simex

MultiCon

multichannel

CONTROLLERS data recorders



Measure,

Control and Log Data

2014

Introduction

MultiCon =

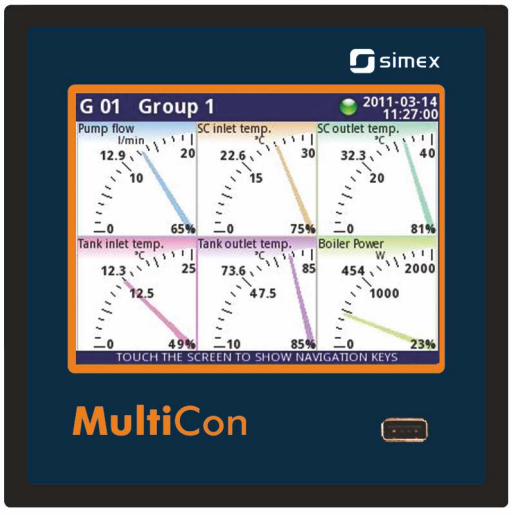
Meter
+ Controller
+ Recorder
+ HMI

in one package



The MultiCon series includes advanced controllers and recorders with great potential closed in small casings. MultiCon CMC has been specifically designed for advanced applications in industrial automatic control engineering. It does not mean, however, that the device cannot be applied in smaller systems. MultiCon CMC can be equipped with three isolated RS-485 interfaces which make it a perfect solution for distributed systems to work as CPU. Thanks to Ethernet interface the device can be monitored via the Internet. A wide range of input and output modules allows to customize CMC precisely as the customer requires it. Thanks to a colour touchscreen working with the user interface becomes a pleasure, while MultiCon operation playing the role of HMI is intuitive and comfortable. Our devices are LINUX-based products to ensure stable operation.

- up to 72 analogue / digital inputs
- IP 65 front panel protection
- Ethernet
- 2 x USB Host ports
- MultiModbus - up to 3 x RS-485 interfaces
- HMI
- Java applets
- a wide range of I/O modules



- max. 10 Hz sampling frequency
- 3.5” / 5.7” LCD touchscreen
- PC keyboard and mouse operation
- PID control
- profiles / timers
- mathematical functions
- visualization as digits, graphs, bargraphs, needles
- 1.5 GB for data
- free DAQ Manager software

News

MultiLevel Access

The **MultiLevel Access** mode makes the MultiCon even more universal. You can define up to 16 independent users including the administrator who is the only user with a permission to freely configure the device without any limitations. The administrator's role also consists in defining permissions for other users. Only one user can be logged on at a given moment. The user is logged off after the lapse of time from the moment of the last interaction of the user with the device as specified by the administrator or upon express request of the user after clicking the padlock icon on the information bar. The authorisation process is additionally facilitated by the possibility of using USB keys. The hardware key allows the user to log on without the necessity of entering a password while removal of the key is equal to logging off. The key is assigned individually to each user. Such a facilitation will be available only for those users whose devices have Access Dongle licence activated. Otherwise the login and logoff process must be carried out manually. The permission file may be saved using external memory and thus it is portable, which highly decreases the configuration time of subsequent units. The hardware key options are available with a MultiCon device having Access Dongle licence activated only.



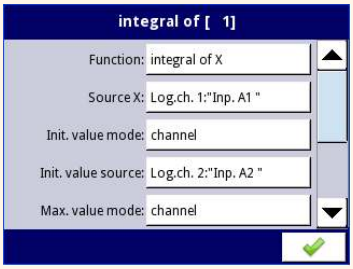
Extended operating temperature range

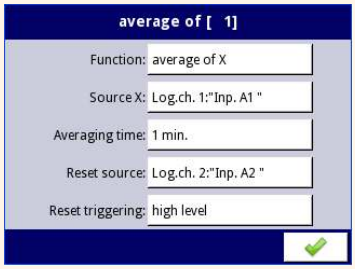


As an universal controller, the MultiCon may operate in various conditions, such as in a closed control cabinet, at a production hall surrounded by heavy-duty equipment and even in the control units of seagoing vessels. In response to the requirements of the most demanding customers, MultiCon has met another challenge, i.e. low temperatures: -20°C ÷ +50°C.

Improved mathematical functions

Implementing new mathematical functions such as: **derivative**, **integral**, **count pulses**, **flip flop** and **average**, extends the wide scope of possibilities of the MultiCon and also significantly decreases the number of the logical channels involved, which makes it possible to optimise complicated applications. Computing the power and acceleration, as well as balancing and averaging of measurement data is much more convenient.





