TELTONIKA T-WirelessCOM

USER'S MANUAL

Firmware v1.3.x

Contents

Legal Notice

1. ABOUT THIS DOCUMENT

This document describes the T-WirelessCOM hardware, quick guide, plug-in and operation. It should help T-WirelessCOM users to deploy the product. Also you can find technical specification, configuration manual: command line and explanation.

2. INTRODUCTION

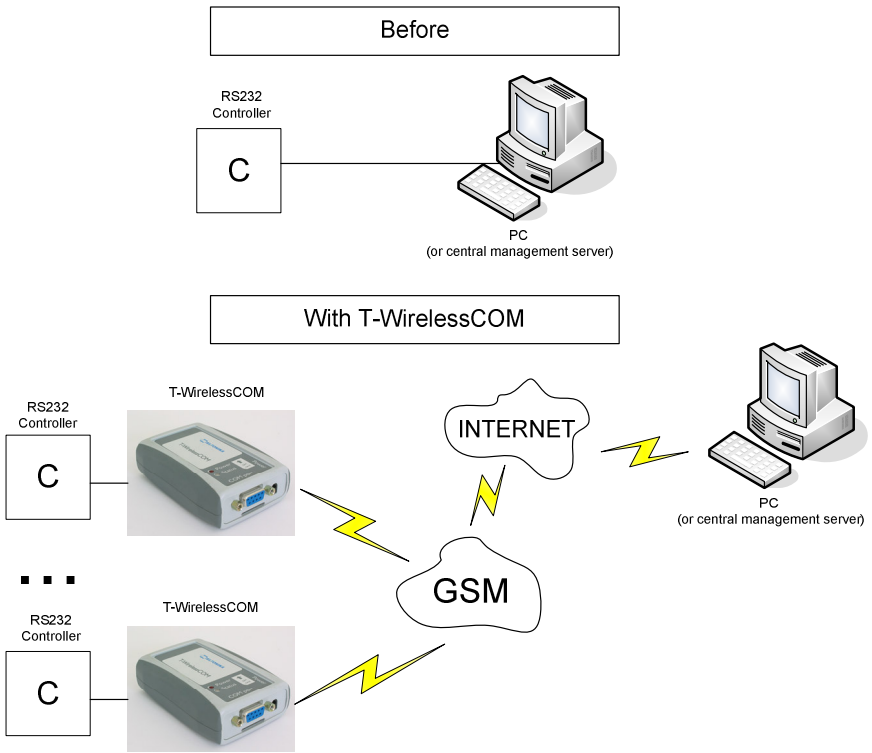
T- WirelessCOM is a device, designed for communication with remote devices, which have RS232 ports and the only possible way to reach them is GSM. You need to connect your remote devices (with RS232 port) via GSM network to central server and have a transparent RS232 connection. There are two ways to use this device: as master (Picture 1), which initiates the connection or as a slave (Picture 2), to which the server connects. It is possible to use special software to create virtual COM port on the server to connect to the remote device or to use standard TCP socket. This product supports various communication bearers:

- EDGE class 6 (up to 177,6 kbps),
- GPRS class 10 (up to 56-114 kbps),
- HSCSD (up to 43,2 kbps),
- CSD (up to 14,4 kbps).

There is dual-band:

- European (and Asia) version – 900 MHz/ 1800 MHz
- American version – 850 MHz/ 1900 MHz.

T- WirelessCOM can connect your remote devices (with RS232 port) with your PC for controlling, monitoring and administrating (Picture 1).



