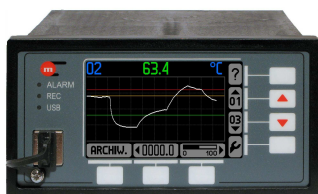




## MPI-C MPI-CL MPI-CN MULTICHANNEL ELECTRONIC RECORDER 16 analog channels, 4 digital channels, 16 math channels



- 16 or 8 universal analog inputs
- 4 or 2 digital inputs
- 16 math channels
- 8 relay outputs for alarm or control functions
- 2 GB internal flash memory, advanced data logging
- Graphical color LCD TFT display
- USB port on the front panel with IP54 protection
- Ethernet port: Modbus RTU protocol, Web Server
- RS-485: ASCII and Modbus RTU protocol

### 16 OR 8 UNIVERSAL ANALOG INPUTS FOR TEMPERATURE SENSORS OR OTHER TRANSMITTERS:

- RTD sensors type Pt-100 and Ni-100 and its multiples (such as Pt-200).
- TC sensors J, L, M, T, U, E, N, B, R and S.
- transmitters with output in the current loop 4-20mA or 0-20mA standard.
- transmitters with an output resistance in the range 0 ... 5000  $\Omega$ .
- converters with voltage output of -0.8 V ... 0.8 V.

The inputs are galvanically isolated from each other. Digital filter with selectable time constant allows the measurement of noisy signals.

### 4 OR 2 DIGITAL INPUT:

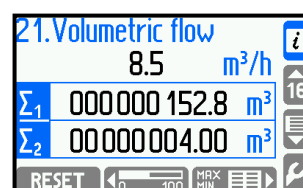
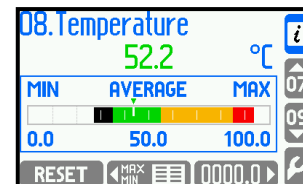
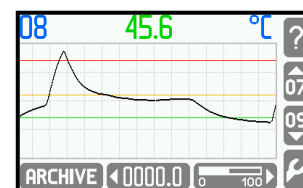
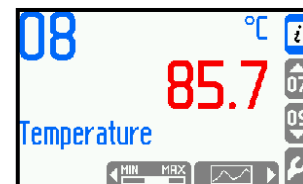
- Measurement frequency range 0.001 Hz to 10 kHz.
- Pulse counting.
- Tracking and recording a binary signal (short or open circuit).

### 16 CALCULATED VALUES:

- Available functions: addition, subtraction, multiplication, division, square roots on measured or calculated channels.

### ARCHIVING RESULTS:

- Writing to internal 2GB memory.
- Protected files with the encrypted checksum.
- Recording frequency from 5 s to 24 h; possible to define two switched frequencies depending on alarm threshold state.





## 8 RELAY OUTPUTS, THRESHOLD ALARM-CONTROL:

- 8 solid-state relay outputs rated at 0.1 A / 60 V.
- Up to 4 alarm thresholds for each channel.

