DOMAT
MEMBER OF CEZ ESCO

PRODUCT
OVERVIEW

Energy under control

CONTENTS

COMPANY PROFILE

Domat Control System provides a comprehensive range of products and system solutions for building, energy control and measuring systems. The company mission is to develop, produce, and distribute building and industry control systems worldwide. We at Domat Control System focus on reliability, advanced technologies, modern communication features, remote access, and flexibility: the system development is able to swiftly respond to customers' demands which is a must at today's projects. Standard signals, interfaces, and communication protocols are used at all system levels. Therefore, the system is open for a wide range of integrated solutions. In addition, our own hardware and software development team allow us to respond flexibly to the lack of certain components on the market and thus maintain continuity of all deliveries. We are also certified ISO 9001, 14001 and 27001.

SYSTEM SOLUTIONS

For construction companies, developers, and end customers, Domat Control System offers turnkey installations – calculation, design, cabling, cabinets, installations, programming, commissioning, and service. The company team has long-term experience at both domestic and international projects, executed for global market players in industry, energetics, retail, development and facility management. A special segment are centralised management systems for retail chains, energy production and distribution plants, and other distributed systems.

PRODUCT SALES

Domat Control System delivers a comprehensive range of control components, including input and output peripherals, to system integrators, HVAC manufacturers and other customers. Programmable controllers, converters and individual room controllers, as well as the programming and configuration software, are designed and manufactured in the Czech Republic. All system software tools are free of charge. Domat provides regular trainings and extensive individual technical support. Customers can be sure to finish their projects successfully and on time.

SERVICE AND OPERATIONS

Handing over of a project is in fact the starting point of co-operation with customers. Domat Control System provides warranty and post-warranty service of control systems, and operates technology IT networks and management systems. Regular service of building control systems includes also optional preventive maintenance, periodic seasonal inspections, and out-of-hours service.

DOMAT INTERNATIONAL

Based in the Czech Republic, Domat Control System co-ordinates its daughter company in Slovakia and a network of system partners in Armenia, Austria, Benelux, Bulgaria, Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Jordan, Lithuania and Latvia, Malaysia, Netherlands, Norway, Poland, Portugal, Qatar, Romania, Slovenia, Serbia, Spain, Sweden, Switzerland, Turkey, Vietnam.

PRODUCTS AND SERVICES

- Providing hardware and software components to system integrators
- Consulting services and design of HVAC controls and building control systems
- Comprehensive, turnkey solutions of HVAC and building control systems and system integrations
- Service and upgrades of turnkey installations
- Technical support and free proofreading of projects and shop drawings containing Domat components
- Free trial of system components and licenses for 30 days
- Free trainings for designers, software engineers, and users

ISO 9001:2016
ISO 14001:2016
ISO 27001:2014
BUREAU VERITAS
Certification

BUREAU VERITAS 1828

Modbus MEMBER

Member of
Modbus
Organization

BACnet®

BACnet
Vendor

IEC

IEC60870-5-104

SYSTEM ADVANTAGES

1 Web access at automation level, easy-to operate SCADA graphics, flexibility, fast and safe installation

2 Open system working on standard platforms, using Ethernet and most of the protocols used by BMS manufacturers

3 Possibility of choice of hardware – card WALL/modular MARK, both programmable in one software environment Domat

4 Dozens of compatible M-Bus meter types, easy integration

5 Complete system from room sensors to database applications

6 Smart control of energy production and distribution, e.g. based on weather forecast

7 **Individual technical support and trainings**
- Training and Technical Support Center Prague – Klecany
  T: +420 461 100 666, E: support@domat.cz
  WhatsApp +420 732 806 418, www.domat.cz

INTERESTING PRODUCTS

wMXcom.2 – assembly with processor unit, 88 inputs and outputs, universal serial port, support of Modbus/BACnet protocols, 2x Ethernet, web server, programming in Domat IDE environment, reasonably priced

markMX.3 – compact controller with 88 inputs and outputs, 4 serial ports, 2x Ethernet, web server, programming in Domat IDE

IMIO110.2 – small powerful compact controller with display and buttons, 16 inputs and outputs, RS485 serial port, 2x Ethernet

UI3xx – communicative room controller with PIR, CO_2, rH and external temperature connection

RO91 – DALI/Modbus TCP converter, multimaster, complete DALI command set (via Modbus ballast settings) and simple control of ballasts, groups and scenes via direct write

R800 – combined module of 8 AI and 8 AO

FCRO13 – communicative controller for HVAC systems 2x DO, 3x AO, 2x DI, 2x RS485, use in combination with the UCO13 room controller, which measures temperature

HIGHLIGHTS

Domat Control System: Continuous Innovation in Advanced Technologies. Domat Control System consistently strives to provide cutting-edge solutions based on progressive technologies. As a result, our hardware and software product portfolio is continuously updated. Currently, our company is focusing significant attention on the growing demand for communication security and reliability. In recent years, cyberattacks have not only targeted computers running visualization systems but also process substations (PLCs) themselves. These PLCs were often designed with different priorities in mind, rather than being inherently resistant to network attacks.

R800

Expansion Module with 8 Analog Inputs and 8 Analog Outputs. The R800 expansion module offers 8 analog inputs (voltage, resistance, current) and 8 analog outputs (0-10V DC). This module helps save valuable cabinet space and reduces project costs per data point. It operates and connects just like our other expansion modules, ensuring seamless integration. Modbus communication is naturally supported.

Compact PLC w751-9301: New Platform in the WALL Series

As part of the expansion of the WALL series hardware platform, known for its flexibility (modular card-based system), we are introducing a new compact and powerful PLC featuring: 8 DI, 4 DO, 4 AI, 2 AO, RS485 serial interface, dual Ethernet interfaces, Modbus and BACnet support. The WALL series is particularly well-suited for applications such as residential heat recovery units, HVAC systems, and compact heat exchanger stations. A key advantage is the remote management capability via Domat WEB, Domat VISUAL application, or visualization tools. Additionally, the HT3xx series panels are fully compatible with the system.

Wireless Modbus Sensors

In both renovation and new installation projects, there are situations where it is necessary to connect an I/O module bus or energy meter to a PLC cabinet from a remote location, but installing a traditional wired or fiber-optic route is not feasible. If direct line-of-sight exists between the two points, a wireless link can be used to bridge the gap.

System Monitoring with Syslog Protocol in Domat PLCs

Enhance management and monitoring in your PLC systems with Syslog protocol —a standardized tool for log collection, storage, and analysis.

Syslog protocol in Domat control systems provides:

- Support for standardized logging formats RFC3164 (BSD) and RFC5424, enabling centralized log management and analysis, with optional encrypted communication.
- Support for the CEF text format for structured event recording.
- Real-time security alerts based on audit logs and operating system logs, immediately notifying you of potential threats or system errors.

IEC 60870-5-104 Protocol in Domat RT

Upgrade your energy management and automation systems with the IEC 60870-5-104 protocol. This advanced communication standard ensures a secure, efficient, and reliable exchange of telecontrol messages over TCP/IP. Regardless of the complexity of your energy system, this protocol guarantees accurate real-time data transmission.

IEC 60870-5-104 supports:

Simple information transfer: Binary states, analog values
Control commands: Binary and analog control operations
Event reporting: Timestamping and sequential data recording

With Domat's commitment to innovation, security, and reliability, we continue to evolve and provide robust solutions for modern automation and energy systems.

SYSTEM OVERVIEW

1 SCADA

Environment supports visualization of technological schemes, as well as clear tabular access to process values. Easy access using a web browser. Thanks to the flexible topology provides evaluation and routing of alarms, storage of historical data and a wide range of communication options with Domat Control System as well as with other control and regulation systems.

2 Process stations

The core of the Domat Control System topology are process stations with Domat RUNTIME, a freely programmable DDC application with universal and HVAC-specific blocks. Two hardware platforms WALL and MARK, plus one Domat programming environment IDE. They run on the Linux operating system.

3 I/O modules

The Domat Control System input and output modules provide standardized interfaces between the process and the control system. It is used not only for regulation and control, but for data acquisition in metering systems as well. Standard modules (4/12 DO, 16/32 DI, 8 AI, 8 AO, counters), and compact modules with HVAC-optimized I/O mix are available. In the WALL series, the possibility of composing the number of signals using individual cards is even more flexible. The controllers of the individual rooms are also integrated at this level.

4 Peripherals

A broad range of Domat Control System peripherals: temperature, humidity, pressure, air quality (VOC, CO_2), 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. Elegant room controls and sensors also in customer design.

SYSTEM TOPOLOGY

domat SOFTWARE

domat PROXY

domat IDE
remote service

SCADA VISUALISATION
web interface

router / firewall

domat VISUAL

SMS and e-mail alarms

SCADA VISUALISATION

OPC server alternatively

DATABASE
or custom databases

3rd party systems

mark

domat RUNTIME

HMI terminal

domat VISUAL

domat WEB

wall

domat RUNTIME

converters

communicative I/O module with integrated PLC

PLC

I/O systems

FCU controllers

IRC

converters

I/O systems

lighting

electricity meters

IRC controllers

M-bus meters

P-Bus modules

peripherals

DOMAT IDE DEVELOPMENT ENVIRONMENT

The MARK and WALL process stations are configured and programmed in the Domat Integrated Development Environment (IDE). Programming is supported in two languages: function blocks (FUPLA) and structured text (ST) according to IEC 61131-3. Programming with function blocks speeds up development of simple and standard applications, while the structured text is more suitable for complex and special functions. Both languages can be combined in the setup.
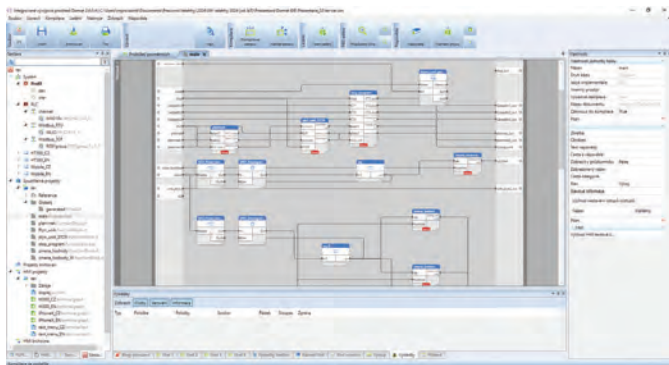
Users may work in Simple mode where most of the functions are preconfigured with lower flexibility, or in Full mode with complete access to all program functions. In simple mode, the project is limited to a single process station, there is a single task in the controller, and only programming with function blocks is available. Therefore, it is more suitable for beginners or projects where more engineers will be involved in commissioning: using function blocks increases readability and reduces errors.

In Full mode, it is possible to combine both block and structured text programming, but above all to create your own function blocks and functions, again in both languages: FUPLA and ST. For comfortable commissioning, Domat IDE contains an intuitive debugger with program tracing, step-by-step debugging, and stepping into procedures and composed function blocks. It is also possible to trend the variables and monitor the serial communication (port monitor), even over the Internet. Domat IDE thus helps saving service and commissioning costs. Now the PLC can also store historical data in its memory, which can be later downloaded as a CSV file.

The user interface attracts by its ribbon with function buttons which adapts to context and always offers functions which make sense in the current situation. The ribbon helps to speed up the learning curve and engineering. Both menu and help are available in English and Czech with possible translation into other languages. The project engineering is fast and efficient thanks to predefined functions and function blocks listed in six libraries: analogue, digital, string-oriented, communication, system functions, and HVAC functions. The libraries contain all basic ST blocks and functions according to IEC 61131-3, together with proven function blocks as known from SoftPLC IDE.

Domat IDE supports BACnet/IP, Modbus RTU a TCP, all of them as client and as server, M-Bus, and IEC 62056-21 for metering data readout. Communication between process stations and to SoftPLC controllers is possible. Another attractive feature which is implemented in Domat IDE is creating customized bus devices. The devices can be modified and copied easily, which speeds up engineering of 3rd party technologies like integrated room controllers, VSDs, meters, etc.

Domat IDE requires .NET4.5 at Microsoft Windows Vista (Service Pack 2 and above), or Windows 7 - 11.

Domat Proxy

Domat Proxy is a service that enables access to a PLC in a LAN network without establishing access to the network via a public IP address. The PLC itself connects with the assigned Proxy ID to the proxy server run by Domat. Clients access this proxy server with the same Proxy ID instead of directly on the PLC. The client can be Domat IDE, SCADA, or any other client program (OPC server, Domat Visual, etc.). The connection can be set as secure (TLS). Proxy ID allocation and the service itself are free. Domat Proxy facilitates remote management and commissioning – all that is needed for the PLC to have access to the Internet. Using Domat Proxy is more secure than redirecting traffic from a public IP address, port mapping, etc., because from the customer's network point of view, it is an outgoing connection. Through Domat Proxy, values can be read and written, but also the program can be played and the PLC configuration can be downloaded or uploaded, so it is a full-fledged programming approach.

MARK... CONTROLLERS

The MARK... process stations bring flexibility of freely programmable devices to the I/O module level. Thanks to modern technologies, Domat offers compact controllers IMIO110.2 (16 I/O, LCD display) and ICIO205.2 (30 I/O) with Ethernet and RS485 in the new range of PLCs. For larger sites, the markMX with 88 I/Os is the right choice. Compact process stations combine the control unit and I/O modules in one housing, which makes installation easier. It is still possible to extend the system with standard I/O modules over the RS485 interface. The Ethernet interface is used for programming and client communication, such as SCADA, web browser, or 3rd party programs.

Process station with no integrated I/Os can be used both in standard control system with I/O modules, and as freely programmable protocol converters and communicators. Controllers with one RS485 port (mark130.2, mark220LX), or with two RS485 and two RS232 ports (mark320LX) are available. These process stations are perfect for small sites, such as compact heat exchange stations, small home controllers, or heat pump and small AHU controllers.

The controllers use the operating system Linux, which runs on the ARM® Cortex® processor i.MX6UL. Some of them are also available in a version for panel door with IP65 protection (mark130.2).

The MARK... process stations are part of the open controller range by Domat Control System. Free OPC server is supplied for easy 3rd party integration. It is possible to integrate heat, electricity and water meters, as well as other technologies (e.g. VSDs and heat pumps) at the automation level, as the process stations support standard protocols – IEC62056-21, M-Bus client and Modbus RTU/TCP client and server. All types include BACnet client and server.

All sub-stations contain a web server for customer visualization. The website is built in HTML5 format, which guarantees compatibility with all modern browsers. Website in the new version offers a list of alarms, event logs and historical data in the form of graphs.

All controllers have an Ethernet interface for client connection, web access and configuration. The SSCP protocol, which is used for configuration, programming, and process data communication, is fit for Internet communication because of autentification and TLS encryption. It also makes possible to upload new software to the controllers on a remote basis, even over the SSCP protocol/RS485, which can be used at refurbishments of old sites where it is not possible to set up an Ethernet network. The controllers also support direct writing into Merbon DATABASE and Proxy server, which simplifies communication to controllers which are located in corporate networks where neither NAT mapping nor VPN communication is possible.

Type	Display	RS232	RS485	Ethernet	I/O	.NET driver
IMIO105.2	-	-	1	2	16	-
IMIO110.2	LCD 3x16	-	1	2	16	-
ICIO205.2	-	-	1	2	30	-
mark130.2	LCD 4x20	1	1	1	-	-
mark220LX	LCD 3x16	-	1	1	-	-
mark320LX	LCD 3x16	2	2	1	-	-
mark520	LCD 3x16	2	2	2	-	YES
markMX.3	-	2	2	2	88	-
markMXL	-	2	2	2	88	YES

I/O MODULES

The I/O modules and peripherals are connected to serial ports either directly, or 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, or by Domat IDE when commissioning (possibly also using the DIP switches on the device). Analogue inputs provide configurable measuring range: either they are declared as active (0..10 V, 0(4)..20 mA) or passive for connection of all common temperature sensor types (Pt100, Pt500, Pt1000, Ni1000-5000, Ni1000-6180). 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.

The modules communicate over a separated RS485 bus with Modbus RTU at configurable baudrate. Using a standard protocol, they provide an open I/O bus also for 3rd party manufacturers. All Modbus tables are available at www.domat.cz. 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.

For installation outside of the panel, small I/O modules are the right choice: MW240-B for lights and blinds control with flush-mounted box installation, or MLIO – the distributed module for installation on a cable tray or on a wall.

A Modbus client, ModComTool, allows to address, set up, and check the functionality of I/O modules. It is free for download at www.domat.cz.

