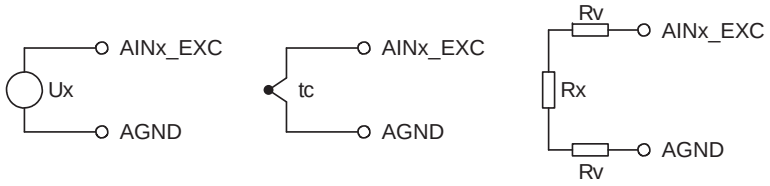


Fig. 1. Wiring diagram for voltage signals, thermocouples and RTD sensors (two-wire topology; resistors Rv illustrate resistance of wires).

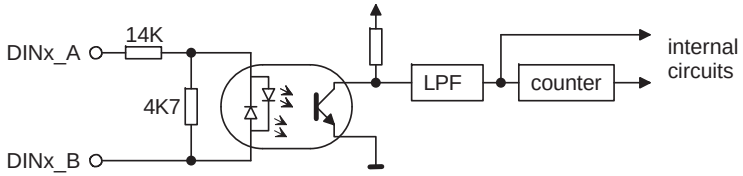


Fig. 2. Simplified diagram of the digital inputs and counters.

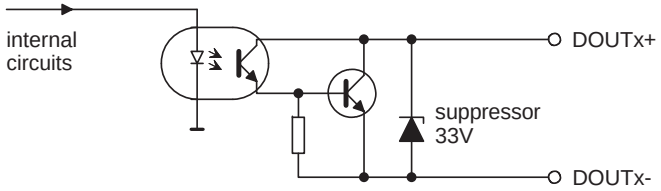


Fig. 3. Simplified diagram of the digital outputs.

MU-815

Installation Guide

(further guides and software available at https://www.tedia.eu/mu)

Manufacturing, sales office, service center and technical support:

address: TEDIA spol. s r. o.
Zabelska 12, 31200 Plzen, Czech Republic
phone/e-mail: https://www.tedia.eu/contacts

General description

The MU-815 modules are designed especially for distributed DAQ&C systems and offer the following functions:

- eight analog S.E. inputs for voltage signals with ranges of ±40 mV to ±1.2 V, resistance measurement with ranges of 120 Ohm up to 4 kOhms, thermocouples (linearization most used types including cold junction compensation) and RTD sensors (two-wire connection only, linearization most used types); analog inputs are isolated from other circuits, but not each to other
- two digital inputs for signals 24 V (DC or AC signal 50/60 Hz) equipped with counters (up to 10 Hz; DC signal only); inputs are isolated from other circuits and each to other
- two digital outputs for DC signals up to 32V (continuous current 0.3 A); outputs are isolated from other circuits and each to other
- RS-485 communication line (without isolation, i.e. the GND of the RS-485 line is shared with the power source GND)

General instructions for use

The DAQ&C modules of the MicroUnit serie may be used only according to the manufacturer's recommendations and precautions given in manuals and other general standards and terms and may be used only such a way, that its failure caused by any reason will not be dangerous to any person or property.

Installation

The modules are intended for mounting on a 35 mm DIN rail, operating temperature of -10~60 °C with relative humidity up to 90%, noncondensing. The location and meaning of the terminals are described in the figure and in the tables.

When connecting the power supply (10~30 V_{DC}; power consumption 2.2 W max.), it is necessary to pay attention to the correct polarity and voltage tolerance; failure to observe the permitted limits may result in permanent damage. Also, connecting the supply voltage to another terminal of the module can cause permanent damage.

When connecting the communication line, use shielded double line cable meeting RS-485 or RS-232 requirements. The cable shield must be connected to terminal 43.

All other signals are connected with appropriate wires to the screw terminals described and explained in the following tables and figures.