## COMMUNICATION WITH THE MASTER SYSTEM:

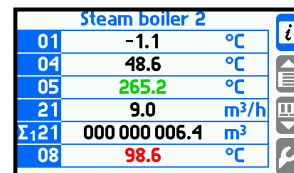
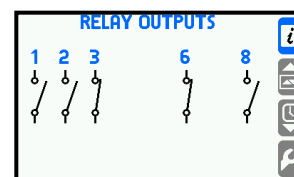
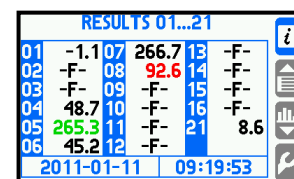
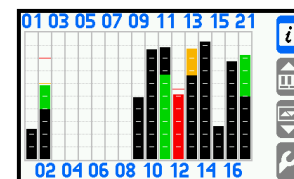
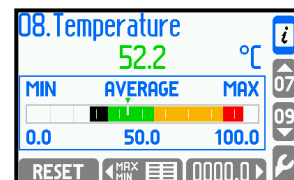
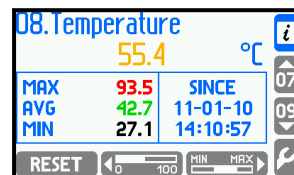
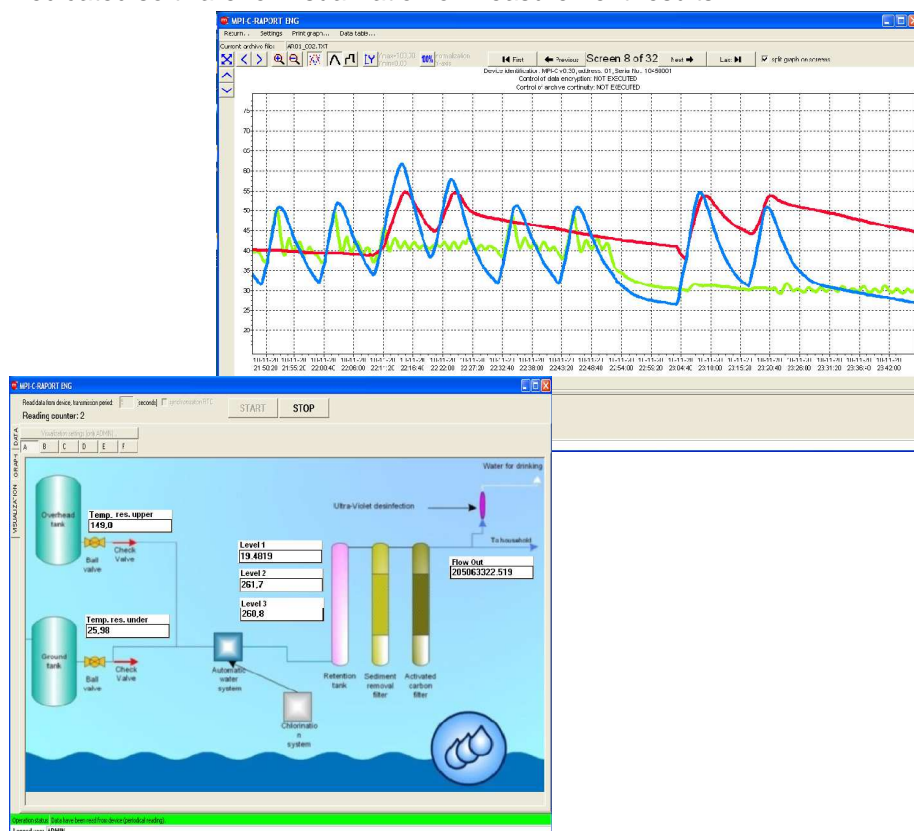
- RS-485 port, ASCII and Modbus RTU protocol.
- Ethernet port, Modbus TCP, Web Server.

## OTHER FEATURES:

- USB port on the front panel for data and setting transfer.
- Counters for each flow value channel (measured or calculated).
- Tracking the value of minimum, maximum and average for each of the measured and calculated channel.
- Advanced system of users and passwords.
- Event log.
- The register of authorized activities.
- Three types of case: MPI-C – panel housing, MPI-CL – portable housing, MPI-CN – wall-mount housing.

## VIEWING THE RESULTS:

- Graphic LCD TFT color display, the dimensions of 42 mm to 70 mm, resolution 240 x 300 px.
- Three two colour LEDs.
- Change in display color when alarms activated.
- Dedicated software for visualization of measurement results.



