TELEMETRY

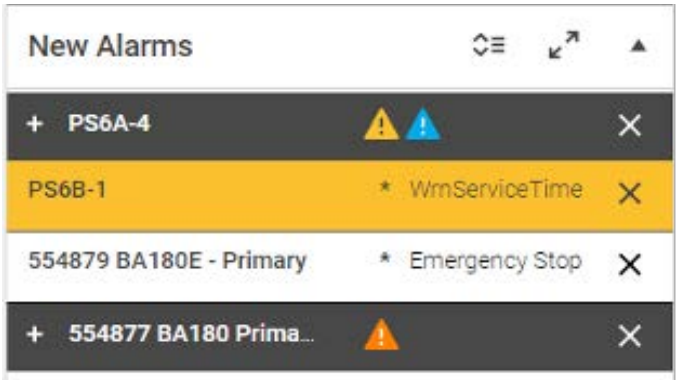
Telemetry refers to the collection of measurements or other data at remote points and their automatic transmission to receiving equipment for monitoring.

NPE's internal team has developed an advanced and adaptable in-house IoT solution system, the most advances in its category.

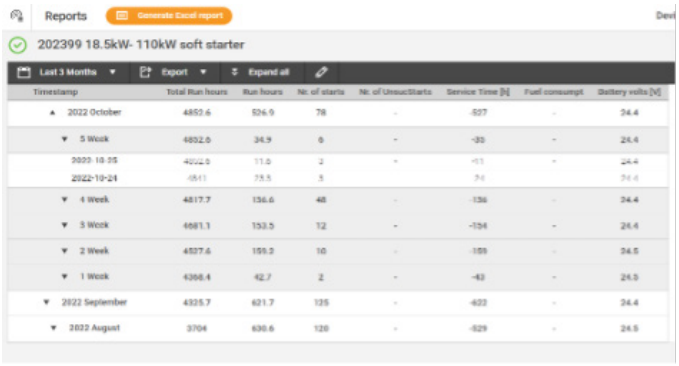
Typically, an industrial IoT application costs between $400k and $600k but with Losant, the costs are reduced to only paying a service cost. Managing devices which report to these platforms lowers the subscription point and maintenances costs.This allows us to evolve to meet changing use cases and business requirements.

Open options for devices to integrate with the system using multiple protocols allow for various system integrations and customizability.

The platform allows for dashboards with data plotting ability, integration of data logging and manipulation and reporting features.

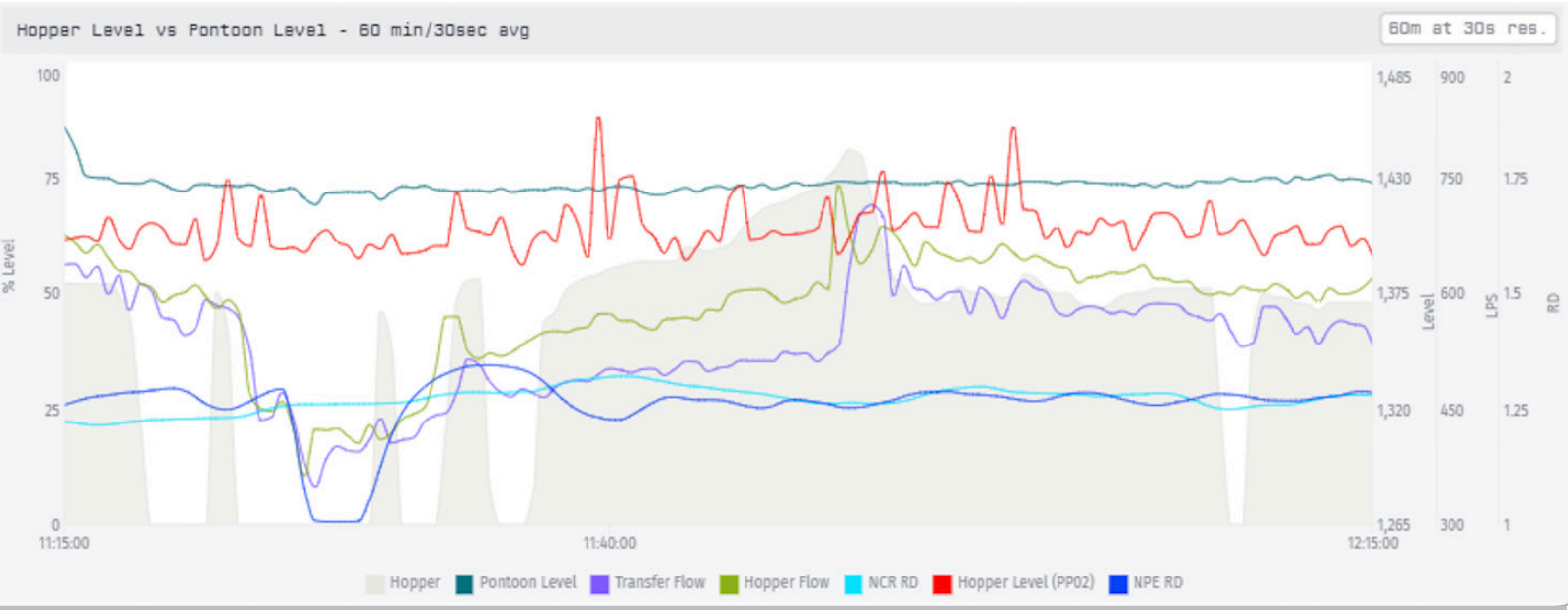


WEBSUPERVISOR



Telemetry is the automation of measurement and collecting data through wireless transmission from equipment to a cloud-based control platform. This data can then be used for constant valuable condition monitoring and process application in real time.

