



domat

MEMBER OF CEZ ESCO



# NEWS LETTER

Winter 2021

*Energy under control*

## Dear business friends,

Surely, you have already taken notice of the problems with unavailable electronic components due to the covid-19 pandemic. We try to respond to these outages by redesigning our products so that we use primarily available components. Because of this situation, we are also forced to adjust the prices for 2022. We will inform you in time about the issue of a new price list, which will come into force at the beginning of January.

Despite this unpredictable situation, we are doing everything we can to ensure that our supplies are not restricted in any way. For years, we have managed to keep our prices stable. That is why we believe that we will be able to overcome this unfavorable period of time together. We value our mutual cooperation very much and we will continue to inform you about the overall development.

We hope that the news on the following pages of this traditional pre-Christmas newsletter will put you in a more positive direction. We have improved several of our products, released a new version of Merbon IDE 2.4.0.18 and we believe that your work will be greatly facilitated by a regularly updated technical support section along with new video tutorials.

Thank you again for your cooperation.

We wish you a Merry Christmas and a Happy New Year!

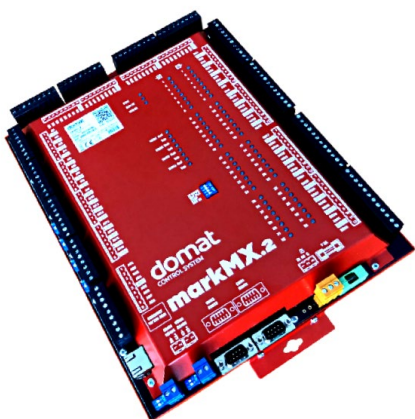
Domat Control System team

## NEW products

### mark220LX, mark320LX

At the end of summer, we added **mark220LX** and **mark320LX** to our offer. Both of these products now serve as a full-fledged replacement for the mark220 and mark320 DDC controllers, which you will no longer find in our portfolio.

It differs from its predecessors mainly by other types of processors, the change was necessary with regard to the availability of components. For their trouble-free programming, please download **the current version of the Merbon IDE**.



### MarkMX.2

MarkMX DDC controller has also been redesigned. The markMX.2 version includes an i.MX6UL processor in addition to the Linux OS. It also includes a new AI switching function for current measurement using DIP switches.

[Data sheet](#)

The last shipment of our products this year took place on December 21, 2021.

We will send more shipments in January 2022.



## News

### R091 - possibility of web security and new firmware

These converters now have the option to set a password to secure the site against unauthorized access.

You will also find changes in **the firmware** - part of which is the stabilization of communication on the DALI line. More information can be found in the current **data sheet**.



### WALL - service web

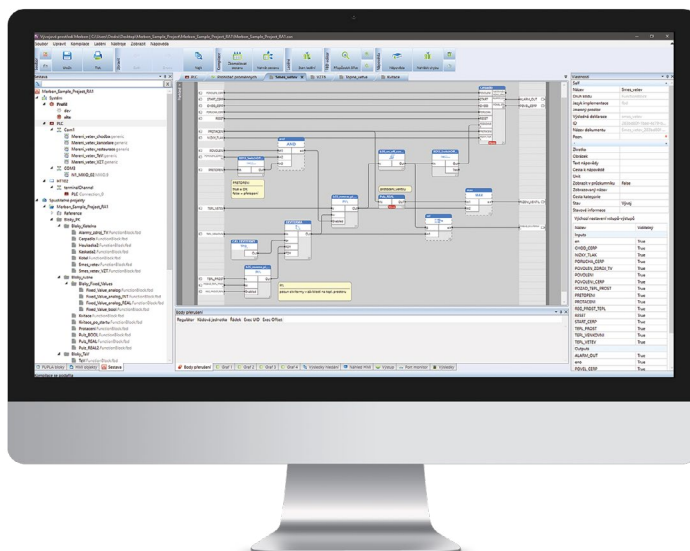
**The PLCs of the wall series** has a newly prepared application for easy recovery of inputs and outputs.

When connecting peripherals to the PLC, you can easily verify the correctness and functionality of the connection even without the prepared program. All you have to do is connect to **192.168.1.10** in a web browser. If your application does not contain a web server, reset the PLC to factory settings before uploading the program.

### New version of Merbon IDE 2.4.0.18

In this version, new hardware platforms were added (eg markMX.2) and minor fixes were made, especially the often required manual mode settings and storage of diagnostic records.

