



ASYNCHRONOUS SERIAL CONVERTER RS485/USB

S107USB/K107USB

GENERAL DESCRIPTION

The S107USB and K107USB instruments, represent an interface able to implement an asynchronous RS485 serial port, by using an USB port present on the PC.

Thanks to the provided driver, the serial interface is considered by the operating system as a standard serial port; so the use of the product is directly allowed through any software able to communicate with the standard serial ports of the operating system (COM1, COM2, etc).

The electrical insulation between the RS485 and the USB ports, allows to remove many problems of electrical noise which may occur when the connected equipment is very far from the PC.

GENERAL FEATURES

- Usable in Windows 98, 2000 and XP Environments.
- Usable in Linux Environment with Kernel 2.4.20 or later, for which the direct support exists.
- Compatible with 1.1 and 2.0 USB standard port.
- Insulation between USB and RS485: 1500 V.
- Max Consumption: 60 mA.
- Power Supply provided from the USB port of the PC.
- Terminator of RS485 line, settable through an external bridge.
- Baudrate: 1200 bps)115200 bps.
- RS485 Serial communication through MODBUS RTU protocol, 32 nodes max.
- Possibility of multiple connection of more S107USB or K107USB to the same PC.
- Three leds to view the status of the module's activity.
- Accessories: CD with driver.
USB connection cable: USB A and MINI USB B connectors.
- RS485 Connections of S107USB: removable 5-way screw terminals.
- RS485 Connections of K107USB: Spring terminals, Conductor Section: 0.2..2.5 mm², Wire stripping: 8 mm.

TECHNICAL SPECIFICATIONS

Environmental conditions:	Temperature: -20..65 °C. Humidity: 10%..90% non-condensing. Installation Category: II. Pollution Degree 2.
Storage Temperature:	-40..85 °C
Protection Index:	IP20
Weight, Dimensions:	S107USB: 24 g , 40 x 48 x 20,17 mm K107USB: 43 g, 6,2 x 93,1 x 102,5 mm
Standards:	EN61000-6-4/2002 (electromagnetic emission, industrial environment) EN61000-6-2/2005 (electromagnetic immunity, industrial environment) EN61010-1/2001 (safety).



INSTALLATION RULES

S107USB INSTALLATION RULES

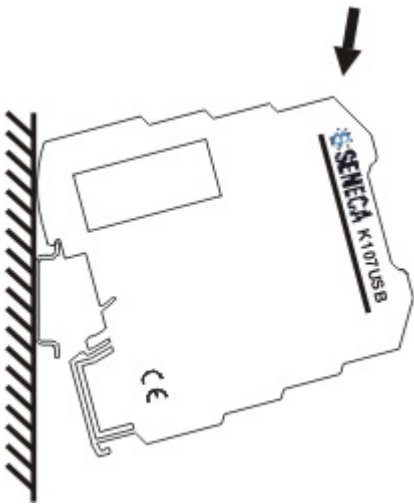
For S107USB module there are not particular warnigs, we only advise to use screened cables for the RS485 line in case of long connections or noisy environments (refer to **Electrical Connections** section) .

K107USB INSTALLATION RULES

This module has been designed for mounting on a DIN 46277 rail. Assembly in vertical position is recommended in order to increase the module's ventilation, and no raceways or other objects that compromise aeration must be positioned in the vicinity.

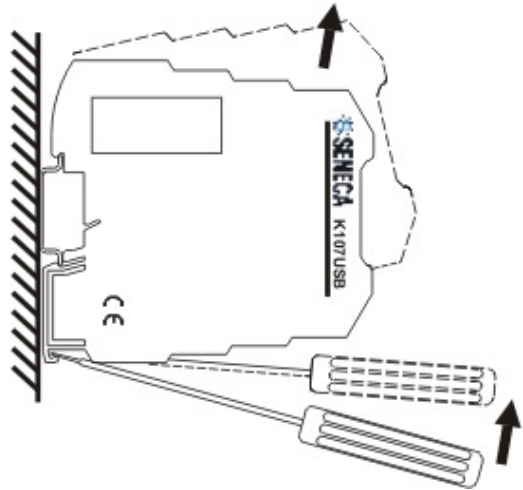
Do not position the module above equipment that generates heat; we recommend positioning the module in the lower part of the control panel or container compartment.

Inserting the module in the rail



- 1) Attach the module in the upper part of the rail.
- 2) Press the module downwards.

