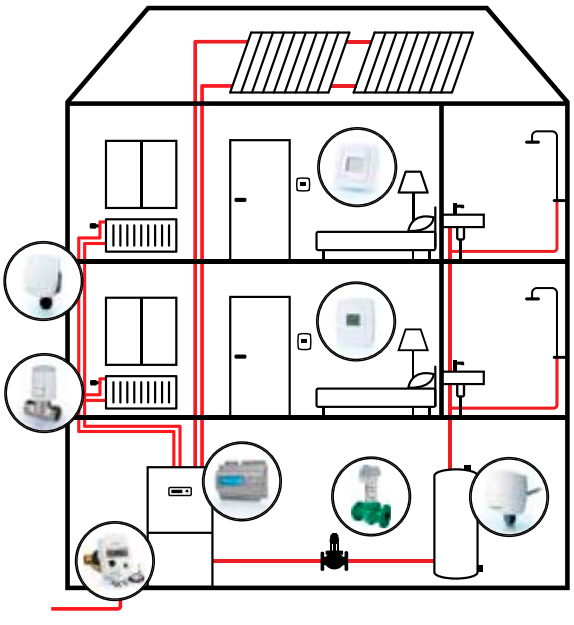
Room controllers

Electric heating controllers

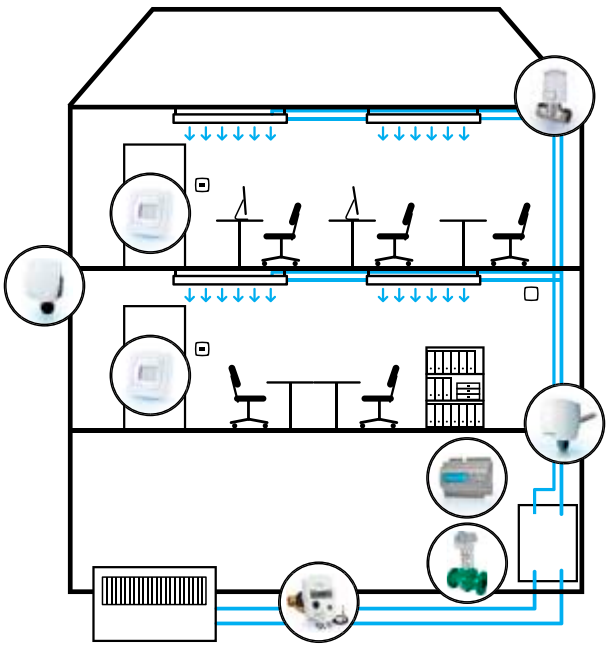
Thermostats

Sensors and switches

HEATING



COOLING



...for all HVAC applications

Detectors

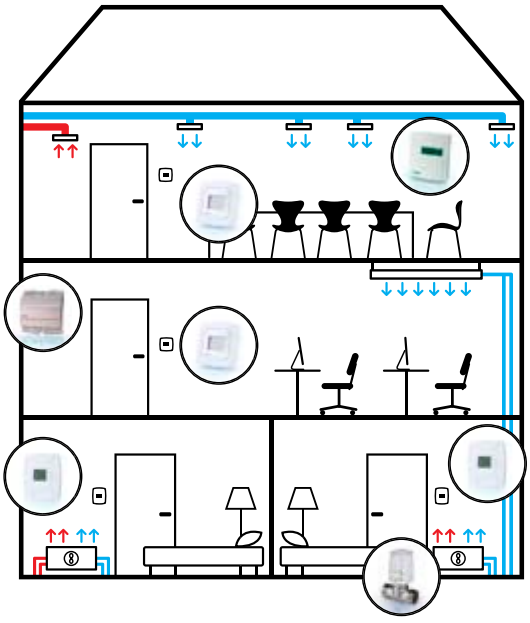
Valve actuators

Valves

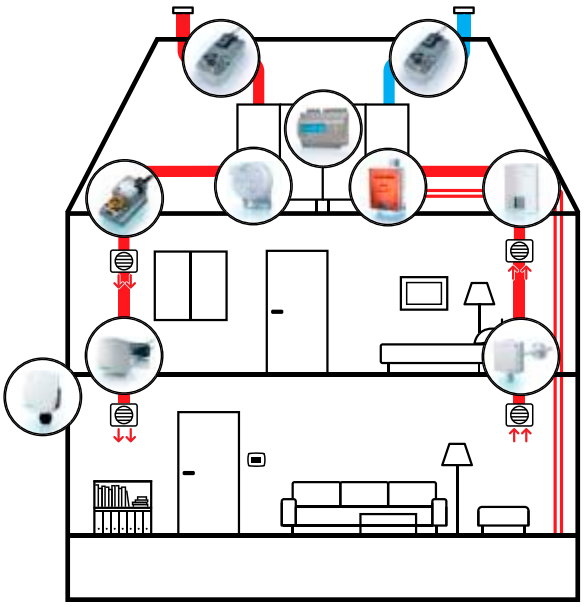
Damper actuators

Accessories and transformers

ZONE CONTROL



VENTILATION



Dynamic development Flexible manufacturing

Every year, Regin dedicates approx. 10 % of its annual turnover to research and development of new products and system solutions. Our goal is to find new, intelligent solutions to help save energy.

For instance, Regin's own valve centre in Osby has developed a new generation of valves with a sealing technology that makes them absolutely tight when closed.

As a leader in the field, Regin now offers several valve series with this sealing technology, which will successively encompass more valves.

Ready-Steady-Go makes the job easier

Ready-Steady-Go is another example of how our development process is geared towards simplifying installation, commissioning and daily use. The concept can be found in the Corrigo, Regio and Optigo controllers, as well as in our FRS district heating valves.

Quality and flexibility in manufacturing

Our products are manufactured by a group of selected partners, working with the absolute latest and most modern technology. Our task is to purchase materials and components, planning production, as well as a certain degree of assembly.

This arrangement gives us complete control of the entire chain of production from prototyping to manufacturing, ensuring a guaranteed high production quality. At the same time, it provides an extremely high flexibility and short lead times.

Helping OEM customers realise their ideas

Regin has developed products and systems for controlling and monitoring indoor climate since 1947. Together with our production resources, this competence spells an asset for the numerous customers entrusting our OEM department with helping them realise everything from product design to a finished product.

Since we have a long tradition in flow control, we also develop and produce valves and actuators for different OEM applications.

Our services:

- *Product design, construction*
- *Prototyping*
- *PCB assembly*
- *Injection moulding of casings*
- *Assembly*
- *Testing (e.g. climate tests)*
- *Application customisation*
- *Programming*
- *Customised packaging*
- *Manuals, instructions*

Examples of OEM applications:

- *Zone control*
- *Ventilation*
- *Heating/cooling*
- *Dehumidification/humidification*
- *Heat pumps*
- *District heating/cooling*
- *Circuit boards/PCB*

2

CONTROLLERS AND THERMOSTATS FOR DIN-RAIL MOUNTING

Corrigo – Versatile, easy to handle controllers...

Corrigo is a range of effective controllers which are easy to install and adjust according to your preferences. They can be used as stand-alone units or as part of a larger network.

Easy configuration

The controller is supplied with pre-programmed applications and its settings can be configured using the buttons and display, or via a PC using the E tool© software, downloadable free of charge from our web site.

24 V AC or 24 V DC

Corrigo can be used with both 24 V AC or 24 V DC power supply. Connecting Corrigo to a UPS ensures transmission of alarms and important data even if the main power supply fails.

Available in different versions

- With or without built-in display, an external display unit can also be connected.
- 8, 15 or 28 I/Os, with expansion options, offers freedom to control many different functions.
- Communication via RS485 (EXOline, Modbus, BACnet MS/TP), TCP/IP (EXOline, Modbus, BACnet IP) or LON.
- One, two or three communication ports.

BTL
BACnet®
M-Bus
Modbus
EXOline

...that can be gathered in one place using our intelligent cloud service

CLOUDigo – a cloud-based platform

In today's market, CLOUDigo is likely the easiest platform available for adding and managing controllers on-line without any programming being required. You will avoid typical problems like fire-walls, which often require outside help.

Gathers several units

CLOUDigo is the perfect solution for those with one or several Corrigos in the same building or spread out in different facilities. You will obtain a complete overview of all installations and will only have to remember a single address.

CLOUDigo handles everything for you!

Using CLOUDigo, the only thing required is the serial number on the side of the controller. When a unit is added, a process picture is automatically constructed based on the configuration entered into the controller.

- *Quick handling of controllers*
- *Only one single address to remember*
- *Easy access wherever you are*
- *No advanced IT skills required*
- *Stable and reliable*
- *Support for all mobile platforms (HTML5)*
- *Gathers several units*
- *Logged values*

Corrigo applications

Ventilation control

Control functions

1. *Supply air control*
2. *Outdoor temperature compensated supply air control*
3. *Cascaded room temperature control*
4. *Cascade connected extract air temperature control*
5. *Outdoor temperature dependent switching between room control and supply air control*
6. *Outdoor temperature dependent switching between extract air control and supply air control*
7. *Outdoor compensated room control*
8. *Outdoor compensated extract air control*

Additional temperature control functions

- *Support control heating/cooling*
- *Free cooling/heating*
- *Cooling recovery*
- *Enthalpy control*
- *External setpoint*

Temperature control of:

- *Water heating, electric heating*
- *Heat exchangers, mixing dampers*
- *Water cooling, DX cooling*

Air control of:

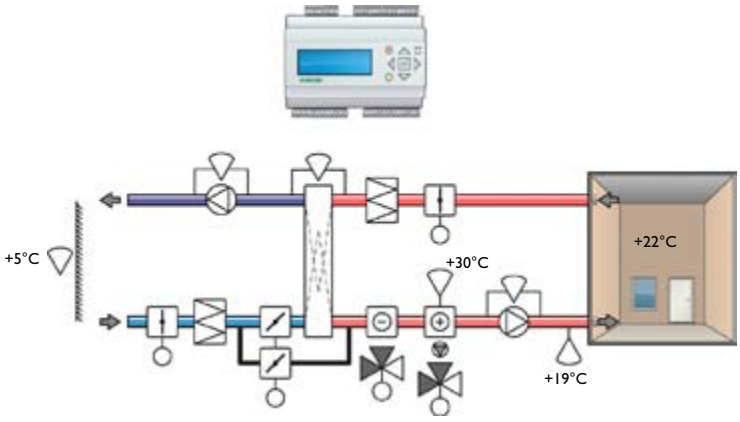
- *1-speed fan*
- *2-speed fan*

Frequency converters via:

- *Pressure control*
- *Air flow control*
- *Manual rotational speed control in percentages*
- *One external 0…10 V input signal*
- *Supply air pressure control with slave controlled extract air*
- *Pressure controlled supply air with flow controlled extract air for balanced ventilation*
- *Frequency control EAF with SAF slave*
- *Frequency control EAF with SAF flow control*

Additional control functions

- *Humidity control*
- *An extra control circuit for after-treatment*
- *Recirculation control*
- *Possible to expand with more inputs and outputs*
- *Control of VACON/Lenze/Omron/Emerson/LS/EBM/Danfoss FC 101/ ABB ACS/EC Blue frequency converters via Modbus communication.*
- *Pretreatment (type "Puit Canadien")*
- *Energy visualizer: Software calculating the air handling unit's energy consumption, enabling a reduced consumption of energy and examining whether an energy measure had the desired result. By connecting the signal to a supervisory logging system, it is possible to monitor energy consumption over time.*



Air handling unit

Heating, domestic hot water and boiler control

Heating circuits (up to 3 circuits)

- *One setpoint curve for each circuit*
- *Pump control with pump stop saves energy*
- *Frost protection*
- *Wind compensation*
- *Consideration to building inertia*
- *Night setback*
- *Power limitation*

Domestic hot water (up to 2 circuits)

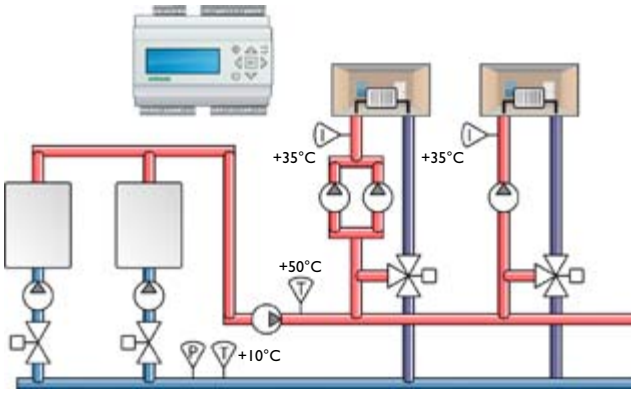
- *Pump control*
- *Daily overheating, preventing growth of Legionella*
- *Night setback*

Boiler control

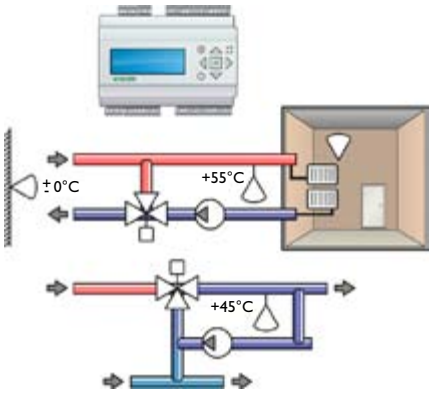
- *1-4 boilers, of which one boiler can be configured for analouge control (0...10 V)*
- *Modulating PI-control or thermostat control*
- *Setpoint settings: fixed, dependent on outdoor temperature or current heating requirements of the heating circuits*
- *Automatic switching between boilers if an alarm occurs*
- *Pump control with automatic pump exercise*
- *Limitation of return temperature to the boilers*

Other functions

- *Control of the storage tank pump*
- *Pressure control of a variable speed pump in order to maintain constant pressure in the system*
- *Cold and hot water monitoring via pulse and energy leakage alarms*
- *Digital timer channels for door locks, lighting etc.*
- *Possible to expand with more inputs and outputs*
- *Two port models can communicate with M-Bus meters*
- *New control circuit for district cooling with dew point control*
- *Control of bypass valve for district cooling*
- *Optimizer function*



Boiler control



Heating and domestic water control

Corrigo

Corrigo comes preloaded with applications for control of ventilation as well as heating (except for models with built-in M-Bus which can only be used for heating applications).

Corrigo ventilation

Corrigo running a ventilation application is intended for control of air handling units with temperature control, 1- or 2-speed operation or, alternatively, pressure or air flow control of supply air fan and extract air fan, humidity control as well as other common functions in ventilation.

Corrigo heating

Corrigo running a heating application is intended for control of heating substations in buildings. The controller supports control of up to 3 heating circuits and 2 DHW circuits. Corrigo heating also has built-in boiler control for a total of 4 boilers. It can also controll a cooling circuit with dew-point control.

Technical data	
Supply voltage	24 V AC ± 15 %, 50...60 Hz or 21...36 V DC
Power consumption	8 VA, 4 W (DC), model E...W-3: 12 VA, 6 W (DC)
Ambient temperature	0...50°C
Storage temperature	-40...+50°C
Ambient humidity	Max. 90 % RH
Protection class	IP20
Connection	Disconnectable terminal strips, 4 mm2
Memory backup	Built-in long life battery gives long backup time of all settings incl. real time
Display	Backlit LCD (blue), 4 rows of 20 characters
Mounting	DIN-rail or cabinet
Number of modules	8.5
Dimensions (WxHxD)	149 x 121 x 60 mm
Number of languages	22
Communication ports	
TCP/IP	EXOline TCP, Modbus TCP, BACnet/IP, CLOUDigo
RS485	EXOline, Modbus, BACnet MS/TP
M-Bus ports	M-Bus communication
Inputs	
Analogue inputs (AI)	For PT1000 sensors (accuracy ± 0.4°C) or 0...10 V DC (accuracy ± 0.15 % of full output signal). 12 bit resolution in the A/O conversion.
Digital inputs (DI)	For potential-free contacts
Outputs	
Analogue outputs (AO)	0...10 V DC, 1 mA, short-circuit proof
Digital outputs (DO)	Mosfet outputs, 24 V AC or DC, 2 A continuous. Max. 8 A in total.

Controller with display

Article	AI	DI	UI	AO	DO	RS485 ports
E81D-3	2	3	-	1	2	1
E151D-3	4	4	-	3	4	1
E281D-3	4	8	4	5	7	1

Controller without display

Article	AI	DI	UI	AO	DO	RS485 ports
E81-3	2	3	-	1	2	1
E151-3	4	4	-	3	4	1
E281-3	4	8	4	5	7	1

Controller with built-in web server and TCP/IP communication, with display

Article	AI	DI	UI	AO	DO	RS485 ports	TCP/IP ports
E151DW-3	4	4	-	3	4	-	1
E152DW-3	4	4	-	3	4	1	1
E281DW-3	4	8	4	5	7	-	1
E282DW-3	4	8	4	5	7	1	1
E283DW-3	4	8	4	5	7	2	1

Controller with built-in web server and TCP/IP communication, without display

Article	AI	DI	UI	AO	DO	RS485 ports	TCP/IP ports
E151W-3	4	4	-	3	4	-	1
E152W-3	4	4	-	3	4	1	1
E281W-3	4	8	4	5	7	-	1
E282W-3	4	8	4	5	7	1	1
E283W-3	4	8	4	5	7	2	1

Controller with built-in M-Bus, web server and TCP/IP communication, with display

Article	AI	DI	UI	AO	DO	RS485 ports	TCP/IP ports	M-Bus ports
E152DWM-3	4	4	-	3	4	-	1	1
E282DWM-3	4	8	4	5	7	-	1	1
E283DWM-3	4	8	4	5	7	1	1	1

These models can only be used for heating applications.

Controller with LON communication, with display

Article	Inputs	Outputs
E15D-S-LON	8	7
E28D-S-LON	16	12

Technical data for these models differ from the rest, please contact Regin for more information.

Controller with LON communication, without display

Article	Inputs	Outputs
E15-S-LON	8	7
E28-S-LON	16	12

Technical data for these models differ from the rest, please contact Regin for more information.

Accessories for Corrigo

External display units for Corrigo

E3-DSP

ED9100

ED9200

Article	Cable length	Protection class	Compatible with
E3-DSP	Max. 100 m	IP30	Corrigo E...-3
ED9100-3	3 m	IP41	Corrigo E...-S
ED9100-10	10 m	IP41	Corrigo E...-S
ED9100IP65-3	3 m	IP65	Corrigo E...-S
ED9200	Max. 10 m (Corrigo E...-S), max. 100 m (Corrigo E...-3)	IP41	Corrigo E...-S/-3
ED9200IP65	Max. 10 m (Corrigo E...-S), max. 100 m (Corrigo E...-3)	IP65	Corrigo E...-S/-3

Accessories

Article	Description
EDSP-K3	3 m cable for connecting E3-DSP or ED9200 to a Corrigo E...-3
EDSP-K10	10 m cable for connecting E3-DSP or ED9200 to a Corrigo E...-3

Graphic touch display

For operation of a Corrigo ventilation with two ports. Intended for supervision and control of an air handling system.

Technical data	
Protection class	IP30
Power supply	24 V DC via terminal 4 (+C) and G0 on the Corrigo
Power consumption	50 mA
Connection cable	Twisted pair, 0.25 mm^2
Display	TFT-LCD (resistive), backlit LED
Language	Swedish or English, set automatically depending on the language used in the Corrigo
Aspect ratio	4:3
Resolution	320 x 240
Dimensions (WxHxD)	120 x 90 x 27 mm
Mounting	On wall or device box
Communication	EXOline

Article	Description
ED-TCV	External graphic touch display

ED-RU

ED-RU-O

ED-RU-F

ED-RU-FO

ED-RU-DO

ED-RU-DFO

ED-RU-DOS

ED-RU-H

External room unit

The ED-RU units are primarily intended for control of an air handling unit via a Corrigo controller running a ventilation application. They can be used to change fan speed, set temperature, extended running, etc. at a distance of up to 300 m. Their stylish design is suitable for all environments.

The units have a built-in temperature sensor. An external PT1000-sensor can also be connected.

Technical data	
Supply voltage	24 V AC
Power consumption	25 mA
Protection class	IP20
Ambient humidity	Max. 90 % RH
Storage temperature	-20…+70°C
Mounting	On wall or device box
Dimensions (WxHxD)	95 x 95 x 28 mm
Communication	EXOline

Article	Occupancy button	3-step fan control	Setpoint knob	Multi-function button	Hidden setpoint	Display
ED-RU	-	-	X	-	-	-
ED-RU-O	X	-	X	-	-	-
ED-RU-F	-	X	X	-	-	-
ED-RU-FO	X	X	X	-	-	-
ED-RU-DO	X	-	-	-	-	X
ED-RU-DFO	X	X	-	-	-	X
ED-RU-DOS	X	-	-	X	-	X
ED-RU-H	-	-	-	-	X	-

Software for configuration of Corrigo

E tool© is a PC-based configuration software with graphical user interface. The program provides an excellent overview of the settings of the Corrigo. Using E tool©, all settings can be made on the computer and downloaded into the controller. An infinite number of configurations can be stored in the computer memory for later use.

E tool© can be downloaded free of charge from our website.

Article	Description
E-TOOL	PC software for fast and easy configuration, can be downloaded free of charge from www.regincontrols.com.

Connection cables and plug-in terminals

Article	Description
E-CABLE-RS232	Cable for RS232 connection
E-CABLE2-USB	Cable for USB connection
E-CABLE-TCP/IP	Cable for TCP/IP connection directly to a PC
PLT-E8	Set of plug-in terminals for E8 models
PLT-E15	Set of plug-in terminals for E15 models
PLT-E28	Set of plug-in terminals for E28 models

CLOUDigo – The easiest way to complete control of your installations

For the user who wants complete control of the buildings' indoor climate at all times, CLOUDigo is the tool of choice. Our web-based platform can always be reached both by you and your colleagues regardless of your physical location.

Complete control – anywhere and at any time

READY STEADY GO

Follow your installations in real time with just a few simple clicks. Navigate between the settings and values in connected controllers. CLOUDigo offers excellent overview of all your controllers. All settings made in CLOUDigo take full effect in the controllers instantly. This makes CLOUDigo the natural choice for individuals working with multiple installations or installations distributed over a wide geographical area.

Short facts about CLOUDigo

- Gain control of the indoor climate of your buildings – anywhere and at any time.
- You get the ability to analyse data and act instantly. Quickly, easily and effectively.
- CLOUDigo handles historical data for complete control and overview.
- Work using any screen while still retaining full functionality.
- Getting started is easy. The installation of connected controllers is extremely easy and developed in accordance with our "Ready Steady Go" concept.
- Work using a platform that permits you to grow. You handle your installations – CLOUDigo handles the rest.

Article	Description
CLO-LIC	Cloud service for controller access

3G modem for CLOUDigo

CLO-3G is a package consisting of a 3G modem with a factory-installed SIM card, ready for immediate connection to CLOUDigo. The modem functions as a gateway between a TCP/IP connected Corrigo and CLOUDigo. It has a built-in DHCP function that handles connecting to an external unit.

To see if your country is eligible for the use of this product, please refer to the document "List of supported countries CLO-3G" on the CLO-3G page on www.regincontrols.com.

Technical data	
Supply voltage	24 V AC/DC ±10 %, 50...60 Hz, 200 mA
Connection	Ethernet (RJ45, crossover network cable), antenna (SMA-F contact)
Communication	LAN (TCP/IP, DHCP), mobile network (3G or GSM/GPRS)
Ambient temperature	-30...+60°C

Article	Description
CLO-3G	3G modem with factory-installed SIM card for connecting to CLOUDigo

Accessories

Article	Description
MODEM3G-ANT	External antenna for MODEM3G with 3.6 m cable
E-CABLE-TCP/IP	Cable for TCP/IP connection directly to a PC

Cabinets for Corrigo

Turn-key ready cabinets developed for the Corrigo series. All inputs and outputs are pre-connected to the terminals. The CAB-STD... units are delivered with trafo, switches, relays (CAB-STD2 and CAB-STD3, see the table below) and a wiring schematic for the cabinet.

Article	Description	Dimensions (HxW)	Protection class	Relays
CAB-STD1	Cabinet intended for Corrigo E15...D... models	483 x 403 mm	IP65	-
CAB-STD2	Cabinet intended for Corrigo E15...D... models	483 x 403 mm	IP65	2
CAB-STD3	Cabinet intended for Corrigo E28...D... models	483 x 403 mm	IP65	3

Corrigo must be ordered separately.

Corrigo demo case

Complete case with everything you need to test Corrigo. Simply plug the controller into the wall socket using the included transformer in order to make simulations, trigger alarms, view indications, etc.

Technical data	
Supply voltage	24 V AC
Dimensions	28 x 38 x 9 cm (HxLxW)

Article	Description
E-CASE-E283DW-3-24	Demo case, contains a Corrigo E283DW-3 unit. Transformer included.

Front mounting kit for Corrigo and Optigo

Mounting kit for easier mounting of Corrigo and Optigo in a control panel or cabinet door.

Technical data	
Protection class	IP40

Article	Description
FMCE	Front mounting kit, room for one Corrigo unit
FMCO	Front mounting kit, room for one Optigo unit

Plug-in terminal blocks for Corrigo and Optigo

A set of angled plug-in terminal blocks for simple wiring of Corrigo and Optigo when using the front mounting kits FMCE and FMCO. The terminal blocks enable easy access to the clamping screws even after cabinet mounting.

Article	Description
PLTCE	Plug-in terminal blocks for Optigo/Corrigo

Battery

Article	Description
BATTERY-4289	Battery for EP1011, Corrigo

Optigo – The compact, versatile controller...

There is no reason to "over-invest" in a controller with more functions than you need.
A basic stand-alone controller is usually enough to control heating, cooling, air or humidity in a building.

Optigo, our range of electronic controllers, is an excellent choice in this respect. It is a reliable and cost-efficient controller which solves all your basic control needs.

Optigo is based on our experiences from the popular Aqualine range, which has been used in thousands of installations and units.

...which is handled using just a knob

Optigo has a knob with an encoder (1) which makes the menu system very easy to use. You can read and set values shown in the back-lit display (2). A value is approved by pressing the knob.

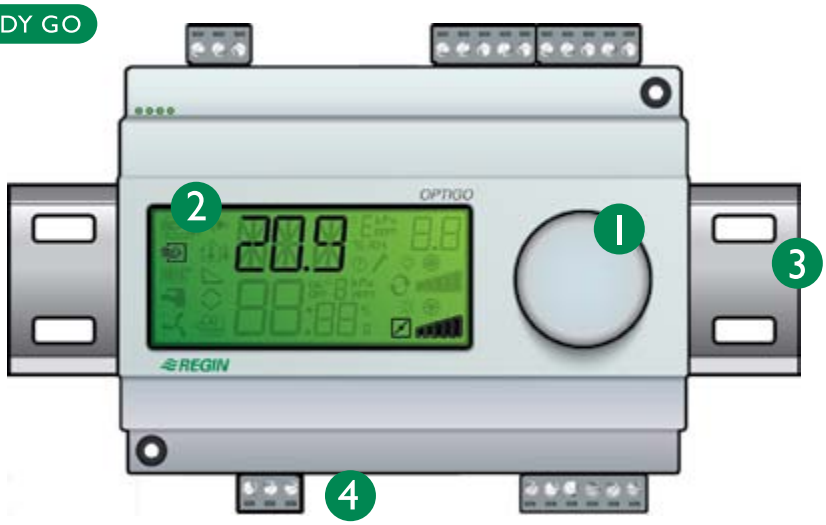
Timer

The timer handles for example night set-back, start or stop of fans during weekdays or during a day.

Quick and simple installation

Optigo is suitable for DIN-rail (3) or cabinet mounting. Since the terminals (4) are detachable, all connections can be made before Optigo is installed.
A mounting kit that makes the controller easier to front mount in a cabinet is available as an accessory.

READY STEADY GO



Optigo OP5U

Optigo OP10

Optigo OP10-230

Optigo OP5U

Supply voltage:

24 V

Control alternatives:

- Temperature control
- CO_2 control
- General control 0...100 %
- Pressure control
- Outdoor compensated pressure control

Functions:

- Damper min./max. limitation
- Three temperature ranges: -20...+40°C, 20...100°C, 60...140°C
- Settable P and I values
- Selectable output signals for heating and/or cooling.
- Adjustable setting ranges for different sensors
- Change-over function
- External setpoint

Optigo OP10

Supply voltage:

24 V

Control alternatives:

- Supply air control
- Supply air control with outdoor compensation
- Exhaust air/room control with cascade function
- Radiator control with outdoor compensation
- Domestic hot water control

Functions:

Air handling

- Minimum limit for dampers
- Start and stop of fans
- Frost protection regulation with heat retention
- Input for overheating protection from a heater
- 3-point or 0…10V control
- Selectable output signals for heating and/or cooling with/without damper control
- Alarm Frost protection/Overheating/Sensor error
- Run indication from fans
- Built-in week-scheduler
- Input for extended running
- External setpoint

Radiator systems

- Night set-back of the setpoint for radiator control
- Pump stop and pump exercise
- Outdoor compensated supply temperature control with settable additional compensation of the curve at 0°C outdoor temperature
- External setpoint

Domestic hot water systems

- PID control
- Periodical overheating of domestic hot water
  Prevents growth of Legionella bacteria

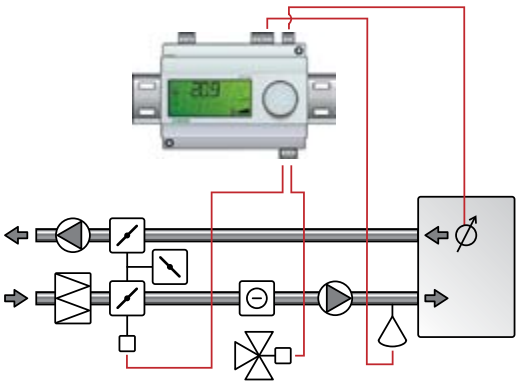
Optigo OP10-230

Supply voltage:

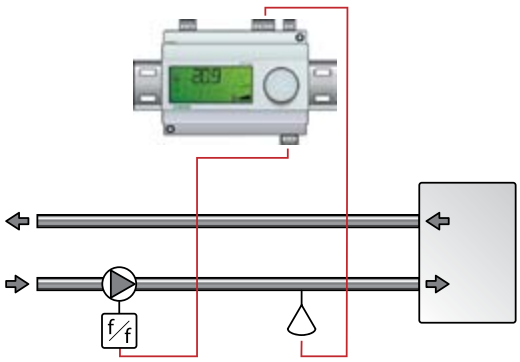
230 V

Applications Optigo OP5U

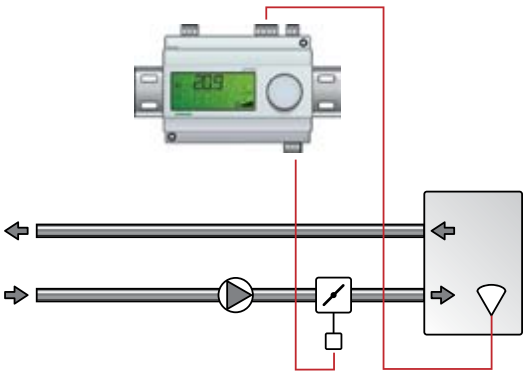
Temperature control



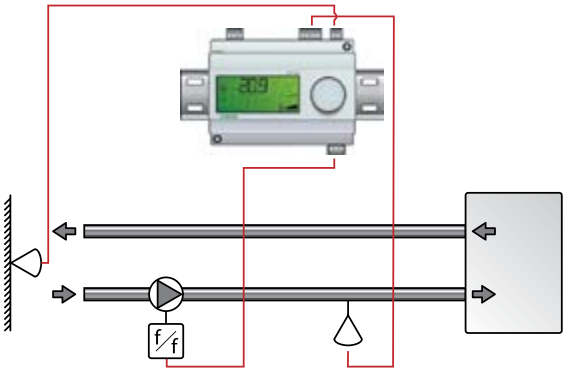
Pressure control



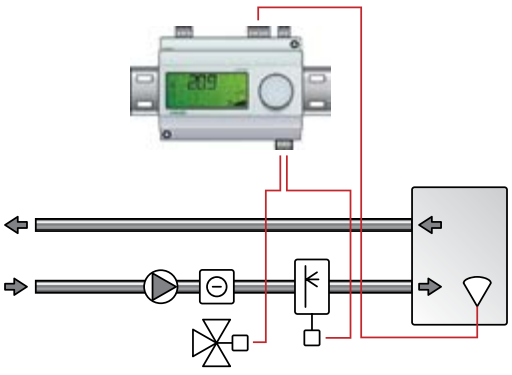
CO_2 control



Pressure control with outdoor compensation

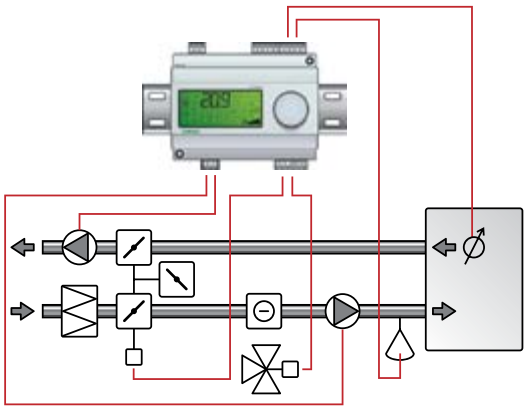


General control (humidity, CO, etc.)

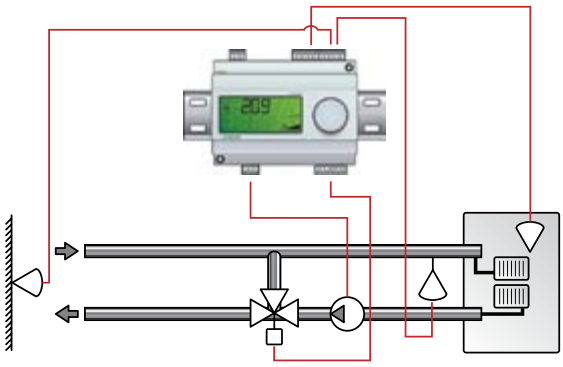


Applications Optigo OP10

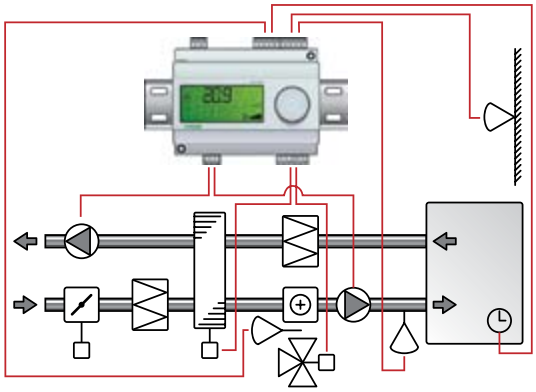
Supply air temperature control



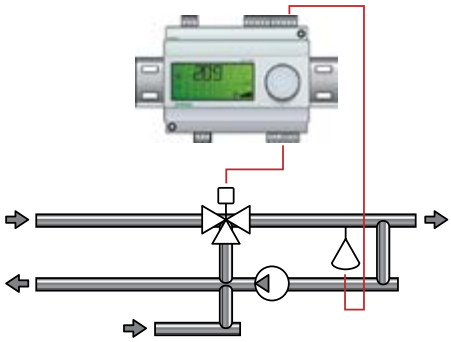
Radiator circuit control with outdoor curve



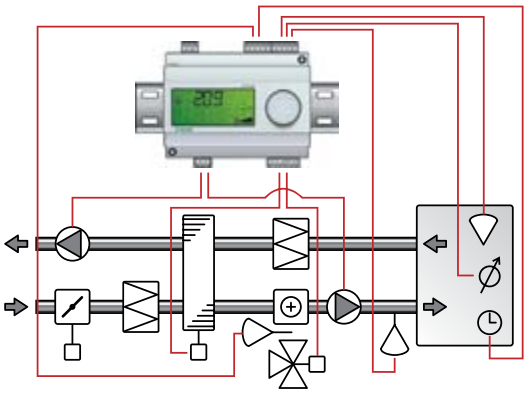
Supply air temperature control with outdoor compensation



Domestic hot water control



Cascade connected, room temperature influenced supply air control



Optigo – Pre-programmed, stand-alone controllers

READY STEADY GO

The controller for simple applications

Optigo is a series of compact, economic and versatile stand-alone controllers. They are pre-programmed and intended for smaller applications. The controllers are extremely easy to install, commission and control.

Technical data	
Supply voltage	24 V AC ±15 % / OP10-230 : 230 V AC
Power consumption	4 VA
Ambient temperature	0...50°C
Storage temperature	-40…+50°C
Ambient humidity	Max. 90 % RH
Mounting	DIN-rail
Number of modules	7
Protection class	IP20
Display	Backlit LCD, numeric/graphic, language-independent symbols
Dimensions (WxHxD)	123 x 123 x 60 mm
Clock	Week-based 24-hour clock (OP10 only)
Inputs	
Analogue inputs (AI)	PT1000
Digital inputs (DI)	Closing potential-free contact
Universal inputs (UI)	0...10 V DC or digital
Setpoint input (SPI)	For an external PT1000 setpoint device, e.g. TG-R4/PT1000 or TBI-PT1000
Outputs	
Analogue outputs (AO)	0...10 V DC, short-circuit protected
Digital outputs (DO)	OP10 and OP10-230 only. Triac 24 V AC, 0.5 A (3-point control or alarm output) and one change-over relay 230 V AC, 5 A (fan start).

