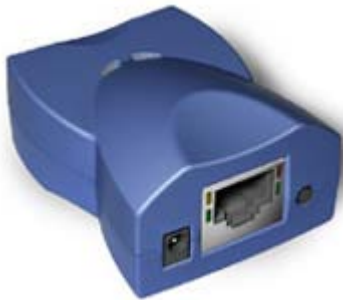


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DS202 Serial Device Server



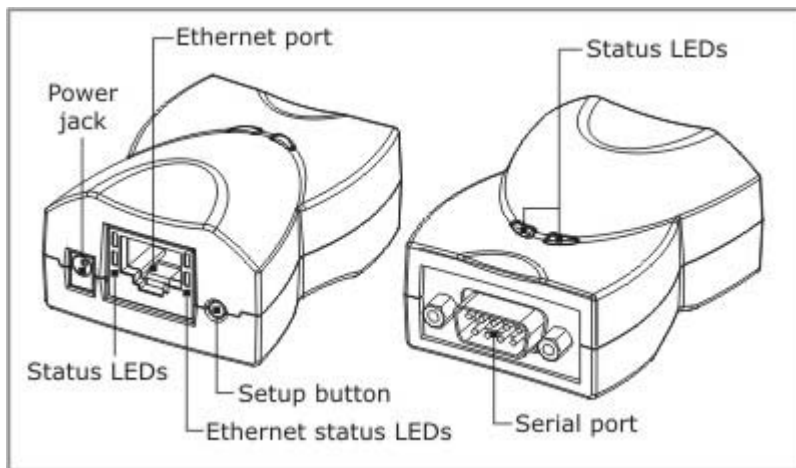
The DS202 is a Serial Device Server for external use. Device hardware includes one 10/100BaseT Ethernet port, one RS232 serial port and an internal processor that "glues" network and serial sides together. Internally, the DS202 is based on the [EM202 Ethernet Module](#).

From the hardware standpoint, the DS202 can be viewed as a universal platform suitable for running a variety of network and serial communications-related applications. It is the [application firmware](#), not the hardware that gives the DS202 most of its functionality. The firmware is currently in its 3rd generation ("Release3").

The application firmware of the DS202 can be upgraded through the device's serial port or Ethernet port. Serial upgrades are facilitated by a so-called [Monitor](#)- a fixed "service" firmware inside the DS202. Network upgrades rely on the application firmware itself- there is a self upgrade algorithm that will be detailed later. The DS202 is supplied with the application firmware already pre-loaded.

Since most of the DS202's operation is defined by its firmware the major part of the functional description can be found in the [Device Server Application Firmware Manual](#). This *DS202 Serial Device Server Manual* focuses on the hardware portion of the DS202.

DS202 connectors and controls

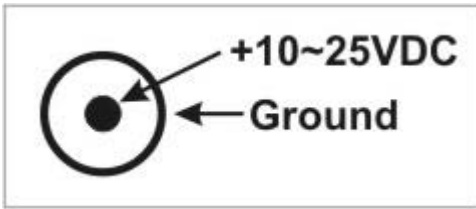


Click on one of the links provided below to learn more about the DS202:

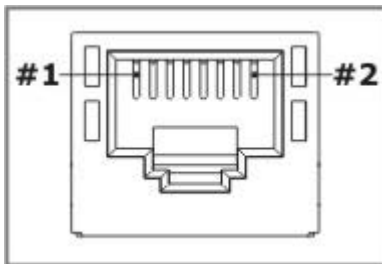
- [Power Jack](#) (input power is 10-25VDC, adaptor current rating must be no less than 500mA)
- [Ethernet port pin assignment](#)
- [RS232 port pin assignment](#)
- [Status LEDs](#)
- [Setup button](#)

Power Jack

Power Jack of the DS202 accepts "small" power connectors with 3.5mm diameter. Use [ARP-P0006](#), [ARP-P0007](#), or [ARP-P0008](#) power adaptor supplied by Tibbo or similar adaptor. Acceptable power supply voltage range is 10-25VDC. Adaptor current rating should be at least 500mA. On the power jack, the ground is "on the outside", as shown on the figure below.



