

NRL LoRa WAN Data Logger 3004-ML

The 3004ML/3006ML Neon Remote Logger LoRa WAN utilises the LoRa communication system as its method of sending sensor data from the field to the Neon Server.



The 3004ML/3006ML Neon Remote Logger LoRa WAN connects to sensors in the field, collects readings from those sensors, logs the sensor data, provides control functions and also transmits the collected data to a central server via a LoRa WAN network, which utilises MQTT.

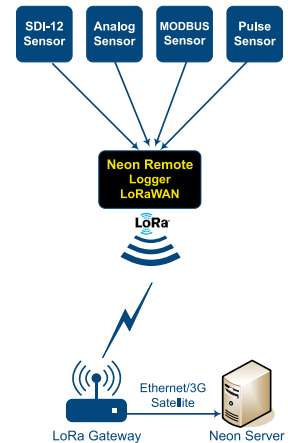
The 3004ML/3006ML Neon Remote Logger LoRa WAN is programmed, either in the factory, or in the field with a Unidata standard program called a scheme. The scheme specifies how often and for how long the datalogger should collect data from the sensors and how often the data should be sent to the server. Control outputs are also set up in the scheme by setting up custom events.

The NRL LoRa operates in what Unidata calls LoRa Mode 2. In this mode, sensors are read by the logger according to the scheme. A set of short data packets will be sent, as set by logging interval, to the LoRa WAN gateway over either private or public LoRa network. LoRa WAN gateway transfers data packets

to Neon Server using Ethernet, cellular or satellite network. The LoRa WAN system has a typical range of to 5 km, the range reduces in built up areas depending on building density and increases where there is line of sight and with use of a larger antenna.

A wide range of sensor types are supported, for example, analog sensors, frequency counters, digital inputs as well as Modbus and SDI-12. Control of external equipment (such as triggering a relay when a user defined event occurs, or initiating a shutdown), can be accomplished via Open Drain FET output.

Sensors are connected to the logger via pluggable terminal blocks, allowing for easy removal of the logger if servicing is required.



SPECIFICATIONS

PHYSICAL SPECIFICATIONS

MATERIAL:	Polycarbonate
SIZE:	L190mm x W80mm x H55mm, 300g
OPERATING TEMPERATURE:	-20° to +60°C. Not affected by humidity
ANTENNAE:	External whip antenna

ELECTRICAL SPECIFICATIONS

EXTERNAL POWER:	9 to 30V DC
CURRENT DRAW:	50µA Standby
RTC BACKUP BATTERY:	3.6V Li Coin Cell (5 year life)
INTERNAL POWER:	3.6V Lithium D Cell
INSTRUMENT POWER:	5V, 12V or 18V regulated, 80mA (user selectable)
INSTRUMENT REFERENCE VOLTAGE:	5V 10mA Max

ANALOG CHANNELS:	3004: 4 Single ended (max) or 2 Differential (max) 3006: 6 Single ended (max) or 3 Differential (max) 24 bit resolution, 4 user selectable gain ranges 0 to 5000mV (gain=1) to 0 to 39mV (gain=128)
MODBUS:	1 x independent channel, RS485, RTU or ASCII protocol, 57600 baud (max), Functions 01, 02, 03, 04, 05/15, 06/16
SDI-12:	1 x independent channel, SDI V1.3 Compliant, instrument and recorder modes supported
UNIDATA HSIO:	High speed serial interface, 16 channels, bi-directional

COUNTERS 3004:	2 x 16 bit, DC to 20kHz potential free contacts or 0 to 5V DC digital input (C0, C2); 2 x 16 bit, DC to 300Hz potential free contacts or 0 to 5V DC digital input (C1, C3)
COUNTERS 3006:	1 x 16 bit, DC to 20kHz potential free contacts or 0 to 5V DC digital input (C0); 1 x 16 bit, DC to 300Hz potential free contacts or 0 to 5V DC digital input (C1)
DIGITAL OUTPUT:	1 x Open Drain FET, 30V DC, 250mA max
CONFIGURATION PORT:	USB B Micro Port and SD Micro Card
OPERATION FREQUENCIES:	LoRa AU915, US915, AS923, EU868
ACCELEROMETER:	Senses changes in logger orientation
BAROMETER:	260-1260hPa Absolute Digital Output

INTEGRATED LOGGER SPECIFICATIONS

STORAGE MEMORY:	7.5Mbytes Flash (non-volatile), 3.75 Million log data points
MEMORY EXPANSION:	SD card, micro size, 32Gbyte maximum capacity, 16 Billion log data points
SCAN RATE:	Programmable from 1 second to 5 minutes
LOG RATE:	Programmable from 1 second to 24 hours
TIME CLOCK:	Battery Backed Real Time Clock (RTC), Accuracy +/-10 seconds/month (non-Neon version), locked to server time clock (Neon version)
CPU:	16 Bit, 20MHz, Ultra Low Power