

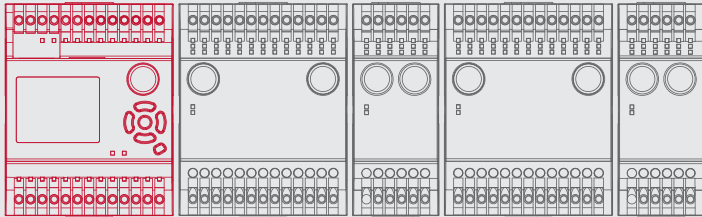


PLC

PROGRAMMABLE
CONTROLLERS



MAIN
MODUL



INPUTS

- LED SIGNALISATION OF INPUT STATE

No. of inputs	Measuring range		
3	12...30 V AC/DC 100...250 V AC/DC (the range is identical with the instrument's power supply)		
No. of inputs	Measuring range	Accuracy (of range)	Rate (meas./s)
6	0/4...20 mA 0...60/450 mV 0...2,8/10/30 V 0...390/3900 Ω Pt 50/100 Ni 1 000 T/C - J/K/T/E/B/S/R/N/L KTY 81-2xx PNP/NPN/contact (50 kHz) 2x IRC (500 kHz)	0,2%	1000

OUTPUTS

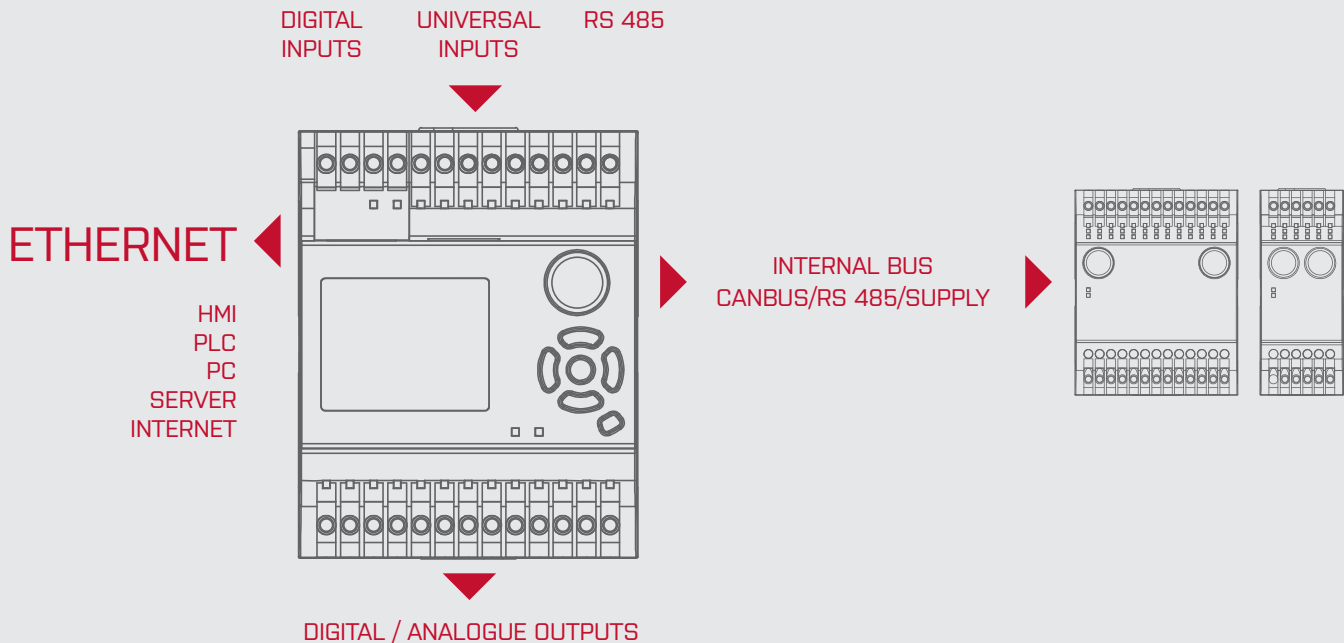
- LED SIGNALISATION OF OUTPUT STATE

No. of outputs	Type of output
5	relays function ON - OFF 10 A/250 VAC/24 VDC open collectors - NPN function ON - OFF; PWM (10 kHz) 300 mA/30 VDC
1	0...5 mA, 0/4...20 mA 0...2/5/10 V/±10 V if analogue output is fitted, then the number of digital outputs is decreased from 5 to 3
1	data output RS 485 ASCII, MODBUS If data output is fitted, then the number of analogue inputs is decreased from 6 to 4
1	Ethernet 100Base