Inputs/Outputs (I/Os)

Article	AI	DI	UI	AO	DO	Total number of I/Os
OP5U	1	1	1	2	-	5
OP10	2	2	1	2	3	10
OP10-230	2	2	1	2	3	10

Article	Supply voltage	Number of I/Os
OP5U	24 V AC ±15 %	5
OP10	24 V AC ±15 %	10
OP10-230	230 V AC	10

Front mounting kit for Corrigo and Optigo

Mounting kit for easier mounting of Corrigo and Optigo in a control panel or cabinet door.

Technical data	
Protection class	IP40

Article	Description
FMCE	Front mounting kit, room for one Corrigo unit
FMCO	Front mounting kit, room for one Optigo unit

Plug-in terminal blocks for Corrigo and Optigo

A set of angled plug-in terminal blocks for simple wiring of Corrigo and Optigo when using the front mounting kits FMCE and FMCO. The terminal blocks enable easy access to the clamping screws even after cabinet mounting.

Article	Description
PLTCE	Plug-in terminal blocks for Optigo/Corrigo

Thermostats for DIN-rail mounting

Thermostat, 1-stage, DIN-rail mounting

Electronic thermostat for heating or cooling. Adjustable night setback via an external clock. Multiple thermostats can be connected to the same sensor.

Technical data	
Outputs	One, 16 A, 250 V AC, closing relay
Setpoint	0...30°C
Hysteresis	0...10 K
Night setback	0...10 K
Sensor inputs	One Regin NTC sensor
Mounting	DIN-rail
Number of modules	3
Protection class	IP20
Dimensions (WxHxD)	53 x 85 x 74 mm

Article	Supply voltage
TM1N/D	230 V AC ±10 %, 3 VA
TM1N-24/D	24 V AC ±10 %, 3 VA

Thermostat, 2-stage, DIN-rail mounting

Thermostat with two relay outputs and individually settable steps for heating or cooling function. Sequential or binary function.

Technical data	
Supply voltage	24 V AC, 2 VA
Outputs	Two, 10 A, 250 V AC, closing relays
Setpoint	0...30°C
Hysteresis	0.5...5 K
Step differential	0...5 K
Sensor inputs	One Regin NTC sensor
Mounting	DIN-rail
Number of modules	3
Protection class	IP20
Dimensions (WxHxD)	53 x 85 x 74 mm

Article	Description
TM2-24/D	Electronic 2-stage thermostat

Scale for other temperature ranges

Alternative setpoint scale for the TM1 and TM2 thermostats, when using sensors with other temperature ranges.

Article	Description	Temperature range
SKALA-1228	Scale for TM1N/D, TM1N-24/D and TM2-24/D	20...50°C

Duct controllers

Duct controller, one 0...10 V DC output

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. Can be used to control either heating or cooling. P- or PI-control optional.

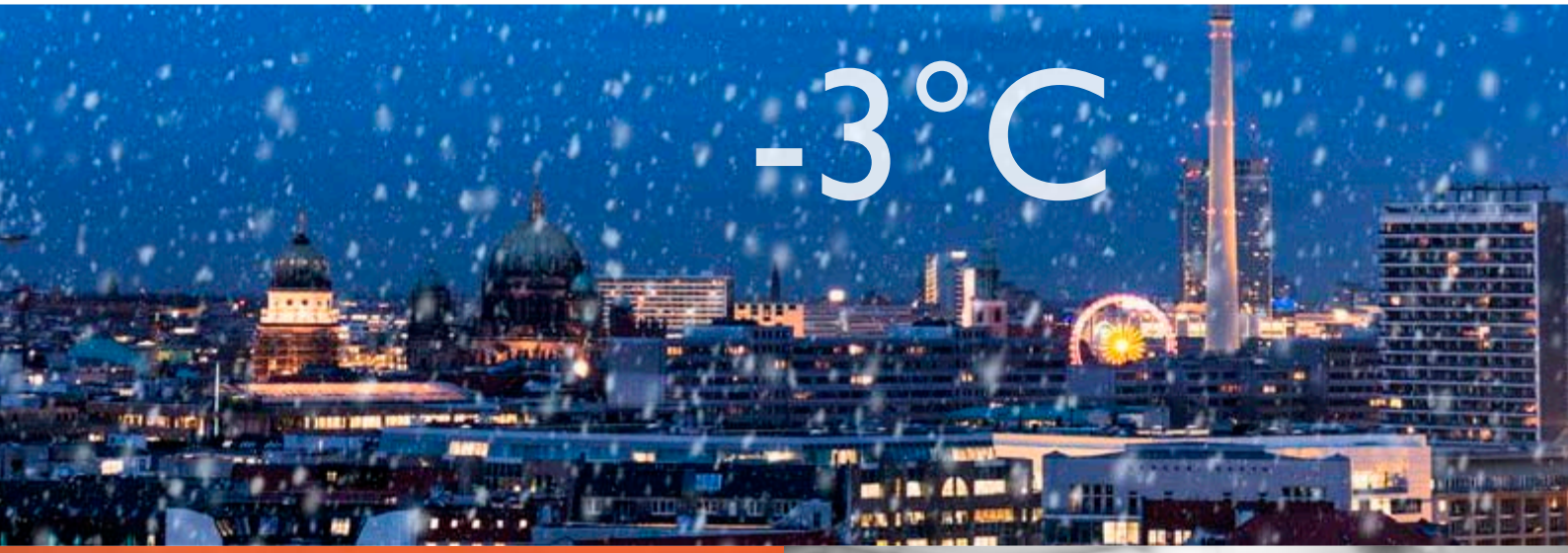
AL24A1K has an input for change-over between heating and cooling. The change-over function can be activated by means of an external closing contact or a sensor mounted on the supply-water side of the heating/cooling unit.

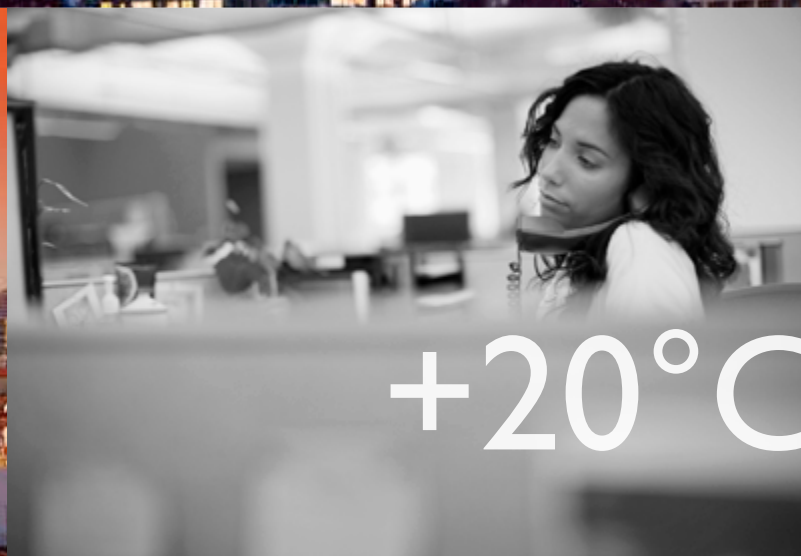
Technical data	
Supply voltage	24 V AC, 2 VA
Output	One, 0...10 V DC
Setpoint	0...30°C
P-band	0.5...50 K
I-time	2 min/20 min, selectable
Change-over	Input for closing contact or sensor (0...30°C)
Mounting	Duct
Protection class	IP65

Article	Description
AL24A1K	Duct controller, one 0...10 V DC output

3

ROOM CONTROLLERS





Flexible control with Regio

Regio is a range of room controllers for heating, ventilation, air conditioning and corresponding functions.

Optimal flexibility

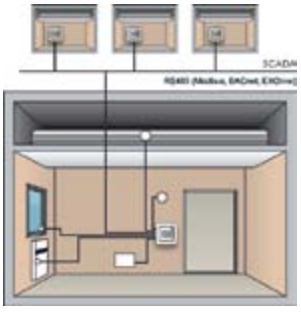
Regio covers every need – from control of heating, cooling and ventilation to functions such as lighting, humidity, CO_2 monitoring and blinds. Available in three different series, Regio also offers full system level flexibility. Regio enables you to create anything from a stand-alone system for managing the functions in a single room to large integrated SCADA systems.

Regio also offers web and Internet solutions, giving every employee individual control of the climate in his or her room using a PC connected to the office network.

Regio is the ultimate solution in offices, schools, hotels, as well as in all buildings where optimal comfort and a low energy consumption is required without making costly investments.

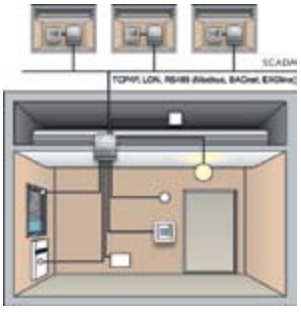
Regio Mini
The simple solution for stand-alone

Regio Midi
A complete solution with built-in communication



Regio Maxi
Freely programmable with communication and TCP-port

PC with Regio tool©



Stylish design

Regio has a modern design and a subtle elegance that enhances many indoor environments.

Applications

- Chilled ceilings, chilled beams and radiators
- Fan-coil systems
- VAV systems
- Control and monitoring of room temperature, air control and humidity, as well as control of lighting and blinds.

Key features

- Stand-alone or integrated in a web-based system
- Heating/cooling or both
- Communication via RS485 (Modbus, BACnet or EXOline), TCP/IP or LON
- Quick and easy configuration using the software Regio tool©
- Comprehensive program of supplementary products

In chapter 13, "Application examples & control theory", you will find application examples showing some of the possibilities offered by Regio.

READY STEADY GO

Regio has been developed in accordance to our Ready-Steady-Go concept, simplifying every step from installation to management.

BACnet® EXOline Modbus LonMark® Partner

Regio Midi and Maxi are configured using Regio tool©, downloadable free of charge from www.regincontrols.com.

Regio – The ultimate zone control system

Regio Maxi – Freely programmable/pre-programmed zone controllers

Regio Maxi consists of RCP controllers prepared for quick connection of the RU room units. The controllers are compatible with other Regin products and can easily be integrated into systems with Corrigo.

The standard RCP model includes an application program for climate control in public buildings. It can also be used as a freely programmable room controller. Programming takes place in EXOdesigner, the same environment used for all other Regin system controllers.

The RCP controllers can be used in systems with communication, e.g. EXOline (over RS485 or TCP/IP), Modbus (RS485) or LON. They are installed in a ceiling void, on a junction box plate or on a DIN-rail.

Regio tool©

The pre-loaded room application is configured in Regio tool©, downloadable free of charge from www.regincontrols.com.

Product overview, Regio Maxi

RCP100 and RCP200 are the basic models in the range. The other models have various functions, indicated by the letters in the product name:

F = Fan control (3-speed), T = TCP/IP communication, L = LON communication

Technical data	
Supply voltage	230 V AC ±10 %, 50...60 Hz
Power consumption	2 VA
Ambient humidity	Max. 95 % RH
Storage temperature	-40...+50°C
Mounting	Ceiling, on a junction box plate, or DIN-rail
Number of modules	8.6
Protection class	IP30 (IP20 cabinet mounting)
Inputs	
Analogue inputs (AI)	PT1000 (0...10 V DC)
Condensation input (CI)	Input for Regin's condensation detector KG-A/1
Digital inputs (DI)	Potential-free closing contact
Outputs	
Analogue outputs (AO)	0...10 V DC
Digital outputs (DO)	Triac outputs: 24 V AC, 0.5 A / Relay outputs: 230 V AC, 4 A
Dimensions (WxHxD)	150 x 180 x 60 mm

Inputs/outputs (I/Os)

Article	AI	DI	CI	AO	DO, 230 V AC relay for fan control	DO, 24 V AC	Total number of I/Os
RCP100 / RCP100T / RCP100L	2	3	1	-	-	5	11
RCP100F / RCP100FT / RCP100FL	2	3	1	-	3	5	14
RCP200 / RCP200T / RCP200L	2	3	1	2	-	2	10
RCP200F / RCP200FT / RCP200FL	2	3	1	2	3	2	13

Models with communication via RS485 (Modbus or EXOline)

Article	3-step fan control	Output signal	Can be combined with
RCP100	-	3-point or on/off	RU, RU-O, RU-DO, RU-DOS
RCP100F	X	3-point or on/off	RU-F, RU-FO, RU-DFO, RU-DOS
RCP200	-	0...10 V DC	RU, RU-O, RU-DO, RU-DOS
RCP200F	X	0...10 V DC	RU-F, RU-FO, RU-DFO, RU-DOS

Models with TCP/IP communication

Article	3-step fan control	Output signal	Can be combined with
RCP100T	-	3-point or on/off	RU, RU-O, RU-DO, RU-DOS
RCP100FT	X	3-point or on/off	RU-F, RU-FO, RU-DFO, RU-DOS
RCP200T	-	0...10 V DC	RU, RU-O, RU-DO, RU-DOS
RCP200FT	X	0...10 V DC	RU-F, RU-FO, RU-DFO, RU-DOS

Models with LON communication

Article	3-step fan control	Output signal	Can be combined with
RCP100L	-	3-point or on/off	RU, RU-O, RU-DO, RU-DOS
RCP100FL	X	3-point or on/off	RU-F, RU-FO, RU-DFO, RU-DOS
RCP200L	-	0...10 V DC	RU, RU-O, RU-DO, RU-DOS
RCP200FL	X	0...10 V DC	RU-F, RU-FO, RU-DFO, RU-DOS

By connecting RCP to a PC with Regio tool©, it is possible to control the conditions in a room.

Room units for the RCP controllers

There are seven different room units (RU) in the Regio Maxi range, with or without display. They are intended to be combined with the freely programmable RCP controllers and are installed directly on the wall or on a wall socket.

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

D = Display, F = Fan speed control button, O = Occupancy button, S = Multifunction button

RU

RU-F

RU-O

RU-DO

RU-FO

RU-DFO

RU-DOS

Technical data	
Power supply	From RCP unit
Ambient humidity	Max. 90 % RH
Ambient temperature	0...50°C
Storage temperature	-20...+70°C
Mounting	Wall
Protection class	IP20
Display	Backlit, LCD

Article	Occupancy button	3-step fan control	Setpoint knob	CO_2, blinds, lighting, humidity	Display
RU	-	-	X	-	-
RU-F	-	X	X	-	-
RU-O	X	-	X	-	-
RU-DO	X	-	-	-	X
RU-FO	X	X	X	-	-
RU-DFO	X	X	-	-	X
RU-DOS	X	X	-	X	X

Regio Maxi accessories

Article	Description
RU-CBL3	Cable for Regio Maxi, between RU and RCP, cable length 3 m
RU-CBL10	Cable for Regio Maxi, between RU and RCP, cable length 10 m
RCP-CONN:10	A set of 10 connector plates for Regio Maxi RCP
RCP-CASE	Regio Maxi RCP demo kit

Regio Midi – Pre-programmed room controllers with communication

Regio Midi are controllers with a built-in sensor and an RS485 communication port. Controllers in different rooms and zones 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©, downloadable free of charge from www.regincontrols.com.

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 button, H = Hidden setpoint, O = Occupancy button, T = 3-point output, C (at the end) = CO_2 input, 3 = Three universal outputs

RC-C3, RC-CT

RC-C3H, RC-CTH

RC-C3O, RC-CTO

RC-C3DOC, RC-CDTO

RC-CF

RC-CFO

RC-CDFO

Technical data	
Supply voltage	18...30 V AC, 50...60 Hz
Power consumption	2.5 VA
Ambient temperature	0...50°C
Storage temperature	-20…+70°C
Ambient humidity	Max. 90 % RH
Communication	RS485 (EXOline or Modbus with automatic detection/change-over, or BACnet)
Modbus	8 bits, 1 or 2 stop bits. Odd, even (FS) or no parity.
Communication speed	9600, 19200, 38400 bps (EXOline, Modbus and BACnet) or 76800 bps (BACnet only)
Built-in temperature sensor	0...50°C NTC linearised 15 kΩ
Accuracy	±0.5°C at 15...30°C
Mounting	Wall
Protection class	IP20
Inputs	
Analogue inputs (AI)	PT1000, 0...50°C, 0...10 V (CO_2)
Condensation input (CI)	Input for Regin's condensation detector KG-A/1
Digital inputs (DI)	Closing potential-free contact
Universal inputs (UI)	Analogue input (AI), PT1000 sensor, 0...100°C or digital input (DI)
Outputs	
Digital outputs (DO)	24 V AC, max. 0.5 A
Universal outputs (UO)	Digital output (DO) 24 V AC, max. 2.0 A or analogue output (AO), 0...10 V DC, max. 5 mA
+C power output for DI only	24 V DC, max. 10 mA, short circuit-protected

EXOline Modbus BACnet

Inputs/outputs (I/Os)

Article	AI	DI	UI	Display	UO	Total number of I/Os
RC-C3	1	2	1	-	3	7
RC-C3H	1	2	1	-	3	7
RC-C3O	1	2	1	-	3	7
RC-C3DOC	2	2	-	X	3	7
RC-CF	1	2	1	-	2	10
RC-CFO	1	2	1	-	2	10
RC-CDFO	1	2	1	X	2	10
RC-C3DFOC	2	2	-	X	3	7
RC-CT	1	2	1	-	-	9
RC-CTH	1	2	1	-	-	9
RC-CTO	1	2	1	-	-	9
RC-CDTO	1	2	1	X	-	9

Model overview

Article	Occupancy button / Forced ventilation	3-step fan control	EC fan control	Setpoint knob	Hidden setpoint	Output	3 universal outputs	Display
RC-C3	-	-	X	X	-	0...10 V DC or on/off	X	-
RC-C3H	-	-	X	-	X	0...10 V DC or on/off	X	-
RC-C3O	X	-	X	X	-	0...10 V DC or on/off	X	-
RC-C3DOC	X	-	X	-	-	0...10 V DC or on/off	X	X
RC-CF	-	X	-	X	-	0...10 V DC or on/off	-	-
RC-CFO	X	X	-	X	-	0...10 V DC or on/off	-	-
RC-CDFO	X	X	-	-	-	0...10 V DC or on/off	-	X
RC-C3DFOC	X	X	X	-	-	0...10 V DC or on/off	X	X
RC-CT	-	-	-	X	-	3-point	-	-
RC-CTH	-	-	-	-	X	3-point	-	-
RC-CTO	X	-	-	X	-	3-point	-	-
RC-CDTO	X	-	-	-	-	3-point	-	X

RC-CT, RC-CTH and RC-CTO are non-stock items.

Regio Mini – Pre-programmed room controllers

RC-H

RC, RC-T

RC-O,
RC-TO

RC-DO,
RC-DTO

RC-F

RC-FO

RC-DFO

Stand-alone controllers for control of heating and cooling in a single zone or room

The Regio Mini controllers are pre-programmed and can be configured for a specific application via the display or dipswitches (in most cases, though, the default settings can be applied). The controllers have a built-in temperature sensor. Alternatively, an external temperature sensor can be connected.

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

Technical data	
Supply voltage	18...30 V AC, 50...60 Hz
Power consumption	2.5 VA
Ambient 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 class	IP20
Inputs	
Analogue inputs (AI)	PT1000, 0...50°C
Condensation input (CI)	Input for Regin's condensation detector KG-A/1
Digital inputs (DI)	Closing potential-free contact
Universal inputs (UI)	Analogue input (AI), PT1000 sensor, 0...100°C or digital input (DI)
Outputs	
Digital outputs (DO)	24 V AC, max. 0.5 A.
Universal outputs (UO)	Digital output (DO) 24 V AC, max. 2.0 A or analogue output (AO), 0...10 V DC, max. 5 mA
+C power output for DI only	24 V DC, max. 10 mA, short circuit-protected

Inputs/outputs (I/Os)

Article	AI	DI	UI	DO	UO	Total number of I/Os
RC	1	2	1	1	2	7
RC-O	1	2	1	1	2	7
RC-H	1	2	1	1	2	7
RC-DO	1	2	1	1	2	7
RC-F	1	2	1	4	2	10
RC-FO	1	2	1	4	2	10
RC-DFO	1	2	1	4	2	10
RC-T	1	2	1	5	-	9
RC-TO	1	2	1	5	-	9
RC-DTO	1	2	1	5	-	9

RC-TO is a non-stock item.

Model overview

Article	Occupancy button / Forced ventilation	3-step fan control	Setpoint knob
RC	-	-	X
RC-O	X	-	X
RC-H	-	-	-
RC-DO	X	-	-
RC-F	-	X	X
RC-FO	X	X	X
RC-DFO	X	X	-
RC-T	-	-	X
RC-TO	X	-	X
RC-DTO	X	-	-

Regio accessories

Relay unit for Regio RC-...F... controllers in fan-coil applications

Technical data	
Outputs	Three closing relays, 230 V AC, 4 A
Inputs	Three inputs, 24 V AC, from an RC-...F... unit
Mounting	DIN-rail
Protection class	IP00

Article	Description
RB3	Relay unit for RC-...F... controllers

Power interface for Regio RC-...F... controllers in fan-coil applications

Article	Description
X1178	Power interface for RC-...F... controllers

Service adapter

Article	Description
RC-TEST	Service adapter for Regio Midi units

Condensation detector

Article	Description
KG-A/1	Condensation detector for Regio controllers, 1 m cable length

Connector plates

Article	Description
RC-CONN:10	A set of 10 connector plates for RC units

RCF – Energy-efficient control of fan-coil units

The RCF range's stand-alone controllers and thermostats for fan-coil units can be used for zone control of heating and/or cooling.

Rooms that are heated or cooled when unoccupied, or when a window is open, are a pure waste of energy. By connecting RCF to an occupancy detector, a keycard switch or a window contact, temperature and air flow are controlled automatically from the occupancy in the room. If a window is open, heating and cooling will be blocked. This way, room comfort is maintained at a comfortable level at the same time as saving energy.

Systems:
- Heating/cooling water
- Electric heating
- 2-pipe systems
- 2- or 4-pipe systems

Control of:
- 3-position actuators
- Thermal actuators
- On/Off actuators
- 0…10 V DC actuators

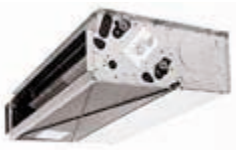
Functions:
- 3-speed fan
- Connection of occupancy detector, keycard switch or window contact
- Automatic or manual (M models) change-over between heating/cooling
- Automatic valve exercise
- Models with communication (EXOline, BACnet or Modbus)

The RCF range has a stylish design inspired by the award-winning Regio range.

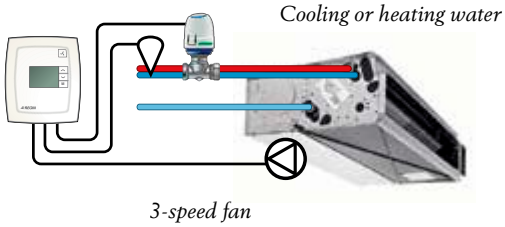
For all types of fan-coil units and premises

The RCF range can control all types of fan-coil units and is suitable in applications where a high comfort level and low energy consumption is desired.

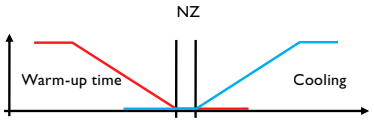
- *Hotels*
- *Conference rooms*
- *Offices*
- *Shops*
- *Schools*
- *Hospitals etc.*



Control of a ceiling convector, 2-pipe system

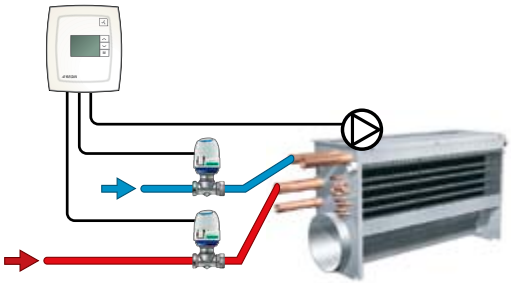


One circuit is used for heating/cooling in sequence. Automatic change-over between heating and cooling using a temperature sensor (TG-A1/PT1000) on the supply circuit. There is also a model with manual change-over between cooling and heating.

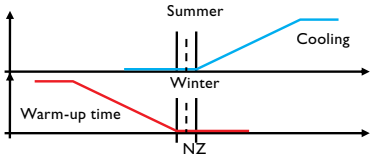


Change-over heating/cooling, 2-pipe system

Control of a window convector, 4-pipe system

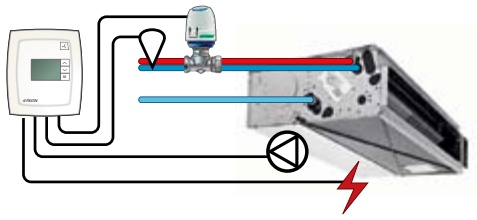


4-pipe system with cooling and heating circuits, controlled by separate outputs on the controller/thermostat.



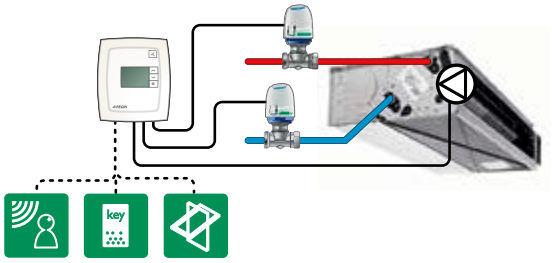
Change-over heating/cooling, 4-pipe system

Control of an electric heating ceiling convector in combination with heating/cooling water



Electric heating in steps in combination with cooling water during the summer. Change-over to electric heating in combination with heating water during the winter.

Occupancy detector or keycard switch for saving energy



By connecting an occupancy detector or a keycard switch to a digital input, you can alternate between Comfort and Economy mode. This way, the temperature is controlled from requirement, making it possible to save energy while maintaining the temperature at a comfortable level.

Using occupancy detection, you can delay activation and/or inactivation of Comfort mode in order to avoid switching mode if someone temporarily enters or leaves the room.

Another option is to connect a window contact to the input. This will set the controller/thermostat to “Off” mode if a window is opened, thereby minimising energy consumption.

Controllers and thermostats for fan-coil applications

Fan-coil thermostat with on/off outputs

RCF...

RCFM...

Modbus

BACnet

EXOline

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.

Technical data	
Supply voltage	230 V AC ±10 %, 50/60 Hz
Power consumption	< 3 VA
Setpoint	5...35°C
Hysteresis	±0.5 K (adjustable)
Digital outputs (DO)	Three relay outputs for fan control, 230 V AC, 3 A / Two triac outputs for valve actuators, 230 V AC, 300 mA
Analogue inputs (AI)	One PT1000
Digital inputs (DI)	One closing potential-free contact
Universal inputs (UI)	One PT1000 or closing potential-free contact
Mounting	Wall
Protection class	IP20

Article	Description	Installations	Change-over function
RCF-230D	Fan-coil thermostat	2- or 4-pipe	Automatic
RCF-230CD	Fan-coil thermostat with communication via RS485 (Modbus, BACnet or EXOline)	2- or 4-pipe	Automatic
RCFM-230D	Fan-coil thermostat	2-pipe	Manual

Fan-coil controller for thermal or 3-point actuators

RCF...

RCFM...

Modbus

BACnet

EXOline

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-230TD, RCF-230CTD and RCF-230CTD-EC also have a function for control of an electric heater.

Technical data	
Supply voltage	230 V AC ±10 %, 50/60 Hz
Power consumption	< 3 VA
Setpoint	5...35°C
P-band	10°C
Hysteresis	±0.5 K
I-time	300 s
Digital outputs (DO)	Three relay outputs for fan control, 230 V AC, 3 A / Two triac outputs for valve actuators, 230 V AC, 300 mA
Analogue inputs (AI)	One PT1000
Digital inputs (DI)	One closing potential-free contact
Universal inputs (UI)	One PT1000 or closing potential-free contact
Mounting	Wall
Protection class	IP20

Article	Description	Installations	Change-over function
RCF-230TD	Fan-coil controller	2- or 4-pipe	Automatic
RCF-230CTD	Fan-coil controller with communication via RS485 (Modbus, BACnet or EXOline)	2- or 4-pipe	Automatic
RCFM-230TD	Fan-coil controller	2-pipe	Manual

EC fan controller for thermal or 3-point actuators

Electronic fan-coil controller for control of EC fans. Automatic or manual change-over between heating and cooling. The controller has a function for EC fan control, a built-in temperature sensor, backlit display, and an input for a window contact or an occupancy detector. It also has a function for control of an electric heater.

Technical data	
Supply voltage	230 V AC ±10 %, 50/60 Hz
Power consumption	< 3 VA
Setpoint	5...35°C
Hysteresis	±0.5 K
P-band	10°C
I-time	300 s
Analogue outputs (AO)	One for EC fan control, 0...10 V DC, max. 1 mA
Digital outputs (DO)	Two triac outputs for valve actuators, 230 V AC, 300 mA
Analogue inputs (AI)	One PT1000
Digital inputs (DI)	One closing potential-free contact
Universal inputs (UI)	One PT1000 or closing potential-free contact
Mounting	Wall
Protection class	IP20

Article	Description	Installations	Change-over function
RCF-230CTD-EC	Fan-coil controller for EC fans with communication via RS485 (Modbus, BACnet or EXOline)	2- or 4-pipe	Automatic

Fan-coil controller with 0...10 V control signal

Electronic fan-coil thermostats 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 control of a 3-speed fan (for fan-coil), a built-in temperature sensor, backlit display, and an input for a window contact or an occupancy detector.

Technical data	
Supply voltage	230 V AC ±10 %, 50/60 Hz
Power consumption	< 3 VA
Outputs	Relays for fan control, 230 V AC, 3 A fan-coil. Actuator, 0...10 V DC, max. 1 mA.
Setpoint	5...35°C
Hysteresis	±0.5 K
P-band	10°C
I-time	300 s
Analogue outputs (AO)	Two for valve actuators, 0...10 V DC, max. 1 mA
Digital outputs (DO)	Three relay outputs for fan control, 230 V AC, 3 A
Analogue inputs (AI)	One PT1000
Digital inputs (DI)	One closing potential-free contact
Universal inputs (UI)	One PT1000 or closing potential-free contact
Mounting	Wall
Protection class	IP20

Article	Description	Installations	Change-over function
RCF-230AD	Fan-coil controller	2- or 4-pipe	Automatic
RCF-230CAD	Fan-coil controller with communication via RS485 (Modbus, BACnet or EXOline)	2- or 4-pipe	Automatic

Room controllers for other applications

Room temperature controller for 0...10 V DC or 3-point actuators

AL24A1T is primarily intended for control of heating or cooling in zone control systems. It has an input for a presence detector (occupancy control). The controller also has an input for change-over, which makes it possible for the control function to switch between heating and cooling.

Technical data	
Supply voltage	24 V AC, ±15 % 50...60 Hz, 2 VA
Output	0...10 V DC, 1 mA or 3-point, 24 V AC, 1 A
Inputs	Two digital and one Regin NTC sensor
Setpoint	0...40°C
P-band	0.5...50 K
Protection class	IP20

Article	Description
AL24A1T	Room temperature controller

Room controller with active frost protection for 3-point actuator

Controller intended for control of valve actuators in water-heated systems. AQUA24TF has a built-in room sensor and can be used for control of supply air temperature or room temperature, with or without cascade control. The controller has built-in active frost protection with two alarm relays and automatic heat maintaining function during shutdown.

Technical data	
Supply voltage	24 V AC ±10 %
Power consumption	Max. 5 VA
Control signal (output)	3-point floating control, 24 V AC output (heating)
Sensor inputs	Three 0...30°C (the sensor determines the range (Regin NTC sensor))
Setpoint	0...30°C
Minimum limit	0...30°C (not active for single sensor control)
Cascade factor (CF)	1...15 (must be set to 1 for single sensor control)
Frost alarm setpoint	5
Shutdown mode setpoint	25°C
Fan relay	Breaking contact for fan contactor interlock if a frost protection alarm occurs. 230 V AC, 2 A.
Alarm relay	Change-over contact for alarm indication if a frost protection alarm occurs. 24 V AC, 2 A.
Mounting	Wall
Protection class	IP20

Article	Description
AQUA24TF	Room controller with active frost protection

EC fan/VAV controllers

Room controller, temperature

Temperature controller for control of e.g. an EC fan or a damper in air handling or demand-controlled ventilation applications.

Technical data	
Supply voltage	85…230 V AC, 50/60 Hz
Working range, temperature	5…30°C
Outputs	1 analogue output 0...10 V (RL > 10 K)
Mounting	Wall
Protection class	IP30

Article	Description
AL230A	Temperature controller

Room controller, temperature and CO_2

Temperature and CO_2 controller for control of e.g. an EC fan or a damper in air handling or demand-controlled ventilation applications.

Technical data	
Supply voltage	85…230 V AC, 50/60 Hz
Temperature range	5…30°C
Working range, CO_2	0…2000 ppm
Outputs	1 analogue output 0...10 V (RL > 10 K)
Mounting	Wall
Protection class	IP30

Article	Description
ALC230A	Temperature and CO_2 controller

Room controller, humidity

Humidity controller for control of e.g. an EC fan or a damper in air handling or demand-controlled ventilation applications.

Technical data	
Supply voltage	85…230 V AC, 50/60 Hz
Working range, humidity	0…100 % RH
Outputs	1 analogue output 0...10 V (RL > 10 K)
Mounting	Wall
Protection class	IP30

Article	Description
ALH230A	Humidity controller

Universal room controller

Universal controller for control of e.g. an EC fan or a damper in air handling or demand-controlled ventilation applications.

Technical data	
Supply voltage	85…230 V AC, 50/60 Hz
Working range	0…100 %
Outputs	1 analogue output 0...10 V (RL > 10 K)
Inputs	1 analogue input 0...10 V
Mounting	Wall
Protection class	IP30

Article	Description
ALU230A	Universal controller

4

THERMOSTATS

Electromechanical thermostats

Electromechanical room thermostat

Room thermostat for control of HVAC systems. The thermostat can control fans, cooling units, electric heaters, etc.

Technical data	
Contact	NO/NC 250 V AC 16 (2,5) A
Temperature range	7...30°C
Ambient temperature	50°C
Ambient humidity	Max. 90 % RH
Storage temperature	0…50°C
Mounting	Wall
Casing	ABS, fireproof in accordance with UL94 V-0, white
Dimensions	80 x 80 x 44
Weight	128 g
Protection class	IP20

Article	On/off button	Summer/winter switch
R31	-	-
R33	X	-
R34	-	X

Electromechanical room thermostat for fan-coils

The thermostat has a switch for cooling or heating/cooling depending on the model, as well as a switch for fan speed control.

Technical data	
Output	10 (3) A, 250 V AC
Setpoint	10...30°C
Hysteresis	0.6 K
Mounting	Wall
Protection class	IP20

Article	Function
RRT025A	Heating or cooling switch

Electromechanical frost protection thermostat

FT is a series of high quality electromechanical frost protection thermostats for use in cooling, heating and ventilation systems. The DR-05 set of mounting brackets is included upon delivery.

Technical data	
Temperature range	-10...+10°C
Contacts	SPDT microswitch
Switch capacity	15 (8) A, 24...250 V AC
Accuracy	± 1K
Ambient temperature	Max. 55°C
Ambient humidity	10...90 % RH (non-condensing)
Max. bulb temperature	150°C
Casing	Base in ABS, transparent Polycarbonate (PC)
Dimensions	140 x 62 x 65 mm (cable gland included)
Weight	320 g
Protection class	IP65 class I

Article	Hysteresis	Reset	Capillary length
FT18	2 K	Automatic	1.8 m
FT30	2 K	Automatic	3 m
FT60	2 K	Automatic	6 m
FT18R	-	Manual	1.8 m
FT30R	-	Manual	3 m
FT60R	-	Manual	6 m

Accessories

Article	Description
DR-01	Copper immersion well 120 mm, 12 x 1
DR-02	Stainless steel immersion well 120 mm, 12 x 1
DR-05	Set of mounting brackets for capillary fixing (supplied with product)

Electromechanical immersion thermostats

MTIB is a series of high quality electromechanical immersion thermostats for use in cooling, heating and ventilation systems. They are supplied with a standard DR-16/14 model immersion well.

Technical data	
Sensor element	Liquid-filled copper bulb
Contacts	Dust-tight microswitches with SPDT contacts (heat/cool)
Switch capacity	15 (8) A, 24...250 V AC
Ambient temperature	-35...+65°C
Ambient humidity	10...90 RH (non-condensing)
Hysteresis	1 K
Casing	Bayblend® base, ABS cover
Weight	570 g
Protection class	IP65 class I

Article	Temperature range	Max. bulb temperature
MTIB60	10...60°C	75°C
MTIB120	50...120°C	140°C
MTIB90	20...90°C	100°C

Accessories

Article	Description
DR-16/14	Copper immersion well 120 mm, 10 x 0.5
DR-17/14	Stainless steel AISI 301 immersion well 120 mm, 10 x 0.5

Electromechanical capillary thermostat

MTIC is a series of high quality electro-mechanical thermostats for use in cooling, heating and ventilation systems.

