

# Product overview

I/O modules ■ Process stations ■ Integrated room control ■ SCADA ■ Engineering tools ■ Peripherals



**domat**  
control system

# Company profile

Domat Control System was founded in 2004. The company mission is to develop, produce, and distribute building and industry control systems worldwide. International knowledge sharing, utilization of proven standards at modern technologies and twelve years of experience in the HVAC and control industry make Domat Control System the ideal partner for building control and data acquisition systems across Europe.

Based in the Czech Republic, Domat Control System coordinates a network of system partners in Hungary, Croatia, Italy, Slovenia, Romania, The Netherlands, Austria, and Portugal. Those companies are experienced HVAC market players and distribute and support the system over their countries. In Slovakia, there is a Domat Control System subsidiary in Bratislava, cooperating with local partners as well.

Standard signals, interfaces and communication protocols are used on all system levels. Therefore the system is open to integrate and to be integrated.

A family house or large industrial plant? Enjoy the convenience of comfort control with advanced communicating and remote access facilities through Domat Control System!

Looking forward to cooperate with you,

Domat Control System s.r.o.

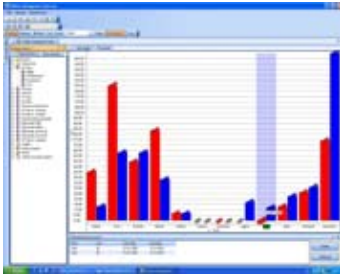


# Contents

---

<b>System overview</b>	4
MiniPLC controllers	5
Process stations, I/O modules	6
SoftPLC engineering tool	7
Touchscreen and web panel	8
RcWare Vision	9
System topology	11
<b>Price list</b>	12
<b>Process stations, controllers</b>	12
Process stations incl. SoftPLC runtime	12
Process stations with no OS / runtime or with Windows CE	12
Touch screens	13
Software for process stations	14
Process stations accessories	15
Integrated room control	15
Communicative room units and sensors	16
<b>Management stations</b>	17
Management station PC	17
RcWare Vision - SCADA software	17
Accessories	17
<b>I/O modules and converters</b>	18
I/O modules	18
Communication converters	19
Display units, accessories	20
<b>Peripherals</b>	20
Passive temperature sensors	20
Active temperature sensors	21
Humidity sensors	22
Pressure sensors	23
Other sensors	24
Thermostats	25
Hygrostats	28
Pressure switches	28
Switching sensors	28
Room units	28
Room controllers	29
Valves	29
<b>How to use the price list</b>	32
How to start	32
References	33

# System overview



1

## Energy management system

**RcWare Manager** is a software package for energy consumption analysis – a customized database client for history data processing.

RcWare Manager evaluates energy flows in buildings and exports the processed data into enterprise management systems. It is a tool for system optimization, effective energy saving, and performance contracting services



2

## SCADA

**The RcWare Vision SCADA** supports both plant graphics and tabular access to the datapoint values and properties.

It provides alarm processing and messaging, trend data sampling, and extensive integration potential for **Domat Control System** controllers as well as for 3rd party PLCs and control systems.



3

## Process stations

The heart of the **Domat Control System** topology are process stations with the **RcWare SoftPLC** runtime, free programmable DDC application with both universal and HVAC-specific function blocks. Process stations with touch screens use graphical HMI interface for supervision and control.

The platforms used are Windows CE, Windows XP Embedded, Linux, and dedicated OS, according to communication and performance demands.



4

## I/O modules

The **Domat Control System** input and output modules provide standardized interfaces between the process and the control system.

They are used for process controls and for data acquisition in metering systems as well. Standard modules (4/8 DO, 8/16 DI, 8 AI, 8 AO, counters), and compact modules with HVAC-optimized I/O mix are available. Communicative room controllers are also integrated at this system level.



5

## Peripherals

A broad range of **Domat Control System** peripherals: temperature, humidity, pressure, air quality (CO<sub>2</sub>, ozone), and light sensors with standard outputs for both indoor and outdoor usage. Thermostats for air and water, safety elements, and other components provide reliable data for the superset system layers.

Design room units and sensors (even customized) and valves up to DN150 for hot water, air, and cooling media make the range complete.

# MiniPLC controllers

The range of free programmable DDC controllers **MiniPLC** by Domat Control System is offering open system features right from the automation level.



The controllers are of two types (**IPLC200** and **IPLC300**) and provide following interfaces:

- 1x **RS485** for I/O module bus (ModBus)
- 2x **RS232 / RS485** for GSM modem for alarm SMS or system integration (e.g. M-Bus) – IPLC300 only
- **Ethernet** for communication with a touch screen or SCADA system – either native (TCP/IP) or over an OPC server.

Each controller embeds a **web server** for easy supervision and control through a web browser. To engineer the applications and HMI, the **RcWare SoftPLC** package is used. It is provided free of charge in the basic version.

The web HMI is engineered in a graphic editor so that **no HTML knowledge is necessary**. There are objects with displayed and set values, switches, alarms, graphs, time schedules etc. in the library.

An intuitive editor which defines a flexible tree menu structure (measured values, set values, alarms, schedulers, PIN protected areas etc.) is used while creating the LCD display menu.

The I/O bus links the Domat Control System **I/O modules** configured according to the I/O mix of the plant. The MiniPLC can host up to 100 - 120 physical data points, depending on complexity of the application program. The most favourite module is the **MCIO** compact I/O module, containing a HVAC-optimized I/O mix:

- 8 **AI** (Ni1000, Pt100, Pt1000, T1, 0..10 V)
- 8 **DI** (24 V AC/DC)
- 5 **AO** (0..10 V)
- 8 **DO** (relay 230 V / 5 A, 6x NO, 2x change-over contact)

**MiniPLC** is the best choice for heat exchange stations, boiler rooms, or HVAC units up to app. 100 I/Os, connected over a network – be it to a SCADA system or just for web access. Typical examples are heat exchange stations with several heating circuits and DHW preparation, small hotels with gas boiler, AHU, and 20-30 rooms, or heating and airconditioning of a residential object with integration of other technologies, such as pool heating, outdoor lights, watering system etc.

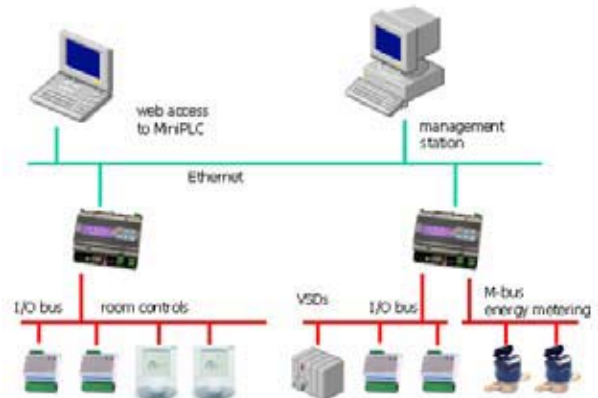
All **MiniPLC** stations communicate in an **Ethernet network** among each other but they also can exchange data with touch screen controllers IPCT.1 so that the system topology can be easily expanded.

MiniPLC offers economical, reliable solution for small systems with native web access. **Alarms** are listed on the LCD display and sent by **e-mail**, the IPLC300 can host a GSM modem and transmit **SMS alarm messages** as well as **receive control messages** to control the plant and set temperatures, operation modes and other values.

The I/O bus connects the I/O modules which can be distributed up to 1000 m apart, while the controller is installed close to the user who can control the technology either locally or remotely over the network.

Network access includes **web browser** access, **touch screen** for comfortable control of one or more MiniPLCs, and / or management station hosting **RcWare Vision** or another open SCADA system.

MiniPLC controllers are part of the open control system by Domat Control System – for seamless integration into other control and SCADA systems, the OPC server and Modbus



RTU server is delivered free of charge, and heat, water, and energy meters and other technologies (e.g. heat pumps or variable speed drives) are easy to integrate even at the process level, as MiniPLC supports standard protocols as M-Bus and Modbus RTU.

MiniPLC and SoftPLC IDE were awarded Certificate of Merit at the 2006 Aquatherm Trade Fair.

For special and customized applications, MiniPLC can be extended with user-specific program modules and functions, e.g. communication protocols, functional blocks for which customers provide their own code, etc. That is why MiniPLC is suitable also for industrial process control.

# Process stations, I/O modules

The IPCT.1 process station is an embedded computer with **no moving parts** providing standard interfaces: Ethernet, COM ports, USB, LPT, audio, keyboard, mouse. It hosts an operating system (Windows XP Embedded), **process control software SoftPLC**, and touch screen HMI application.



The Ethernet port links to SCADA and hosts peer-to-peer communication at the same time, the I/O modules and peripherals are connected to serial ports over separating interface converters.

The **I/O modules** are powered by 10 to 30 V DC or 12 to 24 V AC. Inputs and outputs, power part and communication are **optically separated** from each other which prevents the rest of the bus from damage in case of overvoltage at one module.

Each module is **addressed** by a configuration software. Analogue inputs are entered with their measuring range: either they are declared as **active** (0..10 V) or **passive** for connection of all common temperature sensor types. For special sensor characteristics, each input can be separately linearized with freely defined **linearization curve**.



**Digital outputs** with relays can switch directly 230 V AC low voltage, so that for small loads no separate contactors / relays are necessary. Digital inputs and outputs statuses are indicated by **LEDs**. Some of the digital output modules provide **manual intervention** buttons.

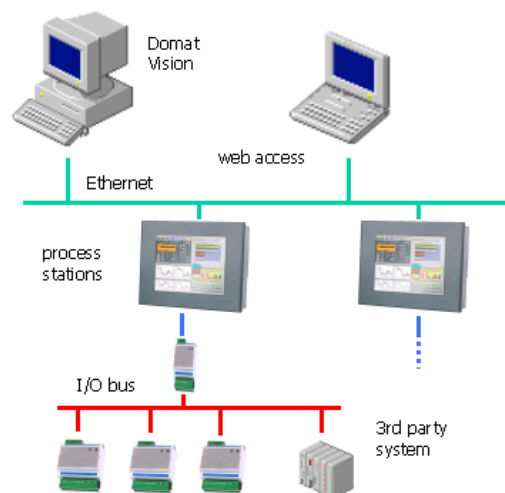
The modules communicate over a **RS485 bus** with **Modbus RTU** and configurable baudrate. Using a standard protocol, they provide an **open I/O bus** also for 3rd party manufacturers. The other way round, 3rd party devices, such as **variable speed drives**, IRC controllers, and energy meters using one of the supported protocols can be integrated directly into the process station. Sometimes they can be even connected to the same I/O bus as the I/O modules, providing **integration at the I/O level**.

The process station is usually installed at a place accessible for the maintenance staff. As the I/O bus may reach **up to 1000 m**, data from the whole building can be linked to one process station, or more panels with I/O modules can be connected together to one process station, which **saves cabling costs**.



A process station may have – same as a MiniPLC – a **web server** enabled, so even without a SCADA system the process data can be accessed, setpoints changed, schedules set, trends monitored etc. in a dynamic vector graphics.

A process station can be connected over the Ethernet to other stations and / or MiniPLCs and **share data** – outside temperature, load shedding signals, energy demand signals, etc. This is possible – thanks to TCP/IP – **even in distributed and large networks** of a company, city, or in the Internet.



# SoftPLC engineering tool

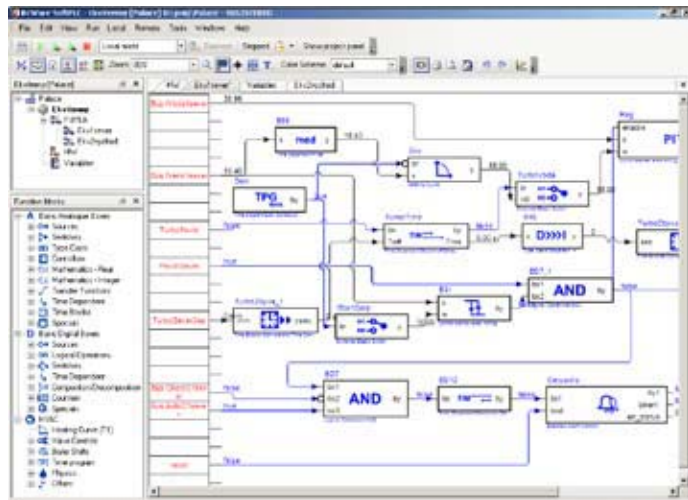
SoftPLC IDE is a software package for application development, or programming of the control system. There are **runtimes** installed in the process stations which process the project data. A runtime may also be run as a system service (no need for user login etc.).

Part of the runtime are **communication drivers** both for Domat Control System I/O modules and for other standard protocols (Advantech, Modbus RTU, Modbus TCP, M-Bus, OPC client), as well as drivers for 3rd party systems.

A runtime may run even with no I/O modules connected and thus it can be an effective tool for **control applications in data acquisition systems** with OPC communication.

Projects are created in the Integrated Development Environment – **IDE** – as sets of interconnected functional blocks. Applications are fast to create and easy to maintain.

The editor contains a **comprehensive function library** with HVAC function blocks. In the library, there are basic analogue



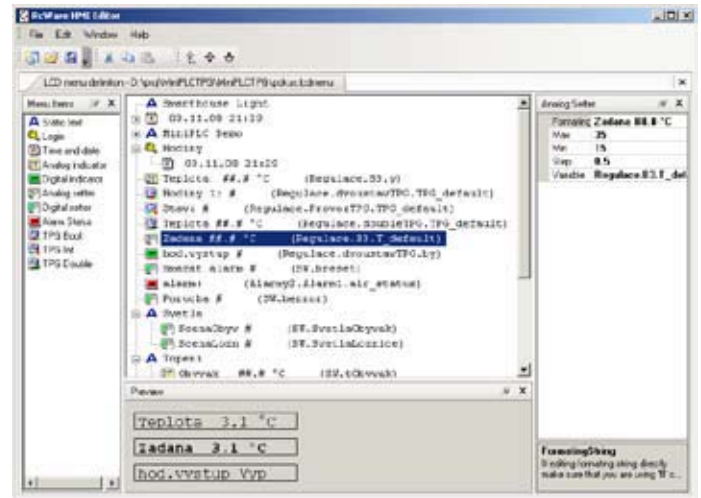
and digital blocks, **mathematical functions** inclusive goniometric and logarithmic functions, PID controllers, time

schedulers (binary, multistate, and analogue), counters, alarm blocks, and special functions for **HVAC applications** (heat recovery, dewpoint, heating curve, average temperature in time, load shedding (E-Max), pump kick, advanced energy metering etc.).

Commissioning is fast and comfortable with **communication test function**: there are online process values visible in the schemes and selected values can be trended which makes tuning of the control loops easy.

**Context-oriented help** describes the function blocks in detail, and provides examples of proper or typical usage.

Touch screen panels, web pages, and LCD menu are created in the **Touch Screen Editor**.



