TAGnology RFID GmbH | Grazer Vorstadt 142 | 8570 Voitsberg | AUSTRIA

phone: +43 (0)3142/ 28 9 28-10 | fax: +43 (0)3142/28 9 28-20 | office@tagnology.com | www.tagnology.com

RTS200

Hardware Manual

IBERWAVE

IBERWAVE

Iberwave Ingeniería SLL

C/ Ronda de Poniente 4-2ºG • Tres Cantos

28760. MADRID

Teléfono (91) 8060606 • Fax (91) 8060606

Document Info				
DOCUMENT NAME	RTS200			
DESCRIPTION	RTS200 hardware description.			
FILE NAME	rts200 hardware manual.odt			
CODE	001.0038			
VERSION	1			
STATUS	Draft			
CREATED BY	JCPM		DATE	17/01/08
APPROVED BY			DATE	
HISTORY	Version 1.0	Original version		

Table of Contents

1 INTRODUCTION 4

2 MECHANICAL 5

2.1 Front Connections 5
2.2 Rear Connections 6

3 INTERFACES 7

3.1 RS232 7
3.2 In/Out 7
3.3 Vdc Power IN 8
3.4 Ethernet 8
3.5 Input Port Structure 8
3.6 Output Port Structure 9
3.7 RF connections 9

4 ANTENNAS 10

1 Introduction

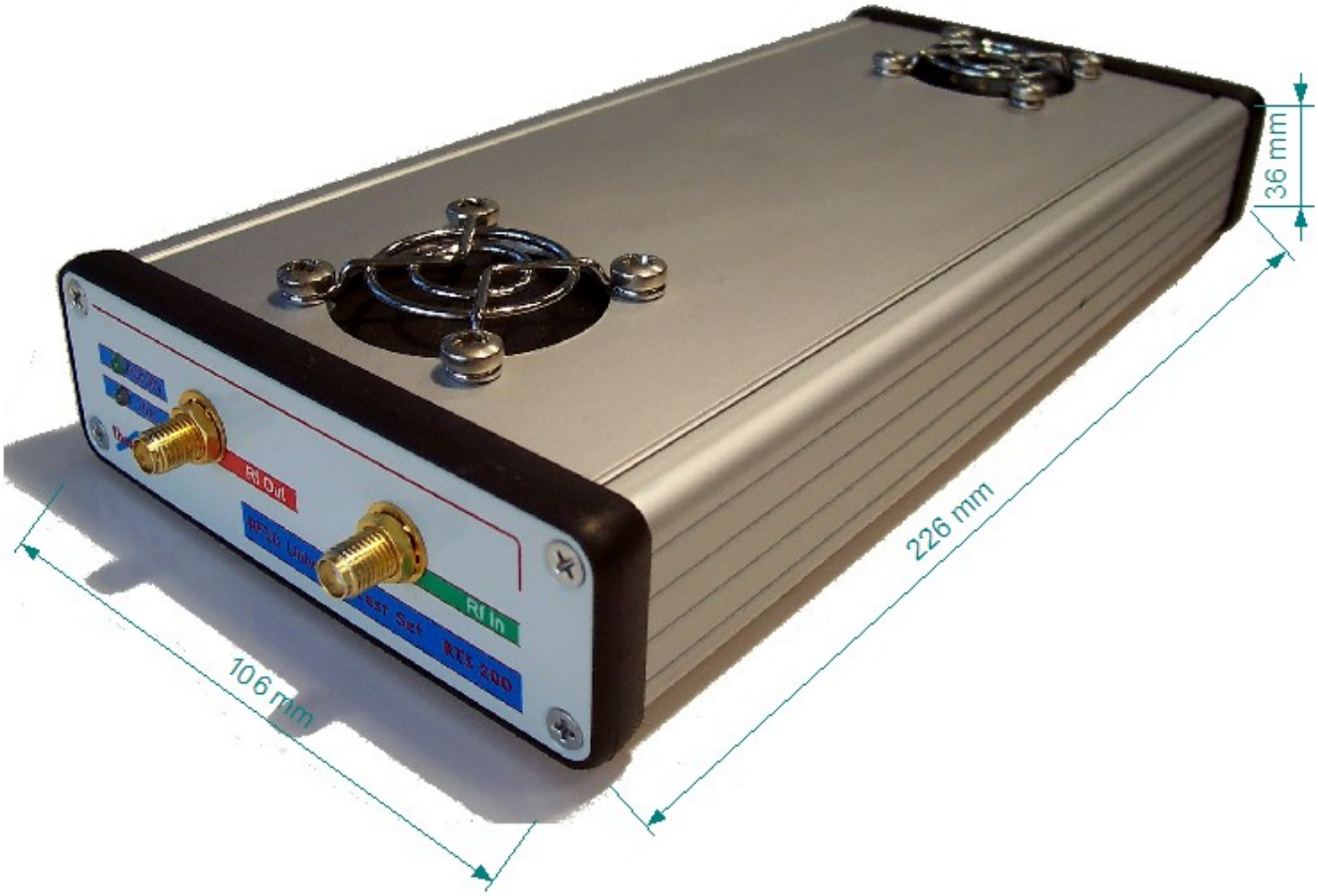
The RTS200 combines a HF / UHF RFID reader and a powerful set of virtual instruments (RF Generator, Spectrum analyser) to provide a complete RFID tester, suitable for both laboratory and production line test of RFID passive tags.

