INDUSTRIAL IoT
ADVANCED MANUFACTURING
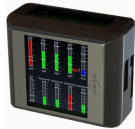
AREA 52

HARDWARE

REMOTE KPI

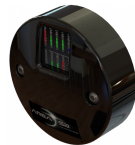Connect multiple sensors to the controller to monitor legacy equipment or processes

PANEL MOUNTED KPI

Splice into existing sensors on equipment to extract the data you need to measure

ASSET TRACKING

Monitor and track using GPS and cellular communication in a battery powered device

HUMAN MIGRATION

Camera based device which can detect human migration while maintaining privacy.

DIGITAL TWIN

THE HEARTBEAT OF YOUR PLANT

Using the data gathered by our hardware, we can use AI technology to analyze, predict and give recommendations on improvements to any manufacturing process.

- Flow Analysis of Product
- Worker Migration around Plant
- Net Product Yields
- Equipment Utilization
- Preventative Maintenance
- Live Financial Snapshot
- Year over Year Comparison

All dashboard data can be viewed in real-time using Key Performance Indicators (KPI) that you decide. Results are displayed in easy to understand and interpret graphs, gauges and charts.

Our system can also monitor and alert personnel to abnormal activity in the manufacturing process as well as make suggestions to areas that may be bottlenecks or could use additional resources.

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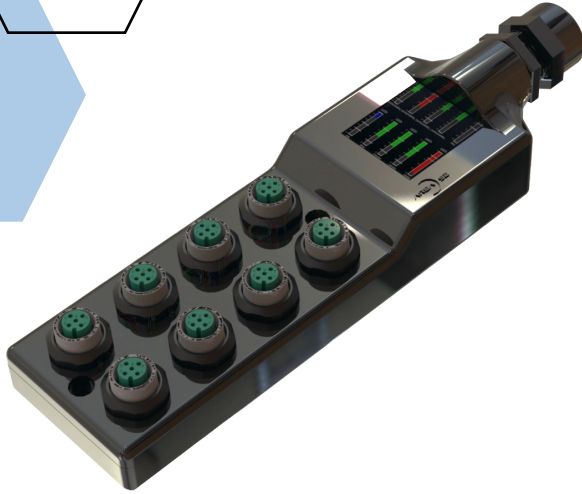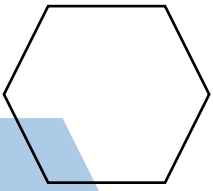
REMOTE KPI

LEGACY EQUIPMENT

Easily monitor older equipment that does not have a Programmable Logic Controller (PLC) or simple processes (conveyors, tanks, processing tables). Simply connect the desired sensor to one of eight M12 connectors on this programmable standalone device and begin receiving raw or manipulated data immediately.

CONNECTIVITY

Connect the device to the cloud using LoRa or Wi-Fi. If your plant has Wi-Fi available on the floor, simply connect. If you have a large facility or you would like to monitor a remote process, LoRa is a RF transmission technology capable of transmitting data over a 2km range to a gateway located within range of a Wi-Fi signal.

WATERPROOF

Install the device in the harshest of environments. The IP68 rating allows installation in wet and damp environments, even outdoors.

TOUCH SCREEN

The LCD touch screen allows configuration on the device without additional cables or computers to connect.

UPGRADABLE

The device has 8 ports to connect a variety of input sensors. The device can be upgraded to accommodate up to 16 inputs simply by plugging in the port splitter add-on.

APPLICATION EXAMPLE

An apple orchard farmer wants to measure the quantity of product, monitor equipment use and conserve water used to wash product in his fields, all while working in the warehouse.

The Standalone device is connected to his standard washing conveyor in the field. We install two proximity sensors for redundant counting of product on the conveyor. A current draw sensor is installed on the motor to measure run-time and power consumption for preventative maintenance. The water pump is connected via a relay to an output on the device, spraying water only when apples are present on the conveyor.

All the data is delivered in real-time to the farmer in the warehouse and displayed on his mobile device. Using this data, he can adjust staffing to maximise output of the washing conveyor, all while receiving accurate counts, monitoring wear on the conveyor and reducing waste water.

SENSORS

- Inductive proximity
- Photoelectric
- Ultrasonic proximity
- Temperature
- Capacitive
- Laser
- Pressure
- Area
- Level
- Any 0-24v Signal

PANEL MOUNT KPI

EASY INTEGRATION

The small size of the Panel Mount device makes for easy integration into even the tightest panels. Up to 16 inputs can be spliced into the device from your existing equipment, so that you get only the data you need to know.

CONNECTIVITY

Connect the device to the cloud using LoRa or Wi-Fi. If your plant has Wi-Fi available on the floor, simply connect. If you have a large facility or you would like to monitor a remote process, LoRa is a RF transmission technology capable of transmitting data over a 2km range to a gateway located within range of a Wi-Fi signal.

TOUCH SCREEN

The LCD touch screen allows configuration on the device without additional cables or computers to connect.

MOUNTING OPTIONS

The device can be mounted on a DIN rail, typical in most electrical panels, with a quick connect fitting. It can also be screwed or affixed to anywhere you would like.

APPLICATION EXAMPLE

A customer has a range of automated machine with PLC's installed. They are all manufactured by different companies. One machine will communicate using SCADA, one machine supplier won't allow any outside connection to the PLC and the other machine broadcasts too much undesired data points, making it impossible to filter.

The customer wants to receive minimal KPI's from each machine but would like that data delivered in an easy to display dashboard.

