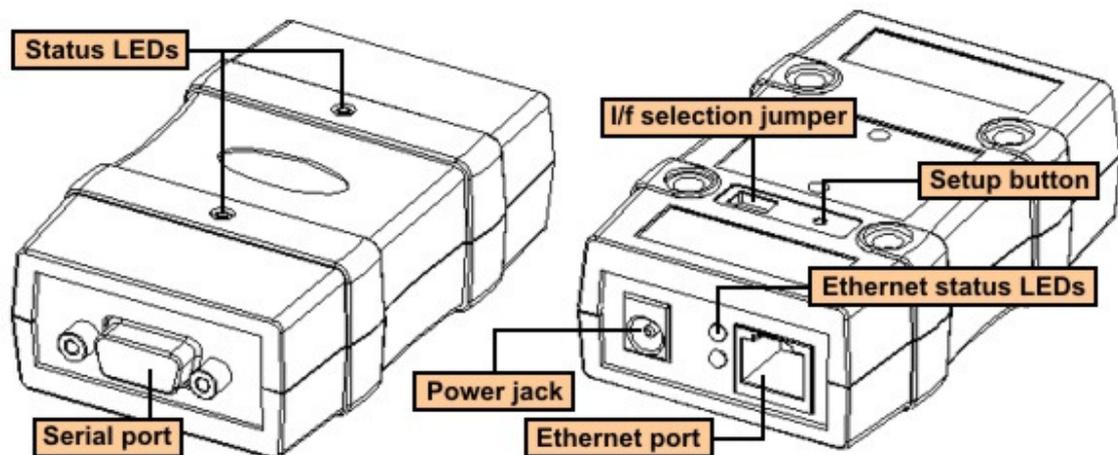## DS100 Connectors and Controls


Click on the area on the picture above or one of the links provided below to learn more about the DS100:

- Power Jack (input power is 12VDC, adaptor current rating must be no less than 500mA)

- Ethernet port pin assignment.

- Serial port pin assignment and interface selection.

- Status LEDs.

- Setup button.

Power Jack

Power Jack of the DS100 accepts "large" power connectors with 5.5mm diameter. Use ARP-1014, ARP-1015A, or ARP-1018A power adaptor supplied by Tibbo or similar adaptor. Nominal voltage is 12VDC and adaptor current rating should be at least 500mA. On the power jack, the ground is "on the outside", as shown on the figure below.
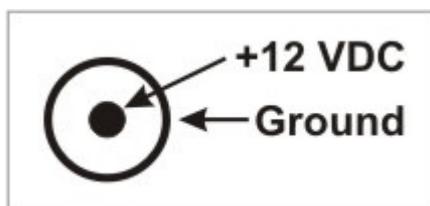

Ethernet Port Pin Assignment

Ethernet port of the DS100 is of 10BaseT type. The DS100 is compatible with all 10BaseT Ethernet hubs and also 99% of 100BaseT hubs. This is because most 100BaseT hubs are actually 100/10 devices that auto-detect the type of device connected to each port.

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>*

## Serial Port Pin Assignment and i/f Selection
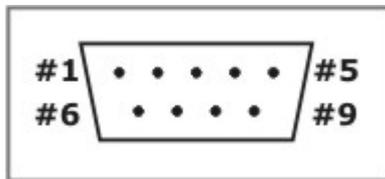
The serial port connector of the DS100 is of DB9M type. The DS100 is supplied in two models: the DS100R with RS232 port and DS100B with universal RS232/RS422/RS485 serial port. Notice, that there are no terminators (usually required at the ends of RS422 and RS485 buses) inside the DS100B. Termination circuits are present on the TB100 Terminal Block Adaptor that can be optionally supplied with the DS100B.

	DS100R	DS100B		
	RS232 **(full-duplex op.)**	**RS232** **(full-duplex op.)**	**RS422** **(full-duplex op.)**	**RS485** **(half-duplex op.)**
#1	*<No connection>*	*<No connection>*	**RTS-** (output)	*<No connection>*
#2	**RX** (input)	**RX** (input)	**RX-** (input)	**RX-** (input)
#3	**TX** (output)	**TX** (output)	**TX+** (output)	**TX+** (output)
#4	*<No connection>*	**DTR** (output)	**TX-** (output)	**TX-** (output)
#5	**Ground**	**Ground**	**Ground**	**Ground**
#6	*<No connection>*	**DSR** (input)	**RX+** (input)	**RX+** (input)
#7	**RTS** (output)	**RTS** (output)	**RTS+** (output)	*<No connection>*
#8	**CTS** (input)	**CTS** (input)	**CTS+** (input)	*<No connection>*
#9	*<No connection>*	*<No connection>*	**CTS-** (input)	*<No connection>*

The difference between the RS422 and RS485 modes of the DS100B is not just in that there are no RTS+ and RTS- signals in the RS485 mode. Notice that the table above also details whether the serial port is running in the full-duplex or half-duplex mode when a particular interface is selected. When RS422 is selected the serial port is in the full-duplex mode and the TX+/TX- and RTS+/RTS- signal pairs are active at all times (i.e. output the data). When RS485 is selected the TX+/RX+ signal pair outputs the data only when the DS100 needs to send the data out through the serial port. The incoming data is ignored at this time. When the DS100 is not outputting the data the TX+/TX- signal pair is tri-stated and the DS100 is "listening" to the incoming data on the RX+/RX- signal pair. This allows you to arrange a 2-wire RS485 bus by externally connecting TX+ to the RX+ and

TX- to the RX- (this can be conveniently done by using TB100 Terminal Block Adaptor).

Interface selection for the DS100B is done through the DIP switches located on the bottom of the device, next to the setup button (DS100B only). Only switches 1 and 2 are used at the moment, switch 3 is reserved.
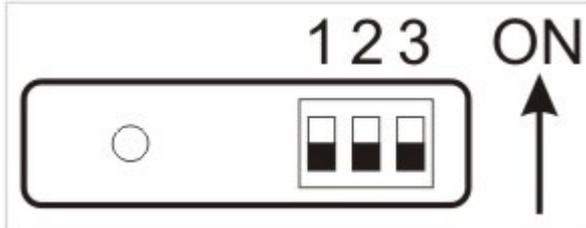
Interface	Switch 1	Switch 2
RS232	OFF	OFF
RS422	OFF	ON
RS485	ON	ON

If you change interface selection you need to power the DS100B off and back on again for the new selection to be recognized by the device. Also, for the interface selection to work you need to make sure that the **Serial Interface (SI) setting** of the application firmware is programmed to 2 (auto).

Status LEDs

The Green and Red status LEDs are located on the top of the DS100. The 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 NetLoader

- Status LED behavior in the application firmware

There are also two Ethernet Status LEDs- Green and Red- located next to the RJ45 Ethernet connector. The Green LED is normally ON, and is temporarily turned off whenever the EM100 receives a network packet. The Red LED is normally OFF, and is turned on momentarily whenever a data collision is detected on the Ethernet.

Setup Button

The setup button is located on the bottom side of the DS100. The button can be pushed by a sharp tip of a pencil, pen, etc.

The Button is used to select an operating mode of the DS100:

- When the DS100 is powered up with the button pressed it enters a serial upgrade mode in which new application firmware file can be uploaded into the DS100 through its serial port. If the DS100 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 DS100.

- When the application firmware is already running the setup button is used to make the DS100 enter the serial programming mode (hence, the name of a