SNAPlink RS-485 / RS-422
Serial Cable Replacement Devices

SL485-010 is FCC and IC certified for use in North America
SL485-020 is CE certified for use in Europe

WARNING AND CAUTIONS:

- **To reduce risk of damage, disconnect power from the SNAPlink and from the connected device before making your serial connection.**
- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- If you are unsure about any part of these instructions, consult an electrician.

WARNINGS AND CAUTIONS:

- Terminal block connections should use wire between 26 and 14 AWG.
- Torque terminal block connections to between 0.35 and 0.40 Nm (3.1 to 3.5 inch pounds).
- **Mounting:** It is critical that the antennas of all SNAPlink devices be oriented in the same direction.

QUICK START GUIDE

DESCRIPTION

The Synapse SL485-xxx is a cable-replacement solution for connecting devices that would normally use an RS-485 or RS-422 cable.

SNAPlink devices allow for one-to-one communications, or communications between a single master and multiple slaves. They support many serial baud rates and configurations, and multiple independent pairings or networks can coexist without conflict in a single working environment.

PROVISIONING

SNAPlink devices are configured for 9600 baud 8N1 serial communications with flow control disabled by default. These settings can be adjusted using the EasySet software available from Synapse Wireless, or you can select common baud rates and configure flow control using DIP switches inside the case.

To begin provisioning:

Remove the screw from the end of the SNAPlink device and lift the cover off. There will be a bank of eight DIP switches. labeled 1 through 8. (There is a second bank of six DIP switches, which we will get to below.)

On the bank of eight switches, DIP switch 1 is not used on the SL485.

DIP switches 2, 3, and 4 can control the serial baud rate, as follows:

Baud Rate	Switch 2	Switch 3	Switch 4
300	On	Off	On
1,200	Off	On	On
2,400	On	On	On
9,600	Off	Off	Off
19,200	On	Off	Off
38,400	Off	On	Off
57,600	On	On	Off
115,200	Off	Off	On

DIP switches 5 through 8 affect the SNAP radio channel used for over-the-air communications and typically need no adjustment. Refer to the SNAPlink User Guide for more information. (Note: Devices must use the same channel to communicate with each other. Do not set all four switches to On as this selects channel 15, which is unavailable for the SL232-020 and SL485-020 devices.

SNAPlink SL485-xxx devices are configured for RS-485 two-wire half duplex operation by default, and support configuration for RS-422 four-wire full duplex and RS-485 four-wire full or half duplex. These may be referred to as five-wire or three-wire configurations in some contexts; these are the same as four-wire and two-wire, but also include the ground connection.

The bank of six DIP switches controls the state of the RS-485 or RS-422 configuration:

Configuration	Sw. 1	Sw. 2	Sw. 3	Sw. 4	Sw. 5	Sw. 6
RS-485 Two-wire Half Duplex	On	On	Off	On	On	Off
RS-485 Four-wire Half Duplex	Off	Off	On	On	On	Off
RS-485 Four-wire Full Duplex	Off	Off	On	On	Off	On
RS-422 Four-wire Full Duplex	Off	Off	Off	On	Off	On

After setting the DIP switches, reassemble each device.

POWERING THE DEVICES

You can power your SNAPlink devices either through the micro-B USB connection (5V DC, 500 mA), or using the power terminal blocks providing 6-30 volts DC.

PAIRING DEVICES

To pair two devices for one-to-one communication, power both devices in their defaulted state. Select a device and hold the Mode button for at least 5 seconds until LED A turns red, then release the button. Repeat this process for the second device and it should find the first SNAPlink device looking for a partner and then switch to a solid LED color indicating radio link quality (green for strong, amber for weak, red for unable to communicate). Your devices are now paired and ready to communicate.

If you need to establish a master/slave configuration for a one-to-many installation, first select a device to be the master. With the device powered and in its default state, press the Mode button four times within 3 seconds to put it into multipoint mode. (LED A will blink amber when the device is in multipoint mode.) When LED A is blinking amber, press the Mode button four more times within 3 seconds to indicate the device is a master. LED A will begin to slowly blink between amber and green.

With the master device still powered, on each (powered) slave device press the Mode button four times within 3 seconds to put the device into multipoint mode. LED A may briefly flash amber, but then should go to a solid color indicating radio link quality with the master (green for strong, amber for weak, red for unable to communicate).

Once your devices are paired (either one-to-one or in a master/slave configuration) you may remove their power. They will retain their pairing information in non-volatile memory and you can now install them in their final environments.

MOUNTING

For best transmission, orient all antennas in the same direction. Typically it will be easiest if the antenna points straight up. However if one device is physically located directly above another one, adjust all antennas to be parallel to each other and horizontal.

SERIAL CONNECTIONS

Two-wire operation uses contacts 1 and 2, or contacts 3 and 4. For four-wire operation, use the pin-out shown in Figure 1 to make connections as appropriate for the mode you need. Include the ground wire if required by your application.

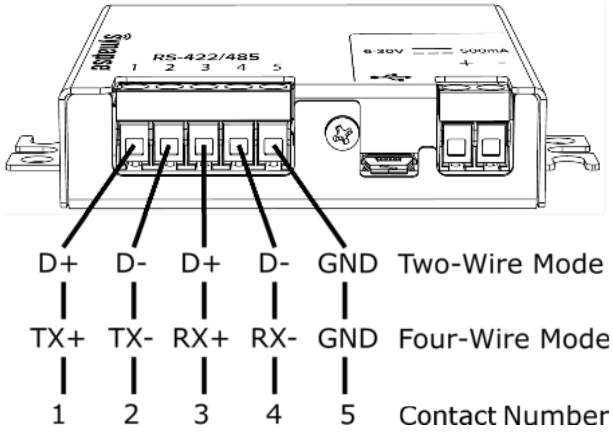


Figure 1 - Serial Connection Pin-Out

ADDITIONAL INFORMATION

For additional information about how to configure your SNAPlink devices and how to fine-tune settings for your application and environment, please see the SNAPlink User Guide, available at http://www.synapse-wireless.com/resources/support-documents/