

SoarTronic IOIO UART interface board DIY project manual

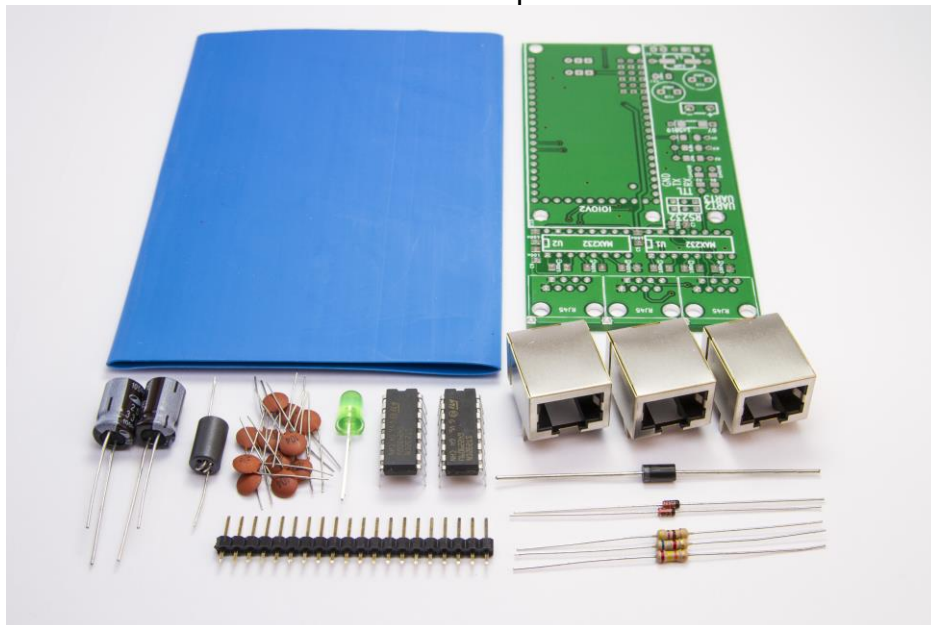
This manual includes information of
SoarTronic IOIO UART interface board

Please note, that this device is a result of an experimental project
and no guarantee of safety or usability can be given.

This device is used on your own risk!

UART interface is available as a DIY kit without IOIO board,
you also need to purchase IOIO from Sparkfun or retailers!

PCB with components



SoarTronic IOIO UART interface board

SoarTronic IOIO UART interface board is an extension board for **SparkFun IOIO module**. This electronics board can be used to connect four RS232 devices to an Android device running XCSoar program. It also provides charging power to the Android device using standard USB connector. *SoarTronic IOIO UART interface board* has two MAX232 microchips, which convert the IOIO board's TTL level serial communication lines (UARTs) to RS232 lines. *SoarTronic IOIO UART interface board* also filters the electromagnetic noise caused by the 12V/5V regulator build in into the IOIO board.

SoarTronic IOIO UART interface board has three RJ45 connectors. RJ45 connectors J1 (UART0) and J2 are designed for IGC standard pinout for easy connection with FLARM units, and they can also work as splitter. *SoarTronic IOIO UART interface board* can be connected between FLARM unit and other device, like external display. Also the third RJ45 connector J3 (UART1) has IGC standard pinout, and can connect to most FLARM devices and loggers. Before connecting any devices make sure that the wiring is correct. RJ45 leads use 8 wires and RJ12 6 wires. IGC standard RJ12 male connectors used in LX FLARM devices can be connected to female RJ45 connectors.

The 12V pins of the RJ45 connectors are connected into internal 12V line. 12V input can be connected through any of the RJ45 connectors using IGC standard cabling, or through dedicated 12 V input of *SoarTronic IOIO UART interface board*. If 12V input is connected into the *SoarTronic IOIO UART interface board* 12V and GND inputs, it is protected with a diode against reverse polarization, and this 12V can be distributed into all RJ45 connectors. It is recommended to feed operating voltage to FLARM units from *SoarTronic IOIO UART interface board*.

Please pay attention to 12V dc supply line of these RJ45 connectors, especially if you have several sources for operating voltage. The pins 7 and 8 are connected with internal 12V directly. Cut a 12v copper stripe (marked with white circles) or use RJ cable without 7 and 8 wires connected if you do not want to connect RJ45 connectors with the same 12v potential with the IOIO board. Also note that if the devices connected to RJ45 connectors have already supply voltage connected, you can use these connection points to connect power directly between connectors J2 and J3, without connecting with the internal 12V line.