To connect the I/O bus to the computer, use a USB/RS485 converter (Domat R080 or any other type) or Modbus TCP/RTU router, e.g. R035. Fast addressing and remote setup can be done by any Domat PLC switched to Converter mode.
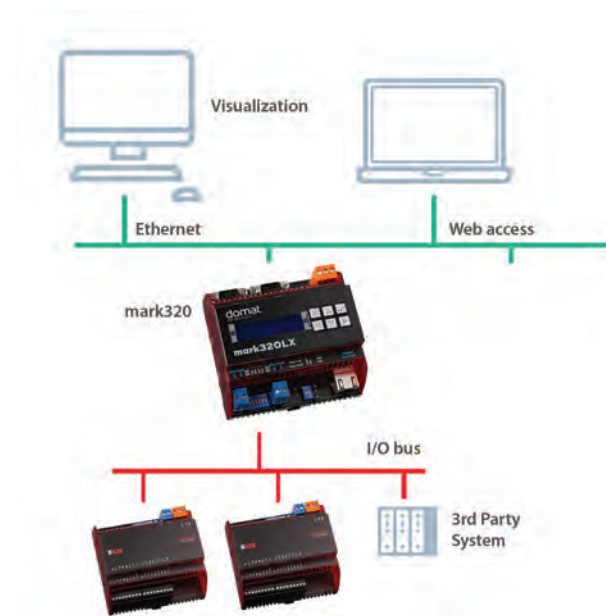
WALL... CONTROLLERS

Another application platform for the Domat system is card solution for stations with Domat RUNTIME named WALL. The stations are programmable in the Domat IDE, like all other platforms.

To simplify logistics and design, the PLCs are available in packs together with I/O card mix, with optional extensions by standard I/O cards on-site. Second generation base unit w750-8112 has more memory than first generation (it could be utilized by uploading bigger project or saving more data in history). In addition to the w750-8112 base unit, over 30 other types of I/O cards are available. The complete list of cards can be found in the current price list.

The second-generation base unit, W750-8112, has more memory than the first generation, allowing for larger project uploads or increased data storage in history.

The basic processor unit concept, complete with I/O cards, saves space in the rack and allows you to assemble the I/O mix exactly according to technology needs. Modular units are very suitable for installations with a non-standard I/O pattern and wherever space saving is necessary. The controllers are certified for the most demanding environments, including shipping.

AutoCAD and EPLAN macros for designers are available at the Domat website.

The WALL series controllers are fully compatible with other components of the Domat system, such as terminals (HT3xx), mobile application Domat Visual, visualisation SCADA, database, Domat WEB and other products. As with other Domat PLCs, BACnet server, Modbus TCP server, OPC server or native SSCP libraries are available.

The main advantages of WALL PLCs is less occupied space in the panel together with possible extensions by standard I/O cards, inclusive communication cards (currently 1xRS232/RS485 card with galvanic separation).

Budget sets with I/O packs optimized for most common HVAC applications:

Type	AI	AO	DI	DO	RS232 RS485	.NET driver
w751-9301	4	2	8	4	1	YES
w750-8112	–	–	–	–	1	YES
wCIOcom	8	8	8	8	1	–
wCIOcom.2	8	8	8	8	1	YES
wMXcom	16	8	32	32	1	–
wMXcom.2	16	8	32	32	1	YES

ROOM UNITS AND CONTROLLERS

Design range of communicative room units and controllers brings new dimensions in room controls. Large LCD display (60 x 60 mm) displays room temperature and status so that the data are visible up to 5 m distance. With a push/turn knob both temperature correction and operation mode changes are easy, as is multi-level parameter setting inclusive weekly schedule plan.

For air handling units, small boilers, A/C units and other complex devices, UI room units are the best choice. They provide basic functionality (room temperature, room setpoint, operation mode setting) as well as more complex functions: heating curve selection, setting the outdoor temperature at which it starts to heat, DHW temperature setting, relative display and setting humidity, displaying five other arbitrary values, etc. The set of functions to enable is configured at the commissioning time. For example, the set of operation modes may be residential (Day, Night, Auto, Off, Party mode) or hotel/office (Comfort, Standby, Off). Each mode provides separate setpoints for heating and cooling. To make configuration easy, ModComTool is available free of charge for addressing and setting drivers and controllers. CO_2 sensor controllers, types UI90..., are used where air quality-controlled ventilation is required. The rH sensor is now standard at all UI... controllers. A new feature is the UI300 with analog input for an external temperature sensor.

Universal controllers are also available with two inputs and two outputs for collecting signals from the presence sensor or window contact and controlling typically heating (thermic actuator) and possibly cooling. In this case, the control logic is configured in the controller and the algorithm is fully under the control of the application author.

Individual room controllers, on the other hand, represent a solution where the firmware already contains the PI control algorithm and logic for operating mode switching. Thanks to the default preset values, there is no need to set the controllers in addition to addressing, but individual functions (valve protection, change-over,

selected operating modes) can be enabled or disabled via the bus.

The UC102 room controller provides one SSR PWM output to control a thermic actuator or electrical heater, UC200 features two outputs for heating and cooling. Both versions also have two potential-free inputs for the presence signal (e.g. from the access card reader) and a window contact or dew point sensor for systems with cooling panels. Floor heating is precisely controlled by the UC300, a communicative controller with an additional analogue input for the floor temperature limitation sensor Pt1000 and the same controls as the other devices in the series.

To control fan-coil units, choose FCR010 with room unit UC010. The controller has 3 relays for the fan-coil stages, two outputs for heating and cooling, and two inputs for presence sensor and window contact. The controller communicates with the room unit over a RS485 bus. The FCR013 controller has two outputs for heating and cooling and two inputs for the presence signal and window contact and a trio of 0...10 V analog outputs for controlling EC fans. The FCR015 with room unit UC905 is ready for VAV box control according to CO_2 concentration in a room, induction units and other combined systems by assigning control sequences or combinations thereof to individual outputs.

Controllers and room units may feature a blue display and knob backlight. The backlight can be controlled either automatically by the knob or over Modbus.

Controllers and room units can be integrated either into process stations to communicate heating/cooling demand signals to control the primary units or receive a central depression signal, or directly into the visualization over a Modbus RTU/TCP router.

All controllers and room units are not only compatible with the Domat Control System PLCs. They can also be integrated into other control and SCADA systems thanks to the open Modbus RTU protocol and wide voltage supply range.

USER INTERFACE DOMAT VISUAL

The graphical user interface (HMI) is an important part of the projects. The graphics editor for websites and all kinds of terminals is in the Domat IDE development environment. Templates, i.e. panels with graphics or text menus, can be assigned to different types of terminals and web servers. The panels contain objects with text, images, control buttons, graphs, values and other functions. Transparency of objects is also selectable. Panel resolution is optional, so either choose one of the predefined sizes as the default screen format, or enter your own resolution. All data is saved in vector format, and browsers adjust the panel size to the current resolution, so there is no need to redraw the project when changing the display resolution. Generic websites, such as an overview of alarms or events, do not need to be configured at all.
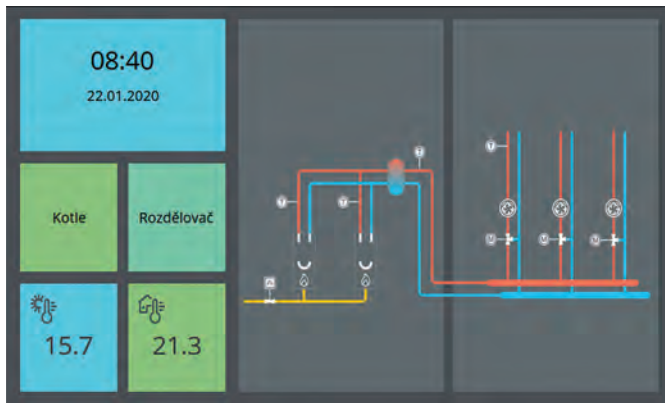
Entering values can be protected against unauthorized access by a four-digit code. Alarm acknowledgment can be set as unprotected, which sometimes proves to be an advantageous option for less trained or occasional operators.

The stations also allow the control of technologies by means of time programs. These are defined in the runtime as required and are set by using the graphical dialog. Three types of time programs are available: binary, multi-state and analog, which allows entering any values within the given limits. There are also exception programs for defining holidays, etc.

An important part of the application is a module for sending alarm e-mails and SMS messages. A separate message can be created for each alarm with a defined addressee, subject, message content, etc.

Creating a project in the editor is very easy. Users appreciate the intuitive environment, extensive copying and swapping of the texts, as well as mass changes to object properties, making project creation easier and faster. The finished project can be exported for the web by touching of a button. The panels are accessible via a web browser anywhere on the network, including embedded graphs and the ability to change values. The

application also exists for iOS, OSX, Linux, Android and Windows environments, making process data available for tablets, communicators and other portable devices.

In addition to HMI application, an OPC server can be installed on the top of a SoftPLC or Domat RUNTIME. It is a fast and cost-effective way to integrate data from a SoftPLC or Domat RUNTIME into any visualization system which supports OPC technology. Modbus/OPC server, BACnet/OPC server, M-Bus/OPC server etc. can be installed at the price of SoftPLC or Domat RUNTIME license with minimal engineering costs. Unlike conventional OPC servers, mathematical and logical operations (e.g. average, sums and differences, maximum/minimum, counters, unit conversions, etc.) can be executed in the runtime using function blocks or structured text.

Modbus RTU or TCP server can be used for data transfer to process controllers with serial communication: over a RS232 or RS485 line or Ethernet interface, data from Domat RUNTIME (i.e. from PLC) can be shared with other PLCs which communicate as Modbus RTU clients.

Domat Visual application, designed for mobile devices with iOS and Android operating systems, is now able to download definition of graphic or text menu directly from Domat PLC. All you need to do is enter your connection parameters and sign in. The application enables reading and setting of values and time programs as well as working with alarms in process stations with both Domat and SoftPLC runtimes. It connects to the PLC via the Internet. It is free to download on the App Store and Google Play. Domat Visual supports connection to multiple PLCs and can be configured for access from a local network or from the Internet. Switching between local and remote access is easy and fast, the entire application is optionally password protected for added security. A new feature is the display of the log and alarm overview.
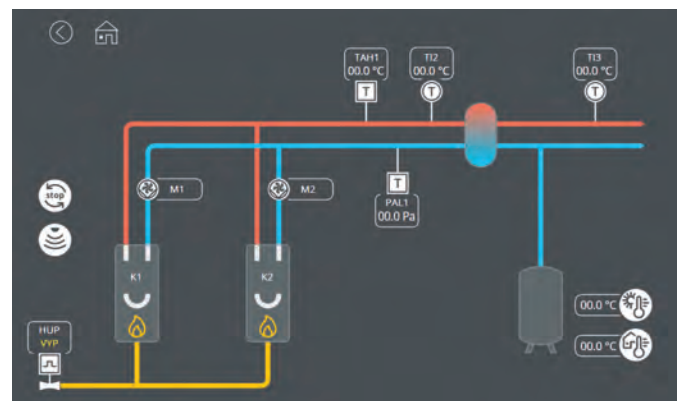
VISUALISATION - SCADA
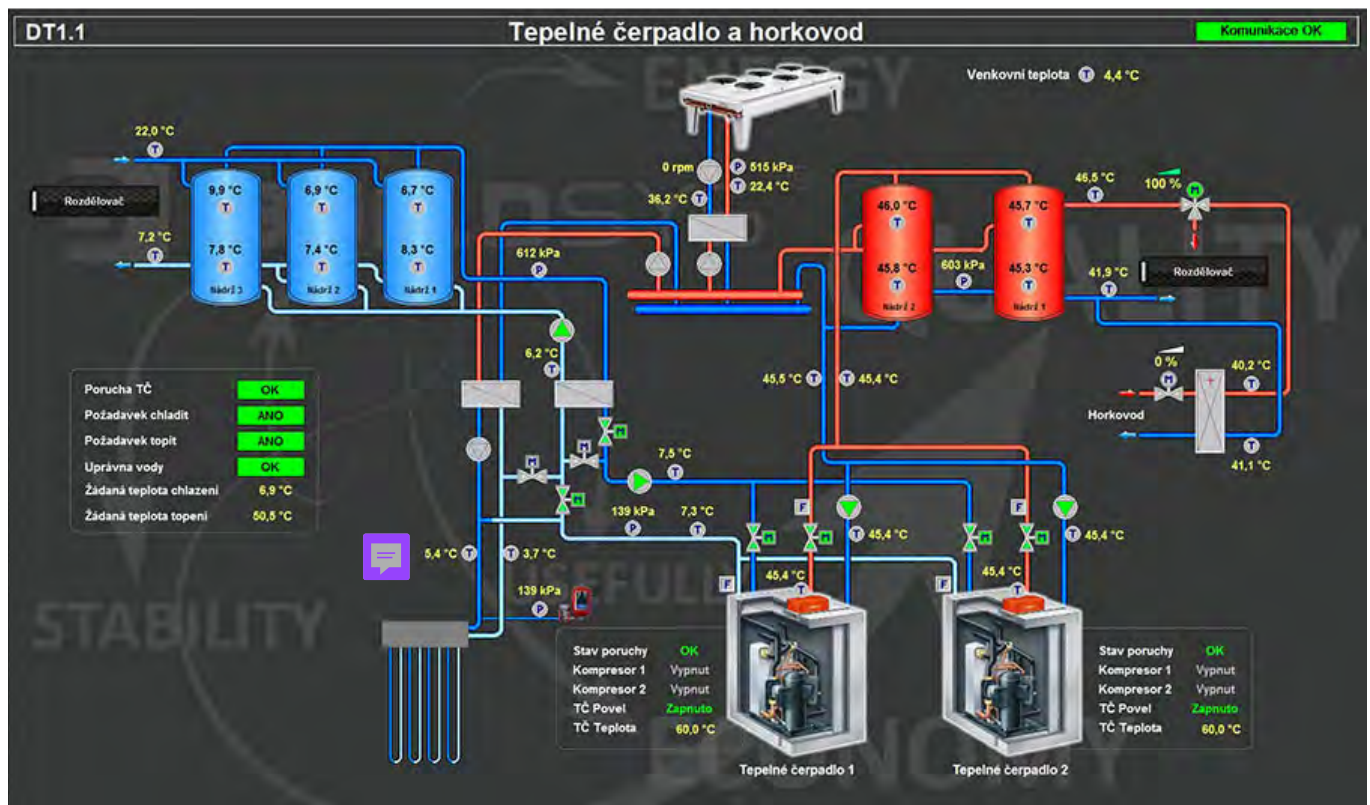
Operator must always have precise and up-to-date information about the status of the technology—whether it is a boiler room, a network of heat exchanger stations, room control in an office building or hotel, a photovoltaic power plant, or an energy system forming a virtual power plant.

A SCADA (Supervisory Control and Data Acquisition) visualization system provides this information by offering access to data in the form of tables, real-time value schematics, graphs, alarm and event overviews, and other insights. Domat PLCs can be integrated into SCADA systems in several ways: either through the native SSCP protocol (if the SCADA system supports it) or using widely accepted protocols such as BACnet, Modbus, or OPC. The SCADA application or server communicates with the PLC level to retrieve real-time values and may also interact with databases that store historical data (trends).

The SCADA server provides clients with schematics, floor plans, process diagrams, and tables populated with real-time data. In a server-based setup, clients use either a thin-client application or a web browser, simplifying maintenance, licensing, and user management.

SCADA integration with third-party devices

Graphical workstations can visualize and collect data not only from Domat-based control systems but also from third-party devices. In large-scale installations or systems upgraded gradually according to investment possibilities, SCADA must integrate third-party equipment such as process substations, PV inverters, cooling machines, boiler control systems, or energy meters.

To enable this, Domat offers a range of programmable process stations that allow communication with third-party control systems—whether using standard protocols (Modbus, BACnet, M-Bus, OPC) or proprietary protocols from other manufacturers. This enables a unified control center where values from different sources can be displayed, compared, and analyzed.

Several SCADA solutions on the market offer a native driver for SSCP protocol, allowing direct communication with Domat PLCs. These include Promotic, Reliance, ProCop, and the cloud-based Mervis SCADA. Installation programs, licenses, and technical support are provided by their respective manufacturers or distributors. The RcWare Vision software serves as an editor for the database of data points and graphics for Mervis and is available for free download on the Domat website.
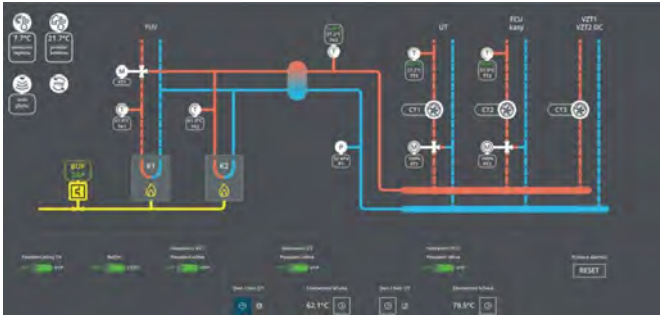
SCADA graphics panels display technological schemas, the primary means of data visualization. These panels can include animations, static images, text labels, user comments, value-setting objects, and navigation to other panels. The design is fully customizable, and Domat offers a modern library of technological symbols for building automation, available for free download.