MultiCon with thermal printer

Keeping in mind the needs of our Customers, we have expanded the functionality of the MultiCon data recorder by adding the feature of thermal printing. Owing to the above, the user has the possibility of generating print-outs of the current measurements directly where the recorder is installed. The print-out consists of three basic parts: the header, the content and the footer. The header and the footer are composed of .PNG image files, which the user may freely prepare and upload to the recorder. The content of the print-out is the part which is generated at the time of printing. It features a table with current measurement results. Additionally, the print-out can include the date and time of printing, which are entered above the table.



Your logo

2013-12-06 14:10:17

Heat exchange

Pressure 1	1,00	kPa
Temperature 1	20,5	°C
Flow 1	19	m^3/h
Pressure 2	100	Pa
Temperature 2	25,8	°C
Flow 2	35	m^3/h

Burner

Time	22	ms
Consumption	2	kg/h
Temperature	753	°C

Pump

Voltage	130	V
Current	0,2	A
Power	26	W

Editable field

E-mail client

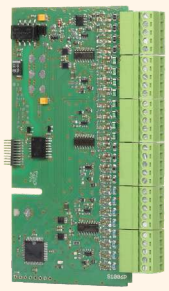


In case of certain important facilities, it is often necessary to notify responsible persons about any changes in the process status. For this purpose, the MultiCon series devices feature an e-mail alert system with an e-mail client. It is possible to define in what case the alert will be generated, who will be the recipients as well as the validity period of the alert. The key element of the alert system is the content parser which enables to dynamically generate data such as: date, time, value in the selected channel, channel name etc. The user can define many different alerts so that relevant information about various processes and alarms may be sent to different recipients. The e-mail client operates on the basis of SMTP and can support SSL and TSL certificates (optionally).

Trend diagrams

MultiCon supports both the dynamic processes as well as the slowly varying processes. Especially in case of the latter, the trend diagram function becomes very useful. The user is granted with the possibility of presenting the process/processes on the screen lasting for a period of up to 1 week.



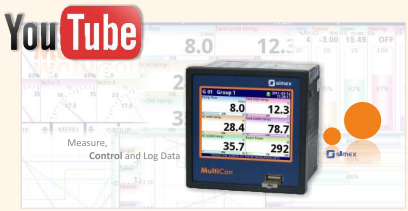


Mixed modules (analogue-digital)

Mixed UIN/UID modules (analogue-digital) has 16 or 24 inputs which allows to measure current, voltage, resistance and temperature (using NTC sensors) and can be equipped with non-isolated digital inputs. To make sensor connection easier, inputs are grouped and all ground terminals are common but separated from power supply and other modules.

New Youtube channel

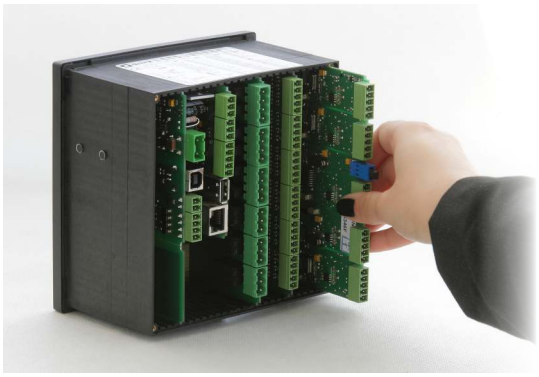
New Youtube channel **MultiCon CMC** is devoted to operate and program the MultiCon series. We will be successively adding here short tutorial videos which are closely related to the operating manual.
You can find us at: http://www.youtube.com/user/multicon24



A wide range of possibilities

The biggest advantage of all devices from the MultiCon series is a big number of built-in inputs / outputs accessible in one compact device. The most developed version **CMC-99** has up to 48 measurement or digital inputs and 60 virtual channels whereas **CMC-141** has 50% more inputs / outputs and virtual channels.

Thanks to a well-thought-out module design you can choose among a wide range of modules and connect them to slots in the way you wish but you do not have to use all slots. You can also decide on your own how to use virtual channels, if they are going to be used for direct measurement readings, mathematical functions, timers, profile creation, set points or virtual objects.





What if one day you want to change your slots configuration or add new modules?
All you have to do is to send your device to an authorized distributor who will perform the changes you require.