SPECIFICATIONS



Projection	color TFT display, 160 x 128 points
Internal communication	via CANbus at 1 Mbit/s over 40 ms
microSD card	max 32 GB
Module width	72 mm
Power supply	24 V AC/DC 100...250 V AC/DC
Maximum consumption	5,5 VA
Working temperature	-20°...60°C
Connection	terminal block, section < 2,5 mm²
Cover	IP20
Dimensions (W x H x D)	72 x 91 x 57 mm
Dielectric strength	4 kVAC for the duration of 1 min. between supply and output
Insulation resistance	for pollution degree II, measuring cat. III., 300 V (PI), 150 (DI)
Electric safety	EN 61010-1, A2
EMC	EN 61326-1
Seismic capacity	IEC 980: 1993, par. 6
Programming	EN 61 131-3



DESCRIPTION

For our PLC OMC 8000 range we selected module architecture. At the heart of the system there is the main module which can be accompanied by up to 31 expansion modules. These can be both nearby, or at a distance. The maximum distance between two end modules is up to 40 m while the maximum data flow is still maintained. If the distance needs to be longer or computing/communication power is to be greater, (program is split amongst several PLCs) then main modules can be connected over any distance by UDP via ETHERNET.

Communication between modules is realised by CAN bus. It needs to be remembered that the higher the number of expansion modules, the higher the demands on the communication line there will be.

The main module can be powered by 230 V or 24 V. It contains 3 digital inputs, which react to the power supply voltage. It also comes with 6 versatile inputs, all of which are electrically isolated (sharing a common ground terminal amongst them), from outputs and power supply.

Analogue inputs can process the following signals:

- analogue, voltage up to 30 V
- analogue, voltage up to 20 mA
- analogue, voltage up to 3,9 kΩ
- analogue, Pt 100, Pt 1000, Ni 1000
- analogue, T/C - B, E, J, K, L, N, R, S, T, XK
- analogue, KTY81-2xx
- pulse up to 30 V
- pulse - contact, NPN open collectors
- pulse - 2x incremental sensors

Versatile inputs can also be used as two full quadrature inputs for the use with quadrature encoders where two input signals come with a 90° phase shift + zeroing pulse.

One pair of analogue inputs can be used as an RS 485 data output for communication with other devices, such as numeric or data display, simple HMI, panel display etc.

ADVANTAGES OF OMC 8000

- module architecture with the possibility of connecting up to 31 modules
- colour TFT display provides information about the state of the entire system
- ETHERNET 100Base
- data recording onto a microSD card with a selectable time stamp for a later analysis (to monitor trends, states of I/O, alarms, etc ...)
- versatility of inputs (digital, analogue, frequency, data)
- two inputs for IRC encoders (500 kHz) or six inputs PNP/NPN/contact (50 kHz)
- five relay or OC outputs
- universal analogue output
- a slot for micro SD card for transfer of programs and recording of measured data
- online editing which enables debugging
- programming according to EN 61131-3

INPUTS

DIGITAL
ANALOGUE
ANALOGUE - AC

DIGITAL

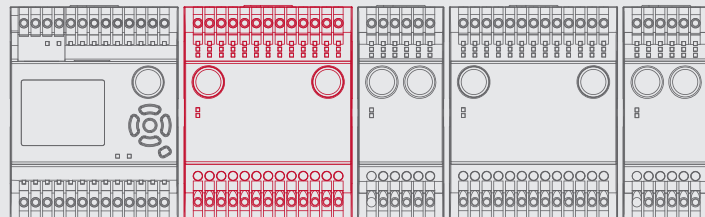
- 15x/36x DIGITAL INPUTS
- LED SIGNALISATION OF INPUT STATE
- POWER SUPPLY VIA BUS

ANALOGUE

- LED SIGNALISATION OF INPUT STATE
- POWER SUPPLY VIA BUS

ANALOGUE - AC

- VOLTAGE (V_{RMS})
- CURRENT (A_{RMS})
- ACTIVE POWER (P)
- FREQUENCY (HZ)
- REACTIVE POWER (Q)
- APPARENT POWER (S)
- PF (COS FI)