Alarm and User Management in SCADA

SCADA systems feature advanced user management with role-based access control. Alarm management can be handled either by process stations or the SCADA system itself, depending on system size and alarm routing requirements. Alarms can be reported via on-screen notifications, SMS, email, or other communication methods.

Mervis SCADA includes an Alarm Server that distributes alerts based on predefined criteria, such as priority, system area, device location, or preferred communication channel. For example, during working hours, all alarms may be displayed on a computer screen, while after hours, only critical alarms requiring acknowledgment are sent via SMS.

Alarms are categorized into active alarms and historical event logs, with filtering and sorting capabilities. System-related alarms (e.g., communication failures) are visually distinguished from technology alarms. The alarm system follows a state-based model, allowing classification into unacknowledged, acknowledged, and unreset alarms, ensuring proper issue solving before resuming system operations.

The number of active alarms is displayed in the top menu bar. A technical overview is also available, listing all data points in the system with real-time values, last communication timestamps, data quality, descriptions, and diagnostic parameters. The data points are structured in a tree view for easy navigation, searching, and filtering. Selected data points can be displayed as trends.

Historical Data and Trends in SCADA

Analyzing historical data is crucial for problem diagnosis and system optimization. Mervis SCADA offers not only standard line and bar charts but also modulo graphs, differential graphs, and carpet plots to facilitate rapid problem identification. Trend views can be saved as templates and linked directly from SCADA graphics. Trend data can be exported as images, tables, or text files.

For storing large volumes of historical data, Domat offers high-performance Merbon DATABASE and InfluxDB, capable of processing hundreds of thousands of values per minute. These databases have open APIs, enabling data exchange with third-party systems such as ERP or accounting software. For visualizing photovoltaic plant data and other complex datasets, SCADA integrates seamlessly with Grafana.
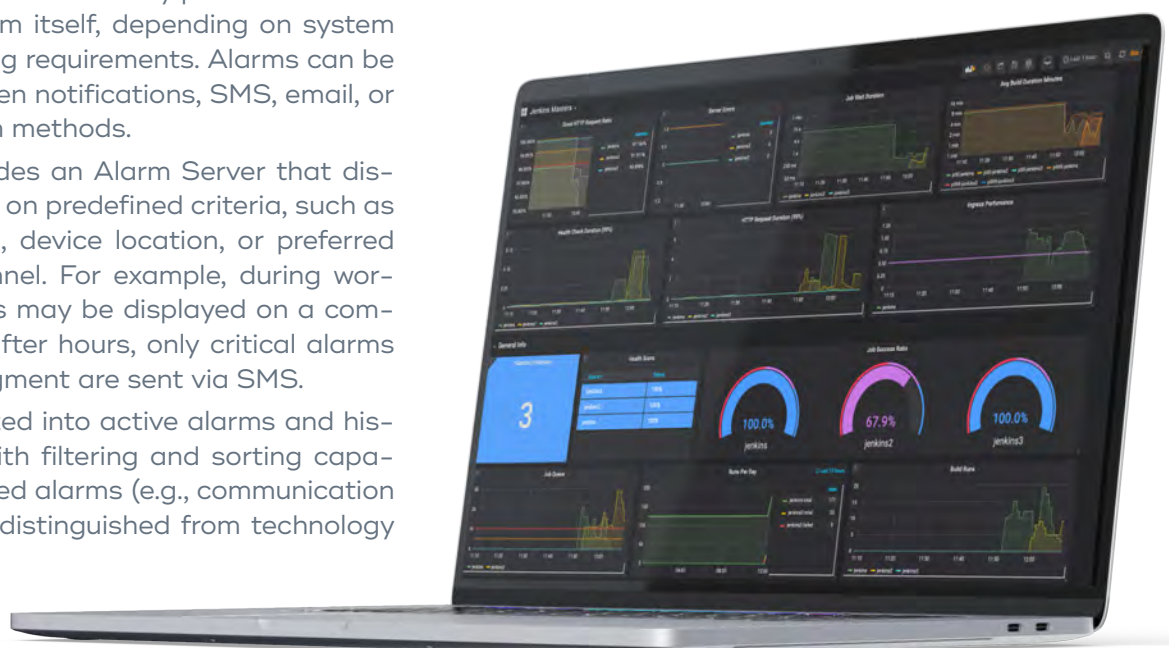
WIRELESS MODBUS

In retrofits and new installations, there are often cases where a Modbus network needs to be extended to a remote location, but cabling (wired or fiber optic) is not feasible. A typical example is a transformer station with a main energy meter located hundreds of meters away from the main building.

To solve this, Kymasgard converters utilize the license-free 2.4 GHz ISM band (Industry, Science, Medical). These devices operate using specific communication protocols, such as Modbus, with optimized settings for serial communication, simplifying configuration and deployment. If a Modbus RTU/RS485 network needs to be extended wirelessly, the Kymasgard product line from S+S Regeltechnik provides an efficient solution.

The product range includes:

- Wireless sensors for temperature, humidity, and pressure with Modbus protocol
- Gateways that convert Modbus RTU devices (e.g., energy meters, PV inverters) into wireless Modbus

All components use LumenRadio's W-Modbus OEM modules, available in two versions:

- W-Modbus (supports a single Modbus server)
- W-Modbus PRO (supports up to 16 Modbus servers)

These modules leverage MiraOS and MiraMesh standards, which handle wireless data transmission, device pairing, addressing, and secure AES-128 encryption.

Wireless Mesh Network and Connectivity

W-Modbus operates in a mesh topology, meaning direct line-of-sight between devices is not necessary. Communication is possible if each node is within a maximum of 8 hops from another, ensuring seamless packet routing and treating the network as a single logical unit.

Thanks to frequency hopping, the transmission is highly reliable and resistant to industrial interference. The devices are IP65-rated, allowing installation in outdoor environments. The signal range is up to 500 meters in open space and 50–70 meters indoors.

Setup and Configuration

For wireless sensors, only the Modbus address needs to be set. The gateway is fully transparent to the Modbus protocol—only the RS485 interface settings and bus termination need configuration. Devices are logically paired with each other without requiring additional tools like converters, computers, or software.

For advanced settings and diagnostics, the LumenRadio W-Modbus mobile app can be used via Bluetooth.

Application Scenarios

The W-Modbus system is ideal when:

- A simple network topology is required
- Several remote devices need to be connected
- Installing WiFi bridges and Modbus TCP/RTU routers is not suitable.

Compared to similar wireless solutions, Kymasgard W-Modbus offers:

- Easy configuration and deployment
- Mesh networking for better coverage
- Built-in wireless Modbus sensors, reducing system complexity

This ensures a reliable and flexible wireless Modbus solution for industrial automation applications.
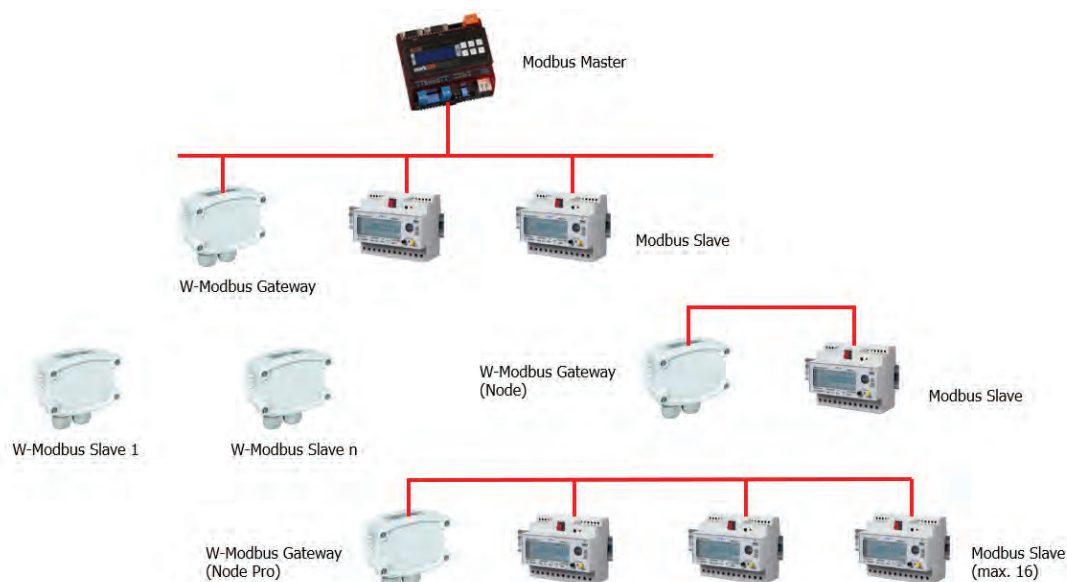
REFERENCES

RETAIL CHAINS TECHNOLOGY MANAGEMENT

Domat Control System is one of the largest suppliers of building management systems for retail chains and retail in the countries of Central and Eastern Europe (Czech Republic, Slovakia, Slovenia, Croatia, Hungary, Poland, Romania). For large shopping centers, such as the Prague shopping center Harfa, the customer is

the developer of the building. Domat regulation can be found, for example, in the Czech Republic in Billa, Penny stores, in DEK construction stores, in Burger King and KFC restaurants, in Slovakia and Austria in Starbucks cafes, in Sportisimo sporting goods stores (CZ, PL, SK, RO), in Kaufland stores (SK), and in Decathlon (CZ, HU). In these cases, the delivery is carried out directly for the retail chain with the help of our system integrators.

The common feature of these applications is not only the supply of control systems at the branches, but also the central dispatching, where all the branches are integrated. Depending on how the chain is organized, there are national headquarters (Interspar in Hungary, Slovenia or Croatia) or a central dispatching center common to all stores across countries. Customers, who also deal with energy management, choose the cloud system ContPort over the headquarters (SCADA). In this way, the energy company has an overview of environmental parameters and energy consumption internationally, which can provide interesting incentives for technological innovation and energy savings.

In retail shops, two concepts are most often encountered: they can be found as smaller buildings, usually detached, with a sales area of up to 1000 m2, as well as large shopping centers with a dominant supermarket of 3000 m2 and other shops and services in the common hall. A separate chapter are the giant shopping centers, for example the Černý Most Center, Westfield Chodov shopping center, etc.

Heating is usually handled by an air handling unit, which is also used for ventilation. Underfloor heating is not used, although it would make sense considering the available low-potential waste heat from commercial cooling. The problem is that the sales area is occupied by shelves with goods, which both reduces the possible heating area, and on the other hand, the goods could lose their quality because of the heat. Often, the cash register area, which is usually near the entrance, is often discussed: previously, radiant panels were installed in this zone to achieve the comfort of cashiers. But they did not work well, because the radiant heat could not compensate for the cold air flowing from the entrance. The current solution consists in better air distribution in the area of cash registers together with hot air curtains. Ideally, however, would be the local heating directly in the cash booths.

The central air handling unit for the sales area is controlled by a time schedule according to the shop's operating hours, often in combination with a fresh air regulation using CO_2 sensor.

For cooling the sales area, warehouses and other operating areas either separate systems are used, similar to office buildings, or split air conditioning units, so popular for its simple assembly, low cost and easy billing (only electricity consumption is measured, tenants need not install calorimeters). Specialized suppliers of commercial refrigeration, however, also offer a comprehensive solution where heat pumps produce both refrigeration for food and air conditioning as well as heat for heating and hot water.

Traditionally, the lights on the sales area are managed in groups. About a third is switched by the time program as the first stage and the rest a few minutes before the start of the sales period. In places where daylight is also used, it is worth installing dimmable lights (e.g. with DALI interface) and controlling them in addition to the time program also according to the outdoor light sensor. For large stores, up to 20 – 30 circuits are independently controlled by time programs, including outdoor advertising lighting, parking lots, ramps, etc.

In smaller shops, it is not worth training any local staff, the systems are parametrizable, and all technology is operated by a dedicated team of technicians at the headquarters. For large shopping centers, one local SCADA station is installed at the central control room of the building, which is used by the maintenance personnel to deal with common operational situations, while long-term data evaluation is the responsibility of an energy specialist.

REFERENCES

BUILDINGS AND INDUSTRY

Main Point Pankrác and V-Tower

The latest landmarks of Prague's Pankrác Plains are two buildings completed during 2019: Main Point Pankrác (MPP) and V-Tower.

The MPP building was designed with the aspiration to obtain the LEED Platinum certificate. It is ventilated by air conditioning while maintaining the possibility of natural ventilation through the windows. There are three air-conditioning engine rooms in the building. The air--conditioning have suction and outlets solved through facade blinds and building ventilation ducts, so that only roof outlets from restaurants, toilets and garages are terminated on the roofs. The air from the offices is recycled to the garages.

The rooms are cooled by induction units in the office parts and by fan-coil units in the rental part. Additional cooling technology and local server rooms are provided by smaller units with direct cooling. The heat source is a heat exchanger station connected to district heating networks. The office space is fitted with floor convectors, the other space with panel or fin radiators. During the construction, a heat pump was added to the heating system to extract heat from the wastewater of the neighboring V-Tower.

The building management system includes 23 freely programmable stations, mostly Domat markMX, and more than 500 zone controllers (including 156 fan--coils and induction controllers and 356 radiators and cooling panel controllers). In visualization, this represents more than 6000 data points. Merbon SCADA software was used as a visualization program.

Since the building was being completed and rented gradually, commissioning was possible with fewer technicians than is normally the case for such an event. However, this was not the case for assemblies – they were practically simultaneous throughout the building.

With its 104 meters, V-Tower has become the tallest apartment building in the Czech Republic. It has 130 apartments located in two towers (east and west, up to the 28th floor) and in the central part (up to the 15th floor). Primary technologies (heat and cold production, 44 air handling units for common space ventilation and integration of foreign equipment) are controlled by ten powerful markMX and mark320 process stations, with a total of nearly 3000 data points. Furthermore, there is one markMX controller in each apartment with about 120 data points, so only the apartments represent more than 15000 data points. The building management system also monitors the swimming pool technology located on the roof of the building in the penthouses.

In the case of flats, emphasis was placed on noise insulation, so that due to the acoustics, ventilation units had to be regulated in the flats. Each unit has individually calculated and controlled inlet and outlet pressure parameters. Some of the flats were supplemented with steam humidifiers according to the owners' wishes, while others were customized. This meant that the original concept of several type wiring disintegrated into an individual project and control software for each apartment.

Each apartment has water meters for hot and cold water, calorimeters for measuring heat and cold and another calorimeter for cooling consumption for air conditioning. Nearly 150 electricity meters are installed to measure electricity consumption in common areas and garages. In total, there are about 800 M-Bus meters in the V-Tower, connected to data concentrators, from which the values are brought into the visualization.

The V-Tower and MPP project has historically been one of Domat's largest contracts. Despite the common problems of coordination, lack of time and constant changes in the technical solution, we managed to finish the event on time. This created a project that combines modern technology, comfort and energy efficiency.

REFERENCES

Majaland, Prague

Majaland children's amusement park was recently opened in Tuchoměřice, not far from Prague Airport. On an area of over 9000 m², there are twelve themed attractions, including a roller coaster or a 30 m long slide, a restaurant, a toy store and a theater. It is the largest facility of this type in the country.

The building management system contains eleven switchboards, which control mainly air conditioning, heat and cold source and pool technology. However, there is also measurement of consumption for evaluating the energy parameters of the building. Measurement and regulation are solved by freely programmable substations of the wall series, connected by a technological network, which is connected to the building's intranet. There is a HT200 graphics terminal for local control on three switchboards (LV substation, pool technology room and engine room for heating and cooling), the other switchboards are without local controls and can be accessed from the graphics center.


The heat and cold source is a system of heat pumps, supplemented by 300 kW cooling units. Heating and cooling water is accumulated in two tanks of 1500 l and then further distributed to two heating and two cooling circuits. The regulation of individual rooms is represented in the offices of eleven FCU controllers, which control fans and six-way valves for heating and

cooling. Large air handling units (two for the main hall, one for the kitchen) are equipped with their own gas condensing boilers and, of course, recuperation. Other HVAC units deal with ventilation of premises, facilities and offices.