[Download a new release](#)





## Articles

### Installation of M-Bus communication bus in Merbon IDE

M-Bus is a standard that defines the physical bus and a description of the protocol for reading energy and media meters. M-Bus meters are used in buildings as standard and their integration into the measurement and control system is often required.

We have focused on **hardware design and revitalization** in the past. Now let's look at the work of an application programmer. Its task is to check whether all meters contained in the project are connected to the bus and to define their measured values in the program.

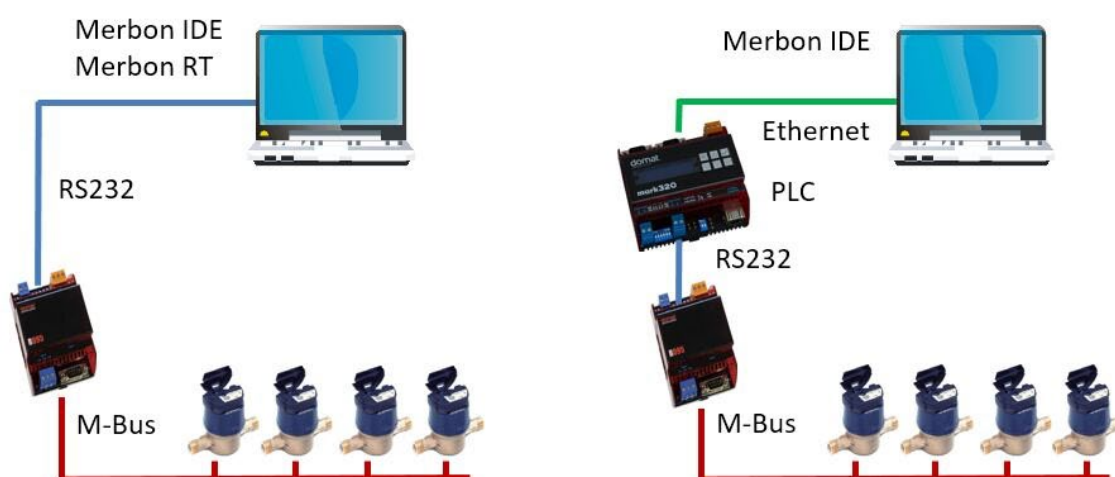
#### There are two ways how to do that.

The first one is to insert meter prototypes from libraries into the project, enter their primary or secondary addresses provided by meter suppliers (heating, cooling, sanitary or electrical contractors), and check if all meters on the bus are communicating properly. However, this method usually fails because the meter suppliers are not able to provide the meter lists complete and in time, or the required meter prototypes are not available.

Therefore it is more efficient to go another way: to read the meters directly from the bus and import them to Merbon IDE. The development environment reads the M-Bus meter response and shows a list of all available variables for a particular meter. The variables required for further processing in the program are to be marked and imported. It is also good that the parsed telegram is always up-to-date (while a library prototype may be rather obsolete if the meter manufacturer had introduced changes in the firmware), and parsed meter data are always available (unlike a library prototype for a particular meter type).

Merbon IDE contains several useful functions for detection and integration of M-Bus meters. Next, we show how to detect, address, read and parse the meters, and how to create prototypes, or software models. They are then copied into the project, and addressed according to the real list of installed meters.

#### There are basically two hardware topologies possible:

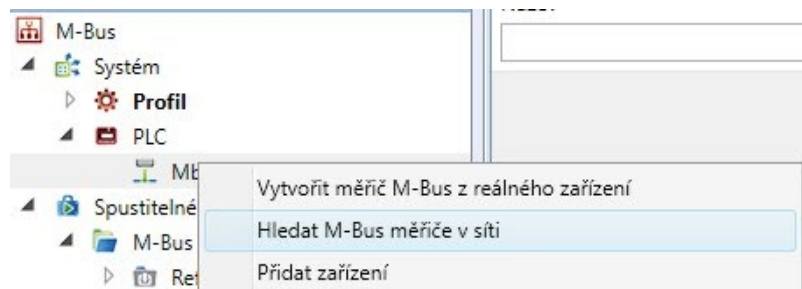


A simple connection with no PLC is on the left. It may also be that the PLC is installed, but it shall run continuously to control the technology, and thus can not be used for meter detection because in the Commissioning mode its control algorithms would be stopped. There is Merbon Runtime (RT) running on the PC with Merbon IDE. Merbon RT is part of the installation, and emulates the PLC functionality for meter commissioning. Merbon RT uses the PC's peripherals, so to connect the M-Bus, a USB to RS232 cable and RS232 – M-Bus converter are required (e.g. Domat R095). If a single meter or two are tested in the office, USB – M-Bus converters may be used, such as Relay Mikro-Master, just note that the number of meters to connect may be limited because of limited capabilities of the converter power supply.

