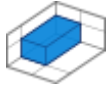


#05, M1S: RS485 port



Function: RS485 port with full-duplex or half-duplex operation.

Form factor: [M1S](#)

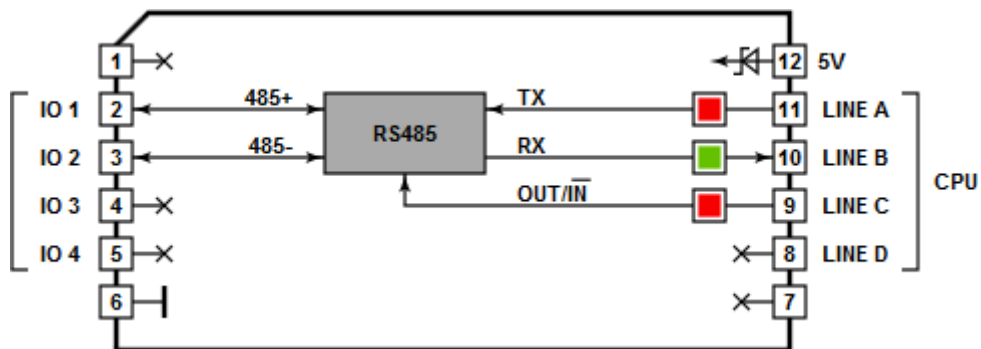
Category: Input/output module

Special needs: [\[SER\]](#)

Power requirements: 5V/[TBD](#)mA

Mates with: [#19](#), [#20](#), [#21](#)

See also: [#01](#), [#02](#)



Details

This port has only +/-RX and +/-TX signal pairs. If you are working in the half-duplex mode, connect +RX to +TX, and -RX to -TX. This will allow your system to communicate over a single twisted pair. Direction control is through the RTS line -- the line shall be LOW for data input and HIGH for output. Keep the RX and TX pairs separate for the full-duplex mode and set the RTS line HIGH to keep the TX enabled at all times.

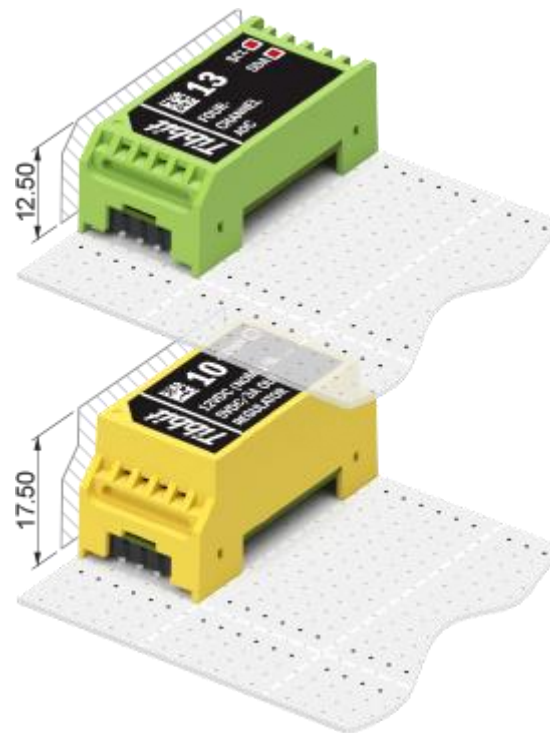
For "normal" RS485 applications, this Tibbit has to be connected to the TX and RX lines of the CPU's UART (see [\[SER\]](#)).

Combine this Tibbit with terminal block devices -- [#20](#) (nine terminal blocks) or [#21](#) (four terminal blocks).

LEDs

There are three LEDs: two red and one green. Red LEDs are connected to TX and OUT/-IN lines. The green LED is for the RX input. All LEDs are buffered (with logic gates) and light up for the LOW state of control lines.

Footprint and Color Coding

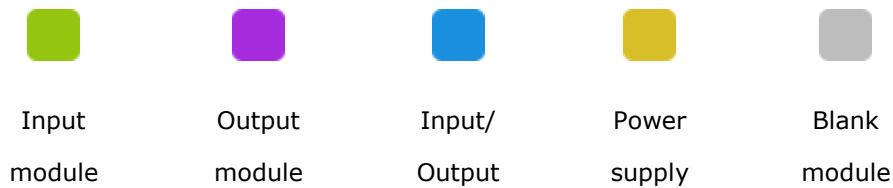


M1 Tibbits are single-width modules occupying one ["M" socket on the standard tile](#). Their footprint is roughly 7 x 14 "squares" (one "square" is 2.54 x 2.54 mm).

M1 devices have four I/O lines for interfacing with the outside world. We found four to be the magic number. it's just right for a wide variety of I/O functions.

M1s can be short (M1S) or tall (M1T). Most M1 devices fit into "short" 12.5mm shells, selected few are 17.5mm "tall".

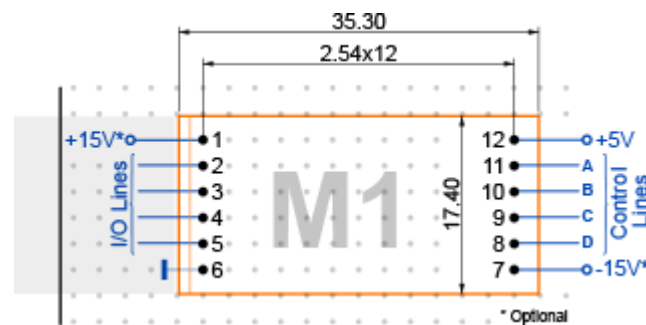
Each M1 module's color will tell you if it is an...



M1 Tibbits can incorporate up to [four status LEDs](#).

I/O pins

M1 modules have 2 rows of 6 pins:



Pins 8-11 are control lines A-D. They are for interfacing to our [embedded modules](#) or other microcontrollers. On [Tibbo Project PCBs](#) these pins are connected to the main processor.

Pins 2-5 are I/O lines facing the outside world. On Tibbo Project PCBs they go to Tibbit [connector sockets](#) (i.e. connect to [C1](#) and [C2](#) devices).

Pins 6 and 12 are the GROUND and +5V power pins. Most Tibbit Modules consume (take) 5V power. There are also power supply Tibbits that generate 5V power from a variety of sources. Those *output* 5V through pin 12. As an example of power Tibbits see Tibbits [#10](#) and [#23](#).

Pins 1 and 7 are for the additional +15V and -15V voltages. These are optional and only needed by few Tibbits. A special power supply Tibbit [#12](#) generates +/-15V from the main 5V power.