The air handling unit for the main hall is equipped with destratifiers, which are controlled by six CO_2 sensors and twelve temperature sensors located in the hall. This guarantees both air exchange and its proper distribution in the entire area intended for visitors.

The graphics center with Merbon SCADA visualization contains over 1200 data points. It is located in the control room of the entire outlet and also allows remote access, which is necessary for ongoing maintenance and service. In such a large building, where the public moves, the emphasis is mainly on safety and comfort. The building management system therefore also serves as a central for collecting signals of technology failures, so it is possible to start troubleshooting before it affects the environmental parameters. These are mainly water levels in swimming pool technologies, the state of backup sources, flooding and the like. The implementation took place in the autumn and winter of 2021 and the entire amusement park was opened on December 27, 2021.
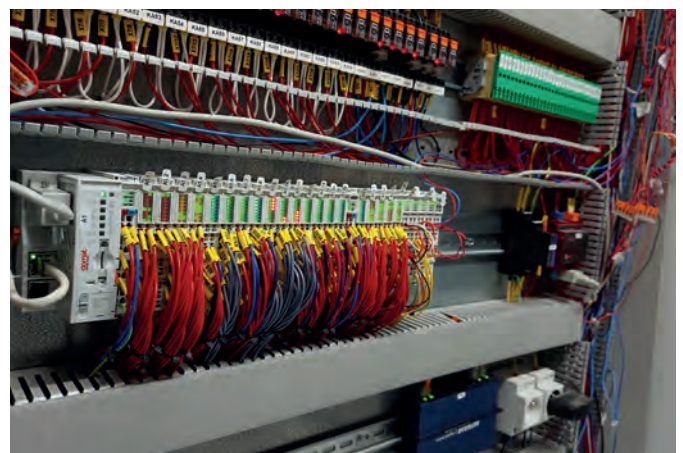
REFERENCES

INTERNATIONAL PROJECTS

The Doha Metropolitan, Qatar

Since 2016, Domat Control System takes part at the supply of components for building management system of the Doha Metropolitan, Qatar. As this was one of major international projects for Domat, let's have a look at some of its features.

The entire metropolitan is planned as four lines with 85 stations in total, three lines being in construction. The first line is about to be completed in 2019. Domat supplied to Lysys, the local partner, room cooling controllers for shopping and office areas. More than 1000 fancoil controller and the same amount of room units have been shipped so far.

The FCO25 hardware origins from the FCO20 fan coil controller. The FCO20 controls a three-stage fan and, unlike the smaller FCO10, contains also analogue inputs and outputs and more binary inputs.

The controller also features two RS485 interfaces with Modbus RTU: one for the UCO10 room unit and optio-

nal slave controllers, one for integration to a BMS (Building Management System). The communicative room unit UCO10 may be replaced or enhanced by a passive temperature sensor and optionally a potentiometer to set a room setpoint correction.

The second type of controller, FCO26, has customized hardware. Instead of a three-stage fan in this configuration, the EC fan is controlled by a continuous 0... 10 V signal. EC (Electronically Controlled) fans have been an excellent modern alternative to conventional three--stage fans in recent years – they are easier to plug in, can be controlled continuously from 0 to 100% speed

and do not contain capacitive ballasts that have often been a source of problems.

The fan-coils are used for cooling only. For European conditions, unconventional data points are inputs for sensing the valve position, for the differential pressure filter and for blocking the function from the EPS system.

The technical support was easier thanks to the fact that the controllers are set up over a serial line and a simple configuration program. It allows to export the complete setting of a controller into a file which can be sent by e-mail to the support engineer who is able to duplicate the exact setting of a controller at his desk. After parameter correction or setup change, the file is sent back and simply uploaded to the controller by the customer. This was how some problems due to wrong binary inputs configuration were discovered and explained.

The whole project was slightly more demanding than projects of similar magnitude in Europe, but it was successful in the end and we believe that also the other Doha Metro lines climate will be controlled by the Domat room controllers.

Hotel resort Hilton Rijeka Costabella, Croatia

The Costabella resort complex is located on the Adriatic coast, between the seaside towns of Opatija and Rijeka. It is surrounded by the Risnjak National Park and the Učka Nature Park. In addition to accommodation, it offers two swimming pools, six restaurants and a full--service spa.

In 2020, our company created a measurement and regulation project for the construction of a building control system, which solves the automatic operation of ventilation, heating and air conditioning technology of this area.

These are mainly technologies of heating, cooling, air conditioning and climate control in individual rooms. To ensure the required technological parameters, signaling of operation and faults of 8 large HVAC units and four engine rooms for hot water production, the project proposes the use of our freely programmable control system. Autonomous technologies are data-integrated into the on-site measurement and control system using open protocols:

- Modbus RTU / RS485: Daikin air conditioning, Caterpillar diesel generator, Schneider Electric electricity meters
- Modbus TCP: DHW and Hoval boiler preparation, Berndorf pool technology
- M-Bus: Siemens calorimeters, Schneider Electric electricity meters
- BACnet / UDP: Sauna technologies – Loxone, Carrier heat pump, Menerga pool air conditioning

The project includes control, monitoring and data integration of beach, hotel, outdoor pool and villa

REFERENCES

equipment and addresses the following areas: field control level, i.e. peripherals and their installation on HVAC technology, control system (substation) for HVAC technology control (automation level), high-current technology installations and data integration of autonomous devices.

Heat/cold source

The heat/cold source for the building is a pair of water/water heat pumps, the source of which is seawater. Before starting these pumps, the seawater submersible pumps, condenser pumps and evaporator pumps are started (a total of 8 pumps). Seawater transfers heat or cold to technological heating or cooling water via exchangers located in the engine room. The process water is then fed via shut-off valves to a distributor/collector, from which the hotel and the congress center are fed.

For seawater treatment, a chlorinator is located in the engine room, from which the basic operating states and speed values of one of the submersible pumps can also be read. Other pumps are controlled via FM frequency converters located in the high-current switchboard, which is taken care of by DDC regulation. Setpoints for FM control are transmitted via data via MaR (LAN) communication. The primary heating/cooling water is fed to the engine room via three-way mixing valves. Heat pumps are data-integrated into the measurement and control system using the BACnet/IP protocol.

Cooling water from the evaporator side of the pump is led to the cold distributor/collector. On the manifold there are two pump branches for two-pipe change--over distribution for FCU hotel rooms, villas and air conditioning units. The branches for the two-pipe distribution to the FCU are equipped with shut-off flaps for redirecting cooling or heating water to the two-pipe distribution.

The heating water from the condensing side of the pump is led to the heating water distributor/collector. There are two flap-closed branches for FCU hotel and villas, one pump branch for air conditioning, one pump branch for heating the outdoor pool, one pump branch for heating the indoor pools and one equithermal mixing branch for underfloor heating. The heating water supply from the second heat pump can be redirected with shut-off dampers to heat the heating water storage tanks.

There are two boilers on the roof of one of the buildings, which are data-integrated into the building control system using the Modbus protocol. This boiler heater provides DHW heating, radiator heating and power supply to the heating water distributor/collector.

The whole system also regulates underfloor heating and pool water heating. For some FCU and HVAC units, a four-pipe distribution is used to supply the heating and cooling medium. The exchangers on the mentioned devices are used for the common function of heating and cooling. To switch the flow of heating/cooling medium, a six-way valve with a continuous actuator with a 0-10 V control signal is installed in fan coil units, when at 5 V the valve for the appliance is closed, bands below and above 5 V are used for continuous regulation of heating sequence cooling. In front of the heat exchanger units, intelligent pressure-independent two-way continuous control valves are installed for power control in the heating and cooling sequence in combination with two-state ball valves. Intelligent control valves are data-integrated into the MaR system via LAN and the BACnet IP protocol. Frost protection of outdoor heating/cooling water distribution is ensured by an electric self-regulating heating cable.

Air conditioning

The required air temperature in the supply duct is regulated by cascade regulation, i.e. the required air temperature in the supply duct is determined on the basis of the difference between the actual and the required temperature in the exhaust duct resp. in space. This basic requirement is further corrected with respect to the outdoor temperature by a compensation curve and delimited by a selectable range of minimum and maximum values. The reason for compensation in the summer is to save energy and prevent thermal shock when moving into and out of the building. In winter, a higher temperature of the blown air improves thermal comfort. The control elements of the air exchangers are then controlled so that this value is actually reached in the outlet channel.

System and communication

For local communication of the operator with the equipment of the control system, LCD graphic touch panels are located on the doors of the switchboards, where the basic parameters from the controlled technology can be read and set on them. The hotel's LAN data network is used for interconnection between individual switchboards.

A graphic control station is installed in the control room of the building for efficient management of the building. The software with which it is equipped enables fast and targeted monitoring and control of the BMS system using realistic graphics. A web server for remote control is also installed in the station. The selected data is available to other authorized users via the local network via a web browser. The entire measurement and control system can be easily expanded to other future investor requirements.

PRODUCT OVERVIEW

I/O MODULES / PROCESS STATIONS / INTEGRATED ROOM CONTROL / SCADA / ENGINEERING TOOLS / PERIPHERALS

HOW TO USE THE PRODUCT OVERVIEW

Each price list item contains Type identification which is used for ordering in the default configuration. This is detailed in the Brief description part. If the item has more configuration options, they are listed in the right column and each group of options is marked with an asterisk. **Example:** In case of the room combined sensor the default type RFTF-U provides one active 0..10 V temperature output, however, passive temperature sensors can be delivered instead, e.g. RFTF-U Pt1000. Another option are 4...20 mA outputs instead of the 0..10 V outputs. The sensor type ID is then RFTF-I and – as it is set in bold letters – the price is same as that

of the default type, RFTF-U. The type ID RFTF-I Ni1000-5000 then provides a 4...20 mA output for humidity, and Ni1000-5000 passive temperature sensor.

At each of the options, there may be a LCD display to display measured values, e.g. RFTF-U Pt1000 display. The prices of all basic types as well as options are listed in the Domat Control System price list or communicated upon request (customized cable lengths etc.).

All data are subject to changes.

	Type ID	Brief description	Bold type identification = same price
Image	**RFTF-U**	Room humidity and temperature sensor Capacitive element, 20..80 %rH: ±2 %, 0..100 %rH: ±3 % Temperature 0..50 °C, output 2× 0..10 V, power supply 24 V AC / DC Wall mounting, dimensions 85 × 85 × 27 mm	* **RFTF-I**: 4..20 mA (only DC power) * display * passive temperature sensor Pt100, Pt1000, Ni1000-5000, Ni1000-6180, NTC1.8kOhm

Technical data subject to ordering code

*Possible options, each marked with the * symbol. Their prices may differ from the prices of the basic type. See details in the price list.*

PROCESS STATIONS, CONTROLLERS
PROCESS STATIONS MARK WITH DOMAT RUNTIME

	mark130.2	
	DDC controller, RS485, RS232, display Ethernet, web, RS485, RS232, 4 × 20 LCD display, programming in Domat IDE. ARM i.MX6UL 528 MHz, 128 MB RAM, 64 MB FLASH, 128 kB NVRAM. Supply: 24 V AC/DC ± 20 %; max. 5 VA. panel door mounting, IP65, dimensions 158 × 106 × 36 mm	
	IMIO105.2	
	DDC controller, 16 I/O, RS485 2× Ethernet, web, RS485, 4 AI, 2 AO, 4 DI, 6 DO, programming in Domat IDE. ARM i.MX6UL 528 MHz, 128 MB RAM, 64 MB FLASH, 128 kB NVRAM. Supply: 24 V AC/DC ± 20 %; max. 5 VA. DIN rail mounting, dimensions 98 × 67 × 102 mm	*Use terminal HT3xx for local operation on front panel door.*
	IMIO110.2	
	DDC controller, 16 I/O, RS485, display 2× Ethernet, web, RS485, 4 AI, 2 AO, 4 DI, 6 DO, programming in Domat IDE. ARM i.MX6UL 528 MHz, 128 MB RAM, 64 MB FLASH, 128 kB NVRAM. Supply: 24 V AC/DC ± 20 %; max. 5 VA. DIN rail mounting, dimensions 98 × 67 × 102 mm	*Use markPLC KIT to install the controller into a front panel.*
	ICIO205.2	
	DDC controller, 30 I/O, RS485 Ethernet, RS485, web, 8 AI, 6 AO, 8 DI, 8 DO, programming v Domat IDE. ARM i.MX6UL 528 MHz, 128 MB RAM, 64 MB FLASH, 128 kB NVRAM. Supply: 24 V AC/DC ± 20 %; max 10 VA. dimensions 217 × 115 × 40 mm	*Use terminal HT3xx for local operation on front panel door.*

mark220LX

DDC controller, RS485, display
Ethernet, web, RS485, 3 × 16 LCD display, programming in Domat IDE. ARM i.MX6UL 528 MHz, 128 MB RAM, 64 MB FLASH, 128 kB NVRAM. Supply: 24 V AC/DC ± 20 %; max. 5.5 VA. DIN rail mounting, dimensions 98 × 67 × 102 mm

Use markPLC KIT to install the controller into a front panel.

mark320LX

DDC controller, 4 ports, display
Ethernet, web, 2× RS485, 2× RS232, 3 × 16 LCD display, programming in Domat IDE. ARM i.MX6UL 528 MHz, 128 MB RAM, 64 MB FLASH, 128 kB NVRAM. Supply: 24 V AC/DC ± 20 %; max. 5.5 VA. DIN rail mounting, dimensions 98 × 67 × 102 mm

Use markPLC KIT to install the controller into a front panel.

mark520

DDC controller, 4 ports, display
2x Ethernet, web, 2× RS485, 2× RS232, 3 × 16 LCD display, programming in Domat IDE. ARM i.MX6UL 528 MHz, 512 MB RAM, 256 MB FLASH, 128 kB NVRAM. Supply: 24 V AC/DC ± 20 %; max. 5.5 VA. DIN rail mounting, dimensions 98 × 67 × 102 mm. .NET driver support.

Use markPLC KIT to install the controller into a front panel.

markMX.3

DDC controller, 88 I/O
2× Ethernet, web, 2× RS232, 2× RS485. 16 AI, 8 AO, 32 DI, 32 DO, programming in Domat IDE. i.MX6UL 528 MHz, 128 MB RAM, 64 MB FLASH, 128 kB NVRAM. Supply: 24 V AC/DC ± 10 %. Mounting on panel backplane. 265 × 292 × 40 mm

Use terminal HT3xx for local operation on front panel door.

markMXL

DDC controller, 88 I/O
2x Ethernet, web, 2× RS232, 2× RS485. 16 AI, 8 AO, 32 DI, 32 DO, programming in Domat IDE. i.MX6UL 528 MHz, 512 MB RAM, 256 MB FLASH, 128 kB NVRAM. Supply: 24 V AC/DC ± 10 %. Mounting on panel backplane. 265 × 292 × 40 mm. .NET driver support.

Use terminal HT3xx for local operation on front panel door.

PROCESS STATIONS, CONTROLLERS
PROCESS STATIONS WALL WITH DOMAT RUNTIME

w750-8112

DDC controller
2. generation, 2× Ethernet, RS485, web, programming in Domat IDE. ARM Cortex A8, 600 MHz, 512 MB RAM, 4096 MB FLASH, 128kb NVRAM. Supply 24 V DC (–25...+30%), DIN rail mounting, dimensions71.9 × 61.5 × 100 mm

Use terminal HT3xx for local operation on front panel door.

wCIOcom

DDC controller, 32 I/O, RS485
2× Ethernet, RS485, 8DO, 8DI, 8AO, 8AI, web, programming in Domat IDE. ARM Cortex A8, 600 MHz, 256 MB RAM, 64 kB NVRAM. Supply 24 V DC (–25...+30%), DIN rail mounting, dimensions 71.9 × 121.5 × 100 mm

Use terminal HT3xx for local operation on front panel door.

wCIOcom.2

DDC controller, 32 I/O, RS485
2. generation, 2× Ethernet, RS485, 8DO, 8DI, 8AO, 8AI, web, programming in Domat IDE. ARM Cortex A8, 600 MHz, 512 MB RAM, 4096 MB FLASH, 128 kB NVRAM. Supply 24 V DC (–25...+30%), DIN rail mounting, dimensions 71.9 × 121.5 × 100 mm

Use terminal HT3xx for local operation on front panel door.

wMXcom

DDC controller, 88 I/O, RS485
2× Ethernet, RS485, 32DO, 32DI, 8AO, 16AI, web, programming in Domat IDE. ARM Cortex A8, 600 MHz, 256 MB RAM, 64 kB NVRAM. Supply 24 V DC (–25...+30%), DIN rail mounting, dimensions 71.9 × 158 × 100 mm

Use terminal HT3xx for local operation on front panel door.

wMXcom.2

DDC controller, 88 I/O, RS485
2. generation, 2× Ethernet, RS485, 32DO, 32DI, 8AO, 16AI, web, programming in Domat IDE. ARM Cortex A8, 600 MHz, 512 MB RAM, 4096 MB FLASH, 128 kB NVRAM. Supply 24 V DC (-25...+30%), DIN rail mounting, dimensions 71.9 × 158 × 100 mm

Use terminal HT3xx for local operation on front panel door.

w751-9301

DDC controller, 18 I/O, RS485
2×Ethernet, RS485, 4DO, 8DI, 2AO, 2AI-V, 2AI-R, web, programming in Domat IDE. ARM Cortex A7, 650 MHz, 512 MB RAM, 4096 MB FLASH, 128 kB NVRAM. Supply 24 V DC (-25...+30%), DIN rail mounting, dimensions 62 × 108 × 90 mm

Use terminal HT3xx for local operation on front panel door.