Picture 1. Wireless connection

3. MECHANICAL INTEGRATION

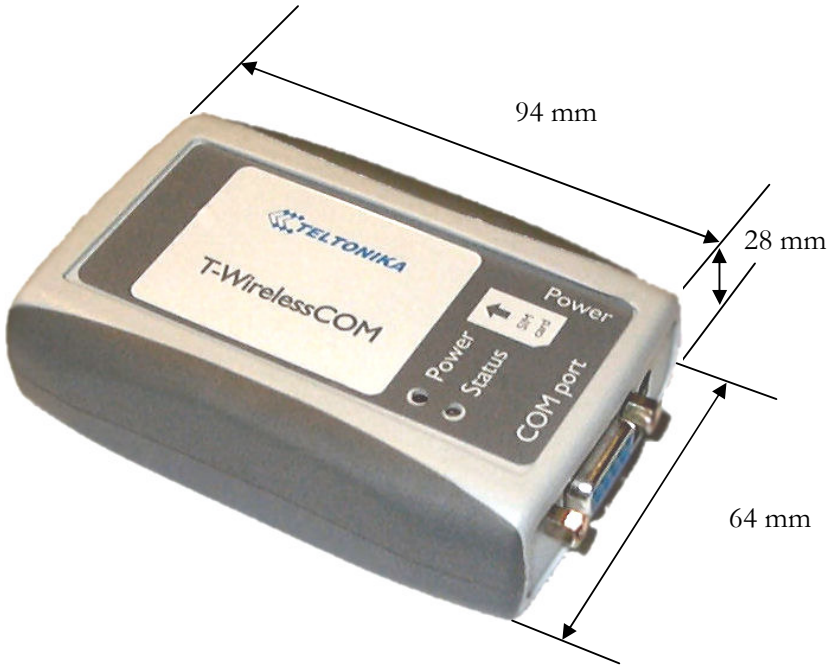
3.1. Package contents

1) T-WirelessCOM with internal GSM antenna,
2) AC/DC adapter,
3) Serial cable,
4) User Manual v1.0,
5) CD with user manual.

If you miss any of the components listed, please contact your local representative.

3.2. Dimensions

3.2.1. T-WirelessCOM case

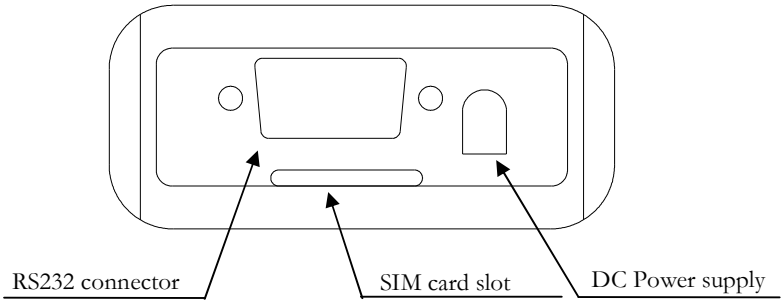


Picture 2. Physical dimensions of T-WirelessCOM

The plastic case of T-WirelessCOM is light and suitable for using in home, office or industrial environment. Rubber covers a part of case; because of that you can steady put it on a various surfaces. T-WirelessCOM is small sized, physical dimensions (not including connectors): LxWxH 94mm x 64mm x 28mm (2 Picture).

4. ELECTRICAL INTEGRATION

4.1. Electrical characteristics



Picture 4. Back view of T-WirelessCOM.

4.1.1. Connectors

- DB9 female for connection to the device,
- 3,5 mm/1,35 mm power supply connector,
- SIM card slot

4.1.2. Power supply

The T-WirelessCOM internally uses linear power regulator. Acceptable voltage range is 6- 12 V DC. 6 V is a nominal value.

The device must be powered with AC/DC adapter provided by manufacturer.

4.2. Serial communication

T-WirelessCOM provides one serial communication port. The device acts as DTE – Data Terminal Equipment. The baud rate for serial port may be between 1200 and 230400 bit/s. This device doesn't relay RS232 port completely; it uses only RX and TX (Flow control isn't supported)

The package contains one serial cable for T-WirelessCOM and your device with RS232.

4.3. Indication

There are two LED indicators on the top of the device for indication. One of the LED's indicates power status, and the other one different errors and status. In the table you can find all possible status of the LED and explanation.

Table 1. LED indicators

"Status" LED is green and blinking fast	TCP connection is established.
"Status" LED is green and blinking	Device is initializing.
"Status" LED is yellow is blinking	TCP connection failure, bad local_port in slave mode.
"Status" LED is yellow and double-blinking	No SIM card. SIM card failed to initialize.
"Status" LED is yellow and triple-blinking	SIM security code needed (PIN/PUK).
"Status" LED is green/yellow	Configuration mode.
"Status" LED is green	Master mode.
"Status" LED is yellow	Slave mode.