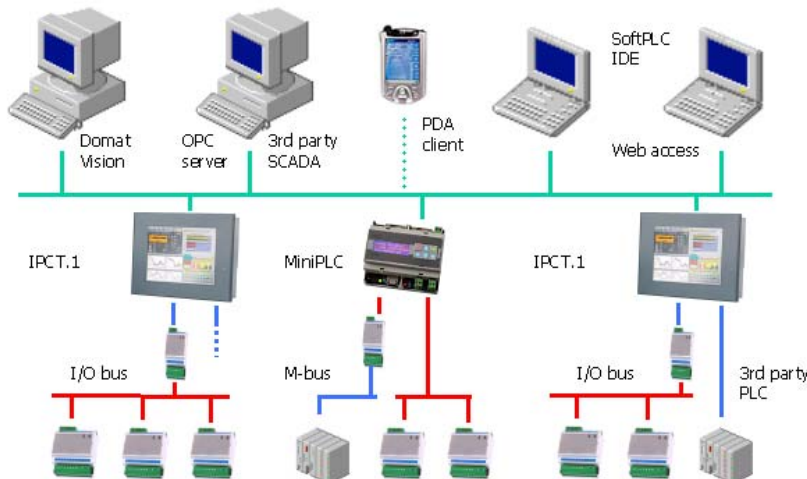
Other programs in the package are:

**OPC server** for integration of SoftPLC into 3rd party systems

**Touchscreen** – a HMI module for touch screen displays, alarming, SMS and e-mail communication.

**PDA** – a HMI for Windows Mobile and PocketPC platforms

**Webpanel** – a robust web server supporting vector graphics and dynamic values update including online trends.

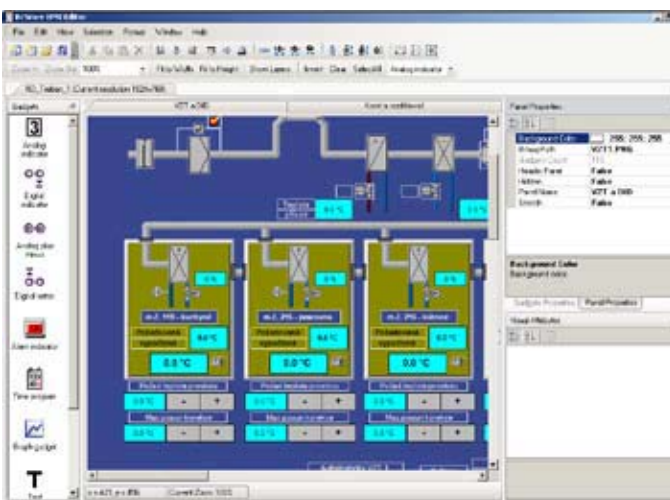


# Touchscreen and web panel

Graphical human-machine interface (HMI) plays an important role in the SoftPLC family. However, it may be used not only for the Domat Control System I/O modules and SoftPLC process logic. The runtime is able to run as a **data source for SCADA**. In those applications, only I/O channels and variables are defined, there are no PLC functions in the runtime. Therefore no PLC programming knowledge is necessary to set up the communication.

The Touchscreen application then acts as an **universal HMI for a variety of PLCs** which use standard communication protocols, such as OPC, BACnet / IP, Modbus RTU or TCP, M-Bus etc. Drivers for 3rd party systems may be used, too (Landis & Gyr, Saia, Advantech, Johnson Controls, and more).

In the Touchscreen Editor then create graphical panels containing texts, images, buttons, embedded or full-page graphs, value indicators etc. The resolution is freely definable: use any of the predefined standard resolution, or enter your own. The data is stored in a **vector format** and Touchscreen is able to adapt the panel size to the actual screen resolution: it is not necessary to redraw the project in case the display resolution changes e.g. due to upgrade.



The application includes a generic dialogue for alarm management inclusive **alarm history**. The SoftPLC alarms may be acknowledged and deleted, all user actions are recorded in the Alarm History. Entering values may be protected by a **PIN code**, while alarm acknowledge rights may be set as not protected for easy operation.

Touchscreen also provides time scheduling functionality; there are **three types of time schedulers**: binary, multistate, and analogue, to enter any value within a predefined limit. In the schedules, there are definable exceptions such as **school holidays, national holidays**, etc.

One Touch screen application is able to access multiple runtimes over the network, one runtime can host more Touchscreen applications. The **topologies are created**

**according to customers' needs** and different technologies may be controlled from different places – worldwide.

An important part of the application is **SMS and e-mailing module**. Each alarm is able to send a separate message with



definable addressee, subjects, body, etc. It is even possible to control values over SMS according to simple scripts defined by the application engineer. The user is not forced to enter complex strings, he or she can define how the SMS should be composed. The Touchscreen includes list of phone numbers granted to change values, and messages from other numbers are ignored.

The application development in Touchscreen Editor is very convenient and easy: at the SoftPLC trainings only less than one hour is devoted to explain and practice it. Users appreciate its intuitive menus, rich editing functions and multiple objects editing, which speeds up engineering.

The ready project may be **exported for web** by one click. The panels with live values are then available anywhere in the net including embedded graphs and value change functionality.

The Touchscreen also ports into the **Windows Mobile** and **PocketPC** environment. The process data is available using **PDA, tablets, smartphones** and other mobile devices.

An extremely fast and cost-effective way to integrate SoftPLC data into any OPC-capable SCADA is the SoftPLC OPC Server. For the costs of a SoftPLC runtime licence and with minimum engineering effort it is possible to install a **Modbus / OPC server, BACnet / OPC server, M-Bus / OPC server**, etc., while – unlike with common OPC servers – it is possible to perform any arithmetic and logical functionality in the SoftPLC runtime (e.g. average, maximum, minimum, additions and subtractions, bit decomposition, counting, etc.) and provide the results to the OPC client.

To communicate with master PLCs over a serial line, install the **Modbus RTU server** add-on: an easy way to transfer data from the SoftPLC runtime (for example, from PLCs by all the above mentioned manufacturers) over RS232 or RS485 to another PLC communicating as Modbus RTU client.

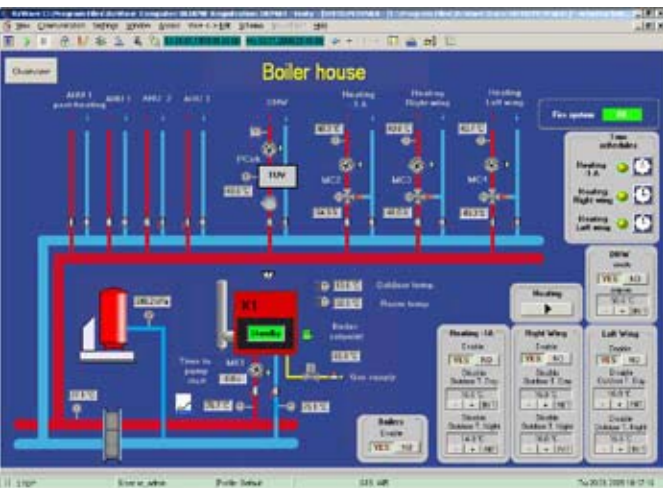
# RcWare Vision

**RcWare Vision** is a SCADA system with **rich possibilities of integration**. Its recent versions take advantage of the most modern software tools and communication standards (e.g. Microsoft .NET). This means **full backward compatibility** and **advanced subsystem networking** of data acquisition and control stations at the same time.

The modularity of the system enables gradual construction of dispatching sites from the most simple visualization of metering data to distributed integrated systems. Special focus is put on **high reliability, fast application engineering and easy setup** even for less experienced users. The licensing policy makes the system available even for the smallest sites while large datapoint number licenses possess an upper price limit.

**RcWare Vision** is designed to make use of all the features of the MS Windows 32-bit operating system, series NT/2000/XP/Vista.

The application environment is easy to use and comprises all the tools and views for less experienced users. It contains complex tools for system administrators for application creation and maintenance at the same time.

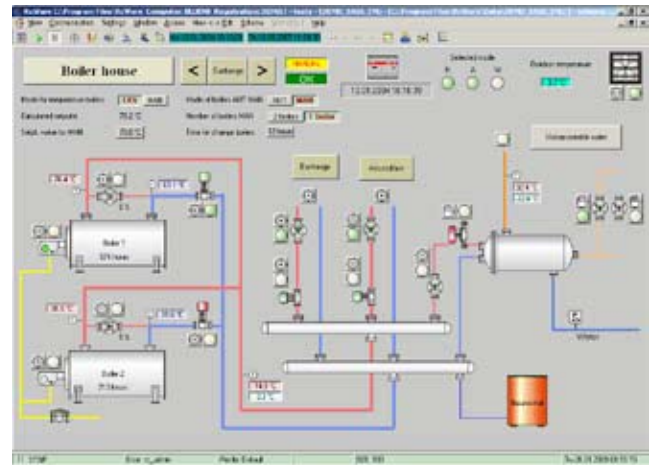


## Plant graphics

For fast and clear overview of values and controls, dynamic pictures - technology schemas are the right means. The schemas are of free-definable size and may contain following elements:

- **text** – free definable text with complete Windows font formatting properties
- **bitmap** – fixed size or stretchable, also possible as background picture
- **value indicator/control** – various shapes and sizes, free definable colours etc.
- **button** – jumps to another schema
- **shape** – basic geometric shapes
- **line** – connecting lines with pipe functionality
- **animation** – symbol changing bitmaps according to the state of one or more datapoints
- **time program** – week schedule
- **heating curve** – graphic representation of a four-point heating curve

- **graph** – online trend with one or more values.
- As bitmaps, \*BMP, \*JPG, \*JPEG, \*ICO, \*GIF, \*EMF, and \*WMF files can be used. Files with dynamic screen definition are saved to the files with a \*.SCH extension and each screen is stored in a separate file which makes **servicing and upgrade easy**.

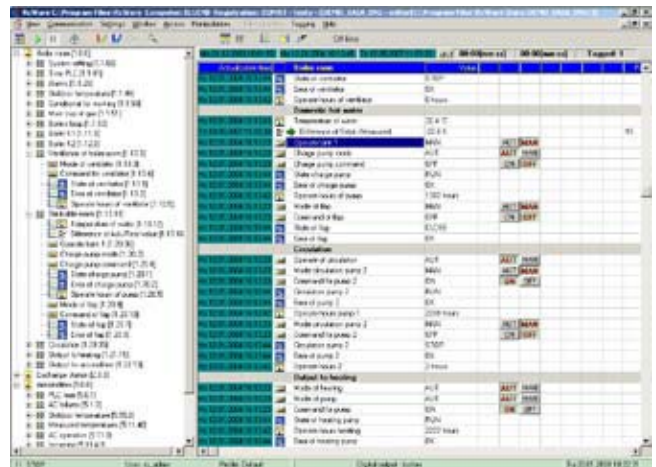


## Data point editor

The data editor is the basic component for creating of the database which is used for communication.

The data editor window contains two main parts:

- tree view
- datapoint table.



The system is configured by defining and editing **communication channels** (serial lines, remote RS232 over Ethernet ports, OPC, etc.) and **data points**. Various editing functions and hot keys are available for copying, moving, inserting and deleting of datapoints incl. group functions. Within a datapoint, recalculation of measured to actual value can be made, as well as alarm limits and unit assignment. This is also where communication parameters are set. The basic application is ready in less than a hour.

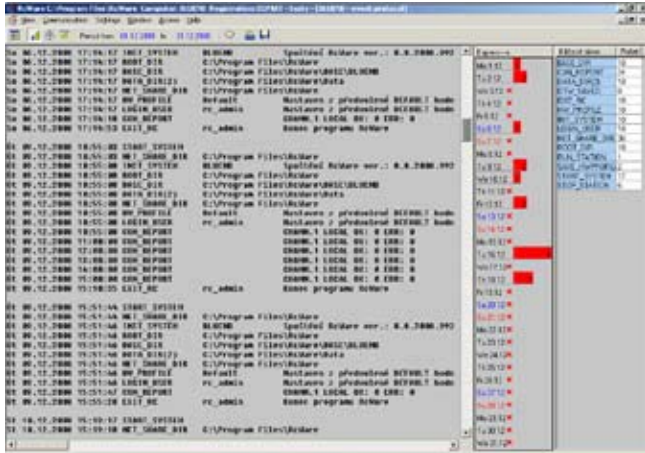
## Web access

**RcWare Vision** uses MS IIS (Internet Information Server) and its own libraries for linking the process graphics and data to the web server.

The access rights for individual RcWare users are set up separately in the Data editor of each project. Each user can

be granted access to a group of schemas only (and optionally to change values).

**History trends** are also available over the web access, with a comfortable menu where users choose from predefined templates and time spans to display. The plant graphics looks out exactly the same as in the SCADA, there is **no need for extra web-specific engineering**. The only action which needs to be taken is to configure the web server.



## Scripting

For complex data processing, computing and logic functions, script data points can be defined. The scripting language can be either classical RcWare (based on existing systems) or **JScript.NET**. The scripting data point reads value of one or more other data points and provides the results at its interfaces.

## Logging

User and system events are logged into a database. There are filtering options to focus the events of interest. Custom filters can be saved and retrieved. Event logs can be printed and **exported** as text files for processing in other systems. The **log databases are shared** among the stations – it is possible to check the logs from slave stations at the master station.

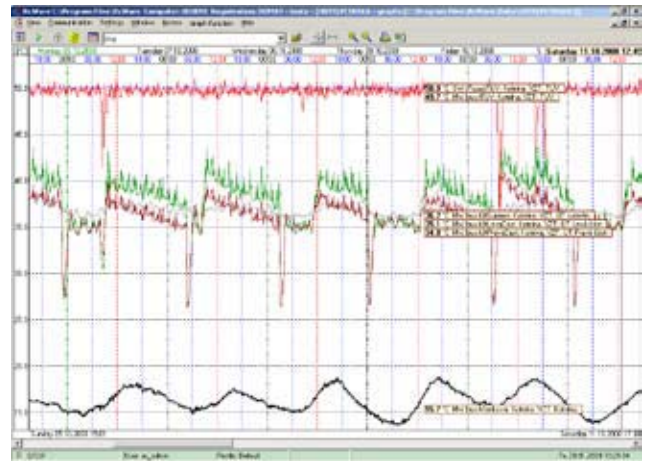
## Alarming

Each datapoint can be defined as an alarm datapoint. For binary and discrete values, each possible value in the list can be defined as alarm value. For analogue values, upper and lower alarm limits may be defined. Each alarm point has an insensitivity time period (switch-on delay). After this time span an alarm message is initiated, which can be forwarded to:

- alarm phone call
- SMS message
- pop-up window
- voice message (to the management station sound card).

There is a log of all sent SMS with optional forwarding to another user.

The alarms can be **filtered and sorted** according to various parameters, for easy localization of the alarm. There are **“Find in text editor”** in the graphics and **“Find in pictures”** functions available. Those functions locate and focus the corresponding datapoint in the data table or in the plant graphics.

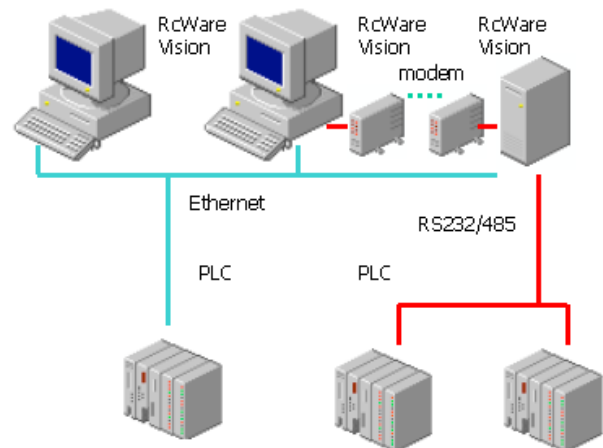


## Trending

Selected datapoints store their values periodically. There are two types of history data:

- **long term history:** saved permanently to text files or SQL database, for long-term analysis
- **short term history:** several days back, faster sampling, for trending, tuning loops, and problem analysis.

