



LABOR – ASTER

INDUSTRIAL AUTOMATION



AC 083
QMS

USB-RS485 CONVERTER (ADAPTER) (RS485 half-duplex - bi-directional alternating transmission on one A-B line)

- Connection of industrial interface to object computer without a threat of unexpected damage of the computer due to the possibility of overvoltage.
- RS485 connector with galvanic optoisolation.
- Supply from USB port.
- Output and input circuits mutually separated.
- Drivers compatibility with all popular operating systems.
- Software control of transmission direction developed in LABOR-ASTER.

PURPOSE :

The converter can be used for service communication between laptops without an built-in serial interface and devices that run directly on industrial objects. The converter has 2kV galvanic separation which effectively protects used computer.

FUNCTIONAL DESCRIPTION :

In the device popular converter chip type FT230X made by FTDI is used. Drivers can be download from here: <http://www.ftdichip.com>. To ensure the transmission continuity additional microcontroller has been used which with its software controls transmission direction with a possibility of extending RS485 line occupation time up to 2 bytes which effectively prevents breaks in transmitting and losing information. The microcontroller constantly monitors transmission speed and adjusts its operation to the actual speed. It uses an innovative algorithm (developed by LABOR-ASTER) which tests transmission speed and makes it unnecessary to be constant. Software handles well transmission direction changes. A characteristic feature of this algorithm is lack any loss of information at the start of the transmission at any speed. It is specially designed for Modbus ASCII/RTU protocol but works properly in any half-duplex protocol. The only requirement is transmission continuity with maximum 1 byte break. Any errors are indicated by LEDs.

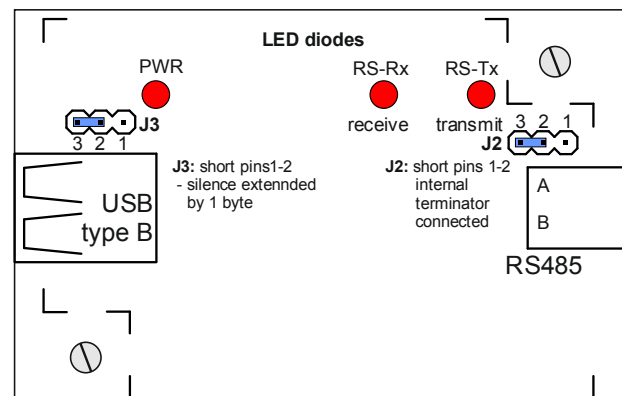
- **PWR LED** – lights continuously after turning on power supply or blinks if low state is detected for more than 0.5 sec (which usually means wrong line polarization of the RS485 transmission line).
- **RS-receive LED** – lights during receiving by system drivers.
- **RS-transmit LED** – lights during transmitting by system drivers.

After opening the housing you can permanently extend “silence” state by one additional byte by switching the J3 jumper on 1-2. Jumper J2 1-2 connects terminal resistor on RS485 output.



BASIC TECHNICAL DATA :

Supply voltage	- 5Vdc from USB
Maximum current	- 0.12A.
Supply protection	- polymer fuse 0.2A - transil 6V 600W.
Transmission speed	- any in range 50...115 200
Devices number on one RS485 line	- max 254
Line length	- max 1200m
Galvanic separation	- 2kV
Housing	- length x width x depth 67mm x 48mm x 25mm
protection level	- IP20
mounting	- manual device
Ambient temperature	- -10...70°C
Relative humidity	- up to 90%
Safety requirements	- PN-EN 61010-1:2002
EMC requirements	- PN-EN 61000-6-1 - PN-EN 61000-6-3



ORDER CODE: USB-RS485 CONVERTER

Production and distribution:

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The manufacturer reserves the right to make changes to the product