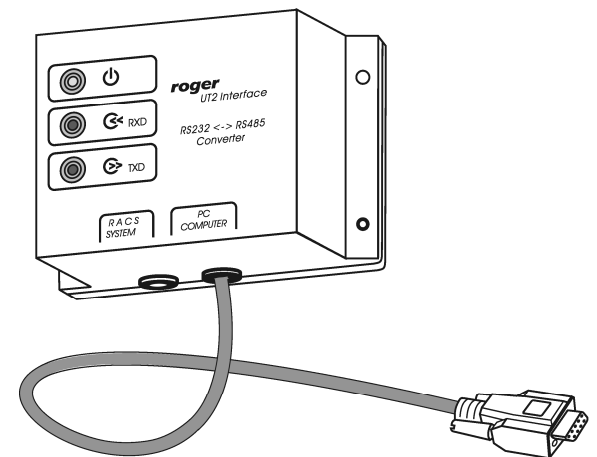# UT- 2

COMMUNICATION INTERFACE
v3.0

CE

Cdr128p1

INSTALLER MANUAL

roger

GENERAL DESCRIPTION

The UT-2 operates as an electrical converter between RS232 and RS485 communication interfaces, it can be used for programming of single PR series access controller or for management of a networked access system *RACS* (*Roger Access Control System*). The UT-2 is delivered in black plastic case and offers three signalization LEDs. The UT-2 is equipped with 1.5m cable terminated with DB-9 connector which is dedicated for connection to PC, connection with an access system or individual controller is carried out through screw terminals.

RS485 TRANSMISSION CONTROL

Normally, the UT-2 operates in *receive* mode, it means that all data received by UT-2 through RS485 lines is shifted immediately to RS232 serial interface. With the first byte of data received from RS232, the UT-2 immediately switches the RS485 interface (lines A and B) into *transmit* mode. The RS485 remains in that mode as long as data is received through RS232. The RS485 returns automatically to *receive* mode after 1.5 ms time from the moment when last bit of data has been received from RS232.

Note: The method which is used for RS485 transmission control is developed for PR series of access controllers from Roger. Optionally, the UT-2 can be used in other application which require RS232-RS485 conversion but in such cases installer must perform adequate tests to ensure that UT-2 will operate satisfactory in given applications.

RTS AND CTS LINES

Generally, the RTS and CTS lines are dedicated to improve communication between managing computer and access systems which are equipped with CPR32-SE. The use of RTS and CTS lines in such systems is not obligatory and may be omitted. When used both lines must be connected to adequate input and output of CPR32-SE network controller.

Note: The use of RTS and CTS lines requires PR Master v4.3 and CPR32-SE v30 or higher.

LED INDICATIONS

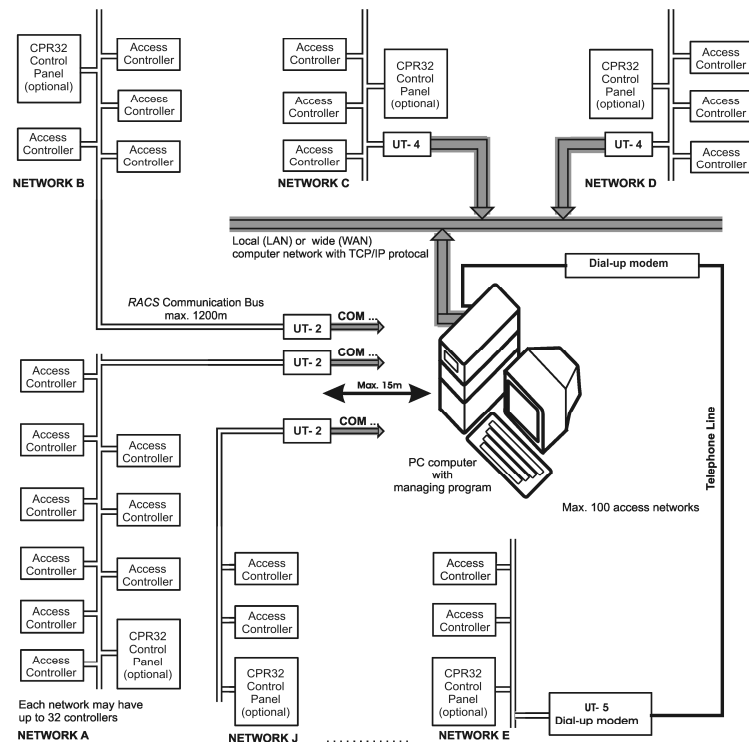The UT-2 is equipped with three LEDs which functions are characterized below.