In the right part of the topology drawing above, there is a PLC-based setup with connection over the Ethernet. A RS232 port of the PLC is used to communicate with the RS232 – M-Bus converter. This layout is more useful in the early stages of commissioning, when the PLC is not required to be in full control mode at all times. Remote connection is also possible, as the Ethernet network may be VPNed up to the engineer's desk, so all newly added meters may be detected and added to the program at any time with no need for travelling and reconnecting of cables.

Create a new project in Merbon IDE, attach Merbon RT or a PLC, and insert a M-Bus communication channel. Remember to set the serial communication parameters properly: M-Bus requires Even parity with baudrate 2400 or 9600 bps, according to the default setting of the meters. Some meters use autobaud, which means that they detect the baudrate of the request, and respond with the same baudrate. Upload the project to the runtime or PLC, so that the program is able to use the communication channel.

**In the M-Bus channel context menu there is a function Search M-Bus meters on network.**



Launch it to switch the runtime to Commissioning mode and select if the meters shall be searched using primary or secondary addresses.

### Searching primary addresses

This makes sense if the meters are configured so as to use unique primary addresses (ranged 1...250). Default meter address, as set by the manufacturer, is usually 1. This means that if the meters have not been configured before or at the installation, detection using primary addresses will not work: the responses would collide on the bus. Some meter types, such as Kamstrup Multical, have their primary address set as the last two digits of their serial number (secondary address). There is high probability in small networks that the primary addresses at one M-Bus line will be unique, and no collisions appear. Merbon IDE requests all addresses in the entered range, one after another, and if a meter responds, it is listed in the table of found meters.

According to the M-Bus standard, each meter – regardless of its primary address – should reply to a request sent to address of 254. This means that if there is only a single meter on the bus and its primary address is not known, the bus can be „searched“ only for address 254, which saves the scanning time: the software needs not to wait for tenths of timeouts.

### Searching secondary addresses

The secondary address represents a different addressing concept. It should be unique for every meter, and unlike primary address, it can not be changed. It is a eight-digit decimal number, i.e. ranged 00000000 to 99999999. Scanning the entire range would apparently take an extremely long time. This is why Merbon IDE combines searching by groups of addresses with collision detection. The addresses are not just scanned one after another: they are queried using masks. The detection process may then look as follows:

**Query:** Is there a meter on the bus whose secondary address starts with 0...?

**Response:** (no response – timeout expires)

**Query:** Is there a meter on the bus whose secondary address starts with 1...?

**Response:** (illegible – more meters have responded at the same time and their telegrams collided)

**Query:** Is there then a meter on the bus whose secondary address starts with 10...?

**Response:** (no response – timeout expires)

**Query:** Is there a meter on the bus whose secondary address starts with 11...?

*Response:* (no response – timeout expires)

*Query:* Is there a meter on the bus whose secondary address starts with 12...?

*Response:* A single meter responds, reporting secondary address of 12345678.

However, there may be other meters on the bus with addresses 13..., 14..., etc., up to 19... The program then goes on:

*Query:* Is there a meter on the bus whose secondary address starts with 13...?

...

Etc. It is apparent that when a collision appears, the request goes „deeper“ and all the ten positions in the respective order are queried. There is always one of the three results:

- no response – there is no meter in the queried range, the program continues with the next number in the order up to 9,
- single response – there is only a single meter in the queried range, which replies with its full secondary address, and is recorded in the table of found meters,
- collision of more responses – there are two or more meters in the queried range: the next lower order is searched one after another starting with 0, and the process follows recursively until the complete range is covered.

This algorithm is able to scan the complete bus within 10 to 15 minutes or less (depending on the address layout, timeout length, and number of retries, usually each request is sent three times). The progress is indicated through the green progress bar, and the communication can be checked also at the Rx / Tx LEDs at the M-Bus converter.