EXPANSION MODULES



OMC 8101 - 15DI

is a 15-channel digital input



OMC 8001 - 36DI

is a 36-channel digital input

EXPANSION MODULES



OMC 8111 - 8UNIA

is a fast 8-channel universal analogue input



OMC 8111 - 4DU

is a fast 4-channel analogue input for linear potentiometers



OMC 8121 - 2UNIC

is a precise 2-channel universal analogue input



OMC 8131 - 2DC

is an ultra precise 2-channel analogue input for DC voltage and current



OMC 8131 - 2PM

is an ultra precise 2-channel analogue input for process-monitor signals to 20 mA and ± 10 V



OMC 8131 - 2DU

is an ultra precise 4-channel analogue input for linear potentiometers

EXPANSION MODULES



OMC 8101 - PWR

is a module for the measurement of alternating current, voltage, power, frequency and PF



OMC 8000 - 3PWR

is a module for 3-phase measurement of alternating current, voltage, power, frequency and PF

A wide selection
of precise
analogue
inputs



DESCRIPTION

Module	No. of inputs	Measuring range
OMC 8101 - 15DI	15	12...250 V AC/DC
OMC 8001 - 36DI	36	12...250 V AC/DC

DESCRIPTION

Module	No. of inputs	Isolated inputs	Measuring range	Resolution (bits)	Accuracy (of range)	Rate (meas./s)
OMC 8111 - 8UNIA	8	no	0/4...20 mA 0...60/450 mV, 0...2,8/10/30 V 0...390/3900 Ω Pt 100/1 000; Ni 1 000 T/C - J/K/T/E/B/S/R/N/L PNP/NPN/contact (0,5/500 kHz) IRC (500 kHz), {2x}	12	0,2%	1000
OMC 8111 - 4DU	4	no	Linear potentiometers > 500 Ω	12	0,2%	1000
OMC 8121 - 2UNIC	2	yes	0...5 mA/0/4...20 mA ±60/±150/±300/1200 mV 0...0,1/10/100 kΩ Pt 50/100/500/1 000 Cu 50/100 Ni 1 000/10 000 T/C - J/K/T/E/B/S/R/N/L Linear potentiometers (> 500 Ω)	24	0,1%	40
OMC 8131 - 2DC	2	yes	±1/±10/±100 mA/±1/±5 A ±1/±10/±100/±300 V	24	0,02%	1000
OMC 8131 - 2PM	2	yes	0...5 mA; 0/4...20 mA ±2/±5/±10 V	24	0,02%	1000
OMC 8131 - 2DU	2	yes	Linear potentiometers > 500 Ω	24	0,02%	1000

DESCRIPTION

Module	Measuring range	Accuracy (of range)	Rate (meas./s)
OMC 8101 - PWR	0...1/5 A 0...60/300 mV 0...10/120/250/450 V	0,3%	10
OMC 8000 - 3PWR	3x 0...1/5 A 0...60/300 mV 0...10/120/250/450 V	0,3%	10

OUTPUTS

DIGITAL
ANALOGUE
DATA

DIGITAL

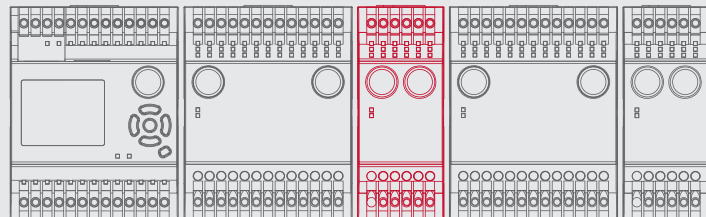
- 4x/6x/8x DIGITAL OUTPUT
- LED SIGNALISATION OF OUTPUT STATE
- POWER SUPPLY VIA BUS

