M095, M096  M-Bus / RS232 converter

Summary

M095 and M096 are microprocessor-controlled M-Bus converters for energy and media meter readouts over RS232. The converters facilitate automatic baud rate switching, galvanical separation of power part and both interfaces, and they can host up to 26 and 60 M-Bus devices.

Applications

- integration of M-Bus water, electricity, gas, and heat meters into PLC or SCADA over RS232 interface

Function

The M095 converter connects up to 26 M-Bus devices to a process station or supervisory system over RS232. The M096, which provides stronger power supply, may host up to 60 M-Bus meters. Maximum communication speed is 9600 bps, with fully automatic baud rate switching – it is not necessary to set anything at the converter.

All interfaces are mutually separated up to 1000 V DC. It is a very important feature which provides high reliability even in harsh industry environment with high EMC pollution. The M-Bus power source is protected against short-circuit and overvoltage (suppressors 600 W and GDT).

The M-Bus devices are connected over a 2-pole connector, regardless of polarity. The RS232 bus is connected over a CANNON 9 M connector with cross (zero-modem) cable.
The M-Bus converters M095 and M096 may freeze occasionally if powered by an unsuitable low voltage stabilized power supply. The supply must meet the requirements of EN 61000-6-2 ed. 3:2006 (EMC for industrial environment), and EN 61000-4-11 ed.2:2005 (Voltage dips, short interruptions and voltage variations immunity tests).

For the converter to operate correctly, following requirements must be met:
- power supply rise time must be maximum 70 ms
- the rise (and fall) must be monotonous, in other words, during the rise time the voltage must not drop.

If the freezing problem should appear, the first choice is to power the M-Bus converters by a separate power supply or 24 V AC transformer which is not loaded by other circuits (I/O modules, DDC process stations, air damper actuators etc.) that may distort the power supply characteristics.

### Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Power supply</td>
<td>20 V ÷ 24 V DC, 14 V ÷ 24 V AC, any polarity</td>
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<tr>
<td>Consumption</td>
<td>max. 6 VA</td>
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<tr>
<td>Working temperature</td>
<td>-20 ÷ 70°C</td>
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<tr>
<td>Relative humidity</td>
<td>5% ÷ 95% non-condensing</td>
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<tr>
<td>M-Bus</td>
<td>standard EN 1434-3, EN 13757-2; 300, 2400, and 9600 bps, automatic baud rate</td>
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<tr>
<td>Maximum bus length</td>
<td>1200 m</td>
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| Number of M-Bus devices on the bus | M095: max. 26  
                                    | M096: max. 60                                                               |
| Short circuit protection      | electronic with LED indication (ALR) and automatic reset                    |
| Overload sustainability       | Sustainable to unlimited bus short-circuit                                  |
| Galvanic separation           | power part, RS232, and M-Bus are separated from each other up to 1000 V DC  |
| LED                           | power (PWR), M-Bus transmit (Tx), M-Bus receive (Rx), M-Bus overload or short-circuit (ALR) |
| Dimensions                    | see below                                                                   |
**Terminals, LED**

- **1, 2** power, any polarity
- **TE** technical earth (optional)
- **M-Bus +** M-Bus, positive
- **M-Bus -** M-Bus, negative
- **RS232** RS232, CANNON9 M

- **ALR** M-Bus overload or short circuit, yellow LED
- **RX** data receive from M-Bus, green LED
- **TX** data transmit to M-Bus, red LED
- **PWR** power OK, green LED

**Dimensions**

- **90** height
- **36** width
- **8,5** depth

**Related products**

- **IPLC301** process station MiniPLC
- **IPLC510** process station MiniPLC
- **IPCT.1** process station with touch screen display
- **IPCB.1** process station without display
- **RC-Vision** SCADA software
- **M020** RS232 / Ethernet converter, terminal server

11/2014 Subject to technical changes.