

## CONVERTERS Mesh/RS485 **AMCV M4-x8x(G)**

**Application:** Converters Mesh/RS485 of **AMCV M4-x8x(G)** type are designed for collection of data from electricity meters in the distribution network equipped with RS485 interface and for their subsequent sending to the Mesh network.

The converters are manufactured in accordance with the standards IEC/EN 300 220, IEC/EN 301 489, IEC/EN 60950, IEC/EN 62056-21, IEC/EN 62056-61 and according to requirements of EU Directive for R&TTE.

**Description:** The converters consist of the two internal modules. The first module represents a Mesh receiver/transmitter and the second module represents a RS485 interface with a supply source. The Mesh receiver/transmitter module can be in the LP version with an output transmitting power up to 10 mW (10 dBm) or in HP version with an output transmitting power up to 500 mW (27 dBm). Modules with higher power are used for increasing of the transmission range.

The converters are parametrized by means of the program AMsoft PFO, which enables modification of converter's setting through RS485 interface.

### Properties

- Possibility to deliver the converter in LP (max. 10 mW) or HP (max. 500 mW) version regarding required range;
- Converter can be parameterized as follows:
  - router** - connected to a gateway of type *AMCV M4-C8HG* (pict. 1) or *AMCV MU-C8HG* (pict. 2);
  - gateway** – allows data collection via *AMCV M4-C8H* router, connection to a PC via USB/RS485 converter, e. g. *AMCV U4*;
- Possibility to supply other network components from the external supply output + 5 V;
- In order to improve the impact, it is possible to replace the standardly delivered antenna by an antenna with a cable equipped with SMA-male connector.



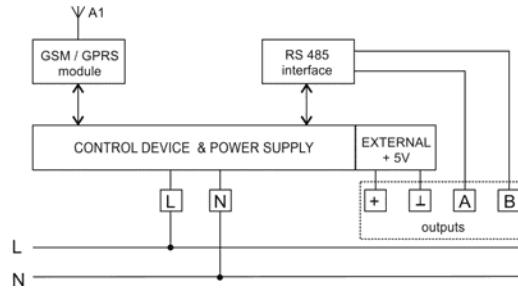
### Technical data

<b>Nominal voltage [V<sub>rms</sub>]</b>	230 ± 10 %	Single-phase supply
<b>Converter's internal consumption [W]</b>	max. 0.5	
<b>Number of nodes ISM - Mesh</b>	256	Depends upon network typology
<b>Number of nodes for RS485</b>	32	Optional up to 256
<b>ISM – Mesh communication [MHz]</b>	868 - 870	
<b>Number of frequency channels</b>	max. 16	
<b>Output power [mW] for LP</b>	10	
<b>Output power [mW] for HP</b>	500	
<b>Sensitivity [dBm] for LP &amp; HP</b>	- 106 (typical)	At 4800 bps at RF side
<b>Range for ISM Mesh [m]</b>		
<i>For direct connection LP/HP</i>	typ. 100 / 2 000	
<i>In buildings with obstacles LP/HP</i>	typ. 30 / 100	
<b>Antenna input of converter [Ω]</b>	50	SMA female
<b>RS 485 communication</b>	Half-duplex	Twisted-pair
<b>Transmission speed [bps]</b>	9 600, 19 200	
<b>Insulation strength [kV]</b>	4	Device of Class II
<b>Length of line wire [m]</b>	1 200	At 9600 bps
<b>Line wire impedance [Ω]</b>	100	
<b>Connection</b>	ARK508-3P	
<b>External supply output [V/mA]</b>	5/50	Connection – terminal panel
<b>Dimensions w x h x d [mm]</b>	52 x 90 x 66	
<b>Temperature range [°C]</b>	- 10 to 65	
<b>Relative humidity [%]</b>	5 – 75	
<b>Weight [kg]</b>	0.15 kg	