ANALOGUE

- LED SIGNALISATION OF OUTPUT STATE

DATA

- EXPANSION MODULES FOR DATA COMMUNICATION OF THE OMC 8000 SYSTEM



EXPANSION MODULES



OMC 8101 - 4DOR

is a 4-channel digital output with relays



OMC 8101 - 6DOC

is a fast 6-channel digital output with NPN open collectors



OMC 8181 - 8DOC

is a fast 8-channel digital output with PNP open collectors

EXPANSION MODULES



OMC 8101 - 5DI.AO

is a universal analogue output plus 5 universal digital inputs



OMC 8000 - 8DI.2AO

is a universal 2-channel analogue output plus 8 universal digital inputs



OMC 8000 - 8DI.4AO

is a universal 4-channel analogue output plus 8 universal digital inputs

EXPANSION MODULES



OMC 8101 - 5DI.RS

is a communication module RS 232/485 plus 5 universal digital inputs



OMC 8101 - 5DI.CAN

is a communication module CANbus plus 5 universal digital inputs with RS 485



OMC 8101 - 5DI.PB

is a communication module PROFIBUS DP plus 5 universal digital inputs



OMC 8101 - 5DI.PN

is a communication module PROFINET plus 5 universal digital inputs



OMC 8000 - GSM

is a communication module which uses the GSM network to transfer data



DESCRIPTION

Module	No. of outputs	Type of output
OMC 8101 - 4DOR	4	relays function ON - OFF 10 A/250 VAC/24 VDC
OMC 8101 - 6DOC	6	open collectors - NPN function ON - OFF; PWM (10/1000 kHz) 300 mA/30 VDC
OMC 8181 - 8DOC	8	open collectors - PNP function ON - OFF; PWM (10/1000 kHz) 700 mA/30 VDC

DESCRIPTION

Module	No. of outputs	Isolated outputs	Measuring range	Accuracy (of range)	Resolution (bits)	No. of DI inputs	Measuring range
OMC 8101 - 5DIAO	1	yes	0...5 mA, 0/4...20 mA 0...2/5/10 V/±10 V	0,1%	16	5	12...250 V AC/DC
OMC 8000 - 8DI.2AO	2	yes	0...5 mA, 0/4...20 mA 0...2/5/10 V/±10 V	0,1%	16	8	12...250 V AC/DC
OMC 8000 - 8DI.4AO	4	yes	0...5 mA, 0/4...20 mA 0...2/5/10 V/±10 V	0,1%	16	8	12...250 V AC/DC

DESCRIPTION

Module	No. of outputs	Description	Protocol	No. of DI inputs	Measuring range
OMC 8101 - 5DI.RS	4	1x RS 232 3x RS 485	ASCII/MESBUS/MODBUS RTU	5	12...250 V AC/DC
OMC 8101 - 5DI.CAN	3	CAN 2x RS 485	CANopen ASCII/MESBUS/MODBUS RTU	5	12...250 V AC/DC
OMC 8101 - 5DI.PB	1	PROFIBUS DP	PROFIBUS	5	12...250 V AC/DC
OMC 8101 - 5DI.PN	1	PROFINET	PROFINET	5	12...250 V AC/DC
OMC 8000 - GSM	1	GSM Quad-Band: 850/900/1800/1900 MHz remote control of the system, SMS, data transfer			

COMBINED

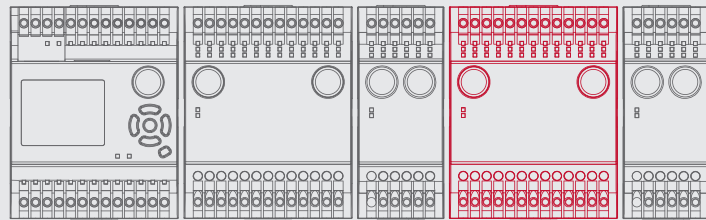
DIGITAL ANALOGUE

DIGITAL

- 8x/12x DIGITAL INPUTS
- 10x/12x/24x DIGITAL OUTPUTS
- LED SIGNALISATION OF INPUT/ OUTPUTS STATE
- POWER SUPPLY VIA BUS

ANALOGUE

- LED SIGNALISATION OF INPUT STATE



EXPANSION MODULES



OMC 8000 - 8DI.10DO

is a 10-channel digital output with 10x OC - NPN plus 8 digital inputs



OMC 8000 - 8DI.10DOCR

is a 10-channel digital output with 5x OC - PNP and 5x relays plus 8 digital inputs



OMC 8000 - 8DI.10DOR

is a 10-channel digital output with 10x relays plus 8 digital inputs



OMC 8001 - 12DI.12DO

is a 12-channel digital output with 12x OC - NPN plus 12 digital inputs



OMC 8001 - 12DI.24DO

is a 24-channel digital output with 24x OC - NPN plus 12 digital inputs



OMC 8081 - 12DI.24DO

is a 24-channel digital output with 24x OC - PNP plus 12 digital inputs

EXPANSION MODULES



OMC 8020 - 8DI.2UNIC

is a precise 2-channel universal analogue input plus 8 digital inputs



OMC 8020 - 8DI.2UNIC.5DO

is a precise 2-channel universal analogue input plus 8 digital inputs and 5x OC - NPN