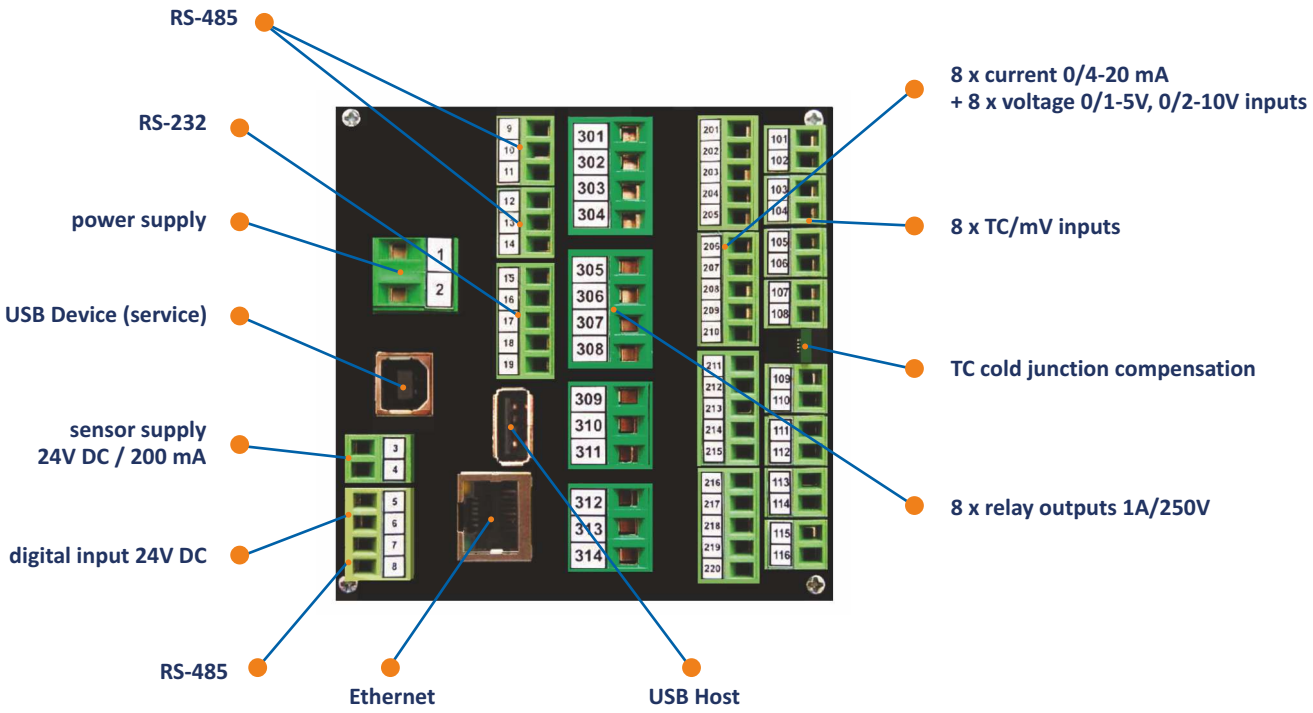
We offer:

the following inputs:
- universal
- voltage
- current
- thermocouple
- RTD
- NTC
- digital
- counting
- flow measurement
- rate measurement

the following outputs:
- relay
- SSR
- current (4-20 mA) signals

communications:
- Ethernet
- RS-485
- RS-232
- USB Host

Sample configuration



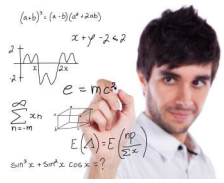
Controller...



Signal measurement is the essential function of the device. This compact appliance, depending on the needs, can be equipped with dedicated modules for the measurement of signals from detectors with a current output (mA), voltage output (in mV and V), from temperature measurement detectors (by thermocouples and RTD elements) or modules with universal inputs that can measure almost any type of signal. Multichannel modules of progressive-reverse counters, tachometers and flow meters and multi-input modules of digital inputs which can read a state of the button and allow for a binary data input has been developed to process digital signals.



Process control is a natural consequence of the availability of the aforementioned mechanisms. MultiCon, however, has many more control capabilities hidden within itself than simply standard relay outputs switching. PID control is the basis of modern automation systems and in this device every of 60 (or 90) measurement channels available can be set as an independent PID controller.



Mathematical functions allow the measurement results to be operated freely. MultiCon allows you not only to use arithmetic and trigonometric functions such as addition, multiplication, sine, raising to a power, but also logical ones (comparing to a constant, comparing the measured values or multiplexer) which makes the developing of the advanced applications much more easy.



Software built-in **timing profiles** (free programmable runs) allow for the unique freedom in shaping a run control and possibility to start the control process at a preset time or when a defined event occurs. Their functions enable the control to be stopped at a specific time/conditionally at any point of the run, to be looped and it is possible to carry any other operation on a setpoint.

