TS-R38 / TS-RW38

(USB-HID / COM)

1. General:

The TS-R38 is a reader, the TS-RW38 is a reader / programmer module with integrated antenna for communication with contactless integrated circuit cards.
It is designed for using different Transponders, all operating at 125 kHz.

There are 2 different interfaces available:
- USB Interface
- USB COM-Port Emulation

For the devices the Data transmission takes place according the commands of "GiS Programming Interface (SDK) for TS-RW3x devices with 125 and 134,2 kHz". (Software => Developer=> GiS TS-LF SDK)

Attention:
The combined device „TS-RW38“ is set up as a programmer by default (no pure reader). To operate the device as pure reader it has to be reprogrammed using the software "GiS TS-RW ReaderSetup".

2. Description:

The device is available in different variants. Depending on your needs it can be ordered as automatic reading device (TS-R38), or as composite device (TS-RW38) as reader and as programmer device to modify contents of transponders .
See also **Section 6. Starting up** for more information about the usage of the device and controlling software.

2.1. Power Supply

The power supply depends on the interface used at the device.
If the USB Interface is used, power can be supplied by the 5V provided by the USB Bus.

2.2. Interfaces

The device uses a USB full speed interface 12MBit with hot plug .

2.3. Contactless Transceiver

The HTRC110 handles the transceiver functionality for communication at 125 kHz.
The IC supports Transponder types using amplitude modulation for write operation and AM/PM for the read operation.

2.4. Microcontroller

The microcontroller is an 8bit AT90USB1287. Is uses 128KB Flash, 8KB RAM and 4KB E²Prom. It controls the HTRC110 via I/Os and contains the USB interface and the RS232 serial interface. When equipped with Ethernet interface, it controls the XPort via serial interface. In order to avoid malfunction an external reset circuit is used.

2.5. Ethernet controller

The XPort embedded device server handles the Ethernet connectivity and communicates through serial port with the AT90USB1287.

2.6. Oscillator

There are two oscillators on board. 16 MHz for AT90USB1287 and 4 MHz for HTRC110. Frequency stability is both better than 100ppm.

2.7. Antenna

The antenna is a coil placed on the PCB. It is driven by the HTRC110 and matched to 50 Ohm using coils, resistors and capacitors.

2.8. Parts delivered

TS-R38 / RW38 reader / programmer module
This installation manual

2.9. FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Section 15.21 Information to user

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Section 15.105 (b)

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interferences in a residential installation. This equipment generate, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference ill not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

2.10. Label

The label is located on the backside of the housing

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3. Technical data:

Size:	80 * 80 * 28 mm, (with mounting plate 100 * 80 * 30mm)
Reading distance:	up to 100 mm (depending on the size of transponder)
Operating temperature:	-10°C to 55°C
Power supply:	through USB Port
Interfaces:	USB HID / COM
Input / Output (optional):	LCD-Display, Buzzer
Types of transponder:	Unique, Hitag1, Hitag2, HitagS, Hitagμ, Q5, Titan EM4305, EM4569, ATA5575 M1, ATA5577

4. Buzzer operation (optional extension):

If there is a buzzer present, in mode of operation "MODE 0" the buzzer can be activated for 250ms by sending the "BELL" "07h" character through the interface to the device. When using a USB-HID device this is only possible at direct communication through the SDK.

5. LCD-Display (optional extension):

If a LCD-Display (22 x 33mm, 8 x 17 or 4 x 8 characters) is applied, this can be accessed via the commands from the SDK or directly via the LOW LEVEL commands.

6. Starting up:

The actual software for these devices is available on our homepage at
http://www.gis-net.de,
in the part RFID-Systeme, menu Software => 125kHz.

As standard application to configured the TS-R38 / RW38 you can use the "GiS TS-R3x ReaderSetup" software.

As standard application for the devices TS-W38 / RW38 to program and read tags the "GiS TS-W3x Programmer" is available.

If the device (only TS-R38 / RW38 with Ethernet or COM-Port Emulation or RS232) has to simulate keyboard input, you can use the "GiS KeyEmulator" software.
(Software => Service).

Load the installation file do you need to a folder of your choose. The installation of the software is started by double clicking the file.

Hint:
For this device no additional driver from GiS has to be installed!
If the USB HID Interface is used, the standard driver from the windows operating system is used and this is normally preinstalled.

When using the USB Virtual COM Interface, the device driver from GiS has to be installed. This driver is installed with all our standard applications or can be loaded separately.

For the Configuration of the Ethernet interface, please see the user's manual (pdf file) of the used GiS Software.