IG21 Industrial Controller
Datasheet

OVERVIEW

Managed by Samsara's secure web-based dashboard, the IG21 provides the same universal connectivity, easy setup, and global analytics and control that are standard across the IG-family. Integrated LTE connectivity, built-in I/O , and Class 1, Division 2 certification make the IG21 a great fit for remote and distributed operations.
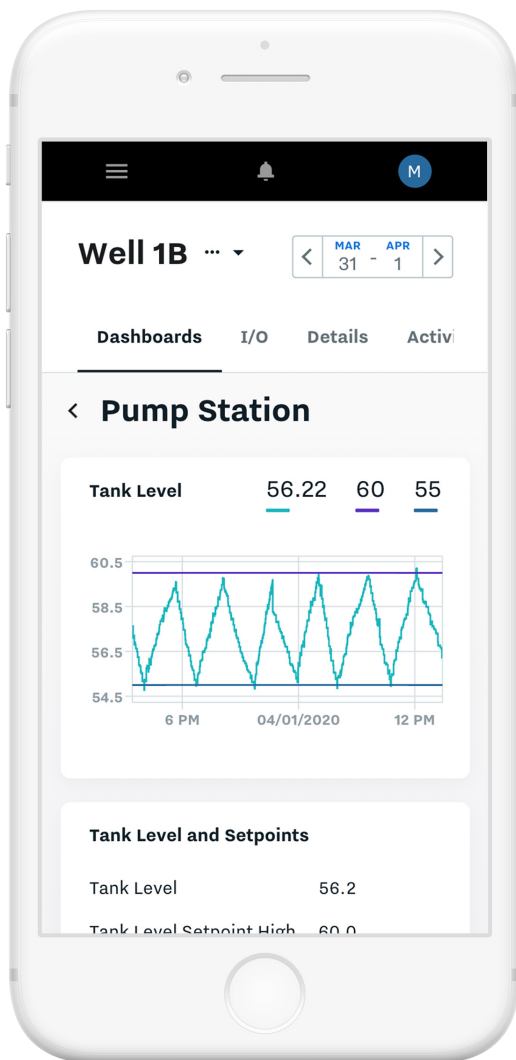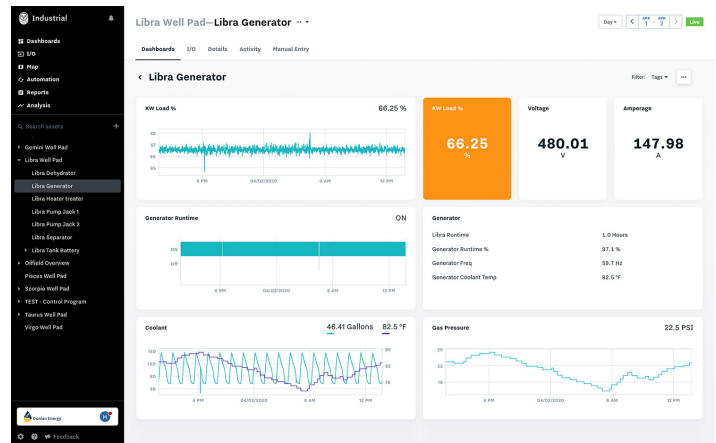
HIGHLIGHTS

Built-in cellular
Gain visibility and control into hard to wire locations with built in 4G LTE

Open platform
Easy to integrate with existing PLCs and SCADA systems via any common industrial protocol: Modbus RTU/TCP, EtherNet/IP, OPC-UA, MQTT

Built-in I/O
Analog, digital, and counter I/Os for direct monitoring and control

Rugged hardware
Class 1, Division 2 certified, Groups A, B, C, D

Features and capabilities

FASTER AND EASIER TO DEPLOY

An integrated platform makes it easy to gain immediate visibility of your assets and operations. Simply connect your I/Os or PLCs and visualize data in easy-to-use dashboards– no servers to set up, no additional software to manage, and no complexity.
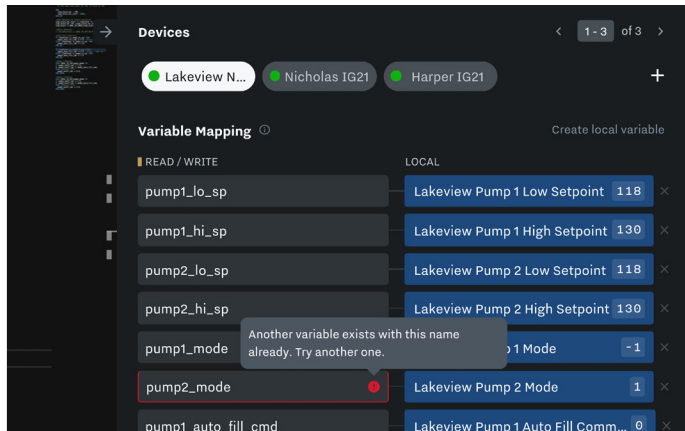
OPERATIONAL DATA
AT YOUR FINGERTIPS