Both UHF and HF frequency ranges are covered, and some of the most widely used protocols are included in the basic package. The unit can be upgraded for other current or future protocols by means of a simple firmware / software upgrade.

This document describes the RTS200 interfaces and connections.

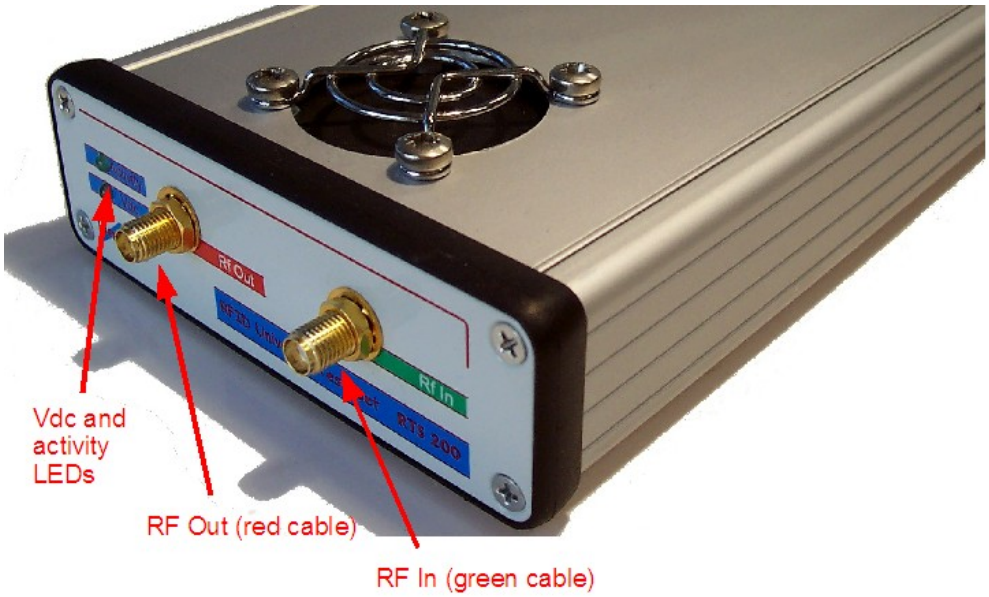
2 Mechanical

The hardware consists of an aluminium box with all the electronics inside, and connectors at the front and at the rear of the unit. The external dimensions are shown below.