5. CONFIGURATION

5.1. Preparing module configuration

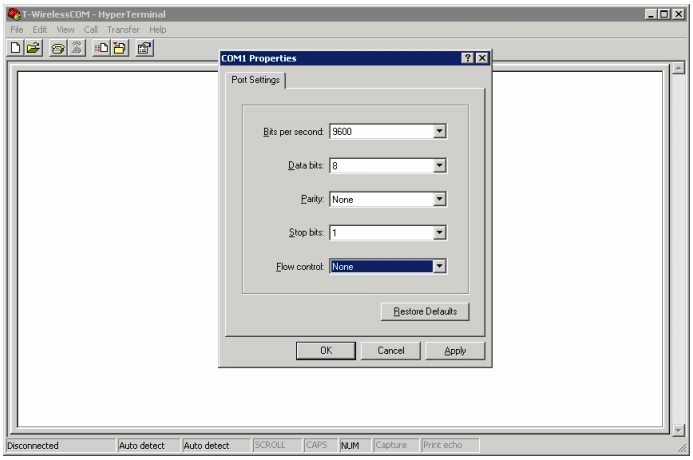
1) Insert your SIM card to T-WirelessCOM to one of the COM ports.
2) Plug in the AC/DC adapter to power supply.

5.2. PC Software configuration

1) Launch Hyper Terminal or any other terminal on your PC;
2) In File menu press [new connection] and put the name of your connection,

   Etc.: T-WirelessCOM.
3) In the square "connect using" choose [direct to Com1] or other Com port where you connect the cable. Then press [OK].
4) In a port setting window choose:
   - Bits per second: [9600]
   - Flow control: [none]

   And Press [OK]



5) In File menu press [properties] and in the opened connection settings press [ASCII Setup].
6) Switch on:
   - "Send line ends with line feeds"
   - "Echo typed characters locally"

   And press [OK]

5.3. Entering into configuration module

1) Press the bottom [call] for the T-WirelessCOM to the PC connection with the cable, provided in the package.
2) Plug in power for T-WirelessCOM. Now or when module starts it's initialization (indicated by a blinking green LED), press and hold spacebar on the Hyper Terminal window, until appears a massage: "T-WirelessCOM Configuration console. Firmware version". LED will turn green/yellow to indicate configuration mode.

5.4. Command set

Now you can use the commands for a full configuration of the device. To see all available commands enter "help" command in configuration console. To see available parameters for SET command enter "set" without parameters. To see current parameter values enter "get". After you're done configuring device, test it with a "test" command.

General configuration you need for setting parameters despite type of mode.

There are two basic types of connections, which are different in the way they are paid for:

- Pay-for-time connection (CSD, HSCSD). You pay for the time you're connected to the Internet. The speed is up to 14,4 kbps (CSD) or 43,2 kbps (HSCSD).
- Pay-for-data connection (GPRS, EDGE). You pay for the data you transfer. The maximum speed depends on the operator, but it may reach GPRS (56-114 kbps kbps) and EDGE (118,4 kbps).

There are two possibilities to use the device: master mode and slave mode. On the left size of command line there are explanations, which help you to choose right mode.

Table 2. General configuration settings

Nr.	Parameter	Command line	Default	Explanation
1.	MODE (Set one of them)	SET mode slave | master | master_ar GET mode	Slave	Slave mode means that the device is always online and waiting for TCP connection. Master mode means the device initiates the TCP connection (on COM data). Master_ar mode (auto reconnect) means that the module reconnects automatically after TCP connection is dropped.
2.	TCP CONNECTION TIMEOUT	SET tcp_connection_timeout nnnn (milliseconds) GET tcp_connection_timeout	300000 (five minutes)	If there is no data trasmitted/recevied during the specified timeout the module drops TCP connection. Note that the actuall accuracy is seconds (+/- half a second).
3.	BAUD RATE	SET baud 1200| 2400| 4800| 9600| 19200| 28800| 57600| 115200| 230400 GET baud	9600	The baud rate of the serial port
4.	PIN	PIN 1234	Empty	Used to enter PIN code for the SIM card
5.	PUK	PUK 12345678	Empty	Us this command to enter PUK
6.	BEARER	SET bearer CSD | GPRS GET bearer	GPRS	Select the bearer, which will be used for data transfer. You can choose between CSD and GPRS. Usually with CSD setting, you can use HSCSD also and with GPRS setting you can use EDGE, it depends on your GSM operator
7.	BUFFER SIZE	SET buffer_size 1024 GET buffer_size	1024	Size of output buffer in bytes. If buffer_size=0 or buffer_size=1, the bytes are sent the same moment they are received
8.	BUFFER	SET buffer_timeout 50	200	If the buffer is not full when this period of

