For further technical details refer to XTR-7020A-4 (cod. 650200925G) user manual.

WIZ-7020A-4 is a radio modem complete of integrated antenna on PCB, which allows half-duplex transmission and reception of digital data in TTL RS-232 format. It is possible to interface it directly to UART port of an external microprocessor or to the serial port of a PC through the electric level adapter W232-ADAPTER. The transceiver manage directly the protocol of synchronization between the transmitting and receiving units: it is not necessary any competence in RF planning by the user.

Applications

- **Sensors Monitoring**
- **POS**
- **Handheld Terminals**
- **Remote Printers**
- **Instruments Data Acquisition**
- **Thermal Regulation**
- **Industrial Weighing**
- **Scoreboard / Informative Panels**
- **Telemetry**

Features

- **10 RF Channels at 433-434 MHz**
- **Serial Data Transmission in TTL RS-232 (max 240 Byte)**
- **Command Mode by AT commands**
- **Small Size (40 x 60 mm)**
- **Bit Rate: from 9600 to 115200 bps, 8,n,1**
- **HyperTerminal* compatible**
- **Supply Voltage: 4-10V**

* = Hilgraeve Trade Mark

Functional Description

WIZ-7020A-4 board allows an immediate use of XTR-7020A-4 module in order to do a transparent radio communication in TTL RS 232 logic. In Fig. 1 it is showed an example of "radio link" between two PCs.
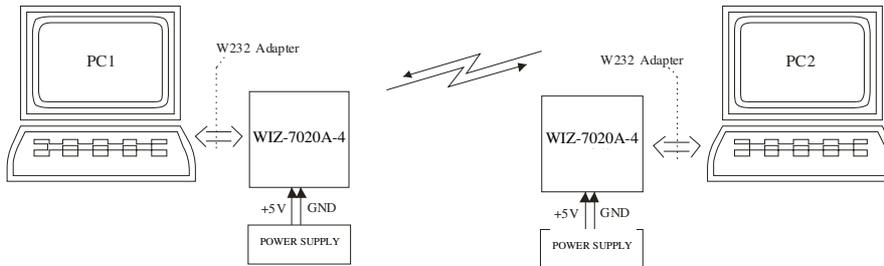

Fig. 1

Block Diagram

In Fig. 2 it's shown WIZ-7020A-4 block diagram. The following sections can be distinguished:

SIGNAL INTERFACE: J1 connector and 'DRIVER' integrated RS 232 electrical level translator.
SUPPLY VOLTAGE: J2 connector and power supply regulator (3.3 V).
SPEED SELECTION: SP1 and SP2 jumpers.
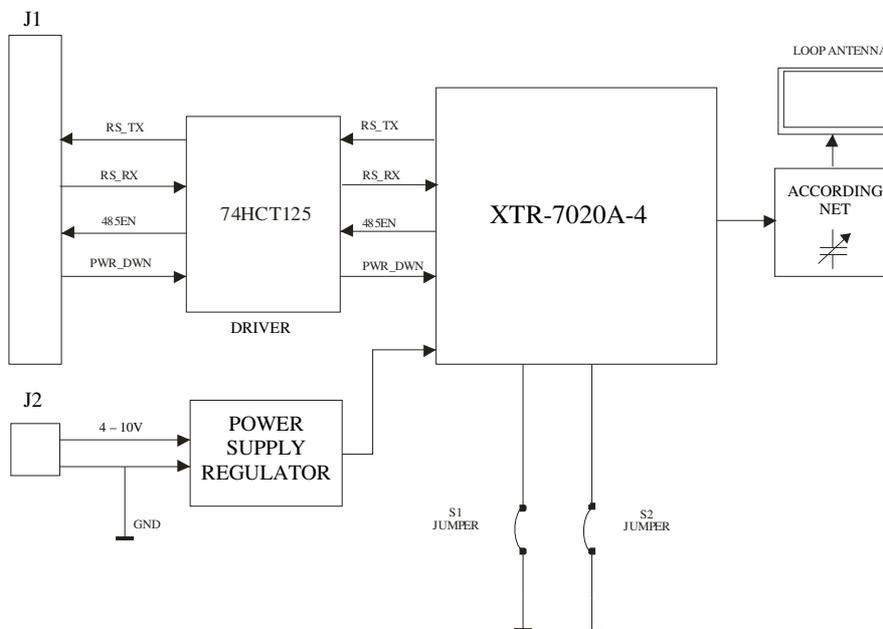**ANTENNA:** accordable loop by trimming capacitor.