Samsara makes getting your data easy and lets you manipulate it to get the most out of it. With cloud dashboards that automatically resize to fit any device, you can view critical data anywhere, anytime. It's also easy to export data to the analytics tool of your choice or to directly integrate with your existing historian through modern API functionality.

Features and capabilities

REAL TIME ALARMS & NOTIFICATIONS

Samsara makes it easy to build reliable and actionable alarms based on any reading from your industrial assets or existing PLCs and SCADA systems. Color-coded criticality, customizable escalations, and fast access to asset data help you mitigate false alarms, deploy the right response, and stop issues in their tracks.

EASILY VIEW & DEPLOY PROGRAM CODE

Modern IEC 61131 programming environment allows enginners to reuse code and audit program execution all without going onsite. Samsara's central visibility dramatically increases the speed at which industry standard IEC 61131 programs can be written and deployed across any number of locations.

DESIGNED FOR MODERN DATA SECURITY

Unlike legacy solutions that were designed in a different era and patched over time, Samsara is purpose-built to aggregate and process sensor data securely. Cyber threats continuously evolve, and your industrial IoT architecture should as well. Samsara's architecture ensures always up-to-date cloud software and seamless over-the-air firmware patches for on-premise devices. Find out more at samsara. com/security.

Inside the IG21

Local Storage
Low-latency control, and data storage

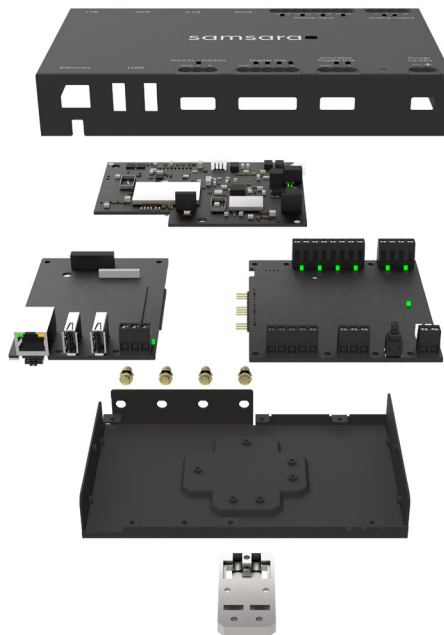**High-performance ARM CPU**
Scales up to hundreds of IOs

Serial Port
Industry standard protocols

Ethernet Port
Local LAN Connectivity

USB
USB 2.0 compatible

Analog Input/Output
Built-in isolated channels
for fast deployment

Digital & Counter IOs
6 digital and 2 counter IOs

WiFi 802.11 b/g/n
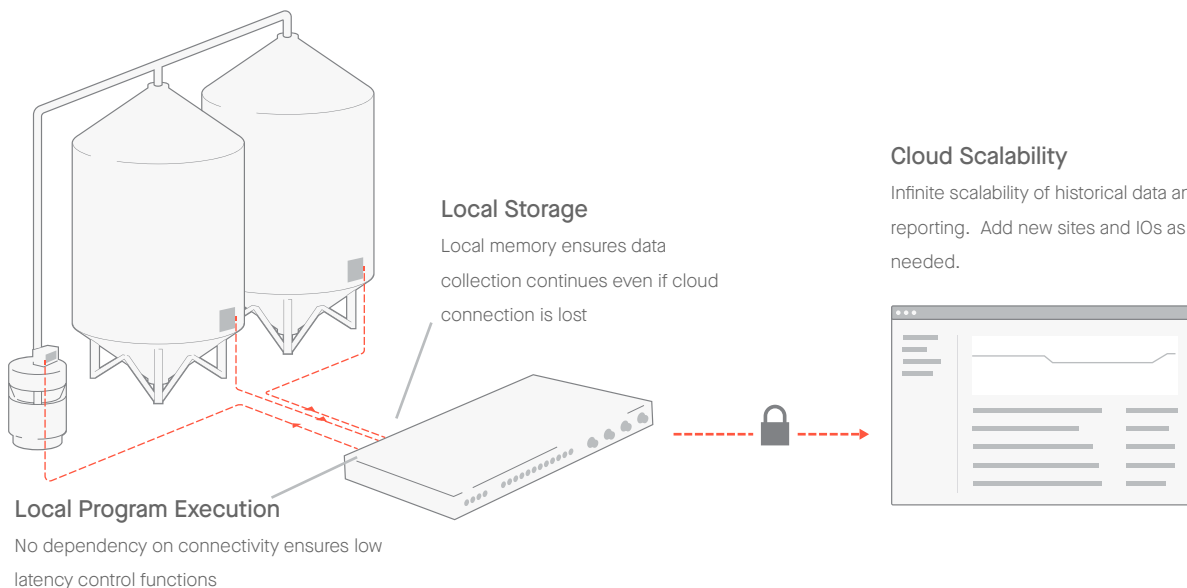Out-of-the-box sensor connectivity