**If Merbon RT is used, the search progress is displayed in its program window:**

```
[27.07.2021 12:03:01.723] DBG TSvr12346: Unassigned client context no. 0
[27.07.2021 12:03:03.501] INF TSvr12346: New connection on port 12346 (remote 127.0.0.1:58450)
[27.07.2021 12:03:03.501] DBG TSvr12346: Assigned client context no. 0
[27.07.2021 12:03:04.106] INF Unspec: Detection via secondary address start
[27.07.2021 12:03:06.729] INF Unspec: Found meter 3604502 on 0x03ffffff
[27.07.2021 12:03:27.143] INF Unspec: Found meter 5468564 on 0x05468564
[27.07.2021 12:03:28.144] INF Unspec: Found meter 5468565 on 0x05468565
[27.07.2021 12:03:45.304] INF Unspec: Detection via secondary address end
[27.07.2021 12:03:45.473] DBG TSvr12346: Unassigned client context no. 0
```

The number at right, such as 0x03ffffff, is the mask that specifies the queried address range. Here, it is „...“ whose secondary address starts with 03...“. Note that at the two latter meters which have their secondary addresses next to each other, the mask must go as far as into its maximum depth – to the last, lowest order. This is why numbers 05468560 to 05468569 must have been scanned.

**After the scanning has finished, Merbon IDE shows the table with all found meters.**

Hledání měřičů M-Bus

Nalezené měřiče

Importovat	Vytvořit	Adresa	Identifikační číslo	Výrobce	Médium
<input type="checkbox"/>	<input type="checkbox"/>	2	3604502	EMH	Electricity
	<input type="checkbox"/>	0	5468564	LSE	Water
	<input type="checkbox"/>	0	5468565	LSE	HotWater

Nastavit primární adresu 0

< Zpět

The first one has primary address of 2, the next two have 0 (most probably this is their default address). Note that the detection using primary addresses would not have been possible, as these two meters would collide. The Identification number is the secondary address, it is to be completed by zeroes from the left to achieve the 8-digits form.

Note that at some meters the secondary addresses do not match with serial numbers. These are mostly water meters with external M-Bus adapters which are snapped on the meters after the meters are installed. The serial number (secondary address) of the adapter has no relation to the meter serial number. If there is a floor plan or table with meter serial numbers, the numbers may not match the list of the scanned secondary addresses. Then it is necessary to see the meters again and jot down the serial numbers of their M-Bus adapters.

The primary addresses can be changed directly in the result table, with no special software necessary. The process is as follows:

- focus the meter whose primary address is to be changed,
- set its new address in the field below,
- click the Set button,
- to verify, click Back and scan the bus again.

**Now for the most interesting part: insert the detected meter as a device into the communication channel.**

If the found meter type already exists in the library as a prototype, check the box in the Import column. However, most probably the meter is not present in the library, so check the Create box for one or more meters. If there are more meters of the same type on the bus, it is more efficient to insert only one meter in the channel, select (and rename, if necessary) variables to import, and copy this device into more instances and only change each meter's address. Of course, if a meter type is to be deployed at another project, it can be saved in the library as a library prototype.

The difference is that copied meters are mutually independent devices and when edited (e.g. if some variables are removed) the other meters in the project are not affected, while if a prototype is edited, all instances of the same type are affected by the changes. The instances are references to the library prototype.

For every meter that was checked as Create there will be displayed a table with all parsed variables. All these data are contained in the meter's response to a general query, Merbon IDE parses the reply according to the M-Bus protocol standard, and displays variable names, their formats, units, etc.

Hledání měřičů M-Bus

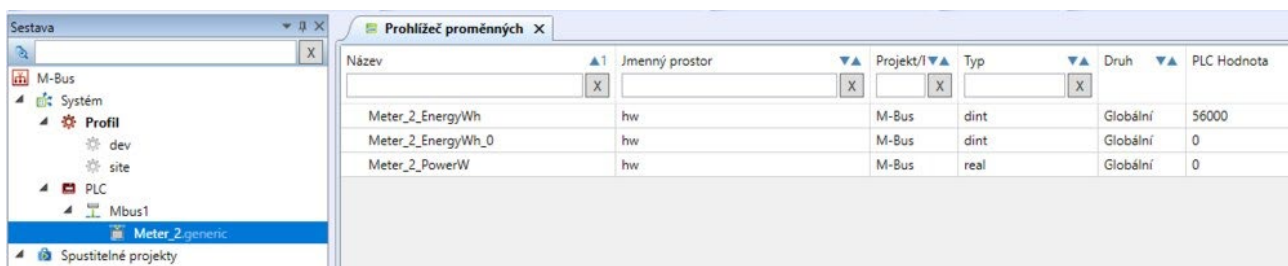
Identifikační číslo 00370016/03604502 Výrobce EMH Médium Electricity