Collected data can be used for further analysis, alarm monitoring, Notification alerts for email or SMS, batch reporting and to influence safety and environmental practice in some instances.



WebSupervisor is a cloud-based system used to monitor and manage ComAP Controllers remotely. The systems features include email only alarms, notifications, asset tracking, dashboarding, trends and reporting.

Fine-grained access controls offer users additional means of controlling access to the equipment. The option to grant full access or read only rights can be managed by using the Roles and Groups feature.

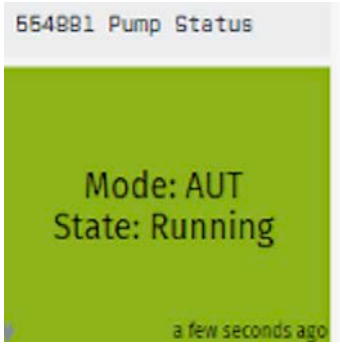
LOSANT PLATFORM

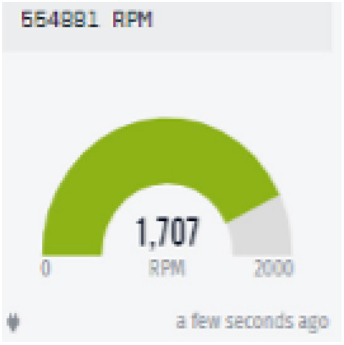
The Losant Platform allows users to build a custom industrial equipment monitoring solution. Solutions include collection, comparison, reporting and ability to act on real time data. The data collected transfers from the device to cloud using best practice secure encryption.

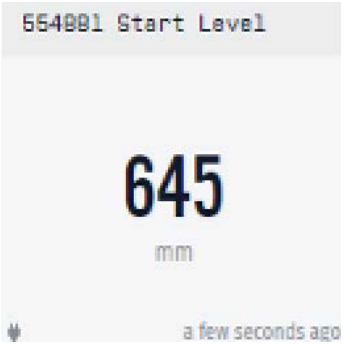
The Dashboard is a versatile and powerful tool used for visualisation of equipment as well as monitoring solutions.

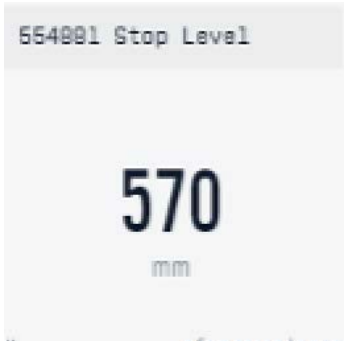
Dashboards can be customised to view the solutions you wish to track while presenting the data in gauges, charts and alarm lists to help with processing the information.

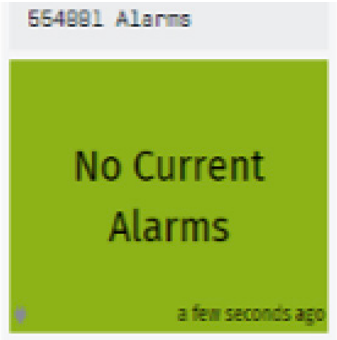
Data from your device is transformed within the Losant Platform so a custom workflow can be created for further analysis. Workflows are primarily used for the device to trigger events and notifications.

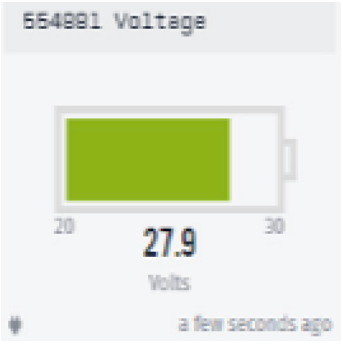












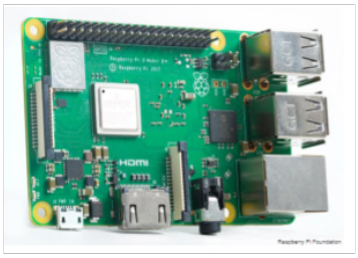
Custom templated SMS and Email notifications can be utilised to send out triggers and event alerts. With this information, Stakeholders will have an opportunity to stay informed at the time of events occurring, The events include high level alarming, device inactivity or failure and notifications of standby equipment start up.