Embedded Cellular
4G LTE Connectivity

Class 1, Division 2 Certified
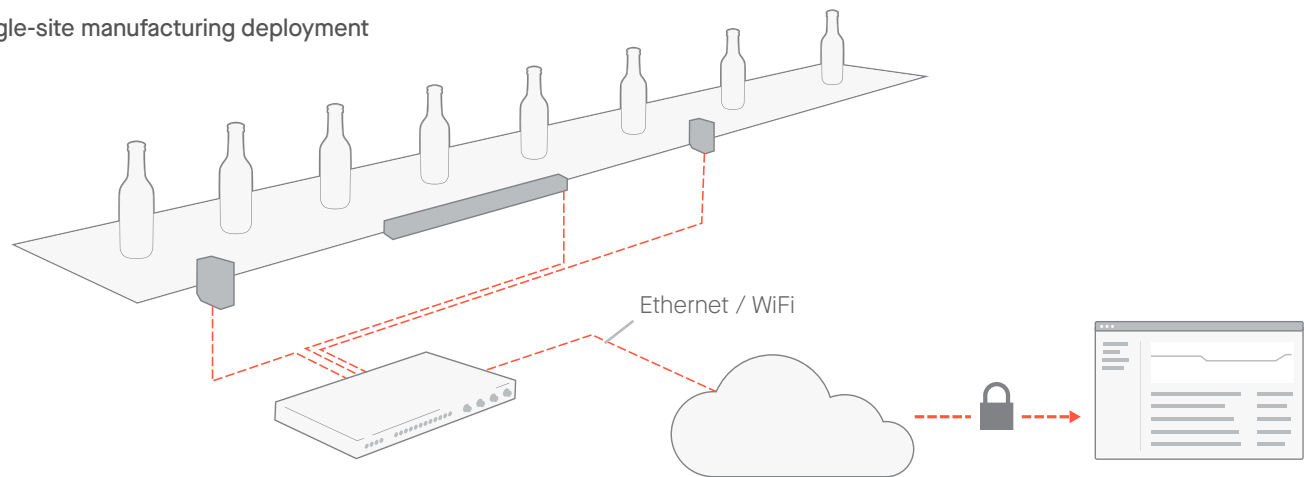Ready for harsh environments

Low-latency control with the infinite scalability of cloud

Samsara's architecture delivers enterprise-grade hardware for mission-critical applications with on-device data storage that ensures highly responsive local control and battery backup to ensure data continuity and integrity in the case of network or power outages. Samsara's included cloud dashboard provides unlimited scalability, and easy access to data across all sites as a standalone system, or integrated with existing SCADA software.

Local Storage
Local memory ensures data collection continues even if cloud connection is lost

Cloud Scalability
Infinite scalability of historical data and reporting. Add new sites and IOs as needed.