Dostupné proměnné

Importovat	Info	Funkce	DataType	Subjednotka	StorageNumber	Tarif	Násobitel
<input checked="" type="checkbox"/>	EnergyWh	Instantaneous	BCD8	0	0	1	1000
<input checked="" type="checkbox"/>	EnergyWh	Instantaneous	BCD8	0	0	2	1000
<input type="checkbox"/>	ErrorFlags ()	Instantaneous	Int8	0	0	0	1
<input checked="" type="checkbox"/>	PowerW	Instantaneous	Int32	0	1	0	0.1

< Zpět Další > OK Zrušit

At the meter on the above screenshot, energies for two tariffs and actual power were selected. After import there is a device added to the channel and respective global variables are created. The generic name (Meter\_2) is to be renamed to the real meter name, such as Charger\_box\_312.



Edited project can be uploaded to the PLC and run. Start debug to see the current meter values in the PLC Value column.

Note that when a meter is generated, the Use secondary address option is selected by default. If primary addresses shall be used for communication, this property must be changed here (which may be also done for more variables together).

Pozn.		
Parametry zařízení M-Bus		
Primární adresa	2	
Sekundární adresa	3604502	
Použít sekundární adresu	True	
Počet telegramů	1	
Výrobce	EMH	
Verze	0	
Médium	Electricity	
Pozn.		
Definice prototypu		

If the bus has been commissioned before, the meters do not need to be detected. The meter can be created from real device in the context menu of the channel. The selection of variables follows in the same way as above, just the primary or secondary address is entered directly.

#### There are following recommendations for naming of the meters and variables:

- The meter name should identify the consumption point, and the name should be informative for users. Typically, it is an apartment number, rental unit, supplied circuit, etc.
- The variable name should contain the measured energy type.
- Remember to enter the physical unit in the global variable properties.
- If a transform is required, it is to be configured in the data point properties in the device. For example, the energy in the meter above is read in Wh to achieve higher resolution, while it will be useful to read it in kWh to fit numerically with the meter LCD display value. Use linear transform with  $K = 0.001$ .
- It may be useful to read also the meter serial number as a variable (if available) to check that the meter position is that entered in the floor plans.

#### Possible problems and their solution:

##### No meter detected, the M-Bus converter does not send data when scanning (LED Tx dark)

Wrong COM port number in the program, damaged or miswired cable

##### Red LED permanently on at the M-Bus converter

M-Bus shortcircuited or populated by too many meters. Check the bus current, and use a more powerful meter if necessary.

##### Converter sends data when scanning, no response from meters

Broken bus, wrong channel parameters in Merbon IDE (parity must be even), meters use different baudrate than that defined in the channel



**Converter sends data when scanning, red alarm LED is on as a response**

Bus overloaded (too many meters connected) – use a more powerful converter or scan only a part of the bus;  
 address collision when detecting with primary addresses (the meters have their default primary addresses)  
 – use secondary address detection

**Some variables do not appear in the list of parsed variables**

The meter may require special communication, there may be problems with telegram segmentation, etc.  
 Please send the communication between Merbon IDE and meter (port monitor data) and the meter type to Domat Control System technical support, [support@domat.cz](mailto:support@domat.cz).

**I want to engineer my project before going to site, but I do not have the prototype library**

We will be happy to send you the most recent available prototypes per e-mail – please write to [support@domat.cz](mailto:support@domat.cz).

**The value is loaded, but it is meaningless or -1, etc.**

Data type probably doesn't match. The default, automatically assigned integer data type is DINT, the range of which may not be sufficient sometimes and is also signed (it can also take negative values, which does not make sense for cumulative quantities). Change the ST type in the Data Point Properties to UDINT or ULINT.

## From the press

### Tomáš Chadim for E15

Most buildings today have automatically integrated indoor management systems. For example, they adjust the heating or lighting according to the occupancy of the premises automatically, without human intervention. But only a fraction of users can use them effectively. Our sales director Tomáš Chadim addressed the topic of decarbonization in an interview for E15, economic magazine.

**Most people associate decarbonisation with energy or transport. What role do buildings play?**

Essential, because buildings are major energy consumers worldwide. A significant part of the electricity or heat produced is consumed in them, whether we are talking about buildings for housing, services, offices, production or anything else. They have a significant impact on the production of CO<sub>2</sub> emissions and at the same time a significant potential for its reduction.