The sampled values can be displayed as a graph and **exported to .CSV or .XLS files**. The export may also follow automatically on a periodical basis. The **SQL database** is open for 3rd party programs so that the **RcWare Vision** station can be used as a data integrator, providing actual values e.g. over an OPC server, and history readouts over a SQL database or/and automatic export files.



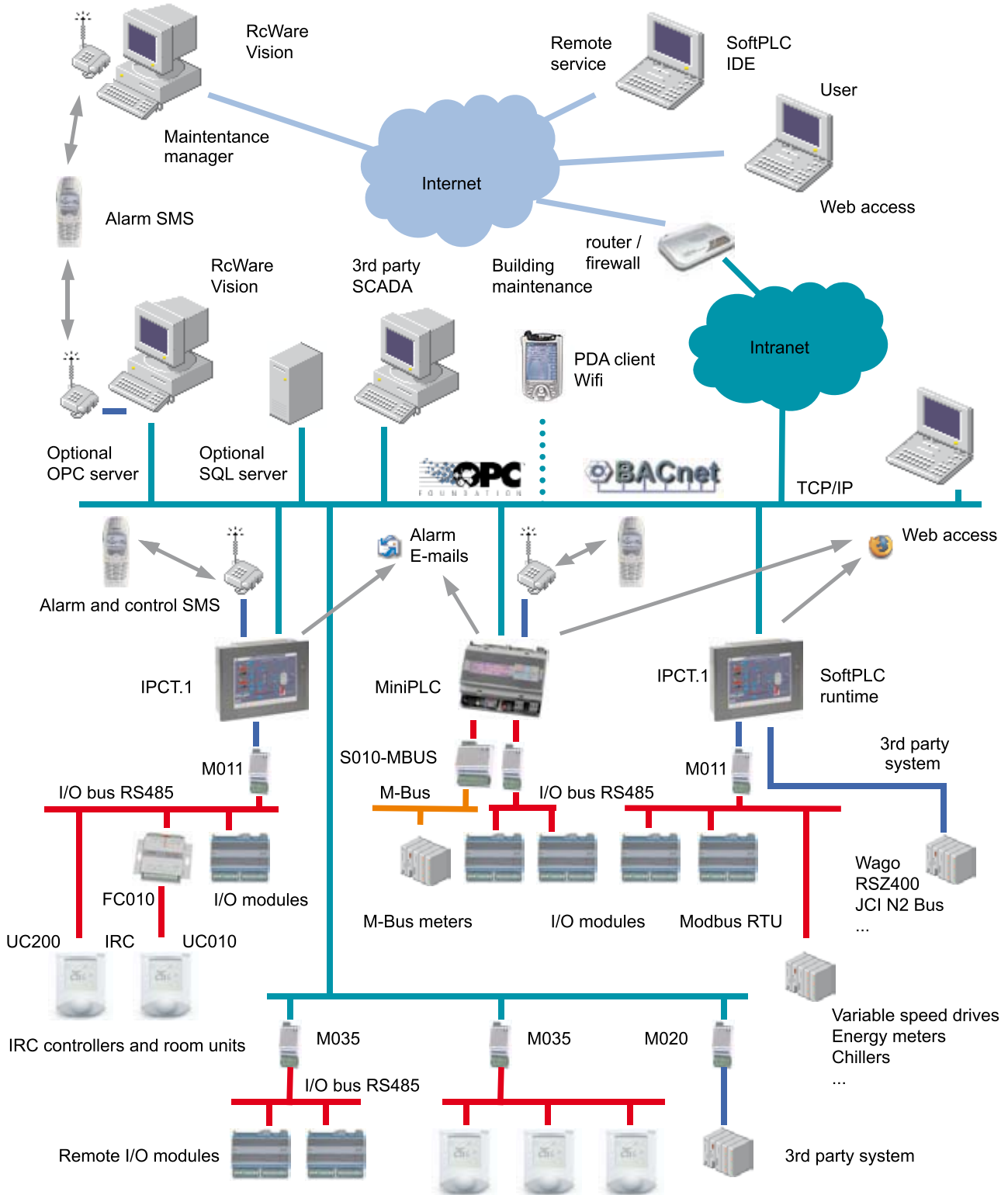
## Communication drivers















The range of drivers is **updated continuously**, new drivers are added on demand. Recent drivers and program improvements are contained in **hotfixes** which are free for download from the RcWare web site.
















The system contains drivers for:








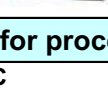
- **standard open protocols** (OPC client and server, BACnet, Modbus TCP and RTU, M-Bus)
- **meters** (IEC61107, M-Bus for about 30 meter types, UPS)
- **other PLC protocols** such as SAIA, Simatic, Advantech, Landis & Gyr (RWP80, PRU, RVD235), Sauter (EY22400/3600), Johnson Controls (9100), Staefa (NICO), AMiT, Teco, Linde, and many others.
















# System topology
























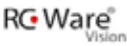
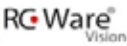
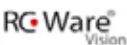





Type	Description		Options and comments
<b>Process stations, controllers</b>			
<b>Process stations incl. SoftPLC runtime</b>			
IPCB.1 	<b>Process station / industrial PC</b> WinXP Embedded, CF 1GB, VIA Eden 733 MHz, 512 MB RAM, Ethernet, 4x RS232, 1x LPT, VGA, USB, audio, PS/2, incl. power supply 230 / 12V		
IPCT.1 	<b>Process station, touch screen 8"</b> WinXP Embedded, CF 1GB, VIA Eden 400 MHz, 512 MB RAM, Ethernet, 2x RS232, USB, audio, PS/2, incl. power supply 230 / 12V		
IPLC200 	<b>DDC controller MiniPLC - 1 serial port, display</b> Ethernet, RS485, display, buttons, web server, programming in SoftPLC IDE. Supply 10..35 V DC / 24 V AC DIN rail mounting, dimensions 90 x 58 x 105 mm		
IPLC300 	<b>DDC controller MiniPLC - 3 serial ports, display</b> Ethernet, RS485, RS232, RS232/485, display, buttons, web server, programming in SoftPLC IDE. Supply 10..35 V DC / 24 V AC DIN rail mounting, dimensions 90 x 58 x 105 mm		
IPLC200B 	<b>DDC controller MiniPLC - 1 serial port, w/o display</b> Ethernet, RS485, web server, programming in SoftPLC IDE. Supply 10..35 V DC / 24 V AC, DIN rail mounting, dimensions 90 x 58 x 105 mm		
IPLC300B 	<b>DDC controller MiniPLC - 3 serial ports, w/o display</b> Ethernet, RS485, RS232, RS232/485, web server, programming in SoftPLC IDE. Supply 10..35 V DC / 24 V AC DIN rail mounting, dimensions 90 x 58 x 105 mm		
IPLC500 	<b>DDC controller MiniPLC Shark - 1 port, display</b> Powerful PowerPC-based process station, Ethernet, RS485, display, buttons, web, programming in SoftPLC IDE. Supply 10..35 V DC / 24 V AC DIN rail mounting, dimensions 90 x 58 x 105 mm		
IPLC510 	<b>DDC controller MiniPLC Shark - 3 ports, display</b> Powerful PowerPC-based process station, Ethernet, RS485, RS232, RS232/485, display, buttons, web, programming in SoftPLC IDE. Supply 10..35 V DC / 24 V AC DIN rail mounting, dimensions 90 x 58 x 105 mm		
IPLC500B 	<b>DDC controller MiniPLC Shark - 1 port, w/o display</b> Powerful PowerPC-based process station, Ethernet, RS485, web, programming in SoftPLC IDE. Supply 10..35 V DC / 24 V AC DIN rail mounting, dimensions 90 x 58 x 105 mm		
IPLC510B 	<b>DDC controller MiniPLC Shark - 3 ports, w/o display</b> Powerful PowerPC-based process station, Ethernet, RS485, RS232, RS232/485, web, programming in SoftPLC IDE. Supply 10..35 V DC / 24 V AC DIN rail mounting, dimensions 90 x 58 x 105 mm		
<b>Process stations with no OS / runtime or with Windows CE</b>			
IPC08100T 	<b>Process station 8" LCD touch screen</b> 800x600, 400 cd/m2, VIA EDEN 400MHz, 256MB, 2xCOM, 1xLPT, Ethernet, USB, audio, 2xPS/2, 2xCF slot, 12..24 V DC, IP65		
IPC10100T 	<b>Process station 10,4" LCD touch screen</b> 800x600, 250 cd/m2, VIA EDEN 733MHz, 256MB, 2xCOM, 1xLPT, Ethernet, USB, audio, 2xPS/2, 2xCF slot, 12..24 V DC, IP65		
IPC12100T 	<b>Process station 12,1" LCD touch screen</b> 800x600, 300 cd/m2, VIA EDEN 733MHz, 256MB, 2xCOM, 1xLPT, Ethernet, USB, audio, 2xPS/2, 2xCF slot, 12..24 V DC, IP65		
IPC12100HT 	<b>Process station 12,1" LCD touch screen</b> 1024x768, 300 cd/m2, VIA EDEN 733MHz, 256MB, 2xCOM, 1xLPT, Ethernet, USB, audio, 2xPS/2, 2xCF slot, 12..24 V DC, IP65		






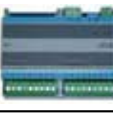


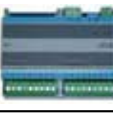





Type	Description		Options and comments
IPC08110T 	<b>Process station 8" LCD touch screen</b> 800x600, 400 cd/m2, Celeron M 600MHz, 512MB, 2xCOM, 1xLPT, Ethernet, USB, audio, 2xPS/2, ext.VGA, HDD + CF slot, 12..24 V DC, IP65		
IPC10110T 	<b>Process station 10,4" LCD touch screen</b> 800x600, 250 cd/m2, Celeron M 1.5GHz, 512MB, 2xCOM, 1xLPT, Ethernet, USB, audio, 2xPS/2, ext.VGA, HDD / CF slot, 12..24 V DC, IP65		
IPC12110T 	<b>Process station 12,1" LCD touch screen</b> 800x600, 300 cd/m2, Celeron M 1.5GHz, 512MB, 2xCOM, 1xLPT, Ethernet, USB, audio, 2xPS/2, ext.VGA, HDD / CF slot, 12..24 V DC, IP65		
IPC12110HT 	<b>Process station 12,1" LCD touch screen</b> 1024x768, 300 cd/m2, Celeron M 1.5GHz, 512MB, 2xCOM, 1xLPT, Ethernet, USB, audio, 2xPS/2, ext.VGA, HDD / CF slot, 12..24 V DC, IP65		
IPC15110T 	<b>Process station 15" LCD touch screen</b> 1024x768, 400 cd/m2, Celeron M 1.5GHz, 512MB, 2xCOM, 1xLPT, Ethernet, USB, audio, 2xPS/2, ext.VGA, HDD / CF slot, 12..24 V DC, IP65		
IRISC08010T 	<b>Process station 8" LCD touch screen, Win CE</b> 800x600, 400 cd/m2, Intel PXA255 400MHz, 128MB RAM, 32MB Flash, 1MB SRAM battery backup, 2xCOM, Ethernet, 1x USB host, 1x USB client, audio, ext. VGA, 2xPS/2, CF slot, 12..24 V DC, IP65, Windows CE		
IRISC10010T 	<b>Process station 10,4" LCD touch screen, Win CE</b> 800x600, 250 cd/m2, Intel PXA255 400MHz, 128MB RAM, 32MB Flash, 1MB SRAM battery backup, 2xCOM, Ethernet, 1x USB host, 1x USB client, audio, ext. VGA, 2xPS/2, CF slot, 12..24 V DC, IP65, Windows CE		
IRISC12010T 	<b>Process station 12,1" LCD touch screen, Win CE</b> 800x600, 300 cd/m2, Intel PXA255 400MHz, 128MB RAM, 32MB Flash, 1MB SRAM battery backup, 2xCOM, Ethernet, 1x USB host, 1x USB client, audio, ext. VGA, 2xPS/2, CF slot, 12..24 V DC, IP65, Windows CE		
IRISC12010HT 	<b>Process station 12,1" LCD touch screen, Win CE</b> 1024x768, 300 cd/m2, Intel PXA255 400MHz, 128MB RAM, 32MB Flash, 1MB SRAM battery backup, 2xCOM, Ethernet, 1x USB host, 1x USB client, audio, ext. VGA, 2xPS/2, CF slot, 12..24 V DC, IP65, Windows CE		
IRISC15010T 	<b>Process station 15" LCD touch screen, Win CE</b> 1024x768, 400 cd/m2, Intel PXA255 400MHz, 128MB RAM, 32MB Flash, 1MB SRAM battery backup, 2xCOM, Ethernet, 1x USB host, 1x USB client, audio, ext. VGA, 2xPS/2, CF slot, 12..24 V DC, IP65, Windows CE		
IRISC05011T 	<b>Process station 5,7" LCD touch screen, Win CE</b> 320x240, 500 cd/m2, Samsung ARM9 203MHz, 64MB RAM, 64MB Flash, 2xCOM, Ethernet, 1x USB host, 1x USB client, 24 V DC, IP65, Windows CE		
IPC00100 	<b>Process station / industrial PC</b> VIA EDEN 733MHz, 256MB, 4xCOM, 1xLPT, VGA, Ethernet, 2xUSB, audio, 2xPS/2, 12..24 V DC, CF or 2.5" HDD frame		
IPC00110 	<b>Process station / industrial PC</b> Pentium M 1.8GHz, 512MB, 2xCOM, ext.DVI, ext.VGA, 2xUSB, Ethernet, audio, 2xPS/2, 12..24 V DC, CF or 2.5" HDD frame		
IPC00111 	<b>Process station / industrial PC</b> Pentium M 1.8GHz, 512MB, 1x ext.PCI, 3xCOM, ext.DVI, ext.VGA, 4xUSB, 2xEthernet, audio, 2xPS/2, 12..24 V DC, CF or 2.5" HDD frame		
<b>Touch screens</b>			
LCD08000PT 	<b>Touch screen display 8"</b> 8" LCD, 800x600, VGA, 400cd/m2, 12V DC, IP 65, OSD at rear, plastic frame		
