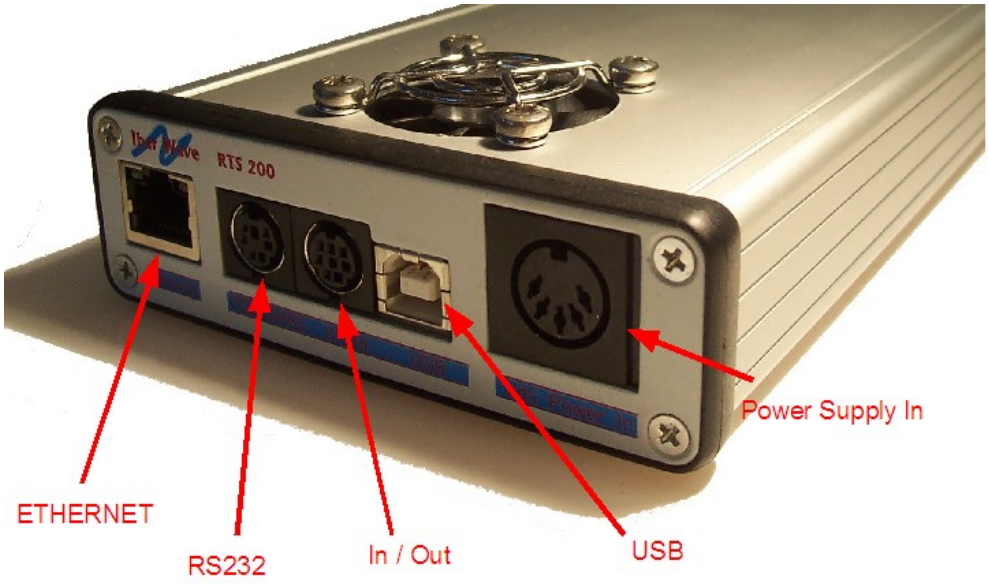
2.1 Front Connections

There are two coaxial connectors at the front of the unit, for the Reception (Green) and Transmission (Red) antenna sections.



2.2 Rear Connections

The connectors at the rear are shown in the picture.



Connetor	*Explanation*
RS232	RS232 Serial Port host interface
In/Out 1	Digital interface with the machine for production environments
USB	USB host interface
Vdc Power In	Power supply input
Ethernet	10 Base-T connector for ETHERNET based interface

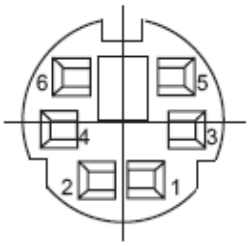
3 Interfaces

This section describes:

- The connector pin assignment
- The I/O port structure

3.1 RS232

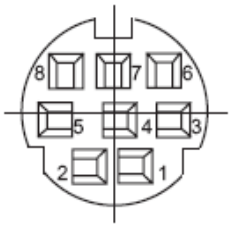
This is a Miniature DIN, female 6 way connector.



Pin	*Signal*	*Notes*
1	NC	Not Connected
2	TXDAT	RS232 Output from RTS200 to Host
3	RXDAT	RS232 Input from Host to RTS200
4	NC	
5	DGND	GND reference
6	NC	

3.2 In/Out

This is a Miniature DIN, female 8 way connector.



Pin	*Signal*	*Notes*
1	+12 Vdc	Source for +12Vdc, current limited by a series 470 ohm resistor
2	DEM2	Digital modulation output. Outputs a digital pattern according to the selected protocol
3	E2+	Anode of opto-coupled input number 2
4	E2-	Catode of opto-coupled input number 2
5	S1	Open drain output number 1

Pin	*Signal*	*Notes*
6	S2	Open drain output number 2
7	S3	Open drain output number 3
8	GND	Reference GND

The signals in this connector have some pre-assigned functions correspoding to the machine interface in the online test operating mode. The functions are described in the following table.

Signal	*Function*	*Notes*
E2	Trigger	Machine-> RTS200 signal to start the test. Configurable polarity
S1	Result	Indicates TEST PASS or TEST FAIL conditions, according to configuration
S2	EOT	End of test signal. The RTS activates this signal after the test is finished
S3	Delayed Result	Same as result, delayed by a number of triggers

See the I/O port structure section for a description of the hardware interface, and the RTS200 User´s guide for the description of the operation and configuration of these signals.

3.3 Vdc Power IN

This is a 5 way DIN circular connector (DIN41524-05).