Fig. 2

Technical Features

Supply Voltage

Supply voltage is given to the module through the J2 connector and is regulated to 3.3V by the voltage regulator U2 (MC78FC33HT1G).

	Min.	Typ.	Max.	Unit
Supply Voltage	4	5	10	V
Current consumption (RX, Vcc=5V)		36		mA
Current consumption (RX, Vcc=5V, con W232-ADAPTER)		42		mA
Current consumption (TX max power, Vcc=5V)		45		mA
Current consumption (TX max power, Vcc=5V, W232-ADAPTER)		51		mA
Emitting Power (TX max power, Vcc=5V)		2		dBm

Tab. 1

The J2 connector, which is employed, is constituted by a simple strip with two pins whose distance is 2,54 mm and the positive terminal is marked by + while the other one is ground (Fig. 5).

Interface

The interfacing towards the external world is realized through the J1 connector (10 pins) whose pins are illustrated in Fig.3:

Schematic View   Mechanical Front View
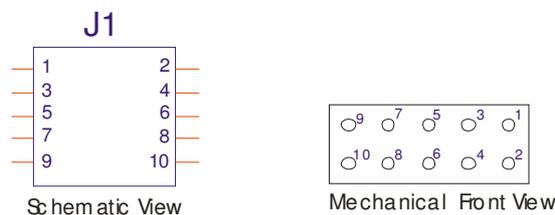
Fig. 3

where:
Pin 1 = RS_RX
Pin 2, 6, 8 = N. C.
Pin 3, 4 = GND
Pin 5 = RS_TX
Pin 7 = 485EN
Pin 9 = PWR_DWN (*)
Pin 10 = Vcc (output to W232-ADAPTER)

(*): PWR_DWN signal allows control of pin 16 of RF XTR-7020A-4 module and handling of the low consumption status (SLEEP). As delivered, the WIZ-7020A-4 has this possibilty not activated, with the unit being always active. To change this setting, with reference to electrical schematic in Fig. 4, add a R4=1kOhm resistor and remove the R resistor in parallel to C9 capacitor.

Data Speed Selection

With S1 and S2 jumpers it can be chosen serial data speed accordino to table 2::

S1	S2	Velocità
Open	Open	9600
Close	Open	19200
Open	Close	38400
Close	Close	Test Mode

Tab. 2

The speed must be selected before suppling the voltage to the module. For further details about speed selection and Test Mode refer to XTR-7020A-4 (cod. 650200722) user guide.

Schematic

In Fig. 4 is shown WIZ-7020A-4 schematic:
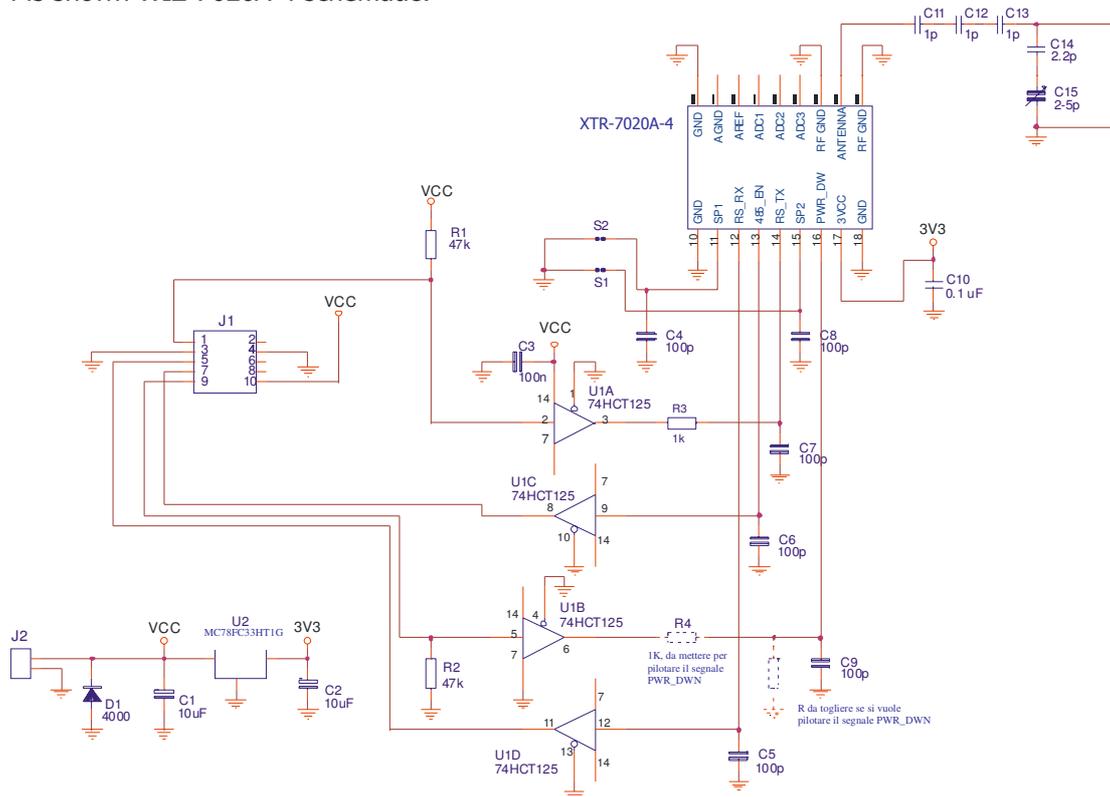
Fig. 4