Other two RJ232 lines have connection points for cabling to external connectors. It is recommended, that the user of this board solders appropriate length shielded cable into these points, and connects directly with units like variometers and loggers. Connection points to GND for cable shields are provided, and since unshielded communication cables are significant source of electromagnetic noise, it is recommended to connect shields to ground in both ends, if possible. Many devices have build-in male Sub D9 connector, which is grounded in the devices metal housing.

IOIO board is innovation of Ytai Ben-Tsvi. It is recommended to read IOIO board documentation. Information of IOIO board is available from <http://www.sparkfun.com/products/10748> or <https://www.sparkfun.com/products/11343> and from <https://github.com/ytai/ioio/wiki>

Please note that while it is possible to feed 12V in to the *SoarTronic IOIO UART interface board* it is recommended to use the dedicated 12V input line. This is because the 12V input is filtered and protected for reverse current.

Assembly:

Please refer:

Soartronic IOIO uart interface v2a quick assembly manual for IOIO v1

or

Soartronic IOIO uart interface v2a quick assembly manual for IOIO OTG

Soartronic IOIO uart interface v2a extra features

and

IOIO – uart interface pinheaders

Soartronic RJ45 port pin numbers and description.

Pin description of rj45 port:

1 GND

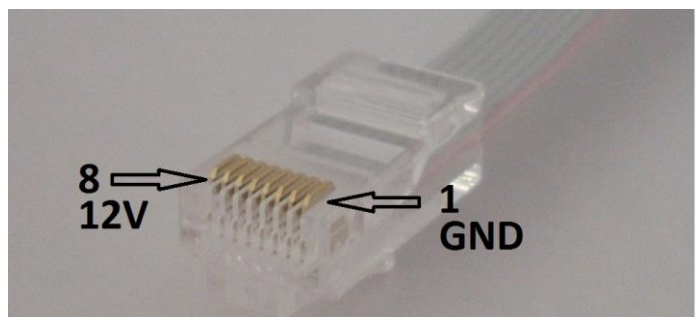
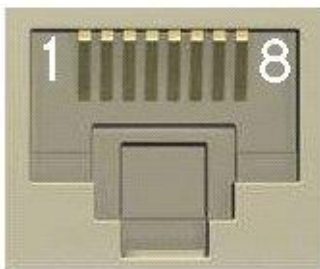
2 GND

3 TX

4 RX

7 12V

8 12V



Webshops that sell IOIO boards.

USA

<https://www.sparkfun.com/products/11343>
<http://www.jayconsystems.com/android.html>

France

<http://www.lextronic.fr/P22601-platine-ioio-otg-pour-android.html>

United kingdom

<http://www.hobbytronics.co.uk/android/ioio-otg>
<http://proto-pic.co.uk/ioio-otg>
<http://www.skpang.co.uk/catalog/ioio-for-android-p-929.html>
http://robosavvy.com/store/product_info.php/cPath/41_1002_1218/products_id/3567

Czech Republic

<http://www.hwkitchen.com/products/ioio-for-android>

Italy

<http://www.robot-italy.com/en/ioio-otg.html>
<http://www.robot-italy.com/en/ioio-for-android.html>

Germany

http://www.tinkersoup.de/product_info.php?products_id=674&osCsid=5ef55bd0fcell1f6762c8067e4e6f4536

Netherland

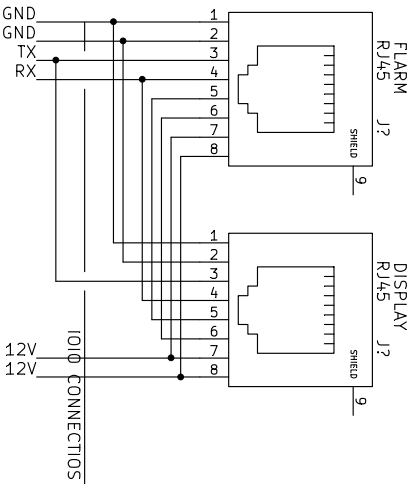
http://www.eztronics.nl/webshop2/catalog/index.php?route=product/product&product_id=91

Sweden

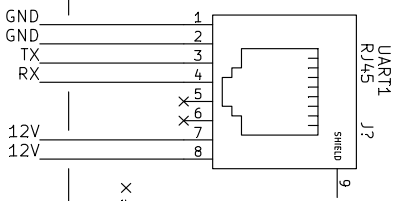
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SOARTRONIC RJ45 AND D-SUB CONNECTOR DESCRIPTIONS