Technical data	
Sensor element	Liquid-filled copper bulb
Bulb	Ø 9.5 (Ø 8 for range 50...120°C)
Length, capillary tube	1.5 m
Contacts	Dust-tight microswitches with SPDT contacts (heat/cool)
Switch capacity	15 (8) A, 24...250 V AC
Ambient temperature	-35...+65°C
Ambient humidity	10...90 % RH (non-condensing)
Casing	Bayblend® base, ABS cover
Weight	340 g
Protection class	IP65 class I

Article	Temperature range	Steps	Hysteresis	Step diff.	Max. bulb temperature	Immersion well to use	Hidden setpoint
MTIC30S	-30...+30°C	1	2...20 K	-	60°C	DBZ-01/02	-
MTIC30H	-30...+30°C	1	2...20 K	-	60°C	DBZ-01/02	X
MTIC30-2	-30...+30°C	2	1 K	2...5 K	60°C	DBZ-01/02	-
MTIC30	-30...+30°C	1	1 K	-	60°C	DBZ-01/02	-
MTIC30R	-30...+30°C	1	Manual reset at low limit temperature	-	60°C	DBZ-01/02	-
MTIC90S	20...90°C	1	2...20 K		100°C	DBZ-01/02	-
MTIC90H	20...90°C	1	2...20 K	-	100°C	DBZ-01/02	X
MTIC90	20...90°C	1	1 K	-	100°C	DBZ-01/02	-
MTIC90R	20...90°C	1	Manual reset at high limit temperature	-	100°C	DBZ-01/02	-
MTIC120S	50...120°C	1	2...20 K	-	150°C	DBZ-16/17	-

Article	Description
DR-01	Copper immersion well 120 mm, 12 x 1
DR-02	Stainless steel immersion well 120 mm, 12 x 1
DR-16	Copper immersion well 120 mm, 10 x 0.5
DR-17	Stainless steel immersion well 120 mm, 10 x 0.5

Electromechanical duct thermostat

MTID is a series of high quality electro-mechanical thermostats for use in cooling, heating and ventilation systems.

Technical data	
Sensor element	Liquid-filled copper bulb with 200 mm protection spring and mounting bracket
Contacts	Dust-tight microswitches with SPDT contacts (heat/cool)
Switch capacity	15 (8) A, 24...250 V AC
Ambient temperature	-35...+65°C
Ambient humidity	10...90 % RH (non-condensing)
Insertion length	200 / Ø 21 mm
Material	< 95 % RH
Casing	Bayblend® base, ABS cover
Weight	690 g
Protection class	IP65 class I

Article	Temperature range	Steps	Hysteresis	Step diff.	Max. bulb temperature	Hidden setpoint	Manual max. reset
MTID30H	-30...+30°C	1	1 K	-	60°C	X	-
MTID60S	0...60°C	1	2...20 K	-	75°C	-	-
MTID60-2	0...60°C	2	1 K	2...5 K	75°C	-	-
MTID60	0...60°C	1	1 K	-	75°C	-	-
MTID120HR	50...120°C	1	1 K	-	140°C	X	X

Accessories

Article	Description
DR-25	Protection spring and mounting bracket (factory-mounted, supplied with above models)

Electromechanical wall thermostat

MTIR is a series of high quality electromechanical thermostats for use in cooling, heating and ventilation systems.

Technical data	
Sensor element	Liquid-filled coiled copper bulb
Contacts	Dust-tight microswitches with SPDT contacts (heat/cool)
Switch capacity	15 (8) A, 24...250 V AC
Ambient temperature	-35...+60°C
Ambient humidity	10...90 % RH (non-condensing)
Insertion length	200 / Ø 21 mm
Casing	Bayblend® base, ABS cover
Weight	450 g
Dimensions	108 x 70 x 72 mm
Protection class	IP65 class I

Article	Temperature range	Steps	Hysteresis	Step diff.	Max. bulb temperature	Hidden setpoint
MTIR30S	-30...+30°C	1	2...15 K		60°C	-
MTIR30SH	-30...+30°C	1	2...15 K	-	60°C	X
MTIR30	-30...+30°C	1	1 K	-	75°C	-
MTIR30-2	-30...+30°C	2	1 K	2...5 K	75°C	-
MTIR60S	0...60°C	1	2...15 K	-	75°C	-
MTIR60	0...60°C	1	1 K	-	140°C	-
MTIR60SH	0...60°C	1	1 K	-	140°C	X
MTIR60S-2	0...60°C	2	1 K	2...5 K	140°C	-

Electromechanical clamp-on thermostat

MTIS is a series of high quality electromechanical thermostats for use in cooling, heating and ventilation systems.

Technical data	
Sensor element	Liquid-filled copper bulb for contact
Contacts	Dust-tight microswitches with SPDT contacts (heat/cool)
Switch capacity	15 (8) A, 24...250 V AC
Ambient temperature	-35...+65°C
Ambient humidity	10...90 % RH (non-condensing)
Hysteresis	2...20 K
Casing	Bayblend® base, ABS cover
Weight	180...500 g
Protection class	IP65 class I

Article	Temperature range	Max. bulb temperature	Hidden setpoint
MTIS60S	0...60°C	75°C	-
MTIS60SH	0...60°C	75°C	X
MTIS90S	20...90°C	110°C	-
MTIS90SH	20...90°C	110°C	X

Floorigo – Electronic thermostats for flush-mounting

Electronic room thermostat for underfloor heating, with sensor

Electronic 1-stage thermostat intended for flush mounting. The thermostat is delivered with a floor sensor and has an input for an external sensor. It has a min. and max. limitation feature and night setback function. The unit is supplied with a front cover which fits ELKO casings.

Technical data	
Supply voltage	230 V AC, 6 VA
Output	13 A, 230 V AC, closing relay
Sensor inputs	One for an external sensor, NTC 0...40°C
Setpoint	0...40°C
Night setback	5 K
Hysteresis	0.4 K
Mounting	Flush mounting
Protection class	IP21

Article	Description
FL1-S	Electronic room thermostat

Electronic room thermostat with display for underfloor heating

Electronic 1-stage thermostat with display, intended for flush mounting. It has a week-based scheduler with energy saving mode. The thermostat is delivered with a floor sensor and has an input for an external sensor. It has a min. and max. limitation feature and night setback function. The unit is supplied with a front cover which fits ELKO casings.

Technical data	
Supply voltage	230 V AC, 6 VA
Output	13 A, 230 V AC, closing relay
Sensor inputs	One for an external sensor, NTC 0...40°C
Setpoint	0...40°C
Night setback	5 K
Hysteresis	0.4 K
Mounting	Flush mounting
Protection class	IP21

Article	Description
FL1-D	Electronic room thermostat

Electronic efficiency controller

Floorigo FL1TP is an electronic pulse width modulating controller intended for flush mounting and floor heating. The controller has manual output and does not need to be connected to a sensor. The time-proportional output is 10...100 % and fits in an ELKO casing.

Technical data	
Supply voltage	230 V AC, 6 VA
Output	13 A, 230 V AC, closing relay
Setpoint	1...10°C
Cycle time	30 min
Mounting	Flush mounting
Protection class	IP20

Article	Description
FL1TP	Electronic efficiency controller

Electronic thermostats

Electronic room thermostat, 1-stage

Electronic thermostats intended for heating or cooling with built-in sensor and input for an external sensor.

Technical data	
Supply voltage	230 V AC ±10 %, 1 VA
Outputs	16 A, 230 V AC, change-over relay
Setpoint	0...30°C, 20...50°C
Hysteresis	1 K
Sensor inputs	One Regin NTC sensor
Mounting	Wall
Protection class	IP30

Article	Temperature range
TM1-P	0...30°C
TM1-50	20...50°C

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ELECTRIC HEATING CONTROLLERS

Pulser, 1- or 2-phase

1- or 2-phase, 200...415 V

Controllers intended for control of radiators or electric heating coils. They can be mounted on a wall or in a cabinet. The controllers pulse the whole load on/off and utilise time-proportional triac control. Automatic control function adaptation, P- or PI-control.

Technical data	
Supply voltage	200...415 V AC, 50...60 Hz, 1- or 2-phase, automatic adaptation
Ambient temperature	Max. 30°C (NOTE! Pulser generates 20 W heating at full load.)
P-band	20 K (rapid temperature changes) 1,5 K (slow temperature changes)
I-time	6 min (rapid temperature changes)
Pulse period	60 s
Inputs/outputs (I/Os)	
Sensor	One main sensor or two main sensors (only PULSER-M)
Setpoint	0...30°C (the sensor determines the temperature range (Regin 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

With automatic adaptation to 230 V AC or 400 V AC

Article	Description	Mounting	Number of modules	Protection class
PULSER	Electric heating controller	Wall	-	IP30
PULSER/D	Electric heating controller	DIN-rail	6.6 (115 x 88 x 59)	IP20
PULSER-ADD	Add-on unit	Wall	-	IP30
PULSER-M	Electric heating controller with min./max. limitation	Wall	-	IP30
PULSER-X/D	Electric heating controller for external 0...10 V DC control signal	DIN-rail	6.6 (115 x 88 x 59)	IP30

1-phase (230 V AC) or 2-phase (400 V AC)

Article	Description	Supply voltage	Mounting
PULSER220X010	Electric heating controller for external 0...10 V DC control signal	230 V AC	Wall
PULSER380X010	Electric heating controller for external 0...10 V DC control signal	400 V AC	Wall

1-phase, 230 V and 24 V, LON communication

PULSER-HC-LON is a room controller based on LON technology. It has a triac output for control of electric heating and an extra output (cooling or heating) for 3-position or 24 V AC thermal actuators. The controller has a built-in sensor and a setpoint knob. An external sensor or setpoint device can also be used.

Technical data	
Supply voltage	1-phase, 230 V AC and 24 V AC
Output (load)	10 A
Setpoint	0...30°C (the sensor determines the temperature range (Regin NTC sensor))
Setpoint adjustment	±3°C
Load (extra output)	24 V AC, 3-point or one on/off, 0.5 A
Mounting	Wall
Protection class	IP30

Article	Description
PULSER-HC-LON	Room controller with LON communication, heating or cooling in sequence

TTC, 3-phase

3-phase, 210...415 V, 25 A, wall mounting

TTC2000 can be used with internal or external setpoint. Automatic control function adaptation, P- or PI-control. The controller can also be set to be controlled by an external 0...10 V DC signal.

Technical data	
Supply voltage	3-phase, 210...255 / 380...415 V AC, automatic adaptation
Setpoint	0...30°C (the sensor determines the range)
Max. load	Max. 25 A, min. 3 A/phase
Sensor inputs	Two, main and min./max. limiting sensors (Regin NTC sensor)
Control signal	0...10 V DC (external signal)
Mounting	Wall
Protection class	IP30
P-band	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time (supply air temperature control)	6 min, fixed
Pulse period	6...120 s

Article	Description
TTC2000	Electric heating controller

To control extra loads, the slave board TT-S1 can easily be mounted into the unit.

210...415 V, 25 A, DIN mounting

For control of electric heating coils or radiators. The controllers pulse the whole load on/off and utilise time-proportional triac control. Automatic control function adaptation, P- or PI-control. The controllers can also be controlled by an external 0...10 V DC signal.

Technical data	
Supply voltage	3-phase, 210...255 / 380...415 V AC, automatic adaptation
Ambient temperature	0...40°C
Mounting	DIN-rail
Dimensions (WxHxD)	195 x 200 x 95 mm
Protection class	IP20
P-band	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time	6 min, fixed
Pulse period	6...60 s
Load	25 A
Output	25 A, 3 x 400 V AC, 17 kW (3 x 230 V, 10 kW)
Inputs	
Setpoint	0...30°C (the sensor determines the range) Note: Does not apply to TTC25X.
Sensor inputs	Two, main and max./min. limiting sensors (Regin NTC sensor). Note: Does not apply to TTC25X.
Control signal	0...10 V DC

Article	Description	For use with Regin NTC sensor	For external 0...10 V DC control signal only	External 0...10 V DC control signal option
TTC25	Electric heating controller with temperature control	X	-	X
TTC25X	Electric heating controller	-	X	-

To control larger electrical loads, see the step controllers TT-S4/D and TT-S6/D.

210...415 V, 40 A, DIN mounting

For control of electric heating coils or radiators. The controllers pulse the whole load on/off and utilise time-proportional triac control. Automatic control function adaptation, P- or PI-control. The controllers can also be controlled by an external 0...10 V DC signal.

Technical data	
Supply voltage	3-phase, 210...255 / 380...415 V AC, automatic adaptation
Ambient temperature	0...40°C
Mounting	DIN-rail
Dimensions (WxHxD)	195 x 220 x 95 mm
Protection class	IP20
P-band	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time	6 min, fixed
Pulse period	6...60 s
Load	40 A
Output	40 A, 3 x 400 V AC, 27 kW (3 x 230 V, 16 kW)
Inputs	
Setpoint	0...30°C (the sensor determines the range) Note: Does not apply to TTC40FX.
Sensor inputs	Two, main and max./min. limiting sensors (Regin NTC sensor). Note: Does not apply to TTC40FX.
Control signal	0...10 V DC

Article	Description	For use with Regin NTC sensor	For external 0...10 V DC control signal only	External 0...10 V DC control signal option
TTC40F	Electric heating controller with temperature control	X	-	X
TTC40FX	Electric heating controller	-	X	-

To control larger electrical loads, see the step controllers TT-S4/D and TT-S6/D.

400 V AC, 63 A, DIN mounting

For control of electric heating coils or radiators. The controller pulses the whole load on/off through time-proportional triac control. Automatic control function adaptation, P- or PI-control. The controller can also be set to be controlled by an external 0...10 V DC signal.

Technical data	
Supply voltage	3-phase, 400 V AC ±10%
Ambient temperature	0...40°C
Mounting	DIN-rail
Dimensions (WxHxD)	195 x 220 x 105 mm
Protection class	IP20
P-band	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time	6 min, fixed
Pulse period	6...120 s
Load	63 A
Output	63 A, 3 x 400 V AC, 43 kW
Inputs	
Setpoint	0...30°C (the sensor determines the range)
Sensor inputs	Two, main and max./min. limiting sensors (Regin NTC sensor).
Control signal	0...10 V DC

Article	Description	For use with Regin NTC sensor	For external 0...10 V DC control signal only	External 0...10 V DC control signal option
TTC63F	Electric heating controller with temperature control	X	-	X

To control larger electrical loads, see the step controllers TT-S4/D and TT-S6/D.

400 V AC, 80 A, DIN mounting

For control of electric heating coils or radiators. The controller pulses the whole load on/off through time-proportional triac control. Automatic control function adaptation, P- or PI-control. The controller can also be set to be controlled by an external 0...10 V DC signal.

Technical data	
Supply voltage	3-phase, 400 V AC ±10%
Ambient temperature	0...40°C
Mounting	DIN-rail
Dimensions (WxHxD)	195 x 220 x 105 mm
Protection class	IP20
P-band	Supply air temperature control: 20 K, fixed Room temperature control: 1.5 K, fixed
I-time	6 min, fixed
Pulse period	6...120 s
Load	80 A
Output	80 A, 3 x 400 V AC, 55 kW
Inputs	
Setpoint	0...30°C (the sensor determines the range)
Sensor inputs	Two, main and max./min. limiting sensors (Regin NTC sensor).
Control signal	0...10 V DC

Article	Description	For use with Regin NTC sensor	For external 0...10 V DC control signal only	External 0...10 V DC control signal option
TTC80F	Electric heating controller with temperature control	X	-	X

To control larger electrical loads, see the step controllers TT-S4/D and TT-S6/D.

Accessories

Slave board for TTC2000

TT-S1 is intended for use together with the electric heating controller TTC2000, in order to control extra loads.

Article	Description
TT-S1	Slave board for control of extra loads (+17 kW)

Scales and knobs for Pulser and TTC

Alternative setpoint scales and knobs, when using sensors with other temperature ranges.

Scales for TTC25/40 and Pulser/D

Article	Temperature range
SKALA-3933	20...50°C
SKALA-3934	40...70°C
SKALA-3935	60...90°C

Knobs for TTC2000

Article	Temperature range
TRY-RATT-3608	20...50°C
TRY-RATT-3609	40...70°C
TRY-RATT-3610	60...90°C

Knobs for Pulser

Article	Temperature range
TRY-RATT-2271	0...30°C
TRY-RATT-1588	20...50°C
TRY-RATT-1589	40...70°C
TRY-RATT-1590	60...90°C

Step controller, 4- or 6-stage

Controllers intended for control of electric heating coils, four or six relays. It can be used with any controller with an 0...10 V DC or 10...2 V DC output signal.

The required number of steps is set by means of the rotating switch on the front. The 0...10 V DC input signal is divided up into the number of steps, thus setting the switch-on point for each step. Relay 6 on TT-S6/D 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 (TTC or similar) to give proportional heating between steps.

Technical data	
Supply voltage	24 V AC, 6 VA
Output	4 alt. 6 relays (closing), binary or sequential control
Input signal	0...10 V DC
Output signal	0...10 V DC
Mounting	DIN-rail
Number of modules	6
Protection class	IP20

Article	Description	Run-on time
TT-S4/D	Step controller with 4 relays	-
TT-S6/D	Step controller with 6 relays	3 min

6

SENSORS AND SWITCHES

Temperature sensors – NTC Regin

Clamp-on sensor, NTC

Clamp-on sensor for surface temperature measurement. Supplied with 1.5 m cable.

Technical data	
Sensor element	NTC, 15...10 kΩ
Time constant	13 s
Material	Nickel-plated copper tube
Cable length	1.5 m
Protection class	IP65

Article	Description	Temperature range
TG-A130	Clamp-on sensor, including clamp (Ø 40 mm max.)	0...30°C

Accessories

Article	Description
PASTA-20	Heat-conductive paste in tube, 20 g

This sensor cannot be used together with the Pulser series.

Bulb sensor, NTC

Universal sensor.

Technical data	
Sensor element	NTC, 15...10 kΩ
Diameter	6 mm
Material	Stainless steel
Cable length	1.5 m
Protection class	IP65

Article	Temperature range
TG-B130	0...30°C
TG-B150	20...50°C
TG-B160	0...60°C
TG-B190	60...90°C

Accessories

Article	Description
PASTA-20	Heat-conductive paste in tube, 20 g

This sensor cannot be used together with the Pulser series.

Floor sensor, NTC

Technical data	
Sensor element	NTC, 15...10 kΩ
Diameter	7 mm
Cable length	2.5 m
Protection class	IP65

Article	Description	Temperature range
TG-G130	Floor sensor	0...30°C

Immersion sensor, NTC

For water temperature measurement.

Technical data	
Sensor element	NTC, 15...10 kΩ
Time constant	4 s
Diameter	R1/4” 6 mm
Material, probe	Stainless steel, SUS304
Pressure rating	PN10
Cable length	1.5 m
Protection class	IP65

Article	Temperature range	Insertion length
TG-D130	0...30°C	135 mm
TG-D150	20...50°C	135 mm
TG-D170	40...70°C	135 mm
TG-D230	0...30°C	220 mm

Accessories

Article	Description
DF	Mounting flange for TG-D1... for mounting in ventilation ducts

This sensor cannot be used together with the Pulser series.

Well

Well for immersion sensors.

Technical data	
Connection	R1/2”
Pressure rating	PN25

Article	Description	Material	Insertion length
DR-90R	Well	Acid-proof stainless steel, SUS316	90 mm
DR-90W	Well for TG-DHW...	Acid-proof stainless steel, SUS316	90 mm
DR-90WS	Well for TG-DHW...	Stainless steel, SUS304	90 mm
DR-135R	Well	Acid-proof stainless steel, SUS316	135 mm

Accessories

Article	Description
ADAPTER	Adapter 1/4” to 1/2”. For mounting TG-D1... in 1/2”.

Duct sensor, NTC

For air temperature measurement in ventilation ducts. Adjustable insertion length.

Technical data	
Sensor element	NTC, 15...10 kΩ
Time constant	38 s
Diameter	9 mm
Insertion length	15...130 mm
Cable length	1.5 m
Protection class	IP20

Article	Description	Temperature range
TG-K300	Duct sensor	-30...+30°C
TG-K310		-20...+10°C
TG-K330		0...30°C
TG-K350		20...50°C
TG-K360		0...60°C
TG-K370		40...70°C
TG-K340	Duct sensor for Floorigo/AL24A1T	0...40°C

Room sensor, NTC, with setpoint adjustment

Room sensor for room temperature measurement. Can also be used for setpoint adjustment only.

Technical data	
Sensor element	NTC, 15...10 kΩ
Protection class	IP30

Article	Description	Temperature range
TG-R430	Room sensor with setpoint adjustment	0...30°C

Room sensor, NTC

Technical data	
Sensor element	NTC, 15...10 kΩ
Protection class	IP30

Article	Description	Temperature range
TG-R530	Room sensor	0...30°C
TG-R550	Room sensor	20...50°C
TG-R540	Room sensor for Floorigo/AL24A1T	0...40°C
TG-R530M	Room sensor for average measurement	0...30°C

Outdoor sensor, NTC

Outdoor sensor for outdoor temperature measurement or for temperature measurement in rooms where higher protection class is needed.

Technical data	
Sensor element	NTC, 15...10 kΩ
Protection class	IP54

Article	Temperature range
TG-R600	-30...+30°C
TG-R630	0...30°C

Setpoint device for panel mounting

Setpoint device intended for NTC sensors only.

Technical data	
Protection class	IP20

Article	Temperature range
TBI-10	-20...+10°C
TBI-30	0...30°C
TBI-50	20...50°C
TBI-100	0...100°C

Sensor characteristics, NTC Regin

Temperature range	-30...30°C	-20...10°C	0...30°C	0...40°C	0...60°C	20...50°C	40...70°C	60...90°C
Temp. ºC	Ω	Ω	Ω	Ω	Ω	Ω	Ω	Ω
150								
140								
130								
120								
110								
100								
90								10000
80								11667
70							10000	13333
65							10833	14167
60					10000		11667	15000
55					10417		12500	
50					10833	10000	13333	
45					11250	10833	14167	
40				10000	11667	11667	15000	
35				10625	12083	12500		
30	10000		10000	11250	12500	13333		
29	10083		10167	11375	12583	13500		
28	10167		10333	11500	12667	13667		
27	10250		10500	11625	12750	13833		
26	10333		10667	11750	12833	14000		
25	10417		10833	11875	12917	14167		
24	10500		11000	12000	13000	14333		
23	10583		11167	12125	13083	14500		
22	10667		11333	12250	13167	14667		
21	10750		11500	12375	13250	14833		
20	10833		11667	12500	13333	15000		
19	10917		11833	12625	13417			
18	11000		12000	12750	13500			
17	11083		12167	12875	13583			
16	11167		12333	13000	13667			
15	11250		12500	13125	13750			
14	11333		12667	13250	13833			
13	11417		12833	13375	13917			
12	11500		13000	13500	14000			
11	11583		13167	13625	14083			
10	11667	10000	13333	13750	14167			
9	11750	10167	13500	13875	14250			
8	11833	10333	13667	14000	14333			
7	11917	10500	13833	14125	14417			
6	12000	10667	14000	14250	14500			
5	12083	10833	14167	14375	14583			
4	12167	11000	14333	14500	14667			
3	12250	11167	14500	14625	14750			
2	12333	11333	14667	14750	14833			
1	12417	11500	14833	14875	14917			
0	12500	11667	15000	15000	15000			
-5	12917	12500						
-10	13333	13333						
-15	13750	14167						
-20	14167	15000						
-25	14583							
-30	15000							
-35								
-40								

Temperature sensors – PT1000/Ni1000/NTC 20k etc.

Clamp-on sensor with cable

For surface temperature measurement. Including clamp.

Technical data	
Time constant	13 s
Material	Nickel-plated copper tube
Cable length	1.5 m
Protection class	IP65

Article	Description	Sensor element	Nominal resistance	Temperature range	Equivalent
TG-A1/PT100	Clamp-on sensor, including clamp (Ø 40 mm max.)	PT100 (DIN class B)	100 Ω/0°C	-30...+150°C	-
TG-A1/PT1000		PT1000 (DIN class B)	1000 Ω/0°C	-30...+150°C	-
TG-A1/NTC1.8		NTC 1.8	1800 Ω/25°C	-30...+120°C	TAC
TG-A1/NTC2.2		NTC 2.2k3A1	2252 Ω/25°C	-30...+150°C	Johnson Controls
TG-A1/NTC10-01		NTC 10k3A1	10 kΩ/25°C	-30...+150°C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
TG-A1/NTC10-02		NTC 10k	10 kΩ/25°C	-30...+110°C	Carel - Evco - Eliwell - AB Industrietechnik
TG-A1/NTC10-03		NTC 10k4A1	10 kΩ/25°C	-30...+110°C	Andover - Delta Controls - Siebe - York
TG-A1/NTC20		NTC 20k6A1	20 kΩ/25°C	-30...+150°C	Honeywell
TG-A1/NI1000-01		Ni1000	1000 Ω/0°C	-30...+150°C	Siemens - Landis & Staefa
TG-A1/NI1000-02		Ni1000	1000 Ω/0°C	-30...+150°C	Sauter

Clamp-on sensor with housing

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

Technical data	
Cable gland	M16
Time constant	5 s
Protection class	IP42 (or IP40 depending on the mounting position)

Article	Sensor element	Nominal resistance	Temperature range	Equivalent
TG-AH1/PT100	PT100 (DIN class B)	100 Ω/0°C	-20...+120°C	-
TG-AH1/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	-20...+120°C	-
TG-AH1/NTC1.8	NTC 1.8	1800 Ω/25°C	-20...+120°C	TAC
TG-AH1/NTC2.2	NTC 2.2k3A1	2252 Ω/25°C	-20...+120°C	Johnson Controls
TG-AH1/NTC10-01	NTC 10k3A1	10 kΩ/25°C	-20...+120°C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
TG-AH1/NTC10-02	NTC 10k	10 kΩ/25°C	-20...+110°C	Carel - Evco - Eliwell - AB Industrietechnik
TG-AH1/NTC10-03	NTC 10k4A1	10 kΩ/25°C	-20...+120°C	Andover - Delta Controls - Siebe - York
TG-AH1/NTC20	NTC 20k6A1	20 kΩ/25°C	-20...+120°C	Honeywell
TG-AH1/NI1000-01	Ni1000	1000 Ω/0°C	-20...+120°C	Siemens - Landis & Staefa
TG-AH1/NI1000-02	Ni1000	1000 Ω/0°C	-20...+120°C	Sauter

Accessories

Article	Description
PASTA-20	Heat-conductive paste in tube, 20 g

Bulb sensor

TG-B1/PT100

Universal sensor.

Technical data	
Protection class	IP65
Temperature range	-30…+100°C
Material	Stainless steel
Diameter	6 mm
Cable length	1.5 m

TG-B640/ PT1000

Article	Sensor element	Nominal resistance	Temperature range	Protection class
TG-B1/PT100	PT100 (DIN class B)	100 Ω/0°C	-30...+100°C	IP65
TG-B640/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	-50...+110°C	IP67

Accessories

Article	Description
PASTA-20	Heat-conductive paste in tube, 20 g

Duct sensor with housing

Duct sensor for air temperature measurement in ventilation ducts.

Technical data	
Temperature range	-30…+70°C
Time constant	16 s
Cable gland	M16
Material, probe	Stainless steel, SUS304
Diameter	8 mm
Protection class	IP65

Article	Sensor element	Nominal resistance	Insertion length	Equivalent
TG-KH/PT100	PT100 (DIN class B)	100 Ω/0°C	60...205 mm	-
TG-KH/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	60...205 mm	-
TG-KH/PT1000-430	PT1000	1000 Ω/0°C	60…405 mm	-
TG-KH/NTC1.8	NTC 1.8	1800 Ω/25°C	60...205 mm	TAC
TG-KH/NTC2.2	NTC 2.2k3A1	2252 Ω/25°C	60...205 mm	Johnson Controls
TG-KH/NTC10-01	NTC 10k3A1	10 kΩ/25°C	60...205 mm	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
TG-KH/NTC10-02	NTC 10k	10 kΩ/25°C	60...205 mm	Carel - Evco - Eliwell - AB Industrietechnik
TG-KH/NTC10-03	NTC 10k4A1	10 kΩ/25°C	60...205 mm	Andover - Delta Controls - Siebe - York
TG-KH/NTC20	NTC 20k6A1	20 kΩ/25°C	60...205 mm	Honeywell
TG-KH/NI1000-01	Ni1000	1000 Ω/0°C	60...205 mm	Siemens - Landis & Staefa
TG-KH/NI1000-02	Ni1000	1000 Ω/0°C	60...205 mm	Sauter

Duct sensor

Duct sensor for air temperature measurement in ventilation ducts. Adjustable insertion length.

Technical data	
Temperature range	-30…+70°C
Time constant	50 s including dead time
Insertion length	15...140 mm
Diameter	9 mm
Protection class	IP20

Article	Sensor element	Nominal resistance	Cable length	Equivalent
TG-K3/PT100	PT100 (DIN class B)	100 Ω/0°C	1.5 m	-
TG-K3/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	1.5 m	-
TG-K3/PT1000/3.0	PT1000 (DIN class B)	1000 Ω/0°C	3 m	-
TG-K3/NTC1.8	NTC 1.8	1800 Ω/25°C	1.5 m	TAC
TG-K3/NTC2.2	NTC 2.2k3A1	2252 Ω/25°C	1.5 m	Johnson Controls
TG-K3/NTC10-01	NTC 10k3A1	10 kΩ/25°C	1.5 m	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
TG-K3/NTC10-02	NTC 10k	10 kΩ/25°C	1.5 m	Carel - Evco - Eliwell - AB Industrietechnik
TG-K3/NTC10-03	NTC 10k4A1	10 kΩ/25°C	1.5 m	Andover - Delta Controls - Siebe - York
TG-K3/NTC20	NTC 20k6A1	20 kΩ/25°C	1.5 m	Honeywell
TG-K3/NI1000-01	Ni1000	1000 Ω/0°C	1.5 m	Siemens - Landis & Staefa
TG-K3/NI1000-02	Ni1000	1000 Ω/0°C	1.5 m	Sauter

Average temperature sensor with housing

Average temperature sensor for duct mounting. It has a cable with four PT1000 elements. The cable is mounted with clamps and is held in place inside the duct by an end spring.

Technical data	
Time constant	1 s
Cable gland	M16
Cable length	3 m
Insertion length	0...75 mm
Diameter	8 mm
Protection class	IP65

Article	Sensor element	Nominal resistance	Temperature range
TG-MH/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	0...70°C

Immersion sensor with cable

Immersion sensor for water temperature measurement.

Technical data	
Temperature range	-30…+70°C
Time constant	4 s
Cable length	1.5 m
Connection	R1/4”
Diameter	4 mm
Material, probe	Stainless steel, SUS304
Pressure rating	PN10
Protection class	IP65

Article	Sensor element	Nominal resistance	Insertion length	Equivalent
TG-D1/PT100	PT100 (DIN class B)	100 Ω/0°C	135 mm	-
TG-D1/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	135 mm	-
TG-D1/NTC1.8	NTC 1.8	1800 Ω/25°C	135 mm	TAC
TG-D1/NTC2.2	NTC 2.2k3A1	2252 Ω/25°C	135 mm	Johnson Controls
TG-D1/NTC10-01	NTC 10k3A1	10 kΩ/25°C	135 mm	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
TG-D1/NTC10-02	NTC 10k	10 kΩ/25°C	135 mm	Carel - Evco - Eliwell - AB Industrietechnik
TG-D1/NTC10-03	NTC 10k4A1	10 kΩ/25°C	135 mm	Andover - Delta Controls - Siebe - York
TG-D1/NTC20	NTC 20k6A1	20 kΩ/25°C	135 mm	Honeywell
TG-D1/NI1000-01	Ni1000	1000 Ω/0°C	135 mm	Siemens - Landis & Staefa
TG-D1/NI1000-02	Ni1000	1000 Ω/0°C	135 mm	Sauter

Article	Sensor element	Nominal resistance	Insertion length
TG-D2/PT100	PT100 (DIN class B)	100 Ω/0°C	220 mm
TG-D2/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	220 mm

Accessories

Article	Description
DF	Mounting flange for TG-D1... for mounting in ventilation ducts
ADAPTER	Adapter 1/4” to 1/2”. For mounting TG-D1... in 1/2”.

Immersion sensor with cable, adjustable insertion length

Immersion sensor for water temperature measurement.

Technical data	
Temperature range	-30…+70°C
Time constant	4 s
Cable length	1.5 m
Connection	R1/4”
Diameter	4 mm
Material, probe	Stainless steel, SUS304
Pressure rating	PN10
Protection class	IP65

Article	Sensor element	Nominal resistance	Insertion length	Equivalent
TG-D3/PT100	PT100 (DIN class B)	100 Ω/0°C	Max. 300 mm	-
TG-D3/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	Max. 300 mm	-
TG-D3/NTC1.8	NTC 1.8	1800 Ω/25°C	Max. 300 mm	TAC
TG-D3/NTC2.2	NTC 2.2k3A1	2252 Ω/25°C	Max. 300 mm	Johnson Controls
TG-D3/NTC10-01	NTC 10k3A1	10 kΩ/25°C	Max. 300 mm	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
TG-D3/NTC10-02	NTC 10k	10 kΩ/25°C	Max. 300 mm	Carel - Evco - Eliwell - AB Industrietechnik
TG-D3/NTC10-03	NTC 10k4A1	10 kΩ/25°C	Max. 300 mm	Andover - Delta Controls - Siebe - York
TG-D3/NTC20	NTC 20k6A1	20 kΩ/25°C	Max. 300 mm	Honeywell
TG-D3/NI1000-01	Ni1000	1000 Ω/0°C	Max. 300 mm	Siemens - Landis & Staefa
TG-D3/NI1000-02	Ni1000	1000 Ω/0°C	Max. 300 mm	Sauter

Immersion sensor with housing, without well

Technical data	
Temperature range	-20…+120°C
Time constant	4 s
Cable gland	M16
Insertion length	90 mm
Diameter	5 mm
Connection	R1/4”
Material, probe	Stainless steel, SUS304
Diameter, probe	5 mm
Pressure rating	PN16
Protection class	IP65

Article	Sensor element	Nominal resistance	Temperature range	Equivalent
TG-DH4/PT100	PT100 (DIN class B)	100 Ω/0°C	-20...+120°C	-
TG-DH4/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	-20...+120°C	-
TG-DH4/NTC1.8	NTC 1.8	1800 Ω/25°C	-20...+120°C	TAC
TG-DH4/NTC2.2	NTC 2.2k3A1	2252 Ω/25°C	-20...+120°C	Johnson Controls
TG-DH4/NTC10-01	NTC 10k3A1	10 kΩ/25°C	-20...+120°C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
TG-DH4/NTC10-02	NTC 10k	10 kΩ/25°C	-20...+110°C	Carel - Evco - Eliwell - AB Industrietechnik
TG-DH4/NTC10-03	NTC 10k4A1	10 kΩ/25°C	-20...+120°C	Andover - Delta Controls - Siebe - York
TG-DH4/NTC20	NTC 20k6A1	20 kΩ/25°C	-20...+120°C	Honeywell
TG-DH4/NI1000-01	Ni1000	1000 Ω/0°C	-20...+120°C	Siemens - Landis & Staefa
TG-DH4/NI1000-02	Ni1000	1000 Ω/0°C	-20...+120°C	Sauter

Immersion sensor with housing and well

The sensor part has a clip fastening which makes it easy to mount. The sensor is supplied with well model DR-90WS. The acid-proof stainless steel well DR-90W can be ordered separately.

Technical data	
Temperature range	-20…+120°C
Time constant	18 s (12 s with heat-conductive paste)
Cable gland	M16
Insertion length	90 mm
Connection, well	R1/2”
Material, probe	Stainless steel, SUS304
Material, well	Stainless steel, SUS304
Diameter, well	8 mm
Pressure rating	PN25
Protection class	IP65

Article	Sensor element	Nominal resistance	Temperature range	Equivalent
TG-DHW1/PT100	PT100 (DIN class B)	100 Ω/0°C	-20...+120°C	-
TG-DHW1/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	-20...+120°C	-
TG-DHW1/NTC1.8	NTC 1.8	1800 Ω/25°C	-20...+120°C	TAC
TG-DHW1/NTC2.2	NTC 2.2k3A1	2252 Ω/25°C	-20...+120°C	Johnson Controls
TG-DHW1/NTC10-01	NTC 10k3A1	10 kΩ/25°C	-20...+120°C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
TG-DHW1/NTC10-02	NTC 10k	10 kΩ/25°C	-20...+110°C	Carel - Evco - Eliwell - AB Industrietechnik
TG-DHW1/NTC10-03	NTC 10k4A1	10 kΩ/25°C	-20...+120°C	Andover - Delta Controls - Siebe - York
TG-DHW1/NTC20	NTC 20k6A1	20 kΩ/25°C	-20...+120°C	Honeywell
TG-DHW1/NI1000-01	Ni1000	1000 Ω/0°C	-20...+120°C	Siemens - Landis & Staefa
TG-DHW1/NI1000-02	Ni1000	1000 Ω/0°C	-20...+120°C	Sauter

Immersion sensor with housing and well in acid-proof stainless steel

The sensor part has a clip fastening which makes it easy to mount. The sensor is supplied with well model DR-90W.

Technical data	
Temperature range	-20…+120°C
Cable gland	M16
Time constant	18 s (12 s with heat-conductive paste)
Insertion length	90 mm
Connection, well	R1/2”
Material, probe	Stainless steel, SUS304
Material, well	Acid-proof stainless steel, SUS316
Diameter, well	8 mm
Pressure rating	PN25
Protection class	IP65

Article	Sensor element	Nominal resistance	Temperature range
TG-DHWA/PT100	PT100 (DIN class B)	100 Ω/0°C	-20...+120°C
TG-DHWA/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	-20...+120°C

Well

Well for immersion sensors.

Technical data	
Connection	R1/2”
Pressure rating	PN25

Article	Description	Material	Insertion length
DR-90R	Well	Acid-proof stainless steel, SUS316	90 mm
DR-90W	Well for TG-DHW...	Acid-proof stainless steel, SUS316	90 mm
DR-90WS	Well for TG-DHW...	Stainless steel, SUS304	90 mm
DR-135R	Well	Acid-proof stainless steel, SUS316	135 mm

Accessories

Article	Description
ADAPTER	Adapter 1/4” to 1/2”. For mounting TG-D1... in 1/2”.