Type	Description		Options and comments
<b>LCD10000M</b> 	<b>Touch screen display 10,4"</b> 10,4" LCD, 800x600, VGA, 400cd/m2, 12V DC, IP 65, OSD at rear, plastic frame		
<b>LCD10000PT</b> 	<b>Touch screen display 10,4"</b> 10,4" LCD, 800x600, 400cd/m2, 12V DC, IP 65, OSD at rear, plastic frame		
<b>LCD12000M</b> 	<b>Touch screen display 12,1"</b> 12,1"LCD, 800x600 (640x480 to 1600x1200), VGA (optionally DVI, S-Video) 300cd/m2, 100 to 240V AC, IP 65, OSD at rear, steel frame		
<b>LCD12000PT</b> 	<b>Touch screen display 12,1"</b> 12,1"LCD, 800x600 (640x480 to 1600x1200), VGA (optionally DVI, S-Video) 300Cd/m2, 100 to 240V AC, IP 65, OSD at rear, plastic frame		
<b>LCD15000M</b> 	<b>LCD display 15", steel frame</b> 15"LCD, 1024x768 (640x480 až 1600x1200), VGA (optionally DVI, S-Video) 400cd/m2, 100 to 240V AC / DC, IP 65, OSD at rear, steel frame		For touch screen functionality, add TOUCH15
<b>LCD15000A</b> 	<b>LCD display 15", aluminium frame</b> 15"LCD, 1024x768 (640x480 to 1600x1200), VGA (optionally DVI, S-Video) 400cd/m2, 100 to 240V AC, IP 65, OSD at front, aluminium frame		For touch screen functionality, add TOUCH15
<b>LCD15000AW</b> 	<b>LCD display 15", aluminium frame, wide angle</b> 15" LCD, wide viewing angle, 1024x768 (640x480 to 1600x1200), VGA (optionally DVI, S-Video) 450cd/m2, 100 to 240V AC (optionally DC), IP 65, OSD at front, aluminium frame		For touch screen functionality, add TOUCH15
<b>LCD17000M</b> 	<b>LCD display 17", steel frame</b> 17"LCD, 1280x1024 (640x480 to 1600x1200), VGA (optionally DVI, S-Video) 300cd/m2, 100 to 240V AC, IP 65, OSD at rear, steel frame		For touch screen functionality, add TOUCH17
<b>LCD17000A</b> 	<b>LCD display 17", aluminium frame</b> 17"LCD, 1280x1024 (640x480 to 1600x1200), VGA (optional DVI, S-Video) 250cd/m2, 100 to 240V AC (optionally DC), IP 65, OSD at front, aluminium frame		For touch screen functionality, add TOUCH17
<b>LCD17000SRAT</b> 	<b>LCD display 17", readable in direct sunlight</b> 17"LCD SUNLIGHT READABLE, 1280x1024 (640x480 to 1600x1200), VGA (optionally DVI, S-Video) 250cd/m2, 100 to 240V AC / DC, IP 65, OSD at front, aluminium frame		For touch screen functionality, add TOUCH17
<b>LCD19000A</b> 	<b>LCD display 19", aluminium frame</b> 19" LCD, 1280x1024 (640x480 to 1600x1200), VGA (optionally DVI, S-Video) 420cd/m2, 100 to 240V AC (optionally DC), IP 65, OSD at front, aluminium frame		For touch screen functionality, add TOUCH19
<b>TOUCH15</b> 	<b>15" touch screen with frame</b> Resistive touch screen 15", add-on for LCD15...		
<b>TOUCH17</b> 	<b>17" touch screen with frame</b> Resistive touch screen 17", add-on for LCD17...		
<b>TOUCH19</b> 	<b>19" touch screen with frame</b> Resistive touch screen 19", add-on for LCD19...		
<b>Software for process stations</b>			
<b>RC-SoftPLC</b> 	<b>Runtime RcWare SoftPLC</b> for OS Windows 2000 / XP / Vista, incl. all available communication drivers. Includes other programs such as HMI runtime (touchscreen application), HMI editor, OPC server, Modbus RTU server etc.		Licence code bounds to a particular hardware and must be activated at <a href="https://licenses.rcware.eu">https://licenses.rcware.eu</a>















Type	Description		Options and comments
<b>Process stations accessories</b>			
WinXPE 	<b>Windows XP Embedded</b> OS Windows XP Embedded build for IPC.... process stations. Delivered at CF1GB card, which has to be ordered separately.		
WinXPH 	<b>Windows XP Home</b> Installation CD and licence of Windows XP Home operating system		Deliveries depend on availability and conditions of Microsoft.
WinXPP 	<b>Windows XP Professional</b> Installation CD and licence of Windows XP Professional operating system		Deliveries depend on availability and conditions of Microsoft.
HDDCF 	<b>HDD/CF frame</b> Connects a CF card to Mini IDE interface		
RAM256 	<b>Memory extension 256MB to 512MB</b> Option for process stations with default memory 256MB		
CF512 	<b>CF card 512MB</b> For data storage at process stations with 2xCF slot		
TOUCH8 	<b>8" touch panel with frame - Repair kit</b> Spare part for the 8" process station if the touch screen is damaged		
HDD40 	<b>Hard disk 40GB</b> Optional 2.5", 40GB hard disk for process stations		
CF1GB 	<b>CF Card 1 GB, Industrial</b> CF card CF 1 GB Industrial, split into 2 drives: 700 MB (operating system) and 300 MB (data)		
HWS 	<b>Hardware protection key</b> Option for temporary installation of SoftPLC (trainings, demos etc.). Plugs into a COM port of the process station, fully transparent for serial communication.		The SoftPLC runtime licence must be ordered separately. HWS is an alternative to the standard software licencing process.
FRAME 	<b>Mounting frame for MiniPLC</b> For fixing of the MiniPLC into front panel: cut a 106 x 46 mm aperture and two holes for the screws in the front door, then use a 150 mm DIN rail to mount the MiniPLC from inside. The frame covers the aperture on the outer side.		
<b>Integrated room control</b>			
UC100 	<b>Heating controller, communicative</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of values, status indication and switching, 1x DO (24 V AC radiator), Modbus / RS485 communication		
UC200 	<b>Heating/cooling controller, communicative</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of values, real time clock, status indication and switching, 2x DI (presence, window), 2x DO (24 V AC radiator, cooling panel), Modbus / RS485 galv. separated		
UC300 	<b>Floor heating controller, communicative</b> Display 60 x 60 mm, push / turn knob, temperature sensor, 1x AI for ext. Pt1000 floor sensor, setting of values, real time clock, status indication and switching, 1x DO (24 V AC thermic actuator), Modbus / RS485 galv. separated		
UC010 	<b>Room unit, communicative</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of operation mode, fancoil stages and setpoints, status indication and switching, Modbus / RS485 communication		Room unit with firmware for communication with FC010 / FC020 fan coil controller
















Type	Description	Options and comments
UC011 	<b>Room unit, communicative</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of operation mode, fancoil stages and setpoints, status indication and switching, Modbus / RS485 galv. separated	Room unit with firmware for communication with FC010 / FC020 fan coil controller
FC010 	<b>Fan coil controller, communicative</b> 2 x DI (presence, window), 2 x DO triac 24...230 V AC for thermic valves (heating, cooling) , 3 x relay for three-stage fancoil, 1x Modbus slave / RS485 for SCADA/primary controller, 1x Modbus master / RS485 for UI010	Use UC010 or galvanically separated UC011 as room unit.
FC020 	<b>Fan coil controller, communicative</b> 4 x AI (Pt1000 or potentiometer), 4 x DI, 2 x AO 0..10V, 7 x DO triac 24...230 V AC for thermic or 3-point valves (heating, cooling) and 3-stage fancoil, communication same as FC010, analogue room unit possible	Use RTF.. (analogue unit) or UC01x (communicative unit) as room unit.
UCWEB 	<b>Web interface for room controllers</b> 2 x DI (enable / alarm), 2 x DO relay 24...230 V, 5 A (heat/cool demand / remote), Ethernet, Modbus / RS485 for up to 20 UC100/200/300, autoconfiguration, web access to controller settings and values	
UC150 	<b>Heating controller, Ethernet</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of values, status indication and switching, 1x DO (24 V AC thermic valve), web access, Modbus / TCP	available spring 2009
UC250 	<b>Heating and cooling controller, Ethernet</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of values, real time clock, status indication and switching, 2x DI (presence, window), 2x DO (24 V AC radiator, cooling panel), web access, Modbus / TCP	available spring 2009
<b>Communicative room units and sensors</b>		
UI010 	<b>Room unit, RS485, temperature</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of values, status indication and switching, Modbus / RS485 communication	
UI011 	<b>Room unit, RS485, temperature</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of values, status indication and switching, Modbus / RS485 communication galv. separated	* no knob - UI051, no knob / display - UI071
UI012 	<b>Room unit, RS485, temperature, 1DO</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of values, status indication and switching, Modbus / RS485 galv. separated, 1xDO triac 24 V AC	* no knob - UI052, no knob / display - UI072
UI020 	<b>Room unit, RS485, t, 2DI, 2DO</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of values, real time clock, status indication and switching, Modbus / RS485 galv. separated, 2xDI, 2xDO triac 24 V AC	* no knob - UI055, no knob / display - UI075
UI041 	<b>Room unit, RS485, temperature, rH</b> Display 60 x 60 mm, push / turn knob, temperature / humidity sensor, setting of values, status indication and switching, Modbus / RS485 communication galv. separated	* no knob - UI061, no knob / display - UI081
UI042 	<b>Room unit, RS485, temperature, rH, 1DO</b> Display 60 x 60 mm, push / turn knob, temperature / humidity sensor, setting of values, status indication and switching, Modbus / RS485 galv. separated, 1xDO triac 24 V AC	* no knob - UI062, no knob / display - UI082
UI045 	<b>Room unit, RS485, t, rH, 2DI, 2DO</b> Display 60 x 60 mm, push / turn knob, temperature / humidity sensor, setting of values, real time clock, status indication and switching, Modbus / RS485 galv. separated, 2xDI, 2xDO triac 24 V AC	* no knob - UI065, no knob / display - UI085
UI511 	<b>Room unit, Ethernet, temperature</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of values, status indication and switching, Modbus / TCP	* no knob - UI551, no knob / display - UI571
UI512 	<b>Room unit, Ethernet, temperature, 1DO</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of values, status indication and switching, Modbus / TCP, 1xDO triac 24 V AC	* no knob - UI552, no knob / display - UI572
















Type	Description		Options and comments
UI520	 <b>Room unit, Ethernet, t, 2DI, 2DO</b> Display 60 x 60 mm, push / turn knob, temperature sensor, setting of values, real time clock, status indication and switching, Modbus / TCP, 2xDI, 2xDO triac 24 V AC		* no knob - UI555, no knob / display - UI575
UI541	 <b>Room unit, Ethernet, temperature, rH</b> Display 60 x 60 mm, push / turn knob, temperature / humidity sensor, setting of values, status indication and switching, Modbus / TCP		* no knob - UI561, no knob / display - UI581
UI542	 <b>Room unit, Ethernet, temperature, rH, 1DO</b> Display 60 x 60 mm, push / turn knob, temperature / humidity sensor, setting of values, status indication and switching, Modbus / TCP, 1xDO triac 24 V AC		* no knob - UI562, no knob / display - UI582
UI545	 <b>Room unit, Ethernet, t, rH, 2DI, 2DO</b> Display 60 x 60 mm, push / turn knob, temperature / humidity sensor, setting of values, real time clock, status indication and switching, Modbus / TCP, 2xDI, 2xDO triac 24 V AC		* no knob - UI565, no knob / display - UI585
UI410	 <b>Measuring and signalling module</b> 1x DI dry contact, 1x AI for ext. Pt1000 sensor, 1xDO triac 24 V AC / 0.5 A, 1x high intensity LED, 1x horn, Modbus / RS485 galv. separated. Power 10..35 V DC, 12..24 V AC		To be integrated in a SoftPLC process station, MyIO over <a href="http://www.myio.info">www.myio.info</a> , or any SCADA.
<b>Management stations</b>			
<b>Management station PC</b>			
PCD1	 <b>Management station PC</b> Configuration for RcWare Vision, HDD 120GB, LCD 17", colour printer, keyboard, mouse, OS.		
<b>RcWare Vision - SCADA software</b>			
RC-Vision	 <b>RcWare Vision - SCADA</b> Licence for SCADA system, max. 4500 data points, alarming, trends, events, web access, SMS, drivers for more than 40 systems (see <a href="http://www.rcware.eu">www.rcware.eu</a> ).		Multilicensing (more management stations at one site): 2nd = -30%, 3rd = -50%, 4th = -70%
RC-Vision-x	 <b>RcWare Vision - SCADA unlimited data points</b> Licence for SCADA system, max. 4500 data points, alarming, trends, events, web access, SMS, drivers for more than 40 systems (see <a href="http://www.rcware.eu">www.rcware.eu</a> ).		Multilicensing (more management stations at one site): 2nd = -30%, 3rd = -50%, 4th = -70%
SQL	 <b>SQL extension</b> Module for SQL connectivity and trend data storage. Use where Vision has to share trend data with a 3rd party applications or store them in a SQL database.		If this module is not installed the trend data is stored in proprietary data files. All trend functions are fully available even without the SQL extension.
<b>Accessories</b>			
DC-PDA	 <b>PDA with touchscreen application</b> To access process data and control a SoftPLC application over WiFi, incl. graphics software runtime.		
DC-NHU8	 <b>Ethernet switch 8 ports, 10/100</b> Switch for connection of process stations and web controllers to the management station.		
DC-NAP	 <b>WiFi wireless access point</b> WiFi access point 802.11b/g for connection of a PDA or Panel PC, power supply.		
GSM	 <b>GSM modem</b> GSM / RS232, for alarm SMS messages from RcWare Vision or MiniPLC / process station with SoftPLC runtime. SIM card is not part of delivery.		Inclusive power supply, 35 cm antenna, and CANNON 9 cable for connection to a PC or IPLC300.
GPRS	 <b>GPRS router</b> GSM / Ethernet. For alarm mailing / remote access over a GPRS network. SIM card with GPRS data service is not part of delivery.		Inclusive power supply, antenna, and Ethernet cable.
