The customer installed a Panel Mount device into each of his automated machines. He splices into the sensor wires which he would like to receive data from. The devices are connected to the Wi-Fi network inside the plant.

The machines now communicate to everyone on the floor and in the office. The data is used to monitor product flow and resource planning.

SPECS

16 Digital Inputs, 2 of which can be used as relay outputs

2 high speed 3.3V counters

4 Analog Inputs

Wi-Fi or LoRa, cellular option

LCD 128 x 128 pixels

60mm x 50mm x 31mm D

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ASSET TRACKING

INTEGRATED SENSORS

The asset tracking device includes an accelerometer, temperature and distance sensor. The accelerometer allows you to wake the device when in sleep mode to conserve battery life. It can also be used to count each time there is activity or measure vibration during shipping. The laser distance sensor can be used to determine fill quantity of assets in a container. The temperature sensor can determine internal or external temperatures of a container

TRACK ANYWHERE

Features a GPS tracking chip with antenna and cellular modem. Receive real-time information, including location of your assets, from anywhere which has a cellular signal.

DURABLE ENCLOSURE

The rounded enclosure is made from abs and designed to withstand impacts. A touch screen lcd and battery pack are options.

APPLICATION EXAMPLE

A company would like traceability of their product from the moment it comes off the boat until it is processed at their facility.

An Asset Tracking device is installed in each of their plastic bins holding their seafood product. The laser distance sensor can read when the bin is filled and tracking begins. Time, location and temperature are logged on a scheduled basis to ensure the product is fresh and safe. The accelerometer is used to ensure that the container and contents have not encountered abnormal stress during shipment.

The company can use this data to ensure their product is of the highest quality and all processed in a timely manner. Lost shipments can easily be located and bins that lose temperature prematurely can be replaced.
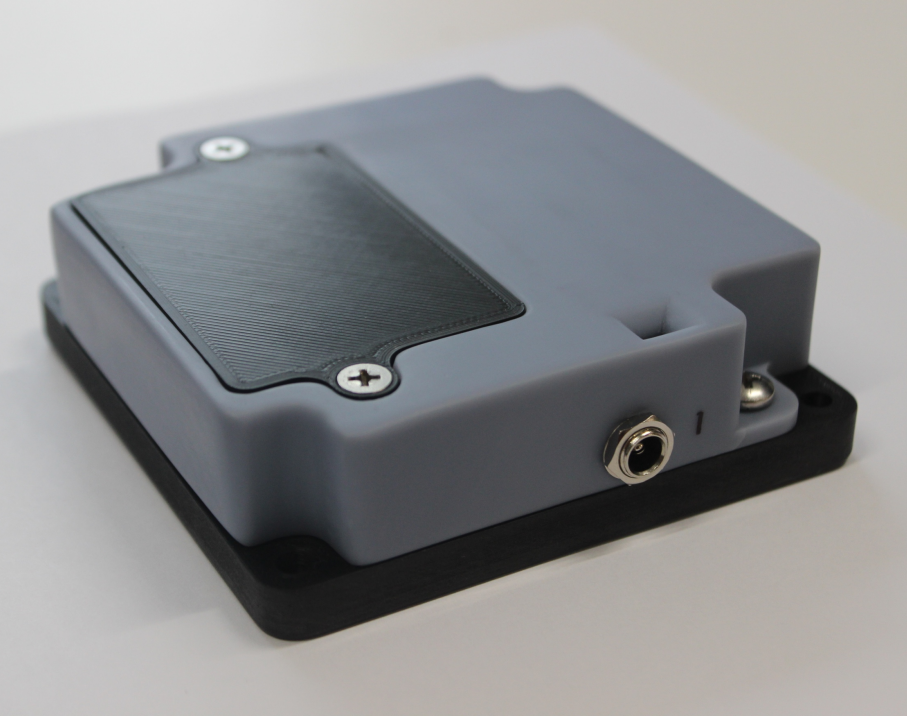

SPECS

Cellular LTE-M w/integrated antenna

GPS w/ external antenna connection

Internal sensors can include an accelerometer, temperature and various other low voltage sensors.

24VDC Power Supply, optional battery pack

Optional touch screen LCD

HUMAN MIGRATION

HUMAN DETECTION

The Visual Recognition device can detect individuals and follow their movements throughout your plant. This data can be used to evaluate employee flow through the factory. It can correlate the data with production output data to determine where bottlenecks may be in your processing line.

AI & DEEP LEARNING

The Visual Recognition device is designed with ai & deep learning in mind. With backend cloud computing, predictive analysis and advanced anomaly detection can be correlated with other sensing data in the plant.

VISUAL ANALYTICS

From IIoT Devices, data is consolidated off-premise or on-premise cloud solutions. After Ai & Deep learning is applied, drill down analytics are presented directly accessible through mobile or web. Supervisors/managers can easily gage the flow of the plant in terms of throughput, quality & yields, maintenance and labor to react accordingly.

APPLICATION EXAMPLE

A factory contains many processing stations to produce the product. During production, some processing stations have an influx of workers throughout the day.

A Visual Recognition device is installed along with other IIoT devices to measure throughput vs. personnel. The device is installed to detect individuals on the production line coming and going.

For example, a device may recognize in the morning, prior to product accumulating, the inspectors were helping with production in the morning. It also determined that in the afternoon, some production workers were performing other tasks, including moving product and early cleaning procedures.

Management is now able to see data in real-time and adjust personnel to achieve the desired output of the production line.

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