**How are we doing with the savings?**

Many buildings have already undergone a process of reducing energy consumption through insulation and window replacement. Mainly as a result of various subsidies, a number of construction measures aimed at savings have already been taken. However, the problem is usually how users and operators of these facilities actually behave. No insulation or new windows will help when excess heat is ventilated, instead of the control system changing. Or energy-saving lighting, one of today's trends - there's nothing worth investing in energy-saving lighting when you're shining with it when it's not needed. Again, it's about smart control and regulation.

**How much can modern technology help?**

More than it looks at first glance. As I have already indicated, the management and regulation system has a great influence on the savings and efficiency of the operation. In order to manage something effectively, you

need data, information and the ability to make the right decisions based on them. This is exactly what today's measurement and control systems are making possible. Modern systems work with an increasing amount of data and information and are thus able to effectively manage the environment in buildings. However, in order for such systems to work in this way, it is necessary to think about it from the very beginning of the preparation of construction or reconstruction of the building, and also during its operation. But it is still true, that if we want modern technology to serve us well, we must take good care of it.

### **Who do you supply such systems to? Developers, investors...?**

These are our rarest clients. In reality, however, our most frequent customers for the supply of complete systems are construction companies. In the vast majority of cases, their motivation is different from the motivation of investors or future users and operators of buildings.

### **It is bad?**

If we discuss the planned investment in the construction or reconstruction of a building directly with the investor, operator or future user of the building, the total cost of the building for its life cycle is almost always the main topic. From this point of view, economic logic clearly wins, where an efficient measurement and control system can save significant future operating costs with a negligible investment compared to the total construction and operating costs. The savings do not only concern energy consumption, but also the service life of the technological equipment of buildings as such.

The construction company usually looks at the construction only in terms of the costs of the construction phase, the subsequent operating costs do not apply to it. Therefore, it is not motivated to invest more at the cost of future savings. The main motivation of a construction company is to build as cheaply as possible. The investor, operator or user of the building will usually pay for this with higher operating expenses, but it is usually difficult to initiate a change.

### **What if an investor becomes aware of these aspects during construction, can something be done?**

Of course, if there is interest, it is basically never too late. At the very least, it makes great sense to monitor the commissioning phase of the building and ensure adequate service support. Usually, buildings are handed over in some „default“ setting, but this usually doesn't suit anyone. You just have to realize it as an investor and not be satisfied with that default setting. If you do not underestimate the commissioning phase, the funds and efforts invested will certainly pay off in the form of unnecessarily unspent future costs and the satisfaction of the people who use the building.

### **Is it possible to estimate how many new constructions are being implemented today in the way you have just described?**

Today, almost every building already has a system of measurement and regulation. But if I should say how many investors or developers are interested in how to use them efficiently and optimize them over the life of the building, then it is a percentage unit.

### **Don't certifications help?**

One part of the certification follows from the legislation. This will basically prevent a building with too high energy intensity from being built. So today you will not use inefficient boiler, inefficient lighting etc. The whole building is already in the preparation phase designed to be energetically rational. But the operational part is not considered at all. Technology that can be very efficient and economical when used properly works inefficiently if you run it badly.

### **And the commercial ones?**

Commercial certifications have an incomparably higher potential to affect the phase of operation and use of the building. They emphasize that both construction and operation are environmentally sustainable and therefore energy efficient. It is not so long since building units have passed commercial certifications every year. Today I would like to say that there are dozens of them. Because demand for buildings that can be declared to be environmentally or energy-efficient is growing significantly.

So yes, they are useful. Unfortunately, these are very small numbers in the context of overall construction. So far, it is not the case that most objects have passed some commercial certification.

**But the pressure on sustainability is growing.**

Until recently, companies have addressed sustainability and published various reports, done marketing etc, but in my opinion very often only formally. This area has been really addressed in recent years, most notably the last year, maybe two. Social pressure in this area has grown very rapidly and many companies are trying very quickly to find a way to adapt to it and where else to start than in the building in which they are based?

**How do you convince investors?**

The vast majority of investors behave rationally, it must be economical for them. Today, there is a clear trend of rising energy prices, and this will be the main motivation for investing in efficient solutions and evaluating lifetime investments, not just at the beginning of construction. If energy is cheap and the technology that uses it expensive, no one has an incentive to invest in more energy-efficient equipment. But now times are changing very fast. All other reasons, in my experience, are secondary. It does not apply in one hundred percent, but in most cases it is. But maybe this is changing today, and emission savings will play a more important role than before.

It can be said that if we get in touch with the investor, developer at the time of project preparation of a new building or reconstruction and show him that today he will probably not build a technologically bad building, but can manage those quality technologies inefficiently, he will start looking for way to prevent it. The way is basically the only one - a properly designed measurement and control system and efficient operation of the building at the time of its use.

