DAWN wireless

M1115NL

Wireless I/O with MESH Network Technology

PRODUCT OVERVIEW

The DAWN M1115NL is a new industrial wireless I/O and protocol interface module that uses advanced mesh networking technology to provide secure and reliable wireless communications. Equipped with easy to use web browser configuration support, M1115NL radios can be configured via a wired network interface or over the air via their wireless interface. M1115NL mesh networking is self-organizing and self-healing; in a system of M1115NL radios, each unit automatically finds the signal path to its destination via the other radios. Each radio can learn a new connection path if a radio is re-located or removed from the system.

Each M1115NL module provides highly configurable analog, discrete, and pulse inputs and outputs to cover many process monitoring and control needs. A serial RS-232C port and serial RS-485 port that both support Modbus RTU protocol is included along with a 10/100 Base T Ethernet port supporting Modbus/TCP protocol.

Modbus protocol conversion and gateway functions are supported by the M1115NL. Multiple M1115NL radios can exchange data between distant devices or systems that use a combination of Modbus RTU and Modbus/TCP communication protocols.

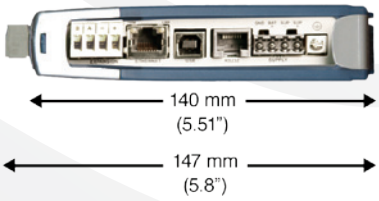
Protocol conversion can also be achieved using only the wired serial and Ethernet ports. Any radio can perform I/O and gateway mapping functions in any combination.

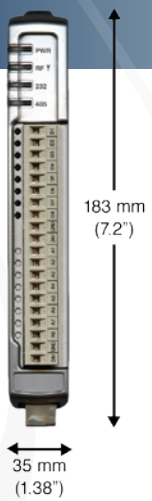
The M1115NL is housed in a rugged enclosure that mounts on DIN-rail for easy installation.

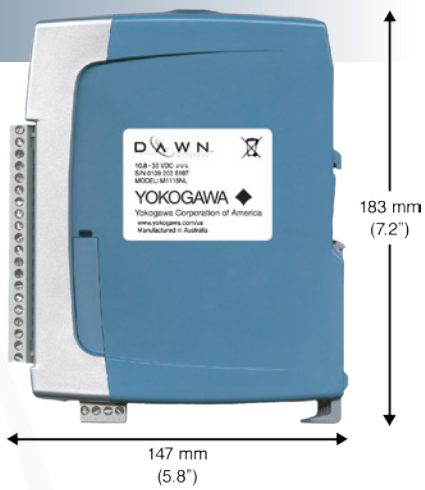
FEATURES AND BENEFITS

- 900 MHz Frequency Hopping Spread Spectrum (FHSS) radio with 1 watt transmit power for distance and reliability
- Self-organizing & self-healing wireless mesh network
- 4 analog inputs; each can be 4-20 mA, 0-5 VDC, one can be type J, K or T thermocouple
- 8 discrete I/O; each can be an input or output; 4 of them can be a pulse input
- Pulse input frequencies: 50 KHz (inputs 1-2), 10 KHz, (inputs 3-4)
- 2 analog outputs; 0-20 mA
- 24 VDC loop power supply; 200 mA
- Serial expansion modules; expand I/O as application demands
- 10/100 Base-T Ethernet port
- RS-232 and RS-485 serial communication ports
- Protocol support: Serial Modbus RTU and Ethernet Modbus/TCP
- USB port for local configuration
- Fail safe mode; produces pre-set data values if communications are lost
- Powered by 15-30 VDC, with lead-acid back up battery charging
- Industrial-grade security with AES (128) encryption
- Device and network diagnostics
- 2 year warranty

M1115NL
Specifications







GENERAL

Operating temperature	-40 to 140 deg F
Humidity	0-99% RH
EMC FCC Part	FCC Part 15 AS3548
Enclosure	Plastic with DIN rail mounting clip
Dimensions (in mm)	183 H x 33 W x 147 D (mm) including connectors. The antenna terminal protrudes from the top of the case.
Connections	Removable clamp-type terminal connectors for power, I/O and communication interface. 12 GA maximum wire size

RADIO TRANSCEIVER

Technology:	Frequency Hopping Spread Spectrum (FHSS)
Frequency:	USA/Canada; 902-928 MHz
Approval:	FCC Part 15.247, RS210
Transmitter power:	1 watt
Line-of-sight range, dependant on local conditions:	USA/Canada, 4W ERP, 20 miles

Typical range in industrial/factories; 3000 feet (1 km), range may be extended by using repeater units. Antenna connector is SMA coaxial.

COMMUNICATION PORTS

RS-232/RS-485:	9600 baud, 8 bits, no parity, 1 stop bit. RS-485 max distance is 4000 feet
Terminations:	RS-232; RJ45 female
	RS-485; removable clamp connector
Ethernet:	10/100 Base-T: RJ45 IEEE 802.3

POWER SUPPLY REQUIREMENTS AND LOOP POWER

Battery supply:	11.5-15.0 VDC
Normal supply:	15-30 VDC, over voltage and reverse polarity protected

Includes a battery charging circuit for a 12 VDC sealed lead-acid battery and a separate terminal to provide 12 VDC power to serial (S2) I/O modules. Up to 1 A is available for battery charging, and up to 2 A to supply optional external serial I/O modules.

A 24 VDC, 200 mA loop power supply is provided to drive loop powered transmitters.

AREA APPROVAL (ELECTRICAL CLASSIFICATION)

USA & Canada: Class 1, Div 2; Groups A, B, C, D Temp T6 (pending)

INPUTS AND OUTPUTS

Discrete:	8 discrete I/O points individually configurable as inputs or outputs. Inputs must be non-voltage contact closure or open-collector transistor; 5 mA contact wetting current max. Contact “de-bounce” delay is configurable from 0.1- 8 sec. When configured as outputs, the communications fail state can be set to ON or OFF.
Pulse inputs:	4 of the discrete inputs can be assigned as pulse inputs. Max pulse frequency is 50 KHz for inputs 1-2, and 10 KHz for inputs 3-4.
Pulse outputs:	Open-collector FET output; max pulse rate is 1 KHz, minimum pulse width of 5 mS, at max load switching of 30 VDC, 500 mA.
Analog:	4 analog inputs (2 single-ended and 2 differential); each can be 0-20 mA, 0-5 VDC. One type J, K or T thermocouple can be measured. A thermocouple measurement uses analog inputs 3 & 4 (one input required for RJC measurement).
	1 loop powered analog output; 4-20mA. Isolation is 1500 volts; resolution is 12 bits with 0.1% accuracy

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