Room sensor

For room temperature measurement.

Technical data	
Temperature range	0…50°C
Protection class	IP30

Article	Sensor element	Nominal resistance	Equivalent
TG-R5/PT100	PT100 (DIN class B)	100 Ω/0°C	-
TG-R5/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	-
TG-R5/NTC1.8	NTC 1.8	1800 Ω/25°C	TAC
TG-R5/NTC2.2	NTC 2.2k3A1	2252 Ω/25°C	Johnson Controls
TG-R5/NTC10-01	NTC 10k3A1	10 kΩ/25°C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
TG-R5/NTC10-02	NTC 10k	10 kΩ/25°C	Carel - Evco - Eliwell - AB Industrietechnik
TG-R5/NTC10-03	NTC 10k4A1	10 kΩ/25°C	Andover - Delta Controls - Siebe - York
TG-R5/NTC20	NTC 20k6A1	20 kΩ/25°C	Honeywell
TG-R5/NI1000-01	Ni1000	1000 Ω/0°C	Siemens - Landis & Staefa
TG-R5/NI1000-02	Ni1000	1000 Ω/0°C	Sauter

Room sensor with setpoint adjustment

For room temperature measurement. Can also be used for setpoint adjustment only.

Technical data	
Sensor element	PT1000 (DIN class B)
Nominal resistance	1000 Ω/0°C
Protection class	IP30

Article	Description	Temperature range
TG-R4/PT1000	Room sensor with setpoint adjustment	5...30°C
TG-R4/PT1000-RB	Room sensor with setpoint adjustment, red/blue (increase/decrease) scale	0...30°C

Outdoor sensor

Technical data	
Temperature range	-30…+70°C
Cable gland	M16
Protection class	IP65

Article	Sensor element	Nominal resistance	Equivalent
TG-UH/PT100	PT100 (DIN class B)	100 Ω/0°C	-
TG-UH/PT1000	PT1000 (DIN class B)	1000 Ω/0°C	-
TG-UH/NTC1.8	NTC 1.8	1800 Ω/25°C	TAC
TG-UH/NTC2.2	NTC 2.2k3A1	2252 Ω/25°C	Johnson Controls
TG-UH/NTC10-01	NTC 10k3A1	10 kΩ/25°C	Aquatrol - Johnson Controls - Satchwell - Trend - Cylon - Honeywell
TG-UH/NTC10-02	NTC 10k	10 kΩ/25°C	Carel - Evco - Eliwell - AB Industrietechnik
TG-UH/NTC10-03	NTC 10k4A1	10 kΩ/25°C	Andover - Delta Controls - Siebe - York
TG-UH/NTC20	NTC 20k6A1	20 kΩ/25°C	Honeywell
TG-UH/NI1000-01	Ni1000	1000 Ω/0°C	Siemens - Landis & Staefa
TG-UH/NI1000-02	Ni1000	1000 Ω/0°C	Sauter

Setpoint device for PT1000 sensors

Setpoint device which gives resistance corresponding to the standard PT1000 table.

Technical data	
Temperature range	5…30°C
Mounting	Panel mounting
Protection class	IP20

Article	Description
TBI-PT1000	Setpoint device

Sensor characteristics, PT1000/Ni1000/NTC 20k etc.

Sensor element	PT100	PT1000	NTC1,8	NTC2,2	NTC10-01	NTC10-02	NTC10-03	NTC20	NI1000-01	NI1000-02
Equivalent			Tac	Johnson Controls	Aquatrol Johnson Controls Satchwell Trend Cylon Honeywell	Carel Evco Eliwell Industrie-technik	Andover Delta Controls Siebe York	Honeywell	Siemens Landis & Staefa	Sauter
Temp. ºC	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	4517	1285	1353
55	121.3	1213	638	673	2985	3536	3271	5494	1260	1322
50	119.4	1194	750	811	3601	4160	3893	6718	1235	1291
45	117.5	1175	885	984	4367	4911	4656	8259	1210	1260
40	115.5	1155	1049	1200	5325	5827	5594	10211	1186	1230
35	113.6	1136	1250	1471	6530	6940	6754	12698	1162	1200
30	111.7	1117	1496	1814	8056	8313	8196	15887	1138	1171
29	111.3	1113	1552	1893	8408	8622	8525	16628	1132	1165
28	111.0	1110	1610	1977	8777	8944	8869	17407	1128	1159
27	110.5	1105	1671	2064	9165	9281	9229	18228	1123	1153
26	110.1	1101	1734	2156	9572	9632	9606	19092	1119	1147
25	109.7	1097	1800	2252	10000	10000	10000	20000	1114	1141
24	109.3	1093	1869	2353	10450	10380	10413	20962	1109	1136
23	109.0	1090	1941	2458	10923	10780	10845	21973	1105	1130
22	108.6	1086	2017	2572	11420	11200	11297	23039	1100	1124
21	108.2	1082	2095	2689	11943	11630	11771	24164	1095	1118
20	107.8	1078	2177	2813	12493	12080	12268	25350	1091	1112
19	107.4	1074	2263	2944	13073	12560	12788	26600	1086	1107
18	107.0	1070	2353	3081	13662	13060	13334	27920	1081	1101
17	106.6	1066	2447	3225	14324	13580	13906	29320	1077	1095
16	106.2	1062	2546	3378	15001	14120	14506	30790	1072	1089
15	105.9	1059	2649	3538	15714	14690	15136	32346	1068	1084
14	105.5	1055	2756	3707	16465	15280	15797	33990	1063	1078
13	105.1	1051	2869	3885	17257	15800	16490	35726	1058	1072
12	104.7	1047	2987	4073	18092	16560	17219	37562	1054	1067
11	104.3	1043	3111	4271	18973	17240	17983	39503	1049	1061
10	103.9	1039	3241	4482	19903	17960	18787	41567	1045	1056
9	103.5	1035	3376	4702	20885	18700	19631	43733	1040	1050
8	103.1	1031	3519	4936	21921	19480	20518	46037	1036	1044
7	102.7	1027	3668	5183	23016	20300	21450	48478	1031	1039
6	102.3	1023	3825	5444	24172	21150	22431	51064	1027	1033
5	101.9	1019	3989	5718	25395	22050	23462	53812	1022	1028
4	101.6	1016	4161	6012	26787	23000	24547	56720	1018	1022
3	101.2	1012	4342	6320	28054	23990	25689	59790	1013	1016
2	100.8	1008	4532	6646	29500	25030	26891	63060	1009	1011
1	100.4	1004	4731	6990	31031	26130	28157	66520	1004	1005
0	100.0	1000	4940	7353	32651	27280	29490	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

Temperature transmitters

Temperature transmitter for room mounting

Technical data	
Temperature range	0…50°C
Accuracy	±0.3°C
Mounting	Room
Protection class	IP30

Article	Supply voltage	Display	Output signal
TRTN	24 V AC or 15...40 V DC, 1 VA	-	0...10 V DC
TRTN-D	24 V AC or 15...40 V DC, 1 VA	X	0...10 V DC
TRTN-420	Max. 28 V, min. 10 + 0.02 x RL (where RL is the circuit loop resistance (RL < 500 Ω))	-	4...20 mA

Temperature transmitter for wall mounting

Technical data	
Temperature range	0…50°C
Accuracy	±0.7°C
Mounting	Wall
Protection class	IP65

Article	Supply voltage	Output signal
TRT50	24 V AC or 15...35 V DC , 1 VA	0...10 V DC
TRT50-420	20...35 V DC	4...20 mA

Temperature transmitter for duct mounting

Technical data	
Temperature range	0…50°C
Accuracy	±0.5°C at 20°C
Insertion length	60...230 mm (adjustable)
Protection class	IP65
Mounting	Duct

Article	Supply voltage	Output signal
TDT200	24 V AC or 20...35 V DC, 1 VA	0...10 V DC
TDT200-420	20...35 V DC	4...20 mA

Humidistats / humidity controllers

Room humidistat, 1-step

Electromechanical humidistat with a synthetic element. The setpoint knob can be locked.

Technical data	
Output	One, 230 V AC, 5 A, change-over
Setpoint	35...95 % RH
Hysteresis	7 % RH
Mounting	Wall
Protection class	IP30

Article	Description
HR-S	Room humidistat, 1-step

Room humidistat, 1- or 2-step

Electromechanical humidistat with change-over contact for control of humidification and/or dehumidification. The setpoint knob can be locked.

Technical data	
Setpoint	10...95 % RH
Hysteresis	4 % RH
Mounting	Wall
Protection class	IP21

Article	Description	Output	Step differential
HR1	Room humidistat, 1-step	5 A, 250 V AC	-
HR1-DH	Room humidistat, 1-step, for dehumidification only	10 A, 250 V AC	-
HR2	Room humidistat, 2-step	5 A, 250 V AC	0...30 % RH

Duct/wall humidistat, 1- or 2-step

Electromechanical humidistat with change-over contact.

Technical data	
Output	10 A, 250 V AC, change-over
Setpoint	10...100 % RH
Hysteresis	3 % RH
Mounting	Duct or wall
Protection class	IP54

Article	Output	Step differential
HMH	1-step	-
HMH2	2-step	0...25 % RH

Room controller, humidity

Humidity controller for control of e.g. an EC fan or a damper in air handling or demand-controlled ventilation applications.

Technical data	
Supply voltage	85…230 V AC, 50/60 Hz
Working range, humidity	0…100 % RH
Outputs	1 analogue output 0...10 V (RL > 10 K)
Mounting	Wall
Protection class	IP30

Article	Description
ALH230A	Humidity controller

Humidity/temperature transmitters

Humidity/temperature transmitter for room mounting

Transmitters for relative humidity and temperature measurement. They have good long-term stability and are resistant to contamination.

Technical data	
Supply voltage, 0...10 V DC	24 V AC / 15...40 V DC, 1 VA
Supply voltage, 4...20 mA	Max. 28 V, min. 10 + 0.02 x RL (where RL is the circuit loop resistance (RL < 500 Ω))
Output signal	0...10 V DC or 4...20 mA (4...20 mA output signal only at DC supply voltage, two-wire)
Working range	Humidity: 0...95 % RH. Temperature: 0...50°C.
Accuracy, humidity	±3 % RH (±2 % at 40...60 % RH)
Mounting	Wall
Protection class	IP30

Article	Description	Display	Output signal	Accuracy, temperature
HRTN	Humidity transmitter	-	0...10 V DC	-
HRTN-D	Humidity transmitter	X	0...10 V DC	-
HRTN-420	Humidity transmitter	-	4...20 mA	-
HTRTN	Combined humidity and temperature transmitter	-	0...10 V DC	±0.25°C
HTRTN-D	Combined humidity and temperature transmitter	X	0...10 V DC	±0.25°C
HTRTN-420	Combined humidity and temperature transmitter	-	4...20 mA	±0.4°C

Humidity/temperature transmitter

Transmitters for relative humidity and temperature measurement, resistant to contamination.

Technical data	
Supply voltage	24 V AC ±20 % or 15...35 V DC
Output	0...10 V DC or 4...20 mA and passive PT1000 signal
Working range	Humidity: 10...95 % RH. Temperature: 0...50°C.
Accuracy, humidity	±2.5 % at 20°C
Accuracy, temperature	±0.3 K at 20°C
Mounting	Wall or duct mounting
Protection class	IP65

Article	Mounting	Output signal
HTRT2500	Wall	0...10 V DC + passive PT1000 signal
HTRT2500-420	Wall	4...20 mA + passive PT1000 signal
HTDT2500	Duct	0..10 V DC + passive PT1000 signal
HTDT2500-420	Duct	4...20 mA + passive PT1000 signal

Humidity/temperature transmitter for wall mounting

Transmitters for relative humidity and temperature measurement, resistant to contamination.

Technical data	
Supply voltage	24 V AC / 15...35 V DC, 1 VA
Output	0...10 V DC or 4...20 mA*
Working range	Humidity: 0...100 % RH. Temperature: -20...+80°C.
Accuracy, humidity	±2 % RH (±3 % at 90...100 % RH)
Accuracy, temperature	±0.2 K at 20°C
Mounting	Wall
Protection class	IP65

Article	Description	Output signal
HRT250	Humidity transmitter	0...10 V DC
HRT250-420	Humidity transmitter	4...20 mA
HTRT250	Combined humidity and temperature transmitter	0...10 V DC
HTRT250-420	Combined humidity and temperature transmitter	4...20 mA

Accessories

Article	Description
CCERT-E	Calibration certificate for HRT250 models, when certified calibration is demanded. Must be ordered together with a new transmitter.

* 4...20 mA output signal only at DC supply voltage (two-wire).

Temperature transmitter for duct mounting

Transmitters for relative humidity and temperature measurement, resistant to contamination.

Technical data	
Supply voltage	24 V AC / 15...35 V DC, 1 VA
Output	0...10 V DC or 4...20 mA*
Working range	Humidity: 0...100 % RH. Temperature: -20...+80°C.
Accuracy, humidity	±2 % RH (±3 % at 90...100 % RH)
Accuracy, temperature	±0.2 K at 20°C
Insertion length	60...230 mm (adjustable)
Mounting	Duct
Protection class	IP65

Article	Description	Output signal
HDT2200	Humidity transmitter	0...10 V DC
HDT2200-420	Humidity transmitter	4...20 mA
HTDT2200	Combined humidity and temperature transmitter	0...10 V DC
HTDT2200-420	Combined humidity and temperature transmitter	4...20 mA

* 4...20 mA output signal only at DC supply voltage (two-wire).

Humidity transmitter for outdoor use

Article	Description
EE21-FT3A21	Humidity/temperature transmitter, 0...10 V DC, for use together with the radiation shield HVS
EE21-FT6A21	Humidity/temperature transmitter, 4...20 mA, for use together with the radiation shield HVS
HVS	Weather shield for outdoor mounting of EE21-FT...

Accessories, humidity

Spare parts for humidstats

Article	Description	Length
HH1606	Hair element for HR1/HR2	107 mm
HH1608	Hair element for HMH/HPH	182 mm
SKYDDSRÖR-375	Protective plastic tube for use of HMH in high air velocity conditions	-

Filters for humidity transmitters

Article	Description
HA010101	Dust filter made of Gore-Tex, standard on the humidity transmitters
HA010102	Sintered brass filter, protection in demanding environments
HA010103	Sintered stainless steel filter, protection in demanding environments
HA010105	Teflon filter
HA010106	Metal filter

Calibration accessories

Article	Description
HA010401	Calibration device for sensor probes, horizontal mounting
HA010402	Calibration device for sensor probes, vertical mounting
HA010410	5 ampoules, 10 % RH, incl. 5 textile discs
HA010435	5 ampoules, 35 % RH, incl. 5 textile discs
HA010450	5 ampoules, 50 % RH, incl. 5 textile discs
HA010480	5 ampoules, 80 % RH, incl. 5 textile discs
HA010495	5 ampoules, 50 % RH, incl. 5 textile discs

Pressure

Differential pressure switch for air and non-corrosive gases

Differential pressure switches with excellent long-term stability.

Technical data	
Max. overload pressure	5000 Pa
Relay output	5 A (0.8 A) 250 V AC, change-over
Ambient temperature	-20...+85°C
Protection class	IP54

Article	Working range
DTV200	20...300 Pa
DTV500	50...500 Pa
DTV1000	100...1000 Pa
DTV2000	500...2000 Pa
DTV5000	1000...5000 Pa

Accessories

Article	Description
ANS-1	2 m plastic tube and two pressure outlets

Universal room controller

Universal controller for control of e.g. an EC fan or a damper in air handling or demand-controlled ventilation applications.

Technical data	
Supply voltage	85…230 V AC, 50/60 Hz
Working range	0…100 %
Outputs	1 analogue output 0...10 V (RL > 10 K)
Inputs	1 analogue input 0...10 V
Mounting	Wall
Protection class	IP30

Article	Description
ALU230A	Universal controller

Differential pressure transmitter for air, with display

Microprocessor-controlled differential pressure transmitter for measurement of air and neutral gases. DMD has four different measuring ranges in the same unit. The range is selected by means of buttons under the cover. Other functions are zero-point adjustment and electronic damping.

Supplied with 2 m plastic tube and two pressure outlets.

Selectable working range and output signal. Adjustable damping of the measuring signal.

Technical data	
Supply voltage	24 V AC or DC, 5 VA
Output signal	0...10 V DC or 4...20 mA
Working range	0...100 Pa, 0...300 Pa, 0...500 Pa and 0...1000 Pa
Accuracy	Better than ±1 % at 20°C
Electronic damping	0...20 s
Display	LED, 3 digits
Protection class	IP54

Article	Description
DMD	Differential pressure transmitter with display

Differential pressure transmitter with built-in controller, with display

Microprocessor-controlled differential pressure transmitter with built-in controller for control of dampers, frequency converters, VAV systems, gases etc. DMD-C has four separate measurement ranges in the same unit. The range is selected by means of buttons under the cover.

Supplied with 2 m plastic tube and two pressure outlets.

Selectable working range. Adjustable damping of the measuring signal.

Technical data	
Supply voltage	24 V AC or DC, 5 VA
Output signal, pressure	0...10 V DC or 4...20 mA
Output signal, controller	0...10 V DC
Working range	0...100 Pa, 0...300 Pa, 0...500 Pa and 0...1000 Pa
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 class	IP54

Article	Description
DMD-C	Differential pressure transmitter with built-in controller, with display

Differential pressure transmitter for air and non-corrosive gases (multi-range)

Transmitters with a high level of accuracy and stability. Quick and easy mounting.

Technical data	
Supply voltage	24 V AC (24 V DC, two-wire for 4...20 mA), 0.24 VA
Accuracy	±1% fs
Ambient temperature	0...70°C
Protection class	IP54

Article	Description	Working range	Output signal
DTL1650-420	Differential pressure transmitter	1600 / 2500 / 5000 Pa	4...20 mA
DTL1650		1600 / 2500 / 5000 Pa	0...10 V DC
DTL516-420		500 / 1000 / 1600 Pa	4...20 mA
DTL516		500 / 1000 / 1600 Pa	0...10 V DC
DTL310-420		300 / 500 / 1000 Pa	4...20 mA
DTL310		300 / 500 / 1000 Pa	0...10 V DC
DTL150-420		100 / 300 / 500 Pa	4...20 mA
DTL150		100 / 300 / 500 Pa	0...10 V DC
DTL...-D/-D-420	Transmitter (all types above) in display version (LCD). Note: Non-stock item.	See type	See type

Accessories

Article	Description
ANS-1	2 m plastic tube and two pressure outlets
CCERT-H	Calibration certificate for the DTL series, when certified calibration is demanded

Differential pressure transmitter for air and non-corrosive gases (low pressure)

Transmitters with a high level of accuracy and stability. Quick and easy mounting.

Technical data	
Supply voltage	24 V AC (24 V DC, two-wire for 4...20 mA), 0.24 VA
Accuracy	±1% fs
Ambient temperature	0...70°C
Protection class	IP54

Models without display

Article	Working range	Output signal
DTL05/05	-50...+50 Pa	0...10 V DC
DTL05/05-420	-50...+50 Pa	4...20 mA

Models with display (non-stock item)

Article	Working range	Output signal
DTL05/05-D	-50...+50 Pa	0...10 V DC
DTL05/05-420-D	-50...+50 Pa	4...20 mA

Accessories

Article	Description
ANS-1	2 m plastic tube and two pressure outlets
CCERT-H	Calibration certificate for the DTL series, when certified calibration is demanded.

Differential pressure transmitter for liquids and gases

Differential pressure transmitter for measurement of liquids (also glycol-mixed) and gases (not ammonia). The measuring element is made of ceramic material.

Technical data	
Supply voltage	24 V AC / 18...33 V DC (output signal 0...10 V DC), 0.1 VA 11...33 V DC, two-wire (output signal 4...20 mA), 0.5 VA
Output signal	0...10 V DC or 4...20 mA (two-wire)
Ambient temperature	-15...+80°C
Connection	Screw fitting for Ø 6 mm pipe included
Protection class	IP65

Article	Working range	Output signal	Max. overload pressure (one side)	Accuracy
DTK10	0...10 kPa	0...10 V DC	60 kPa	±1.3 % fs
DTK10-420	0...10 kPa	4...20 mA	60 kPa	±1.3 % fs
DTK20	0...20 kPa	0...10 V DC	120 kPa	±1.3 % fs
DTK20-420	0...20 kPa	4...20 mA	120 kPa	±1.3 % fs
DTK40	0...40 kPa	0...10 V DC	200 kPa	±1.3 % fs
DTK40-420	0...40 kPa	4...20 mA	200 kPa	±1.3 % fs
DTK100	0...100 kPa	0...10 V DC	500 kPa	±1.3 % fs
DTK100-420	0...100 kPa	4...20 mA	500 kPa	±1.3 % fs
DTK250	0...250 kPa	0...10 V DC	1200 kPa	±1.3 % fs
DTK250-420	0...250 kPa	4...20 mA	1200 kPa	±1.3 % fs
DTK400	0...400 kPa	0...10 V DC	1200 kPa	±0.8 % fs
DTK400-420	0...400 kPa	4...20 mA	1200 kPa	±0.8 % fs
DTK600	0...600 kPa	0...10 V DC	1200 kPa	±0.5 % fs
DTK600-420	0...600 kPa	4...20 mA	1200 kPa	±0.5 % fs
DTK1000	0...1000 kPa	0...10 V DC	2000 kPa	±0.5 % fs
DTK1000-420	0...1000 kPa	4...20 mA	2000 kPa	±0.5 % fs
DTK1600	0...1600 kPa	0...10 V DC	3200 kPa	±0.5 % fs
DTK1600-420	0...1600 kPa	4...20 mA	3200 kPa	±0.5 % fs

Accessories

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

Pressure transmitter for liquids and gases

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

Technical data	
Supply voltage	24 V AC / 18...33 V DC (output signal 0...10 V DC), 0.1 VA 11...33 V DC, two-wire (output signal 4...20 mA), 0.5 VA
Output signal	0...10 V DC or 4...20 mA (two-wire)
Accuracy	±0.3 %
Connection	R1/4”
Packing	EPDM
Temperature range	-15...+80°C
Protection class	IP65

Article	Working range	Output signal
TTK1	0...100 kPa	0...10 V DC
TTK1-420	0...100 kPa	4...20 mA
TTK2	0...200 kPa	0...10 V DC
TTK2-420	0...200 kPa	4...20 mA
TTK5	0...500 kPa	0...10 V DC
TTK5-420	0...500 kPa	4...20 mA
TTK10	0...1000 kPa	0...10 V DC
TTK10-420	0...1000 kPa	4...20 mA
TTK16	0...1600 kPa	0...10 V DC
TTK16-420	0...1600 kPa	4...20 mA
TTK25	0...2500 kPa	0...10 V DC
TTK25-420	0...2500 kPa	4...20 mA
TTK40	0...4000 kPa	0...10 V DC
TTK40-420	0...4000 kPa	4...20 mA
TTK100	0...10000 kPa	0...10 V DC
TTK100-420	0...10000 kPa	4...20 mA

Accessories

Article	Description
105074	Mounting spacer which lowers the temperature at higher media temperatures than the sensor can handle
ADAPTER	Adapter 1/4” to 1/2”. For mounting TG-D1... in 1/2”.

Flow

Air velocity transmitter

For air velocity measurement in ventilation ducts.

Technical data	
Supply voltage	24 V AC/DC ±20 %
Working range	0...10 m/s, 0...15 m/s, 0...20 m/s
Output signal	0...10 V (max. 1 mA), 4...20 mA
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
Ambient temperature	-10...+50°C
Insertion length	50...200 mm
Mounting	Duct
Protection class	IP65

Article	Description
AVDT25	Air velocity transmitter

Liquid flow switch

FLSX is a series of electromechanical flow switches for heating and cooling systems They are available in brass (suitable for normal media), and stainless steel AISI 316L (suitable for seawater and aggressive media).

Each model can be ordered with a 1" NPT thread on request.

Technical data	
Contacts	Dust-tight microswitch with switching contacts (NC/NO)
Switch capacity	15 (8) A, 24...250 V AC
Ambient temperature	-40...+85°C
Ambient humidity	10...90 % RH (non-condensing)
Media temperature	-40...+120°C
Paddles	Stainless steel AISI 316L
Casing	ABS, transparent Polycarbonate (PC) cover
Dimensions	140 x 62 x 65 mm
Protection class	IP65

Article	For pipes (diameter)	Max. pressure	Media	"T" pipe fitting
FLS304X	1...8"	11 bar	Normal	-
FLS304XT	1...8"	11 bar	Normal	-
FLS304XRE	1...8"	11 bar	Normal	-
FLS305XT	1...8"	30 bar	Corrosive	-
FLS305XRE	1...8"	30 bar	Corrosive	-
FLS306X	½"	11 bar	Normal	X
FLS307X	¾"	11 bar	Normal	X
FLS308X	1"	11 bar	Normal	X

Accessories

Article	Description
FLZ-09	Stainless steel Aisi 316L paddles for liquid flow switch

CO_2/CO/NO_2 controllers and transmitters

Room controller, temperature and CO_2

Temperature and CO_2 controller for control of e.g. an EC fan or a damper in air handling or demand-controlled ventilation applications.

Technical data	
Supply voltage	85…230 V AC, 50/60 Hz
Temperature range	5…30°C
Working range, CO_2	0…2000 ppm
Outputs	1 analogue output 0...10 V (RL > 10 K)
Mounting	Wall
Protection class	IP30

Article	Description
ALC230A	Temperature and CO_2 controller

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Carbon dioxide transmitter, wall mounting

The CO2RT series measures CO_2 level, temperature and relative humidity. Models are available with or without display and relay output.

Technical data	
Supply voltage	24 V AC ±15 %, 50...60 Hz or 15...35 V DC, 3 VA
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, temperature	±0.3°C
Accuracy, humidity	±3 % at 30...70 % RH, ±5 % at 10...90 % RH
Relay output	Max. 1 A at 50 V AC, min. 1 mA at 5 V DC
Mounting	Wall
Protection class	IP30
Outputs	
CO_2	0...10 V DC referring to 0...2000 ppm
Temperature	0...10 V DC referring to 0...50°C , PT1000-sensor (DIN class B)
Humidity	0...10 V DC referring to 0...100 % RH (working range 1...9 V)

Article	Description	Temperature measurement	Humidity measurement	Relay
CO2RT	CO_2 and temperature transmitter	X	-	-
CO2RT-D	CO_2 and temperature transmitter	X	-	-
CO2HRT	CO_2, temperature and humidity transmitter	X	X	-
CO2HRT-D	CO_2, temperature and humidity transmitter	X	X	-
CO2RT-R	CO_2 transmitter with relay	-	-	X
CO2RT-R-D	CO_2 transmitter with relay	-	-	X

Carbon dioxide transmitter, duct mounting

Measures the concentration of carbon dioxide in ducts.

Technical data	
Supply voltage	24 V AC ±20 %, 50...60 Hz or 15...35 V DC, 3 VA
Working range	0...2000 ppm
Output signal	0...10 V DC / 4...20 mA
Accuracy	±(50 ppm + 2 % of the measured value)
Relay output	Max. Max. 1 A at 50 V AC, min. 1 mA at 5 V DC
Mounting	Duct
Protection class	IP65

Article	Description	Relay
CO2DT	CO_2 transmitter	-
CO2DT-R	CO_2 transmitter with relay	X

On request also available with 0...5000 ppm working range.

Carbon monoxide transmitter

COF 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.

The transmitter is TÜV-approved in accordance with VDI 2053.

Technical data	
Supply voltage	12...28 V DC
Measuring range	0...300 ppm
Outputs	4...20 mA, two-wire 0...10 V DC, three-wire
Calibration	Automatic zero adjustment
Protection class	IP56

Article	Description
COF	CO transmitter

Nitrogen dioxide transmitter

NO2F measures the nitrogen dioxide 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.

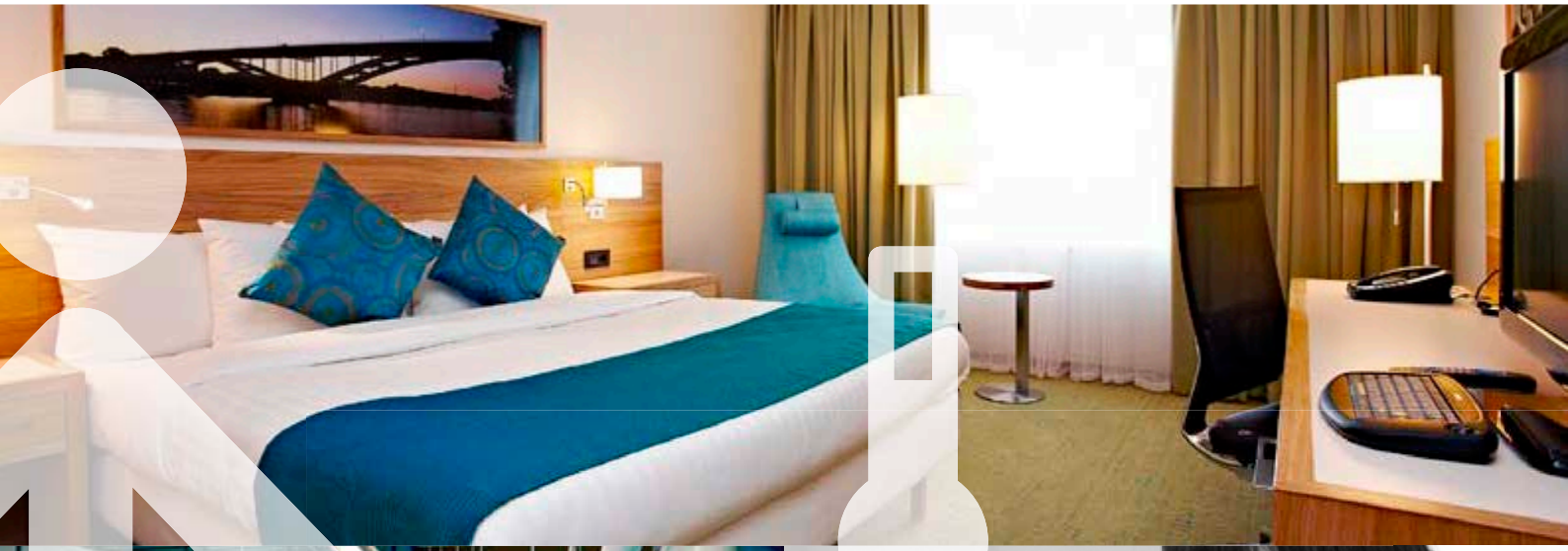
The transmitter is TÜV-approved in accordance with VDI 2053.

Technical data	
Supply voltage	12...28 V DC
Measuring range	0...20 ppm
Outputs	4...20 mA, two-wire 0...10 V DC, three-wire
Calibration	Automatic zero adjustment
Protection class	IP56

Article	Description
NO2F	NO_2 transmitter

7

DETECTORS



Detectors

Smoke detector for duct mounting, ionisation

Single-tube detector including 600 mm venturi tube.

Technical data	
Supply voltage	9...33 V DC (via ABV control unit). 24 V AC ±15 % for RAC(M) models.
Power consumption, incl. end resistor (not RAC(M))	Normal operation: 11 mA at 24 V DC. Alarm condition: 50 mA at 24 V DC. Service alarm condition: 20 mA at 24 V DC.
Mounting	Duct
Protection class	IP54

Article	Description
SDD-S65	Ionisation detector
SDD-S50	Ionisation detector with service alarm
SDD-S65-RAC	Ionisation detector with AC power supply and relay output only
SDD-S65-RACM	Ionisation detector with AC power supply and relay output only. With auxiliary fan.
SDD-S65-M	Ionisation detector with auxiliary fan
SDD-S50-M	Ionisation detector with auxiliary fan and service alarm

Accessories

Article	Description
TDS	Mounting spacer for insulated pipe ducts
VR600	Venturi tube, 600 mm length (standard)
VR2000	Venturi tube, 2000 mm length

Smoke detector for duct mounting, optical

Single-tube detector, including 600 mm venturi tube.

Technical data	
Supply voltage	9...33 V DC (via ABV control unit). 24 V AC ±15 % for RAC(M) models.
Power consumption, incl. end resistor (not RAC(M))	Normal operation: 11 mA at 24 V DC. Alarm condition: 50 mA at 24 V DC. Service alarm condition: 20 mA at 24 V DC.
Mounting	Duct
Protection class	IP54

Article	Description
SDD-OE65	Optical detector
SDD-OE50	Optical detector with service alarm
SDD-OE65-RAC	Optical detector with AC power supply and relay output only.
SDD-OE65-RACM	Optical detector with AC power supply and relay output only. With auxillary fan.
SDD-OE50-M	Optical detector with auxiliary fan and service alarm

Accessories

Article	Description
TDS	Mounting spacer for insulated pipe ducts

Smoke detector for ceiling mounting

Technical data	
Supply voltage	15...30 V DC (via ABV control unit)
Power consumption	0.14 mA (50 mA if an alarm occurs)
Mounting	Ceiling
Protection class	IP20

Article	Service alarm	Description
S65-OE	-	Optical detector
S50-OE-GA4	X	Optical detector with service alarm
S65	-	Ionisation detector
S50	X	Ionisation detector with service alarm

Accessories

Article	Description
S-BP	Socket for S50 and S65 detectors
S-BPR-S50	Socket for S50 detectors with built-in change-over relay (24 V AC)
S-BPR-S65	Socket for S65 detectors with built-in change-over relay (24 V AC)

Control units for smoke detectors

Control units for the SDD, S50 and S65 series. Provides power supply and alarm handling for smoke detectors, with or without service alarm. Two relay contacts for alarm handling.

Technical data	
Power consumption	30 mA (70 mA if an alarm occurs), 1 VA (1.7 VA if an alarm occurs)
Mounting	DIN-rail
Number of modules	3
Protection class	IP20

Article	Supply voltage	Alarm outputs	Service alarm
ABV24-300/D	24 V AC/DC	Two change-over contacts (smoke alarms)	-
ABV24-S-300/D	24 V AC/DC	One change-over contact (smoke), one closing contact (smoke), one closing contact (service)	X
ABV-300/D	230 V AC	Two change-over contacts (smoke alarms)	-
ABV-S-300/D	230 V AC	One change-over contact (smoke), one closing contact (smoke), one closing contact (service)	X

Smoke spray

Gas for control of ionisation or optical smoke detectors.

Article	Description
SS-260	Smoke spray, 260 ml

Presence detector

IR24-P

IR24-PC

Detector providing 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 and change-over relay.

Technical data	
Supply voltage	24 V AC/DC, 0.1 VA
Alarm output	200 mA, 24 V DC, floating, change-over relay
Power consumption	15 mA
Temperature range	-20…+50°C
Ambient humidity	Max. 95 % RH
Protection class	IP20

Article	Mounting	Detection area
IR24-P	Wall	15 x 15 m, 110° angle
IR24-PC	Ceiling	Height x 2.5 = coverage diameter, 25° angle

8

ENERGY METERS

Energy meter with coaxial multi-jet flow meter

Compact energy meters intended for heating or cooling.

Technical data	
Calculator	
Power supply	3 V lithium battery, min. 6 + 1 years
Temperature range	1...150°C
Protection class	IP54
Flow meter	
Connection	Threaded according to ISO 228/1
Pressure rating	PN16
Media	Water
Mounting position	Horizontal or vertical
Temperature sensor	
Cable length	1.5 m (the other temperature sensor is integrated into the flow meter)
Sensor element	PT500; separately approved type as per EN60751, unshielded
Diameter, sensor	5 mm

Article	Description
MSH...	Energy meter with coaxial multi-jet flow meter. See ordering code selection table for more information on each model.

Ordering code selection table

Options	MSH					
Flow (thread on meter body) (DN) (length of flow meter)	0.6 m³/h (G3/4") (DN15) (110 mm)	15-0.6				
	1.5 m³/h (G3/4")(DN15) (110 mm)	15-1.5				
	2.5 m³/h (G1") (DN20) (130 mm)	20-2.5				
Type of measurement and installation point	Heating installation of flow meter in return pipe (MID approval)		-	HR		
	Cooling[1], installation of flow meter in return pipe		-	CR		
	Heating and cooling in combination[2], installation of flow meter in return pipe.		-	HCR		
Communication interface	M-Bus				-	M
	M-Bus with 2 pulse inputs				-	MPI
	Pulse output for energy or volume				-	PO

[1] TÜV approval. [2] MID approval for heating, not for cooling.

If any further requirements or options are needed, or for pricing questions, please contact Regin.

Accessories for MSH

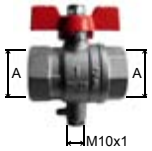
Threaded fitting with coupling ring and gasket *

Article	Connection A	Connection B	Compatible with
VSR-½	G¾	R½	q_p0.6/1.5 m³/h
VSR-¾	G1	R¾	q_p2.5/3.5 m³/h

Ball valve with coupling ring and gasket *

Article	Connection A	Connection B	Compatible with
KH-¾	Rp¾	G¾	q_p0.6/1.5 m³/h
KH-1	Rp1	G1	q_p2.5/3.5 m³/h

Ball valve with installation point for a temperature sensor (socket M10x1)



Article	Connection A	Compatible with
KH-S-¾	G¾	q_p0.6/1.5 m³/h
KH-S-1	G1	q_p2.5/3.5 m³/h

Forward flow adapter with gasket, for direct mounted temperature sensor in a T-piece

Article	Connection A
VAD-½"	G½, M10x1
VAD-3/8"	G3/8, M10x1

Threaded adapter to replace flow meter temporarily or permanently

Article	Connection A	Compatible with	Installation length (L)
PS-110-¾	G¾	qp 0.6/1.5 m³/h	110 mm
PS-130-1	G1	qp 2.5 m³/h	130 mm

* Either the brass threaded fittings or the ball valves are to be used on each side of the flow meter. 2 pcs are required for each meter.

