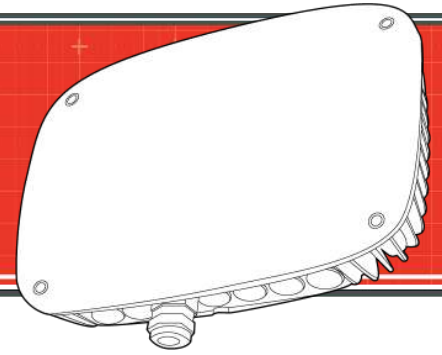# D6 Labs™
Engineered IoT Solutions

WH1-9-00-IDNCN-N

Smart.Hub™ Industrial, Cellular Interface

General Description

The Smart.Hub™ Industrial is a rugged, versatile and reliable IOT gateway device for use in outdoor applications. Smart.Hub™ products are gateways used to move data from Whisker.Block® sensor blocks and end user customized Whisker.Engine™ based sensor nodes to the Whisker.io™ cloud platform. The SmartHub Industrial has versatile power options and can be configured with multiple power options including 8-24VDC, 85-240VAC and PoE.

Features

- Plug and play operation
- Ethernet & Cellular options
- Data buffering during loss of connectivity
- Supports all Whisker.io Cloud services
- Works with 3rd party platforms via Whisker.io Forwarding
- Supports two-way communication with field devices – monitor and control
- Communicate with field devices over distances more than 1.6 kilometers.
- Integrated CanBus, ModbusTCP and ModbusRTU (RS-485) protocol[1].
- Integrated Digital and Analog I/O[1].
- IP65 rate enclosure, wall and pole mounting
- Flexible power options
  - Power over Ethernet
  - 8-48V DC
  - 85-240VAC
1) Future feature

Robustness and Reliability

The Smart.Hub Industrial can be configured with primary and secondary connections to the cloud through ethernet or cellular. When two connections are configured the hub will support automatic failover to the secondary connection. If all configured connections are lost, the hub will buffer messages in internal non-volatile memory until cloud connectivity is restored.

In the event of catastrophic failure, the data from the internal SD card can be recovered using a Windows based Data Recovery App. The Smart.Hub™ can be configured with battery back-up that will allow the hub to continue normal operation for up to 24 hours. If power is lost on hubs equipped with battery back-up, the hub will notify the Whisker.io cloud of the failure, allowing text and email alerts to be sent to specified contacts.

Throughput

The number of devices that can be supported by this hub varies with the reporting rate of the connected devices. This is a single channel hub, which ultimately determines its limitations; with a single channel, this hub can process about 1,800 messages an hour. The following table estimates device capacity for several different update rates.

Update Rate	Estimated number of devices
5 Minutes	250
1 Hour	1500
4 Hours	5000
24 Hours	10000

This hub supports two-way communications with field devices that support the Whisker.io™ protocol. For battery powered devices, the hub will queue down-stream messages (commands) and send them to the device when it reports in at its sampling interval; therefore, the command latency is equivalent to the update rate of the device. For line powered devices, commands are sent immediately, with a latency of less than 1 second.

Whisker.io Services

Storage

Devices that are configured with the storage service will persist their historic data in the Whisker.io cloud, making it available for visualization and analysis using our Whisker.io™ Portal web-based software.

Alerting

Rules based alerting allows a text or email to be sent when the specified condition is met and when it clears.

Dashboard

Secure, user friendly dashboard with visualization through gauges, graphs, sensor signal strength and fuel gauges.
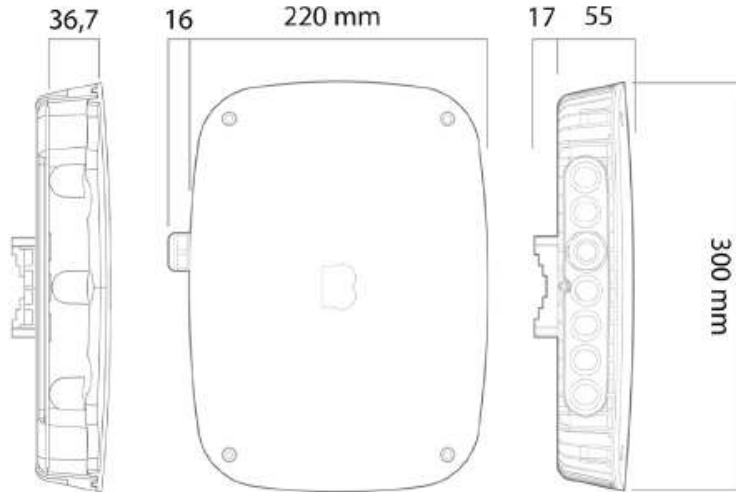
Forwarding

The forwarding service allows two-way communications between Whisker.io devices and third party platforms such as Amazon, ThingLogix, etc.

Whisker.io™

Mechanical

Connectivity Options

Every Whisker.io™ Hub can connect to the Internet via Ethernet. Hubs that are purchased with the Cellular option can also connect via Cellular.

Installation and Setup

All Whisker.io™ hubs are truly plug-and-play, requiring no provisioning or setup in the field. Simply mount the hub, connect it to power, and wait for all the status lights to come on.

Once a hub is installed, it is automatically configured to work with devices within its transmission range.

Order Information

Part Number	Description
WH1-9-00-IDNCN-N	Whisker.io™, Smart.Hub™, Industrial, 900MHz, Cellular, 120VAC