

## FLOOD MONITORING / FLOOD ALERTS



### APPLICATION BACKGROUND

Early warning of flood conditions is vital to avoid any personal safety incidents and to mitigate damage to crops and infrastructure generally.

Careful measurement of upstream river levels assists with predicting flood levels and the timing of flood peaks. Alarm systems which alert key staff allows for better planning and reduces the impact of flood events.

A resilient, and redundant telemetry system is crucial for such systems. In flood events local power and local cell tower infrastructure may also be damaged by the flood event. The telemetry systems using satellite infrastructure and systems with independent power systems are the best to ensure the measurement stations survive the flood event.



### APPLICATION DETAIL

River level monitoring is routine and can be achieved through various methods, the most common being on a float and pulley / shaft encoder instrument at a convenient point inside a stilling well. Unidata's 6541C is an appropriate instrument for this purpose.

A Neon Remote Logger can be used at each level monitoring station to read and transmit the river level data to a Neon Server routinely, typically every 5, 10 or 30 minutes. When the data arrives at the Neon Server, it can be viewed on a standard web browser. The data can be checked automatically for any out of limit / any high river level readings and an appropriate alarm action can be set up. Typically a high level could cause an email or a text message to be sent to key staff, and the messages can be set up with escalation processes, if the operation does not acknowledge the alarm. In these circumstances, the alarm will be sent to other staff on a hierarchy basis until one person acknowledges the alarm.

Monitoring stations may also include a camera, either low definition image, high definition image or low frame rate video to provide further feedback as to the river conditions.





In flood conditions, primary power often fails, so the river level monitoring instrument and the Neon Remote Logger should have an independent power source, typically this would be a solar panel and battery, and perhaps a lithium emergency battery as a further power backup.

Consideration should be also given to the choice of communications channel for the Neon Remote Logger. In flood conditions, cell towers are also at risk of failure. If a cell tower fails in a region, its failure could cause several measurement stations using that cell tower to fail also. A satellite based system eliminates this risk and should be considered for some river measurement stations.

A river measurement station could also be set up for a Neon Remote Logger to use the cell tower as the primary communications channel and another satellite based channel could be available as a backup to make the system more resilient.

During flood conditions, it is often important to illuminate warning lights / warning signs and or audible alarms. The Neon Remote Logger can be configured to provide such control functions on local alarm and / or on a command from the Neon Server.



## TYPICAL CONFIGURATION

## APPLICATION SPECIFIC INSTRUMENTS/INPUTS

Options	Unidata Part Number	Description
Water Level Instrument	6541C-11	WLI with 500mm Pulley & Alk Batt Metric
Float	6541F-115	WLI Float Assembly - Cylinder 115mm (other options available)
Float Line	6541D-M	WLI Beaded Float line Metric

## 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	3004A-M000 / 3004A-M0B0	Neon Remote Logger-4 Analog Ch with or without Li Battery
M – Series Cellular RTU/NRL 3G/4G	3004A-MC00 / 3004A-MCB0	Neon Remote Logger-4 Analog Ch with or without Li Battery
M – Series LoRa RTU/NRL	3004A-ML00 / 3004A-MLB0	Neon Remote Logger-4 Analog Ch with or without Li Battery
M – Series Ethernet RTU/NRL	3004A-MEBL	Neon Remote Logger-4 Analog Ch, Li Battery & LCD are optional
M – Series Microsatellite RTU/NRL	3004A-MHBL	Neon Remote Logger-4 Analog Ch, Li Battery & LCD are optional
M – Series Iridium Short Burst Data RTU/NRL	3004A-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