DN V3.2 Comms Module – SDI-12

SDI-12 stands for Serial Data Interface at 1200 Baud Rate. This is an older protocol but is widely used for many sensors due to the standardisation achieved in communication and wiring. This Rimik module is specifically designed to communicate with SDI-12 devices. Each module has it own internal address to identify it to the microcontroller. This allows users to mount several different types of communication modules onto the connect board if necessary. Each module has an address defined by the positions of by the positions of SW1 & SW2.

It is possible to connect a number of SDI-12 devices in parallel to a single SDI-12 module. Cable length can be up to 100m for a single sensor but will be reduced by the number of sensors installed. While the number of supported sensor addresses for SDI-12 has expanded to 62, the main limitation is voltage drop through the cable(s). Multiple SDI-12 modules can be mounted on the DN V3.2 connect board to allow more convenient wiring points if required otherwise we recommend using a Rimik multi-socket connector.

SDI-12 capability must be specified so that it is included in the DN V3.2 firmware build.

Specification:

Operating Voltage	12V DC
Maximum current	0.5A

Connections:

Pin 1	V+ (Constant)
Pin 2	V+ (Switched)
Pin 3	Serial Data
Pin 4	V- (Ground)

SDI-12 Solutions:

SDI-12 is a relatively common protocol for many existing sensors. Sensors that are not already listed require a small amount of implementation and testing. New SDI-12 sensors can be implemented in 2-3 days at the client's request.

Currently available SDI-12 solutions:

Brand	Device Type	Model
EnviroPro	Soil Moisture, Temperature, EC	All
Decagon	Soil Moisture, Temperature, EC	5TM
Apogee	Soil Oxygen	SO-400 series
Implexx	SAP Flow Sensor	HPV-06

DN V3.2 Comms Module – Davis ISS

This module is specifically designed to communicate with a Davis ISS device such as a Vantage Pro. Each module has it own internal address to identify it to the microcontroller. This allows users to mount several different types of communication modules onto the connect board if necessary. Each module has an address defined by the positions of by the positions of SW1 & SW2.

It is possible to mount several comms modules in one DN V3.2 RTU allowing you to place a weather system and multiple SDI-12 or Modbus devices on one DN V3.2 RTU.

Davis ISS capability must be specified so that it is included in the provided DN V3.2 firmware build.

This module extends over the 4 pin connector usually mounted on the DN Connect Board. As a result, the mounting position is fixed on the standard 4 channel connect board usually supplied for weather system installations.

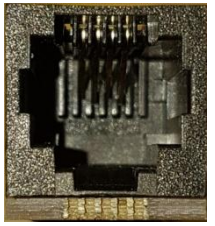
The Davis system communicates across a proprietary RS485 serial connection and a terminating resistor is supplied on board at SW3 to eliminate reflections if present.. The module is supplied with this switch in the OFF position.

The module has a standard RJ14 connector which couples with the standard 4 wire phone extension cable that is supplied with each Davis system. The DN V3.2 module is designed to supply 5V via the RJ14 cable to power the Davis ISS card so there is no requirement for expensive replacement cables. If you wish to shorten the supplied cable, ensure that the pinout at both ends of the cable is identical and that it acts as a simple extension.

Specification:

Operating Voltage	5V DC
Maximum current	0.5A

Connections:



DN V3.2 Comms Module – RS-485

This module is designed to communicate via RS-485. Its primary purpose is to communicate with Modbus RTU devices and proprietary systems using a RS-485 serial link. Each module has it own internal address to identify it to the microcontroller. This allows users to mount several different types of communication modules onto the connect board if necessary. Each module has an address defined by the positions of by the positions of SW1 & SW2.

The inclusion of the RS-485 module must be specified so that device specific firmware is included in the DN V3.2 firmware build.

A terminating resistor is included on the module to eliminate reflections and the module is supplied with this switch in the OFF position.

Multiple Modbus devices can be connected to a single RS-485 module but installers must be aware of ModBus RTU limitations (32) and the need for a terminating resistor at the end of the daisy chain.

Specification:

Operating Voltage	3.3V, 5V, or 12V DC
Maximum current	0.5A

Connections:

Pin 1	V+ (Constant)
Pin 2	Data+
Pin 3	Data –
Pin 4	Common Ground

Modbus Solutions:

In order to communicate with any Modbus RTU device, specific firmware must be loaded onto the DN V3.2 unit that supports the registers of that Modbus RTU device. With read and write access to all remote registers, a user can remotely return a reading, initiate a start routine or change an operating set point such as position, pressure, RPM or flow rate. Each DN RTU has capacity to manage multiple types of devices at the same time via one module using dynamic serial port configurations e.g. a VSD at 19200 baud and several ultrasonic level transmitters at 38400 baud.

New Modbus solutions are regularly implemented at client's request to cover many common types of equipment such as VSD's and field devices.

Currently available Modbus solutions:

Brand	Device Type	Model
ABB	VSD Controller	ACS510
Advantech	I/O expander, PID controller	ADAM 4022T
Kenso	VSD Controller	K37, K45
Linak	Linear Actuator	LA35
Senix	UltraSonic Level Transmitter	TSPC-30S1-485, U14-Remote-485
Zener	VSD Controller	MSC-3

DN V3.2 Comms Module – RS232

This module is designed to communicate via RS-232. Its primary purpose is to communicate with proprietary systems using a RS-232 serial link.

Each module has it own internal address to identify it to the microcontroller. This allows users to mount several different types of communication modules onto the connect board if necessary. Each module has an address defined by the positions of by the positions of SW1 & SW2.

It is possible to mount several different types of comms module in one DN RTU allowing communication via RS232, RS485 and SDI-12 at the same time.

The inclusion of the RS-232 module to communicate with specific devices often requires specific firmware for the DN RTU.

Specification:

Operating Voltage	3.3V, 5V, or 12V DC
Maximum current	0.5A

Connections:

Pin 1	V+ (Constant)
Pin 2	Data+
Pin 3	Data –
Pin 4	Common Ground

RS-232 Serial Solutions:

The use of RS—232 is generally proprietary to the end device supplier and as such each implementation of this protocol is device specific. All required remote access commands and responses are included in each device specific implementation. In order to utilise device specific RS-232 communication the DN V3.2 must have the necessary firmware build.

Unlike SDI-12 and RS-485, the RS-232 module can generally only be utilised for one connected device. In order to communicate with several RS-232 devices on the one DN V3.2 it must be fitted with one RS-232 module per connect device.

New RS-232 solutions can be implemented at client's request to cover other types of equipment.

Currently available RS-232 solutions:

Brand	Device Type	Model
Garmin	GPS	16X-LVS