



NUCLEUS

Do delays in data collection from remote equipment impede your ability to act in real time? Are you asking your production teams why you didn't have this critical information sooner?

Having devices at the edge of the process network or remote sites allow companies to quickly gather critical data from equipment so you can react faster and efficiently before it becomes a problem.

Installing intelligence at the source of your data provides secure, real time actionable information, especially where the lack of infrastructure becomes a constraint. This is the power of the Nucleus.

The Nucleus leverages the power of the MQTT protocol to quickly and reliably send large amounts of data using minimal resources, even excelling in poor network conditions. The Nu-

cleus can be a plug and play device in an existing infrastructure or it can exist independently as a solar-powered controller, HMI, or cellular gateway.

The Nucleus features:

- 4 analog inputs
- 10 discrete inputs
- 5 discrete outputs
- 3G cellular
- Wireless 802.11
- GPS
- Industrial ethernet
- USB
- Bluetooth
- SMS texting for alarms
- 12-30 VDC input

Software

The Nucleus firmware is a custom, highly secure, Linux-based operating system that is ca-

pable of receiving over-the air (OTA) updates. Backwards compatible updates, security upgrades, and enhancements are automatically rolled out and deployed.

Tyrion Cloud Data

While it's possible to use the Nucleus in any application and in any workflow, the Nucleus is best used in conjunction with the Tyrion

Cloud. The Nucleus can send data from thousands of tags per second to the Tyrion Cloud for trending, visualization, archiving, and control. The Cloud features best-in-class security features and proven encryption methods to keep your data safe and secure. The Tyrion Cloud allows your Nucleus to reliably scale with an unlimited amount of data, available whenever and wherever you need it.

Nucleus Specifications

Physical	
Dimensions	5.25" X 3.15" X 1.37"
Enclosure	Extruded Aluminum and Stainless Steel with Din Rail Clip
Expandable Flash Memory	Micro SD Card (Up to 32GB)
Interfaces	Ethernet over RJ45
	Serial over Terminal
Temperature/Humidity	0° C to 70° C / 10%-90%
Power	
Input	12-30 VDC
Output	3.5 W with Active Cellular Communication
Inputs/Outputs	
Digital Inputs	10 Channels
	3-30VDC
Digital Outputs	5 Channels
	3-24VDC @ .5A Maximum
Analog Inputs	4 Channels
	4-20mA or 0-24 VDC
Analog Outputs	24VDC @ 100mA (Transmitter Power)
Hardware	
Processor	ARM Cortex-A7 Dual Core @ 1GHz
RAM	1 GB (Standard) or 2 GB
Flash Memory (On-board)	4 GB (Standard), 8 GB, 16 GB, 32 GB, 64 GB
Wireless	
Cellular	3G AT&T and Verizon
	802.11 a/b/g/n
WiFi	Dual-band (2.4 and 5 GHz)
	Access Point or Client Modes
Bluetooth	v4.1
GPS	L1 Spec
Software/Firmware	
Node-RED	V17.5
Protocols	MQTT (Tyrion Cloud Services or your own MQTT Broker)
	OPC-UA (Server-Client)
	Ethernet and Serial
Database	MongoDB or MySQL