I/O MODULES WALL

w750-600

Terminating module of the internal bus.

w750-450

4 analog inputs module – resistance
4 AI, resistance, configurable, 2/3/4 – wire connection

w750-451

8 analog inputs module – resistance
8 AI, resistance, configurable, two-wire connection

w750-453

4 analog inputs module – current
4 AI, 4...20 mA, two-wire connection, asymemtric input

w750-455

4 analog inputs module – current
4 AI, 4...20 mA, two-wire connection, asymmetric input

w750-457

4 analog inputs module - voltage
4 AI, ±10 V DC

w750-458

8 analog inputs module - resistance
8 AI, thermocouples, configurable, two-wire connection

w750-459

4 analog inputs module - voltage
4 AI, 0...10 V, asymmetric input

w750-471

4 analogue inputs - voltage / current
4 AI, voltage (0...10 V/±10 V) / current (0...20 mA / 4...20 mA/±20 mA), two-wire connection

w750-496

8 analog inputs module – current
8 AI, 0/4...20 mA, configurable, two-wire connection

w750-497

8 analog inputs module
8 AI, 0...10 V / ±10 V, configurable, two-wire connection

w750-553

4 analog inputs module – current
4 AI, 0...20 mA, two-wire connection

w750-556

2 analog inputs module – voltage
2 AI, ±10 V DC

w750-1400

16 binary inputs module
16 DI, 24 V DC, 3 ms, ribbon cable connection

w750-1405

16 binary inputs module
16 DI, 24 V DC, 3 ms

w750-1406

16 binary inputs module
16 DI, 24 V DC, 0.2 ms

w750-1415

8 binary inputs module
8 DI, 24 V DC, 3 ms, two-wire connection

w750-1506

8 binary inputs/outputs module
8 DI/DO, 24 V DC, 0.5 A, configurable

w750-555

4 analog outputs module
4 AO, 4...20 mA

w750-559

4 analog outputs module
4 AO, 0...10 V DC

w750-597

8 analog outputs module
8 AO, 0...10 V / ±10 V DC, configurable

w750-515

4 relay outputs module
4 DO, relay 250 V AC, 30 V DC, 3 A

w750-517

2 relay outputs module
2 switching contacts (NO/NC), 250 V AC, 1 A, potential-less

w750-530

8 binary outputs module
8 DO, 24 V DC, 0.5 A

w750-1500

16 binary outputs module
16 DO, 24 V DC, 0.5 A, ribbon cable connection

w750-1504

16 binary outputs module
16 DO, 24 V DC, 0.5 A

w750-1515

8 binary outputs module
8 DO, 24 V DC, 0.5 A, two-wire connection

w750-404

Counter module
1-channel counter (up/down), 24 V DC, 32 bit, max. 100 Hz, 2DO

w750-638

Counter module
2 - channel counter (up/down), 24 V DC, 500 Hz

w750-511

PWM module
2-channel PWM module, 24 V DC, 250 Hz, 2DO

ACCESSORIES WALL MODULES

w750-960

Connector
PROFIBUS fieldbus connector
D-Sub plug, 9 pin

w750-602

Power module
Power supply module 24 V, max. 10 A

w750-613

Power module
Power supply module 24 V, max. 2 A

w750-627

Bus extension termination module
Bus termination
The possibility of connecting to another bus using RJ-45

w750-628

Bus extension module
Counterpart w750-627

w750-5044

Interface module for system connection
Connector with power pins
20 pin, 16 channel relay output, 1 changeover contact

w750-2054

Interface mudle for systém connection
Connector with power pins
20 pin, 16 channel DI/DO

w706-3057/300-100

System cable for Schneider TSX
16 DI/DO, 1 m

w852-111

Ethernet switch

w787-722

Switched power supply
Output voltage 24 V, current 5 A
1-phase

w247-513

Description card Mini-WSB
With marking, 00...09 (10x)
Mini-WSB snap-on

COMMUNICATION MODULE WALL

w750-652

RS232/RS485 serial interface, configurable

PROCESS STATIONS, CONTROLLERS

PROCESS STATIONS WITH SOFTPLC RUNTIME

IPCB.1

Process station with no display
PLC incl. SoftPLC Runtime, no display, Intel Atom D2550, 1.8 GHz, 2 GB RAM,
2× RS232, 2× USB, 2× LAN, VGA, Audio Out, 9...36 V DC, aluminium case, Windows

IPCT.1

Process station with 8" touch screen
PLC incl. SoftPLC Runtime, iPC 08 118T, SSD 32 GB, Windows

PROCESS STATIONS, CONTROLLERS

PROCESS STATIONS WITHOUT RUNTIME AND OS

iPC 08 118T

Process station, 8" LCD touch screen
PC, LCD 8" 800×600, Intel Celeron N2930 1.83 GHz, 4 GB DDR3L RAM on board,
2× COM, 2× USB 3.0, 2× GbE LAN, aluminium body, 9...36 V DC

iPC 10 118T

Process station, 10" LCD touch screen
PC, LCD 10" 1280×800, Intel Celeron N2930 1.83 GHz, 4 GB DDR3L RAM
on board, 2× COM, 2× USB 3.0, 2× GbE LAN, aluminium body, 9...36 V DC

iPC 12 118T

Process station, 12.1" LCD touch screen
PC, LCD 12,1" 800×600, Intel Celeron N2930 1.83 GHz, 4 GB DDR3L RAM on
board, 2× COM, 2× USB 3.0, 2× GbE LAN, aluminium body, 9...36 V DC

iPC 15 118T

Process station, 15" LCD touch screen
PC, LCD 15" 1024×768, Intel Celeron N2930 1.83 GHz, 4 GB DDR3L RAM on
board, 2× COM, 2× USB 3.0, 2× GbE LAN, aluminium body, 9...36 V DC

iPC 18 118T

Process station, 18.5" LCD touch screen
PC, LCD 18.5" 1280×1024, Intel Celeron N2930 1.83 GHz, 4 GB DDR3L RAM on
board, 2× COM, 2× USB 3.0, 2× GbE LAN, aluminium body, 9...36 V DC

iPC 21 118T

Process station 21" LCD touch screeen
PC, LCD 21" 1920×1080, Intel Celeron N2930 1.83 GHz, 4 GB DDR3L RAM on board, 2× COM, 2× USB 3.0, 2× GbE LAN, aluminium body, 9…36 V DC

iPC 00 160

Process station with no display
PC, Intel Celeron N2930 1.83 GHz, 4 GB DDR3L RAM on board, 3× COM, 4× USB 2.0, 2× USB 3.0, 2× LAN, 1× VGA, Audio Out, 9…36 V DC

PROCESS STATIONS, CONTROLLERS
PROCESS STATIONS – ACCESSORIES

markPLC kit

Mounting frame for markPLC
For fixing of markPLC into front panel: cut a 103 × 46 mm aperture and 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.

PROCESS STATIONS, CONTROLLERS
INDIVIDUAL ROOM CONTROLS

UC102

Heating controller, RS485
Display 60 × 60 mm, push / turn knob, temperature and humidity sensor, setting of values, real time clock, status indication and switching, 2× DI (presence, window), 1× DO (24 V AC radiator valve), Modbus / RS485 galv. separated

Replacement of UC100 – extension by 2 digital inputs, full backward compatibility. Use ME210/ME220 for more actuators.
* no display, no knob – UC102/DK
* backlit display – UC102/BL

UC200

Heating/cooling controller, RS485
Display 60 × 60 mm, push / turn knob, temperature and humidity sensor, setting of values, real time clock, status indication and switching, 2× DI (presence, window), 2× DO (24 V AC radiator, cooling panel), Modbus / RS485 galv. separated

* backlit display – UC200/BL

UC300

Floor heating controller, RS485
Display 60 × 60 mm, push / turn knob, temperature and humidity sensor, 1× AI for ext. Pt1000 floor sensor, setting of values, real time clock, status indication and switching, 1× DO (24 V AC thermic actuator), Modbus / RS485 galv. separated

FCR010

Fan coil controller, RS485
2× DI (presence, window), 2× DO triac 24 V AC for thermic valves (heating, cooling), 3 × relay for three-stage fancoil, 1× Modbus slave / RS485 for SCADA/primary controller, 1× Modbus master / RS485 for UC010

Use UC010 or galvanically separated UC011 as a room unit.

FCR011

Fan coil controller, RS485, power 230 V AC
2× DI (presence, window), 2× DO triac 230 V AC for thermic valves (heating, cooling), 3 × relay for three-stage fancoil, 1× Modbus slave / RS485 for SCADA/primary controller, 1× Modbus master / RS485 for UC010

Use UC010 or galvanically separated UC011 as a room unit.

FCRO13

Fan coil controller for EC motors 0...10 V, RS485
2× DI (presence, window), 3× AO 0...10 V, 2× DO SSR 0.4 A, 1× Modbus slave / RS485 for SCADA/primary controller, 1× Modbus master / RS485 for UCO13

Use UCO13 as a room unit.

FCRO15

VAV controller, communicative
VAV box (CO_2) controller, 2× DI (presence, window), 2× DO triac 24 V AC, 3× AO 0...10 V (VAV controller, heating and cooling valves), 1× Modbus slave / RS485 for SCADA/primary controller, 1× Modbus master / RS485 for UC905

Use UC905 as a room unit.

UCO10

Room unit, RS485
Display 60 × 60 mm, push / turn knob, temperature and humidity sensor, setting of operation mode, fancoil stages and setpoints, status indication and switching, Modbus / RS485 communication

*Room unit for FCRO10 or FCRO11 fan coil controller
UCO10/DK: no display, no knob (for schools, corridors etc.)
backlit display – UCO10/BL*

UCO11

Room unit, RS485
Display 60 × 60 mm, push / turn knob, temperature and humidity sensor, setting of operation mode, fancoil stages and setpoints, status indication and switching, Modbus / RS485 galv. separated

*Room unit for FCRO10 or FCRO11 fan coil controller
* backlit display – UCO11/BL*

UCO13

Room unit for FCRO13, RS485
Display 60 × 60 mm, push / turn knob, temperature and humidity sensor, setting of operation mode, fancoil stages and setpoints, status indication and switching, Modbus / RS485 galv. separated

*Room unit for FCRO13 fan coil controller
* backlit display – UCO13/BL*

UC905

Room unit with CO_2 sensor for FCRO15, communicative
Display 60 × 60 mm, push / turn knob, temperature, humidity and CO_2 sensor, setting of operation mode, VAV mode and temperature setpoints, status indication and switching, Modbus / RS485 galv. separated

*Room unit for FCO15 VAV controller
UX905 - variant with blinds control function and 5 buttons*

UC120

Radiator or cooling controller, RS485
Display 60 x 60 mm, rotatable knob with button, temperature measurement, set. values, clock, switching and indication of states, 2x DI (presence, window), 1x DO 0...10 V st for controlling the radiator or el. modulated heating, com. MODBUS / RS485 galv. separated

UC120/DK – version without display and knob.

UC220

Regulator of radiators and cooling, RS485
Display 60 x 60 mm, rotatable knob with button, temperature measurement, status. values, hours, switching and indication of states, 2 x DI (presence, window), 2 x DO 0...10 V st for controlling the radiator or el. modulated heating, com. MODBUS / RS485 galv. separated

EPC102

Heating controller with external temperature sensor, RS485
External room temperature sensor, 1× DI (window), 1× DO (triac 24 V/1A AC radiator valve), Modbus / RS485 galv. separated

No operating elements, for schools, public buildings etc. The room sensor is part of delivery

PROCESS STATIONS, CONTROLLERS
COMMUNICATIVE ROOM UNITS AND SENSORS

UI010

Room unit, RS485, temperature, rH
Display 60 × 60 mm, push / turn knob, temperature and rH sensor, setting of values, status indication and switching, Modbus / RS485 communication

* blue backlit display – UI010BL

UI011

Room unit, RS485, temperature, rH
Display 60 × 60 mm, rotary knob with button, temperature and rH sensor, value setting, switching and status indication, Modbus / RS485 communication galv. separated

* without knob – UI051, without knob and display – UI071
* with blue display backlight – UI011BL, UI051BL

UI012

Room unit, RS485, temperature, rH, 2DI, 1DO
Display 60 × 60 mm, push / turn knob, temperature and rH sensor, setting of values, real time clock, status indication and switching, Modbus / RS485 galv. separated, 2× DI, 1× DO triac 24 V AC

no knob – UI052, no knob / display – UI072
blue backlit display – UI012BL, UI052BL

UI020

Room unit, RS485, temperature, rH, 2DI, 1DO
Display 60 × 60 mm, push / turn knob, temperature and rH sensor, setting of values, real time clock, status indication and switching, Modbus / RS485 galv. separated, 2× DI, 1× DO triac 24 V AC

* without knob – UI055, without knob and display – UI075
* with blue display backlight – UI020BL, UI055BL

UI300

Room unit, RS485, t, rH, 1DI, 1DO, 1AI
Display 60 × 60 mm, push / turn knob, internal temperature and rH sensor, setting of values, real time clock, status indication and switching, Modbus / RS485 galv. separated, 1× DI, 1× DO triac 24 V AC, 1× AI for a Pt1000 external temperature sensor.

* without knob and display – UI300DK
* with blue display backlight – UI300BL

UI309

Room unit, RS485, t, rH, CO_2, 1DI, 1DO, 1AI
Display 60 × 60 mm, push / turn knob, internal temperature, CO_2 and rH sensor, setting of values, real time clock, status indication and switching, Modbus / RS485 galv. separated, 1× DI, 1× DO triac 24 V AC, 1× AI for a Pt1000 external temperature sensor.

* without knob and display – UI309DK
* with blue display backlight – UI309BL

UI310

Room unit, RS485, t, rH, PIR, 1DI, 1DO, 1AI
Display 60 × 60 mm, push / turn knob, presence, temperature and rH sensor, setting of values, real time clock, status indication and switching, Modbus / RS485 galv. separated, 1× DI, 1× DO triac 24 V AC, 1× AI for a Pt1000 external temperature sensor.

* without knob and display – UI310DK
* with blue display backlight – UI310BL

UI319

Room unit, RS485, t, rH, CO_2, PIR, 1DI, 1DO, 1AI
Display 60 × 60 mm, push / turn knob, internal presence, temperature, CO_2 and rH sensor, setting of values, real time clock, status indication and switching, Modbus / RS485 galv. separated, 1× DI, 1× DO triac 24 V AC, 1× AI for a Pt1000 external temperature sensor.

* without knob and display – UI319DK
* with blue display backlight – UI319BL

UI900

Room unit, RS485, temperature, CO_2, rH
Temperature, rel. humidity, and CO_2 sensor, communication Modbus / RS485 galv. separated.

UI901

Room unit, RS485, t, CO_2, rH, 2DI, 2DO
Display 60 × 60 mm, push / turn knob, temperature, CO_2 and rH sensor, setting of values, status indication and switching, Modbus / RS485 galv. separated, 2× DI, 2× DO triac 24 V AC, Function of thermostat, hygrostat or CO_2–stat.

no knob – UI903, no knob no display – UI907
blue backlit display – UI901BL, UI903BL

UI905

Room unit, RS485, temperature, CO_2, rH
Display 60 × 60 mm, push / turn knob, temperature, humidity and CO_2 sensor, setting of values, status indication and switching, Modbus / RS485 galv. separated.

with backlight display UI-905BL

UX011

Room unit, RS485, temperature
Display 60 × 60 mm, 5× button, temperature sensor, setting of values, status indication and switching, 1× DI, 3× DO (triac 24 V AC), Modbus / RS485 communication galv. separated

with rh – UX041
with RTC – UX015

MANAGEMENT STATIONS
PC

PCD1

Management station PC
Configuration for RcWare Vision, HDD 500+ GB, LCD 17", colour printer, keyboard, mouse, OS.