**Is it possible to talk about returns in years, or is it individual?**

It's individual. We still talk about the measurement and control system, but then it depends on how someone handles it. If set well, the time is relatively short. I don't want to say specific data over the years, because it really varies from case to case. But in general, we are one-third, but perhaps even one-fifth, of the payback period compared to thermal insulation or window replacement. Because you can achieve big savings in measurement and regulation or energy management at minimal cost.

**What is the difficulty of operating these solutions?**

Even in this area, times change significantly. Previously, the presence of qualified staff directly in the building was required. Today, everything can be controlled remotely, using a smartphone, tablet or computer. The software used to control the measurement and control systems is now accessible via the web environment as standard, and we already offer these solutions to our customers in the cloud. The cloud solution is an example of technological developments in the field of measurement and regulation. Very often, we use this solution for customers who need to manage a number of buildings, regardless of where the building is located and regardless of where the staff is located. I'm not talking about the fact that it is also a solution that has the potential to save investment on the part of the customer.

**How is the Czech Republic doing compared to the world?**

Technologically, I think that well, after all, the proof of this is that we are a Czech company and we successfully export our products and solutions to a number of countries around the world. Overall, however, we still have considerable potential in our approach to energy savings, especially compared to many Western countries. We have invested a lot in construction measures over the last 10 years or so, now I think there will be potential in technology and especially its management.

**Is it possible that, in addition to economic pressure, someone will simply force companies to do so?**

When energy audits arose, everyone took it as a duty. But from my point of view, there was a lack of real motivation. Today, the financial sector can be the driving force. Today, no one wants to finance environmentally unfriendly projects, on the contrary, everyone wants to finance the green ones. So it will be harder to get financing for unscrupulous buildings.

However, even customers who used to see something as an annoying obligation now see the same as a competitive advantage. Yes, I think there will come a time when it will be very difficult to obtain funding for environmentally unfriendly projects, and this can be a significant motivation.

### You talked about energy prices, but they fly up and down.

It is evident that emission allowances play a major role in today's high prices. You probably won't just get cheaper. As the share of green energy grows, it will again be necessary to invest in distribution networks and their management. Which will require additional investment. So I would say that the probability of a long-term decline in final, total energy prices is not very high.

Of course, there will be a huge number of those changes. It will be necessary to charge electric cars somewhere, any building will have photovoltaics on the roof. The price of energy will change during the day. It may continue to be cheaper at night when there is less consumption. But maybe on the contrary at noon thanks to the sunshine. In any case, new or green energy will have a huge impact on our habits and will force us to change our thinking. The pressure to change behavior will be enormous.

### Business Energetics 2022

Among other things, Tomáš Chadim joined the program of the online conference Business Energetics 2022 with the subtitle Discover the potential for energy savings in industry. His topic was automation in corporate energy and the use of new energy-saving technologies.



## Our product design – adaptability to client requirements

Domat provides a comprehensive range of hardware and software products and system solutions for building, industry, energy management control and measuring systems. The company implements all kinds of system solutions, from turnkey orders and design to operation. Of course, this is accompanied by regular service and our technical support.

They have developed comprehensive family of tools and applications for energy management and building systems management, called Merbon Family. It consists of runtimes for various hardware platforms with integrated editor (IDE), HMI applications like SCADA, web server, and mobile apps, fast database for data storage, and ContPort, the energy management system. This is how customers receive a complete solution, yet open for integration with third-party systems at all levels.

Regarding hardware, Domat supplies a complete range of control system components, such as peripherals, converters, room controllers, I/O modules, and PLCs.

Their system topology is flat which makes designing easier and enables stepwise extensions of the project with no obsolete hardware costs. Thanks to standard buses and protocols it is easy to integrate a 3rd party open device at any system level. Web access is possible at the automation level.



In an article for Easy Engineering technology magazine, we summarized the key steps that are an integral part of the entire process of adapting our products to meet customer requirements.

### What was the research behind the products/solutions design?

When developing hardware and software products, we try to define their properties so that the product functionally covers as much of the market as possible. On the other hand, there is an effort to minimize the price, easy operation or setup and the shortest possible time to market. Therefore, sometimes the so-called customer variants (also OEM, Original Equipment Manufacturer) are created, which are based on a standard product and modified to meet the maximum performance/price ratio or offer some special features that are not generally needed, but for a particular application are a key feature of the product.





