

UT-4 v1.1 COMMUNICATION INTERFACE

INTRODUCTION

The UT-4 interface enables communication with devices equipped with a serial communication port via a 10BaseT Ethernet network. The UT-4 belongs to the class of devices called *Virtual Serial Port (VSP)*. The interface is identified in a computer network by an IP number assigned during the interface setup process. The interface may be used in two optional configurations. The first option is to use a computer network for communication between a PC computer and another device equipped with a serial communication port, while the other option is to use a computer network for communication between two independent devices equipped with a serial communication port. The first case requires only one UT-4 system operating as the [Slave], in the other case two UT-4 interfaces are necessary, while one of them should operate as the [Slave], and the other as the [Master]. If a LAN network is connected to the Internet, the serial port connected via the UT-4 interface may be supported practically from any location on the Internet. A significant limitation of the range of application of the UT-4 interface may be data transmission delays inside computer networks. Such delays may significantly hinder or, in certain cases, even disable correct communication with a serial device connected to the UT-4 interface. Such a threat is significantly larger on the Internet, where delays may be considerable. Concerning the application of the UT-4 interface in a RACS access control system, the access control management program (*PR Master*) allows the operator (installer) to increase the time limit of waiting for data packets and therefore to guarantee the correct operation of the RACS system with the managing computer despite considerable delays in the computer network. The UT-4 enables communication in the RS232 standard (TXD, RXD, CTS and RTS lines) and the RS485 standard (TXA, TXB, RXA and RXB lines) with a speed from 110 up to 115 200 Baud.

Note: The EM100 network module (Net Module) supplied by Tibbo (www.tibbo.com) is the main component of the UT-4 interface. This Manual describes the installation and use of the UT-4 interface; however, it does not include a detailed description of all features of the EM100 module. A detailed description of the EM100 module is provided with the English version of the EM100 module description, which is attached to the documentation of the UT-4 interface.

INTERFACE INSTALLATION

The converter should be installed in an enclosed room far from sources of moisture and heat. Using the setup jumpers, select the appropriate serial communication standard (RS232, RS485, RS485 - RACS), and then connect the serial port lines. If the converter is used in a RACS access control system, the RS485 standard should be selected and additionally a jumper should be installed in the [RACS Mode] contacts. Using the supplied cable, connect the interface to the computer network, attached the power supply, and then set up the interface using the supplied software (Tibbo Device Server Toolkit).

LED INDICATION

The UT-4 interface is equipped with seven LED indicators, which signalize the current status of the serial port line and the communication status in the Ethernet network. The meaning of each indicator is described in the table below.

LED	Function
POWER	Indication of power supply voltage.
TXD	Indication of signals in serial port, TXD line.
RXD	Indication of signals in serial port, RXD line.
Status (red LED)	Indication of data buffer overload.
Status (green LED)	<ul style="list-style-type: none"> - in the SLAVE mode, this indicator is on, - in the MASTER mode, when this indicator is on, it means that the IP address of the SLAVE device is reachable, when indicator blinks, it means that the IP address of the SLAVE device is unreachable.
Ethernet (red LED)	Indication of data collisions in the network.
Ethernet (green LED)	Indication of data packet receipt.

The above functions of the LED indicators refer to the normal operation of the interface. If the interface operates in other modes (the Flashing or serial programming mode), the LED's change their functions; optional functions of the LED indicators are described in detail in the English version of the EM100 module manual.

SOFTWARE INSTALLATION – INTERFACE SETUP

Before starting the interface, perform the setup, which is programmed from a PC computer level using the TDST_250.exe file, which is supplied with the interface. The interface software is in English; below you can find a description of the minimum steps to prepare the interface for operation in a RACS access control system.