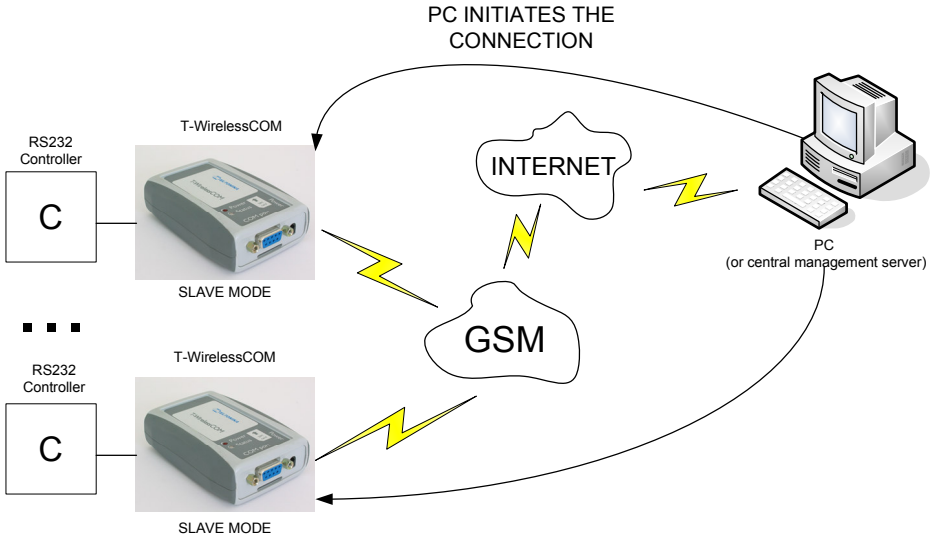
	TIMEOUT	GET buffer_timeout		time elapses, the buffer is sent anyway. This period of time is measured in milliseconds.

CSD **Time critical protocol**				
1.	PHONE	SET phone +XXXXXXXXXXX GET phone	Empty	The phone number
2.	Data call bit rate	SET call_bit_rate autobaud (or ISDN 9600, ISDN 14400, ISDN 19200, ISDN 28800, ISDN 38400, ISDN 43200, ISDN 9600, 14400, 19200, 28800) GET call_bit_rate	ISDN 9600	Baud rate for CSD connection
3	CHAP user	SET chap_user xxxx GET chap_user	Empty	CHAP user name
4.	CHAP password	SET chap_password xxxx GET chap_password	Empty	CHAP password
5.	Gateway IP	SET gateway_ip 123.123.123.123 GET gateway_ip	0.0.0.0	
6.	Gateway PORT	SET gateway_port 5555 GET gateway_port	0	
7.	Connection time out (seconds)	SET bearer_connection_timeout 0 GET bearer_connection_timeout	0	The time, after which connection will be automatically dropped, if no data is transferred. 0 means it will be dropped immediatelly after TCP connection is dropped. Note that slave mode will ignore this setting and keep connection always online.

GPRS **Data transfer**				
1.	APN	SET apn start.gsm.com GET apn	Empty	Sets Access Point Name
2.	CHAP user	SET chap_user xxxx GET chap_user	Empty	CHAP user name
3.	CHAP password	SET chap_password xxxx GET chap_password	Empty	CHAP password
4.	Gateway IP	SET gateway_ip 123.123.123.123 GET gateway_ip	0.0.0.0	
5.	Gateway PORT	SET gateway_port 5555 GET gateway_port	0	
6.	Connection time out (seconds)	SET bearer_connection_timeout 0 GET bearer_connection_timeout	0	The time, after which connection will be automatically dropped, if no data is transferred. 0 means it will be dropped immediatelly after TCP connection is dropped. Note that slave mode will ignore this setting and keep connection always online.