MODULES AND CONVERTERS
I/O MODULES

R220

12 relay output module
max. 8 A / 250 V AC or 8A / 24 V DC, DIN rail mounting, dimensions 98 × 105 × 61 mm. Supply 24 V AC/DC ± 20 %, Modbus RTU / RS485 galv. separated

R312

8 triac outputs module
To control 8 groups of 24 V thermic actuators, output current max. 0.5 A per output. The PWM signal is generated in the module, controlled as 0...100 %. DIN rail or 2 screws mounting, dimensions 98 × 70 × 35 mm. Supply 24 V AC/DC ± 20 %, Modbus RTU / RS485 galvanically separated.

If there are more than 2 actuators per output use triac amplifiers ME210, ME220.

R313

8 triac outputs module, 230 V AC
To control 8 groups of 230 V thermic actuators, output current max. 0.5 A per output. The PWM signal is generated in the module, controlled as 0...100 %. DIN rail or 2 screws mounting, dimensions 98 × 70 × 35 mm. Supply 24 V AC/DC ± 20 %, Modbus RTU / RS485 galvanically separated.

R320

16 digital outputs (OC) module
open collector, 50 V DC, 0.5 A, DIN rail mounting, dimensions 98 × 105 × 61 mm. Supply 24 V AC/DC ± 20 %, Modbus RTU / RS485 galv. separated

R330

32 digital outputs (OC) module
open collector, 50 V DC, 0.5 A, DIN rail mounting, dimensions 98 × 105 × 61 mm. Supply 24 V AC/DC ± 20 %, Modbus RTU / RS485 galv. separated

R420

16 digital inputs module 24 V
24 V AC / DC, 15 mA, common ground for each 8 inputs. DIN rail mounting, dimensions 98 × 105 × 61 mm. Supply 24 V AC/DC ± 20 %, Modbus RTU / RS485 galv. separated

R430

32 digital inputs module 24 V
24 V AC / DC, 15 mA, common grounds for 24 and 8 inputs. DIN rail mounting, dimensions 98 × 105 × 61 mm. Supply 24 V AC/DC ± 20 %, Modbus RTU / RS485 galv. separated

R500

8 analogue inputs module
8× AI (± 10 V, 4...20 mA), 16 bit. DIN rail mounting, dimensions 105 × 90 × 58 mm. Supply 24 V AC/DC ± 20 %, Modbus RTU / RS485 galv. separated

R560

8 analogue inputs module
Pt1000, 20...5000 Ohm, 0...10 V, 4...20 mA, 16 bit. DIN rail mounting, dimensions 98 × 70 × 61 mm. Supply 24 V AC/DC ±20 %, Modbus RTU / RS485 galv. separated

R610

8 analogue outputs module
0..10 V, max. 10 mA, optically separated, common ground. DIN rail mounting, dimensions 98 × 70 × 61 mm. Supply 24 V AC/DC ± 20 %, Modbus RTU / RS485 galv. separated

R710

4 pulse counters module, battery backup
for dry contacts / OC (12 V, 15 mA), 4 byte counters, DIN rail mounting, dimensions 98 × 70 × 61 mm. Ready for load shedding (E-Max). Supply 24 V AC/DC ±20 %, Modbus RTU / RS485 galv. separated

R800

8 analogue inputs and 8 analogue outputs
8× analogue inputs (voltage, current, resistance, temperature), 8× analogue outputs 0-10V ss. Supply 24 V AC / DC ±20 %, Modbus RTU/RS485, DIN rail mounting, dimensions 98 × 105 × 61 mm

MW240-B

Module for controlling lights or blinds
2× DI for sweat-free. switch contacts (button logic), 2 x DO relay 230 V AC / 5 A ohmic load. Installation in an installation box, dimensions 49 × 49 × 30 mm. Power supply 24 V AC / DC ±10 %, Modbus RTU / RS485 galv. dept.

MW241

Control module for 2 LED lighting groups
2x DI for dry contacts (switches or buttons), 2 x DO SSR 230 V AC / 1 A AC1 load. Flush box mounting, dimensions 49 × 49 × 30 mm. Supply 24 V AC/DC ± 20 %, Modbus RTU / RS485 galv. separated

For switching of LED power supplies with capacitive load

MW501

Voltage measurement module
1× AI 0...10 V, dimensions 70 × 63 × 33 mm, Modbus RTU / RS485 galv. separated

RMIO

Combined I/O module, 17 I/O
4× AI (Pt1000 or potentiometer, 2× 0...10 V or 0...20 mA), 4× DI dry contact, 2× AO 0...10 V, 5× relay (230 V AC / 5 A), 2× DO triac (24 V AC / 0.4 A). DIN rail mounting, dimensions 90 × 105 × 58 mm, supply 24 V AC / DC ± 20 %, Modbus RTU / RS485 galv. separated

RCIO

Combined I/O module, 30 I/O
8× AI (0...10V, Pt100, Pt1000, Ni1000, T1, 4× 4...20 mA), 6× AO (0..10V), 8× DI (24 V), 8× DO relay (230V/5A). DIN rail mounting, dimensions 217 × 115 × 40 mm, supply 24 V AC ± 10 %, Modbus RTU / RS485 galv. separated

RXIO

Combined I/O module, 88 I/O
16× AI (Pt100, Pt1000, Ni1000, T1, 8× 0...10V, 4...20 mA) galv. sep., 32× DI 24 V, 8× AO 0...10 V galv. sep., 32× DO relay (230 V AC / 5 A). Dimensions 265 × 292 × 40 mm, supply 24 V AC / DC ± 10 %, Modbus RTU / RS485 galv. separated

See also markMX.3 in the Process stations section.

MLIO

Module for distributed inputs/outputs, 7 I/O
4× AI (Pt1000, 0...5000 Ohm, 0...10 V or DI for a dry contact), 1× AO 0...10 V, 2× DO relay (230 V AC / 5 A ohmic load). Dimensions 162 × 120 × 72 mm. Power 10...35 V DC / 24 V AC, Modbus RTU / RS485 galv. separated

Installation on a wall or to a conduit.

MODULES AND CONVERTERS
COMMUNICATION CONVERTERS

R005

Sauter EY2400 – RS232 converter
For integration of Sauter 2400 controllers into IPLC5xx, IPCT.., IPCB... Galvanic separation, max. 20 controllers on the bus, 2× LED. Power 230 V AC. DIN rail mounting, dimensions 98 × 70 × 61 mm

R012

RS232 / RS485 converter
Baudrate 1200...19200 bit/s, bus termination switch, optical separation, 3× LEDs Rx, Tx, Power. Supply 10...35 V DC / 24 V AC. DIN rail mounting, dimensions 98 × 35 × 61 mm

R025

RS232 / Ethernet converter, Modbus router
Terminal server up to 230400 bit/s, modem emulation, serial bridge. COM port driver for Windows and Linux. Modbus RTU / TCP routing functionality. Supply 24 V AC ± 10 %, 1.5 VA. DIN rail mounting, dimensions 98 × 35 × 61 mm

R035

RS485 / Ethernet converter, Modbus router
Terminal server up to 230400 bit/s, serial bridge. COM port driver for Windows and Linux. Modbus RTU / TCP routing functionality. Supply 24 V AC ± 10 %, 2 VA. DIN rail mounting, dimensions 98 × 35 × 61 mm

R060

MP-Bus / Modbus RTU/TCP converter
For control of up to 8 Belimo actuators on MP-Bus over Modbus TCP or Modbus RTU/RS485. Galvanically separated, power supply 24 V AC / DC ±15 %, 3 VA. MP-Bus service connector RJ11. DIN rail mounting, dimensions 98 × 70 × 61 mm

RO65

DMX512 / Modbus TCP converter
For control of up to 2× 512 DMX lights over Modbus TCP. 2× DMX port. Power 24 V AC/DC ± 15 %, 3 VA. DIN rail mounting, dimensions 98 × 70 × 31 mm.

RO80

USB / RS485 converter
Small and handy USB powered converter for service and commissioning. Optically separated, 3× LED (PC link, Rx, Tx). Inclusive driver and comfortable universal Modbus RTU / TCP client SW. 49 × 34 × 20 mm, USB cable 140 cm.

The client software ModCom-Tool and RO80 USB drivers are available at www.domat.cz

RO85

P-Bus / Modbus RS485 converter
Landis & Gyr P-Bus to Modbus RTU / RS485 converter for integration of PTM.., PTK.. module bus into any Modbus compatible PLC. Native support in SoftPLC IDE and Domat IDE. Power supply 230 V AC, 32 BE (P-Bus load units). DIN rail mounting, dimensions 98 × 105 × 61 mm.

* RO86: 64 BE (zátěžových jednotek P-Bus)

RO91

DALI2 (multi master) / Modbus TCP converter
Control of up to 64 DALI ballasts over Modbus TCP, with switchable DALI bus supply. Web access for commissioning and service. DALI short circuit protection, auto reset. Power supply 24 V AC/DC ± 20 %, 6 VA. DIN rail mounting, dimensions 98 × 70 × 61 mm.

RO95

M-Bus / RS232 converter, 25 devices
Supply 20...24 V AC, 6 VA max. 25 M-Bus meters, short-circuit protection with auto reset, RS232 screw terminals + CANNON 9M. DIN rail mounting, dimensions 98 × 70 × 61 mm.

RO96

M-Bus / RS232 converter, 60 devices
Supply 20...24 V AC, 6 VA max. 60 M-Bus meters, short-circuit protection with auto reset, RS232 screw terminals + CANNON 9M. DIN rail mounting, dimensions 98 × 70 × 61 mm.

MODULES AND CONVERTERS
DISPLAY UNITS, ACCESSORIES

HT300

Touch screen operator unit
Terminal with touch screen 7", 1024×600 px, ARM Cortex A53, 2 GB RAM, 2×Ethernet, Linux, 24 V DC, power supply not included

HT310

Touch screen operator unit
Terminal with touch screen 10", 1280×800 px, ARM Cortex A53, 2 GB RAM, 2×Ethernet, Linux, 24 V DC, power supply not included

HT315

Touch screen operator unit
Terminal with touch screen 15.6", 1920×1080 px, ARM Cortex A53, 2 GB RAM, 2×Ethernet, Linux, 24 V DC, power supply not included

ME200

Power relay module
For connecting of the UX... room unit to the blinds actuator. 2× relay 250 V / 5 A. Mounts in a flush box. Dimensions: 49 × 49 × 30 mm.

ME210

Triac amplifier
To connect more actuators to UC..., FC..., and UI.... Provides 1× triac output 24 V / 2 A.
Flush box mounting, dimensions 49 × 49 × 14 mm.

Up to 4 thermic actuators may be connected to the output.

ME220

Triac amplifier, 2 triacs
To connect more actuators to UC..., FC..., and UI.... Provides 2× triac output 24 V / 2 A. Each output may be controlled separately. Flush box mounting, dimensions 49 × 49 × 14 mm.

Up to 4 thermic actuators may be connected to each of the outputs. If IN1 and IN2 inputs are connected in parallel, ME220 may control up to 8 valves with one signal.

PERIPHERALS
DOMAT DESIGN SENSORS

UT001

Room temperature sensor
Wall-mounted, dimensions 90 × 107 × 26 mm
Measuring element Pt1000

UT051

Outside temperature sensor
Wall-mounted, dimensions 90 × 107 × 26 mm, -20...70 °C, IP 43
Measuring element Pt1000

UT090

Room sensor, temperature, CO_2, 2 × 0...10V
Internal range setting 0...2000 / 0...5000 ppm, temperature 0...50 °C. Power 10...35 V DC / 24 V AC. Wall-mounted, dimensions 90 × 107 × 26 mm, IP 43

UT100

Communicative temperature sensor, Modbus RTU
For external Pt1000 measuring element (not supplied). Measuring range -30...100 °C. Power 10...35 V DC / 24 V AC. Dimensions 70 × 63 × 34 mm, IP 43

UT200

Communicative temperature sensor, Modbus RTU
Inclusive Pt1000 measuring element. Measuring range -30...100 °C. Power 10..35 V DC / 24 V AC. Dimensions 70 × 63 × 34 mm + stem 25 mm, IP 43

PERIPHERALS
DOMAT STELIX SENSORS

DIP200

Communicative motion and lighting sensor
Modbus RTU / RS485. Motion: IR sensor, lighting: photodiode 2...3000 lx. To control air-condition and lights in offices, workshops etc. Power 12...24 V DC.

Interchangeable mounting bases and lenses for different mounting methods and characteristics of the THO8-MS sensor.

PERIFERIE
SOLAR ILLUMINATION SENSORS

Si-RS485TC-T-MB

Combined communicative illumination and panel surface temperature sensor
Combined communicative illumination and panel surface temperature sensor, Modbus RTU/RS485 communication, power supply 24 V DC, IP67, dimensions 155 × 85 × 39 mm

Si-RS485TC-2T-MB

Combined communicative illumination, panel surface and ambient temperature sensor
Combined communicative illumination, panel surface and ambient temperature sensor , Modbus RTU/RS485 communication, power supply 24 V DC, ambient temperature sensor (3m cable), IP67, dimensions 155 × 85 × 39 mm

PERIFERIE
WIRELESS MODBUS

W-Gateway wModbus

Gateway with W-Modbus module
range max. 500 m, max. 100 wireless sensorsl (+ max. 1 wired sensosr), power supply 24 V AC / DC, Modbus RTU (RS485) / wireless Modbus, IP65, dimensions 108 × 106 × 43,3 mm

W-Gateway wModbus Pro

Gateway with W-Modbus module
Dosah max. 500 m, max. 100 bezdrátových čidel, max. 16 drátových čidel, napájení 24 V st/ss, Modbus RTU (RS485) /w-Modbus, IP65, rozměry 108 × 106 × 43,3 mm

W-ALTM1

Wireless surface contact temperature sensorí
-50...150 °C, čidlo Pt1000, napájení 24 V st/ss, w-Modbus, IP65, rozměry 108 × 106 × 43,3 mm

W-AFTF

Wireless on-wall humidity and temperature sensor
-35...80 °C, 0...100 % rH, power supply 24 V AC / DC, wireless Modbus, IP65, dimensions 108 × 116 × 43,3 mm

W-Premasgard 2328

Wireless pressure and differential pressure sensor
±500 Pa, power supply 24 V AC / DC, wireless Modbus, IP65, dimensions 108 × 106 × 43,3 mm

PERIPHERALS
TEMPERATURE SENSORS, PASSIVE

RTF1

Room temperature sensor
Wall-mounted, dimensions 98 × 98 × 33 mm
Measuring element Pt1000

Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm, NiTK

ALTF1

Strap-on temperature sensor
–35...105 °C, IP63/68, dimensions Ø 6 × 50 mm, contact metal sheet. Strap band mm, for pipes Ø 13...92 mm. Measuring element Pt1000

Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm
silicon cable – up to +180°C

ALTF02

Strap-on temperature sensor
–30...110 °C, IP54, dimensions 72 × 64 × 37.8 mm. Strap-on metal band 300 mm, for pipes Ø 13...92 mm. Measuring element Pt1000

Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm

TF-43

Temperature sensor, IP54
Measuring element Pt1000, –30...150 °C, dimensions 72 × 64 × 37.8 mm + stem. Brass TH08-MS or stainless steel TH-VA pocket 1/2" (as immersion sensor) or flange MF-15-K (as duct sensor) must be ordered separately.

Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm
length 50, 100, 150, 200, 250, 300 mm

TF-65

Temperature sensor, IP65
Measuring element Pt1000, –30...150 °C, dimensions 72 × 64 × 37.8 mm + stem. 1/2" well brass TH08-MS or stainless steel TH-VA (for use as an immersion sensor) or flange MF-15-K (for use as channel sensor) is ordered separately.

Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm
length 50, 100, 150, 200, 250, 300, 400 mm

TH08-MS

Brass nickel-plated immersion sleeve
1/2", 150 mm, 10 bar, max. temperature +150 °C, Ø 8 mm. For installing the TF-65 or TF-43 sensor in the pipeline.

length 50, 100, 150, 200, 250, 300, 400 mm

TH-VA

Stainless steel immersion sleeve
1/2", 150 mm, 40 bar, max. temperature +600 °C, Ø 8 mm. Material VA 1.4571. For installing the TF-65 sensor in the pipeline.

length 50, 100, 150, 200, 250, 300, 400 mm

MF–15–K

Plastic flange
For installing the TF–65 sensor in the ventilation duct. Mounting with two screws on the channel wall. 58 x 86 x 25 mm, Ø 15.2 mm. Max. temperature +100 °C.