Energy meter with multi-jet flow meter

Combined energy meter for heating or cooling, consisting of a multi-jet flow meter for horizontal or vertical mounting, a pair of temperature sensors and a calculator.

Technical data	
Calculator	
Power supply	3 V lithium AA battery, replaceable
Temperature range	1...150°C
Protection class	IP65
Flow meter	
Connection	Threaded according to ISO 228/1 or flanged according to EN 1092-2 (see ordering code selection table)
Pressure rating	PN16
Media	Water
Mounting position	Horizontal or vertical (see ordering code selection table)
Temperature sensor	
Cable length	3 m
Sensor element	PT500; separately approved type as per EN60751, unshielded
Diameter, sensor	6 mm

Article	Description
MTH...	Energy meter with multi-jet flow meter. See ordering code selection table for more information on each model.

Ordering code selection table

Options	MTH							
Connection and installation position (lenght of meter)	Flanged horisontal (DN20=190 mm, DN25=260 mm, DN40=300 mm)	FH						
	Threaded horizontal (DN20=190 mm, DN25=260 mm, DN40=300 mm)	TH						
	Threaded vertical rising pipe (DN20=105 mm, DN25=150 mm, DN40=200 mm)	TVR						
	Threaded vertical falling pipe (DN20=105 mm, DN25=150 mm, DN40=200 mm)	TVF						
Flow select m³/h (DN) (connection)	1.5 m³/h (DN20) (Flange PN16 or thread G1" on body)		-	20-1.5				
	2.5 m³/h (DN20) (Flange PN16 or thread G1" on body)		-	20-2.5				
	3.5 m³/h (DN25) (Flange PN16 or thread G1 1/4" on body)		-	25-3.5				
	6.0 m³/h (DN25) (Flange PN16 or thread G1 1/4" on body)		-	25-6.0				
	10 m³/h (DN40) (Flange PN16 or thread G2" on body)		-	40-10				
Type of measurement and installation point	Heating installation of flow meter in return pipe (MID approval)				-	HR		
	Cooling[1], installation of flow meter in return pipe				-	CR		
	Heating and cooling in combination[2], installation of flow meter in return pipe.				-	HCR		
Communication interface	M-Bus						-	M
	M-Bus with 2 pulse inputs						-	MPI
	Pulse output for energy or volume						-	PO

[1] TÜV approval. [2] MID approval for heating, not for cooling.

If any further requirements or options are needed, or for pricing questions, please contact Regin.

Accessories for MTH

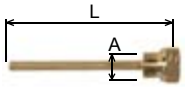
Threaded fitting with coupling ring and gasket *

Article	Connection A	Connection B	Compatible with
VSR-¾	G1	R¾	q_p2.5/3.5 m³/h
VSR-1	G1¼	R1	q_p3.5/6.0 m³/h
VSR-1½	G2	R1½	q_p10 m³/h

Ball valve with coupling ring and gasket

Article	Connection A	Connection B	Compatible with
KH-1	Rp1	G1	q_p2.5/3.5 m³/h
KH-1¼	Rp1¼	G1¼	q_p3.5/6.0 m³/h
KH-2	Rp2	G2	q_p10 m³/h

Temperature pocket for installation of universal temperature sensor with 6 mm sheath diameter



Article	Connection A	Compatible with	Installation length (L)
TH-85-½	G½	q_p3.5/10 m³/h	85 mm

Threaded adapter to replace flow meter temporarily or permanently

Article	Connection A	Compatible with	Installation length (L)
PS-105-1	G1	qp 1.5/2.5 m³/h	105 mm
PS-150-1¼	G1¼	qp 3.5/6 m³/h	150 mm
PS-190-1	G1	qp 1.5/2.5 m³/h	190 mm
PS-200-2	G2	qp 10 m³/h	200 mm
PS-260-1¼	G1¼	qp 3.5/6 m³/h	260 mm
PS-300-2	G2	qp 10 m³/h	300 mm

* Either the brass threaded fittings or the ball valves are to be used on each side of the flow meter. 2 pcs are required for each meter.

Energy meter with ultrasonic flow meter

Compact energy meters with built-in ultrasonic flow meter, intended for heating or cooling.

Technical data	
Calculator	
Power supply	3 V lithium battery, min. 6 + 1 years
Temperature range	1...105°C
Protection class	IP54
Flow meter	
Connection	Threaded according to ISO 228/1
Pressure rating	PN16
Media	Water
Mounting position	Horizontal or vertical
Temperature sensor	
Cable length	1.5 m (the other temperature sensor is integrated into the flow meter)
Sensor element	PT1000, DIN IEC 60751
Diameter, sensor	5 mm

Article	Description
SS2U...	Energy meter with ultrasonic flow meter. See ordering code selection table for more information on each model.

Ordering code selection table

Options	SS2U					
Flow (thread on meter body) (DN) (length of flow meter)	0.6 m³/h (G3/4") (DN15) (110 mm)	15-0.6				
	1.5 m³/h (G3/4")(DN15) (110 mm)	15-1.5				
	2.5 m³/h (G1") (DN20) (130 mm)	20-2.5				
	3.5 m³/h (G1") (DN20) (130 mm)	20-3.5				
	3.5 m³/h (G1 1/4") (DN25) (150 mm)	25-3.5				
Type of measurement and installation point	Heating installation of flow meter in return pipe (MID approval)		-	HR		
	Cooling[1], installation of flow meter in return pipe		-	CR		
	Heating and cooling in combination[2], installation of flow meter in return pipe.		-	HCR		
Communication interface	M-Bus				-	M
	M-Bus with 2 pulse inputs				-	MPI
	Pulse output for energy or volume				-	PO

[1] TÜV approval. [2] MID approval for heating, not for cooling.

If any further requirements or options are needed, or for pricing questions, please contact Regin.

Accessories for SS2U

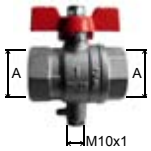
Threaded fitting with coupling ring and gasket *

Article	Connection A	Connection B	Compatible with
VSR-½	G¾	R½	q_p0.6/1.5 m³/h
VSR-¾	G1	R¾	q_p2.5/3.5 m³/h
VSR-1	G1¼	R1	q_p3.5/6.0 m³/h

Ball valve with coupling ring and gasket *

Article	Connection A	Connection B	Compatible with
KH-¾	Rp¾	G¾	q_p0.6/1.5 m³/h
KH-1	Rp1	G1	q_p2.5/3.5 m³/h
KH-1¼	Rp1¼	G1¼	q_p3.5/6.0 m³/h

Ball valve with installation point for a temperature sensor (socket M10x1)



Article	Connection A	Compatible with
KH-S-¾	G¾	q_p0.6/1.5 m³/h
KH-S-1	G1	q_p2.5/3.5 m³/h
KH-S-1¼	G1¼	q_p3.5/6.0 m³/h

Forward flow adapter with gasket, for direct mounted temperature sensor in a T-piece

Article	Connection A
VAD-½"	G½, M10x1
VAD-3/8"	G3/8, M10x1

Threaded adapter to replace flow meter temporarily or permanently

Article	Connection A	Compatible with	Installation length (L)
PS-110-¾	G¾	qp 0.6/1.5 m³/h	110 mm
PS-130-1	G1	qp 2.5 m³/h	130 mm
PS-150-1¼	G1¼	qp 3.5/6 m³/h	150 mm

* Either the brass threaded fittings or the ball valves are to be used on each side of the flow meter. 2 pcs are required for each meter.

Ultrasonic energy meters

Horizontal or vertical mounting.

Technical data	
Calculator	
Power supply	3.6 V lithium battery
Temperature range	1...150°C
Protection class	IP54 (heating), IP65 (cooling)
Flow meter	
Connection	Flanged according to EN 1092-3
Pressure rating	PN25
Media	Water
Mounting position	Horizontal or vertical
Temperature sensor	
Cable length	3 m
Sensor element	PT500; separately approved type as per EN60751, unshielded
Diameter, sensor	6 mm

Article	Description
US-S/FFL...	Ultrasonic energy meter. See ordering code selection table for more information on each model.

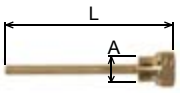
Ordering code selection table

Options	US-S/FFL					
Flow select m³/h (DN) (Length in mm) (Flange)	3.5 m³/h (DN25) (260 mm) (PN25 flange with 4 bolt holes)	25-3.5				
	6.0 m³/h (DN25) (260 mm) (PN25 flange with 4 bolt holes)	25-6.0				
	10 m³/h (DN40) (300 mm) (PN25 flange with 4 bolt holes)	40-10				
	15 m³/h (DN50) (270 mm) (PN25 flange with 4 bolt holes)	50-15				
	25 m³/h (DN65) (300 mm) (PN25 flange with 8 bolt holes)	65-25				
	40 m³/h (DN80) (300 mm) (PN25 flange with 8 bolt holes)	80-40				
	60 m³/h (DN100) (360 mm) (PN25 flange with 8 bolt holes)	100-60				
Type of measurement and installation point	Heating installation of flow meter in return pipe (MID approval)		-	HR		
	Cooling[1], installation of flow meter in return pipe		-	CR		
	Heating and cooling in combination[2], installation of flow meter in return pipe.		-	HCR		
Communication interface	M-Bus with power supply				-	M
	M-Bus with 2 pulse inputs				-	MPI
	Pulse output for energy or volume				-	PO

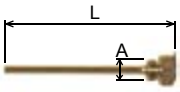
[1] TÜV approval. [2] MID approval for heating, not for cooling.

If any further requirements or options are needed, or for pricing questions, please contact Regin.

Accessories for US-S/FFL



TH-85



TH-120

Temperature pocket for installation of universal temperature sensor with 6 mm sheath diameter

Article	Connection A	Compatible with	Installation length (L)
TH-85-½	G½	q_p3.5/10 m³/h	85 mm
TH-120-½	G½	q_p15-100 m³/h	120 mm

Ultrasonic energy meters

Horizontal or vertical mounting.

Technical data	
Calculator	
Power supply	3.6 V lithium battery
Temperature range	1...150°C
Protection class	IP54 (heating), IP65 (cooling)
Flow meter	
Connection	Threaded according to ISO 228/1
Pressure rating	PN16
Media	Water
Mounting position	Horizontal or vertical
Temperature sensor	
Cable length	3 m (the other temperature sensor is integrated into the flow meter)
Sensor element	PT500; separately approved type as per EN60751, unshielded
Diameter, sensor	5 mm

Article	Description
US-WV...	Ultrasonic energy meter. See ordering code selection table for more information on each model.

Ordering code selection table

Options	US-WV					
Flow (thread on meter body) (DN) (length of flow meter)	1.5 m³/h (G3/4")(DN15) (110 mm)	15-1.5				
	1.5 m³/h (G1") (DN20) (190 mm)	20-1.5				
	2.5 m³/h (G1") (DN20) (190 mm)	20-2.5				
	3.5 m³/h (G1 1/4") (DN25) (260 mm)	25-3.5				
	6.0 m³/h (G1 1/4") (DN25) (260 mm)	25-6.0				
	10 m³/h (G2) (DN40") (300 mm)	40-10				
Type of measurement and installation point	Heating installation of flow meter in return pipe (MID approval)		-	HR		
	Cooling[1], installation of flow meter in return pipe		-	CR		
	Heating and cooling in combination[2], installation of flow meter in return pipe.		-	HCR		
Communication interface	M-Bus with power supply				-	M
	M-Bus with 2 pulse inputs				-	MPI
	Pulse output for energy or volume				-	PO

[1] TÜV approval. [2] MID approval for heating, not for cooling.

If any further requirements or options are needed, or for pricing questions, please contact Regin.

Accessories for US-WV

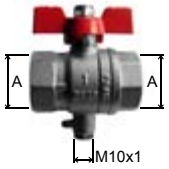
Threaded fitting with coupling ring and gasket *

Article	Connection A	Connection B	Compatible with
VSR-½	G¾	R½	q_p0.6/1.5 m³/h
VSR-¾	G1	R¾	q_p2.5/3.5 m³/h
VSR-1	G1¼	R1	q_p3.5/6.0 m³/h
VSR-1½	G2	R1½	q_p10 m³/h

Ball valve with coupling ring and gasket *

Article	Connection A	Connection B	Compatible with
KH-¾	Rp¾	G¾	q_p0.6/1.5 m³/h
KH-1	Rp1	G1	q_p2.5/3.5 m³/h
KH-1¼	Rp1¼	G1¼	q_p3.5/6.0 m³/h
KH-2	Rp2	G2	q_p10 m³/h

Ball valve with installation point for a temperature sensor (socket M10x1)



Article	Connection A	Compatible with
KH-S-¾	G¾	q_p0.6/1.5 m³/h
KH-S-1	G1	q_p2.5/3.5 m³/h
KH-S-1¼	G1¼	q_p3.5/6.0 m³/h
KH-S-2	G2	q_p10 m³/h

Forward flow adapter with gasket, for direct mounted temperature sensor in a T-piece

Article	Connection A
VAD-½"	G½, M10x1
VAD-3/8"	G3/8, M10x1

Threaded adapter to replace flow meter temporarily or permanently

Article	Connection A	Compatible with	Installation length (L)
PS-110-¾	G¾	qp 0.6/1.5 m³/h	110 mm
PS-190-1	G1	qp 1.5/2.5 m³/h	190 mm
PS-260-1¼	G1¼	qp 3.5/6 m³/h	260 mm
PS-300-2	G2	qp 10 m³/h	300 mm

* Either the brass threaded fittings or the ball valves are to be used on each side of the flow meter. 2 pcs are required for each meter.

Woltmann type combined energy meter

Woltmann flow meters for large nominal flows combined with calculator and temperature sensors.

Technical data	
Calculator	
Power supply	3 V lithium AA battery, replaceable
Temperature range	1...150°C
Protection class	IP65
Flow meter	
Connection	Flanged according to EN 1092-2
Pressure rating	PN16
Media	Water
Mounting position	WSTH horizontal only, WPTH horizontal or vertical
Temperature sensor	
Cable length	3 m
Sensor element	PT500; separately approved type as per EN60751, unshielded
Diameter, sensor	6 mm

Article	Description
WSTH...	Woltmann type combined energy meter for horizontal mounting. See ordering code selection table for more information on each model.
WPTH...	Woltmann type combined energy meter for horizontal or vertical mounting. See ordering code selection table for more information on each model.

Ordering code selection table

Options	WSTH					
Flow select m³/h (DN) (flange) (length of meter)	15 m³/h (DN50) (PN16 flange with 4 bolt holes) (270 mm)	50-15				
	25 m³/h (DN65) (PN16 flange with 4 bolt holes) (300 mm)	65-25				
	40 m³/h (DN80) (PN16 flange with 8 bolt holes) (300 mm)	80-40				
	60 m³/h (DN100) (PN16 flange with 8 bolt holes) (360 mm)	100-60				
	150 m³/h (DN150) (PN16 flange with 8 bolt holes) (500 mm)	150-150				
Type of measurement and installation point	Heating installation of flow meter in return pipe (MID approval)		-	HR		
	Cooling[1], installation of flow meter in return pipe		-	CR		
	Heating and cooling in combination[2], installation of flow meter in return pipe.		-	HCR		
Communication interface	M-Bus				-	M
	M-Bus with 2 pulse inputs				-	MPI
	Pulse output for energy or volume				-	PO

[1] TÜV approval. [2] MID approval for heating, not for cooling.

If any further requirements or options are needed, or for pricing questions, please contact Regin.

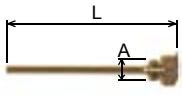
Ordering code selection table

Options	WPTH					
Flow select m³/h (DN) (flange) (length of meter)	15 m³/h (DN50) (PN16 flange with 4 bolt holes) (200 mm)	50-15				
	25 m³/h (DN65) (PN16 flange with 4 bolt holes) (200 mm)	65-25				
	32 m³/h (DN80) (PN16 flange with 8 bolt holes) (225 mm)	80-32				
	60 m³/h (DN100) (PN16 flange with 8 bolt holes) (250 mm)	100-60				
	100 m³/h (DN125) (PN16 flange with 8 bolt holes) (250 mm)	125-100				
	200 m³/h (DN150) (PN16 flange with 8 bolt holes) (300 mm)	150-200				
	250 m³/h (DN200) (PN16 flange with 12 bolt holes) (350 mm)	200-250				
	400 m³/h (DN250) (PN16 flange with 12 bolt holes) (450 mm)	250-400				
	600 m³/h (DN300) (PN16 flange with 12 bolt holes) (500 mm)	300-600				
Type of measurement and installation point	Heating installation of flow meter in return pipe (MID approval)		-	HR		
	Cooling[1], installation of flow meter in return pipe		-	CR		
	Heating and cooling in combination[2], installation of flow meter in return pipe.		-	HCR		
Communication interface	M-Bus				-	M
	M-Bus with 2 pulse inputs				-	MPI
	Pulse output for energy and volume				-	PO

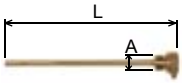
[1] TÜV approval. [2] MID approval for heating, not for cooling.

If any further requirements or options are needed, or for pricing questions, please contact Regin.

Accessories for WSTH / WPTH



TH-120



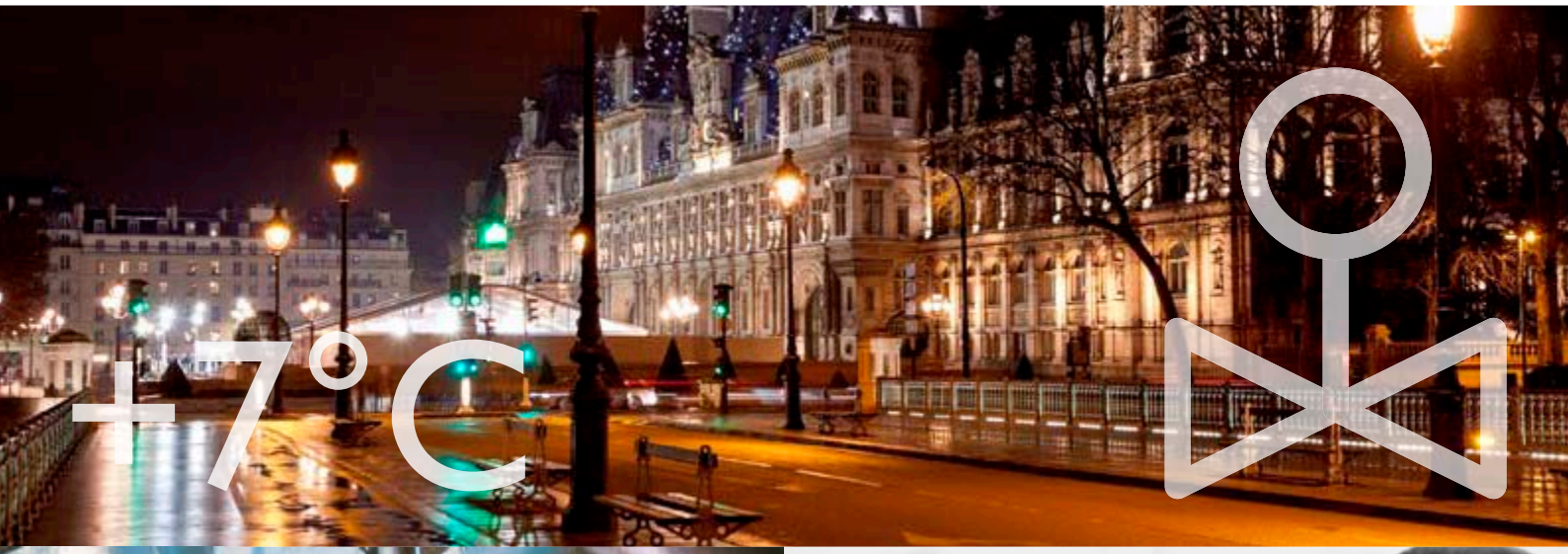
TH-210

Temperature pocket for installation of universal temperature sensor with 6 mm sheath diameter

Article	Connection A	Compatible with	Installation length (L)
TH-120-½	G½	q_p15-100 m³/h	120 mm
TH-210-½	G½	> q_p150 m³/h	210 mm

9

VALVES



✓	Recommended choice
◆	Other possible alternative

Valve	Type	Nominal diameter	Kvs	Stroke
RTV	2-way	DN10-15		1.7 mm
VHR	2-way	DN25		1.7 mm
FVR	2-way	DN10-20		1.7 mm
CTV	2-way	DN10-20		3.5 mm

Male threaded valves

VTTV	2-way	DN15-20	0.25 - 2.5	2.5 mm
		DN20	4.0 - 6.0	2.5 mm
VTTR	3-way	DN15-20	0.25 - 2.5	2.5 mm
		DN20	4.0 - 6.0	2.5 mm
VTTB	3-way with bypass	DN15-20	0.25 - 2.5	2.5 mm
		DN20	4.0 - 6.0	2.5 mm

ZTV	2-way	DN15-25		5.5 mm
ZTR	3-way	DN15-25		5.5 mm

ETVS	2-way	DN15-50		20 mm
ETRS	3-way	DN15-50		20 mm

MVFL...T	2 and 3-way	DN15-40	0.16 - 25	5.5 mm

Female threaded valves

PCTVS	2-way	DN15-20		2.7 mm
PCTV	2-way	DN15-25		2.7 mm
PCMTV	2-way	DN15-25		2.7 mm
PCMTV	2-way	DN25-32		6 mm

ZTVB	2-way	DN25-40		5 mm
ZTRB	3-way	DN25-40		5 mm

BTV	2-way	DN15-50		20 mm

MTVS	2-way	DN15-50		20 mm
MTRS	3-way	DN15-50		20 mm

Flanged valves

GTVS/GTRS	2 and 3-way	DN32-40		20 mm
		DN50-100		20-36 mm
		DN125-150		40 mm

NTVS	2-way	DN15-50		20 mm
		DN65-80		20 mm
		DN100		38 mm
		DN125-150		40 mm

FRS	2-way	DN15-25		20 mm
		DN32-65	0.6 - 6.3	20 mm
		DN32-65	10 - 20	20 mm

MVFL...F	2 and 3-way	DN15-40	0.16 - 25	5.5 mm





RTAN		RTA(O)M				RVAZ4		RVAPC...	RVAN			
RTAN...	RTAN140...	RTAM100...	RTAM125...	RTAOM...	RTAOM125...	RVAZ4L1	RVAZ4...	RVAPC...	RVAN5...	RVAN10...	RVAN18...	RVAN25...
100 N	140 N	100 N	125 N	100 N	125 N	400 N		120 N	500 N	1000 N	1800 N	2500 N
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9

Zone valves

2-way zone valve, DN10-15

Valves for control in aftertreatment systems. The valve can control water flow to cooling as well as heating batteries and is intended to be used together with the RTA(O)M100 thermal actuators.

Technical data	
Pressure rating	PN10
Connection, actuator	M28 x 1.5
Leakage	0 % in closed position
Media temperature	5...100°C
Stroke	1.7 mm
Max. diff. pressure	250 kPa
Material	
Body	Chromed brass CW614N
Seat	Brass CW614N
Stem	Stainless steel 1.4305
O-rings	EPDM
Bonnet	Brass CW614N
Seat packing	NBR

Article	Nominal diameter	Connection, female thread	Connection, male thread	Kvs	Actuator
RTV10	DN10	G3/8" (inlet)	M22 x 1.5 (outlet)	1.2	RTA(O)M100
RTV15	DN15	G1/2" (inlet)	M26 x 1.5 (outlet)	1.4	RTA(O)M100

2-way valve, DN25

Intended to be used together with the RTA(O)M100 thermal actuators.

Technical data	
Pressure rating	PN10
Connection, actuator	M28 x 1.5
Leakage	0 % in closed position
Media temperature	5...100°C
Stroke	1.7 mm
Kvs	4.8
Max. diff. pressure	50 kPa
Material	
Body	Brass
Seat	Brass
Stem	Stainless steel
Packing box	EPDM
Bonnet	Brass

Article	Nominal diameter	Connection, female thread	Connection, male thread	Actuator
VHR25	DN25	G1" (inlet)	M40 x 2.0 (outlet)	RTA(O)M100

2-way zone valve, DN10-20

Valve intended to be used together with the RTA(O)M100 thermal actuators. Adjustable kvs-value.

Technical data	
Pressure rating	PN10
Connection, actuator	M28 x 1.5
Leakage	0 % in closed position
Media temperature	2...90°C
Stroke	1.7 mm
Material	
Body	Brass
Seat	Brass
Stem	Stainless steel
Packing box	EPDM
Bonnet	Brass

Article	Nominal diameter	Connection, female thread	Connection, male thread	Kvs (adjustable)	Max. diff. pressure	Actuator
FVR10	DN10	G3/8" (inlet)	M22 x 1.5 (outlet)	0.01...0.9	50 kPa	RTA(O)M100
FVR15	DN15	G1/2" (inlet)	M26 x 1.5 (outlet)	0.01...0.9	150 kPa	RTA(O)M100
FVR20	DN20	G3/4" (inlet)	M34 x 1.5 (outlet)	0.01...1.1	150 kPa	RTA(O)M100

2-way zone valve, DN10-20

The CTV valve range is intended to be used together with the RTA(O)M100 thermal actuators for temperature control in heating and cooling systems, such as radiators, convectors, chilled ceilings etc. The valves are supplied with a grey plastic cap which can be used to open/close the valve manually during system installation. Turning the plastic cap clockwise to its end position closes the valve. Adjustable kvs-value.

Technical data	
Pressure rating	PN10
Connection, actuator	M28 x 1.5
Leakage	0 % in closed position
Media temperature	2...90°C
Stroke	3.5 mm
Max. diff. pressure	150 kPa
Material	
Body	Chromed brass CW614N
Seat	Brass CW614N
Stem	Stainless steel 1.4305
O-rings	EPDM
Bonnet	Brass CW614N
Seat packing	NBR

Article	Nominal diameter	Connection, male thread	Kvs (adjustable)	Actuator
CTV10	DN10	G1/2"	0.12...1.14	RTA(O)M100
CTV15-1,9	DN15	G3/4"	0.17...1.9	RTA(O)M100
CTV20	DN20	G1"	0.15...1.55	RTA(O)M100

2-, 3-way and 3-way (bypass) zone valves

Valves for control of heating and cooling in fan-coil or chilled beams applications. The valves are intended to be used together with the thermal RTAN and RTAOM actuators.

Technical data	
Pressure rating	PN16 (1.6 MPa)
Connection	Male threaded according to ISO 228/1
Flow characteristics	Linear
Leakage	0 % in closed position
Media temperature	2...95°C
Media	Hot or cold water. Also refrigerants (max. 40 % glycol).
Stroke	2.5 mm
Adapter	Included for RTAOM... actuators
Material	
Body	Brass
Seat	PPO+GP
O-rings	FKM

2-way

Article	Connection	Kvs	Max. diff. pressure	Actuator
VTTV15-0,25	G½"	0.25	250 kPa	RTAN, RTAOM100
VTTV15-0,4	G½"	0.4	250 kPa	RTAN, RTAOM100
VTTV15-0,6	G½"	0.6	250 kPa	RTAN, RTAOM100
VTTV15-1,0	G½"	1	250 kPa	RTAN, RTAOM100
VTTV15-1,6	G½"	1.6	250 kPa	RTAN, RTAOM100
VTTV20-2,5	G¾"	2.5	250 kPa	RTAN, RTAOM100
VTTV20-4,0	G¾"	4	100 kPa	RTAN140, RTAOM125
VTTV20-6,0	G¾"	6	100 kPa	RTAN140, RTAOM125

3-way

Article	Connection	Kvs, A-AB	Kvs, B-AB	Max. diff. pressure, mixing valves	Max. diff. pressure, diverting valves	Actuator
VTTR15-0,25	G½"	0.25	0.25	250 kPa	83 kPa	RTAN, RTAOM100
VTTR15-0,4	G½"	0.4	0.4	250 kPa	83 kPa	RTAN, RTAOM100
VTTR15-0,6	G½"	0.6	0.6	250 kPa	83 kPa	RTAN, RTAOM100
VTTR15-1,0	G½"	1	0.8	250 kPa	83 kPa	RTAN, RTAOM100
VTTR15-1,6	G½"	1.6	1	250 kPa	83 kPa	RTAN, RTAOM100
VTTR20-2,5	G¾"	2.5	1.6	250 kPa	83 kPa	RTAN, RTAOM100
VTTR20-4,0	G¾"	4	2.5	100 kPa	33 kPa	RTAN140, RTAOM125
VTTR20-6,0	G¾"	6	4	100 kPa	33 kPa	RTAN140, RTAOM125

3-way with bypass

Article	Connection	Kvs, A-AB	Kvs, B-AB	Max. diff. pressure, mixing valves	Max. diff. pressure, diverting valves	Actuator
VTTB15-0,25	G½"	0.25	0.25	250 kPa	83 kPa	RTAN, RTAOM100
VTTB15-0,4	G½"	0.4	0.4	250 kPa	83 kPa	RTAN, RTAOM100
VTTB15-0,6	G½"	0.6	0.6	250 kPa	83 kPa	RTAN, RTAOM100
VTTB15-1,0	G½"	1	0.8	250 kPa	83 kPa	RTAN, RTAOM100
VTTB15-1,6	G½"	1.6	1	250 kPa	83 kPa	RTAN, RTAOM100
VTTB20-2,5	G¾"	2.5	1.6	250 kPa	83 kPa	RTAN, RTAOM100
VTTB20-4,0	G¾"	4	2.5	100 kPa	33 kPa	RTAN140, RTAOM125
VTTB20-6,0	G¾"	6	4	100 kPa	33 kPa	RTAN140, RTAOM125

Accessories for zone valves

Valve connections, outlet (FVR, RTV and VHR)

Article	Description	Connection	Valve
4161201	Tail and nut, for valve outlet (external metric thread on the valve)	3/8" (M22 x 1.5)	RTV10, FVR10
4161202		1/2" (M26 x 1.5)	RTV15, FVR15
4161203		3/4" (M34 x 1.5)	FVR20
4161204		1" (M40 x 2)	VHR25
4161841	Nut and olive, for valve outlet (external metric thread on the valve)	3/8" (M22 x 1.5), K12	RTV10, FVR10
4160801		1/2" (M26 x 1.5), K15	RTV15, FVR15

Connection for inlet (FVR, RTV)

Nut and olive, for valve inlet (internal pipe thread on the valve).

Article	Connection	Valve
4161402	3/8', K10	RTV10, FVR10
4161403	3/8', K12	RTV10, FVR10
4161101	1/2", K10	RTV15, FVR15
4161102	1/2", K12	RTV15, FVR15
4161103	1/2", K15	RTV15, FVR15

Pre-set tooling for FVR valves

Article	Description
FV5	Pre-set tooling, key and scale (FVR valves)
FN2	Pre-set tooling, basic key (FVR valves)

Valve connections

Nut and olive for CTV, ZTV, ZTR, VTTV, VTTR and VTTB.

Article	Connection	Valve
1885136	1/2", K12	CTV10, ZTV15, ZTR15, VTTV15, VTTR15, VTTB
1886274	3/4", K15	CTV15, ZTV20 (kvs 2.0-2.5), ZTR (kvs 2.0-2.5), VTTV20 (kvs 2.5), VTTR20 (kvs 2.5), VTTB20 (kvs 2.5)
1884709	3/4", K18	CTV15, ZTV20, ZTR20, VTTV20, VTTR20, VTTB20
1886282	1", K22	CTV20, ZTV25, ZTR25

Valve with actuator

The DFCM fan-coil valves are intended for on/off control of hot or cold water in heating and cooling systems. The actuator is equipped with a spring return mechanism. Detachable actuator with spring return.

Technical data	
Pressure rating	PN16
Supply voltage	230 V AC
Control signal	On/off
Opening time	Approx. 15 s
Closing time, spring	4...5 s
Media temperature	2...94°C
Connection	BSP female threaded according to ISO 228/1
Body material, valve	Brass
Material, housing (actuator)	Plastic (EFCM, steel)
Protection class	IP44

2-way

Article	Nominal diameter	Kvs	Max. diff. pressure
DFCM-215X	DN15	3.2	200 kPa
DFCM-220X	DN20	4.6	150 kPa
DFCM-225X	DN25	5.7	100 kPa
DFCM-232X	DN32	10	80 kPa

3-way

Article	Nominal diameter	Kvs	Max. diff. pressure
DFCM-315X	DN15	3.2	150 kPa
DFCM-320X	DN20	4.6	100 kPa
DFCM-325X	DN25	5.7	100 kPa
DFCM-332X	DN32	8.4	80 kPa

Male threaded valves

2- and 3-way zone valves

Valves for control of heating and cooling in climate, heating and ventilation systems. Intended to be used together with the RVAZ4 actuators.

Technical data	
Pressure rating	PN16
Connection, actuator	M30 x 1.5
Connection	Male threaded according to ISO 228/1
Flow characteristics	Equal percentage
Leakage	0 % in closed position
Media temperature	1...110°C
Media	Hot or cold water. Also refrigerants (max. 30 % glycol).
Rangeability	50:1
Stroke	5.5 mm
Material	
Body	Brass CW614N
Seat	Brass CW614N
Plug	Brass CW614N
Stem	Stainless steel 1.4305
Seat packing	EPDM
O-rings	EPDM

2-way

Article	Nominal diameter	Connection	Kvs	Max. diff. pressure	Actuator
ZTV15-0,25	DN15	G1/2”	0.25	350 kPa	RVAZ4
ZTV15-0,4	DN15	G1/2”	0.4	350 kPa	RVAZ4
ZTV15-0,6	DN15	G1/2”	0.6	350 kPa	RVAZ4
ZTV15-1,0	DN15	G1/2”	1.0	350 kPa	RVAZ4
ZTV15-1,6	DN15	G1/2”	1.6	350 kPa	RVAZ4
ZTV20-2,0	DN20	G3/4”	2.0	250 kPa	RVAZ4
ZTV20-2,5	DN20	G3/4”	2.5	250 kPa	RVAZ4
ZTV20-4,0	DN20	G3/4”	4.0	150 kPa	RVAZ4
ZTV20-6,0	DN20	G3/4”	6.0	150 kPa	RVAZ4
ZTV25-7,0	DN25	G1”	7.0	70 kPa	RVAZ4

3-way

Article	Nominal diameter	Connection	Kvs	Max. diff. pressure	Actuator
ZTR15-0,25	DN15	G1/2”	0.25	350 kPa	RVAZ4
ZTR15-0,4	DN15	G1/2”	0.4	350 kPa	RVAZ4
ZTR15-0,6	DN15	G1/2”	0.6	350 kPa	RVAZ4
ZTR15-1,0	DN15	G1/2”	1.0	350 kPa	RVAZ4
ZTR15-1,6	DN15	G1/2”	1.6	350 kPa	RVAZ4
ZTR20-2,0	DN20	G3/4”	2.0	250 kPa	RVAZ4
ZTR20-2,5	DN20	G3/4”	2.5	250 kPa	RVAZ4
ZTR20-4,0	DN20	G3/4”	4.0	100 kPa	RVAZ4
ZTR20-6,0	DN20	G3/4”	6.0	100 kPa	RVAZ4
ZTR25-7,0	DN25	G1”	7.0	70 kPa	RVAZ4

2-way valve

The ETVS valves are designed for control of cold, hot and glycol-mixed water, steam and district heating. They are pressure balanced (from DN20-50, not DN15) and can therefore handle high differential pressure with low force. The valves are intended to be used together with Regin's RVAN5 actuators.

Technical data	
Pressure rating	PN16
Connection	Male threaded according to ISO 228/1; supplied with threaded connections
Flow characteristics	Equal percentage
Max. leakage	0.0 % of the kvs value (PTFE gasket, carbon-filled 25 %, no leakage)
Media temperature	-5…+150°C
Media	Hot, cold or glycol-mixed water and steam
Rangeability	100:1
Stroke	20 mm
Max. diff. pressure	1600 kPa
Material	
Body	Gunmetal CC491K (RG5)
Seat	Stainless steel 1.4301
Plug	Stainless steel 1.4305
Stem	Stainless steel 1.4305
Seat packing	PTFE with 25 % carbon
Packing box	Dezincification resistant brass CW 602N, self-adjusting teflon
O-rings	Viton
Material, connections	
Nut	Malleable cast iron, galvanized
Nipple	Dezincification resistant brass CW 602N
Fitting seal	Novatec Premium 2, Nitrile bonded aramid fibre with graphite

Article	Nominal diameter	Kvs	Actuator
ETVS15-0,63	DN15	0.63	RVAN5
ETVS15-1,25	DN15	1.25	RVAN5
ETVS15-1,6	DN15	1.6	RVAN5
ETVS15-2,5	DN15	2.5	RVAN5
ETVS15-4,0	DN15	4	RVAN5
ETVS20-5,0	DN20	5	RVAN5
ETVS20-6,3	DN20	6.3	RVAN5
ETVS25-8,0	DN25	8	RVAN5
ETVS25-10	DN25	10	RVAN5
ETVS32-12,5	DN32	12.5	RVAN5
ETVS32-16	DN32	16	RVAN5
ETVS40-20	DN40	20	RVAN5
ETVS40-25	DN40	25	RVAN5
ETVS50-31,5	DN50	31.5	RVAN5
ETVS50-40	DN50	40	RVAN5

Accessories

Article	Description
S0603080300	Spare parts kit, packing box

3-way control valve

The ETRS valves are intended for control of cold, hot and glycol-mixed water in heating, ventilation and domestic hot water systems. The valves are intended to be used together with Regin's RVAN5 actuators. Valves with DN32-50 may also be used with RVAN10 if a larger actuating force is required.