5.5. Slave mode settings

"Slave" is such a mode to which the server connects. It's useful when you use several devices and to control or follow their work from your computer. T-Wireless waits as a TCP server until any side (PC or server) opens a TCP connection. When the connection is established, the internal buffered data are sent and then the device allows communication as a standard "terminal server".



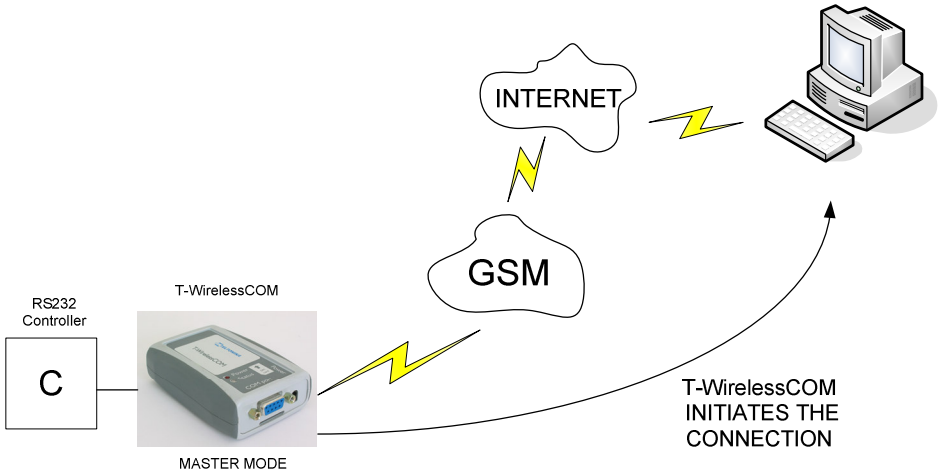
Picture 3. Slave mode

Table 3. Slave mode configurations settings

1.	LOCAL PORT	SET local_port 5000 GET local_port	0	Port on which the device will listen for TCP connections from server

5.6. Master mode settings

"Master" is such a mode, which initiates the connection to the server. You have a software which creates a virtual COM port under Windows OS so that the device acts like it's connected directly to your PC, through it's a virtual remote server port.



Picture 4. Master mode

In "master_ar" mode the module will automatically reconnect (close TCP socket and connect again) after tcp_connection_timeout to ensure persistent connection with server. You should set tcp_connection_timeout on the module to be some 10-15 seconds longer than on server to ensure that at the moment of reconnect attempt the server will already be waiting for connection.

Table 4. Master mode configuration settings

1..	SERVER IP	SET server_ip 123.123.123.123 GET server_ip	0.0.0.0	Sets the IP address, to which the device will connect
2.	SERVER PORT	SET server_port 5005 GET server_port	0	Set the Server Port

6. TROUBLESHOOTING

PROBLEM	SOLUTION
LED indicators are not working	Look at then connection port, are they truly connected?
Cannot enter the commands	Closely write commands into the terminal commands window, if there are any problems: insert the word "help" and you will get all commands list.
Look at the AC/DC adapter; the voltage range must be set on 6V.	

7. TECHNICAL SPECIFICATIONS

7.1. Mechanical specifications and operating conditions

Parameter	Min	Typical	Max	Unit
Size		94 x 64 x 28		mm
Weight		95± 10		g
Operating temperature (absolute maximum)	-25		+55	ºC
Storage temperature	-40		+85	ºC

7.2. Electrical parameters

Parameter	Min	Typical	Max	Unit
Power supply voltage	+5	6	+12	V
Average power consumption		360		mW
Peak power consumption[1]		8400		mW

[1] such power consumption takes no longer than 1,2 ms

IF THE SETTINGS OUTREACH THE FIXED CHARACTERISTICS, DEVICE CAN BE DAMAGED

8. TECHNICAL SUPPORT

If you encounter any problems when using our products, please refer to Troubleshooting. If you do not find a solution for your problem, please contact our technical support by writing e-mail to support@teltonika.lt. We will be pleased to help you.

If you are interested in other products from TELTONIKA, please visit our website www.teltonika.lt, where you will find our newest products.

If you are interested in product pricing or want to order our products with different antennas, connectors or built-in programs, please contact our sales department by writing e-mail to sales@teltonika.lt.