ATF1

Outdoor temperature sensor
–50...90 °C, dimensions 72 × 64 × 37.8 mm
Wall mounting, IP67
Measuring element Pt1000

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm

ATF2

Outdoor temperature sensor
–50...90 °C, dimensions 72 × 64 × 37.8 mm
Wall mounting, IP65, measuring element in an external stainless steel well. Measuring element Pt1000,

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm

MWTF

Average temperature channel sensor
–30...80 °C, dimensions 72 × 64 × 37.8 mm + stem 400 mm
Plastic coated copper stem Ø 6 mm, IP65
Measuring element Pt1000

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm
* length 0.4, 3, 6 m or customer length up to 20 m
* Pt100, Ni1000–5000

HTF50

Cable temperature sensor–35...105 °C, dimensions Ø 6 × 50 mm + cable 1.5 m
Steel housing, IP65
Measuring element Pt1000

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm
* silicone cable up to 180 °C, length on request
* IP65, IP68

HTF200

Cable temperature sensor, silicone cable
–35...105 °C, dimensions Ø 6 × 200 mm + silicone cable up to 180 °C, 1.5 m. Steel housing, IP65. Measuring element Pt1000

RPTF1

Pendulum room temperature sensor
–5...60 °C, dimensions Ø 16 × 142 mm + cable 1.5 m. Stainless steel tube, IP65. Measuring element Pt1000

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm
* cable lengths of 3 m, 6 m or customer

RPTF2

Pendulum room temperature sensor
–5...60 °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 lengths of 3 m, 6 m or customer

RSTF

Room radiation temperature sensor (semi–global)
–30...75 °C, plastic globe.
For air temperature and radiating temperature metering.
Measuring element Pt1000, IP30

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm

PERIPHERALS
TEMPERATURE SENSORS, ACTIVE

THO8-MS

Immersion sleeve for immersion sensors, nickel-plated brass
1/2", 150 mm, 10 bar, Ø 8 mm. To be ordered with TF-65 or TF-43 in corresponding length.

* length 50, 100, 150, 200, 250, 300, 400 mm

TH-VA

Pocket for immersion sensors, stainless steel
1/2", 150 mm, 40 bar, Ø 8 mm. Stainless steel VA 1.4571. To be ordered with TF-65 in corresponding length

* length 50, 100, 150, 200, 250, 300, 400 mm

MF-15-K

Mounting flange, plastic
To be ordered with TF-65 for installation of sensors into air ducts. 58 × 86 × 25 mm.

RTM1-U

Room temperature sensor
0...50 °C or -20...150 °C, dimensions 85 × 85 × 27 mm.
Wall mounting, output 0...10 V, power supply 24 V AC / DC.
Housing ABS, colour pure white RAL9010

* RTM1-I: 4..20 mA (only DC power)
* RTM1-U,D: with display
*other measuring ranges
* stainless steel cover

RPTM1-U

Pendulum room temperature sensor
0...50 °C or -20...150 °C, dimensions 72 × 64 × 37.8 mm + probe 1.5 m.

RPTM1-I: 4..20 mA (only DC power)
* other measuring ranges
cable length 3 m, 6 m or custom

RPTM2-U

Pendulum (globe) room temperature sensor
0...50 °C or -20...150 °C, dimensions 72 × 64 × 37.8 mm + probe 1.5 m, plastic globe Ø 50 mm
Output 0...10 V, power supply 24 V AC / DC

** **RPTM2-I**: 4..20 mA (only DC power)*
* other measuring ranges
* cable length 3 m, 6 m or custom

PERIPHERALS
HUMIDITY SENSORS

KFF-U

Duct humidity sensor
Capacitive element, 20...80 %rH: ±2 %, 0...100 %rH: ±3 % stem Ø 20 × 235 mm, IP65
Output 0...10 V, power supply 24 V AC / DC

* 4...20 mA (only DC power)
* display

KFTF-U

Duct humidity and temperature sensor
Capacitive element, 20...80 %rH: ±2 %, 0...100 %rH: ±3 %
Temperature -35...80 °C (switchable ranges), stem Ø 20 × 235 mm, IP65
Output 2× 0...10 V, power supply 24 V AC / DC

* KFTF-I: 4...20 mA (only DC power)
* display
* passive temperature sensor Pt100, Pt1000, Ni1000-5000, Ni1000-
* 6180, NTC1.8kOhm

AFF-U

On-wall humidity sensor
Capacitive element, 20...80 %rH: ±2 %, 0...100 %rH: ±3 %
Stem Ø 16 × 55 mm, IP65
Output 0...10 V, power supply 24 V AC / DC

* AFF-I: 4...20 mA (only DC power)
* display

AFTF-U

On-wall humidity and temperature sensor
Capacitive element, 20...80 %rH: ±2 %, 0...100 %rH: ±3 %
Temperature -35...80 °C (switchable ranges), stem Ø 16 × 55 mm, IP65
Output 2× 0...10 V, power supply 24 V AC / DC

* AFTF-I: 4..20 mA (only DC power)
* display
* passive temperature sensor Pt100, Pt1000, Ni1000-5000, Ni1000-
* 6180, NTC1.8kOhm

KFF-20U

Duct humidity sensor, high-precision
Capacitive element, 10...90 %rH: ±1.8 %, 0...100 %rH: ±2 %
Stem Ø 20 × 235 mm, IP65
Output 0...10 V, power supply 24 V AC / DC

* KFF-20I: 4..20 mA (only DC power)
* display

KFTF-20U

Duct humidity and temperature sensor, high-precision
Capacitive element, 10...90 %rH: ±1.8 %, 0...100 %rH: ±2 %
Temperature -35...80 °C (switchable ranges), stem Ø 20 × 235 mm, IP65
Output 2× 0...10 V, power supply 24 V AC / DC

** **KFTF-20I**: 4..20 mA (only DC power)*
* display

AFF-SD-U

On-wall humidity and temperature sensor
20...80 %rH: ±2 % 0...100 %rH: ±5 %
Stem Ø 16 × 55 mm, IP65
Output 0...10 V, power supply 24 V AC / DC

* display

AFF-20U

On-wall humidity sensor, high-precision
Capacitive element, 10...90 %rH: ±1.8 %, 0...100 %rH: ±3 %
Stem Ø 16 × 137 mm, IP65
Output 0...10 V, power supply 24 V AC / DC

** **AFF-20I**: 4..20 mA (only DC power)*
* display

AFTF-SD-U

On-wall humidity and temperature sensor
20...80 %rH: ±2 % 0...100 %rH: ±3 %
Temperature -35...80 °C (switchable ranges), stem Ø 16 × 55 mm, IP65
Output 2× 0...10 V, power supply 24 V AC / DC

AFTF-20U

On-wall humidity and temperature sensor, high-precision
Capacitive element, 10...90 %rH: ±1.8 %, 0..100 %rH: ±2 %
Temperature -35...+80 °C (switchable ranges), ± 2k, stem 16 × 137 mm, IP65
Output 2× 0...10 V, power supply 24 V AC / DC

** **AFTF-20I**: 4...20 mA (only DC power)*
* display

RFF-U

Room humidity sensor
Capacitive element, 20...80 %rH: ±2 %, 0...100 %rH: ±3 %
Output 0...10 V, power supply 24 V AC / DC
Wall mounting, dimensions 85 × 85 × 27 mm

** **RFF-I**: : 4...20 mA (napájení pouze ss)*
* displej

RFTF-U

Room humidity and temperature sensor
Capacitive element, 20...80 %rH: ±2 %, 0...100 %rH: ±3 %
Temperature 0...50 °C, output 2× 0...10 V, power supply 24 V AC / DC
Wall mounting, dimensions 85 × 85 × 27 mm

** **RFTF-I**: 4...20 mA (only DC power)*
* display
* passive temperature sensor Pt100, Pt1000, Ni1000-5000, Ni1000-
* 6180, NTC1.8kOhm

RPFF-U

Pendulum room humidity sensor
Capacitive element, 20...80 %rH: ±2 %, 0...100 %rH: ±3 %.
Output 0...10 V, power supply 24 V AC / DC
Dimensions 72 × 64 × 37.8 mm, cable 2 m

* **RPFF-I**: 4...20 mA (only DC power)
* display

RPFTF-U

Pendulum room humidity and temperature sensor
Capacitive element, 20...80 %rH: ±2 %, 0...100 %rH: ±3 %.
Temperature –35...80 °C (switchable ranges). Output 0...10 V, power supply 24 V AC / DC Dimensions 72 × 64 × 37.8 mm, cable 2 m

* **RPFTF-I**: 4...20 mA (only DC power)
* display

PERIPHERALS
PRESSURE SENSORS

SHD-U1

Pressure sensor for liquid and fluid media
Power supply 24 V AC / DC, measuring range 0...1 bar, output 0...10 V, ext. thread G1/2", stainless steel, overload 2 × measuring range, temp. range –40...135 °C, IP65

* SHD-U2.5, SHD-U6, SHD-U10, SHD-U16, SHD-U25, SHD-U40 (number = measuring range in bar)
* SHD-I.. output 4...20 mA (only DC power)

SHD692

Differential pressure sensor for liquid and fluid media
Power supply 24 V AC / DC, output 0...10 V, internal thread 1/8" – 27 NPT, stainless steel, overload 1.5× measuring range, system pressure max. 25 bar, temp. range –15...80 °C, IP65

* SHD692-900: 0.1 bar, SHD692-907: 0.5 bar, SHD692-912: 1 bar, SHD692916: 2.5 bar, SHD692-918: 4 bar

Premasgard 2110

Differential air pressure sensor Premasgard –50...50Pa/–100..100Pa
Power supply 24 V AC / DC, output 0...10V/4...20mA, incl. hose Ø 6×2000 mm, for non-agressive and non-combustible gases, dimensions 72 × 64 × 37,8 mm, IP67

Adjustable range:
0...50 Pa / –50...50 Pa
0...100 Pa / –100 ...100 Pa

Premasgard 2111

Differential air pressure sensor Premasgard –1000...1000 Pa
Power 24 V AC / DC, output 0...10V/4-20mA, incl. hose Ø 4/6 × 2000 mm, for non-aggressive and non-combustible gases, dimensions 72 × 64 × 37.8 mm, IP67

Adjustable range:
0(–100)..+100 Pa / 0(–300)..+300 Pa / 0(–500)...+500 Pa / 0(–1000)...+1000 Pa

Premasgard 2125

Differential air pressure sensor Premasgard –5000...5000 Pa
Power 24 V AC / DC, output 0...10V/4-20mA, incl. hose Ø 6 × 2000 mm, for non-aggressive and non-combustible gases, dimensions 72 × 64 × 37.8 mm, IP67

Adjustable range:
0(–1000)... +1000 Pa / 0(–2000)... +2000 Pa
0(–3000)... +3000 Pa / 0(–5000)...+5000 Pa)

Premasgard 7112-U

Premasgard 7112-U
Differential air pressure sensor Premasgard 0...25 Pa/–25...25 Pa
Power supply 24 V AC / DC, output 0...10 V, incl. hose Ø 6 × 2000 mm, for non-aggressive and non-combustible gases, dimensions 126 x 90 x 50 mm, IP65

Adjustable range:
0...25 Pa / –25...25 Pa
Premasgard 7112-I: 4...20 mA

PERIPHERALS
LIGHT INTENSITY, AIR QUALITY AND CO_2 SENSORS

AHKF-U

Outdoor light intensity sensor
Power supply 24 V AC / DC, output 0...10 V, measuring range 0..500 lx / 1 lx / 2 klx / 5 klx / 20 klx / 60 klx (switchable), wall-mounted, IP67, dimensions 72 × 64 × 43.3 mm

* AHKF-I: 4...20 mA (only DC power)

RHKF–U

Room light intensity sensor
Power supply 24 V AC / DC, output 0...10 V, measuring range 0...500 lx / 1 klx / 5 klx / 20 klx (switchable), wall–mounted, IP30, dimensions 85 × 85 × 27 mm

* RHKF–I, 4...20 mA (only DC power)

RBWF–W

Room motion sensor/presence detector
Power supply 24 V AC / DC, output 230 V / 2A change-over, IR, beam angle 360° × 110°, operating range ca. 10 m, timeout adjustable 4 s ... 16 min., wall mounted, IP30, dimensions 72 × 64 × 37.8 mm

KLQ–W

Duct air quality sensor
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

* display

RLQ–W

Room air quality sensor
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, dimensions 85 × 85 × 27 mm

* display

RCO2–W

Room CO_2 sensor
Power supply 24 V AC / DC, output 0...10 V or 4...20 mA ~ 0...2000 ppm, or 0...5000 ppm optical sensor NDIR, IP30, dimensions 85 × 85 × 27 mm

* display

RLQ–CO2–W

Room air quality and CO_2 sensor
Power supply 24 V AC / DC, output 2× 0...10 V ~ 0...2000 ppm or 0...5000 ppm (CO_2, optical sensor NDIR), 100...0 % AQ referred to calibration gas (air quality, VOC sensor), IP30, dimensions 85 × 85 × 27 mm

* display

RTM–CO2

Room temperature and CO_2 sensor
Power supply 24 V AC / DC, output 2× 0...10 V ~ 0...2000 ppm (CO_2, optical sensor NDIR), 0...50 °C (temperature), IP30, dimensions 98 × 48 × 33 mm

* display

KCO2–W

Duct CO_2 sensor
Power supply 24 AC / DC, output 0...10 V or 4...20 mA) ~ 0...2000 or 0...5000 ppm (CO_2 optical sensor NDIR), switching contact 24 V, stem Ø 20 × 200 mm, IP65

* KCO2–I: 4..20mA (napájení pouze ss)

KLQ–CO2–W

Duct air quality and CO_2 sensor
Power supply 24 V AC / DC, outputs 2× 0...10 V ~ 0...2000 ppm (CO_2, optical sensor NDIR), 100...0 % AQ referred to calibration gas (quality, VOC sensor), IP65

* display

KCO2–SD–U

Duct CO_2 sensor
Power supply 24 AC / DC, output 0...10 V ~ 0...2000 or 0...5000 ppm (CO_2 optical sensor NDIR), stem Ø 20 × 200 mm, IP65

KLGF–U

Duct airflow monitor
Power supply 24 V AC / DC, output 0...10 V ~ 0..30 m/s, mounting flange, stem
Ø 10 × 140 mm, IP65

PERIPHERALS
THERMOSTATS

FST

Frost protection thermostat, mechanical
Output: change–over contact 10 (2) A, 250 V AC, dimensions 126 × 90 × 50 mm, IP65
Setpoint range –10...15 °C, hysteresis 1 K

* capillary length 6 m (FST-1D), 1.8 m (FST-3D), 3 m (FST-5D)

RTR–B121

Room temperature controller, mechanical (heating)
Setpoint range +5...+30 °C, hysteresis 0.5 K
Switching element: bimetal, contact 10 (4) A, 230 V AC
Dimensions 75 × 75 × 25 mm, IP30

RTR–B124

Room temperature controller, mechanical (heating)
Setpoint range +5...+30 °C, hysteresis 0.5 K
Switch element: bimetal, contact 10 (4) A, 230 V AC
Dimensions 75 × 75 × 25 mm. Input for depression –5K, IP30

RTR–B721

Room temperature controller, mechanical (heating / cooling)
Setting range +5...+30 °C, hysteresis 0.5 K
Bimetal, contacts 10 (4) A, 230 V heating, 5 (2) A cooling
Dimensions 75 × 75 × 25 mm IP30

RTR–B747

Room temperature controller, mechanical (heating / cooling)
Setting range +5...+30 °C, hysteresis 0.5 K
Bimetal, contacts 10 (4) A, 230 V AC heating, 5 (2) A cooling
Dimensions 75 × 75 × 25 mm, internal setting, IP30

ALTR–060

Strap-on temperature controller 0...+60 °C
Temperature range 0...+60 °C, hysteresis 8 K ±1 K
Change–over contact 16 (4) A, 24...250 V AC
Dimensions 38 × 48 × 103 mm, IP40, external setting

* internal setting: ALTR–060U

ALTR–090

Strap-on temperature controller 0...+90 °C
Temperature range 0...+90 °C, hysteresis 8 K ±1 K
Change–over contact 16 (4) A, 24...250 V AC
Dimensions 38 × 48 × 103 mm, IP40, external setting