...and a recorder in the same package

1.5 GB for data!



Data recording makes a kind of a value added to the tremendous possibilities shown above. MultiCon can record any 60 measurement channels at a speed of 10 samples per second. It has 1.5 GB built-in flash memory, intended for data registration, which, in the case of 24 measurement channels every second, is enough for about 2 months of continuous operation. The function of data registration has been also optimized for the use of hardware resources of this device - the channels for registration are grouped (1-6 channels) and in each group a speed of registration can be freely set. Additionally, there is a unique option of alternative (higher or lower) speed registration, which is set off only under user-specified conditions. This solution allows you to precisely trace the object parameters in critical situations.

recording mode	intense (every 1 sec.)	medium (every 10 sec.)	economy (every 1 min.)
60 channels	20 days	6 months	3 years
48 channels	30 days	8 months	4 years
24 channels	50 days	15 months	7 years

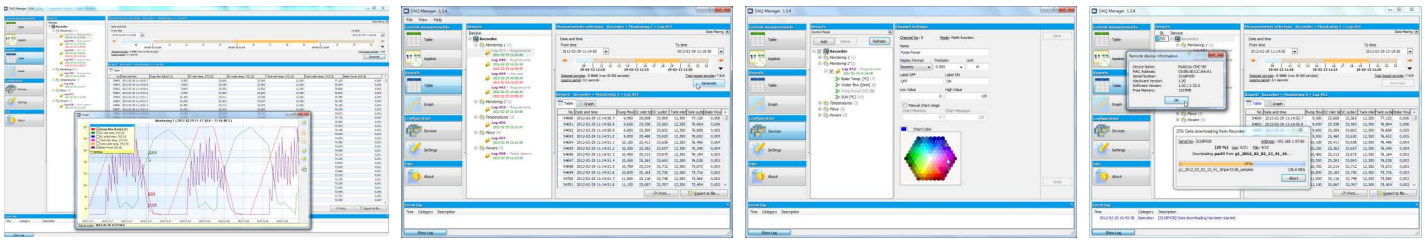
Data download



The recorded data can be downloaded from the internal memory in a way which suits you best. Use a USB flashdrive or Ethernet which allows you to perform the task wherever you are. Current data can be downloaded via the Internet or a Modbus RTU link.

DAQ Manager

To manage such vast amount of data we have designed the DAQ Manager software to help you. It is free of charge and helps to manage all the data. The software allows to visualize data in the form of graphs and tables, group measurement results, create reports and export data into other files. Its fully functional free version can be downloaded from our website or ordered as a payable CD-ROM version.



Communication



Almost every modern electronic measuring instrument is equipped with some type of a communication interface - MultiCon has several of them. The primary type of an interface is **USB Host**. It allows you to connect the device not only with a standard mouse and keyboard, but also an external hard drive (e.g. flash) and to download recorded data. More interesting, from the point of view of the communication with the environment, is RS-485 interface with Modbus RTU Protocol available in standard equipment. Like other interfaces, **RS-485** and **RS-232** available in an optional interface module, interface device, each of which can operate independently as Master or Slave at a different transmission speed. Enhanced menu interface allows you to easily configure it, so that MultiCon will read data from any device equipped with Modbus RTU, and will control a condition of outputs in it, if it can be remotely controlled.

However **Ethernet interface** gives the greatest possibilities. Built-in Web servers, as well as Modbus TCP Protocol give user the possibility to use predefined data visualizations based on Java applications. If a dedicated process visualization is required, the presented mechanisms can be easily adopted to the individual needs of the customer. Basing on freeware tools for website building available on Web, almost everyone is able to prepare, within few minutes, their own visualizing application, which can be launched almost on every computer connected to the Internet.

Manage a developed network of devices

MultiCon

For more demanding customers with many needs we have prepared the Advanced Communication Module (ACM). This module includes interfaces such as: Ethernet, USB Host, RS-485 and RS-485 shared with RS-232. This is why MultiCon can offer up to 3 isolated RS-485 interfaces which compose the base for the MultiModbus System. Having such a big number of RS-485 interfaces at your disposal MultiCon can communicate with other devices in several independent networks. All the Modbus interfaces can work in both master and slave mode. By means of an Ethernet link the user can monitor operation of the entire system via the Internet from every place in the world where an Internet browser is within reach. Another way to monitor given data is to use the RS-485 interface along with PC software.

Some of the applications chosen by our customers:

- central temperature measurement and control system of energetic block,
- control of a multi-zone furnace,
- monitoring system for a pump station,
- multi-point parameters recording of power generators.