OMC 8020 - 8DI.2UNIC.5DOR

is a precise 2-channel universal analogue input plus 8 digital inputs and 5x relays



OMC 8020 - 8DI.2UNIC.2AO

is a precise 2-channel universal analogue input plus 8 digital inputs and 2x analog outputs



OMC 8030 - 8DI.2T

is an ultra precise 2-channel module for load cell plus 8 digital inputs



OMC 8030 - 8DI.2T.5DO

is an ultra precise 2-channel module for load cell plus 8 digital inputs and 5x OC - NPN



OMC 8030 - 8DI.2T.5DOR

is an ultra precise 2-channel module for load cell plus 8 digital inputs and 5x relays



OMC 8030 - 8DI.2T.2AO

is an ultra precise 2-channel module for load cell plus 8 digital inputs and 2x analog outputs



For our
PLC OMC 8000
range we
selected module
architecture

DESCRIPTION

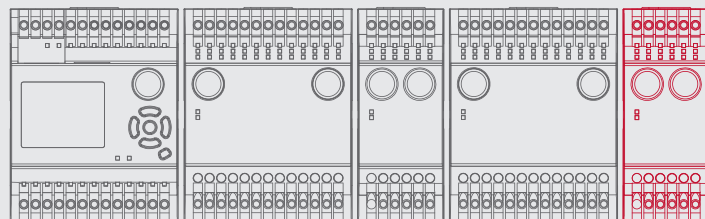
Module	No. of outputs	Type of outputs	No. of DI inputs	Measuring range
OMC 8000 - 8DI.10DOC	10	open collectors - NPN function ON - OFF; PWM (10/1000 kHz) 300 mA/30 VDC	8	12...250 V AC/DC
OMC 8000 - 8DI.10DOCR	5 + 5	open collectors - NPN function ON - OFF; PWM (10/1000 kHz) 300 mA/30 VDC relays function ON - OFF 10 A/250 VAC/24 VDC	8	12...250 V AC/DC
OMC 8000 - 8DI.10DOR	10	relays function ON - OFF 10 A/250 VAC/24 VDC	8	12...250 V AC/DC
OMC 8001 - 12DI.10DOC	12	open collectors - NPN function ON - OFF; PWM (10 kHz) 300 mA/30 VDC	12	12...250 V AC/DC
OMC 8001 - 12DI.24DOC	24	open collectors - NPN function ON - OFF; PWM (10 kHz) 300 mA/30 VDC	12	12...250 V AC/DC
OMC 8081 - 12DI.24DOC	24	open collectors - PNP function ON - OFF; PWM (10 kHz) 700 mA/30 VDC	12	12...250 V AC/DC