1. Connect the power supply to the interface, then connect it to the computer network.
2. Copy the files from the setup CD or floppy discs to any directory, e.g. C:\Tibbo.
3. Run TDST_250.exe (you can find this file in the directory, to which the setup floppy disc was copied); the program installs the interface software.
4. In the "Start/Programs/Tibbo" Menu select [Tibbo Connection Wizard], it will enable interface configuration. When the invitation window (Tibbo Wizard) opens, select [NEXT], then select "Between device server and Virtual Serial Port" when prompted "What kind of link do you want to create?". The program will automatically locate the interface and will display its current IP number with a question mark on a yellow background. Then **click the number** and select the [Change IP] command, enter a new IP number for the indicated interface and click [NEXT], (the new IP number will identify the interface in a LAN network). If you do not know the numbering system used to address devices in a LAN network, you can view the IP number of the computer, on which you are installing the software. The IP number of the interface should be the same as the computer on which you are installing the software except the last three digits, which must be unique in a LAN network, e.g. if the computer number is IP=192.168.1.100, then the IP number to be assigned to the interface should be as IP=192.168.1. xxx, where xxx must be a unique number in the LAN network, i.e. no other device connected to the computer network may have the same number). When prompted "Specify whether you want the Device Server to operate in the Slave or Master mode", select "Slave", then [NEXT] and indicate the port number you want for the interface to be visible, e.g. COM2, COM3, COM4 etc., then select [NEXT]. After that, from two available transmission protocols [UDP] and [TCP], select [TCP], then [NEXT]. A window opens displaying new interface settings. After this last step, select [FINISH]. It ends the installation process. Now, a new serial port is visible on the computer. The port can be used to install an access control system (Network) or a controller as well as another device equipped with a serial communication port. Several examples of the interface application in the RACS access control system are presented in the diagrams attached to this Manual.

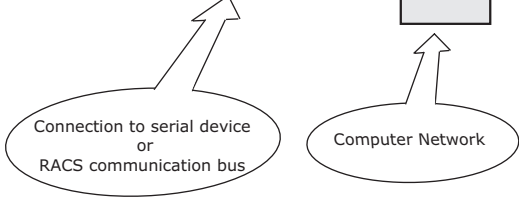
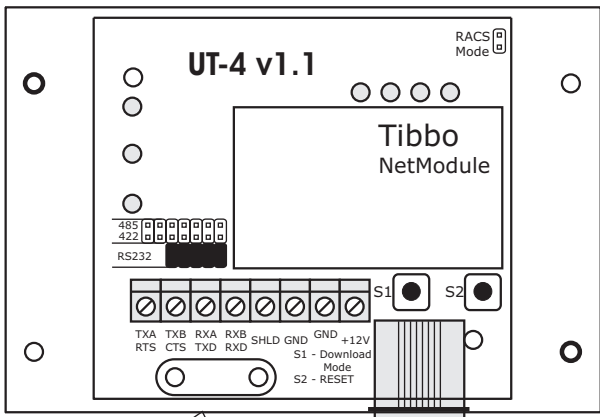
INTERFACE FIRMWARE UPGRADE

The interface is equipped with an update function for the firmware controlling the internal microprocessor system of the interface. This function is colloquially called *flashing*. During the manufacture, the latest software version is installed in the EM100 module, however, it is regularly improved. The latest software version is available at the EM100 module manufacturer's website (www.tibbo.com), which can be any time downloaded and sent to the device.