Type	Description	Options and comments
<b>I/O modules and converters</b>		
<b>I/O modules</b>		
<b>MCIO</b> 	<b>Combined I/O module, 29 I/O</b> 8AI (0..10V, Pt100, Pt1000, Ni1000, T1), 5AO (0..10V), 8DI (24V), 8DO (230V/5A), DIN rail mounting, dimensions 237 x 105 x 35 mm, supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	* Advantech communication protocol - <b>MCIO/A</b>
<b>MMIO</b> 	<b>Combined I/O module, 17 I/O</b> 4 x AI (Pt1000 or potentiometer), 4 x DI dry contact, 2 x AO 0..10V, 7 x DO triac 24...230 V AC. DIN rail mounting, dimensions 90 x 105 x 58 mm, supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	
<b>MXIO</b> 	<b>Combined I/O module, 88 I/O</b> 16 x AI (0..10V, Pt100, Pt1000, Ni1000, T1) galv. sep., 32 x DI 24 V, 8 x AO 0..10V galv. sep., 32 x DO relay 24...230 V AC / 5A. Dimensions 265 x 292 x 40 mm, supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	
<b>M200</b> 	<b>4 relays output module</b> max. 8 A / 250 V AC or 8A / 24 V DC, DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	* Advantech communication protocol - <b>M200/A</b>
<b>M210</b> 	<b>8 relays output module</b> max. 8 A / 250 V AC or 8A / 24 V DC, DIN rail mounting, dimensions 90 x 105 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	
<b>M215</b> 	<b>8 relays output module, manual override</b> max. 8 A / 250 V AC or 8A / 24 V DC, manual override by front panel buttons. DIN rail mounting, dimensions 90 x 105 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	
<b>M300</b> 	<b>8 digital outputs module</b> open collector, 50 V DC, 0.5 A DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	* Advantech communication protocol - <b>M300/A</b>
<b>M320</b> 	<b>16 digital outputs module</b> open collector, 50 V DC, 0.5 A DIN rail mounting, dimensions 90 x 105 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	
<b>M325</b> 	<b>16 digital outputs module, manual override</b> open collector, 50 V DC, 0.5 A, manual override by front panel buttons. DIN rail mounting, dimensions 90 x 105 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv.	
<b>M400</b> 	<b>8 digital inputs module 24 V</b> 24 V AC/DC, 15 mA, common grounds by pairs DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	* Advantech communication protocol - <b>M400/A</b>
<b>M401</b> 	<b>8 digital inputs module 24 V</b> 24 V AC/DC, 15 mA, common ground for all inputs DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	* Advantech communication protocol - <b>M401/A</b>
<b>M410</b> 	<b>8 digital inputs module 230 V</b> 230 V AC/DC, 10 mA, common grounds by pairs DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	* Advantech communication protocol - <b>M410/A</b>
<b>M411</b> 	<b>8 digital inputs module 230 V</b> 230 V AC/DC, 10 mA, common grounds for all inputs DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	* Advantech communication protocol - <b>M411/A</b>
<b>M420</b> 	<b>16 digital inputs module 24 V</b> 24 V AC/DC, 15 mA, common ground for all inputs DIN rail mounting, dimensions 90 x 105 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	
<b>M500</b> 	<b>8 analogue inputs module 0..10V</b> separated from power and comm. parts, 16 bit A/D converter, DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated	* Advantech communication protocol - <b>M500/A</b>
















Type	Description		Options and comments
<b>M550</b> 	<b>8 analogue inputs module, passive</b> Ni1000, Pt100, Pt1000, 20..1600 Ohm, 16 bit DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated		
<b>M600</b> 	<b>Analogue output module</b> 0..10V or 0(4)..20 mA, optically separated DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated		* Advantech communication protocol - <b>M600/A</b>
<b>M610</b> 	<b>8 analogue outputs module</b> 0..10V, 10 mA, optically separated, common ground DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated		* Advantech communication protocol - <b>M610/A</b>
<b>M620</b> 	<b>4 analogue outputs module</b> 4...20 mA, each output optically separated DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated		* Advantech communication protocol - <b>M610/A</b>
<b>M700</b> 	<b>2 pulse counters module, battery backup</b> for dry contacts / OC (5 or 12V, 15 mA), 4 byte DIN rail mounting, dimensions 90 x 71 x 58 mm Supply 10..35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated		* Advantech communication protocol - <b>M700/A</b> , 2 byte counter
<b>Communication converters</b>			
<b>M011</b> 	<b>RS232 / RS485 converter</b> 1200..19200 bit/s, bus termination switch, optical separation Supply 10..35 V DC / 24 V AC DIN rail mounting, dimensions 90 x 58 x 35 mm		Replacement of M010, no RJ45 cable necessary
<b>M020</b> 	<b>RS232 / Ethernet converter</b> Terminal server up to 230400 bit/s or 5x I/O + RxD,TxD, modem emulation, serial bridge. COM port driver for Windows and Linux. Supply 10..35 V DC / 24 V AC. DIN rail mounting, dimensions 90 x 58 x 35 mm		
<b>M025</b> 	<b>RS232 / Ethernet converter, Modbus router</b> Same as M020, firmware extended by Modbus RTU / TCP routing functionality. Supply 10..35 V DC / 24 V AC. DIN rail mounting, dimensions 90 x 58 x 35 mm		
<b>M030</b> 	<b>RS485/422 / Ethernet converter</b> Terminal server, up to 230400 bit/s. COM port driver for Windows and Linux. Supply 10..35 V DC / 24 V AC. DIN rail mounting, dimensions 90 x 58 x 35 mm		
<b>M031</b> 	<b>RS485 / Ethernet converter</b> Terminal server, up to 230400 bit/s. COM port driver for Windows and Linux. Supply 10..35 V DC / 24 V AC. DIN rail mounting, dimensions 90 x 58 x 35 mm		Function same as M030, but no RS422 terminals
<b>M035</b> 	<b>RS485 / Ethernet converter, Modbus router</b> Same as M031, firmware extended by Modbus RTU / TCP routing functionality. Supply 10..35 V DC / 24 V AC. DIN rail mounting, dimensions 90 x 58 x 35 mm		
<b>M040</b> 	<b>RS232 / WiFi converter</b> Terminal server, up to 230400 bit/s. COM port driver for Windows and Linux. WiFi client, WAP, WPA, configuration over web. Supply 10..35 V DC / 24 V AC. DIN rail mounting, dimensions 90 x 58 x 35 mm		
<b>M050</b> 	<b>RS485 / WiFi converter</b> Terminal server, up to 230400 bit/s. COM port driver for Windows and Linux. WiFi client, WAP, WPA, configuration over web. Supply 10..35 V DC / 24 V AC. DIN rail mounting, dimensions 90 x 58 x 35 mm		
<b>MYIO</b> 	<b>Web communicator</b> 2 DI, 2 DO (expandable) controlled over web. Communication from behind NAT, Internet remote access. Ethernet, RS232/485, incl. power supply 230 / 12 V		See more at <a href="http://www.myio.info">www.myio.info</a>
<b>S010-MBUS</b> 	<b>M-Bus / RS232 converter</b> Supply 24 V AC / DC, max. 60 M-Bus meters, incl. driver for SoftPLC and 1.5 m RS232 cable with CANNON 9 connector. DIN rail mounting, dimensions 90 x 71 x 58 mm		
















Type	Description		Options and comments
<b>M080</b> 	<b>USB / RS485 converter</b> Small and handy USB powered converter for service and commissioning. Optically separated, 3x LED (PC link, Rx, Tx). Inclusive driver and comfortable universal Modbus RTU / TCP client SW. 49 x 34 x 20 mm, USB cable 140 cm.		
<b>Display units, accessories</b>			
<b>MTala010</b> 	<b>Alarm tableau</b> 6 LEDs, alarm horn, acknowledge button, Modbus RTU / RS485 Supply 10..35 V DC / 24 V AC. DIN rail mounting, dimensions 90 x 71 x 58 mm		
<b>PWR010</b> 	<b>Transformer 230 / 24 V</b> Safety transformer 10 VA, installation to a flat surface with 2 screws.		
<b>PWR011</b> 	<b>Transformer 230 / 24 V, 2x triac</b> Safety transformer 10 VA, installation to a flat surface with 2 screws. On-board are 2x 230V / 0,5 A triacs controlled by external 24 V AC signal for separation and pull-up of 2 PWM signals.		
<b>Peripherals</b>			
<b>Passive temperature sensors</b>			
<b>UT001</b> 	<b>Room temperature sensor</b> Wall-mounted, dimensions 90 x 107 x 26 mm Measuring element Pt1000		
<b>UT051</b> 	<b>Outside temperature sensor</b> Wall-mounted, dimensions 90 x 107 x 26 mm, -20...70 °C, IP 43 Measuring element Pt1000		
<b>RTF1</b> 	<b>Room temperature sensor</b> Wall-mounted, dimensions 79 x 81 x 26 mm Measuring element Pt1000		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm
<b>ALTF1</b> 	<b>Strap-on temperature sensor</b> -35...105 °C, IP54, dimensions Ø 6 x 50 mm, contact metal sheet Strap band 300 mm, for pipes Ø 13...92 mm Measuring element Pt1000		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * silicon cable - up to +180°C
<b>ALTF2</b> 	<b>Strap-on temperature sensor</b> -30...110 °C, IP65, dimensions 72 x 64 x 39,4 mm Strap-on metal band 300 mm, for pipes Ø 13...92 mm Measuring element Pt1000		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm
<b>ETF1</b> 	<b>Immersion temperature sensor</b> -30...150 °C, dimensions 72 x 64 x 39,4 mm + pocket Brass nickel-plated pocket 1/2", 150 mm, 10 bar Measuring element Pt1000		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * pockets 50, 100, 150, 200, 250, 300, 400 mm
<b>ETF2</b> 	<b>Immersion temperature sensor</b> -30...150 °C, dimensions 72 x 64 x 39,4 mm + pocket Stainless steel pocket 1/2", 150 mm, 40 bar Measuring element Pt1000		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * pockets 50, 100, 150, 200, 250, 300, 400 mm
<b>ATF1</b> 	<b>Outside temperature sensor</b> -50...90 °C, dimensions 72 x 64 x 39,4 mm Wall-mounted, IP65 Measuring element Pt1000		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm
<b>ATF2</b> 	<b>Outside temperature sensor</b> -50...90 °C, dimensions 72 x 64 x 39,4 mm Wall-mounted, sensor in external stainless steel pocket, IP65. Measuring element Pt1000		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm
<b>OFTF</b> 	<b>Surface temperature sensor</b> -30...105 °C, dimensions 8 x 8 x 40 mm + cable 1,5 m Aluminium housing, IP54 Measuring element Pt1000		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * cable length on demand * IP65
















Type	Description	Options and comments
<b>KTF1</b> 	<b>Duct temperature sensor</b> -30...150 °C, dimensions 72 x 64 x 39,4 mm + stem Stainless protective tube Ø 6 x 150 mm, IP65 Measuring element Pt1000	* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * pockets 50, 100, 150, 200, 250, 300, 400 mm
<b>DTF</b> 	<b>Ceiling built-in sensor</b> -20...90 °C, dimensions Ø 22 x 25 mm Installation in walls and ceilings, cutout Ø 26 mm Measuring element Pt1000	* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm
<b>ESTF</b> 	<b>Screw-in temperature sensor</b> -35...105 °C, dimensions Ø 8 x 50 mm stainless steel 1/2", 40 bar, IP65, cable 1.5 m Measuring element Pt1000	* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * silicone cable: -50...+180°C
<b>MWTF</b> 	<b>Mean value temperature sensor</b> -30...80 °C, dimensions 72 x 64 x 39,4 mm + stem 400 mm Copper plastic-coated stem Ø 6 x 150 mm, IP65 Measuring element Pt1000	* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * length 0.4, 3, 6 m or customized up to 20 m
<b>HTF</b> 	<b>Cable temperature sensor</b> -35...105 °C, dimensions Ø 6 x 50 mm + cable 1,5 m Stainless steel tube, IP54 Measuring element Pt1000	* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * silicone up to 180 °C, teflon up to 250 °C, length on request * IP65, IP68
<b>RPTF1</b> 	<b>Pendulum room temperature sensor</b> -30...75 °C, dimensions Ø 15 x 100 mm + cable 1,5 m Stainless steel tube, IP65 Measuring element Pt1000	* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * cable length 3 m, 6 m or customized
<b>RPTF2</b> 	<b>Pendulum room temperature sensor</b> -30...75 °C, plastic globe Ø 50 mm, cable 1,5 m For air temperature and radiating temperature metering Measuring element Pt1000, IP65	* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * cable length 3 m, 6 m or customized
<b>ASTF</b> 	<b>Wall temperature sensor (semiglobal sensor)</b> -30...75 °C, dimensions 72 x 64 x 53,4, plastic globe For air temperature and radiating temperature metering Měřicí prvek Pt1000, IP65	* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm
<b>RSTF</b> 	<b>Room radiation temperature sensor (semi-globular)</b> -30...75 °C, plastic globe For air temperature and radiating temperature metering Measuring element Pt1000, IP30	* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm
<b>Active temperature sensors</b>		
<b>ALTM1</b> 	<b>Strap-on temperature sensor</b> -30...70 °C, dimensions 72 x 64 x 39,4 mm Strap band 300 mm, tube diameter 13...92 mm Output 0..10V, power supply 24 V DC	* output 4..20 mA * with display
<b>ALTM2</b> 	<b>Strap-on temperature sensor</b> separate sensor - over 100°C Strap band 300 mm, dimensions 72 x 64 x 39,4 mm Output 0..10V, power supply 24 V DC	* output 4..20 mA * with display * other measuring ranges
<b>ATM1</b> 	<b>Outside temperature sensor</b> -50...50 °C, dimensions 72 x 64 x 39,4 mm Wall mounting, output 0..10V, power supply 24 V DC	* output 4..20 mA * with display * other measuring ranges
<b>ATM2</b> 	<b>Outside temperature sensor</b> -50...50 °C, dimensions 72 x 64 x 39,4 mm Measuring element in external steel pocket Wall mounting, output 0..10V, power supply 24 V DC	* output 4..20 mA * with display * other measuring ranges
<b>ETM1</b> 	<b>Pocket temperature sensor</b> 0...100 °C, dimensions 72 x 64 x 39,4 mm + sleeve Brass nickel-plated pocket 1/2", 150 mm, 10 bar Output 0..10V, power supply 24 V DC	* output 4..20 mA * with display * other measuring ranges * pockets 50, 100, 150, 200, 250, 300, 400 mm
<b>ETM2</b> 	<b>Pocket temperature sensor</b> 0...100 °C, dimensions 72 x 64 x 39,4 mm + sleeve Stainless steel pocket 1/2", 150 mm, 40 bar Output 0..10V, power supply 24 V DC	* output 4..20 mA * with display * other measuring ranges * pockets 50, 100, 150, 200, 250, 300, 400 mm
