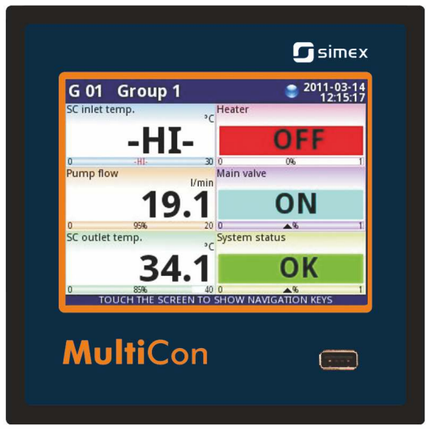




PHYSICAL OUTPUTS

MODBUS RTU SLAVE





TCP/IP





MODBUS RTU MASTER











PHYSICAL INPUTS



temperature



pulses



pressure



flow



rotational speed

Comfort in your every move

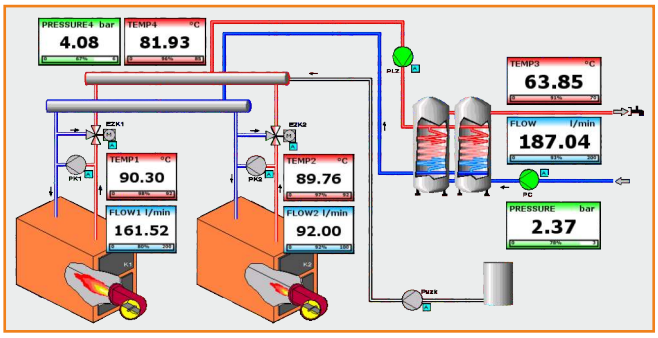


Colour LCD touchscreen

The time when you had to press buttons to move the cursor within a virtual keyboard to enter one character is long gone. Now you have colour touchscreens to use your device more efficiently and with higher level of comfort. The display reacts accurately even to a slight touch. But if you prefer a traditional keyboard and a USB mouse it's not a problem. Simply connect and use them. On the 3.5" TFT LCD (5.7" in CMC-141), 340 x 240 pixels, 65 536 colours - everything is clear and in pleasant colours.

Use Java applets

An applet is software which can be opened by an Internet browser. It is possible to create your own website or use one of the templates included in MultiCon. This solution helps to visualize your system and display the data downloaded from CMC by means of Ethernet. Tank visualisations with bar graphs which indicate liquid level and pipes connected to the tanks with valves, valve state indicators and flow meters indicating flow speed or total liquid flow. This solution makes monitoring of the entire system much more transparent and pleasant.



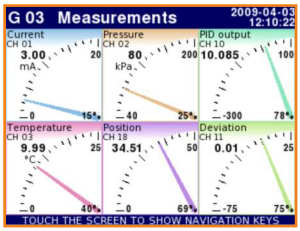
Really easy update

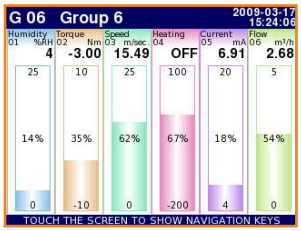
Thanks to the cooperation with our customers we can continue to develop the software and provide it with new useful functions. Interesting suggestions and needs of our customers have been contributing to better firmware. MultiCon update means three easy steps: download the update free of charge from the website, send it to a USB flashdrive, start the procedure and it is done.

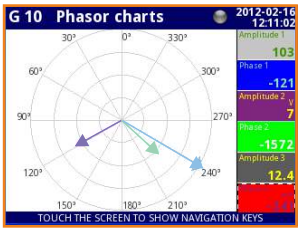


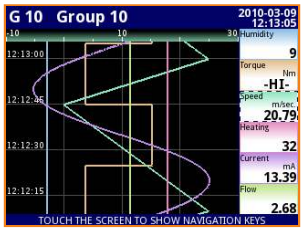
Measure, recalculate, control and display in your way

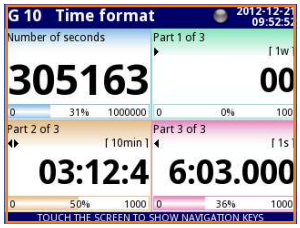
Recalculate any data according to your own functions. One result can be used as an argument of another function. For instance, current measurement from 8 channels and voltage from another 8 channels compose the result you require - total power from 8 objects. All data can be visualized in a range of ways: as numerical values, quasi-analog indicators, phasor charts, horizontal or vertical charts, horizontal or vertical bars or other meters.