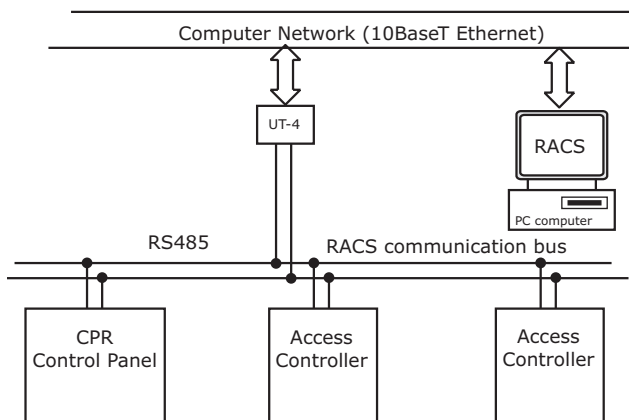
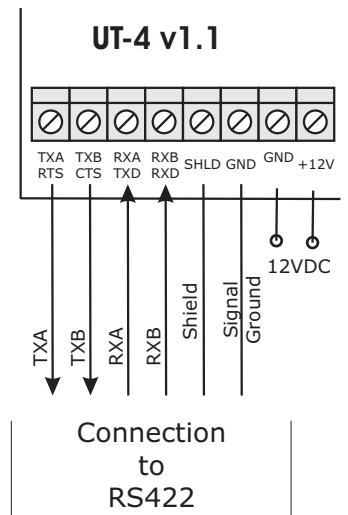
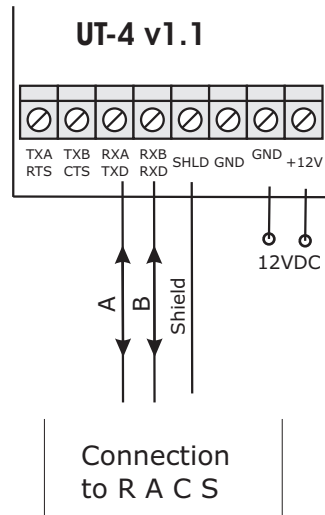
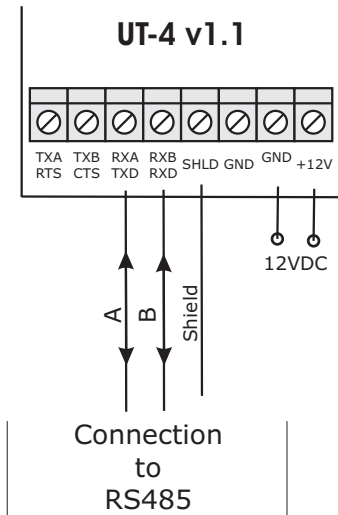
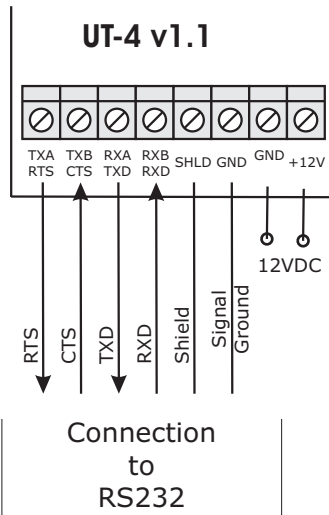
CONVERTER INSTALLATION

The terminal should be mounted far from heat and moisture sources. Electrical connections should be made only if the power supply voltage is disconnected according to the drawings in the end section of this Manual.

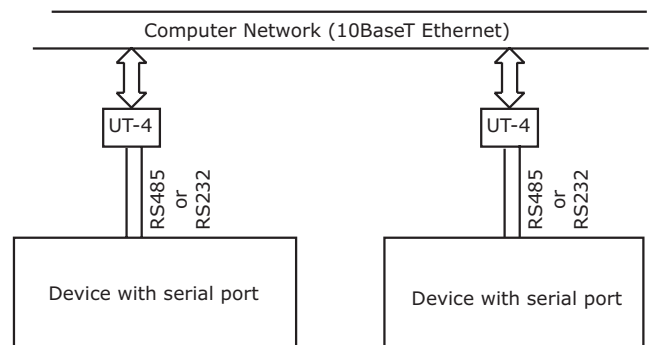
Technical Specification	
Voltage power supply:	10.0 ...15VDC
Input current:	average 75mA, max. 150mA
Serial interface	RS232: RXD, TXD, RTS, CTS and GND RS485: TXA, TXB, RXA and RXB
Network protocols	UDP, TCP, ICMP (ping), ARP
Ethernet standard	10BaseT Ethernet
Range of ambient temperature:	0..55 deg. C
Relative humidity:	10..90%
Dimensions (W x L x H):	100 x 68 x 35
Weight:	Approx. 110g



Interface Standard Selection	
RS232	 422 <input type="checkbox"/> 485 <input type="checkbox"/> RS232 <input type="checkbox"/> <input type="checkbox"/> RACS Mode
RS485	 422 <input type="checkbox"/> 485 <input type="checkbox"/> RS232 <input type="checkbox"/> <input type="checkbox"/> RACS Mode
RS485 RACS	 422 <input type="checkbox"/> 485 <input type="checkbox"/> RS232 <input type="checkbox"/> <input checked="" type="checkbox"/> RACS Mode
RS422	 422 <input type="checkbox"/> 485 <input type="checkbox"/> RS232 <input type="checkbox"/> <input type="checkbox"/> RACS Mode



Communication between RACS system and managing computer.
(UT-4 must be configured to SLAVE mode)



Communication between two serial devices
 (e.g. Between CPR and PRxxx controller)
(one of UT-4 must be configured as MASTER but the second as SLAVE)