

WATER USAGE METERING



APPLICATION BACKGROUND

Measurement of water usage is usually done manually and very occasionally, perhaps once per year. This provides usage over a long period, but usage patterns cannot be determined.

Water Utilities and high usage water customers often need to know usage patterns, hourly, daily, monthly etc. to better understand how water is being used or possibly wasted in their organisations. These measurements can also be used to detect leaks, so that water usage and the cost of water can be monitored.

Neon Metering Logger can be wired up to a water meter to act as a logger and communicator. Data readings such as pulses

are recorded by the NRL and uploaded to Neon. This data is then analysed and can be presented in numerous ways.

Water metering users typically set up the NRL to record metering pulses for 24 hours, and then upload the data once per day at a predetermined time, e.g. midnight.

Water metering customers at times may wish to set an alarm point, such that an unusual water usage over a period is signalled as an alarm condition. The alarm occurrence is sent to Neon server and an appropriate response is generated, like sending an email or sms text message to allocated people.

APPLICATION DETAIL

Water meters usually provide a pulse output based on, say 1 litre per second, 10 litres per second and so on. When considering logging systems, you may wish to have a Neon Remote Logger measure and record the raw litres per second, or accumulate pulses in custom specified way by mathematically calculating usage at the logger level before uploading the data to a central server. As the data is not for any process control requirement, sending the collected water usage information to the Neon Server once per day is usually sufficient.

Scanning - Decide on an appropriate scan interval. Scan interval determines how often the logger scans inputs. Typically: scan inputs each minute and then sets equipment to sleep to conserve battery life.

Alarms - Decide if there are any high water usage conditions you wish to check and if that condition is exceeded, what action is to be taken. For example: report the alarm information to the server immediately and / or send an email or text to assigned people.

Logging Data to Memory - Decide on an appropriate logging interval. Logging interval defines the time between the logs. At each log, data is recorded in the logger memory. Typical log interval is 5 minutes. A logger wakes up every 5 minutes, scans inputs as per defined scan rate, stores data in the memory and sets equipment to sleep in order to conserve battery life.

The next consideration is how to power the Neon Remote Logger. A power budget should be calculated by Unidata engineers in order to determine the most practical and economical way to power the NRL. The most common solutions are lithium battery packs or solar recharge system (set of properly sized up solar panels, a solar controller and a rechargeable sealed lead acid battery).



With a daily reporting schedule, and using the single high capacity lithium battery as a power source, NRL units will measure and report for 3 to 5 years before a battery change is needed. The Neon Remote Logger can be set up to regularly report battery voltage. The alarm can be sent if the low battery voltage was detected.

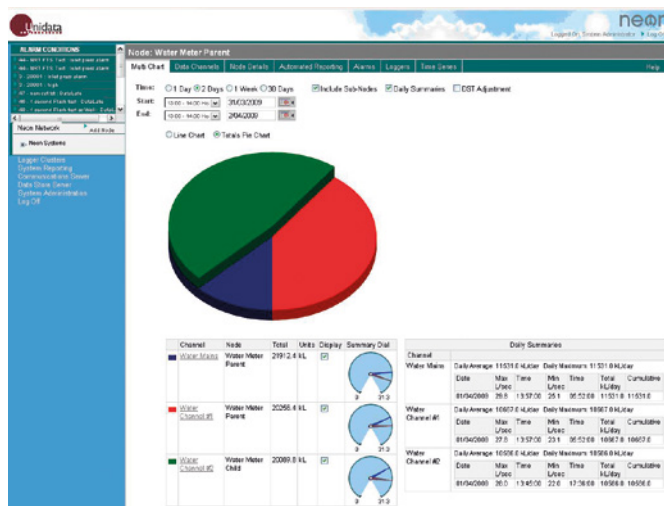
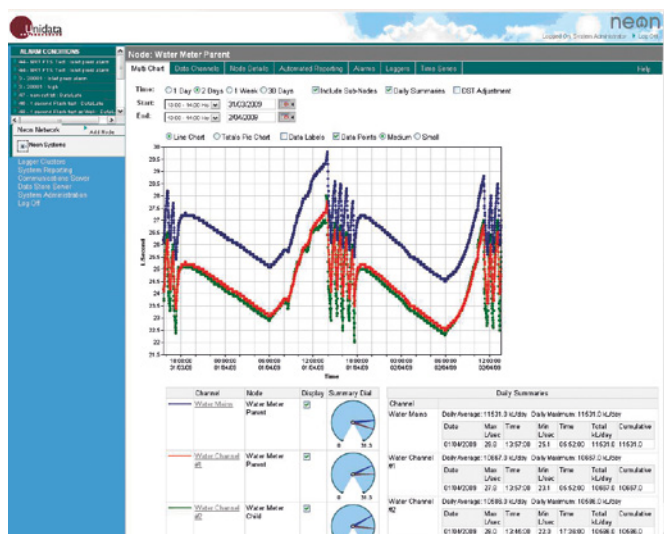


To configure a water meter node on the Neon Server, the node type of "Water Meter" is selected from the drop down box available on the Node Details tab. This will change the layout of Neon for nodes of this type in particular a new Water Meter tab will appear with extra charting options.