DESCRIPTION

Module	No. of inputs	Measuring range (analogue inputs)	Measuring range (digital inputs)	Outputs
OMC 8020 - 8DI.2UNIC	2	0...5 mA/0/4...20 mA $\pm 60/\pm 150/\pm 300/1200$ mV 0...0.1/1/10/100 k Ω Pt 50/100/500/1 000 Cu 50/100 Ni 1 000/10 000 T/C - J/K/T/E/B/S/R/N/L Linear potentiometers (> 500 Ω)	8x 12...250 V AC/DC	
OMC 8000 - 8DI.2UNIC.5DOC	2	0...5 mA/0/4...20 mA $\pm 60/\pm 150/\pm 300/1200$ mV 0...0.1/1/10/100 k Ω Pt 50/100/500/1 000 Cu 50/100 Ni 1 000/10 000 T/C - J/K/T/E/B/S/R/N/L Linear potentiometers (> 500 Ω)	8x 12...250 V AC/DC	5x open collectors - NPN function ON - OFF; PWR (10 kHz) 300 mA/30 VDC
OMC 8000 - 8DI.2UNIC.5DOR	2	0...5 mA/0/4...20 mA $\pm 60/\pm 150/\pm 300/1200$ mV 0...0.1/1/10/100 k Ω Pt 50/100/500/1 000 Cu 50/100 Ni 1 000/10 000 T/C - J/K/T/E/B/S/R/N/L Linear potentiometers (> 500 Ω)	8x 12...250 V AC/DC	5x relays function ON - OFF 10 A/250 VAC/24 VDC
OMC 8000 - 8DI.2UNIC.2AO	2	0...5 mA/0/4...20 mA $\pm 60/\pm 150/\pm 300/1200$ mV 0...0.1/1/10/100 k Ω Pt 50/100/500/1 000 Cu 50/100 Ni 1 000/10 000 T/C - J/K/T/E/B/S/R/N/L Linear potentiometers (> 500 Ω)	8x 12...250 V AC/DC	2x universal analogue outputs 0...5 mA, 0/4...20 mA 0...2.5/10 V/ ± 10 V
OMC 8000 - 8DI.2T	2	1...4 mV/V 2...8 mV/V 4...16 mV/V 6-wire connection supply of the load cell bridge	8x 12...250 V AC/DC	
OMC 8000 - 8DI.2T.5DOC	2	1...4 mV/V 2...8 mV/V 4...16 mV/V 6-wire connection supply of the load cell bridge	8x 12...250 V AC/DC	5x open collectors - NPN function ON - OFF; PWR (10 kHz) 300 mA/30 VDC
OMC 8000 - 8DI.2T.5DOR	2	1...4 mV/V 2...8 mV/V 4...16 mV/V 6-wire connection supply of the load cell bridge	8x 12...250 V AC/DC	5x relays function ON - OFF 10 A/250 VAC/24 VDC
OMC 8000 - 8DI.2T.2AO	2	1...4 mV/V 2...8 mV/V 4...16 mV/V 6-wire connection supply of the load cell bridge	8x 12...250 V AC/DC	2x universal analogue outputs 0...5 mA, 0/4...20 mA 0...2.5/10 V/ ± 10 V

POWER SUPPLY MODULES

SUPPLY MODULES



EXPANSION MODULES



OMC 8100 - PS

is a module designed to supply the bus (5 V/1A)



OMC 8000 - PS30

is a module designed to supply the bus (5 V/1 A), combined with a DC power supply 24 V/1 A

MULTIPROG PRO®

COMPLEX DEVELOPMENT ENVIRONMENT IN ACCORDANCE WITH IEC 61131 FOR HIGHLY DEMANDING APPLICATIONS

MULTIPROG PRO is a sophisticated programming tool used to develop highly demanding PLC applications. It provides professional support during all phases of project development. It offers a wide scale of functions and options. Controlling MULTIPROG PRO is easy and intuitive.

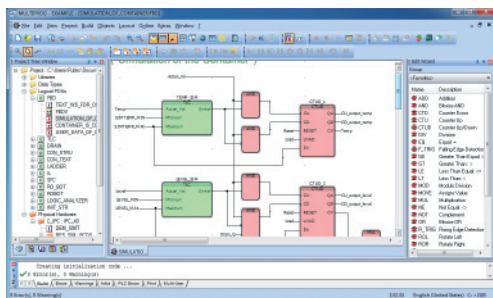
MULTIPROG PRO: Intelligent development environment

MULTIPROG PRO offers an advanced graphic editor with a function for automatic connection of objects (Auto-router), sophisticated text editor with language syntax highlighting and IntelliSense feature. It also provides the ability to enter/modify variables in an easy to read table.

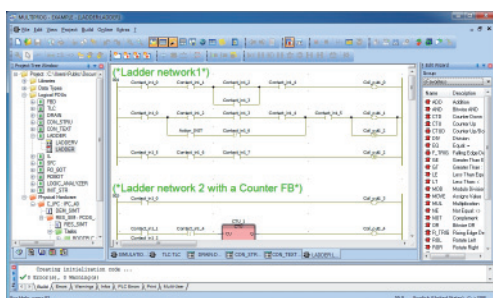
For an easy and unproblematic start of a new project in the MULTIPROG PRO environment the user can use the new project wizard (Wizard function) or Templates (Template function).

MULTIPROG PRO supports all five IEC 61131 languages

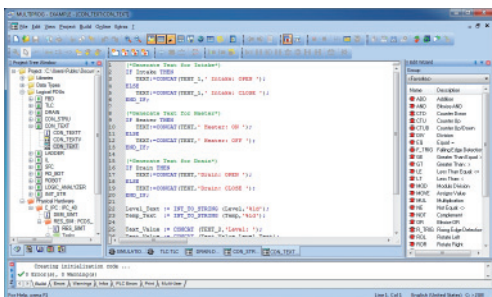
- Structured text (ST)
- Instruction list (IL)
- Ladder diagram (LD)
- Function block diagram (FBD)
- Sequential function chart (SFC)



Picture 1: Function block diagram (FBD)



Picture 2: Ladder diagram



Picture 3: Structured text

MULTIPROG PRO:

Comfortable programming and bringing PLC applications into life

MULTIPROG PRO provides powerful functions for troubleshooting or for bringing PLC applications to life. Development environment provides simulation of PLC application on your computer or signal monitoring using a logic analyzer.