Technical data	
Pressure rating	PN16
Connection	Male threaded according to ISO 228/1; supplied with threaded connections
Flow characteristics	Equal percentage
Max. leakage	0.1 % of kvs
Media temperature	-5…+185°C
Media	Hot, cold or glycol-mixed water and steam
Rangeability	100:1
Stroke	20 mm
Material	
Body	Gunmetal CC491K (RG5)
Seat	Gunmetal CC491K (RG5)
Plug	Gunmetal CC491K (RG5)
Stem	Stainless steel 1.4305
Packing box	Dezincification resistant brass CW 602N, self-adjusting teflon
O-rings	Viton
Material, connections	
Nut	Malleable cast iron, galvanized
Nipple	Dezincification resistant brass CW 602N
Fitting seal	Novatec Premium 2, Nitrile bonded aramid fibre with graphite

Article	Nominal diameter	Max. diff. pressure	Kvs	Actuator
ETRS15-0,63	DN15	1600 kPa	0.63	RVAN5
ETRS15-1,25	DN15	1600 kPa	1.25	RVAN5
ETRS15-1,6	DN15	1600 kPa	1.6	RVAN5
ETRS15-2,5	DN15	1600 kPa	2,5	RVAN5
ETRS15-4,0	DN15	1600 kPa	4	RVAN5
ETRS20-5,0	DN20	1600 kPa	5	RVAN5
ETRS20-6,3	DN20	1600 kPa	6.3	RVAN5
ETRS25-8,0	DN25	1000 kPa	8	RVAN5
ETRS25-10	DN25	1000 kPa	10	RVAN5
ETRS32-12,5	DN32	600 kPa	12.5	RVAN5, RVAN10
ETRS32-16	DN32	600 kPa	16	RVAN5, RVAN10
ETRS40-20	DN40	400 kPa	20	RVAN5, RVAN10
ETRS40-25	DN40	400 kPa	25	RVAN5, RVAN10
ETRS50-31,5	DN50	250 kPa	31.5	RVAN5, RVAN10
ETRS50-40	DN50	250 kPa	40	RVAN5, RVAN10

Accessories

Article	Description
S0603080300	Spare parts kit, packing box

MVFL valves

Control valves of compact construction with different coupling connection. The valves are intended to be used together with the RVAZ4L1 actuators (adapter kit included in the valve packaging).

Technical data	
Pressure rating	PN16
Connection	External threads or flange
Flow characteristics	Linear
Max. leakage	< 0.0005 % of kvs
Media temperature	2…150°C
Media	Hot or cold water
Rangeability	50:1
Stroke	5.5 mm
Material	
Body	Cast iron EN-JL 1030
Plug	Stainless steel 1.4021
Seat packing	EPDM
O-rings	EPDM

2-way, thread

Article	Nominal diameter	Kvs	kPa	Actuator
MVFL215/8T	DN15	0.16	400	RVAZ4L1
MVFL215/7T	DN15	0.25	400	RVAZ4L1
MVFL215/6T	DN15	0.4	400	RVAZ4L1
MVFL215/5T	DN15	0.63	400	RVAZ4L1
MVFL215/4T	DN15	1	400	RVAZ4L1
MVFL215/3T	DN15	1.6	400	RVAZ4L1
MVFL215/2T	DN15	2.5	400	RVAZ4L1
MVFL215/1T	DN15	4	400	RVAZ4L1
MVFL220/T	DN20	6.3	350	RVAZ4L1
MVFL225/T	DN25	10	200	RVAZ4L1
MVFL232/T	DN32	16	110	RVAZ4L1
MVFL240/T	DN40	25	60	RVAZ4L1

3-way, thread

Article	Nominal diameter	Kvs	kPa	Actuator
MVFL315/7T	DN15	0.25	400	RVAZ4L1
MVFL315/6T	DN15	0.4	400	RVAZ4L1
MVFL315/5T	DN15	0.63	400	RVAZ4L1
MVFL315/4T	DN15	1	400	RVAZ4L1
MVFL315/3T	DN15	1.6	400	RVAZ4L1
MVFL315/2T	DN15	2.5	400	RVAZ4L1
MVFL315/1T	DN15	4	400	RVAZ4L1
MVFL320/T	DN20	6.3	350	RVAZ4L1
MVFL325/T	DN25	10	200	RVAZ4L1
MVFL332/T	DN32	16	110	RVAZ4L1
MVFL340/T	DN40	25	60	RVAZ4L1

Female threaded valves

2- and 3-way zone valves

Valves for control of heating and cooling in climate, heating and ventilation systems. The valves are intended to be used together with the RVAZ4 actuators.

Technical data	
Pressure rating	PN16
Connection, actuator	M30 x 1.5
Connection	BSP female threaded according to ISO 228/1
Flow characteristics	Linear
Leakage	0 % in closed position
Media temperature	1...110°C
Rangeability	50:1
Stroke	5 mm
Media	Hot or cold water. Also refrigerants (max. 30 % glycol).
Material	
Body	Brass CW614N
Seat	Brass CW614N
Plug	Brass CW614N
Stem	Stainless steel 1.4305
Seat packing	EPDM
O-rings	EPDM

2-way

Article	Nominal diameter	Connection	Kvs	Max. diff. pressure	Actuator
ZTVB25-8	DN25	G1”	8	250 kPa	RVAZ4
ZTVB32-15	DN32	G1 ¼”	15	250 kPa	RVAZ4
ZTVB40-20	DN40	G1 ½”	20	125 kPa	RVAZ4

3-way

Article	Nominal diameter	Connection	Kvs	Max. diff. pressure	Actuator
ZTRB25-8	DN25	G1”	8	250 kPa	RVAZ4
ZTRB32-15	DN32	G1 ¼”	15	250 kPa	RVAZ4
ZTRB40-20	DN40	G1 ½”	20	125 kPa	RVAZ4

2-way control valves

The BTV valves are designed for control of hot, cold or glycol-mixed water in heating and ventilation systems. They are pressure balanced (from DN20-50, not DN15) and can therefore handle high differential pressure with low force. The valves are intended to be used together with Regin's RVAN5 actuators. They should not be used in domestic hot water systems.

Technical data	
Pressure rating	PN16
Connection	BSP female threaded according to ISO 228/1
Flow characteristics	Equal percentage
Max. leakage	0.0 % of the kvs value (PTFE gasket, carbon-filled 25 %, no leakage)
Max. diff. pressure	1600 kPa
Media temperature	-5...+140°C
Media	Hot, cold or glycol-mixed water (max. 50 % glycol)
Rangeability	100:1
Stroke	20 mm
Material	
Body	Brass CW614N
Seat	Brass CW614N
Plug	Stainless steel 1.4301
Stem	Stainless steel 1.4305
Seat packing	PTFE with 25 % carbon
O-rings	EPDM

Article	Nominal diameter	Connection	Kvs	Actuator
BTV15-0,6	DN15	G½"	0.6	RVAN5
BTV15-1,0	DN15	G½"	1.0	RVAN5
BTV15-1,6	DN15	G½"	1.6	RVAN5
BTV15-2,5	DN15	G½"	2.5	RVAN5
BTV20-1,6	DN20	G¾"	1.6	RVAN5
BTV20-2,7	DN20	G¾"	2.7	RVAN5
BTV20-3,9	DN20	G¾"	3.9	RVAN5
BTV25-6,3	DN25	G1"	6.3	RVAN5
BTV25-10	DN25	G1"	10	RVAN5
BTV32-10	DN32	G1¼"	10	RVAN5
BTV32-16	DN32	G1¼"	16	RVAN5
BTV40-16	DN40	G1½"	16	RVAN5
BTV40-27	DN40	G1½"	27	RVAN5
BTV50-27	DN50	G2"	27	RVAN5
BTV50-39	DN50	G2"	39	RVAN5

Accessories

Article	Description
S02420001	Spare parts kit, O-ring kit for BTV valves from DN15 to DN25
S6321457301	Spare parts kit, packing box

2- and 3-way control valves

The MTVS and MTRS valves are designed for control of hot, cold or glycol-mixed water or steam in heating and ventilation systems. They also function very well in domestic hot water systems. The valves are intended to be used together with Regin's RVAN5 actuators. Valves with DN32-50 may also be used with RVAN10 if a larger actuating force is required.

Technical data	
Pressure rating	PN16
Connection	BSP female threaded according to ISO 228/1
Flow characteristics	Equal percentage
Max. leakage	0.1 % of kvs
Media temperature	-5…+185°C
Media	Hot, cold, glycol-mixed (max. 50 %) water or steam
Rangeability	100:1
Stroke	20 mm
Material	
Body, seat and plug	Gunmetal CC491K (RG5)
Stem	Stainless steel 1.4305
Packing box	Dezincification resistant brass CW 602N, self-adjusting teflon
O-rings	Viton

2-way

Article	Nominal diameter	Connection	Max. diff. pressure	Kvs	Actuator
MTVS15-0,63	DN15	G½"	1600 kPa	0.63	RVAN5
MTVS15-1,0	DN15	G½"	1600 kPa	1.0	RVAN5
MTVS15-1,6	DN15	G½"	1600 kPa	1.6	RVAN5
MTVS15-2,1	DN15	G½"	1600 kPa	2.1	RVAN5
MTVS15-2,7	DN15	G½"	1600 kPa	2.7	RVAN5
MTVS20-4,2	DN20	G¾"	1600 kPa	4.2	RVAN5
MTVS20-5,6	DN20	G¾"	1600 kPa	5.6	RVAN5
MTVS25-10	DN25	G1"	1000 kPa	10	RVAN5
MTVS32-16	DN32	G1¼"	600 kPa	16	RVAN5, RVAN10
MTVS40-27	DN40	G1½"	400 kPa	27	RVAN5, RVAN10
MTVS50-39	DN50	G2"	250 kPa	39	RVAN5, RVAN10

3-way

Article	Nominal diameter	Connection	Max. diff. pressure	Kvs	Actuator
MTRS15-0,63	DN15	G½"	1600 kPa	0.63	RVAN5
MTRS15-1,0	DN15	G½"	1600 kPa	1.0	RVAN5
MTRS15-1,6	DN15	G½"	1600 kPa	1.6	RVAN5
MTRS15-2,1	DN15	G½"	1600 kPa	2.1	RVAN5
MTRS15-2,7	DN15	G½"	1600 kPa	2.7	RVAN5
MTRS20-4,2	DN20	G¾"	1600 kPa	4.2	RVAN5
MTRS20-5,6	DN20	G¾"	1600 kPa	5.6	RVAN5
MTRS25-10	DN25	G1"	1000 kPa	10	RVAN5
MTRS32-16	DN32	G1¼"	600 kPa	16	RVAN5, RVAN10
MTRS40-27	DN40	G1½"	400 kPa	27	RVAN5, RVAN10
MTRS50-39	DN50	G2"	250 kPa	39	RVAN5, RVAN10

Accessories

Article	Description
S0603080300	Spare parts kit, packing box

Flanged valves

Flanged 2- and 3-way valves

Control valves intended for use in heating and ventilation systems, suitable for cold and hot water, glycol-mixed water or steam. The valves are intended to be used together with Regin's RVAN actuators.

Technical data	
Pressure rating	PN16
Connection	Flanged according to EN 1092-2
Flow characteristics	Square
Max. leakage	0.1 % of kvs
Media temperature	-5…+120°C
Media	Hot, cold, glycol-mixed water
Rangeability	50:1
Material	
Body	Cast iron EN-JL 1040
Seat	Gunmetal CC491K (RG5)
Plug	Gunmetal CC491K (RG5)
Stem	Stainless steel 1.4305
Packing box	Dezincification resistant brass CW 602N, self-adjusting teflon
O-rings	Viton
Bonnet	Brass CW614N

2-way

Article	Nominal diameter	Kvs	Max. diff. pressure	Stroke	Actuator
GTVS32-16	DN32	16	1300 kPa	20 mm	RVAN10
GTVS40-27	DN40	27	800 kPa	20 mm	RVAN10
GTVS50-39	DN50	39	1000 kPa	37 mm	RVAN18
GTVS65-63	DN65	63	600 kPa	24 mm	RVAN18
GTVS80-100	DN80	100	400 kPa	36 mm	RVAN18
GTVS100-160	DN100	160	250 kPa	36 mm	RVAN18
GTVS125-215	DN125	215	170 kPa	40 mm	RVAN25
GTVS150-310	DN150	310	120 kPa	40 mm	RVAN25

3-way

Article	Nominal diameter	Kvs	Max. diff. pressure	Stroke	Actuator
GTRS32-16	DN32	16	1300 kPa	20 mm	RVAN10
GTRS40-27	DN40	27	800 kPa	20 mm	RVAN10
GTRS50-39	DN50	39	1000 kPa	37 mm	RVAN18
GTRS65-63	DN65	63	600 kPa	24 mm	RVAN18
GTRS80-100	DN80	100	400 kPa	36 mm	RVAN18
GTRS100-160	DN100	160	250 kPa	36 mm	RVAN18
GTRS125-215	DN125	215	170 kPa	40 mm	RVAN25
GTRS150-310	DN150	310	120 kPa	40 mm	RVAN25

The valves are available in other materials with temperature range up to 185°C on request.

Accessories

Article	Description
S0603080300	Spare parts kit, packing box

2-way DIN-standard valve

The NTVS series is intended for control of hot and cold water, glycol-mixed water, steam and district heating. The valves from DN20 to DN150 are pressure balanced, which means that they can handle higher differential pressure with lower actuator force.

For steam applications or at pressure drops of 7 bar or higher, we recommend using a metal packing (stainless steel). Use the extra letter M at the end of the reference type when ordering a valve with metal packing, for example NTVS50-27M instead of the usual NTVS50-27. For valves with metal packing, the maximum leakage is 0.05 % of kvs.

The NTVS valves meet the requirements of DIN-standard DIN 3202/F1 and ISO 5752 table 1.

The valves are intended to be used together with Regin's RVAN actuators.

Technical data	
Pressure rating	PN16
Connection	Flanges according to SS 335 table 6
Flow characteristics	Equal percentage
Max. leakage	0.0 % of the kvs value (PTFE gasket, carbon-filled 25 %, no leakage) / 0.05 % of kvs for NTVS...-...M models with metal packing
Media temperature	-5...+185°C
Media	Hot, cold, glycol-mixed water or steam
Rangeability	100:1
Max. diff. pressure	1600 kPa
Material	
Body	Nodular cast iron (GJS) EN-JS1050
Seat	Stainless steel 1.4301 or gunmetal CC491K (RG5)
Plug	Stainless steel 1.4305 or gunmetal CC491K (RG5)
Stem	Stainless steel 1.4305
Lining	Stainless steel 1.4301
Seat packing, soft seal	PTFE with 25 % carbon
Seat packing, metal seal	Stainless steel 1.4057
Packing box	Dezincification resistant brass CW 602N, self-adjusting teflon
O-rings	Viton

Article	Nominal diameter	Kvs	Stroke	Actuator
NTVS15-0,4	DN15	0.4	20 mm	RVAN5
NTVS15-1,0	DN15	1.0	20 mm	RVAN5
NTVS15-1,6	DN15	1.6	20 mm	RVAN5
NTVS15-2,7	DN15	2.7	20 mm	RVAN5
NTVS20-0,8	DN20	0.8	20 mm	RVAN5
NTVS20-1,6	DN20	1.6	20 mm	RVAN5
NTVS20-2,7	DN20	2.7	20 mm	RVAN5
NTVS20-3,9	DN20	3.9	20 mm	RVAN5
NTVS20-6,3	DN20	6.3	20 mm	RVAN5
NTVS25-1,6	DN25	1.6	20 mm	RVAN5
NTVS25-2,5	DN25	2.5	20 mm	RVAN5
NTVS25-4,0	DN25	4	20 mm	RVAN5
NTVS25-6,3	DN25	6.3	20 mm	RVAN5
NTVS25-10	DN25	10	20 mm	RVAN5
NTVS32-4,0	DN32	4	20 mm	RVAN5
NTVS32-6,3	DN32	6.3	20 mm	RVAN5
NTVS32-10	DN32	10	20 mm	RVAN5
NTVS32-16	DN32	16	20 mm	RVAN5
NTVS40-6,3	DN40	6.3	20 mm	RVAN5
NTVS40-10	DN40	10	20 mm	RVAN5
NTVS40-16	DN40	16	20 mm	RVAN5
NTVS40-27	DN40	27	20 mm	RVAN5
NTVS50-6,3	DN50	6.3	20 mm	RVAN5
NTVS50-10	DN50	10	20 mm	RVAN5
NTVS50-16	DN50	16	20 mm	RVAN5
NTVS50-27	DN50	27	20 mm	RVAN5
NTVS50-39	DN50	39	20 mm	RVAN5
NTVS65-16	DN65	16	20 mm	RVAN10
NTVS65-27	DN65	27	20 mm	RVAN10
NTVS65-39	DN65	39	20 mm	RVAN10
NTVS65-63	DN65	63	20 mm	RVAN10
NTVS80-100	DN80	100	20 mm	RVAN10
NTVS100-160	DN100	160	38 mm	RVAN18
NTVS125-215	DN125	215	40 mm	RVAN25
NTVS150-310	DN150	310	40 mm	RVAN25

Accessories

Article	Description
S0603080300	Spare parts kit, packing box

Flanged 2-way district heating valve

Flanged valves for heating, district heating and air handling systems. The valves are intended for use together with Regin's RVAN actuators. Adapters are also available for adaptation to actuators of other brands. The valves are mainly intended for district heating and were primarily developed to replace the TAC valve STL.

Technical data	
Pressure rating	PN16
Connection	Flanges according to ISO 7005-2
Flow characteristics	Equal percentage
Max. leakage	0.0 % of the kvs value (PTFE gasket, carbon-filled 25 %, no leakage)
Media temperature	-5...+150°C
Media	Hot, cold, glycol-mixed water or steam
Rangeability	100:1
Stroke	20 mm
Max. diff. pressure	1600 kPa
Material	
Body	Gunmetal CC491K (RG5)
Seat	Stainless steel 1.4305
Plug	Stainless steel 1.4305
Stem	Stainless steel 1.4305
Seat packing	PTFE with 25 % carbon
Packing box	Dezincification resistant brass CW 602N
O-rings	Viton
Flanges	Epoxy-coated steel

Article	Nominal diameter	Kvs	Actuator
FRS15-0,6	DN15	0.6	RVAN5
FRS15-1,0	DN15	1.0	RVAN5
FRS15-1,6	DN15	1.6	RVAN5
FRS15-2,5	DN15	2.5	RVAN5
FRS20-0,6	DN20	0.6	RVAN5
FRS20-1,0	DN20	1.0	RVAN5
FRS20-2,5	DN20	2.5	RVAN5
FRS20-1,6	DN20	1.6	RVAN5
FRS20-4,0	DN20	4.0	RVAN5
FRS25-0,6	DN25	0.6	RVAN5
FRS25-1,0	DN25	1.0	RVAN5
FRS25-1,6	DN25	1.6	RVAN5
FRS25-2,5	DN25	2.5	RVAN5
FRS25-4,0	DN25	4.0	RVAN5
FRS32-0,6	DN32	0.6	RVAN5
FRS32-1,0	DN32	1.0	RVAN5
FRS32-1,6	DN32	1.6	RVAN5
FRS32-2,5	DN32	2.5	RVAN5
FRS32-4,0	DN32	4.0	RVAN5
FRS32-6,3	DN32	6.3	RVAN5
FRS32-10	DN32	10	RVAN18
FRS32-16	DN32	16	RVAN18
FRS40-0,6	DN40	0.6	RVAN5
FRS40-1,0	DN40	1.0	RVAN5
FRS40-1,6	DN40	1.6	RVAN5
FRS40-2,5	DN40	2.5	RVAN5
FRS40-4,0	DN40	4.0	RVAN5
FRS40-6,3	DN40	6.3	RVAN5
FRS40-10	DN40	10	RVAN18
FRS40-16	DN40	16	RVAN18
FRS40-20	DN40	20	RVAN18
FRS50-2,7	DN50	2.7	RVAN5
FRS50-6,3	DN50	6.3	RVAN5
FRS50-10	DN50	10	RVAN18
FRS50-16	DN50	16	RVAN18
FRS50-20	DN50	20	RVAN18
FRS65-2,7	DN65	2.7	RVAN5
FRS65-6,3	DN65	6.3	RVAN5
FRS65-10	DN65	10	RVAN18
FRS65-16	DN65	16	RVAN18
FRS65-20	DN65	20	RVAN18

Accessories

Article	Description
S6321457301	Spare parts kit, packing box

MVFL valves

Control valves of compact construction with different coupling connection. The valves are intended to be used together with the RVAZ4L1 actuators (adapter kit included in the valve packaging).

Technical data	
Pressure rating	PN16
Connection	External threads or flange
Flow characteristics	Linear
Max. leakage	< 0.0005 % of kvs
Media temperature	2…150°C
Media	Hot or cold water
Rangeability	50:1
Stroke	5.5 mm
Material	
Body	Cast iron EN-JL 1030
Plug	Stainless steel 1.4021
Seat packing	EPDM
O-rings	EPDM

2-way, flange

Article	Nominal diameter	Kvs	kPa	Actuator
MVFL215/8F	DN15	0.16	400	RVAZ4L1
MVFL215/7F	DN15	0.25	400	RVAZ4L1
MVFL215/6F	DN15	0.4	400	RVAZ4L1
MVFL215/5F	DN15	0.63	400	RVAZ4L1
MVFL215/4F	DN15	1	400	RVAZ4L1
MVFL215/3F	DN15	1.6	400	RVAZ4L1
MVFL215/2F	DN15	2.5	400	RVAZ4L1
MVFL215/1F	DN15	4	400	RVAZ4L1
MVFL220/F	DN20	6.3	350	RVAZ4L1
MVFL225/F	DN25	10	200	RVAZ4L1
MVFL232/F	DN32	16	110	RVAZ4L1
MVFL240/F	DN40	25	60	RVAZ4L1

3-way, flange

Article	Nominal diameter	Kvs	kPa	Actuator
MVFL315/7F	DN15	0.25	400	RVAZ4L1
MVFL315/6F	DN15	0.4	400	RVAZ4L1
MVFL315/5F	DN15	0.63	400	RVAZ4L1
MVFL315/4F	DN15	1	400	RVAZ4L1
MVFL315/3F	DN15	1.6	400	RVAZ4L1
MVFL315/2F	DN15	2.5	400	RVAZ4L1
MVFL315/1F	DN15	4	400	RVAZ4L1
MVFL320/F	DN20	6.3	350	RVAZ4L1
MVFL325/F	DN25	10	200	RVAZ4L1
MVFL332/F	DN32	16	110	RVAZ4L1
MVFL340/F	DN40	25	60	RVAZ4L1

Pressure independent control valves

The valve is a combined differential pressure regulator, flow limiter and equal percentage control valve with full stroke and authority.

The PC(M)TV valves are suitable for constant or variable temperature systems and can be used as constant flow limiters in constant volume systems (with no actuators), or as pressure independent control valves in variable volume systems (with actuators).

Technical data	
Pressure class	25 bar
Flow characteristics	Equal percentage
Media	Hot or cold water, cooling systems (max 50 % glycol)
Leakage	0.01 % of maximum flow, Class IV IEC 60534-4
Temperature range	-10...+120°C
Material	
Body	Brass CW602N (CZ121)
Plug parabol	Brass CW614N (CZ132)
Stem	Stainless steel
O-rings	EPDM
Pressure controller	EPDM, stainless steel and high resistance polymer

Models without measuring port connectors

Article	Rangeability	Max. diff. pressure	Stroke	Nominal diameter	Connection	Max. start-up pressure	Max. flow rate	Actuator
PCTVS15-F150	50 ~ 100 : 1	600 kPa	2.7 mm	DN15	G½”	20 kPa	150 l/h	RTAM100, RVAPC
PCTVS15-F600	50 ~ 100 : 1	600 kPa	2.7 mm	DN15	G½”	25 kPa	600 l/h	RTAM100, RVAPC
PCTVS15-F900	50 ~ 100 : 1	600 kPa	2.7 mm	DN15	G½”	30 kPa	900 l/h	RTAM100, RVAPC
PCTVS20-F600	50 ~ 100 : 1	600 kPa	2.7 mm	DN20	G¾”	25 kPa	600 l/h	RTAM100, RVAPC
PCTVS20-F900	50 ~ 100 : 1	600 kPa	2.7 mm	DN20	G¾”	30 kPa	900 l/h	RTAM100, RVAPC

Models with measuring port connectors but no measuring ports

Article	Rangeability	Max. diff. pressure	Stroke	Nominal diameter	Connection	Max. start-up pressure	Max. flow rate	Actuator
PCTV15-F150	50 ~ 100 : 1	600 kPa	2.7 mm	DN15	G1/2”	20 kPa	150 l/h	RTAM100, RVAPC
PCTV15-F600	50 ~ 100 : 1	600 kPa	2.7 mm	DN15	G1/2”	25 kPa	600 l/h	RTAM100, RVAPC
PCTV15-F780	50 ~ 100 : 1	600 kPa	2.7 mm	DN15	G1/2”	35 kPa	780 l/h	RTAM100, RVAPC
PCTV20-F1000	50 ~ 100 : 1	600 kPa	2.7 mm	DN20	G3/4”	30 kPa	1000 l/h	RTAM100, RVAPC
PCTV20-F1500	50 ~ 100 : 1	600 kPa	2.7 mm	DN20	G3/4”	35 kPa	1500 l/h	RTAM100, RVAPC
PCTV25-F1500	50 ~ 100 : 1	600 kPa	2.7 mm	DN25	G1”	35 kPa	1500 l/h	RTAM100, RVAPC

Models with measuring ports

Article	Rangeability	Max. diff. pressure	Stroke	Nominal diameter	Connection	Max. start-up pressure	Max. flow rate	Actuator
PCMTV15-F150	50 ~ 100 : 1	600 kPa	2.7 mm	DN15	G1/2”	20 kPa	150 l/h	RTAM100, RVAPC
PCMTV15-F600	50 ~ 100 : 1	600 kPa	2.7 mm	DN15	G1/2”	25 kPa	600 l/h	RTAM100, RVAPC
PCMTV15-F780	50 ~ 100 : 1	600 kPa	2.7 mm	DN15	G1/2”	35 kPa	780 l/h	RTAM100, RVAPC
PCMTV20-F1000	50 ~ 100 : 1	600 kPa	2.7 mm	DN20	G3/4”	30 kPa	1000 l/h	RTAM100, RVAPC
PCMTV20-F1500	50 ~ 100 : 1	600 kPa	2.7 mm	DN20	G3/4”	35 kPa	1500 l/h	RTAM100, RVAPC
PCMTV25-F1500	50 ~ 100 : 1	600 kPa	2.7 mm	DN25	G1”	35 kPa	1500 l/h	RTAM100, RVAPC

Models with measuring ports

Article	Rangeability	Max. diff. pressure	Stroke	Nominal diameter	Connection	Max. start-up pressure	Max. flow rate	Actuator
PCMTV25-F2200	100 ~ 150 : 1	600 kPa	6 mm	DN25	Rc1”	25 kPa	2200 l/h	RTAM125, RVAPC
PCMTV25-F2700	100 ~ 150 : 1	600 kPa	6 mm	DN25	Rc1”	30 kPa	2700 l/h	RTAM125, RVAPC
PCMTV32-F2700	100 ~ 150 : 1	600 kPa	6 mm	DN32	Rc1¼”	30 kPa	2700 l/h	RTAM125, RVAPC
PCMTV32-F3000	100 ~ 150 : 1	600 kPa	6 mm	DN32	Rc1¼”	35 kPa	3000 l/h	RTAM125, RVAPC

Accessories

Article	Description	Actuator
VA64	Adapter for 2.7 or 6 mm stroke (to be ordered separately)	RTAM
VA-7010	Adapter for valve with 2.7 mm stroke (to be ordered separately)	RVAPC...
VA-748X	Adapter for valve with 6 mm stroke (to be ordered separately)	RVAPC...

Adapter kit for adapting actuators of other brands to Regin's valves

Adapter kits for adapting actuators from other suppliers to Regin's series of valves. Adapter and stem extension are included in the kit.

Article	Actuator supplier	Actuator model	Compatible valves and dimensions
OVA-B1	Belimo	NV...-R	MTRS, MTVS, ETRS, ETVS, FRS, FRSD, MRT, 2SAS (DN15), 2SBS (DN20-80), NTVS (DN15-80), GTRS (DN32-40), GTVS (DN32-40)
OVA-B2	Belimo	AV...-R	GTVS (DN50-150), GTRS (DN50-150), 2SBS (DN100), NTVS (DN100-150)
OVA-B3	Belimo	AV...-R	Old OAB 3/8" UNF thread on the stem: 2SB (DN100), GTV (DN50-150), GTR (DN50-150)
OVA-B4	Belimo	NV...-R	BTV, BTR
OVA-B5	Belimo	NV...-R	Old OAB 3/8" UNF thread on the stem: MTV, MTR, 2SA (DN15), 2SB (DN20-80), GTV (DN25-40), GTR (DN25-40)
OVA-B6	Belimo	EV...	GTVS (DN50-150), GTRS (DN50-150), 2SBS (DN80-100), NTVS (DN80-150)
OVA-B7	Belimo	NV...-TPC	MTRS, MTVS, ETRS, ETVS, FRS, FRSD, MRT, 2SAS (DN15), 2SBS (DN20-80), NTVS (DN15-80), GTRS (DN32-40), GTVS (DN32-40)
OVA-RS1	R+S	HM...	MTRS, MTVS, ETRS, ETVS, FRS, FRSD, MRT, 2SAS, 2SBS, NTVS, GTRS, GTVS
OVA-RS2	R+S	HM...	BTV
OVA-T1	TAC Forta	M400/M800	MTRS, MTVS, ETRS, ETVS, FRS, FRSD, MRT, 2SAS (DN15), 2SBS (DN20-80), NTVS (DN15-80), GTRS (DN32-50), GTVS (DN32-50), CVFS
OVA-T2	TAC Forta	M400/M800	Old OAB 3/8" UNF thread on the stem: MTV, MTR, 2SA (DN15), 2SB (DN20-80), GTV (DN25-50), GTR (DN25-50), CFV
OVA-S1	Siemens	All	MTRS, MTVS, ETRS, ETVS, FRS, FRSD, MRT, 2SAS, 2SBS, NTVS, GTRS, GTVS
OVA-AVM	Sauter	AVM234	2SBS (DN50-100), NTVS (DN50-150), GTVS (DN50-150), GTRS (50-150)

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VALVE ACTUATORS

Thermal actuator

Thermal actuator with position indicator for control of valves in heating or cooling systems. The actuator can be used to control radiator circuits, solar heating systems, heating or cooling coils, floor heating etc. To be combined with the VTTV/VTTR/VTTB range of valves.

Technical data	
Power consumption	3 VA
Stroke	2.5 mm
Ambient temperature	0…50°C
Connection	M30 x 1.5
Dimensions	Ø 40 mm x 61 mm
Cable length	2 m
Protection class	IP40 (IP44 when vertically mounted)

Article	Supply voltage	Control signal	Force	Stroke time
RTAN-24	24 V AC	On/off, NC	100 N	4.5 min
RTAN-230	230 V AC	On/off, NC	100 N	3.5 min
RTAN-24A	24 V AC	0...10 V DC, NC	100 N	4.5 min
RTAN140-24	24 V AC	On/off, NC	140 N	4.5 min
RTAN140-230	230 V AC	On/off, NC	140 N	3.5 min
RTAN140-24A	24 V AC	0...10 V DC, NC	140 N	4.5 min

Thermal actuator

Thermal actuators with position indication for control of valves in heating or cooling systems. The actuator can be used to control radiator circuits, solar heating systems, heating or cooling coils, floor heating, etc. The VA54 adapter is included upon delivery (does not apply to the 125 N variants).

Technical data	
Ambient temperature	0...60°C
Protection class	IP54
Cable length	2 m

Article	Supply voltage	Control signal	Power consumption	Stroke time	Force	Stroke
RTAM100-24	24 V AC/DC	On/off, NC	1 W. Max. inrush current < 300 mA during max. 2 min.	3.5 min	100 N	4 mm
RTAOM100-24	24 V AC/DC	On/off, NO		3.5 min	100 N	4 mm
RTAM100-24A	24 V AC	0...10 V DC, NC		30 s/mm	100 N	4 mm
RTAOM100-24A	24 V AC	0...10 V DC, NO		30 s/mm	100 N	4 mm
RTAM100-230	230 V AC	On/off, NC	1 W. Max. inrush current < 550 mA during max. 100 ms.	3.5 min	100 N	4 mm
RTAOM100-230	230 V AC	On/off, NO		3.5 min	100 N	4 mm
RTAM125-24	24 V AC/DC	On/off, NC	1.2 W. Max. inrush current < 300 mA during max. 2 min.	4.5 min	125 N	6.5 mm
RTAOM125-24	24 V AC/DC	On/off, NO		4.5 min	125 N	6.5 mm
RTAM125-24A	24 V AC	0...10 V DC, NC		30 s/mm	125 N	6.5 mm
RTAM125-230	230 V AC	On/off, NC	1.2 W. Max. inrush current < 550 mA during max. 100 ms.	4.5 min	125 N	6.5 mm
RTAOM125-230	230 V AC	On/off, NO		4.5 min	125 N	6.5 mm

Accessories

Article	Description
RTA-CASE	Adapter case

Adapters for the RTA(O)M actuators

Adapters for adjusting the RTA(O)M actuators to valves of other brands.

Article	Valve supplier	Connection, valve	Colour
VA02	LK	M30 x 1.5	Grey with red stem
VA10	Siemens/Oventrop	M30 x 1.5	Light grey
VA13H	Controlli	M30 x 1.5	White with black stem
VA16H	Herz	M28 x 1.5	Grey with red stem
VA17	MMA	M28 x 1.5	White
VA18	Honeywell	M30 x 1.5	Light blue
VA26	Giacomini	Clamping ring	Grey
VA32	TA	M28 x 1.5	Green
VA39	Oventrop	M30 x 1.0	White
VA41	Danfoss AB-QM	M30 x 1.5	Dark green
VA44H	Cazzaniga	M32 x 1.5	Grey
VA50	Honeywell	M30 x 1.5	Dark grey
VA54	MMA	M28 x 1.5	Dark blue
VA59	Danfoss RAV/L	Clamping ring	Light grey
VA64	Pettinaroli	M28 x 1.5	Grey
VA66	Industrietechnik	M30 x 1.5	Grey
VA72	Danfoss RAV	Grub screw	Light grey
VA78	Danfoss RA	Grub screw	White
VA80	TA	M30 x 1.5	White/grey
VA90	Valsir	M30 x 1.5	Red

Article	Description
RTA-CASE	Adapter case

Valve actuator for 0...10 V or 3-position control

The RVAZ4 series of valve actuators are easy to mount and have a clear position indication which shows the position of the actuator. The actuator has manual manoeuvring.

The RVAZ4 models are intended for use together with Regin's valve ranges ZTV/ZTR and ZTVB/ZTRB. The RVAZ4L1 models can be used for Regin's MVFL valve range or different brands of valves in combination with the OVA-L1 adapter.

Technical data	
Force	400 N
Stroke	5.5 mm
Ambient temperature	0…50°C
Storage temperature	-10…+80°C
Media temperature	1…110°C
Ambient humidity	Max. 95 % RH
Protection class	IP44

Actuators for Regin's valve ranges ZTV/ZTR and ZTVB/ZTRB

Article	Supply voltage	Power consumption	Control signal	Stroke time
RVAZ4-24	24 V AC ±15 %	0.6 VA	3-position	150 s
RVAZ4-24A	24 V AC ±15 %	6 VA	0...10 V DC	30 s
RVAZ4-230	230 V AC ±15 %	6 VA	3-point	150 s

Actuators for Regin's MVFL valve range or different brands of valves in combination with the OVA-L1 adapter

Article	Supply voltage	Power consumption	Control signal	Stroke time
RVAZ4L1-24	24 V AC ±15 %	0.6 VA	3-position	150 s
RVAZ4L1-24A	24 V AC ±15 %	6 VA	0...10 V DC	30 s
RVAZ4L1-230	230 V AC ±15 %	6 VA	3-position	150 s

Electromechanical actuators for the PCTV, PCTVM and PCTVS valves

Technical data	
Max. fluid temperature	95°C
Ambient temperature	0...50°C
Protection class	IP43
Force	120 N +30% -20%
Stroke time	8 s/mm

Article	Control signal	Stroke	Power supply	Power consumption
RVAPC-24	3-point	6 mm (max.)	24 V AC	1.5 W / 2.5 VA
RVAPC-230	3-point	6 mm (max.)	230 V AC	2.2 W / 6.5 VA
RVAPC-24A	0…10 V	6 / 3.2 mm (adjustable)	24 V AC	1.5 W / 2.5 VA

Accessories

Article	Description	Actuator
VA-7010	Adapter for valve with 2.7 mm stroke (to be ordered separately)	RVAPC...
VA-748X	Adapter for valve with 6 mm stroke (to be ordered separately)	RVAPC...

Valve actuator, 24 V supply voltage and 0(2)...10 V DC control

Valve actuator with automatic stroke adjustment for control of Regin's range of valves. Available in models with actuator force of 500, 1000, 1800 or 2500 N. The actuators can be operated manually with the manual override mechanism on the lid.