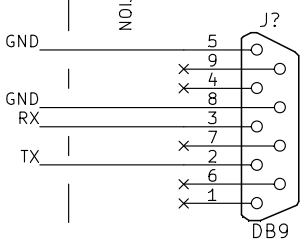
UART INTERFACE, BT1, ST1
 UART0



UART INTERFACE, ST1
 UART1



ST1 UART2
 D-SUB9 MALE



PLEASE NOTE! SOARTRONIC RJ45 PORT PIN NUMBERS FOLLOW COMPONENT PIN NUMBERS!
 IGC PIN NUMBER ORDER IS REVERSED!
 IOW: SOARTRONIC PIN 1 IS IGC PIN 8!
 WHEN YOU MAKE A CABLE, INSTEAD OF NUMBERING USE THE GND, TX AND RX LABELLING.

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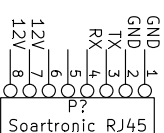
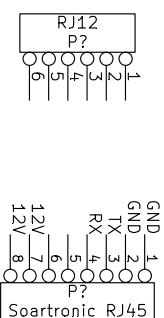
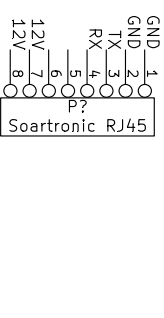
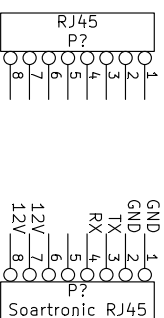
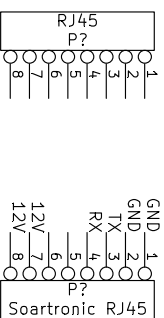
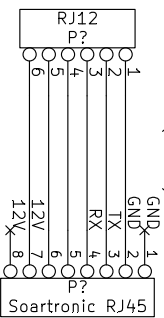
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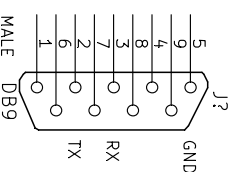
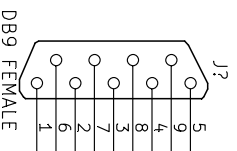
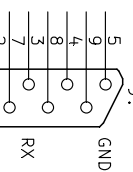
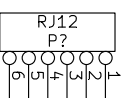
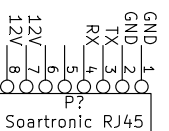
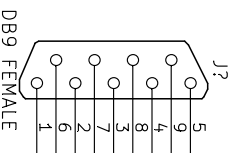
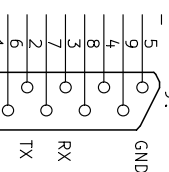
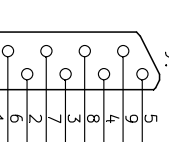
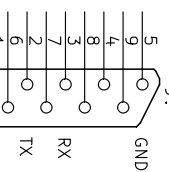
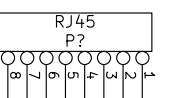
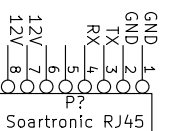
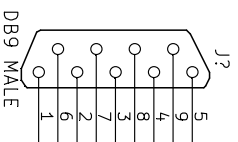
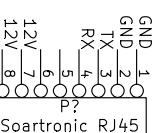
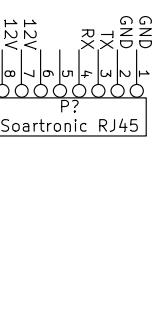
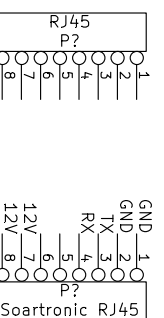
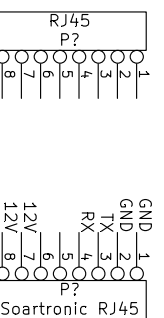
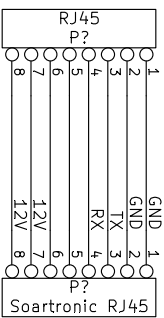
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1:1 IGC RJ12(FLARM) - RJ45 CABLE



1:1 IGC RJ45 - RJ45 CABLE



PLEASE NOTE! SOARTRONIC RJ45 PORT PIN NUMBERS

FOLLOW COMPONENT PIN NUMBERS!

IGC PIN NUMBER ORDER IS REVERSED!

LOW: SOARTRONIC PIN 1 IS IGC PIN 8 !

NC = NO CONNECTION

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