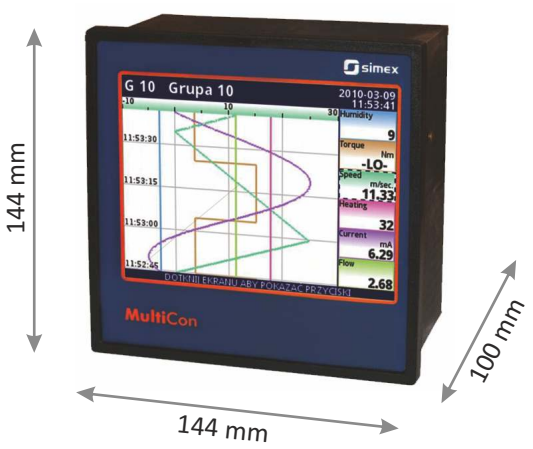


Small is good but bigger is better

MultiCon

MultiCon CMC-141 is CMC-99's bigger brother. It has all features included in CMC-99, but in addition it has a bigger display, more inputs/outputs and even more virtual channels.

CMC-141 is equipped with a 5.7" LCD touchscreen. The number of virtual channels was increased to 90, it helps to build sophisticated applications much easier. Despite of small, compact case, unit allows direct connection (in a maximum mount) as many as 72 analogue or digital inputs and thanks to its design the user can configure the device on his own, using a wide range of different I / O modules. Casing depth is still only 100 mm.



Special designs

Our offer also includes two interesting and special designs: MultiCon built-in a portable case and panel or in-wall mount MultiCon CMC-99SL series.



- **MultiCon built-in a P130 portable case** is useful when it is not possible to mount a typical controller/recorder in a safe way. The case is durable and is certified with the IP 67 rate - the device inside is safe. Multi-pin sockets on side walls for connecting sensors and interfaces are designed according to the customer's requirements.



- **Panel or in-wall mount MultiCon CMC-99SL** is featured by a shallow casing - only 55 mm! All connectors are introduced on side walls of the device as in a typical panel computer. As the number of measurement inputs and outputs is limited, this design in intended mainly for systems with a small number of signals or systems which include other measurement systems with Modbus RTU interface. An Ethernet interface is also available to upgrade every MultiCon control's application easily.

Accessories

STD-99, STD-141

A transparent door with IP 54 rate and a key. The door and its frame are manufactured using the injection moulding technology which ensures that they fit perfectly. The material has been selected to eliminate corrosion and ensure maximum durability.



mini USB flashdrive MS

An unusually small and light USB flashdrive has been designed with easy storage and transport in mind. It fits perfectly the CMC-99 controller's casing with closed IP 54 rate door.



DAQ Manager

Software for managing the recorded data. Its fully functional and free of charge version can be downloaded from our website or ordered as a payable CD-ROM version.



SRH-99, SRH-141

Assembly brackets for installation of the MultiCon e.g. in control cabinets with typical 35 mm bus bars.