Removing the module from the rail



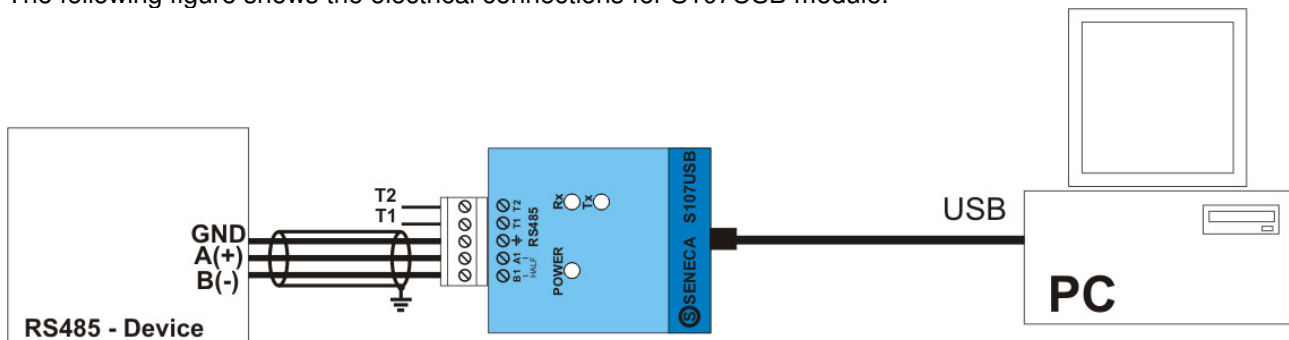
- 1) Apply leverage using a screwdriver (as shown in the figure).
- 2) Rotate the module upwards.

In case of long connections or noisy environments, it is advisable to use screened cables for the RS485 line (refer to **Electrical Connections** section).

ELECTRICAL CONNECTIONS

S107USB ELECTRICAL CONNECTIONS

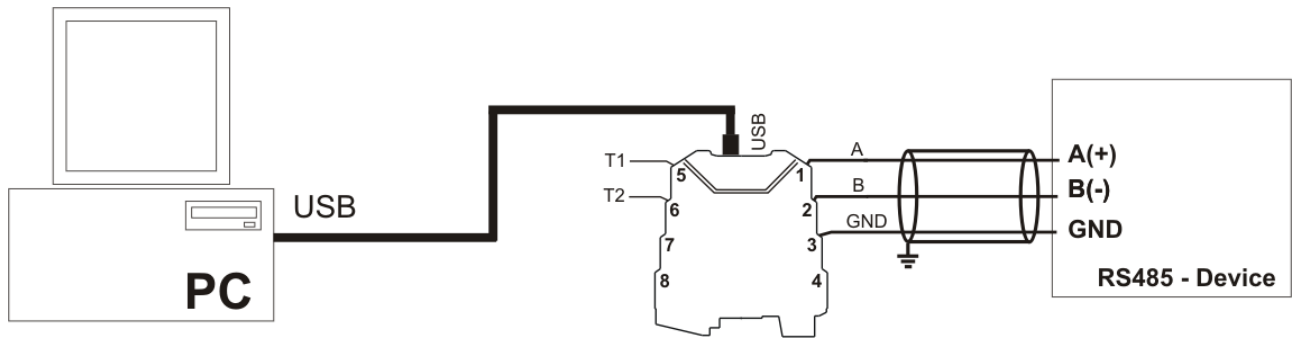
The following figure shows the electrical connections for S107USB module.



By inserting an external bridge between T1 and T2 terminals, the terminator of the RS485 line is inserted. In case of long connections or noisy environments, it is advisable to use screened cables for the RS485 line.

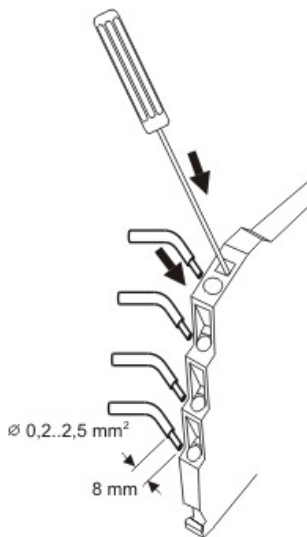
K107USB ELECTRICAL CONNECTIONS

The following figure shows the electrical connections for K107USB module.



By inserting an external bridge between T1 and T2 terminals, the terminator of the RS485 line is inserted. In case of long connections or noisy environments, it is advisable to use screened cables for the RS485 line.

Terminals Connections



The module has been designed for spring-type terminal electrical connections.

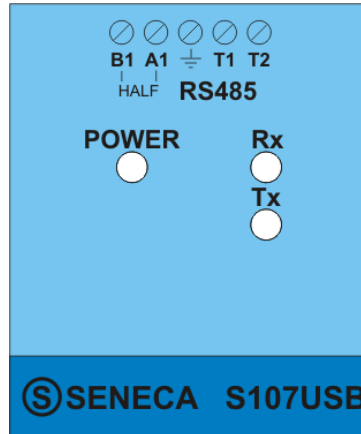
Proceed as follows to make the connections:

- 1 - Strip the cables by 0.8 mm
- 2 - Insert a screwdriver in the square hole and press it until the cable lock spring opens.
- 3 - Insert the cable in the round hole.
- 4 - Remove the screwdriver and make sure that the cable is tightly fastened in the terminal.