The programmer of PLC applications will certainly appreciate the opportunity to use breakpoints in the code or setting the tuning address.

In the debug mode MULTIPROG PRO allows you to step through the program in the PLC or to set or override the value of the variable (function Force/Overwrite).

Communication possibilities of the MULTIPROG PRO environment are also up to standard. MULTIPROG uses all the benefits of a robust Ethernet interface.

The use of TCP/IP::

- recording of application into the PLC
- remote reading/writing variables via OPC Server

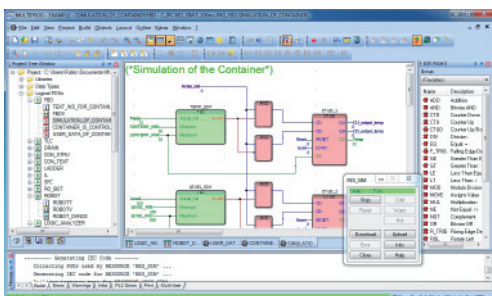
The use of UDP/IP:

- remote access to PLC while reading/writing variables

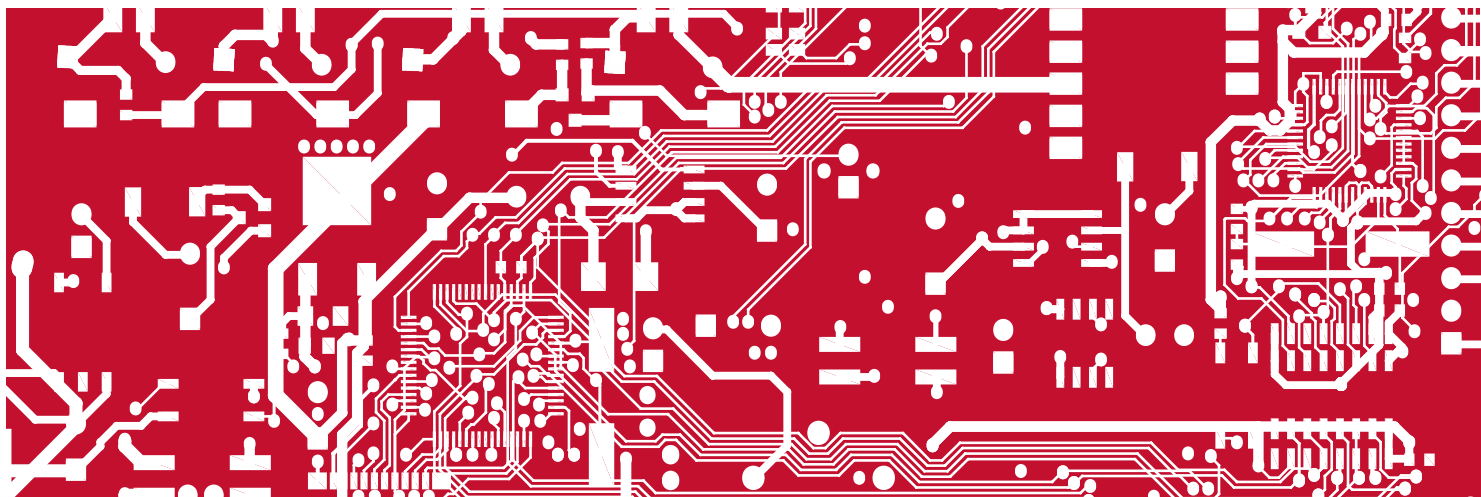
Yet another advantage of the MULTIPROG PRO environment consists of an elaborate system of context help, where help for the current item does not require a complicated search, it is immediately ready to be displayed.

User interface MULTIPROG PRO is available in Czech, English, German, French, Spanish, Chinese and Japanese.

MULTIPROG PRO is compatible OS Microsoft Windows® XP, Windows® Vista, Windows® 7 a Windows® 8



Picture 4: Debugging of application in the On-line mode



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