Specification

	CMC-99	CMC-141
Power supply/consum.	19 - 50V DC, 16 - 35V AC or 85 - 260V AC/DC, typ. 15 VA, max. 20 VA	19 - 50V DC, 16 - 35V AC or 85 - 260V AC/DC, typ. 25 VA, max. 35 VA
Display	3.5” graphic TFT, 16-bit colour, 320 x 240 pxs, touchscreen navigation	5.7” graphic TFT, 16-bit colour, 320 x 240 pxs, touchscreen navigation
Measurement inputs **Digital inputs**	• up to 9 universal, isolated: 0/4÷20 mA, 0/1÷5V, 0/2÷10V; thermocouples: J, K, S, T, N, R, B, E (PN-EN), L (GOST); -10 ÷ 25 mV, -10 ÷ 100 mV, 0 ÷ 600 mV, Pt100, Pt500, Pt1000 (PN-EN), Pt'50, Pt'100, Pt'500 (GOST), Ni100, Ni500, Ni1000 (PN-EN), Cu50, Cu100 (PN-83M-53852), Cu'50, Cu'100 (PN-83M-53852); resistance 0 ÷ 300 Ω, resistance 0 ÷ 3 kΩ • up to 48 analogue: 0/4 ÷ 20 mA, 0/1 ÷ 5V, 0/2 ÷ 10V • up to 24 thermocouples: J, K, S, T, N, R, B, E (PN-EN); L (GOST); ± 25 mV, ± 100 mV, -10 ÷ 25 mV, -10 ÷ 100 mV • up to 12 RTD: Pt100, Pt500, Pt1000 (PN-EN); Pt'50, Pt'100, Pt'500 (GOST); Ni100, Ni500, Ni1000 (PN-EN); Cu50, Cu100 (PN-83M-53852); Cu'50, Cu'100 (PN-83M-53852); resistance 0 ÷ 300 Ω, resistance 0 ÷ 3 kΩ • up to 24 NTC: 0 ÷ 110 kΩ • up to 12 counters / flowmeter / ratemeter: 0/4 ÷ 20 (1/sek.), 0/4 ÷ 20 (1/min.), 0/4 ÷ 20 (1/godz.) • up to 49 digital *	• up to 15 universal, isolated: 0/4÷20 mA, 0/1÷5V, 0/2÷10V; thermocouples: J, K, S, T, N, R, B, E (PN-EN), L (GOST); -10 ÷ 25 mV, -10 ÷ 100 mV, 0 ÷ 600 mV, Pt100, Pt500, Pt1000 (PN-EN), Pt'50, Pt'100, Pt'500 (GOST), Ni100, Ni500, Ni1000 (PN-EN), Cu50, Cu100 (PN-83M-53852), Cu'50, Cu'100 (PN-83M-53852); resistance 0 ÷ 300 Ω, resistance 0 ÷ 3 kΩ • up to 72 analogue: 0/4 ÷ 20 mA, 0/1 ÷ 5V, 0/2 ÷ 10V • up to 36 thermocouples: J, K, S, T, N, R, B, E (PN-EN); L (GOST); ± 25 mV, ± 100 mV, -10 ÷ 25 mV, -10 ÷ 100 mV • up to 18 RTD: Pt100, Pt500, Pt1000 (PN-EN); Pt'50, Pt'100, Pt'500 (GOST); Ni100, Ni500, Ni1000 (PN-EN); Cu50, Cu100 (PN-83M-53852); Cu'50, Cu'100 (PN-83M-53852); resistance 0 ÷ 300 Ω, resistance 0 ÷ 3 kΩ • up to 24 NTC: 0 ÷ 110 kΩ • up to 12 counters / flowmeter / ratemeter: 0/4 ÷ 20 (1/sek.), 0/4 ÷ 20 (1/min.), 0/4 ÷ 20 (1/godz.) • up to 73 digital *
Outputs **Sensor supply output**	- up to 8 analogue, isolated: 4-20 mA - up to 16 relay 1A/250V - up to 4 relay 5A/250V - up to 16 SSR 1 x 24V DC ±5%, 200 mA max.	- up to 24 analogue, isolated: 4-20 mA - up to 36 relay 1A/250V - up to 18 relay 5A/250V - up to 72 SSR 1 x 24V DC ±5%, 200 mA max.
Communication interface	**Basic** version: RS-485, 1 x USB Host (front or back), **ETU**: 1 or 2 x USB Host, 1 x Ethernet 10 MB **ACM**: 2 x RS-485, 1 x RS-485/232, 1 or 2 x USB Host, 1 x Eth. 10 MB Protocols: Modbus RTU Master or Slave, Modbus TCP Server, HTTP	**Basic** version: RS-485, 1 x USB Host (front or back), **ETU**: 1 or 2 x USB Host, 1 x Ethernet 10 MB **ACM**: 2 x RS-485, 1 x RS-485/232, 1 or 2 x USB Host, 1 x Eth. 10 MB Protocols: Modbus RTU Master or Slave, Modbus TCP Server, HTTP
IP rate protection	IP 65 or IP 40 (version with front USB), options: frame IP 65 for panel cut-out sealing and transparent door with key (IP 54)	IP 65 or IP 40 (version with front USB), options: frame IP 65 for panel cut-out sealing and transparent door with key (IP 54)
Data memory **Data recording speed**	internal 1.5 GB available from 0,1 s to 24 h with resolution 0,1 s	internal 1.5 GB available from 0,1 s to 24 h with resolution 0,1 s
Operating temperature **Storage temperature**	0°C ... +50°C (optional -20°C ... +50°C) -10°C ... +70°C (optional -20°C ... +70°C)	0°C ... +50°C (optional -20°C ... +50°C) -10°C ... +70°C (optional -20°C ... +70°C)
Case dimensions **- panel cut-out**	96 x 96 x 100 mm 90,5 x 90,5 mm	144 x 144 x 100 mm 137 x 137 mm
Installation depth **Panel thickness**	102 mm min. 5 mm max. (optional 45 mm max. using SPH-45 holders)	102 mm min. 5 mm max. (optional 45 mm max. using SPH-45 holders)