LED	Symbol	Color	Function
POWER	⏻	Amber	Power supply
TXD	⊝>	Green	Data send to RS485 comm. Bus
RXD	⊝<	Red	Data received from RS485 comm. bus

INSTALLATION

Locate interface close to PC computer (max. distance is 15m) in a dry area, all electrical connections must be made with power supply off. UT-2 requires 12VDC supply and up to 150mA current. Interface can be supplied from any device installed in access system which offer DC supply output or from separate supply source. Note, that supply minus of UT-2 must have the same potential, in respect to earth, as other devices connected to the same RS485 bus. This condition can be assured by means of additional wire which will connect all supply minuses in a system or by adequate grounding arrangements. The UT-2 can be connected to RS485 communication bus in any, arbitrary selected location. The topology of RS485 communication bus in RACS system is free and may incorporate *tree*,

star or any combination of them. Also, no terminating resistors are required on the ends of communication bus.

Note: Some PC computers with Windows operating system may detect the UT-2 unit as **Microsoft BallPoint** or similar pointing device. Such a faulty detection leads to problem with computer mouse and finally corrupts computer operation entirely. In order to fix this problem installer should enter **Windows Device Manager** and switch off detection of mentioned pointing device.

EXTENDING COMMUNICATION DISTANCE

The UT-2 may be used for successful communication on distances up to 1200m. When longer distance is required a UT-3 interface can be used. The use of two UT-3 interfaces creates communication link and extends communication distance by next 1200m. For communication between access networks or controllers located in different buildings or even cites the UT-4 interface can be used. The UT-4 interface enables communication with access controller(s) or entire access networks through 100/10BaseT Ethernet network with TCP/IP communication protocol.

Roger Access Control System

The structure of RACS

CPR32 Control Panel (optional)
Access Controller
Access Controller
Access Controller
NETWORK B

Access Controller
Access Controller
Access Controller
CPR32 Control Panel (optional)
UT- 4
NETWORK C

CPR32 Control Panel (optional)
Access Controller
Access Controller
Access Controller
UT- 4
NETWORK D

Local (LAN) or wide (WAN) computer network with TCP/IP protocal

Dial-up modem

RACS Communication Bus max. 1200m
UT- 2 COM ...
UT- 2 COM ...
Max. 15m
UT- 2 COM ...

Telephone Line

PC computer with managing program

Max. 100 access networks

Access Controller
Access Controller
Access Controller
Access Controller
Access Controller
Access Controller
Access Controller
Access Controller
Access Controller
CPR32 Control Panel (optional)

Each network may have up to 32 controllers
NETWORK A

Access Controller
Access Controller
CPR32 Control Panel (optional)
NETWORK J . . . .

Access Controller
Access Controller
CPR32 Control Panel (optional)
UT- 5 Dial-up modem
NETWORK E

1. Each network requires separate communication channel (COM port, TCP network or dial-up modem)
2. The maximum cable length between UT-2 communication interface and PC COM must not exceed 15 m.
3. The communication interface (UT-2, UT-4 or UT-5) can be connected to RACS communication bus in any arbitrary selected location.
4. The maximum cable distance between communication interface and any access controller or CPR32-SE, may not exceed 1200 m.
5. The installation of CPR32-SE network controller is optional in access network.
6. System requires RACS managing software.
7. PC computer may operate in *Online* or *Offline* mode.

Cdr126p4

Ordering	
UT-2	UT-2 interface with plastic case and 1.5m cable to PC

Connection terminals assignments		
Name		**Function**
GND		Supply minus
+12V		Supply plus
SHLD	RS485	RS485 cable shield
A		RS485 interface, line A
B		RS485 interface, line B
RTS		RTS line to CPR32-SE network controller
CTS		CTS line to CPR32-SE network controller
GND		RS232 interface, ground
TXD		RS232 interface, line TXD
RTS	RS232	RS232 interface, line RTS
RXD		RS232 interface, line RXD
CTS		RS232 interface, line CTS
SHLD		RS232 cable shield

Technical specification	
Power supply	10...16VDC
Average current consumption	~ 60mA
Maximum current consumption	~ 150mA
Operating temp. range	0...+55º C.
Max. communication distance for RS232	15m
Max. communication distance for RS485	1200m
Relative humidity	10 to 95% (without condensation)
Dimensions	100 x 68 x 35 mm
Weight	~80g

Cdr128p1

Installation diagram of UT-2