Technical data	
Supply voltage	24 V AC/DC
Control signal	0...10 V DC or 2...10 V DC
Ambient temperature	0...50°C
Storage temperature	-40...80°C
Ambient humidity	10...90 % RH
Protection class	IP54

Article	Max. power consumption	Force	Stroke	Stroke time
RVAN5-24A	4.5 VA	500 N	10...30 mm	1.5 s/mm
RVAN10-24A	6 VA	1000 N	10…30 mm	3 s/mm
RVAN18-24A	8 VA	1800 N	10…52 mm	3 s/mm
RVAN25-24A	12 VA	2500 N	10...52 mm	3 s/mm

Valve actuator, 24 V supply voltage and 3-position control

Valve actuator for control of Regin's range of valves. Available in models with actuator force of 500, 1000, 1800 or 2500 N. The actuators can be operated manually with the manual override mechanism on the lid.

Technical data	
Supply voltage	24 V AC
Control signal	3-point
Stroke time	3 s/mm
Ambient temperature	0...50°C
Storage temperature	-40...80°C
Ambient humidity	10...90 % RH
Protection class	IP54

Article	Max. power consumption	Force	Stroke
RVAN5-24	4.5 VA	500 N	10…30 mm
RVAN10-24	6 VA	1000 N	10…30 mm
RVAN18-24	8 VA	1800 N	10…52 mm
RVAN25-24	12 VA	2500 N	10…52 mm

Valve actuator, 230 V supply voltage and 3-position control

Valve actuator for control of Regin's range of valves. Available in models with actuator force of 500, 1000, 1800 or 2500 N. The actuators can be operated manually with the manual override mechanism on the lid.

Technical data	
Supply voltage	230 V AC ±15 %, 50 Hz
Control signal	3-point
Power consumption	12 W
Stroke time	3 s/mm
Ambient temperature	0...50°C
Storage temperature	-40...+80°C
Ambient humidity	10...90 % RH
Protection class	IP54

Article	Force	Stroke
RVAN5-230	500 N	10...30 mm
RVAN10-230	1000 N	10…30 mm
RVAN18-230	1800 N	10...52 mm
RVAN25-230	2500 N	10...52 mm

Valve actuator for MMV and MMR valves, 24 V supply voltage

The RVAR actuators are intended for control of Regin's former MMV and MMR valves, as well as other valves.

Technical data	
Max. power consumption	4.5 W
Force	500 N
Stroke	10...30 mm
Ambient temperature	0...50°C
Ambient humidity	10...90 % RH
Storage temperature	-40...80°C
Protection class	IP54

Article	Supply voltage	Control signal	Stroke time
RVAR5-24	24 V AC	3-point	3 s/mm
RVAR5-24A	24 V AC/DC	0...10 V DC or 2...10 V DC	1.5 s/mm

Valve actuator for MMV and MMR valves, 230 V supply voltage

The RVAR actuators are intended for control of Regin's former MMV and MMR valves, as well as other valves.

Technical data	
Control signal	3-point
Max. power consumption	12 W
Stroke time	3 s/mm
Stroke	10...30 mm
Ambient temperature	0...50°C
Storage temperature	-40...+80°C
Ambient humidity	10...90 % RH
Protection class	IP54

Article	Force
RVAR5-230	500 N
RVAR10-230	1000 N

Adapter kit for adapting Regin's RVAN actuators to valves of other brands

ARI Armaturen

Valve	DN min.-max.	Stroke	Actuator	Adapter type
485-489	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-A1
485-489	65 - 100 mm	20 - 30 mm	RVAN18.../RVNA25...	OVA-A2
485-489	40 - 50 mm	14 mm	RVAN18	OVA-A3

ESBE

Valve	DN min.-max.	Stroke	Actuator	Adapter type
VLF125	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLF135	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLF335	65 - 80 mm	20 mm	RVAN18.../RVAN25...	OVA-F4
VLA121	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLA221	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLA131	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLA325	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLA325	65 - 150 mm	40 mm	RVAN18.../RVAN25...	OVA-F4
VLB225	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLB225	65 - 150 mm	40 mm	RVAN18.../RVAN25...	OVA-F4
VLA335	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLA335	65 - 150 mm	40 mm	RVAN18.../RVAN25...	OVA-F4
VLB235	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLB235	65 - 150 mm	40 mm	RVAN18.../RVAN25...	OVA-F4
VLA425	25 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLE122	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLE132	15 - 50 mm	20 mm	RVAN.../RVAN10...	OVA-131
VLE222	25 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLE325	20 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLC125	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLC225	25 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLC325	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VLC425	25 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL2FC	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL3FC	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL2TA	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL2TAA	25 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL3TA	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL2FA	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL2FAA	25 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL3FA	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL2TB	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL2TBA	25 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL3TB	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL2FD	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
VL2FDA	25 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131

Honeywell

Valve	DN min.-max.	Stroke	Actuator	Adapter type
V5011R	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V5013A	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V5013F	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V5013R	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V5015A	100 - 150 mm	38 mm	RVAN18.../RVAN25...	OVA-013
V5329C	15 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V5329A	15 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V5016A	15 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V5016A	100 - 150 mm	38 mm	RVAN18.../RVAN25...	OVA-013
V5025A	15 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V5025A	100 - 150 mm	38 mm	RVAN18.../RVAN25...	OVA-013
V5050A	15 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V5050A	100 - 150 mm	38 mm	RVAN18.../RVAN25...	OVA-013
V5328A	15 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V176A	15 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V176B	20 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-011
V176B	100 mm	38 mm	RVAN18.../RVAN25...	OVA-013
V538C6xxx	50 - 150 mm	27 - 40 mm	RVAN18.../RVAN25...	OVA-013
V538C3xxx	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-011

Kieback und Peter

Valve	DN min.-max.	Stroke	Actuator	Adapter type
RF	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-A1
RF	65 - 100 mm	20 - 30 mm	RVAN18.../RVAN25...	OVA-A2
RK	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-A1
RK	65 - 100 mm	20 - 30 mm	RVAN18.../RVAN25...	OVA-A2

L&G, L&S, Siemens valves

Valve	DN min.-max.	Stroke	Actuator	Adapter type
VFF33 (VARISHUNT)	65 mm	40 mm	RVAN18.../RVAN25...	OVA-031
VFF34 (VARISHUNT)	65 mm	40 mm	RVAN18.../RVAN25...	OVA-031
VFF35 (VARISHUNT)	65 mm	40 mm	RVAN18.../RVAN25...	OVA-031
VFF36 (VARISHUNT)	65 mm	40 mm	RVAN18.../RVAN25...	OVA-031
VFG33 (VARISHUNT)	25 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-134
VFG34 (VARISHUNT)	25 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-134
VFG35 (VARISHUNT)	25 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-134
VFG36 (VARISHUNT)	25 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-134
VPF52E	15 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VPF52F	15 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VVF21	15 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VVF21	100 mm	40 mm	RVAN18.../RVAN25...	OVA-082
VVF31	25 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VVF31	100 - 150 mm	40 mm	RVAN18.../RVAN25...	OVA-082
VVF40	15 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VVF40	100 - 150 mm	40 mm	RVAN18.../RVAN25...	OVA-082
VVF41	50 - 150 mm	20/40 mm	RVAN18.../RVAN25...	OVA-082
VVF45	50 - 150 mm	20/40 mm	RVAN18.../RVAN25...	OVA-082
VVF51/52	15 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VVF53	15- 50 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VVF61	15 - 25 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VVF61	40 - 150 mm	20/40 mm	RVAN18.../RVAN25...	OVA-082
VVG11 (VARIVALVE)	15 mm	5.5 mm	RVAZ4L1...	OVA-L1
VVG11	20 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-134
VVG12 (VARIVALVE)	25 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-134
VXF21	25 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VXF21	100 mm	40 mm	RVAN18.../RVAN25...	OVA-082
VXF31	25 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VXF31	100 - 150 mm	40 mm	RVAN18.../RVAN25...	OVA-082
VXF40	15 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VXF40	100 - 150 mm	10 mm	RVAN18.../RVAN25...	OVA-082
VXF41	15 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VXF41	50 - 150 mm	40 mm	RVAN18.../RVAN25...	OVA-082
VXF53	15- 50 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VXF61	15 - 25 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VXF61	40 - 150 mm	20/40 mm	RVAN18.../RVAN25...	OVA-082
VVG41	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VXG11 (VARIVALVE)	15 mm	5.5 mm	RVAZ4L1...	OVA-L1
VXG11	20 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-134
VXG12 (VARIVALVE)	25 - 40 mm	20 mm	RVAN5.../RVAN10...	OVA-134
VXG41	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-081
VXG44	15 - 50 mm	5.5 mm	RVAZ4L1	OVA-L1
VVG44	15 - 40 mm	5.5 mm	RVAZ4L1...	OVA-L1
VVG549	15 - 25 mm	5.5 mm	RVAZ4L1...	OVA-L1
VVI51	15 mm	5.5 mm	RVAZ4L1...	OVA-L1
VVG55	15 - 25 mm	5.5 mm	RVAZ4L1...	OVA-L1
VVP45	10 - 40 mm	5,5 mm	RVAZ4L1...	OVA-L1
VVP45	10 - 40 mm	5,5 mm	RVAZ4L1...	OVA-L1
VVP45	10 - 40 mm	5,5 mm	RVAZ4L1...	OVA-L1

Osby valves (OAB)

Valve	DN min.-max.	Stroke	Actuator	Adapter type
2SAS, 2SBS, 2SAM, 2SBM	15 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-F1
2SBS, 2SBM	100 mm	38 mm	RVAN18…	OVA-F2
NTVS	15 - 80 mm	20 mm	RVAN5…/RVAN10…	OVA-F1
NTVS	100 - 150 mm	38, 40 mm	RVAN18…/RVAN25…	OVA-F2
CVFS	20 - 65 mm	32 mm	RVAN18…	OVA-F2
GTVS, GTRS	32 - 40 mm	20 mm	RVAN5…/RVAN10…	OVA-F1
GTVS, GTRS	50 - 150 mm	24 - 40 mm	RVAN18…/RVAN25…	OVA-F2
ETVS, ETVSU, ETRS, ETRSU	15 - 50 mm	20 mm	RVAN5…/RVAN10…	OVA-F1
FRS, FRSD	15 - 65 mm (kvs 0.6 - 6.3)	20 mm	RVAN5…/RVAN10…	OVA-F1
FRS	32 - 65 mm (kvs 10 - 20)	20 mm	RVAN18…	OVA-F2
MRT	20 - 25 mm	20 mm	RVAN5…/RVAN10…	OVA-F1
MTVS, MTRS	15 - 50 mm	20 mm	RVAN5…/RVAN10…	OVA-F1
STR, STV	15 - 50 mm	15 mm	RVAN5…/RVAN10…	OVA-121
MMV, MMR	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-134
BTV	15 - 50 mm	20 mm	RVAN5…/RVAN10…	OVA-F3 + 2921451401
BTR	15 - 50 mm	20 mm	RVAN5…/RVAN10…	OVA-F3
MMVA	15 - 50 mm	20 mm	RVAN5…/RVAN10…	OVA-F3

Old Osby valves with 3/8” UNF thread on the stem

Valve	DN min.-max.	Stroke	Actuator	Adapter type
2SA/2SB	15 - 80 mm	20 mm	RVAN5.../RVAN10...	OVA-132
2SB	100 mm	38 mm	RVAN18...	OVA-133
CVF	20 - 65 mm	32 mm	RVAN18...	OVA-133
GTR/GTV	25 - 50 mm	20 - 24 mm	RVAN5.../RVAN10...	OVA-132
GTR/GTV	65 - 150 mm	40 mm	RVAN18.../RVAN25...	OVA-133
MTR/MTV	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-132

Riccius + Sohn

Valve	DN min.-max.	Stroke	Actuator	Adapter type
RGV2	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-H1
RGV3	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-H1
HMVF2	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-H1
HMVF2	65 - 100 mm	20 - 30 mm	RVAN18.../RVAN25...	OVA-H2
HMVF3	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-H1
HMVF3	65 - 100 mm	20 - 30 mm	RVAN18.../RVAN25...	OVA-H2
RGVA2	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-A1
RGVA3	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-A1
HMVFA2	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-A1
HMVFA2	65 - 100 mm	20 - 30 mm	RVAN18.../RVAN25...	OVA-A2
HMVFA3	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-A1
HMVFA3	65 - 100 mm	20 - 30 mm	RVAN18.../RVAN25...	OVA-A2

Satchwell

Valve	DN min.-max.	Stroke	Actuator	Adapter type
SVB-XXX-F3	50 - 150 mm	23 - 40 mm	RVAN18.../RVAN25...	OVA-133
SVG-XXX-F3	50 - 150 mm	23 - 40 mm	RVAN18.../RVAN25...	OVA-133
SVR-XXX-F3	50 - 150 mm	23 - 40 mm	RVAN18.../RVAN25...	OVA-133
SVR-G2	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-132
SVR-G3	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-132
VZ	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-132
VZF	65 - 150 mm	27 - 40 mm	RVAN18.../RVAN25...	OVA-133

TAC + Schneider

Valve	DN min.-max.	Stroke	Actuator	Adapter type
STL	20 - 65 mm	31.5 mm	RVAN18...	OVA-031
STL-SR	20 - 65 mm	22 mm	RVAN5.../RVAN10...	OVA-131
V241	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V341	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V353	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V231	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V232	25 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V298	20 - 40 mm	22 mm	RVAN5.../RVAN10...	OVA-131
V211	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V211T	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V282	20 - 32 mm	22 mm	RVAN5.../RVAN10...	OVA-131
V282	40 - 50 mm	31.5 mm	RVAN18...	OVA-031
VG211	15 - 50 mm	16.5/25 mm	RVAN5.../RVAN10...	OVA-131
VG221F	65 mm	25 mm	RVAN10...	OVA-131
VG221F	80 - 150 mm	45 mm	RVAN18.../RVAN25...	OVA-031
VG222	65 - 150 mm	25/45 mm	RVAN18.../RVAN25...	OVA-031
VG321	65 - 150 mm	25 - 45 mm	RVAN18.../RVAN25...	OVA-031
V311	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V311T	15 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V212	25 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V212T	25 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V395	40 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V395	65 - 100 mm	30/39.5 mm	RVAN18.../RVAN25...	OVA-031
V265	40 - 100 mm	31.5/40.9/50.3 mm	RVAN18.../RVAN25...	OVA-031
V221	65 - 100 mm	30/39.5 mm	RVAN18.../RVAN25...	OVA-031
V384	20 - 32 mm	22 mm	RVAN5.../RVAN10...	OVA-131
V384	40 - 50 mm	31.5 mm	RVAN18...	OVA-031
V386	20 - 32 mm	22 mm	RVAN5.../RVAN10...	OVA-131
V386	40 - 50 mm	31.5 mm	RVAN18...	OVA-031
V392	20 - 32 mm	22 mm	RVAN5.../RVAN10...	OVA-131
V392	40 - 50 mm	31.5 mm	RVAN18...	OVA-031
V394	20 - 50 mm	20 mm	RVAN5.../RVAN10...	OVA-131
V292	20 - 32 mm	22 mm	RVAN5.../RVAN10...	OVA-131
V292	40 - 100 mm	31.5/40.9/50.3 mm	RVAN18.../RVAN25...	OVA-031
V294	20 - 32 mm	22 mm	RVAN5.../RVAN10...	OVA-131
V295	20 - 32 mm	22 mm	RVAN5.../RVAN10...	OVA-131
V295	40 - 100 mm	31.5/40.9/50.3 mm	RVAN18.../RVAN25...	OVA-031

LDM

Valve	DN min.-max.	Stroke	Actuator	Adapter type
RV 111/T	15 - 40 mm	5.5 mm	RVAZ4L1...	OVA-L1
RV 111/W	15 - 40 mm	5.5 mm	RVAZ4L1...	OVA-L1
RV 111/F	15 - 40 mm	5.5 mm	RVAZ4L1...	OVA-L1

WSE/Norshunt

Valve	DN min.-max.	Stroke	Actuator	Adapter type
FM25	25 mm	23.5 mm	RVAR5	OVA-FM
FM50	50 mm	37.5 mm	RVAN18	OVA-FM

Johnson

Valve	DN min.-max.	Stroke	Actuator	Adapter type
VG7201/VG7203	25 - 32 mm	13 mm	RVAN5.../RVAN10...	OVA-J1
VG7201/VG7203	40 - 50 mm	19 mm	RVAN5.../RVAN10...	OVA-J1
VG7401/VG7403	25 - 32 mm	13 mm	RVAN5.../RVAN10...	OVA-J1
VG7401/VG7403	40 - 50 mm	19 mm	RVAN5.../RVAN10...	OVA-J1
VG7802/VG7804	25 - 32 mm	13 mm	RVAN5.../RVAN10...	OVA-J1
VG7802/VG7804	40 - 50 mm	19 mm	RVAN5.../RVAN10...	OVA-J1
BM-2xx2	15 - 50 mm	19 mm	RVAN5.../RVAN10...	OVA-J1
BM-2xx8	15 - 50 mm	19 mm	RVAN5.../RVAN10...	OVA-J1

The OVA-J1 adapter applies to valves with a M28x1,5 neck and a 1/4" UNF-28 threaded stem.

Controlli

Valve	DN min.-max.	Stroke	Actuator	Adapter type
VSB	15 - 50 mm	16.5 mm	RVAN5.../RVAN10...	OVA-141
VMB	15 - 50 mm	16.5 mm	RVAN5.../RVAN10...	OVA-141

Sauter

Valve	DN min.-max.	Stroke	Actuator	Adapter type
V6R	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151
B6R	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151
VXD	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151
VXE	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151
BXD	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151
BXE	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151
V6F	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151
V6G	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151
V6S	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151
B6F	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151
B6G	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151
B6S	15 - 50 mm	14 mm	RVAN5.../RVAN10...	OVA-151

11

DAMPER ACTUATORS

Damper actuators with spring return

4 Nm

4 Nm damper actuator with spring return

Technical data	
Mounting	Directly on jack shaft
For jack shaft	8...16 mm Ø (round shaft), 8...12 mm (square shaft)
Max. damper size	0.8 m^2
Torque	4 Nm
Running time, spring return	20 s, -20...+50°C, max. 60 s at -30°C
Protection class	IP54

Article	Control signal	Supply voltage	Running time, actuator	Auxiliary switch
RDAB5S-24	On/off	24 V AC/DC, 7 VA	40...75 s (0...4 Nm)	-
RDAB5S-24S	On/off	24 V AC/DC, 7 VA	40...75 s (0...4 Nm)	1 x SPDT, 6 (1.5) A, 250 V AC. Switching point: adjustable 0...100 %.
RDAB5S-230	On/off	230 V AC, 7 VA	40...75 s (0...4 Nm)	-
RDAB5S-230S	On/off	230 V AC, 7 VA	40...75 s (0...4 Nm)	1 x SPDT, 6 (1.5) A, 250 V AC. Switching point: adjustable 0...100 %.
RDAB5S-24A	0...10 V DC (working range 2...10 V)	24 V AC/DC, 7 VA	150 s	-

10 Nm

10 Nm damper actuator with spring return

Technical data	
Mounting	Directly on jack shaft
For jack shaft	10...22 mm Ø (round shaft), 14...25.4 mm (square shaft)
Max. damper size	2 m^2
Torque	10 Nm
Running time, spring return	20 s
Protection class	IP54

Article	Control signal	Supply voltage	Power consumption	Running time, actuator	Auxiliary switch
RDAB10S	On/off	24...240 V AC, 50/60 Hz, 24...125 V DC	10 VA (24 V) / 11 VA (230 V)	75 s	-
RDAB10S-S	On/off	24...240 V AC, 50/60 Hz, 24...125 V DC	10 VA (24 V) / 11 VA (230 V)	75 s	2 x SPDT, 1 mA ... 3 (0.5) A, 250 V AC. Switching points: fixed 10 %, adjustable 10...90 %.
RDAB10S-24A	0...10 V DC (working range 2...10 V, 24 V AC only)	24 V AC, 50/60 Hz, 24 V DC	8 VA	150 s	-

20 Nm

20 Nm damper actuator with spring return

Technical data	
Mounting	Directly on jack shaft
For jack shaft	10...22 mm Ø (round shaft), 14...25.4 mm (square shaft)
Max. damper size	4 m^2
Torque	20 Nm
Running time, spring return	20 s
Protection class	IP54

Article	Control signal	Supply voltage	Power consumption	Running time, actuator	Auxiliary switch
RDAB20S	On/off	24...240 V AC, 50/60 Hz, 24...125 V DC	7 VA (24 V) / 18 VA (230 V)	75 s	-
RDAB20S-S	On/off	24...240 V AC, 50/60 Hz, 24...125 V DC	7 VA (24 V) / 18 VA (230 V)	75 s	2 x SPDT, 1 mA ... 3 (0.5) A, 250 V AC. Switching points: fixed 10 %, adjustable 10...90 %.
RDAB20S-24A	0...10 V DC (working range 2...10 V, 24 V AC only)	24 V AC, 50/60 Hz, 24 V DC	8.5 VA	150 s	-

Damper actuators without spring return

5 Nm

5 Nm damper actuator without spring return

Technical data	
Mounting	Directly on jack shaft
For jack shaft	6...16 mm Ø (round shaft), 4...11 mm (square shaft)
Max. damper size	1.0 m^2
Torque	5 Nm
Protection class	IP54
Running time, actuator	150 s

Article	Control signal	Supply voltage	Auxiliary switch
RDAB5-24	On/off, 3-point	24 V AC/DC, 2 VA	-
RDAB5-24S	On/off, 3-point	24 V AC/DC, 2 VA	1 mA ... 3 (0.5) A, 250 V AC
RDAB5-230	On/off, 3-point	230 V AC, 4 VA	-
RDAB5-230S	On/off, 3-point	230 V AC, 4 VA	1 mA ... 3 (0.5) A, 250 V AC
RDAB5-24A	0...10 V DC (working range 2...10 V)	24 V AC/DC, 2 VA	-

10 Nm

10 Nm damper actuator without spring return

Technical data	
Mounting	Directly on jack shaft
For jack shaft	8...20 mm Ø (round shaft), 10...16 mm (square shaft)
Max. damper size	2 m^2
Torque	10 Nm
Protection class	IP54
Running time, actuator	150 s

Article	Control signal	Supply voltage	Auxiliary switch
RDAB10-24	On/off, 3-point	24 V AC/DC, 3.5 VA	-
RDAB10-24S	On/off, 3-point	24 V AC/DC, 3.5 VA	1 mA ... 3 (0.5) A, 250 V AC
RDAB10-230	On/off, 3-point	230 V AC, 6 VA	-
RDAB10-230S	On/off, 3-point	230 V AC, 6 VA	1 mA ... 3 (0.5) A, 250 V AC
RDAB10-24A	0...10 V DC (working range 2...10 V)	24 V AC/DC, 3.5 VA	-

20 Nm

20 Nm damper actuator without spring return

Technical data	
Mounting	Directly on jack shaft
For jack shaft	10...20 mm Ø (round shaft), 10...20 mm (square shaft)
Max. damper size	4 m^2
Torque	20 Nm
Protection class	IP54
Running time, actuator	150 s

Article	Control signal	Supply voltage	Auxiliary switch
RDAB20-24	On/off, 3-point	24 V AC/DC, 4 VA	-
RDAB20-24S	On/off, 3-point	24 V AC/DC, 4 VA	1 mA ... 3 (0.5) A, 250 V AC
RDAB20-230	On/off, 3-point	230 V AC, 6 VA	-
RDAB20-230S	On/off, 3-point	230 V AC, 6 VA	1 mA ... 3 (0.5) A, 250 V AC
RDAB20-24A	0...10 V DC (working range 2...10 V)	24 V AC/DC, 4 VA	-
RDAB20-230A	0...10 V DC (working range 2...10 V)	230 V AC, 6 VA	-

40 Nm

40 Nm damper actuator without spring return

Technical data	
Mounting	Directly on jack shaft
For jack shaft	12...20 mm Ø (round shaft), 9...16 mm (square shaft)
Max. damper size	8 m^2
Torque	40 Nm
Protection class	IP54
Running time, actuator	150 s

Article	Control signal	Supply voltage
RDAB40-24	On/off	24 V AC/DC, 7 VA
RDAB40-230	On/off	230 V AC, 7 VA
RDAB40-24A	0...10 V DC (working range 2...10 V)	24 V AC/DC, 7 VA

Damper actuator accessories

Article	Description
KH8	Damper crank arm, universal, for Ø 10...18 mm or □ 10...14 mm
AH-20	Damper crank arm for RDAB20
AH-25	Damper crank arm for RDAB10
AV10-18	Shaft extension, 250 mm, Ø 10...18 mm, □ 10...14 mm
ZG-LF1	Mounting kit for RDAB5S, for axial movement
ZG-NMA	Mounting kit for RDAB10, for axial movement
ZG-SMA	Mounting kit for RDAB20, for axial movement
K6-1	Spindle clamp for RDAB5S, round shaft, 16...20 mm
S1A	1-pole add-on auxiliary switch for RDAB5 and RDAB40
S2A	2-pole add-on auxiliary switch for RDAB5 and RDAB40
Z-SMA	Ground plate extension for RDAB20
ZA-LM	Adapter 8x8 mm to Ø 16 mm
Z-AF	Ground plate extension for RDAB20S
K7-3	Reversible universal spindle clamp for RDAB10S and RDAB20S

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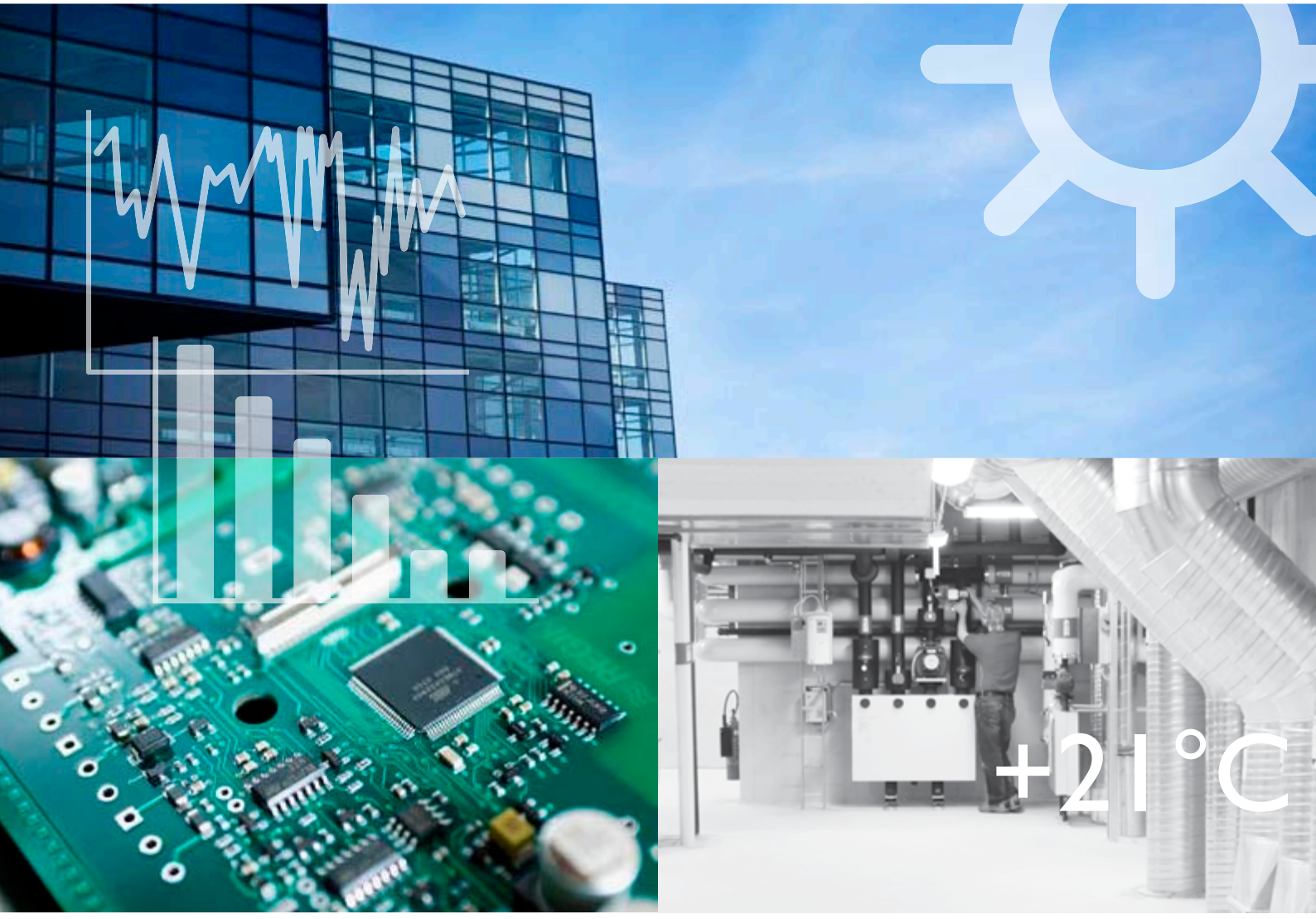
MISCELLANEOUS PRODUCTS & ACCESSORIES



Thermometer

Thermometer for duct mounting. Can be adjusted to fit different duct sizes by means of a moveable fastening flange. A rubber seal prevents air leakage.

Technical data	
Diameter	65 mm
Total length	162 mm

Article	Temperature range
T40	-40...+40°C
T60	0...60°C
T100	0...100°C
T40:25	-40...+40°C

Differential pressure manometer

Simple, compact, easy-to-use filter manometer. MINI1200 is supplied with measuring fluid, pressure outlets and an adhesive label for noting down the filter type and the initial and final pressure drop.

Technical data	
Pressure range	0...1200 Pa
Dimensions	180 x 30 mm

Article	Description
MINI1200	Manometer
MINI1200:25	Manometer, 25 units

Differential pressure manometer

Device for high accuracy measurements. The manometer measures up to 600 Pa differential pressure with enhanced resolution between 0...200 Pa. Equipped with blow-out protection and a knob for zero-point adjustment. Max. total pressure 100 kPa.

MV600 is supplied with measuring fluid, pressure outlets, tubing, screws and an adhesive label for noting down the initial and final pressure drop.

Technical data	
Pressure range	0...600 Pa
Accuracy	±3 %
Ambient temperature	-45...+65°C
Dimensions	210 x 140 x 33 mm

Article	Description
MV600	Manometer

Manometer accessories

Article	Description
MM-F2	Blue measuring fluid (MINI1200) 1.05 g/cm³, 500 ml
MM-F3	Red measuring fluid (MV600) 0.786 g/cm³, 30 ml
MTU:25	Pressure outlet, black plastic. For 6 mm tubing, 25 pcs
MTU:100	Pressure outlet, black plastic. For 6 mm tubing, 100 pcs
MM-P:25	Plastic tubing Ø 6 mm. Transparent, 25 m.
MM-P:100	Plastic tubing Ø 6 mm. Transparent, 100 m.
IPP8:1000	Expansion plug, grey plastic, 8 mm, 1000 pcs
IPP10:1000	Expansion plug, grey plastic, 10 mm, 1000 pcs
IPP12:250	Expansion plug, grey plastic, 12 mm, 250 pcs
T-ROR:100	Plastic T-branch joining piece, for 6 mm tubing, 100 pcs

Rotation sentinel

SPINN/D is an electronic rotation sentinel, primarily intended for supervision of rotating heat-exchanger wheels. It has a change-over alarm relay and a function for blocking the alarm output at intentional stops.

Technical data	
Supply voltage	230 V AC, 5 VA
Alarm relay	5 A, 250 V AC, change-over
Mounting	DIN-rail
Number of modules	3
Protection class	IP20

Article	Description
SPINN/D	Rotation sentinel

Accessories

Article	Description
RR-G3	Sensor including magnet
MAGNET-424	Extra magnet

3G modem for CLOUDigo

CLO-3G is a package consisting of a 3G modem with a factory-installed SIM card, ready for immediate connection to CLOUDigo. The modem functions as a gateway between a TCP/IP connected Corrigo and CLOUDigo. It has a built-in DHCP function that handles connecting to an external unit.

Technical data	
Supply voltage	24 V AC/DC ±10 %, 50...60 Hz, 200 mA
Connection	Ethernet (RJ45, crossover network cable), antenna (SMA-F contact)
Communication	LAN (TCP/IP, DHCP), mobile network (3G or GSM/GPRS)
Ambient temperature	-30...+60°C

Article	Description
CLO-3G	3G modem with factory-installed SIM card for connecting to CLOUDigo

Accessories

Article	Description
MODEM3G-ANT	External antenna for MODEM3G with 3.6 m cable
E-CABLE-TCP/IP	Cable for TCP/IP connection directly to a PC

Dial-up modem for Corrigo

Industrial auto-dial modem, approved for use in most European countries.

Technical data	
Supply voltage	24 V DC
Mounting	DIN-rail
Number of modules	1.4

Article	Description
MODEM56kINT485	Modem for Corrigo. Delivered with a null modem adapter and an E-CABLE.

For accessories, see the power supply unit X1111, 230 V AC / 24 V DC.

GPRS router

GPRS router which makes it possible to connect Regin's controllers to a main computer using GPRS communication. It is strongly recommended that you choose a fixed monthly rate from your internet provider. DIN-rail mounting, 24 V DC supply voltage.

The GPRS router is delivered with an external antenna.

Article	Description
GPRS5.0E	GPRS Router 5.0 Ethernet

For accessories, see e.g. the power supply units X1111 and X1312, 230 V AC / 24 V DC.

Serial adapter for RS485 to TCP for Modbus

ConverterTCP is a serial adapter that converts Modbus RS485 to TCP/IP. It can be connected to Regin's Corrigo controllers, etc. The adapter can be used for individual units or an entire network.

Technical data	
Working voltage	10...60 V DC
Rated current	125 mA at 24 V DC
Connection	Lift type terminal
Speed	0.3...115.2 kbit/s
Insulation	Power and ports: 3000 V Between ports: 1500 Vrms
Mounting	DIN-rail
Dimensions (WxHxD)	35 x 121 x 121 mm

Article	Description
CONVERTERTCP	Adapter

Graphic touch display

For operation of a Corrigo ventilation with two ports. Intended for supervision and control of an air handling system.

Technical data	
Protection class	IP30
Power supply	24 V DC via terminal 4 (+C) and G0 on the Corrigo
Power consumption	50 mA
Connection cable	Twisted pair, 0.25 mm^2
Display	TFT-LCD (resistive), backlit LED
Language	Swedish or English, set automatically depending on the language used in the Corrigo
Aspect ratio	4:3
Resolution	320 x 240
Dimensions (WxHxD)	120 x 90 x 27 mm
Mounting	On wall or device box
Communication	EXOline

Article	Description
ED-TCV	External graphic touch display

External display unit for Corrigo

ED9200 is an external, independent display and configuration unit for Corrigo. Corrigo E...-3 supports use of ED9200 and an internal display at the same time. Earlier versions support either only an external or an internal display.

Technical data	
Power supply	Internal supply, via communication cable
Cabling	With Corrigo E...-S: EK12 (3 m), EK14 (10 m) With Corrigo E...-3: EDSP-K3 (3 m), EDSP-K10 (10 m) or self-made
Cable type when self-made	26AWG
Quick connection when self-made	With Corrigo E...-3: 4P4C
Communication port	Serial, special
Max. cable length	10 m (E...-S), 100 m (E...-3)
Software requirements	EXOreal 2.8-1-29 or later

Article	Protection class
ED9200	IP41
ED9200IP65	IP65

Accessories

Article	Description	Cable length
EK12	Cable for connecting ED9200 to a Corrigo E...-S	3 m
EK14	Cable for connecting ED9200 to a Corrigo E...-S	10 m
EDSP-K3	3 m cable for connecting E3-DSP or ED9200 to a Corrigo E...-3	3 m
EDSP-K10	10 m cable for connecting E3-DSP or ED9200 to a Corrigo E...-3	10 m

External display unit for Corrigo

Backlit LCD display for Corrigo without display. The display offers full external control when the controller is mounted in a panel or similar. Corrigo has a RJ12 modular jack for fast connection.

Article	Cable length	Protection class
ED9100-3	3 m	IP41
ED9100-10	10 m	IP41
ED9100IP65-3	3 m	IP65

External display unit for Corrigo E...-3

Display for operation of a Corrigo E...-3. E3-DSP can be connected to controllers with or without a built-in display. The external display and the built-in display can be used simultaneously.

Technical data	
Protection class	IP30
Connection cable	3 m, 10 m or user-supplied cable, max. 100 m

Article	Description
E3-DSP	External display

Cable must be ordered separately.

Accessories

Article	Description
EDSP-K3	3 m cable for connecting E3-DSP or ED9200 to a Corrigo E...-3
EDSP-K10	10 m cable for connecting E3-DSP or ED9200 to a Corrigo E...-3

Displays for panel mounting

DP102 and DP156 are panel computers intended to be mounted in for example a cabinet door. They can easily be connected to Regin's controllers, with or without integrated web.