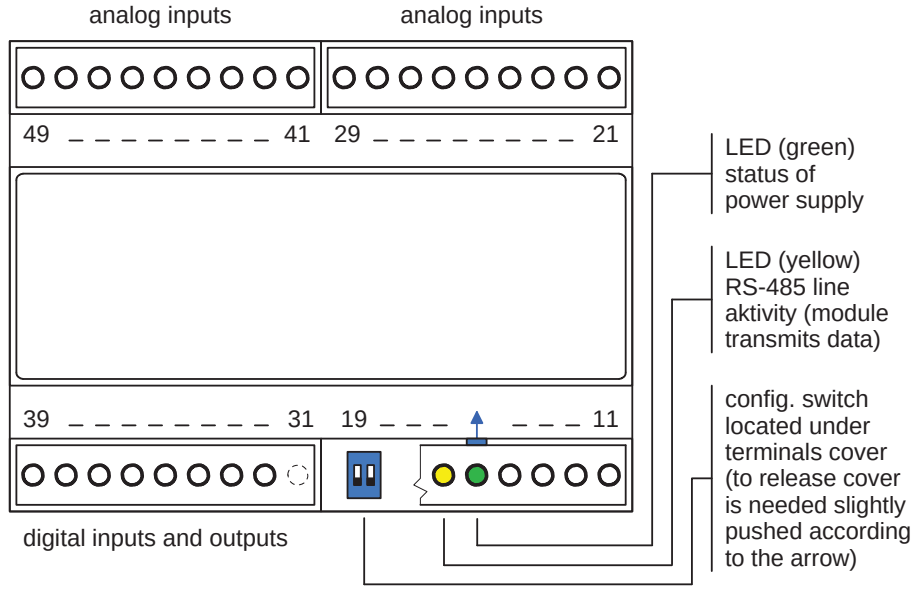
The length of the wires (except for the RS-485 line) should not exceed 2 meters.

Configuration

A special software utility (allows to set communication parameters, behavior of digital ports, etc.) is intended for configuring the modules. Pay attention to the correct setting of the double switch located under the transparent cover.

segment 1 — the ON position disables writing to the configuration memory

segment 2 — the OFF position enables user parameters stored in the configuration memory (address, transfer rate, type of comm. protocol, etc); the ON position (or ON-OFF sequence) when power-up or restart sets up default communication parameters instead of user parameters (see the guide of the config software utility or programming guide)



Power supply and RS-485 terminals			
11	PGND (power supply, GND)	13	TX/RX- (RS-485 line, signal A)
12	PWR (power supply, +24 V_{DC})	14	TX/RX+ (RS-485 line, signal B)
voltage within the range 10~30 V_{DC}		shield must be connect to the terminal 11	

Digital I/O terminals			
32	DOUT0- (negative signal)	36	DIN0_A (input signal DIN0 & CNT0)
33	DOUT0+ (positive signal)	37	DIN0_B (input signal DIN0 & CNT0)
34	DOUT1- (negative signal)	38	DIN1_A (input signal DIN1 & CNT1)
35	DOUT1+ (positive signal)	39	DIN1_B (input signal DIN1 & CNT1)
voltage up to 32 V_{DC}, current up to 0.3 A		up to ±35 V_{DC} or V_{AC} (±60 V max. 1 sec.)	

Analog input terminals			
21	AGND (common ground for all AINx)	41	AGND (common ground for all AINx)
22	AIN0_EXC (input & excitation current)	42	AIN4_EXC (input & excitation current)
23	AGND (common ground for all AINx)	43	AGND (common ground for all AINx)
24	AIN1_EXC (input & excitation current)	44	AIN5_EXC (input & excitation current)
25	AGND (common ground for all AINx)	45	AGND (common ground for all AINx)
26	AIN2_EXC (input & excitation current)	46	AIN6_EXC (input & excitation current)
27	AGND (common ground for all AINx)	47	AGND (common ground for all AINx)
28	AIN3_EXC (input & excitation current)	48	AIN7_EXC (input & excitation current)
29	AGND (common ground for all AINx)	49	AGND (common ground for all AINx)
overvoltage protection up to ±15 V_{DC} (±20 V max. 1 sec.)			