Type	Description	Options and comments
<b>HFTM</b> 	<b>Sleeve sensor</b> 0...100 °C, dimensions Ø 6 x 50 mm + cable + box Mounting into pocket (not included), IP65, cable 1.5 m Output 0..10V, power supply 24 V DC	* output 4..20 mA * with display * other measuring ranges * cable teflon up to 250 °C, glass fibre w/ steel mesh up to 350 °C
<b>KTM1</b> 	<b>Duct / air duct temperature sensor</b> 0...100 °C, dimensions 72 x 64 x 39,4 mm + probe Stainless steel probe Ø 6 x 150 mm, IP65 Output 0..10V, power supply 24 V DC	* output 4..20 mA * with display * other measuring ranges * pockets 50, 100, 150, 200, 250, 300 mm
<b>MWTM</b> 	<b>Mean value temperature sensor</b> 0...50 °C, dimensions 72 x 64 x 39,4 mm + probe 400 mm Copper coated probe Ø 5 x 150 mm, IP65 Output 0..10V, power supply 24 V DC	* output 4..20 mA * with display * other measuring ranges * length 0.4, 3, 6 m or custom up to 20 m
<b>RTM1</b> 	<b>Room temperature sensor</b> 0...50 °C, dimensions 79 x 81 x 26 mm Wall mounting, output 0..10V, power supply 24 V DC Enclosure ABS, colour pure white RAL9010	* output 4..20 mA * with display * other measuring ranges * stainless steel cover
<b>RPTM1</b> 	<b>Pendulum room temperature sensor</b> 0...50 °C, dimensions 72 x 64 x 39,4 mm + probe 1,5 m Output 0..10V, power supply 24 V DC	* output 4..20 mA * other measuring ranges * cable length 3 m, 6 m or custom
<b>RPTM2</b> 	<b>Pendulum room temperature sensor</b> 0...50 °C, dimensions 72 x 64 x 39,4 mm + probe 1,5 m, plastic globe Ø 50 mm Output 0..10V, power supply 24 V DC	* output 4..20 mA * other measuring ranges * cable length 3 m, 6 m or custom
<b>Humidity sensors</b>		
<b>KFF-U</b> 	<b>Duct humidity sensor</b> capacitive element, 40..60% rH: ±3%, 10..90% rH: ±5% stem Ø 14 x 230 mm, IP65 Output 0..10V, power supply 24 V AC/DC	* output 4..20 mA KFF-I * display
<b>KFTF-U</b> 	<b>Duct humidity and temperature sensor</b> capacitive element, 40..60% rH: ±3%, 10..90% rH: ±5% temperature 0..50 °C, stem Ø 14 x 230 mm, IP65 Output 2 x 0..10V, power supply 24 V AC/DC	* outputs 4..20 mA KFTF-I * display * passive temperature sensor Pt100, Pt1000, Ni1000-5000, Ni1000-6180, NTC1.8kOhm
<b>AFF-U</b> 	<b>On-wall humidity sensor</b> capacitive element, 40..60% rH: ±3%, 10..90% rH: ±5% stem Ø 14 x 45 mm, IP65 Output 0..10V, power supply 24 V AC/DC	* output 4..20 mA AFF-I * display
<b>AFTF-U</b> 	<b>On-wall humidity and temperature sensor</b> capacitive element, 40..60% rH: ±3%, 10..90% rH: ±5% temperature -20..+80 °C, stem Ø 14 x 45 mm, IP65 Output 2 x 0..10V, power supply 24 V AC/DC	* outputs 4..20 mA AFTF-I * display * passive temperature sensor Pt100, Pt1000, Ni1000-5000, Ni1000-6180, NTC1.8kOhm
<b>KFF-20U</b> 	<b>Duct humidity sensor, high-precision</b> 20..90% rH: ±2% at 20 °C, 10..90% rH: ±3% stem Ø 14 x 230 mm, IP65 Output 0..10V, power supply 24 V AC/DC	* output 4..20 mA KFF-20I * display
<b>KFTF-20U</b> 	<b>Duct humidity and temperature sensor, high-precision</b> 20..90% rH: ±2% at 20 °C, 10..90% rH: ±3% capacitive element 0..50 °C, stem Ø 14 x 230 mm, IP65 Output 2 x 0..10V, power supply 24 V AC/DC	* outputs 4..20 mA KFTF-20I * display
<b>AFF-20U</b> 	<b>On-wall humidity sensor, high-precision</b> 20..90% rH: ±2% at 20 °C, 10..90% rH: ±3% stem Ø 14 x 45 mm, IP65 Output 0..10V, power supply 24 V AC/DC	* output 4..20 mA AFF-20I * display
<b>AFTF-20U</b> 	<b>On-wall humidity and temperature sensor, high-precision</b> 20..90% rH: ±2% at 20 °C, 10..90% rH: ±3% range temperature -20..+80 °C, stem Ø 14 x 45 mm, IP65 Output 2 x 0..10V, power supply 24 V AC/DC	* outputs 4..20 mA AFTF-20I * display
<b>KAFTF</b> 	<b>Duct absolute humidity and temperature sensor</b> stem Ø 14 x 230 mm, IP65 0..80 g/m3, 0..50 °C Output 2 x 0..10V, power supply 24 V AC/DC	* display















Type	Description		Options and comments
AAFTF 	<b>On-wall outdoor absolute humidity and temperature sensor</b> 73.5 x 70 x 108 mm, stem Ø 14 x 45 mm, IP65 0..80 g/m <sup>3</sup> , 0..50 °C Output 2 x 0..10V, power supply 24 V AC/DC		* display
RFF-U 	<b>Room humidity sensor</b> capacitive element, 40..60% rH: ±3%, 10..90% rH: ±5% Output 0..10V, power supply 24 V AC/DC Wall mounting, dimensions 79 x 81 x 26 mm		* output 4..20 mA RFF-I * display
RFTF-U 	<b>Room humidity and temperature sensor</b> capacitive element, 40..60% rH: ±3%, 10..90% rH: ±5%, temperature 0..+50 °C, output 2 x 0..10V, power supply 24 V AC/DC, wall mounting, dimensions 79 x 81 x 26 mm		* outputs 4..20 mA RFTF-I * display * passive temperature sensor Pt100, Pt1000, Ni1000-5000, Ni1000-6180, NTC1.8kOhm
RPFF-U 	<b>Pendulum room humidity sensor</b> capacitive element, 20..90% rH: ±3% at 20°C, otherwise ±5%, output 0..10V, power supply 24 V AC/DC dimensions 72 x 64 x 39,4 mm, cable 2 m		* output 4..20 mA RPFF-I * display
RPFTF-U 	<b>Pendulum room humidity and temperature sensor</b> capacitive element, 20..90% rH: ±3% at 20°C, otherwise ±5%, temperature 0..+50 °C, output 2x 0..10V, power supply 24 V AC/DC, dimensions 72 x 64 x 39,4 mm, cable 2 m		* outputs 4..20 mA RPFTF-I * display
<b>Pressure sensors</b>			
SHD-U1 	<b>Pressure sensor for liquid and fluid media</b> Power supply 24 V AC/DC, output 0..10V, ext. thread G1/2", stainless steel, overload 2x measuring range, temp. range -40..100°C, IP65 (SHD-I.. available only for DC power)		* SHD-U2.5, SHD-U6, SHD-U10, SHD-U16, SHD-U25, SHD-U40 (number = max. measuring range in bar) * output 4..20 mA SHD-I..
DF-50U 	<b>Differential pressure sensor 0..50 Pa</b> Power supply 24 V AC/DC, output 0..10V, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 72 x 64 x 39,4 mm, IP65		
DF-100U 	<b>Differential pressure sensor 0..100 Pa</b> Power supply 24 V AC/DC, output 0..10V, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 72 x 64 x 39,4 mm, IP65		* DF-300U, DF-500U, DF-1000U, DF-2000U, DF-5000U (number = max. measuring range in Pa)
DF-50I 	<b>Differential pressure sensor 0..50 Pa</b> Power supply 15..30 V DC, output 4..20 mA, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 108 x 72,5 x 70 mm, IP65		
DF-100I 	<b>Differential pressure sensor 0..100 Pa</b> Power supply 15..30 V DC, output 4..20 mA, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 108 x 72,5 x 70 mm, IP65		* DF-300I, DF-500I, DF-1000I, DF-2000I, DF-5000I (number = max. measuring range in Pa)
DF-25/+25U 	<b>Differential pressure sensor -25..+25 Pa</b> Power supply 24 V AC/DC, output 0..10V, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 72 x 64 x 39,4 mm, IP65		* DF-50/+50U (number = max. measuring range in Pa)
DF-100/+100U 	<b>Differential pressure sensor -100..100 Pa</b> Power supply 24 V AC/DC, output 0..10V, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 72 x 64 x 39,4 mm, IP65		* DF-500/+500U, DF-1000/+1000U, DF-2000/+2000U (number = max. measuring range in Pa)
DF-25/+25I 	<b>Differential pressure sensor -25..+25 Pa</b> Power supply 15..30 V DC, output 4..20 mA, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 108 x 72,5 x 70 mm, IP65		* DF-50/+50I (number = max. measuring range in Pa)
DF-100/+100I 	<b>Differential pressure sensor -100..100 Pa</b> Power supply 15..30 V DC, output 4..20 mA, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 108 x 72,5 x 70 mm, IP65		* DF-500/+500I, DF-1000/+1000I, DF-2000/+2000I (number = max. measuring range in Pa)
SDF-50U 	<b>Differential pressure sensor 0..50 Pa, display</b> Power supply 24 V AC/DC, output 0..10V, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 72 x 64 x 39,4 mm, IP65		















Type	Description	Options and comments
<b>SDF-100U</b> 	<b>Differential pressure sensor 0..100 Pa, display</b> Power supply 24 V AC/DC, output 0..10V, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 72 x 64 x 39,4 mm, IP65	* SDF-300U, SDF-500U, SDF-1000U, SDF-2000U, SDF-5000U (number = max. measuring range in Pa)
<b>SDF-50I</b> 	<b>Differential pressure sensor 0..50 Pa, display</b> Power supply 15..30 V DC, output 4..20 mA, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 108 x 72,5 x 70 mm, IP65	
<b>SDF-100I</b> 	<b>Differential pressure sensor 0..100 Pa, display</b> Power supply 15..30 V DC, output 4..20 mA, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 108 x 72,5 x 70 mm, IP65	* SDF-300I, SDF-500I, SDF-1000I, SDF-2000I, SDF-5000I (number = max. measuring range in Pa)
<b>SDF-25/+25U</b> 	<b>Differential pressure sensor -25..25 Pa, display</b> Power supply 24 V AC/DC, output 0..10V, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 72 x 64 x 39,4 mm, IP65	* SDF-50/+50U (number = max. measuring range in Pa)
<b>SDF-100/+100U</b> 	<b>Differential pressure sensor -100..100 Pa, display</b> Power supply 24 V AC/DC, output 0..10V, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 72 x 64 x 39,4 mm, IP65	* SDF-500/+500U, SDF-1000/+1000U, SDF-2000/+2000U (number = max. measuring range in Pa)
<b>SDF-25/+25I</b> 	<b>Differential pressure sensor -25..25 Pa, display</b> Power supply 15..30 V DC, output 4..20 mA, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 108 x 72,5 x 70 mm, IP65	* SDF-50/+50I (number = max. measuring range in Pa)
<b>SDF-100/+100I</b> 	<b>Differential pressure sensor -100..100 Pa, display</b> Power supply 15..30 V DC, output 4..20 mA, including hose set Ø 4/6 x 2000 mm, for non-aggressive and non-combustible gases, dimensions 108 x 72,5 x 70 mm, IP65	* SDF-500/+500I, SDF-1000/+1000I, SDF-2000/+2000I (number = max. measuring range in Pa)
<b>Other sensors</b>		
<b>AHKF-U</b> 	<b>Outdoor light intensity sensor</b> Power supply 24 V AC/DC, measuring range 0..500 lx / 20 klx / 60 klx (switchable), output 0..10V, wall-mounted, IP65, dimensions 72 x 64 x 39,4 mm	* AHKF-I, 4..20 mA
<b>RHKF-U</b> 	<b>Room light intensity sensor</b> Power supply 24 V AC/DC, measuring range 0..500 lx / 1 klx / 20 klx (switchable), output 0..10V, wall-mounted, IP30, dimensions 79 x 81 x 26 mm	* RHKF-I, 4..20 mA
<b>ABWF-S</b> 	<b>Outdoor motion sensor/presence detector</b> Power supply 24 V AC/DC, output 230V / 2A normally open, IR, beam angle 360 ° x 110°, operating range ca. 10 m, timeout adjustable 4 s ... 16 min., wall-mounted, IP65	* ABWF-O NC contact
<b>DBWF-S</b> 	<b>Ceiling built-in motion sensor/presence detector</b> Power supply 24 V AC/DC, output 230V / 2A normally open, beam angle 360 ° x 110°, operating range ca. 10 m, timeout adjustable 4 s ... 16 min., ceiling mounted, IP65	
<b>RBWF-S</b> 	<b>Room motion sensor/presence detector</b> Power supply 24 V AC/DC, output 230V / 2A normally-open, IR, beam angle 360 ° x 110°, operating range ca. 10 m, timeout adjustable 4 s ... 16 min., wall mounted, IP30	* RBWF-O NC contact
<b>RBWF/LF-US</b> 	<b>Room presence detector and light sensor</b> Power supply 24 V AC/DC, output presence: contact 230 V / 2 A, timeout adjustable 4 s ... 16 min., light: 0..10V ~ 0..1000 lx, wall mounted, IP30	* RBWF/LF-IS light output 4..20 mA
<b>KLQ</b> 	<b>Duct air quality sensor</b> Power supply 24 V AC/DC, output 0..10 V or 4..20 mA ~ 100..0% air quality referred to calibration gas, VOC sensor, IP65	* KLQ-S extra NO contact 230 V / 0.5 A, setpoint internal * display
<b>RLQ</b> 	<b>Room air quality sensor</b> Power supply 24 V AC/DC, output 0..10 V or 4..20 mA ~ 100..0% air quality referred to calibration gas, VOC sensor, IP30	* RLQ-S extra NO contact 230 V / 0.5 A, setpoint internal * display * indicating LED







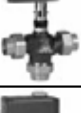







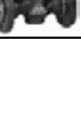
Type	Description	Options and comments
<b>RCO2</b> 	<b>Room CO2 sensor</b> Power supply 24 V AC/DC, output 0..10 V ~ 0..2000 ppm, optical sensor NDIR, IP30	* display
<b>RLQ-CO2</b> 	<b>Room air quality and CO2 sensor</b> Power supply 24 V AC/DC, output 2x 0..10 V ~ 0..2000 ppm (CO2, optical sensor NDIR), 100..0% AQ referred to calibration gas (quality, sensor VOC), IP30	* display
<b>RTM-CO2</b> 	<b>Room temperature and CO2 sensor</b> Power supply 24 V AC/DC, outputs 2x 0..10 V ~ 0..2000 ppm (CO2, optical sensor NDIR), 0..50 °C (temperature), IP30	* display
<b>RFF-CO2</b> 	<b>Room humidity and CO2 sensor</b> Power supply 24 V AC/DC, outputs 2x 0..10 V ~ 0..2000 ppm (CO2, optical sensor NDIR), 0..100 %rH (humidity), IP30	* display
<b>RFTF-CO2</b> 	<b>Room temperature, humidity and CO2 sensor</b> Power supply 24 V AC/DC, outputs 3x 0..10 V ~ 0..2000 ppm (CO2, optical sensor NDIR), 0..50 °C (temperature), 0..100 %rH (humidity), IP30	* display
<b>KCO2</b> 	<b>Duct CO2 sensor</b> Power supply 24 V AC/DC, output 0..10 V ~ 0..2000 ppm, optical sensor NDIR, IP65	* display
<b>KLQ-CO2</b> 	<b>Duct air quality and CO2 sensor</b> Power supply 24 V AC/DC, outputs 2x 0..10 V ~ 0..2000 ppm (CO2, optical sensor NDIR), 100..0% AQ referred to calibration gas (quality, VOC sensor), IP65	* display
<b>KO3-U</b> 	<b>Duct ozone sensor</b> Power supply 24 V AC/DC, output 0..10 V ~ 0..1 ppm, chemical sensor, dimensions 108 x 72,5 x 70 mm + stem Ø 20 x 185 mm	* KO3-US extra contact, setpoint internal
<b>RO3-U</b> 	<b>Room ozone sensor</b> Power supply 24 V AC/DC, output 0..10 V ~ 0..1 ppm, chemical sensor, dimensions 95 x 97 x 30 mm	* RO3-US extra contact, setpoint internal
<b>KLGF-1</b> 	<b>Duct airflow monitor</b> Power supply 24 V AC/DC, output 0..10V ~ 0..30 m/s, mounting flange, stem Ø 10 x 140 mm	* <b>KLGF-2</b> power 230 V AC
<b>Thermostats</b>		
<b>FS1-U</b> 	<b>Frost protection thermostat, active</b> Input: 0..10V valve signal, outputs: C/O contact, 0..10V temperature (equivalent to 0..15 °C), 0..10V control signal (input + frost protection), power supply 24 V AC/DC, dimensions 108 x 72.5 x 70 mm	* display * capillary length 3 m ( <b>FS1-U</b> ), 6 m ( <b>FS2-U</b> )
<b>FST-5D</b> 	<b>Frost protection thermostat, mechanical</b> Output: change-over contact 10 (4) A, 250 V AC Dimensions 108 x 72.5 x 70 mm, IP65 Setpoint range -10..12 °C, hysteresis 1 K	* capillary length 6 m ( <b>FST-1D</b> ), 1.8 m ( <b>FST-3D</b> ), 3 m ( <b>FST-5D</b> )
<b>RTR-B121</b> 	<b>Room temperature controller, mechanical (heating)</b> Setpoint range +5...+30 °C, hysteresis 0.5 K Switching element: bimetal, contact 10 (4) A, 230 V AC Dimensions 79 x 81 x 26 mm	
<b>RTR-B124</b> 	<b>Room temperature controller, mechanical (heating)</b> Setpoint range +5...+30 °C, hysteresis 0.5 K Switch element: bimetal, contact 10 (4) A, 230 V AC Dimensions 79 x 81 x 26 mm. Input for depression -5K	
<b>RTR-B721</b> 	<b>Room temperature controller, mechanical (heating / cooling)</b> Setting range +5...+30 °C, hysteresis 0.5 K Bimetal, contacts 10 (4) A, 230 V heating, 5 (2) A cooling Dimensions 79 x 81 x 26 mm.	