A Channel Type selection will now be available on the Data Channels tab; this provides extra options when displaying data for channels related to water meters. To activate this feature a channel type "Litres per Second" can be selected, this will add extra information to the displayed data on the Water Meter Tab and a daily total line in KL will appear in the Daily Summaries table.

A water meter type report can be configured via the Automated Reports tab; Neon can also export Hydstra formatted report files. Another available option is to "Enable Aquarius Interface" which will allow for Aquarius to import or export the data for the specified node.

Water meters in large organisations often have one main water meter, then several sub meters. The Neon System allows water users to set up a 'parent and child relationship' so the 'child' water meter usage can be aggregated to check usage by the main 'parent' water meter.



Water Meter | Data Channels | Node Details | Automated Reporting | Alarms | Loggers

Name: Neon Water Metering

Node ID:

Display Sequence: 13 (Optional)

Parent Node: Unidata Neon Demo Area

Node Type: Water Meter

Node Options: ☐ External Content ☐ Strip Charts

Aquarius: ☐ Enable Aquarius Interface

Node Icon: Default Logger Icon

Time Zone: (UTC+08:00) W. Australia Standard Time

Location: Latitude -32.0600549503722 Longitude 115.799063444138

Admin Email:

Notes:

Water Meter | Data Channels | Node Details | Automated Reporting | Alarms | Loggers | Photographs

Name: Neon Water Metering

Node ID:

Display Sequence: 13 (Optional)

Parent Node: Unidata Neon Demo Area

Node Type: Water Meter

Node Options: ☐ External Content ☐ Strip Charts

Aquarius: ☒ Enable Aquarius Interface

API Version: Aquarius 3.X

Acquisition URL:

Publish URL:

Username: Password: *****

Location:

Data Direction: ☒ Export ☐ Import

Node Icon: Default Logger Icon

Time Zone: (UTC+08:00) W. Australia Standard Time

Location: Latitude -32.0600549503722 Longitude 115.799063444138

Admin Email:

Notes:

TYPICAL CONFIGURATION

APPLICATION SPECIFIC INSTRUMENTS / INPUTS

Options	Unidata Part Number	Description
Pulse Output Water Meter	Custom Part	Water Meter 1 / 5 / 10 / 100 litres per minute (Elster)
T-Probe	Custom Part	Pulser for Retro-Fitting to V100
PR6	Custom Part	Inductive Pulser for V200 Range of Cold Water

NEON TELEMETRY - NRL / RTU / FIELD UNITS

Options	Unidata Part Number	Description
Ethernet	3016A-000 / 3008A-000	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Ethernet & 3G / 4G	3016A-C00 / 3008A-C00	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Ethernet & 3G / 4G and LoRa	3016A-CL0 / 3008A-CL0	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Equatorial Orbit Satellite - Inmarsat	3016A-00I / 3008A-00I	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Equatorial Orbit Satellite - Inmarsat & 3G / 4G	3016A-C0I / 3008A-C0I	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Low Earth Orbit Satellite - Globalstar	3016A-00G / 3008A-00G	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Satellite - Iridium Short Burst Data	3016A-00R / 3008A-00R	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Standalone RTU / NRL - Industrial	3004A-00 / 3004A-0L	Neon Remote Logger-4 Analog Ch with or without Touch Screen Display
Cellular RTU / NRL 3G / 4G - Industrial	3004AC0 / 3004A-CL	Neon Remote Logger-4 Analog Ch with or without Touch Screen Display
M – Series Standalone RTU / NRL	3004B-M000 / 3004B-M0B0	Neon Remote Logger-4 Analog Ch with or without Li Battery
M – Series Cellular RTU / NRL 3G / 4G	3004B-MC00 / 3004B-MCB0	Neon Remote Logger-4 Analog Ch with or without Li Battery
M – Series LoRa RTU / NRL	3004B-ML00 / 3004B-MLB0	Neon Remote Logger-4 Analog Ch with or without Li Battery
M – Series Ethernet RTU / NRL	3004B-MEBL	Neon Remote Logger-4 Analog Ch, Li Battery & LCD are optional
M – Series Microsatellite RTU / NRL	3004B-MHBL	Neon Remote Logger-4 Analog Ch, Li Battery & LCD are optional
M – Series Iridium Short Burst Data RTU / NRL	3004B-MIBL	Neon Remote Logger-4 Analog Ch, Li Battery & LCD are optional

NEON APPLICATION SOFTWARE - CUSTOMER SERVER

Options	Unidata Part Number	Description
Neon Applications Software	2302A	Neon Server Software Licence Incl 5 NAL
Neon Applications Software	2302A-10	Additional 10 NRT Access Licence
Neon Applications Software	2302A-20	Additional 20 NRT Access Licence
Neon Applications Software	2302A-50	Additional 50 NRT Access Licence

NEON HOSTING SERVICE - UNIDATA SERVER

Options	Unidata Part Number	Description
Neon Hosting Service	2301A	Neon Data Initial Subscription Setup Fee
Neon Hosting Service	2301A-01	Neon Data Service Fee for 1-50 NRT
Neon Hosting Service	2301A-02	Neon Data Service Fee for 51-100 NRT
Neon Hosting Service	2301A-10	Neon Data Service Fee Metering

DATALOGGER MANAGEMENT SOFTWARE

Options	Unidata Part Number	Description
Starlog V4 Management Software	6308A-AUE	STARLOG V4 Full Licence Key