Ethernet port pin assignment

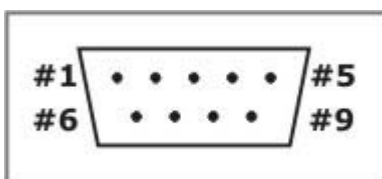


Ethernet port of the DS202 is of 10/100BaseT type.
Connector is of RJ45 type, pin assignment is as follows:

#1	TX+
#2	TX-
#3	RX+
#4	<No connection>
#5	<No connection>
#6	RX-
#7	<No connection>
#8	<No connection>

RS232 port pin assignment

DB9M RS232 connector has the following pin assignment:



#1	<No connection>
#2	RX (input)
#3	TX (output)
#4	<No connection>
#5	Ground
#6	<No connection>
#7	RTS (output)
#8	CTS (input)
#9	<No connection>

Status LEDs

The DS202 has two pairs of status LEDs: one on the Ethernet connector itself (left side), and one on top of the Device. Both pairs are controlled by the same internal circuitry and exhibit exactly the same behavior.

Status LEDs display various status information depending on what firmware is running at the moment. Follow the links below to learn more about the behaviour of these LEDs under different conditions:

- [Status LED behavior in the monitor firmware](#)
- [Status LED behavior in the application firmware](#)

There are also two Ethernet Status LEDs- Green and Yellow- located on the Ethernet connector (right side):

- **Link/Data LED** (green) is turned on when "live" Ethernet cable is plugged into the Module. The LED is temporarily switched off whenever an Ethernet packet is received.
- **100BaseT LED** (yellow) is turned on when the EM202 links with the hub at 100Mb. The LED is off when the link is established at 10Mb.

Setup button

The setup button is located next to the Ethernet port of the DS202.

The Button is used to select an operating mode of the DS202:

- When the DS202 is powered up with the button pressed it enters a serial upgrade mode in which new [application firmware](#) file can be uploaded into the DS202 through its serial port. If the DS202 is powered up with the setup button not pressed the Device proceeds to running its current application firmware. This functionality is delivered by the [Monitor firmware](#) component of the DS202.
- When the [application firmware](#) is already running the setup button is used to make the DS202 enter the [serial programming mode](#) (hence, the name of a button)*.

** Strictly speaking, this is a functionality that is defined by the application firmware, not the DS202 hardware.*

Specifications and DS202 modifications

The DS202 has one submodel in circulation- DS202R-00.

Device specifications are presented in the table below.

Parameter	DS202R-00
Ethernet interface	10/100BaseT Ethernet
Serial interface and I/O lines	RS232 (TX,RX,RTS,CTS,DTR,DSR)
Routing buffers size	12Kbytes x 2*
Power requirements	DC 10-25V, use adaptor with current rating of at least 500mA
Operating temperature	-5 to +70 degrees C
Operating relative humidity	10-90%
Mechanical dimensions	60x47x30mm
Carton dimensions ("bare" DS202)	125x95x52mm
Gross weight ("bare" DS202)	110g.
Carton dimensions (DS202-KIT)	325x45x90mm
Gross weight (DS202-KIT)	950g.

* *Maximum possible buffer size. Actual size may be smaller depending on how much RAM is "consumed" by the firmware*

Kits and Accessories

Tibbo supplies the following Accessories:

- [WAS-P0004\(B\) DS-to-device serial cable](#) (replaces now obsolete [WAS-1404](#))
- [WAS-P0005\(B\) DS-to-PC serial cable](#) (replaces now obsolete [WAS-1455](#))
- [WAS-1499 "straight" Ethernet cable](#) (DS-to-hub cable)
- [WAS-1498 "crossover" Ethernet cable](#) (DS-to-device cable)
- [TB100 Terminal Block Adaptor](#)
- [12VDC/500mA Power Adaptors](#)
- [DMK100 DIN Rail/Wall Mounting Kit](#)

The following Starter Kits are available:

- **DS100R-SK Starter Kit.** The Kit includes all necessary parts for evaluation of the [DS100R Serial Device Server](#):
 - [DS100R Serial Device Server](#);
 - [WAS-P0004\(B\) DS-to-device serial cable](#);
 - [WAS-P0005\(B\) DS-to-PC serial cable](#);
 - [WAS-1499 "straight" Ethernet cable](#);
 - [WAS-1498 "crossover" Ethernet cable](#);
 - [12VDC/500mA Power Adaptor](#).

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