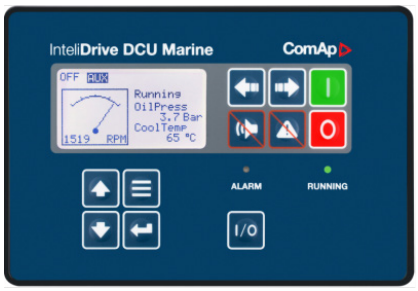
Additionally, the Losant Platform can provide batch reporting of historical data, allowing businesses to gain further insight which in turn can assist in future business decisions.

- This system will allow for WebSupervisor access only
- Customer access to WebSupervisor can be granted for viewing and in certain circumstances controls
- Allows for basic controls but are limited by speed of information (latency) and availability of the WebSupervisor Service provided by ComAP
- You will not have System Offline notifications
- Ability to start/stop and maintain on suction, discharge, flow, level transducer.

Standalone ComAp with a standard modem (WebSupervisor only):

- System allows WebSupervisor access and Losant capabilities
- Basic controls are reliable web based monitoring with be provided
- You will have a dashboard and web-based information logging
- Data can be graphed in real time, tracking trends. Assisting with pump optimisation and diagnostics
- The ability to poll the system and check whether the device is offline
- We have the ability to set up a VPN tunnel which allows the ability to connect to the network remotely and find fault issues, connect to devices and make changes remotely
- Ability to start/stop and maintain on suction, discharge, flow, level transducer





Standalone ComAp with a standard modem and SBC (Losant enabled):

OTHERS (NO TELEMETRY)

- Includes BA pumps with LC20 or LC30s, Murphy controllers, Kensho
- Dependant on the controller
- Limitations on the ability to run off transducers. These mainly run on floats, designed to pump down to a level normally
- No back to base on any of these controllers without any major modifications

If any questions, please contact the NPE Telemetry Team at telemetry@nationalpump.com.au

For any system that is more than one asset that is not a Standalone unit with a polling device it is beyond a simple setup and please contact the Telemetry team as above.

TELEMETRY OFFERINGS

We help with functional integration with client systems; which is defined as integrating with existing platforms that clients control. These can include SCADA (Citect, AVEVA, Ignition), PLCs, RTUs, and various communication protocols if required. This is a technical implementation and requires direct contact with the customer's technical team to determine feasibly and scope of works.

Possible products of client integrations:

- Ability to view system/operation data
- Alarm triggers and notifications
- Interlock integrations/implementations
- Availability of controls, like Start/Stop, Ramp Up/Down.etc

Remote I/O and Telematics

Sometimes the site doesn't have cellular connectivity. This is where we're most reliant to getting the customer to provide the outbound connection if possible. On rare cases we will quote a Satellite option, this is not cost effective, and difficult solution as it requires the supplier to also send a technician out to install. This includes having to organise site access, accommodation, and travel for them. Integration with the Client's outbound connection generally requires outbound traffic to be encrypted, this takes prior planning and testing before commissioning on site.

LEAK DETECTION SYSTEMS

We're able to detect flow at 2 points in a pipeline, for vast distances. This is generally done over remote I/O and multiple radio towers.
A comparison is done between the 1st flow meter and 2nd flowmeter, with a start timer to fill the pipe. If there is a discrepancy (setpoint can be adjusted) between the flow meters are detected the system can shut the pump down and notifications can be sent (communication availability dependant).

SEWER BYPASS

Process control can be setup to maintain level in a well using a level transducer, generally a hydrostatic generator. Duty and standby systems can be setup as per standard where the standby starts at a higher level, or the system can interlock the standby pump to only start on viable conditions.

FIRE PUMPS

PRESSURE CONTROL

TERMS AND DEFINITIONS

Telemetry: Telemetry is the collection of measurements or other data at remote points and their automatic transmission to receiving equipment for monitoring.

Process Control: Automatic process control in continuous production processes is a combination of control engineering and chemical engineering disciplines that uses industrial control systems to achieve a production level of consistency, economy and safety which could not be achieved purely by human manual control. It is implemented widely in industries such as oil refining, pulp and paper manufacturing, chemical processing and power generating plants.

Remote Controls: Control of a machine or apparatus from a distance by means of radio or infrared signals transmitted from a device. WebSupervisor: ComAp's online solution to be able to communicate the ComAp controller via a third party connection to an external server.

Losant: NPE partnership with Losant provides an online platform for displaying values pushed up to the cloud. This allows for customised data, manipulation, and logging.

Dashboard: Display in which the data is **I**displayed like a HMI (Human Machine Interface) which is designed to simplify and relevant information.

IoT: IoT is short for Internet of Things. The Internet of Things refers to the ever-growing network of physical objects that feature an IP address for internet connectivity, and the communication that occurs between these objects and other Internet-enabled devices and systems.

MQTT: A lightweight messaging protocol for small sensors and mobile devices, optimized for high-latency or unreliable networks.

SCADA: Supervisory control and data acquisition (SCADA) is a control system architecture comprising computers, networked data communications and graphical user interfaces (GUI) for high-level process supervisory management, while also comprising other peripheral devices like programmable logic controllers (PLC) and discrete proportional-integral-derivative (PID) controllers to interface with process plant or machinery. The use of SCADA has been considered also for management and operations of project-driven-process in construction.