* internal setting: ALTR–090U

ALTR–1

Strap-on temperature controller –35...+35 °C
Temperature range –35...+35 °C, hysteresis 5 K ±1 K Change–over contact 16 (1.5)
A, 24...250 V AC
Dimensions 73.5 × 70 × 108 mm, IP65, external setting

ALTR-3

Strap-on temperature controller 0...+60 °C
Temperature range 0...+60 °C, hysteresis 5 K
Change-over contact 16 (1.5) A, 24...250 V AC
Dimensions 73.5 × 70 × 108 mm, IP65, external setting

ALTR-5

Strap-on temperature controller 0...+90 °C
Temperature range 0...+90 °C, hysteresis 5 K ±1 K
Change-over contact 16 (1.5) A, 24...250 V AC
Dimensions 73.5 × 70 × 108 mm, IP65, external setting

ALTR-7

Strap-on temperature controller 0...+120 °C
Temperature range 0...+120 °C, hysteresis 5 K ±1 K
Change-over contact 16 (1.5) A, 24...250 V AC
Dimensions 73.5 × 70 × 108 mm, IP65, external setting

ETR-060

Built-in temperature controller 0...+60 °C
External setting temperature range 0...+60 °C, hyst. 3 K
Change-over contact 10 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, brass pocket 1/2" 130 mm

* internal setting: ETR-060U
* stainless steel pocket

ETR-090

Built-in temperature controller 0...+90 °C
Internal setting temperature range 0...+90 °C, hyst. 3 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, brass pocket 1/2" 130 mm

* internal setting: ETR-090U
* stainless steel pocket

ETR-0120

Built-in temperature controller 0...+120 °C
External setting temperature range 0...+120 °C, hyst. 5 K Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, brass pocket 1/2" 130 mm

* stainless steel pocket

ETR-50140

Built-in temperature controller +50...+140 °C
External setting temperature range +50...+140 °C, hyst. 5 Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm mm, brass pocket Ms 1/2" 130 mm

* stainless steel pocket

ETR-R6585

Built-in temperature controller +65...+85 °C
External setting temperature range +65...+85 °C, hyst. 0 / -15...20 K
Change-over contact 16 (1.5) A, 24...250 V st, IP65
Dimensions 73,5 × 70 × 108 mm, brass pocket Ms 1/2" 130 mm

STB function, restart after cooling down and manual reset
* stainless steel pocket

ETR-R90110

Built-in temperature controller +90...+110 °C
External setting temperature range +90...+110 °C, hyst. 0/-15...20 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, brass pocket 1/2" 130 mm

STB function, restart after cooling down and manual reset
* stainless steel pocket

ETR-060R85

Built-in temperature controller two-step
Temperature range 0...+60 °C and +65...+85 °C, hyst. 3 and 0 / -15...20 K
Change-over contacts 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, brass pocket 1/2" 130 mm

upper step: STB function, restart after cooling down and manual reset
* stainless steel pocket

ETR-090090U

Built-in temperature controller two-step
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, IP65
Dimensions 73.5 × 70 × 108 mm, brass pocket 1/2" 130 mm

* stainless steel pocket

ETR-090R110

Built-in temperature controller two-step
Temperature range 0...+90 °C and +90...+110 °C, hyst.. 3 and 0 / -15...20 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP54
Dimensions 73.5 × 70 × 108 mm, brass pocket 1/2" 130 mm

upper step: STB function, restart after cooling down and manual reset
* stainless steel pocket

ETR-1

Built-in temperature controller -35...+35 °C
External setting temperature range -35...+35 °C, hyst. 3 K Change-over contact 16 (1.5) A, 24...250 V AC, IP65.
Dimensions 73.5 × 70 × 108 mm, brass pocket 1/2" 130 mm

* stainless steel pocket

KTR-060

Duct temperature controller 0...+60 °C
External setting temperature range 0...+60 °C, hyst. 3 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, stem Ø 14 × 205 mm

* internal settings: KTR-060U

KTR-090

Duct temperature controller 0...+90 °C
External setting temperature range 0...+90 °C, hyst. 3 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, stem Ø 14 × 205 mm

* internal settings: KTR-090U

KTR-0120

Duct temperature controller 0...+120 °C
External setting temperature range 0...+120 °C, hyst. 5 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, stem Ø 14 × 205 mm

KTR-50140

Duct temperature controller +50...+140 °C
External setting temperature range +50...+140 °C, hyst. 5 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, stem Ø 14 × 205 mm

KTR-R6585

Duct temperature controller +65...+85 °C
External setting temperature range +65...+85 °C, hyst.
0 / -15...20 K Change-over contact 16 (1.5) A, 24...250 V AC, IP65 Dimensions
73.5 × 70 × 108 mm, stem Ø 14 × 205 mm

STB function, restart after cooling down and manual reset

KTR-R90110

Duct temperature controller +90...+110 °C
External setting temperature range +90...+110 °C, hyst.0 / -15...20 K Change-over
contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, stem Ø 14 × 205 mm

STB function, restart after cooling down and manual reset

KTR-060R85

Duct temperature controller two-step
Temperature range 0...+60 °C and +65...+85 °C, hyst. 0 / -15...20 K
Change-over contacts 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, stem Ø 14 × 205 mm

upper step: STB function, restart after cooling down and manual reset

KTR-090090U

Duct temperature controller two-step
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, IP65
Dimensions 73.5 × 70 × 108 mm, stem Ø 14 × 205 mm

KTR-090R110

Duct temperature controller two-step
Temperature range 0...+90 °C and +90...+110 °C, hyst. 3 a 0 / –15...20 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, stem Ø 14 × 205 mm

upper step: STB function, restart after cooling down and manual reset

KTR-1

Duct temperature controller –35...+35 °C
External setting temperature range –35...+35 °C, hyst. 3 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm, stem Ø 14 × 205 mm

TR-040

Temperature controller 0...+40 °C
Temperature range 0...+40 °C, hysteresis 2 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm

* internal setting: TR-040U

TR-060

Temperature controller 0...+60 °C
Temperature range 0...+60 °C, hysteresis 2 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm

* internal setting: TR-060U

TR-22

Temperature controller –35...+35 °C
Temperature range –35...+35 °C, hysteresis (adjustable) 3 K ±1 K
Change-over contact 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73,5 × 70 × 108 mm

* internal setting: TR-22U

TR-04040

Temperature controller 0...+40 °C
Temperature range 0...+40 °C and 0...+40 °C, hysteresis 2 K and 2 K
Change-over contacts 16 (1.5) A, 24...250 V AC, IP65
Dimensions 73.5 × 70 × 108 mm

* internal setting: TR-04040U

PERIPHERALS
HYGROSTATS

TW-U

Dew point sensor, active
Switches when reaching relative humidity setpoint, incl. 300 mm strap-on metal band Dimensions 64 × 72 × 43.3 mm, IP65
Power supply 24 V AC / DC, output 0...10 V

KW-W

Dew point sensor (condensing)
Switches at 93 %rH (adjustable), incl. 300 mm strap-on metal band
Dimensions 64 × 72 × 43.3 mm, IP65
Power supply 24 V AC / DC, C/O contact 24 V

RHT-1

Room hygrostat and thermostat
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
Dimensions 127.5 × 75 × 28.6 mm, IP30

For flush box installation, order inclusive mounting frame ARA1.7E

RH-2

Room hygrostat
25...95 %rH, hyst. 4 % rH, power supply 24 AC/DC,
change-over contact 5 (0,2) A
Dimensions 98 × 98 × 39 mm, IP30

* internal setting RH-2U

KH-10

Duct hygrostat, mechanical
Setpoint 35..100 %rH, change-over contact 24..250 V AC, 15 (2) A.
Dimensions 108 × 73.5 × 70 mm, stem Ø 20 × 223 mm, IP65

* internal setting: KH10-U Accessories (to be ordered separately): flange MF-16-K, wall installation clamp WH-20

PERIPHERALS
MANOSTATS

DS-205F

Differential pressure switch 20..300 Pa
Contact 5(0,8) A, 30...250 V AC, ambient temperature –30...85°C, silicone membrane, dimensions: Ø 81 × 55 mm, IP54
Inclusive connecting set: hose 2 m and nipples.

* DS-205B 50...500 Pa
DS-205D 200...1000 Pa
DS-205E 500...2500 Pa

PERIPHERALS
SWITCHING SENSORS

KLSW-W320

Airflow control switch, electronic
0.1...30 m/s (adjustable), relay 230 V / 10 A, power supply 230 V AC or 24 V AC/DC, 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

* KLSW-W24 power supply 24 V AC / DC

WFS-1E

Airflow control switch, mechanical
2.5...9.2 m/s (adjustable), relay 24...250 V / 15(8) A, 108 × 73.5 × 70 mm + vane 80 × 175 mm, suitable for polluted air (oily vapours)

Accessories PWFS-08 – spare vane

SW1-E

Flow monitor, mechanical
0.6...90 m³/h (adjustable using different paddle lenghts and setpoint knob), relay 24..250 V / 15(8) A, 108 × 73.5 × 70 mm + paddle 29 × 34...167 mm, screw socket 1", suitable for liquid and gaseous media up to 120 °C

PERIPHERALS
ROOM UNITS

RTF LT

Room temperature sensor, button, LED
Wall mounted, dimensions 98 × 98 × 33 mm
Measuring element Pt1000
ABS, colour: white RAL9010

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm

RTF T

Room temperature sensor, button
Wall mounted, dimensions 98 × 98 × 33 mm
Measuring element Pt1000
ABS, colour: white RAL9010

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm

RTF P

Room temperature sensor, setpoint
Wall mounted, dimensions 98 × 98 × 33 mm
Measuring element Pt1000, setpoint potentiometer 1K5

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm
* setpoint from the R6 range
* various scales / arrow shapes

RTF PT

Room temperature sensor, button, setpoint
Wall mounted, dimensions 98 × 98 × 33 mm
Measuring element Pt1000, setpoint potentiometer 1K5

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm
* setpoint from the R6 range
* various scales / arrow shapes

RTF PLT

Room temperature sensor, button, setpoint, LED
Wall mounted, dimensions 98 × 98 × 33 mm
Measuring element Pt1000, setpoint potentiometer 1K5

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm
* setpoint from the R6 range
* various scales / arrow shapes
LED colors

RTF PW

Room temperature sensor, setpoint, switch
Wall mounted, dimensions 98 × 98 × 33 mm
Measuring element Pt1000, setpoint potentiometer 1K5, switch A–O–I–II–III up to 50 V

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm
* setpoint from the R6 range
* various scales / arrow shapes

RTF P D4

Room temperature sensor, setpoint, switch
Wall mounted, dimensions 98 × 98 × 33 mm
Measuring element Pt1000, setpoint potentiometer 1K5, switch A–O–I–II–III III up to low voltage

* Pt100, Ni1000–5000, Ni1000–6180, NTC1.8kOhm
* potenciometr z řady R6
* různé tvary stupnice a šipek

PERIPHERALS
ROOM CONTROLLERS

RTR-S010

Room controller – heating and cooling
Setpoint +5...+30 °C P band 1...5 K, pt1000
Power supply 24 V AC/DC, output 2× 0...10 V / 10...0 V, 5 mA
Dimensions 98 × 98 × 33 mm, IP30

RTR-S011

Room controller – heating and cooling
Setpoint 21 °C ± 8 K, P band 1...5 K, pt1000
Power supply 24 V AC / DC, output 2× 0...10 V / 10...0 V, 5 mA
Dimensions 98 × 98 × 33 mm, IP30

RTR-S012

Room controller – heating and cooling
Setpoint +5...+30 °C, P band 1...5 K, pt1000
Power supply 24 V AC / DC, output 2× 0...10 V / 10...0 V, 5 mA
Dimensions 98 × 98 × 33 mm, IP30, 2× LED (heat / cool)

Temperature sensor external Pt1000, must be ordered separately

RTR-S013

Room controller – heating and cooling
Setpoint +21 °C ± 8 K, P band 1...5 K, pt1000
Power supply 24 V AC / DC, output 2× 0...10 V / 10...0 V, 5 mA, Dimensions 98 × 98 × 33 mm, IP30, 2× LED (heat / cool)

Temperature sensor external Pt1000, must be ordered separately

RTR-S014

Room controller – heating and cooling, fancoil
Setpoint +5...+30 °C, P band 1...5 K, pt1000
Power supply 24 V AC / DC, output 2× 0...10 V / 10...0 V, 5 mA, 4 stage fancoil
Dimensions 98 × 98 × 33 mm, IP30, 2× LED (heat / cool)

Temperature sensor external / internal Pt1000, manual fancoil switch 230 V 0-I-II-III

RTR-S015

Room controller – heating and cooling, fancoil
Setpoint 21 °C ± 8 K, P band 1...5 K, pt1000
Power supply 24 V AC / DC, output 2× 0...10 V / 10...0 V, 5 mA, 4 stage fancoil
Dimensions 98 × 98 × 33 mm, IP30, 2× LED (heat / cool)

Temperature sensor external / internal Pt1000, manual fancoil switch 230 V 0-I-II-III

NOTES

DOMAT
MEMBER OF CEZ ESCO

Czech Republic
Domat Control System s.r.o.
U Panasonicu 376
CZ – 530 06 Pardubice
T: +420 461 100 823
E: info@domat.cz

Training center Praha
Třebízského nám. 424
CZ – 250 67 Klecany
T: +420 222 365 395

www.domat.cz

Domat Slovensko
Domat Control System s.r.o.
Pri Smaltovni 4
851 01 Bratislava
T: +421 911 165 038
E: info@domat.sk

www.domat.sk

Armenia
INTEGRAL design & engineering
T: +374 10 520 188
E: info@integral.am
www.integral.am

Austria
Elektro-Zukunft H.Bayonas
T: +43 (0) 91126771
E: office@elektro-zukunft.at
www.elektro-zukunft.at

Benelux
VEDOTEC BV (distributor)
T: +31 088 833 68 00
E: info@vedotec.nl
www.vedotec.nl

Croatia
Aeroteh d.o.o.
T: +385 1 301 53 12
E: eduard.nothig@aeroteh.hr
www.aeroteh.hr

Germany
S+S Regeltechnik GmbH
T: +49 (0) 911-519 47-0
E: mail@spluss.de
www.spluss.eu

Hungary
LS Épületautomatika Kft.
T: +36 30 948 5200
E: vegh.peter@lsa.hu
www.lsa.hu

Jordan
OXYGEN GROUP
T: +962 799 860 869
E: info@oxgn-grp.com
www.oxgn-grp.com

Lithuania and Latvia
UAB BALTESA
T: +370 5 272 7902
E: info@baltesa.lt
www.baltesa.lt

Macedonia and Kosovo
SIMT d.o.o.
T: +389 2 306 9591
E: simt@simt.com.mk
www.simt.com.mk

Malaysia
TECH-STORE MALAYSIA Sdn. Bhd.
T: +603 8940 6688
E: info@tech-store.com.my
www.tech-store.com

Norway
KE Automasjon AS
T: +47 934 16 814
E: tj@ke.no
www.ke-automasjon.no

Poland
P&B Sp. z o.o.
T: +48 56 660 84 18
E: info@domat-cs.pl
www.domat-cs.pl

Portugal
WSBP – We Solve Building Problems
T: +351 239 700 317
E: info@wsbp.eu
www.wsbp.eu

Serbia
POWERHOME
T: +381 63 7405 671
E: office@powerhome.rs
www.powerhome.rs

Slovenia
MBC, d.o.o (system integrator)
T: +386 1 7865 106
E: info@mbc.si
www.mbc.si

KOVINTRADE CELJE (distributor)
T: +386 3 42 78 100
E: regulacije@kovintrade.si
www.kovintrade.com

Spain
SEDICAL, S.A.
T: +34 944 710 460
E: sedical@sedical.com
www.sedical.com

Switzerland
GLT Engineering AG
T: +41 52 647 41 00
E: info@glt.ch
www.glt.ch

Sweden
Malthe Winje Automation AB
T: +46 (0)8-594 118 30
E: info@mwa.se
www.mwa.se

Thailand, Burma, Laos and Cambodia
G7 TECHNOLOGY COMPANY Ltd.
T: +8428 6274 5097
E: info@g7-tech.com
www.g7-tech.com

The Netherlands
Building technology bv (system integrator)
T: +31 571 262 728
E: info@buildingtechnology.nl
www.buildingtechnology.nl

Vietnam
G7 TECHNOLOGY COMPANY Ltd.
T: +8428 6274 5097
E: info@g7-tech.com
www.g7-tech.com