Device version: MPI-C v2.08 Data sweet version: 2011-10-26





## TECHNICAL DATA

FRONT PANEL	
Type of display:	Graphic LCD TFT 240x300 points.
Reading field size:	42 mm x 70 mm
LED signal diodes :	3 two-colour, green-red
Keyboard:	Membrane, 7 or 19 buttons (MPI-CN and MPI-CL)
ANALOG INPUTS	
Number of inputs:	16 or 8, multiplexed with signal relays
Galvanic separation between channels:	Yes, 100 VDC or 100 V <sub>p-p</sub>
Galvanic separation from supply voltage:	Yes, 500 VDC or 500 V <sub>p-p</sub>
RTD inputs	
Sensor type :	(see table below)
Current:	200 $\mu$ A
Connection:	3-wire or 2-wire
Wire resistance compensation in the 3-wire connection:	Automatic + constant within the range of -99,99 Ohm up to 99,99 Ohm
Wire resistance compensation in the 2-wire connection:	Constant within the range of -99,99 Ohm to 99,99 Ohm
Maximum resistance of wires (to the sensor):	50 Ohm
Resistance input	
Sensor type :	Resistance within the range of 0-5000 Ohm <sup>(2)</sup>
Conversion characteristic:	Linear / User-defined
Current:	200 $\mu$ A
Sensor connection type:	3-wire or 2-wire
Wire resistance compensation in the 3-wire connection:	Automatic + constant within the range of -99,99 Ohm to 99,99 Ohm
Wire resistance compensation in the 2-wire connection:	Constant within the range of -99,99 Ohm to 99,99 Ohm
Maximum resistance of wires supplying power to the sensor:	50 Ohm
TC inputs	
Sensor type:	(table below)
Cold junction compensation:	Any other temperature measuring channel (in °C) or constant value, for thermocouple B – no compensation
Cold junction compensation range:	-50,0° C to +99,9° C
Maximum input voltage:	30 VDC or 30 V <sub>p-p</sub> (between any of +TC i -TC clamps)
Maximum resistance of compensation wires (connected to the TC sensor):	As RTD
Voltage input	
Sensor type:	-0,8 V to +0,8 V <sup>(3)</sup>
Conversion characteristic:	Linear / User-defined
Maximum input voltage:	50 Ohm
Input resistance:	> 10 kOhm
Maximum resistance of wires supplying power to the sensor:	50 Ohm;
0/4-20mA inputs	
Input resistance:	20 Ohm +/-10%
Conversion characteristic:	Linear / Root-shaped <sup>(4)</sup> / User-defined
Transducers powered from recorder:	None (MPI-C) 24 VDC / 0.4 A common (MPI-CN – special version, MPI-CL)
Measurement error	
Measurement accuracy (at ambient temp. of 25 °C):	As specified in the table for the given sensor type
Temperature drift (between 0 and 50°C):	0,025% of the range/10 °C
Signal connections	
MPI-C, MPI-CL: 16 (16-channel version) or 8 (8-channel version) 4-position pin type spring terminal blocks, max. cable diameter: 0.5 mm2 MPI-CN: spring terminal block, cable diameter: 0.2 mm2 – 1.5 mm2	