Type	Description	Options and comments
<b>RTR-B747</b> 	<b>Room temperature controller, mechanical (heating / cooling)</b> Setting range +5...+30 °C, hysteresis 0.5 K Bimetal, contacts 10 (4) A, 230 V AC heating, 5 (2) A cooling Dimensions 79 x 81 x 26 mm. Nastavení interní.	
<b>ALTR-060</b> 	<b>Strap-on temperature controller 0...+60 °C</b> Temperature range 0...+60 °C, hysteresis 5 K change-over contact 16 (4) A, 24...250 V AC Dimensions 38 x 48 x 103 mm, IP40, external setting	* internal setting: <b>ALTR-060U</b>
<b>ALTR-090</b> 	<b>Strap-on temperature controller 0...+90 °C</b> Temperature range 0...+90 °C, hysteresis 5 K change-over contact 16 (4) A, 24...250 V AC Dimensions 38 x 48 x 103 mm, IP40, external setting	* internal setting: <b>ALTR-090U</b>
<b>ALTR-1</b> 	<b>Strap-on temperature controller -35...+35 °C</b> Temperature range -35...+35 °C, hysteresis 5 K Switching contact 16 (1.5) A, 24...250 V AC Dimensions 72.5 x 70 x 108 mm, IP65, external setting	* internal setting: ALTR-1U
<b>ALTR-3</b> 	<b>Strap-on temperature controller 0...+60 °C</b> Temperature range 0...+60 °C, hysteresis 5 K change-over contact 16 (1.5) A, 24...250 V AC Dimensions 72.5 x 70 x 108 mm, IP65, external setting	* internal setting: ALTR-3U
<b>ALTR-5</b> 	<b>Strap-on temperature controller 0...+90 °C</b> Temperature range 0...+90 °C, hysteresis 5 K change-over contact 16 (1.5) A, 24...250 V AC Dimensions 72.5 x 70 x 108 mm, IP65, external setting	* internal setting: ALTR-5U
<b>ALTR-7</b> 	<b>Strap-on temperature controller 0...+120 °C</b> Temperature range 0...+120 °C, hysteresis 5 K change-over contact 16 (1.5) A, 24...250 V AC Dimensions 72.5 x 70 x 108 mm, IP65, external setting	* internal setting: ALTR-7U
<b>ETR-060</b> 	<b>Built-in temperature controller 0...+60 °C</b> External setting temperature range 0...+60 °C, hyst. 3 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, brass pocket 1/2" 130 mm	* internal setting: <b>ETR-060U</b> * stainless steel pocket
<b>ETR-090</b> 	<b>Built-in temperature controller 0...+90 °C</b> Internal setting temperature range 0...+90 °C, hyst. 3 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, brass pocket 1/2" 130 mm	* internal setting: <b>ETR-090U</b> * stainless steel pocket
<b>ETR-0120</b> 	<b>Built-in temperature controller 0...+120 °C</b> External setting temperature range 0...+120 °C, hyst. 5 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, brass pocket 1/2" 130 mm	* stainless steel pocket
<b>ETR-50140</b> 	<b>Built-in temperature controller +50...+140 °C</b> External setting temperature range +50...+140 °C, hyst. 5 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, brass pocket 1/2" 130 mm	* stainless steel pocket
<b>ETR-R6585</b> 	<b>Built-in temperature controller +65...+85 °C</b> External setting temperature range +65...+85 °C, hyst. 15...20 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, brass pocket 1/2" 130 mm	STB function, restart after cooling down and manual reset * stainless steel pocket
<b>ETR-R90110</b> 	<b>Built-in temperature controller +90...+110 °C</b> External setting temperature range +90...+110 °C, hyst. 15...20 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, brass pocket 1/2" 130 mm	STB function, restart after cooling down and manual reset * stainless steel pocket
<b>ETR-060R85</b> 	<b>Built-in temperature controller two-step</b> Temperature range 0...+60 °C and +65...+85 °C, hyst. 3 and 15...20 K change-over contacts 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, brass pocket 1/2" 130 mm	upper step: STB function, restart after cooling down and manual reset * stainless steel pocket
<b>ETR-090090U</b> 	<b>Built-in temperature controller two-step</b> Internal setting temperature range 0...+90 °C and 0...+90 °C, hyst. 3 and 3 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, brass pocket 1/2" 130 mm	* stainless steel pocket

Type	Description	Options and comments
 ETR-090R110	<b>Built-in temperature controller two-step</b> Temperature range 0...+90 °C and +90...+110 °C, hyst. 3 and 15...20 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, brass pocket 1/2" 130 mm	upper step: STB function, restart after cooling down and manual reset * stainless steel pocket
 ETR-1	<b>Built-in temperature controller -35...+35 °C</b> External setting temperature range -35...+35 °C, hyst. 3 K change-over contact 16 (1.5) A, 24...250 V AC, IP65 Dimensions 72.5 x 70 x 108 mm, brass pocket 1/2" 130 mm	* stainless steel pocket
 KTR-060	<b>Duct temperature controller 0...+60 °C</b> External setting temperature range 0...+60 °C, hyst. 3 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, stem Ø 14 x 205 mm	* internal settings: <b>KTR-060U</b>
 KTR-090U	<b>Duct temperature controller 0...+90 °C</b> Internal setting temperature range 0...+90 °C, hyst. 3 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, stem Ø 14 x 205 mm	
 KTR-0120	<b>Duct temperature controller 0...+120 °C</b> External setting temperature range 0...+120 °C, hyst. 3 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, stem Ø 14 x 205 mm	
 KTR-50140	<b>Duct temperature controller +50...+140 °C</b> External setting temperature range +50...+140 °C, hyst. 5 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, stem Ø 14 x 205 mm	
 KTR-R6585	<b>Duct temperature controller +65...+85 °C</b> External setting temperature range +65...+85 °C, hyst. 15...20 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, stem Ø 14 x 205 mm	STB function, restart after cooling down and manual reset
 KTR-R90110	<b>Duct temperature controller +90...+110 °C</b> External setting temperature range +90...+110 °C, hyst. 15...20 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, stem Ø 14 x 205 mm	STB function, restart after cooling down and manual reset
 KTR-060R85	<b>Duct temperature controller two-step</b> Temperature range 0...+60 °C and +65...+85 °C, hyst. 3 and 15...20 K change-over contacts 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, stem Ø 14 x 205 mm	upper step: STB function, restart after cooling down and manual reset
 KTR-090090U	<b>Duct temperature controller two-step</b> Internal setting temperature range 0...+90 °C and 0...+90 °C, hyst. 3 and 3 K change-over contacts 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, stem Ø 14 x 205 mm	
 KTR-090R110	<b>Duct temperature controller two-step</b> Temperature range 0...+90 °C and +90...+110 °C, hyst. 3 and 15...20 K change-over contact 16 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm, stem Ø 14 x 205 mm	upper step: STB function, restart after cooling down and manual reset
 KTR-1	<b>Duct temperature controller -35...+35 °C</b> External setting temperature range -35...+35 °C, hyst. 3 K change-over contact 16 (1.5) A, 24...250 V AC, IP65 Dimensions 72.5 x 70 x 108 mm, stem Ø 14 x 205 mm	
 TR-040	<b>Temperature controller 0...+40 °C</b> Temperature range 0...+40 °C, hysteresis 1 K change-over contact 10 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm	* internal setting: <b>TR-040U</b>
 TR-060	<b>Temperature controller 0...+60 °C</b> Temperature range 0...+60 °C, hysteresis 1.5 K change-over contact 10 (1.5) A, 24...250 V AC, IP54 Dimensions 72.5 x 70 x 108 mm	* internal setting: <b>TR-060U</b>
 TR-22	<b>Temperature controller -30...+30 °C</b> Temperature range -30...+30 °C, hysteresis (adjustable) 2...15 K, change-over contact 15 (8) A, 24...250 V AC, IP65 Dimensions 72.5 x 70 x 108 mm	* internal setting: TR-22U

Type	Description		Options and comments
<b>TR-04040</b> 	<b>Duct temperature controller two-step 0...+40 °C</b> Temperature range 0...+40 °C and 0...+40 °C, hysteresis 1 K and 1 K, change-over contacts 10 (1.5) A, 24...250 V AC, IP65, dimensions 72.5 x 70 x 108 mm		* internal setting: <b>TR-04040U</b>
<b>Hygrostats</b>			
<b>TW-O/S</b> 	<b>Dew point sensor, active</b> Switches when reaching relative humidity setpoint. incl. 300 mm strap-on metal band Dimensions 64 x 72 x 39.4 mm, IP65 Power supply 24 V AC / DC, NO or NC contact (can be set)		* no contact, output 0..10 V <b>TW-U</b>
<b>KW-O/S</b> 	<b>Dew point sensor (condensing)</b> Switches at 95 %rH (adjustable), incl. 300 mm strap-on metal band Dimensions 64 x 72 x 39.4 mm, IP65 Power supply 24 V AC / DC, NO or NC contact (can be set)		
<b>RHT-1</b> 	<b>Room hygrostat and thermostat</b> 10..35 °C, 35..100 %rH, power supply 24..230 V AC, change-over contacts rH 5 (0.2) A, t 10(4)A, switch 127 x 75 x 25 mm, IP30		For flush box installation, order inclusive mounting frame ARA1.7E
<b>RH-2</b> 	<b>Room hygrostat</b> 25..95 %rH, hyst. 4%rH, power supply 24..230 V AC, change-over contact 5 (0.2) A 95 x 97 x 30 mm, IP30		* internal setting RH2-U
<b>KH-30W</b> 	<b>Duct hygrostat, electronic</b> Power supply 24 V AC/DC, change-over contact 10 (6) A, output 0..10V. Dimensions 108 x 72,5 x 70 mm, stem Ø 20 x 185 mm, IP65, internal setting.		* display Accessories (to be ordered separately): flange MF-16-K, wall installation clamp WH-20
<b>KH-10</b> 	<b>Duct hygrostat, mechanical</b> Setpoint 35..100 %rH, change-over contact 24..250 V AC, 15 (8) A. Dimensions 108 x 72,5 x 70 mm, stem Ø 19 x 220 mm, IP65		* internal setting: KH10-U Accessories (to be ordered separately): flange MF-16-K, wall installation clamp WH-20
<b>KH-20</b> 	<b>Duct hygrostat, mechanical, 2 stages</b> Setpoint 35..100 %rH, St1 to St2 3..18 %rH, change-over contacts 24..250 V AC, 15 (8) A. Dimensions 108 x 72,5 x 70 mm, stem Ø 19 x 220 mm, IP65		* internal setting: KH20-U Accessories (to be ordered separately): flange MF-16-K, wall installation clamp WH-20
<b>Pressure switches</b>			
<b>DS-106</b> 	<b>Differential pressure switch 20..300 Pa</b> Contact 5(0.8)A, 12..250 V AC, ambient temperature -30..85°C, silicone membrane, dimensions Ø 81 x 54 mm, IP54 Inclusive connecting set: hose 2 m and nipples.		* <b>DS-106A</b> 50..500 Pa <b>DS-106B</b> 100..1000 Pa <b>DS-106C</b> 500..2000 Pa <b>DS-106D</b> 1000..5000 Pa
<b>DS-205F</b> 	<b>Differential pressure switch 20..200 Pa</b> Contact 1.5(0.4)A, 12..250 V AC, ambient temperature -20..85°C, silicone membrane, dimensions Ø 98 x 57,8 mm, IP54 Inclusive connecting set: hose 2 m and nipples.		* <b>DS-205B</b> 50..500 Pa <b>DS-205D</b> 200..1000 Pa <b>DS-205E</b> 500..2500 Pa
<b>Switching sensors</b>			
<b>KLSW-3</b> 	<b>Airflow control switch, electronic</b> 0.1..30 m/s (adjustable), relay 230 V / 10 A, power supply 230 V AC, adjustable switch-on (15..120 s) and switch-off (2..20 s) delay, dimensions 108 x 72,5 x 70 mm + stem Ø 10 x 140 mm		* <b>KLSW-4</b> power supply 24 V AC/DC
<b>KLSW-5</b> 	<b>Airflow control switch, 2 stages, electronic</b> 0.1..15 m/s (adjustable), relays 230 V / 10 A, power supply 230 V AC, adjustable switch-on (15..120 s) and switch-off (2..20 s) delay, dimensions 108 x 72,5 x 70 mm + stem Ø 10 x 140 mm		* <b>KLSW-6</b> power supply 24 V AC/DC
<b>WFS-1EPL</b> 	<b>Airflow control switch, mechanical</b> 2.5..9.2 m/s (adjustable), relay 24..250 V / 15(8) A, 108 x 72,5 x 70 mm + vane 80 x 175 mm, suitable for polluted air (oily vapours)		Accessories PWFS-08 - spare vane
<b>Room units</b>			
<b>RTF LT</b> 	<b>Room temperature sensor, button, LED</b> Wall mounted, dimensions 79 x 81 x 26 mm Measuring element Pt1000 ABS, colour: white RAL9010		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm

Type	Description		Options and comments
<b>RTF T</b> 	<b>Room temperature sensor, button</b> Wall mounted, dimensions 79 x 81 x 26 mm Measuring element Pt1000 ABS, colour: white RAL9010		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm
<b>RTF P</b> 	<b>Room temperature sensor, setpoint</b> Wall mounted, dimensions 79 x 81 x 26 mm Measuring element Pt1000, setpoint potentiometer 1K5		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * setpoint from the R6 range * various scales / arrow shapes
<b>RTF PT</b> 	<b>Room temperature sensor, button, setpoint</b> Wall mounted, dimensions 79 x 81 x 26 mm Measuring element Pt1000		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * setpoint from the R6 range * various scales / arrow shapes
<b>RTF LPT</b> 	<b>Room temperature sensor, button, setpoint, LED</b> Wall mounted, dimensions 79 x 81 x 26 mm Measuring element Pt1000		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * setpoint from the R6 range * various scales / arrow shapes * LED colors
<b>RTF DP</b> 	<b>Room temperature sensor, switch 0-I-II-III, setpoint</b> Wall mounted, dimensions 79 x 81 x 26 mm. Measuring element Pt1000, stage switch up to 50 V		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * setpoint from the R6 range * various scales / arrow shapes * stage switch with resistors
<b>RTF PW</b> 	<b>Room temperature sensor, setpoint, switch</b> Wall mounted, dimensions 79 x 81 x 26 mm Measuring element Pt1000, on/off switch up to 50 V		* Pt100, Ni1000-5000, Ni1000-6180, NTC1.8kOhm * setpoint from the R6 range * various scales / arrow shapes
<b>Room controllers</b>			
<b>RTR-S010</b> 	<b>Room controller - heating and cooling</b> Setpoint +5...+30 °C, P band 1.5 K Power supply 24 V AC/DC, output 2x 0..10 V / 10..0 V, 5 mA Dimensions 95 x 97 x 30 mm, IP30		
<b>RTR-S011</b> 	<b>Room controller - heating and cooling</b> Setpoint 21 °C ± 8 K, P band 1.5 K Power supply 24 V AC/DC, output 2x 0..10 V / 10..0 V, 5 mA Dimensions 95 x 97 x 30 mm, IP30		
<b>RTR-S012</b> 	<b>Room controller - heating and cooling</b> Setpoint +5...+30 °C, P band 1.5 K Power supply 24 V AC/DC, output 2x 0..10 V / 10..0 V, 5 mA Dimensions 95 x 97 x 30 mm, IP30, 2x LED (heat / cool)		Temperature sensor external Pt1000, must be ordered separately
<b>RTR-S013</b> 	<b>Room controller - heating and cooling</b> Setpoint 21 °C ± 8 K, P band 1.5 K Power supply 24 V AC/DC, output 2x 0..10 V / 10..0 V, 5 mA Dimensions 95 x 97 x 30 mm, IP30, 2x LED (heat / cool)		Temperature sensor external Pt1000, must be ordered separately
<b>RTR-S014</b> 	<b>Room controller - heating and cooling, fancoil</b> Setpoint +5...+30 °C, P band 1..5 K Power supply 24 V AC/DC, output 2x 0..10 V / 10..0 V, 5 mA Dimensions 95 x 97 x 30 mm, IP30, 2x LED (heat / cool)		Temperature sensor external / internal Pt1000, fancoil switch 230 V 0-I-II-III
<b>RTR-S015</b> 	<b>Room controller - heating and cooling, fancoil</b> Setpoint 21 °C ± 8 K, P band 1.5 K Power supply 24 V AC/DC, output 2x 0..10 V / 10..0 V, 5 mA Dimensions 95 x 97 x 30 mm, IP30, 2x LED (heat / cool)		Temperature sensor external / internal Pt1000, fancoil switch 230 V 0-I-II-III
<b>Valves</b>			
<b>VD121-15 0,16</b> 	<b>2-port control valve, threaded</b> PN16, DN15, Kvs = 0,16 incl. actuator 24 V AC, 0..10 V		* Kvs 0,25, 0,4, 0,63, 1,0, 1,6, 2,5, 4.
<b>VD121-20 6,3</b> 	<b>2-port control valve, threaded</b> PN16, DN20, Kvs = 6,3 incl. actuator 24 V AC, 0..10 V		

Type	Description	Options and comments
VD121-25 10 	<b>2-port control valve, threaded</b> PN16, DN25, Kvs = 10 incl. actuator 24 V AC, 0..10 V	
VD121-32 16 	<b>2-port control valve, threaded</b> PN16, DN32, Kvs = 16 incl. actuator 24 V AC, 0..10 V	
VD121-40 25 	<b>2-port control valve, threaded</b> PN16, DN40, Kvs = 25 incl. actuator 24 V AC, 0..10 V	
VD131-15 0,25 	<b>3-port control valve, threaded</b> PN16, DN15, Kvs = 0,25 incl. actuator 24 V AC, 0..10 V	* Kvs 0,4, 0,63, 1,0, 1,6, 2,5, 4.
VD131-20 6,3 	<b>3-port control valve, threaded</b> PN16, DN20, Kvs = 6,3 incl. actuator 24 V AC, 0..10 V	
VD131-25 10 	<b>3-port control valve, threaded</b> PN16, DN25, Kvs = 10 incl. actuator 24 V AC, 0..10 V	
VD131-32 16 	<b>3-port control valve, threaded</b> PN16, DN32, Kvs = 16 incl. actuator 24 V AC, 0..10 V	
VD131-40 25 	<b>3-port control valve, threaded</b> PN16, DN40, Kvs = 25 incl. actuator 24 V AC, 0..10 V	
VD123 50 	<b>2-port control valve, flanged</b> PN16, DN50, Kvs = 40 incl. actuator 24 V AC, 0..10 V	
VD123 65 	<b>2-port control valve, flanged</b> PN16, DN65, Kvs = 63 incl. actuator 24 V AC, 0..10 V	
VD123 80 	<b>2-port control valve, flanged</b> PN16, DN80, Kvs = 100 incl. actuator 24 V AC, 0..10 V	
VD123 100 	<b>2-port control valve, flanged</b> PN16, DN100, Kvs = 160 incl. actuator 24 V AC, 0..10 V	
VD123 125 	<b>2-port control valve, flanged</b> PN16, DN125, Kvs = 250 incl. actuator 24 V AC, 0..10 V	
VD123 150 	<b>2-port control valve, flanged</b> PN16, DN150, Kvs = 360 incl. actuator 24 V AC, 0..10 V	
VD133 50 	<b>3-port control valve, flanged</b> PN16, DN50, Kvs = 40 incl. actuator 24 V AC, 0..10 V	



## How to start

---

Find current schedule of trainings, design documentation, data sheets, and full price list at [www.domat.cz](http://www.domat.cz). Download new releases of software tools from [www.rcware.eu](http://www.rcware.eu) and visit user forum at [forum.rcware.eu](http://forum.rcware.eu) to exchange know-how on RcWare SoftPLC and RcWare Vision.

### **Sales department, logistics, project management:**

Pardubice

Phone: +420 461 100 823

Fax: +420 226 013 092

E-mail: [info@domat.cz](mailto:info@domat.cz)

### **Training center, field support:**

Praha

Phone: +420 222 365 393

Fax: +420 226 013 092

E-mail: [support@domat.cz](mailto:support@domat.cz)

### **We offer:**

- Design and software engineering trainings several times a year, free of charge.
- Hiring of system components for free (process stations, I/O modules) for 30 days so that you can explore all the features in your office.
- Basic versions of development tools free of charge.
- Customized trainings for your designers and system engineers at your premises.
- Technical support and proofreading of your projects and shop drawings containing Domat Control System components, free of charge.

# References

## Partner customers:

Interspar and Spar (CZ, HU, SI, HR) - 64 sites  
Billa (CZ, SK) - 20 sites  
Family Centrum shopping malls (CZ, SK) - 6 sites  
Porsche Interauto (CZ) - 4 sites  
Baumax (CZ, SI, HR) - 4 sites  
Linde - Carrier (CZ, SK) – integration of commercial refrigeration system, 16 sites



## Selected references worldwide:

Hospital Luanda, Angola  
City Center Zagreb (HR)  
MOL refinery (HU)  
Tesco (HU) - 5 sites, solar plants  
Restaurant, Upper Austria (AT)  
Residence, Ste. Maxime (FR)  
Aeroporto de Leon - Repsol Aviation (PT)  
Lab. Hidráulica DEC Universita Coimbra (PT)  
Multifunctional school Arnhem (NL)  
Vlaandingenweg – bio food plant, Arnhem (NL)  
Office villas, Arnhem (NL)



## Selected references, Czech Republic:

### Offices

Kasper Kovo, Trutnov  
City Center České Budějovice  
Czech Radio Praha – Boiler house Dykova

NOELL, Jesenice u Prahy  
Komerční banka Plzeň  
Fintherm Praha  
Česká spořitelna Liberec  
OAC Jeronýmova ul., České Budějovice  
IBM – Technology Park Brno

### Residential objects

Residential house Hvězda, Praha 6  
Residential house Kováků, Praha 5  
Family house Vrané nad Vltavou  
Family house Hradešín  
Family house Solopisky  
Family house Zdiby  
Residence Prokopova, Praha 3  
Residential house, Liberec – heat pumps

### Hotels, lodging facilities

Hotel Palace \*\*\*\* Praha  
Art Hotel Embassy, Praha  
Hotel Bridge, Praha  
Brewery Hotel Kojetín  
Senior center Praha 9



### Shopping centers

Hypernova Tábor  
Autosalon TUKAS Beroun  
Marks & Spencer - OC Praha Chodov  
Shopping center Tábor  
Varyáda, Karlovy Vary  
OBI (4 DIY markets)



## Industrial plants

Canning factory Hrobčice  
Danone Benešov  
Print shop Label Design, Chrášťany  
Workshop Vinařice  
Aeroport Mošnov  
LPA Lovosice  
Swell Hořice  
Pavex Pardubice – clean rooms  
Koito Žatec  
Technopark Pardubice  
Teluria Skrchov  
Print shop Branaldi, Brandýs nad Labem  
Ammoniac gas recuperation, BorsodChem Ostrava  
Wikov Hronov



## Others

Restaurant, Krušovice brewery  
Casino Liberec  
CMI Hradec Králové – clean rooms  
CPE group – integration of garage access system (CH)  
Hala Fortell Lanškroun – load shedding  
Archive Chrudim  
Park House Sazka  
Hospital Říčany  
AHU Czech Technical University, Praha  
Register Office Pardubice  
Heat distribution Prachatice



## Logistic centers

Technical yard GEMO Olomouc-Hněvotín  
Park D8 - Hall DC04, Zdiby  
Storage facility Kovintrade, Frýdlant n.O.  
Tulipán Park Hostivice

## Sport facilities

AC Sparta Praha  
Winter stadium Humpolec



# City Centrum České Budějovice

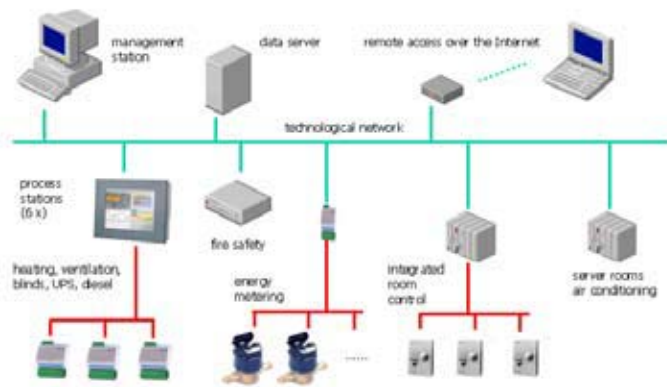
In 2008, a multi-purpose building of City Centrum České Budějovice has been finished. In the ground floor the visitors find a shopping mall with a cafe and in the first floor there is a variety of services: bowling, fitness, sauna, massage, and rehab studio. In the first and second floor there are snack bar, sport bar, and restaurant. Those areas are connected to the winter stadium.

There are 320 office rooms in the building, facilitating radiators and cooling panels with central supply of pretreated air.

The building management system integrates all important technical systems of the building – HVAC, security, fire safety, fire dampers, AHU units in the server rooms, and integrated room controls. Meter readouts are important for effective operation of the plant: the system reads data from more than a hundred meters of power, water, heat, and cooling energy. Some of the readouts are automatically sent by e-mails to the utility suppliers.

The BMS also controls lights in public areas, and commercial outdoor lights.

Most of the datapoints is stored as trend data for analysis and optimization. The alarm system indicates system failures long before they influence the indoor comfort.



# Billa HQ Modletice

Not far from the southern border of Prague there is headquarters of the Billa supermarket chain: a large plant with office and storage facilities. The building management system controls not only the central plant in Modletice, but also the branch stores which are connected by intranet. The virtual technological network links the BMS with touch screen process stations and interfaces for data acquisition from commercial refrigeration.

At the main plant, there is SCADA for AHUs for public rooms, LON integration of split units in offices, and OPC integration of Honeywell controllers of the old boiler house. Data from different systems is presented in a common environment with web access, and authorised persons are allowed to access the SCADA graphics from any of the workstations in the intranet.

The control system at both the new and refurbished branch stores controls heat source (boiler house or heat exchange station), heating circuits, AHUs for sales area and preparation rooms, and lights. Touch screens provide comfortable local HMI while remote access connects the controllers to the HQ SCADA, where alarms and trends are recorded. This provides an excellent platform for energy performance benchmarking.

The commercial refrigeration data is transferred to the SCADA and trended in a database. The Billa quality managers can therefore easily create HACCP protocols to prove that the goods is stored under requested conditions.





**Domat Control System s.r.o.**

U Panasonicu 376  
 CZ - 530 06 Pardubice  
 Tel.: +420 461 100 823  
 Fax: +420 226 013 092  
 info@domat.cz

Training center Praha  
 Třebízského nám. 424  
 CZ - 250 67 Klecany  
 Tel.: +420 222 365 395  
 Fax: +420 226 013 092

**www.domat-int.com**

**Slovakia**

Domat Control System s.r.o.  
 Údernická 11  
 SK – 851 01 Bratislava  
 Tel.: +421 2 206 48 965  
 Tel.: +421 2 206 48 966  
 Fax: +421 2 332 04 558  
 info.sk@domat-int.com

**Hungary**

LS épületAutomatika Kft  
 Reitter F.u. 132 F.ép.  
 HU - 1131 Budapest  
 Tel.: +36 1 288 0500  
 Fax: +36 1 288 0501  
 aracs.peter@lsa.hu

**Croatia**

Aeroteh d.o.o.  
 Kukuljevičeva 32  
 HR - 10000 Zagreb  
 Tel.: + 385 1 301 53 12  
 Fax: + 385 1 301 53 13  
 eduard.nothig@aeroteh.hr

**LUMEN Elektromontaža d.o.o.**

Radnička cesta 1A  
 HR-10000 Zagreb  
 Tel.: + 385 99 220 53 90  
 hrvoje.dekalic@lumenhr.hr

**Slovenia**

Kovintrade d.d. Celje, PE Ljubljana  
 Brnčičeva 45  
 SI - 1231 Ljubljana  
 Tel.: + 386 1 560 76 78  
 Fax: + 386 1 530 24 41  
 info@kovintrade.si

**Romania**

SC LSA Romania Building Automation  
 SRL  
 L.N.Tolstoi Nr. 13  
 Tg. Mures  
 Romania  
 Tel.: +36 1 288 0500  
 Fax: +36 1 288 0501  
 aracs.peter@lsa.hu

**Italy**

Automat  
 Stefano Perfetti  
 Via Vincenzo Monti, 26  
 IT - 20123 Milano  
 Tel.: +39 335 406 463  
 s.perfetti@dintorni.net

**Austria**

Simic Mess- Steuer- u. Regeltechnik  
 Neubaugasse 13  
 A - 3435 Neusiedl  
 Tel.: +43 (664) 975 60 85  
 simic.msr@gmx.at

**The Netherlands**

Building technology bv  
 Postbus 189  
 NL - 7390 AD, Twello  
 Tel.: +31 571 262728  
 Fax: +31 571 262628  
 info@buildingtechnology.nl



THE EUROPEAN REGIONAL DEVELOPMENT FUND AND  
 THE MINISTRY OF INDUSTRY AND TRADE OF THE CZECH  
 REPUBLIC SUPPORT INVESTMENT IN YOUR FUTURE.