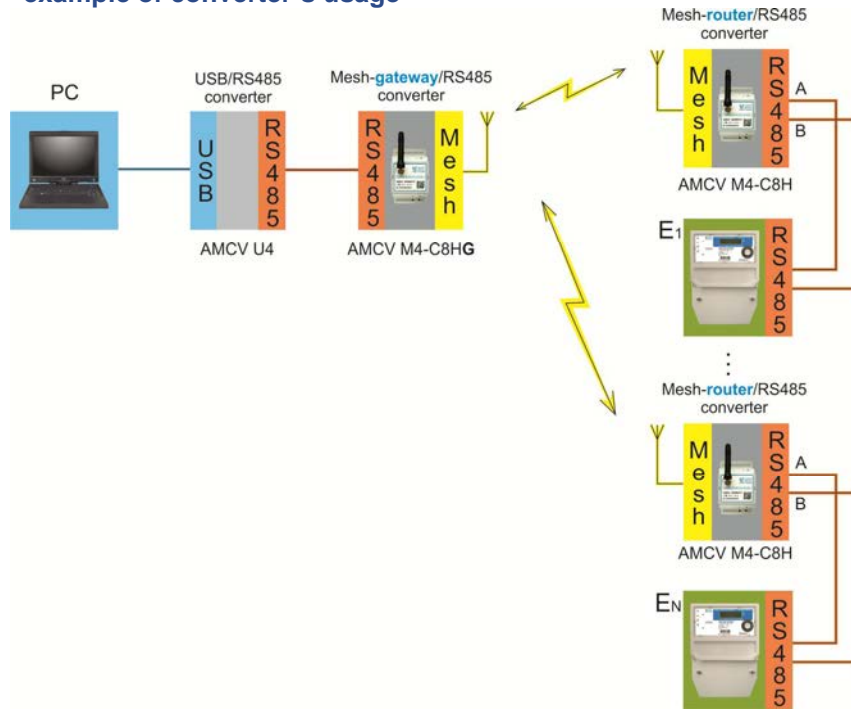
### Marking of the converters

<b>AMCV M4 - x<sub>4</sub> x<sub>8</sub> x<sub>6</sub> x<sub>7</sub> x<sub>8</sub></b>	
<b>AMCV...</b>	<i>designation of a type</i>
<b>M4</b> .....	<i>interfaces: M – Mesh interface – wireless, 4 – RS 485 interface</i>
<b>x<sub>4</sub></b> .....	<i>antennae: C – external antenna with cable and SMA connector (wall mount), E – external antenna without cable with SMA 90° connector (telematic)</i>
<b>8</b> .....	<i>frequency band: 868 MHz</i>
<b>x<sub>6</sub></b> .....	<i>output power of the transmitter: L - low power (10 dBm, or 10 mW), H - high power (10 - 27 dBm, or 10 - 500 mW)</i>
<b>x<sub>7</sub></b> .....	<i>firmware type: no sign – standard version, 1 – converter for connection of the probe AMOS-RS485</i>
<b>x<sub>8</sub></b> .....	<i>parameterization: no sign – router, G – gateway</i>

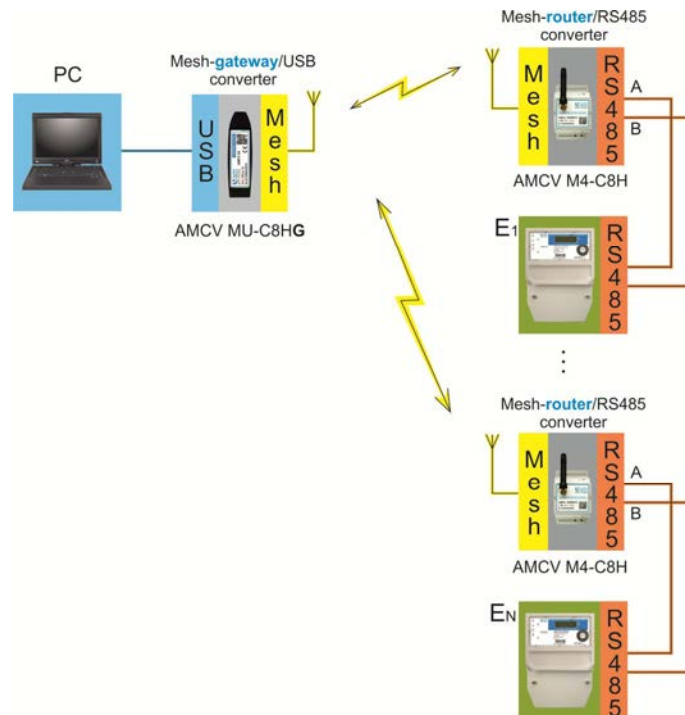
## Wiring diagram



## AMR Flow chart – example of converter's usage



Pict. 1 – Usage of converters as a **gateway** (AMCV M4-C8HG) and **routers** (AMCV M4-C8H)



Pict. 2 – Usage of converters as **routers** (AMCV M4-C8H)

## Ordering data

Specification of type and version, number of pieces.