** one digital input is available in standard, integrated with PS32 or PS42 power supply modules*

Ordering

MultiCon

MultiCon CMC-XX-P/D/C/B/A-XX1

version:
99 : 96 x 96 mm case
141 : 144 x 144 mm case

slot P - power supply module

slot D - communication module

slot A - I/O module

slot B - I/O module

slot C - I/O module

available modules listed below

options:
00: no options
01: IP 65 frame
08: operating temp. -20°C ÷ +50°C
0B: front USB Host (IP 40)
0P: IP 65 + operating temp. -20°C ÷ +50°C
0K: front USB Host + operating temp. -20°C ÷ +50°C

Optional: LKS-99/141 Data logging licence key or **MLS-99/141** MultiLevel Access licence key

Module type	Description	MultiCon CMC-99					MultiCon CMC-141				
		slot P	slot D	slot C	slot B	slot A	slot P	slot D	slot C	slot B	slot A
PS32	power supply 19 ÷ 50V DC, 16 ÷ 35V AC	•					•				
PS42	power supply 85 ÷ 260V AC/DC	•					•				
E	no communication module (available for 0B option only)		•					•			
ETU	communication module (1 x USB Host, 1 x Ethernet 10 MB)		•					•			
ACM	advanced communication module, includes: 1 x RS-485, 1 x RS-485/232, 1 x USB Host, 1 x Ethernet 10 MB)		•					•			
USB	USB port (back)		•					•			
E	empty slot			•	•	•			•	•	•
UN3	3 universal inputs U/I/RTD/TC/mV, isolated			•	•	•			•	•	•
UN5	5 universal inputs U/I/RTD/TC/mV, isolated								•	•	•
I16	16 x current inputs			•	•	•			•	•	•
I24	24 x current inputs								•	•	•
IS6	6 x current (4-20 mA) inputs, isolated			•	•	•			•	•	•
U16	16 x voltage inputs			•	•	•			•	•	•
U24	24 x voltage inputs								•	•	•
UI4	4 x voltage inputs + 4 x current inputs			•	•	•			•	•	•
UI8	8 x voltage inputs + 8 x current inputs			•	•	•			•	•	•
UI12	12 x voltage inputs + 12 x current inputs								•	•	•
NEW UI4N8	4 x voltage inputs + 4 x current inputs + 8 x NTC inputs			•	•	•			•	•	•
NEW UI4D8	4 x voltage inputs + 4 x current inputs + 8 x digital inputs			•	•	•			•	•	•
NEW UI8N8	8 x voltage inputs + 8 x current inputs + 8 x NTC inputs								•	•	•
NEW UI8D8	8 x voltage inputs + 8 x current inputs + 8 x digital inputs								•	•	•
RT4	4 x RTD inputs			•	•	•			•	•	•
RT6	6 x RTD inputs								•	•	•
TC4	4 x TC inputs			•	•	•			•	•	•
TC8	8 x TC inputs			•	•	•			•	•	•
TC12	12 x TC inputs								•	•	•
D8	8 x digital inputs, isolated			•	•	•			•	•	•
D16	16 x digital inputs, isolated			•	•	•			•	•	•
D24	24 x digital inputs, isolated								•	•	•
CP2	2 x pulse inputs, universal counters, isolated			•	•	•			•	•	•
CP4	4 x pulse inputs, universal counters, isolated			•	•	•			•	•	•
HM2	2 x hourmeters, isolated			•	•	•			•	•	•
HM4	4 x hourmeters, isolated			•	•	•			•	•	•
FT2	2 x pulse inputs (flowmeter/ratemeter), isolated + 2 x current inputs			•	•	•			•	•	•
FT4	4 x pulse inputs (flowmeter/ratemeter), isolated + 4 x current inputs			•	•	•			•	•	•
FI2	2 x current inputs (flowmeter/ratemeter) + 2 x current inputs			•	•	•			•	•	•
FI4	4 x current inputs (flowmeter/ratemeter) + 4 x current inputs			•	•	•			•	•	•
R81	8 x SPST relay 1A outputs			•	•*				•	•	•
R121	12 x SPST relay 1A outputs								•	•	•
R45	4 x SPDT relay 5A outputs			•					•	•	•
R65	6 x SPDT relay 5A outputs								•	•	•
S8	8 x SSR driver outputs			•	•	•			•	•	•
S16	16 x SSR driver outputs			•	•	•			•	•	•
S24	24 x SSR driver outputs								•	•	•
IO2	2 x 4-20 mA outputs, isolated			•	•				•	•	•
IO4	4 x 4-20 mA outputs, isolated			•	•				•	•	•
IO6	6 x 4-20 mA outputs, isolated								•	•	•
IO8	8 x 4-20 mA outputs, isolated								•	•	•

* The installation of the R81 module in slot B only in the case where in the slot C another relay module (R81 or R45) was installed.

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