Technical data	
CPU type	Intel Atom N270 1.6 GHz
RAM	1 GB
Supply voltage	Power supply unit for 12 V DC (2.5 A) included in the delivery
Protection class	IP65
Mounting	Cabinet mounting, VESA 75 / 100 (screws included)

Article	Monitor size	Resolution	Flash memory	Ports
DP102	10.2"	1024 x 600	8 GB	3 x COM ports (RS232), 2 x USB ports, 1 x LAN port (Realtek RLT8111C 10/100/1000 Mbps)
DP156	15.6"	1366 x 768	4 GB	5 x COM ports (RS232), 2 x USB ports, 1 x LAN port (Realtek RLT8111C 10/100/1000 Mbps)

External room unit

ED-RU

ED-RU-O

ED-RU-F

ED-RU-FO

ED-RU-DO

ED-RU-DFO

ED-RU-DOS

ED-RU-H

The ED-RU units are primarily intended for control of an air handling unit via a Corrigo controller running a ventilation application. They can be used to change fan speed, set temperature, extended running, etc. at a distance of up to 300 m. Their stylish design is suitable for all environments.

The units have a built-in temperature sensor. An external PT1000-sensor can also be connected.

Technical data	
Supply voltage	24 V AC
Power consumption	25 mA
Protection class	IP20
Ambient humidity	Max. 90 % RH
Storage temperature	-20…+70°C
Mounting	On wall or device box
Dimensions (WxHxD)	95 x 95 x 28 mm
Communication	EXOline

Article	Occupancy button	3-step fan control	Setpoint knob	Multi-function button	Hidden setpoint	Display
ED-RU	-	-	X	-	-	-
ED-RU-O	X	-	X	-	-	-
ED-RU-F	-	X	X	-	-	-
ED-RU-FO	X	X	X	-	-	-
ED-RU-DO	X	-	-	-	-	X
ED-RU-DFO	X	X	-	-	-	X
ED-RU-DOS	X	-	-	X	-	X
ED-RU-H	-	-	-	-	X	-

Display repeater for E3-DSP

Repeater for handling distances of up to 1200 m between Corrigo E...-3 and the external display unit E3-DSP.

Article	Power supply	Protection class	Mounting
E0R-3	24 V AC	IP20	DIN-rail
E0R230K-3	230 V AC	IP65	Wall

Step controller, 1- or 2-stage

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

Technical data	
Supply voltage	24 V AC, 2 VA
Input signal	0...10 V DC
Settings	0...10 V DC
Mounting	DIN-rail
Number of modules	3
Protection class	IP20

Article	Description	Output	Step differential
SC1/D	Step controller with 1 relay (change-over)	One relay, change-over, 10 A, 250 V AC	-
SC2/D	Step controller with 2 relays (closing)	Two relays, closing, 10 A, 250 V AC	0...2 V DC

Step controller, 4- or 6-stage

Controllers intended for control of electric heating coils, four or six relays. It can be used with any controller with an 0...10 V DC or 10...2 V DC output signal.

The required number of steps is set by means of the rotating switch on the front. The 0...10 V DC input signal is divided up into the number of steps, thus setting the switch-on point for each step. Relay 6 on TT-S6/D 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 (TTC or similar) to give proportional heating between steps.

Technical data	
Supply voltage	24 V AC, 6 VA
Output	4 alt. 6 relays (closing), binary or sequential control
Input signal	0...10 V DC
Output signal	0...10 V DC
Mounting	DIN-rail
Number of modules	6
Protection class	IP20

Article	Description	Run-on time
TT-S4/D	Step controller with 4 relays	-
TT-S6/D	Step controller with 6 relays	3 min

Relay module

Relay module with six relays, intended for use together with Regin's Corrigo controllers. The relay module can be used for control of objects with higher voltage loads or larger current drain than the Corrigo outputs can handle. RM6H-24/D has manual switches for manual control of each object.

Technical data	
Supply voltage	24 V AC ±15 %, 5 VA
Inputs	Six 24 V AC
Output	Six potential-free change-over contacts, 230 V AC, 10 A
Mounting	DIN-rail
Number of modules	6 (105 x 112 x 58)
Protection class	IP20

Article	Description
RM6-24/D	Relay module
RM6H-24/D	Relay module with manual switches

Frost protection unit, DIN-rail mounting

The electronic frost protection unit FV1/D 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 Regin NTC sensor placed on the heating coil or return water pipe. FV1/D has two alarm relays and manual or automatic reset. The sensor must have 0...30°C temperature range, suitable sensors are TG-A130 and TG-B130 from Regin.

When there is frost risk, FV1/D has a 0...10 V DC control output that can be used to override the valve.

Technical data	
Supply voltage	24 V AC
Power consumption	2 VA
Setpoint	0...15°C
P-band, control signal override	5 K (fixed)
Inputs	
Sensor inputs	One, 0...30°C (NTC sensor)
Control signal	0...10 V DC (from the controller)
Outputs	
Relays	24 V AC, 1 A, change-over and 230 V AC, 1 A, breaking contact
Output signal	0...10 V DC
Mounting	DIN-rail
Number of modules	3
Protection class	IP20

Article	Description
FV1/D	Frost protection unit (delivered without a sensor)

Signal converter

Signal converter which selects the highest and lowest signal of up to six connected inputs and transforms them into two separate max. and min. output signals. If fewer than six inputs are used, unused inputs are left open. Both outputs can be used simultaneously. No settings are necessary.

Technical data	
Supply voltage	24 V AC, 3 VA
Input signal	Six, 0...10 V DC
Output signal	One max. signal 0...10 V DC and one min. signal 0...10 V DC
Accuracy	±3 % of the input signal
Mounting	DIN-rail
Number of modules	3
Protection class	IP20

Article	Description
MM6-24/D	Signal converter

Transient protection for RS485 (EXOline) and hIEXOline

DIN-rail mounting.

Article	Number of modules
X1804	2.7

Transient protection for telephone lines

DIN-rail mounting.

Article	Number of modules
X4106	1

Relay module

Coupling module which serves as electrical separation between controller and load. Equipped with screw-type terminal blocks (lift system) providing an easy and rapid wiring. The module has manual control function, LED indication and integral protective circuit.

Technical data	
Nominal voltage UN	24 V AC/DC
Output contact	One change-over contact (SPDT)
Max. switching voltage	250 V AC/DC
Max. making current	8 A
Continuous current	6 A
Ambient temperature	-20...+55°C
Dimensions (WxHxL)	11.2 x 60 x 60 mm

Article	Description
KR24-1W-S	Relay module, 1 relay, on/off/auto switch

Relay modules

Relay modules with potential-free high load change-over contact. The modules operate with a voltage of 24 V AC, 24 V DC or 230 V AC. KRDC24-2WAU and KRAC24-2WAU are especially suitable for use with microsensors. All three relay modules have secure isolation according to DIN VDE 0106-101 and DIN VDE 0160.

Technical data	
Output voltage	250 V AC
Nominal current	8 A
Ambient temperature	-40...+70°C
Mounting	On DIN-rail 35 mm
Number of modules	1
Dimensions (WxHxD)	15.6 x 61 x 75 mm
Protection class	IP20
Change-over relays	2

Article	Description	Supply voltage	LED
KRDC24-2WAU	Relay module, suitable for DDC technology	24 V DC	X
KRAC24-2WAU	Relay module, suitable for DDC technology	24 V AC	X
KRAC230-2W	Relay module	230 V AC	X

Power supply unit

230 V AC / 24 V DC, stabilised.

Article	Max. current	Mounting	Number of modules
X1111	0.6 A	DIN-rail or panel	1.3
X1312	2.1 A	DIN-rail	2.3
X1314	4.2 A	DIN-rail	2.9

Transformer, 15 VA

With built-in thermal overload-limiting device.

Technical data	
Supply voltage	230 V AC
Output voltage	24 V AC
Max. load	15 VA
Mounting	DIN-rail
Number of modules	3
Protection class	IP20

Article	Description
TRAFO15/D	Transformer

Transformer, 40 VA

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

Technical data	
Supply voltage	230 V AC
Output voltage	12 V AC and 24 V AC
Max. load	40 VA
Dimensions (WxHxD)	69 x 89 x 65 mm
Mounting	DIN-rail
Number of modules	4
Protection class	IP20

Article	Description
TRAFO40N/D	Transformer

Transformer, 60 VA

With replaceable fuses on both poles of the secondary side. Protection class IP44.

Technical data	
Supply voltage	230 V AC
Output voltage	24 V AC
Max. load	60 VA
Dimensions (WxHxD)	73 x 124 x 61 mm
Mounting	Wall
Protection class	IP44

Article	Description
TRAFO60	Transformer

Transformer, 75 VA

With replaceable fuses on both poles of the secondary side. Delivered with pre-installed wire and plug.

Technical data	
Supply voltage	230 V AC
Output voltage	24 V AC
Max. load	75 VA
Dimensions (WxHxD)	81 x 110 x 80 mm
Mounting	Wall
Protection class	IP23

Article	Description
TRAFO75S	Transformer with pre-installed wire and plug

Push-button

Push-button for extended running. Contact is closing or breaking. PB can be chosen with or without spring return.

Technical data	
Current rating	16 A
Voltage rating	230 V
Mounting	Flush mounting
Protection class	IP20

Article	Description
PB	Push-button for flush-mounting

Push-button with indicator bulb

Push-button for extended running. Pressing PBI results in an instantaneous closed contact, which will activate extended running for the connected system. The push-button has a light bulb which, if desired, can be connected to the system for run indication. Bulbs for 230 V AC and 24 V AC are supplied.

Technical data	
Current rating	16 A
Voltage rating	230 V
Mounting	Flush mounting
Protection class	IP20

Article	Description
PBI	Push-button with indicator bulb for flush mounting

Timer with alternating relay

Timer for wall-mounting, activated when pressed. The connection time can be set to 15 min, 30 min, 1 h, 2 h, 4 h and 8 h. The timer is switched off when the set time has expired, or when the timer is pressed during the connection period.

Technical data	
Voltage range	230 V AC
Effect	Alternating voltage: Max. 2300 VA (resistive). Fluorescent tube load: Max. 360 VA.
Connection	Potential-free relay output
Main fuse	Max. 10 A
Connection time	15 min, 30 min, 1 h, 2 h, 4 h, 8 h
Protection class	IP20
Installation	CEE60

Article	Description
TIM480	Timer with alternating relay

Plastic casing

Plastic casings with transparent lid for DIN-rail mounting. Protection class IP65.

Article	Width	Number of modules
EK54	54 mm	3
EK108	108 mm	6
EK216	216 mm	12
EK324	324 mm	18
EK432	432 mm	24

Front mounting kit

For front mounting of products intended for DIN-rail mounting. Including DIN-rail, nuts and bolts.

Technical data	
Protection class	IP55

Article	Description
FMK2	Front mounting kit, 12 modules

Front mounting kit for Corrigo and Optigo

Mounting kit for easier mounting of Corrigo and Optigo in a control panel or cabinet door.

Technical data	
Protection class	IP40

Article	Description
FMCE	Front mounting kit, room for one Corrigo unit
FMCO	Front mounting kit, room for one Optigo unit

Plug-in terminal blocks for Corrigo and Optigo

A set of angled plug-in terminal blocks for simple wiring of Corrigo and Optigo when using the front mounting kits FMCE and FMCO. The terminal blocks enable easy access to the clamping screws even after cabinet mounting.

Article	Description
PLTCE	Plug-in terminal blocks for Optigo/Corrigo

Cooling spray

For control of frost protection. Cools down to -50°C.

Article	Description
CS-260	Cooling spray, 200 ml

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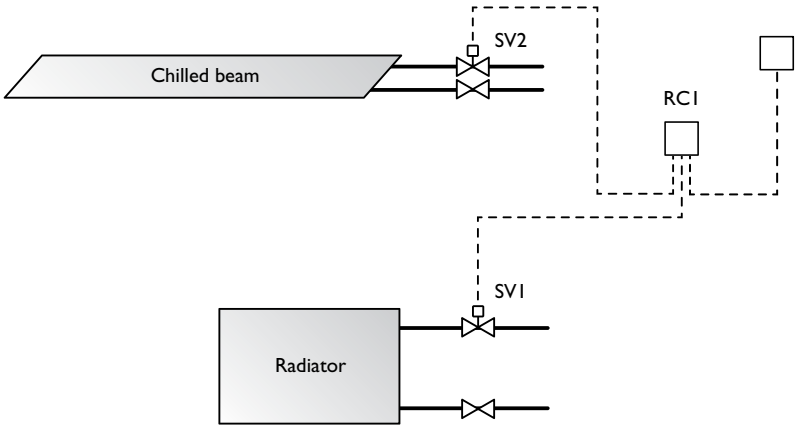
APPLICATION EXAMPLES & CONTROL THEORY

Application examples

Heating / Cooling #1



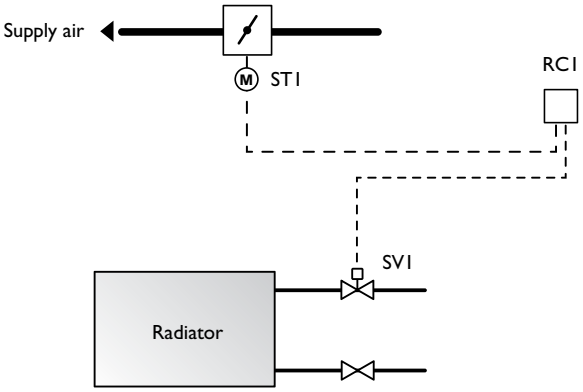
Functions

- On/Off, PWM or 0…10 V
- Min. limit SV1
- Adjustable NC/NO for SV1 / SV2
- 8 actuators per output
- Neutral zone
- Exercising

Products

- RC-C3 / RC-C3DOC / RC-C3DFOC / RC-C3H / RC-C3O
- FVR / CTV / VHR
- RTAM / RTAOM
- KG-A/1
- IR24-P

Heating / Cooling #2



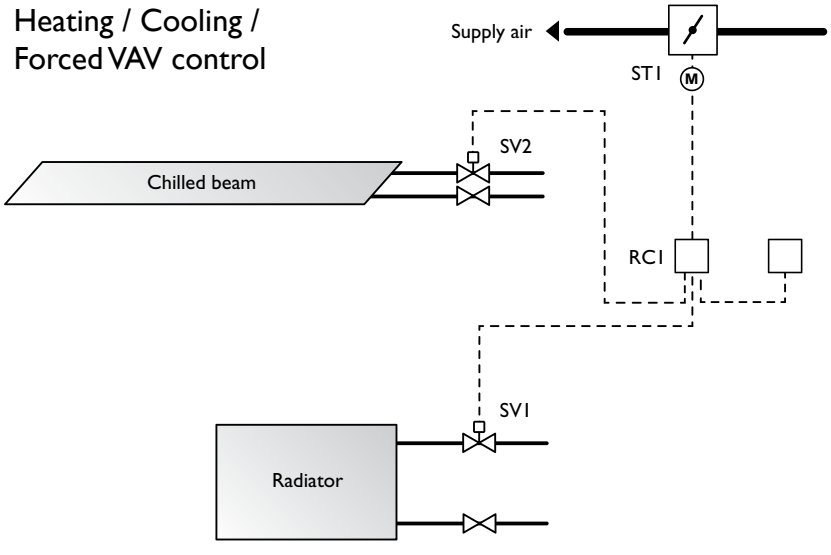
Functions

- On/Off, PWM or 0…10 V
- Min. limit SV1
- Adjustable NC/NO for SV1
- 8 actuators per output
- Neutral zone
- Exercising

Products

- RC-C3 / RC-C3DOC / RC-C3DFOC / RC-C3H / RC-C3O
- FVR / CTV / VHR
- RTAM / RTAOM
- Damper actuators
- IR24-P

Heating / Cooling / Forced VAV control



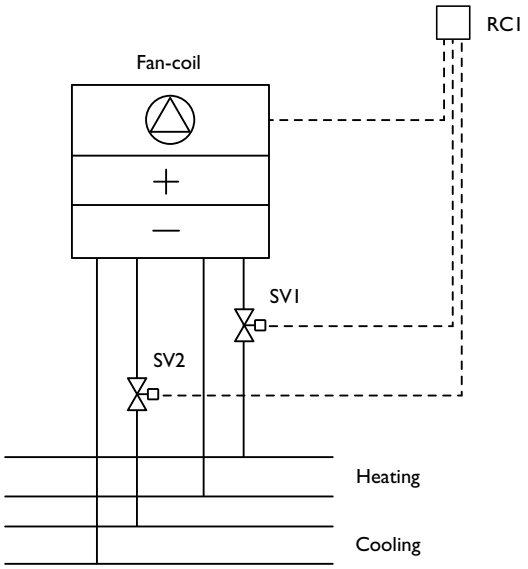
Functions

- On/Off, PWM or 0…10 V
- Forced ventilation On/Off, 0-10 V
- CO_2 control
- Free cooling
- Min. limit SV1
- Adjustable NC/NO for SV1/SV2
- 8 actuators per output
- Neutral zone
- Min. flow
- Exercising

Products

- RC-C3 / RC-C3DOC / RC-C3DFOC / RC-C3H / RC-C3O
- FVR / CTV / VHR
- RTAM / RTAOM
- KG-A/1
- Damper actuators
- IR24-P
- CO2RT

Heating / Cooling with fan-coil 3-step



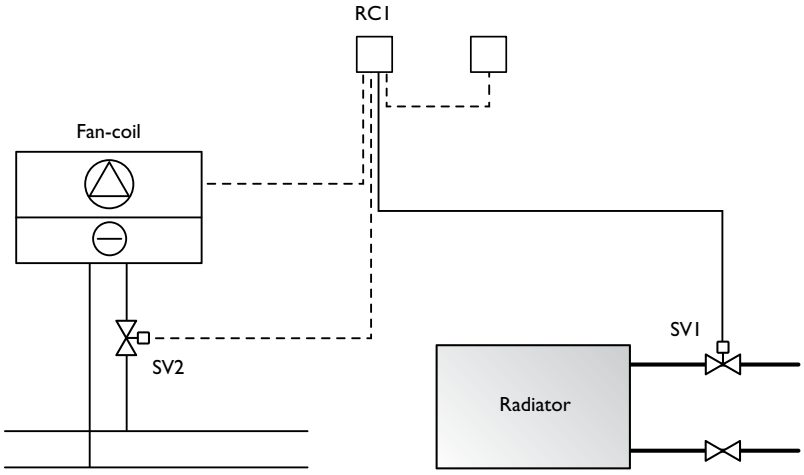
Functions

- On/Off, PWM or 0…10 V
- Min. limit SV1
- Adjustable NC/NO for SV1 / SV2
- 8 actuators per output
- 3-step fan control
- Exercising
- Combined fan control for heating or cooling

Products

- RC-CF / RC-CFO / RC-CDFO
- FVR / CTV / VHR
- RTAM / RTAOM
- IR24-P
- RB3

Heating / Cooling with EC control



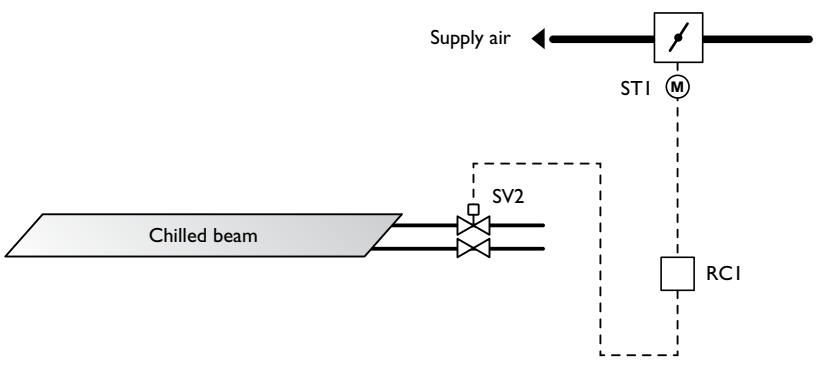
Functions

- On/Off, PWM or 0…10 V
- Min. limit SV1
- CO_2 control
- Adjustable NC/NO for SV1/SV2
- 8 actuators per output
- 0...10 V EC control
- Exercising
- Min. & max. limit EC

Products

- RC-C3 / RC-C3O / RC-C3H / RC-C3DOC / RC-CDFOC
- FVR / CTV / VHR
- RTAM / RTAOM
- IR24-P
- CO2RT

Cooling with VAV



Functions

- On/Off, PWM or 0…10 V
- Adjustable NC/NO for SV2
- 8 actuators per output
- Exercising
- Min. & max. flow

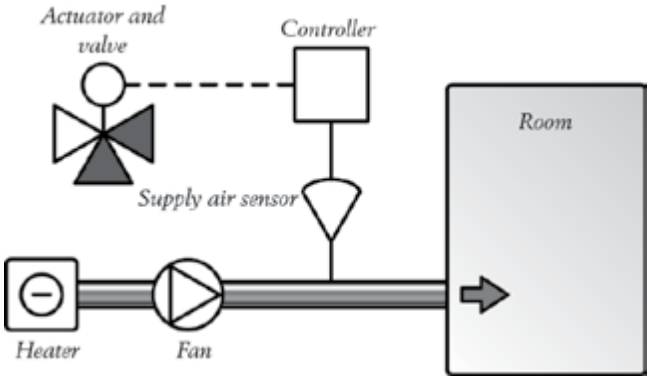
Products

- RC-C3 / RC-C3DOC / RC-C3DFOC / RC-C3H / RC-C3O
- FVR / CTV / VHR
- RTAM / RTAOM
- KG-A/1
- Damper actuators
- IR24-P

Control theory

Constant supply air control

Constant supply air control (constant supply air, duct temperature control) is used when heated air is blown into a room at a constant temperature. A temperature sensor is located in the supply air duct. This sensor is connected to a controller (with P- or PI-function) and the controller is connected to an actuator with a valve. The controller can also control multiple actuators in sequence.



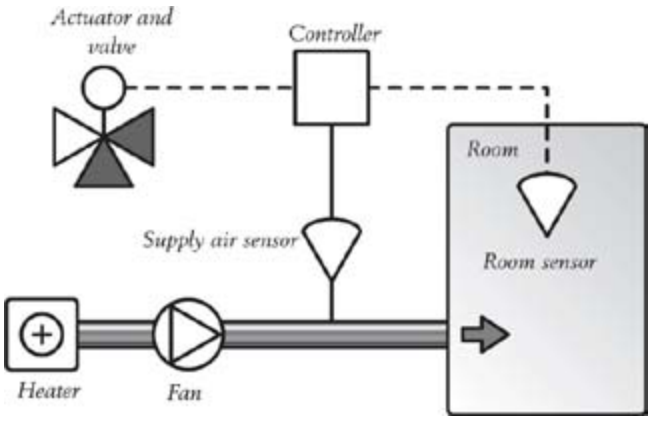
Room control

Room control (constant room temperature, extract air control) is used to maintain a constant temperature in the room. It is also used when the temperature in the room is variable due to draughts, machinery heat loads, etc. The supply air temperature will vary depending on whether it is necessary to heat or to cool the premises. A sensor located in the supply air duct dictates a minimum and a maximum supply air temperature so that air which is too cold or too hot is not blown into the room.

Regin's controllers have built-in cascade control. They, in turn, contain two controllers, P+PI or PI+PI. The first controller is connected to a sensor in the room and the second to a sensor in the supply air duct. The controllers are connected so that the output signal of the first controller forms the input signal of the second.

A temperature change in the room results in a change of the duct controller setpoint. The size of this change is determined by the cascade factor, CF. The cascade factor is the amplification at the first controller, i.e. the number of degrees by which the supply air temperature should be changed if the room temperature is changed by 1°C.

The main sensor is located in the room or in the extract air duct (if the average temperature of multiple rooms is required). The main sensor, together with the controller, determines the supply air temperature for each individual load. The controller can also control several actuators in sequence.



Frost protection - frost protection sensor

The purpose of the frost protection sensor is to prevent the formation of ice in the air heating coil. If ice is allowed to form, the air heater may freeze and burst, with subsequent water damage. The location of the temperature sensor is of particular importance, since it must be able to sense when the temperature is too low. It can be difficult to determine where in the air heater the temperature is at its lowest.

The sensor can be placed on a pipeline (1), on the return (2), or on a pipe bend (3). The best location depends on the design of the heater. Some heating coils are fitted with a standard sensor receptor (4). A frost protection sensor may be electromechanical or electronic. The electronic frost protection sensor often has several functions:

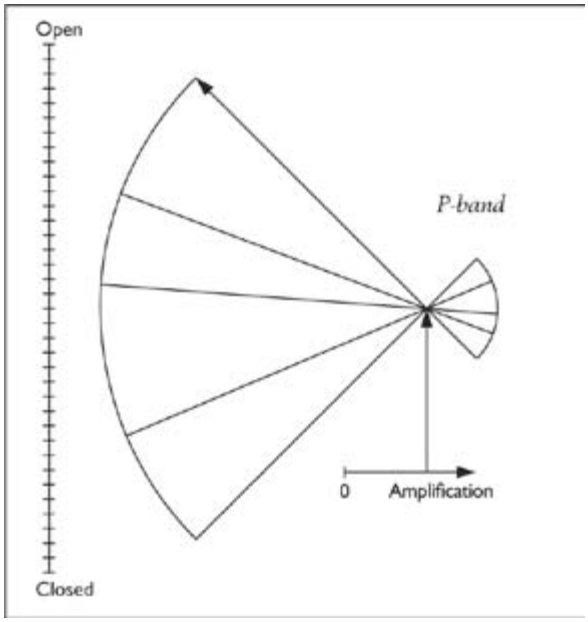
A.	To stop the supply air fan at a certain temperature.
B.	To provide a minimum limit for the heating coil temperature when the fan is in operation.
C.	To maintain a constant coil temperature when the fan is non-operational. The outdoor air damper will close when the frost protection sensor stops the fan.

P-control, P-band

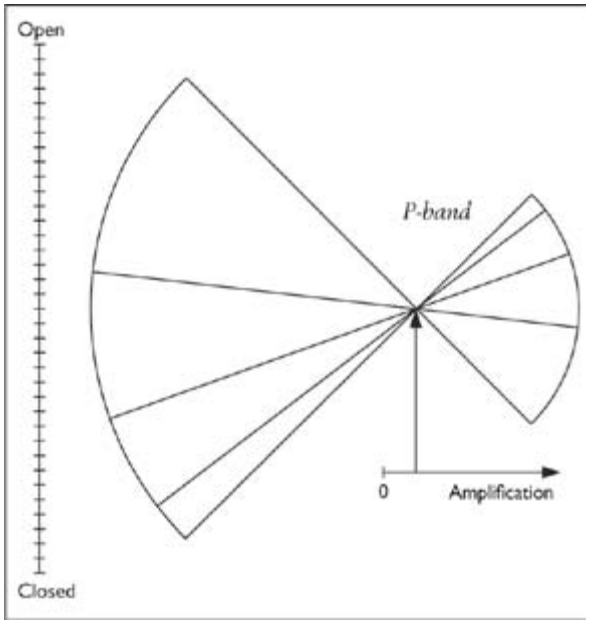
P-control stands for proportional control, i.e. a change at the sensor bears a certain relation to a change in the actuator. The magnitude of the actuator movement is determined by the amplification F. A small amplification results in a small movement for a given change, while a large amplification results in a large movement for the same change. However, the amplification F is not usually used in terms of comfort: instead, we refer to a P-band. The P-band is equal to 1/F (%). The P-band can also be expressed as the temperature change required for the actuator to move from closed to open position. Then the P-band value is specified in°C.

One example of P-controllers is automatic thermostat valves fitted to radiators. When the temperature in the room drops, the valve opens to the corresponding extent. These valves usually have a P-band of 2°C, i.e. a change in the room temperature of 2°C is required for the valve to open fully, which means that the temperature in the room will vary within these 2°C. This is known as P deviation. It should then be possible for the P-band to be reduced in order to achieve a more even temperature, but the system would then become unstable, i.e. the valve would start to open and close continuously, with a fluctuating temperature (increasing and decreasing) as a result.

P-controllers are sometimes used for ventilation purposes in order to maintain a constant temperature, e.g. the supply air temperature. Then the P deviation results in an undesirable temperature variation. If P deviation is not required, it is possible to use a controller containing an integrator instead so that PI-control is achieved.



Large amplification means a small P-band

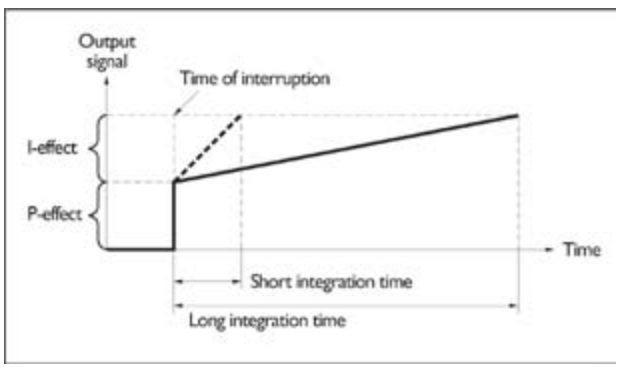


Small amplification means a large P-band

PI-control, I-time

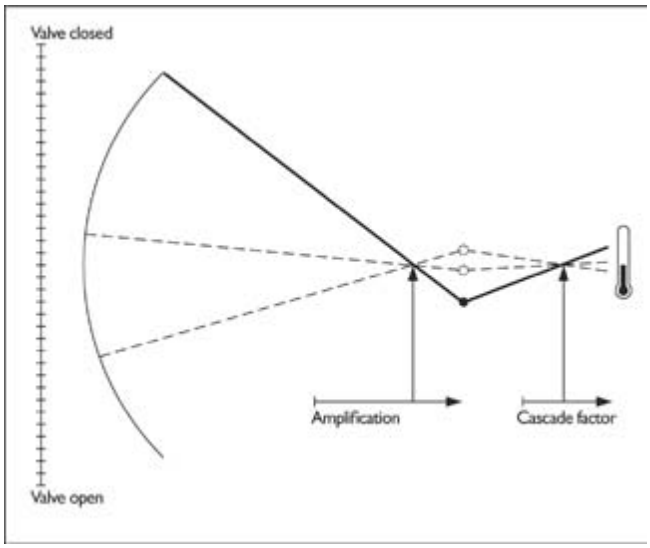
PI-control is a combination of P-control and I-control. It is possible to compare PI-control with what happens when you fill a bucket with water - first you turn the tap on fully (P-effect) and then you gradually turn it off again (I-effect) until the bucket is full.

I-control means integrating control. This means a control link where the output signal is influenced by the magnitude and time of the input signal. A large deviation over a long period of time gives a large output signal and vice versa - a small deviation over a short period of time gives a small output signal. This signal is added to the signal from the P-controller. I-time is defined as the time it takes to increase the output signal to equal the value of the P stage.



Cascade control, cascade factor

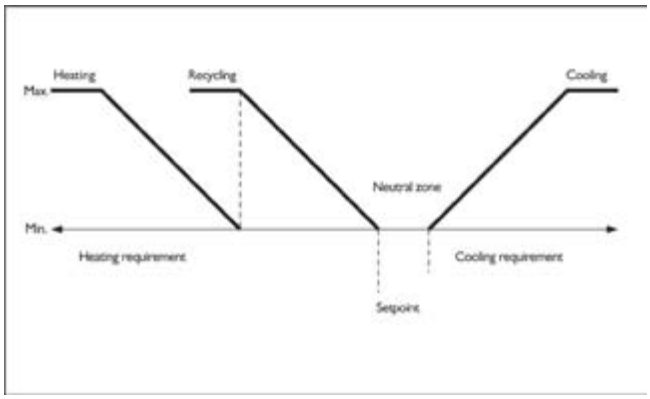
Cascade control is utilised e.g. for room control. Two controllers (P + PI or PI + PI) are used. The first controller is connected to a sensor in the room and the second to a sensor in the supply air duct. The controllers are connected so that the output signal of the first controller forms the input signal of the second. The cascade factor is the amplification at the first controller, i.e. the number of degrees by which the supply air temperature should be changed if the room temperature is changed by 1°C.



Sequence control, neutral zone

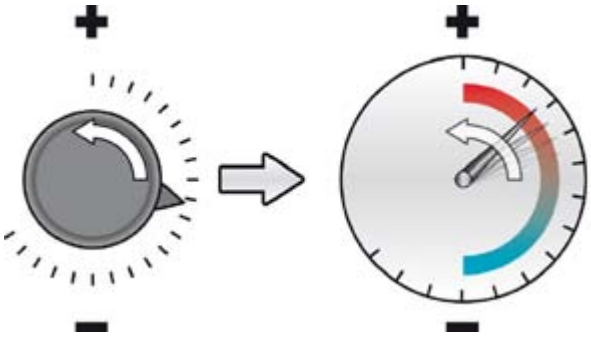
"Sequence" means "series" and therefore "sequence control" means "series control". When using sequence control, several actuators (output signals) are controlled in sequence, i.e. one actuator moves to its end position first followed by the next actuator, and so on. Sequence control usually takes place in two (e.g. cooling - heating) or three (e.g. cooling - recycling - heating) stages.

A neutral zone can be set between the cooling stage and the heating stage. The neutral zone (Nz) will give the cooling stage a higher setpoint value. This leads to a saving in energy used for cooling and will result in greater comfort since no sudden cold will be experienced by a person entering the room.



Setpoint control

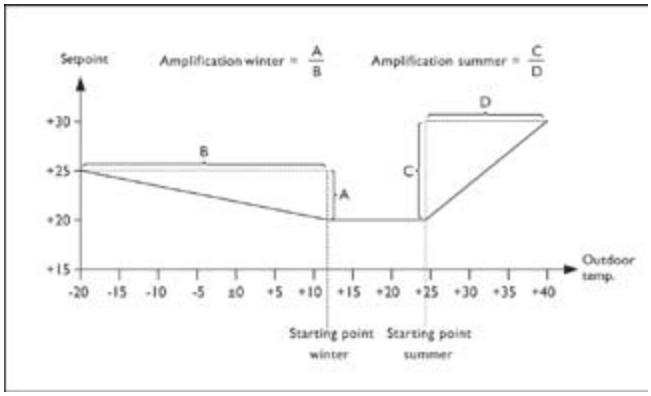
The SPC (setpoint control) input is used to change the desired temperature (setpoint value) from distance. This is done by displacing the setpoint value up or down. The input is adjusted to accommodate a standard signal, e.g. 0...10 V DC. At 5 V there is no effect, at 0 V the setpoint value is fully reduced, and at 10 V the value is fully increased.



Outdoor temperature compensation

In some cases, it is desirable for the outdoor temperature to influence the main controller setpoint value, i.e. if the outdoor temperature falls below or exceeds a set value, the setpoint value is increased gradually. An outdoor sensor is then connected to the main controller via a separate unit.

Compensation can take place in the summer and/or in the winter. Summer compensation means that the setpoint value is increased when the outdoor temperature exceeds a set value, and winter compensation means that the setpoint value is increased when the outdoor temperature falls below a set value. An amplification factor for both summer and winter compensation determines the amount by which the setpoint value should be increased.



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S

T

U

V / W

X

Z

Conversion charts

	Unit	Factor	Unit	Factor	Unit
Length	Inches Feet	x 25.4 x 0.3048	= mm = m	x 0.03937 x 3.208	= inches = feet
Area	Square inches Square feet	x 645.16 x 0.0929	= mm^2 = m^2	0.00155 x 10.764	= in^2 = ft^2
Volume	Cubic inches Cubic feet Cubic feet Pints Imp.gal Imp.gal	x 16387 x 0.02832 x 28.32 x 0.56825 x 4.546 x 0.004546	= mm^3 = m^3 = litre = litre = litre = m^3	0.000061 x 35.31 x 0.0353 x 1.7598 x 0.22 x 220	= in^3 = ft^3 = ft^3 = Pints = Imp.gal = Imp.gal
Mass	lb (pounds)	x 0.4536	= kg	x 2.2046	= lb
Force	lb (pounds)	x 4.448	= N	x 0.22482	= lb
Speed	ft/min	x 0.00508	= m/s	x 196.85	= ft/m
Flow	imp.gal/min Imp.gal/h ft^3/min	x 0.07577 x 0.000126 x 0.000472	= l/s = m^3/s = m^3/s	x 13.2 x 7936.51 x 2118.64	= imp.gal/min = imp.gal/h = ft^3/min
Heating power	kcal/h	x 1.163	= W	x 0.8598	= kcal/h
Pressure	lb/in^2 lb/in^2 kg/cm^2	x 0.0689 x 0.0703 x 0.9807	= bar = kg/cm^2 = bar	x 14.5 x 14.22 x 1.020	= lb/in^2 = ib/in^2 = kg/cm^2

	kPa	Pa	bar	mmWC	mWC	MPa	kp/cm^2	psi
1 kPa		1000	0.01	100	0.1	0.001	0.01	0.15
1 Pa	0.001		0.00001	0.1	0.0001	0.000001	0.00001	0.00015
1 bar	100	100000		10000	10	0.1	1	15
1 mmWC	0.01	10	0.0001		0.001	0.00001	0.0001	0.0015
1 mWC	10	10000	0.1	1000		0.01	0.1	1.5
1 Mpa	1000	1000000	10	100000	100		10	150
1 kp/cm^2	100	100000	1	10000	10	0.1		15
1 psi	6.666667	6666.667	0.066667	666.6667	0.666667	0.006667	0.066667	

bar	x 14.50377	= psi
bar	x 100	= kPa
kg/cm^2	x 14.22334	= psi
inches Hg	x 0.4912	= psi
N/m^2	x 1.0	= Pa
mbar	x 100	= Pa
°C	x (1.8x°C)+32	= °F
kgcm	x 0.098	= Nm
litre	x 1000	= m^3
gal (IMP)	x 4.5460	= litre
gal (US)	x 3.7854	= litre
gal (IMP)	x 1.20095	= gal (US)

AB Regin

Head office

Box 116, S-428 22 Kållered,
Sweden

Phone: +46 31 720 02 00
Fax: +46 31 720 02 50

info@regin.se
www.regincontrols.com

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