An example of a customer modification is the modification of the Modbus TCP – DALI converter, R091. The customer, the Swiss company Spline AG, uses the R091 to control lighting in residential buildings.

### **Which are the key aspects of the process of product/solution development?**

The first step is to get the product ideas out on the floor from our customer. The generated ideas need to be filtered through by our colleagues in the development department. Depending on the requirements of our customer, we select a product from our existing offer that would best suit the required changes. This may seem like an easy task, but not only similarity of the product is the key when selecting. The whole process is of course highly discussed with our customer, as well as all the testing and feedback.

### **How quickly do you adapt your products/solutions to different requirements?**

The first requirement by Spline AG for an OEM design arose in November 2020, when they won a larger order and were able to order a minimum number of pieces, which made sense for the OEM design. The minimum number of pieces for this type of equipment is between 50 – 100 units, the exact number depends on the scope of modifications and the acceptable price increase.

By mid-December, business and technical issues had been clarified and the terms of reference agreed. In this case, the development to a fully functional and tested product, including documentation, took less than 4 months. At the beginning of May 2021, the first shipment of OEM versions of R091 converters under the name Dim-DALI traveled to Thalwil, Switzerland.

Of course, there are more time-demanding projects, such as OEM room controllers for the Qatar subway. The design specification and approval took not less than six months, as the project management and consultancy is very structured and rigid in this region.

### **What are the most common requirements from clients?**

Usually, the most changes are made in the appearance and packaging. But those modifications of course are not the most difficult ones. Hardware modifications could be for example different power supply, number of I/O, adding buttons etc. As for software, changes in functionality or default configuration are the most common ones. We have our own development department, so we can really focus on customer wishes.

### **How do your products/solutions solve problems that your clients may have?**

In this case, the customer installs the device in house switchboards. The Central ON and Central OFF buttons are now available on the main panel, working in the same way as the original small local switch. It is used for testing purposes and emergency control.

The system allows more flexible installation and replacement of converters in case of failure: the converters do not need to be addressed in advance, they receive addresses from a DHCP server and the link to the control system is set centrally in the service software. The possibility of password protection of web access has unified the service access with other types of interfaces that are deployed in installations.

### **Tell us about products/solutions innovation.**

- Different color of the box – matt gray instead of transparent red;
- Company logo and graphics on the main cover;
- Graphic design of terminal labels;
- Sticker with MAC address on the main panel (used for device identification when commissioning);
- Delivery of a file (Excel) with a list of MAC addresses for easy import into the customer's service software;
- Graphic design of the label on the side of the device;
- Indication LEDs moved to the main panel;
- Central ON and Central OFF buttons on the main panel;
- DHCP is the default network setting;
- Ability to password protect the internal web server with a freely defined password;
- Spline design configuration website.

### What are the trends in product/solution design in your area of activity?

One of them are increasing cyber security requirements, and second is higher level of automation and integration a new technology as photovoltaics, batteries, or e-mobility. We are very active in innovating our products so that we keep up with these trends.

### What are your estimations for the rest of the year?

We all expect to be able to see our customers again face to face, be it on trainings or product introduction meetings. Domat puts the accent on personal relations, we appreciate when customers talk to us, so the feedback is what we really are looking forward to. Regarding sales volumes, there was a slight decrease against expected figures, but the high season for building controls is still ahead, and if I look at the projects in execution, I am very optimistic.

## Training

Fortunately, the situation is favorable again, which is why we have announced the dates of our standard trainings for you:



**13. 1. 2022 – Merbon SCADA - Pardubice**

**10. 2. 2022 – Merbon IDE for beginners - Pardubice**

**24. 3. 2022 – Training of BMS designers - Klecany**

**14. 4. 2022 – Modbus communication - Klecany**

**26. 5. 2022 – Advanced Merbon IDE - Pardubice**

These trainings will be held in Czech language, but could also be in English at your request.

Please follow **the news on our website** and **the event calendar**, where we will inform you in time about any changes or newly announced trainings.

If the situation allows, we would like to take part again in the **Light + Building trade fair** in Frankfurt, which is currently scheduled for March 13-18, 2022. You will also be able to visit our stand at **the AMPER trade fair** in Brno, which will take place from 17 until May 20, 2022.

## Youtube tutorials and FAQ



**The technical support section** on our website is regularly updated with new articles and instructions. The same goes for our **youtube channel**, which we are also trying to expand with new tutorials. If you are solving a certain problem and you are looking for a specific solution, don't forget to study our FAQ and videos.



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PF  
**2022**



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