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**Oggetto** Report modulo Compact-S-UART (Wiicom)

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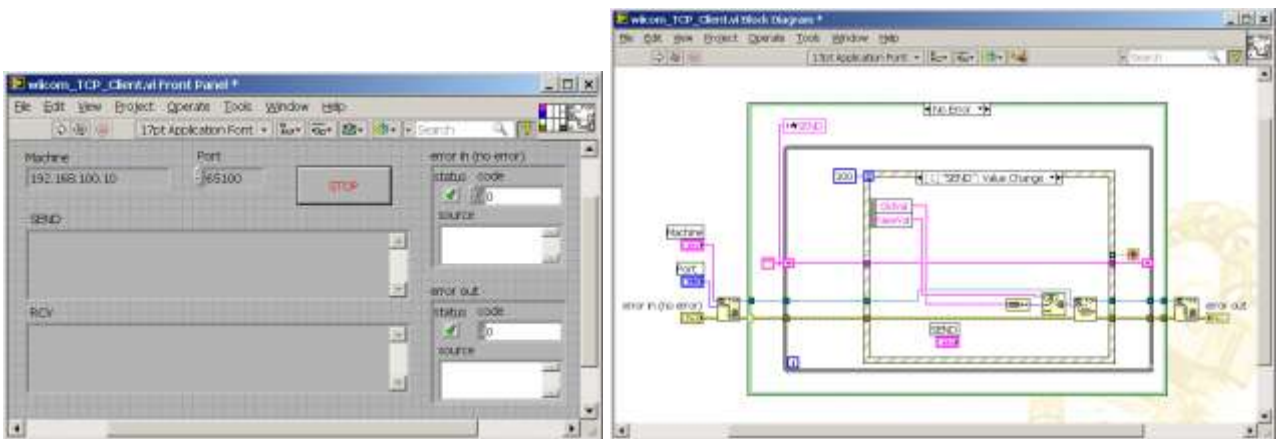
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## REPORT

The module concerned is the **Compact-S-UART (Wiicom)**. The module, shown in the following figure, has reduced dimensions (42 x 23 x 5 mm), is low power consumption and allows to establish a serial communication via Wi-Fi.



The module configuration is quite simple and is well documented by material easily available on the Wiicom website. The module creates a Wi-Fi network to which other devices can connect. Once connected, you can transfer and receive signals from the UART port device over the wireless network using the TCP-IP by simply opening a socket. The integration with any programming language is therefore very simple. Using LabVIEW has been developed an VI to transmit and receive data between two PCs: one PC has WIICOM module attached to the serial port and communicates via HyperTerminal, the other PC is connected to the wireless module and opens a TCP communication with it. The communication seems to be stable, but the tests were carried out in environment without particular disorders electromagnetic.



The module should implement on board a web server to which it should be possible connect from a web browser on port 80 to view and change the configuration of module or display all available outputs. In fact, this feature is not 'in the module concerned and therefore it was not possible to test it (the configuration of the module is anyway possible through the Configurator, which can be freely downloaded from the Wiicom website).

The Wiicom also offers a library of APIs for the development of APP on personal devices(Android, iOS) and applications on a PC (Windows, Linux, MacOS), but this characteristic has not been tested.

Thanks to its compact size and low power consumption, the module is suitable for wireless mobile applications and monitoring through sensors and mobile devices battery. On the market, however, There are other equivalent devices such as those offered by ROVING networks with prices much competitive. Some applications identified for this type of modules that are of interest to the Group Loccioni include:

- The industrial testing: in the case where there is the need to put the measuring sensors (for example temperature sensors or electrical quantities) directly on carriage for evaluate the performance over time of the objects produced, the wireless solution is almost a choice. It should, however, be very careful with the presence of electromagnetic interference that in such an environment can create significant problems for communication (as we have occurred in the past).
- The energy sector: wireless transmission modules can be used for both perform energy audits and energy management in buildings where it is not possible operates on the walls (for ex. historic buildings). In the case of the energy audit the network of sensors used to collect the data must be installed and removed quickly and surely a wireless solution facilitates this (the Loccioni already have an "audit kit "but you might consider the advantages / disadvantages of adopting a different kind of solution). In the case of energy management of historic buildings the ability to control terminals the heating and air conditioning through wireless communication allows you to limit the actions on the building.
- The structural monitoring: this application involves the use of acceleration sensors in different points of the building so as to record the behavior of the building structure in event of an earthquake and to assess the state. For this application, the wireless communication must provide both an adequate transfer of data is a synchronization signal that allows putting data acquired by the various sensors in the same temporal reference system.