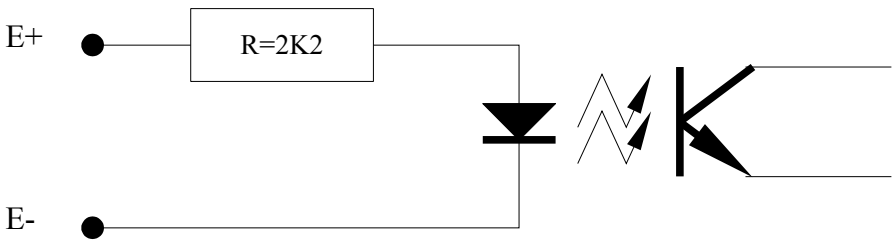
Pin	*Signal*	*Notes*
1	DGND	Reference GND
2	DGND	Reference GND
3	+5V	d.c. +5V
4	-12V	d.c. -12V
5	+12V	d.c.+12V

3.4 Ethernet

This is a standard 10 Base T connector. A Standard Cat V STP cable should be used. To connect the unit to a single computer, either a cross-over cable or a hub (or switch) shall be used.

3.5 Input Port Structure

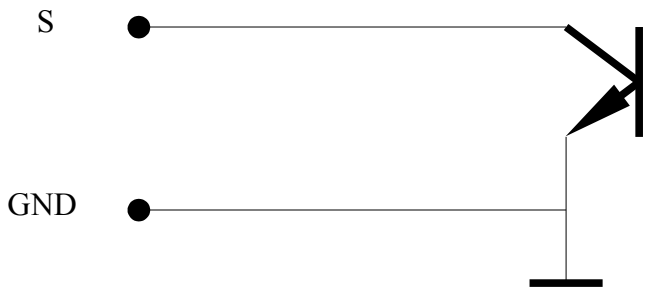
The Input port in connector IN/OUT is opto-coupled, and has the following structure from the electrical point of view.



The opto-coupler requires only 1mA input current to operate properly. The absolute maximum rating is 60mA, so this value should never be exceeded, or the port will be damaged. The port will be active with an external voltage of +5 to +24V applied.

3.6 Output Port Structure

All the output ports in connectors IN/OUT 1 and 2 have the same hardware structure. They are open collector, according to the simplified diagram.



Each port has a NPN darlington output, able to supply up to 500mA when conducting. The load circuit has to supply its own voltage.

3.7 RF connections

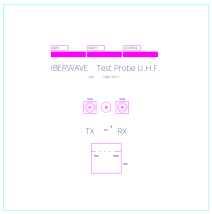
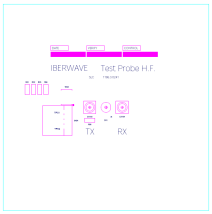
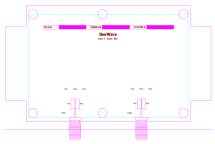
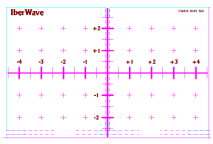
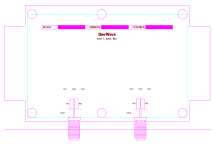
There are two 50 ohm RF connectors at the front of the unit for Transmission (TX) and Reception (RX) antennas. The connectors are SMA, and have to be connected through low loss high frequency cables to the corresponding RF connectors in the HF or UHF antennas.

The TX cable and connector are always marked RED, while the RX cable and connector are marked GREEN for easy identification.

For best results, the antenna models HTP200, UTP200 and LTP100 have to be connected directly to the RTS200 (not using cables), by means of SMA-SMA transitions (tubes) provided with the antennas.

4 Antennas

The available antennas (standard) are shown in the chart below.

Model Name	**UTP100**	**HTP100**	**HTP200**	**UTP200**	**LTP100**
Band	UHF	HF	HF	UHF	LF
Frequency Range	700-1200MHz	3-40MHz	3-40MHz	700-1200MHz	80KHz-0.5MHz
Function	Functional test	Functional /electrical test	Functional / Electrical test	Electrical / Functional test	Electrical / Functional test
Size of tags	Any	ISO-CARD or similar	Small (disc, glass)	Any	Small (disc, glass)
Calibrated	-	Yes	Yes	Yes*	Yes
Enclosure	No	No	Yes	No	Yes
Size	10x10cm	10x10cm	9x6cm	9x6cm	9x6cm
Application	Production line (inlays, labels)	Production line (inlays, labels), laboratory	Production line inspection, laboratory	Production line inspection, laboratory	Production line inspection, laboratory