Both the modules have three leds which allow to visualize the status of the module's activity.

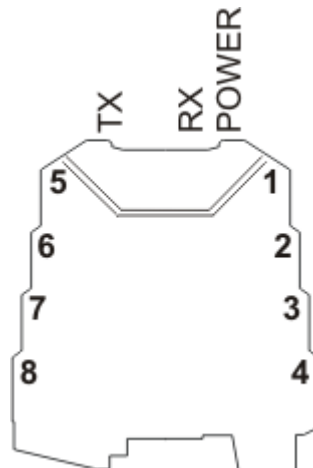
LEDS POSITION ON S107USB

On S107USB module, the leds are positioned on the following way:



LEDS POSITION ON K107USB

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LEDS MEANING

On both modules the leds are identified with the same name and have the following meaning:

NAME	COLOUR	MEANING
POWER	Yellow	If it is lighted, it indicates that the instrument is correctly supplied.
Rx	Red	It lights when the module receives data through the RS485 port.
Tx	Red	It lights when the module transmits data through the RS485 port.

PROBLEMS SOLVING

For any problems with the converter, verify the following points:

PROBLEM	VERIFY
The "POWER" Led does not light	Verify that the USB port of the PC provides the 5 V which are necessary to supply the module.
The "Rx" Led is steady on	Verify that the RS485 cables have not been swapped.
The received data are not correct	Verify the communication speed.

DRIVER INSTALLATION

The CD containing the instrument's driver is provided to the user.

In this section the installation procedure of the driver will be briefly described.

It is necessary to specify that the installation in **Linux** (with Kernel 2.4.20 or later) environments is automatic and **does not need** the CD with the driver. The standard serial port of the PC which identifies the device is the following: **/dev/ttyUSB0**.

As regards **Windows** operating systems, it is important to underline that the procedure is divided into two phases which are both fundamental for the final use of the instrument. On the first phase, the driver of the out-and-out serial converter is installed. By the second phase instead the virtual driver will be installed: this will allow to use the peripheral as a standard serial port of the operating system.

If case of use of **Windows 2000**, these two phases are identical and are performed step by step: the user has only to follow the guided procedure; instead in **Windows 1998** the second phase is automatically managed by the operating system without any further dialogue with the user. In **Windows XP** the two phases are performed very quickly by the operating system if the CD with the drivers has been inserted.

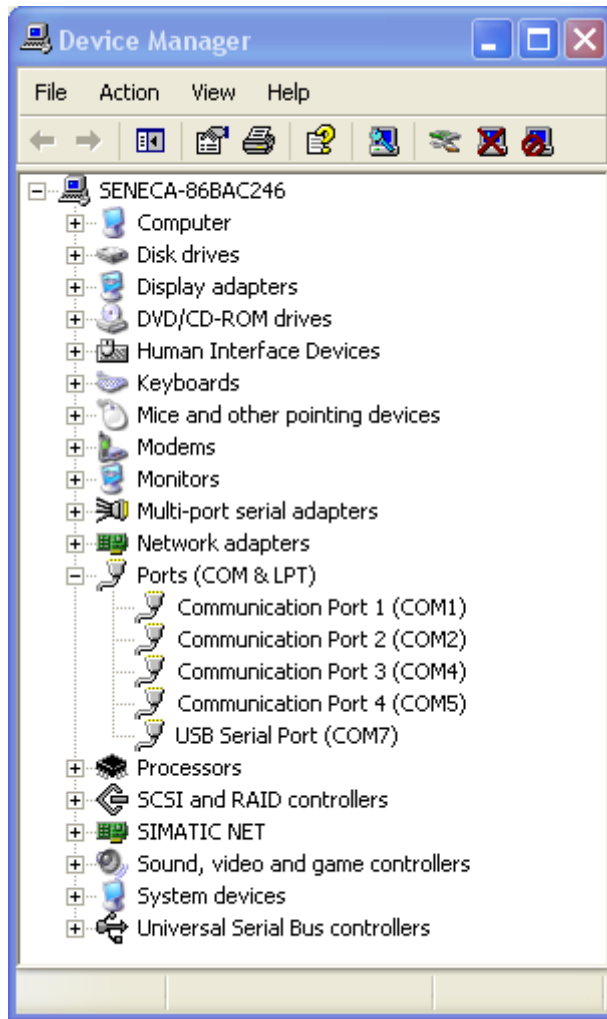
For the correct installation it is important to insert the CD with the driver and connect the device to the PC already turned on, so that the operating system may automatically detect the presence of the device.

At this point the the user has only to follow the guided installation.

VISUALIZATION OF THE VIRTUAL COM PORT

At the end of the installation, it is possibile to view the name which has been assigned to the virtual serial port associated to the used S107USB or K107USB device.

For example on the following Device Manager panel, it has been identified as COM7:



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