# Y-ERLESS Condition Monitoring System

## POE Gateway Details

- Gateways are rated to handle up to 30 sensors sending information to the cloud once a minute from the 3 function sensors.
- 900 MHz carrier transmit frequency.
- POE gateway needs outgoing internet port only connection.
- Gateway can be either POE or DC power supply.
- Optional thermoelectric energy scavenging for in-situ charging from the heat of the device being monitored
-Variable factors will affect how many are required per facility but we have achieved 100,000 square foot coverage per gateway through walls and concrete floors

## GSM Gateway Details

**-** Gateways are rated to handle up to 30 sensors sending information to the cloud once a minute.
-AC to DC power supply may be required.
-900 MHz carrier transmit frequency
--Variable factors will affect how many are required per facility but we have achieved 100,000 square foot coverage per gateway through walls and concrete floor
-Local cellular service provider required for the internal GSM modem with SIM card.

## Wireless Condition monitoring sensor

-Sensors are IP 65 rated
-900 MHz signal
-Range 700 feet indoors
-3 function sensor, temperature, vibration and humidity
-Supplied power connection is a 5 pin mini 12mm threaded connector, this is connected by the customer to their preferred power supply. Wiring pin configuration shown on condition monitoring device label
-Power supply range when hard wired 8 to 30 volts DC
-Sensors are self-contained with built in rechargeable battery for short term use approx. 2 -3 days continuous use with rapid data transmission
-Preconfigured for an energy harvesting system via the12 mm pin connector, Auxiliary pin, 5V @ 100mA
-Sensors can be magnetically attached to equipment to be monitored. Stud mount T adapter on request
-Sensors record data every 30 seconds nominal; this can be configured remotely for alternate time intervals, please contact service provider
- Ideal for monitoring any remote or hard to reach equipment for changes in operation. Sensors automatically create a baseline once installed on the equipment and dashboard system will create alerts when boundary limits are exceeded
-Bluetooth enabled as an option to operate with a smartphone for local monitoring, or for expansion to monitor 3 phase high voltage AC and current which communicates with the master sensor via Bluetooth
-The temperature measurement for each sensor is an average of the combination of the ambient temperature inside the enclosure, and the external temperature of the asset that the sensor is attached to via the magnets. The heat will flow through the steel screw up to the internal hex nut in direct contact with the circuit board which uses a thermistor to monitor the outside

**-The design of this product allows two sensors can be interconnected to monitor both sides of a rotating machinery device such as a large motor to monitor both support bearings. Only one sensor needs wireless hardware since two devices can communicate via extra pins on the power cables for each sensor**

## Energy Harvesting

-Energy harvesting is typically used when hard wiring is not cost effective.
-Typically used to keep the internal battery at full charge conditions.
- Ideal for longer duty cycle intervals between data transmission to keep battery charged.
-Thermoelectric generators can be used when there is a sufficient delta-T difference available present or running power supply wires is an issue.
-Standalone batteries can extend battery life of remote non powered sensors.

Please call to discuss individual applications for Energy Harvesting.


Front panel showing the 5 pin mini connector for power attachment for either battery or industrial power connection or energy harvesting.

Front and rear panel views for reference with the external antenna connection. The magnetic attachment conducts thermally to the internal circuit.