Antenna

A loop antenna, tunable through a capacitive trimmer, is integrated on the WIZ-7020A-4 module. The antenna allows an immediate use of WIZ-7020A-4. Any action on the trimmer could bring to a wrong working of the radio link.

PCB and assembly Lay-Out
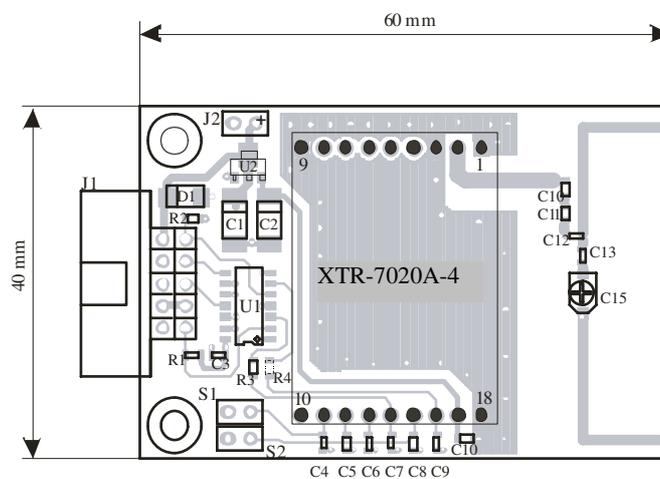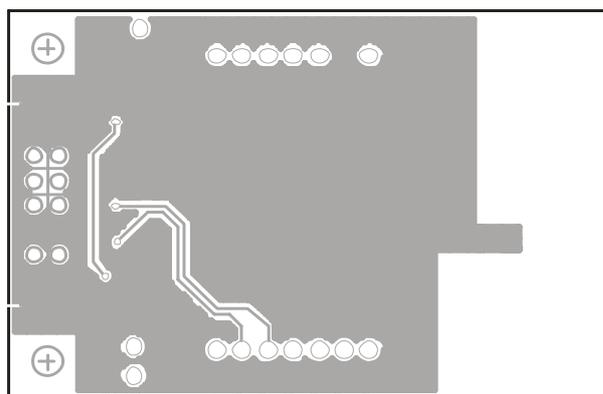
Figg. 5 e 6 are out of scale.

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Fig. 5

Fig. 6

Reference Rules

The **XTR-7020A-4** transceiver is CE certified and in particular it complies with the European set of Rules **EN 300 220,** and **EN 301 489**. Tests have been carried on by using Pseudo Random Code (CEPT 70-03). Spectrum occupancy has been tested by using Pseudo Random Code at 38400 bps. The equipment has been tested according to rule **EN 60950** and it can be utilized inside a special insulated housing that assures the compliance with the above mentioned rule. The transceiver must be supplied by a very low voltage safety source protected against short circuits.

The use of the transceiver module is foreseen inside housings that assure the overcoming of the provision **EN 61000-4-2** not directly applicable to the module itself. In particular, it is at the user' s care the insulation of the external antenna connection, and of the antenna itself since the RF output of the receiver is not built to bear directly the electrostatic charges foreseen by the a.m. provision.

CEPT 70-03 Recommendation

In order to comply with such rule, the maximum hourly duty cycle of the device must be the 10% [i.e.: 6 min. per hour]. The utilization of such device inside any national territory is subject to the Postal Code and Telecommunications rules in force. In Italy is art. 334 and subsequents.

Product Id

Product is identified whit number code added at manufacturing. The code identifies the production lot and week/year of production (WWYY four number code).