BINARY INPUTS	
Number of inputs:	4 in 16-channel version 2 in 8-channel version
Maximum input voltage:	30 VDC or 30 V <sub>p-p</sub>
Measurement range:	0.001 Hz - 10 kHz. (0.001 Hz - 1 kHz if the filtrating capacitor is connected)
Minimum pulse width:	20 µs (0.5 ms if the filtrating capacitor is connected)
<b>Configuration: OC / contact</b>	
Voltage (OC):	12 V
Current (contact):	12 mA
Switch on / off threshold:	2,7 V / 2,4 V
<b>Configuration: input voltage</b>	
Input resistance:	About 1 kΩ
Switch on / off threshold:	2,7 V / 2,4 V
Voltage (OC):	12 V
<b>Namur configuration:</b>	
High impedance:	0,4 mA – 1 mA,
Low impedance:	2,2 mA – 6,5 mA.
Signal connections:	MPI-C, MPI-CL: 1 (8-channel version) or 2 (16-channel version) 4-position pin type spring terminal blocks, max. cable diameter: 0.5 mm <sup>2</sup> MPI-CN: spring terminal block, cable diameter: 0,2 mm <sup>2</sup> – 1,5 mm <sup>2</sup>
TWO-STATE OUTPUTS	
Number of outputs:	8
Type of outputs:	Semiconductor relays
Maximum load current:	100 mA (AC/DC)
Maximum voltage:	60 V (AC/DC)
Wire connection:	MPI-C, MPI-CL: two 8-position pin type spring terminal blocks, max. cable diameter: 0.5 mm <sup>2</sup> MPI-CN: spring terminal block, cable diameter: 0,2 mm <sup>2</sup> – 1,5 mm <sup>2</sup>
RS-485 SERIAL PORT	
Signals output on terminal block:	A(+), B(-), GND RS, +3,3 V RS (max 10mA), T(+), T(-)
Galvanic separation:	Yes, 250 VAC / 300 VDC
Maximum load:	32 receivers / transmitters
Transmission protocol:	ASCII Modbus RTU
Maximum length of line:	1200 m
Transmission rate:	1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6, 115.2 kbps
Parity control:	Even, Odd, None
Frame:	1 start bit, 8 data bits, 1 stop bit
Maximum differential voltage A(+) – B(-):	+/-14 V
Maximum total voltage A(+) – "ground" or B(-) – "ground":	-7V ... +12 V
Minimum output signal of transmitter:	1,5 V (at R <sub>0</sub> = 54 Ω)
Minimum sensitivity of receiver:	200 mV / R <sub>WE</sub> = 12 kΩ
Minimum impedance of data transmission line:	27 Ω
Short-circuit / thermal protection:	Yes
Internal terminating resistor:	None
Wire connection:	MPI-C, MPI-CL: One 8-position pin type spring terminal blocks, max. cable diameter: 0.5 mm <sup>2</sup> MPI-CN: spring terminal block, cable diameter: 0,2 mm <sup>2</sup> – 1,5 mm <sup>2</sup>
USB PORT	
Port socket:	A socket, as per USB standard
Version:	USB 1.1





Protection class:	IP54
Recorded format:	Text file, FAT16 (within a limited scope)
Recording indication:	Green – red LED on the face plate.
<b>ETHERNET PORT</b>	
Transmission protocol:	Modbus TCP, ICMP (ping), DHCP server, http server
Interface:	10BaseT Ethernet
Data buffer:	300 B
Number of connections opened simultaneously:	4
Connection:	RJ-45
Indication LEDs:	2, in RJ45 socket
<b>INTERNAL DATA MEMORY</b>	
Capacity:	2 GB
Estimated recording time for recording speed every 3 s for 16 measuring channels:	ca. 400 days
Recording indication:	Green – red LED on the face plate.
<b>SUPPLY (MPI-C)</b>	
Supply voltage:	24 VAC (+5% / -10%) 20 ... 30 VDC (any polarity)
Power consumption:	4 W max
Wire connection:	one 6-position pin type spring terminal block, max. cable diameter: 0.5 mm <sup>2</sup>
<b>VOLTAGE (MPI-CL, MPI-CN)</b>	
Supply voltage:	230 VAC (+5% / -10%)
Power consumption:	typically 12 VA, 30 VA max
<b>MECHANICAL DIMENSIONS – HOUSING (MPI-C)</b>	
Type of housing:	For mounting in panels, non-flammable plastic "Noryl"
Dimensions (h x w x d):	72 mm X 144 mm X 130 mm
Dimensions of panel cut-out:	138 <sup>+1</sup> mm X 68 <sup>+0,7</sup> mm
Maximum panel thickness:	5 mm
Weight:	ca. 1,1 kg
Protection class on front panel side:	IP54
Protection class on rear panel side:	IP30
<b>MECHANICAL DIMENSIONS – HOUSING (MPI-CL)</b>	
Type of housing:	Stand-alone, ABS plastic
Dimensions (h x w x d):	90 mm X 260 mm X 250 mm (without a handle) 90 mm X 300 mm X 305 mm (with a handle)
Weight:	ca. 2,1 kg
Protection class:	IP30
<b>MECHANICAL DIMENSIONS – HOUSING (MPI-CN)</b>	
Type of housing:	It can be suspended, ABS plastic
Dimensions (h x w x d):	216 mm X 260 mm X 125 mm (without cable glands) 246 mm X 260 mm X 125 mm (with cable glands)
Weight:	ca. 2,1 kg
Protection class:	IP54

Device version: MPI-C v2.08 Data sheet version: 2011-10-26