Local Program Execution
No dependency on connectivity ensures low latency control functions
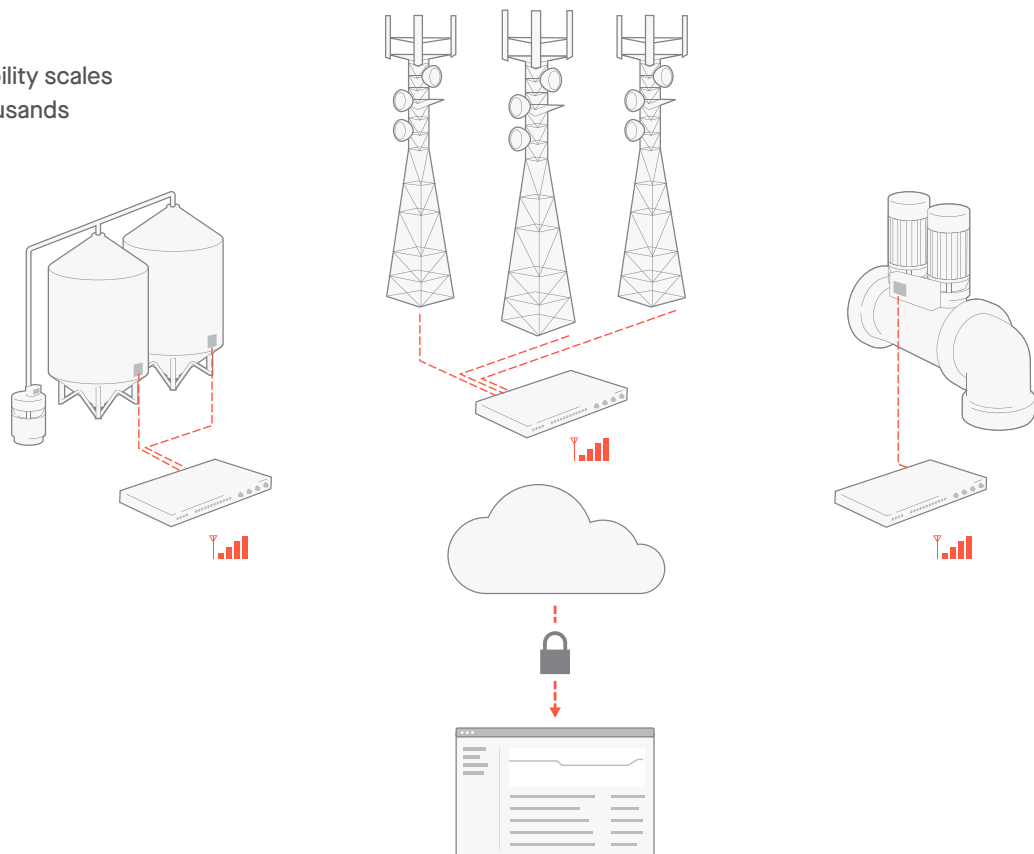
Visibility into manufacturing equipment or remote sites

Single-site manufacturing deployment

Ethernet / WiFi

Remote site plug & play visibility scales
from a single location to thousands

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POWER

Rated Voltage	10-28 VDC
Average Power Consumption	6.2W to 6.7W at 24 V

ENCLOSURE

Dimensions (W x H x D)	180 × 118 × 32 mm (7.09 × 4.65 × 1.26 in)
Weight	725 g (1.6 lbs)
Mounting	Toolless DIN rail mounting
Operating Temperature	-40 to 60 °C (-40 to 140 °F)
Hazardous Locations	Certified for Class 1, Division 2, Groups A, B, C, D

PROCESSING, STORAGE, AND SECURITY

Edge Processing	Powerful edge processor for low-latency local control
Real-time Connectivity	Streams data to the Samsara cloud in real-time
Data Security	Data secured via SSL (256-bit, military-grade encryption)
Storage	Onboard storage for offline data logging when internet connectivity is unavailable; uploads data to the cloud when connectivity is restored to ensure no data interruptions

CONNECTIVITY

Serial Port (ESD Protected)	1 x RS-232: Up to 1Mbps, 2-wire, full or half-duplex 1 x RS-485: Up to 20Mbps, 2-wire, half-duplex
USB	USB 2.0 compatible "A"-type receptacle
Protocols	Modbus/RTU, Modbus/TCP, EtherNet/IP, OPC-UA, MQTT

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LAN Ethernet	8-pin modular RJ45 jack, 10/100 Mbps (10/100 Base-T), transformer-isolated
Wi-Fi	802.11 b/g/n
Cellular	4G LTE cellular connectivity, with 3G fallback where LTE coverage is unavailable LTE: quad band 2/4/5/12. 3G: dual band 2/5. Operating area: United States, Canada

WIRELESS SENSORS

Connectivity	Proprietary low-energy wireless sensor connectivity (2.4 GHz)
Compatibility	Works with Samsara wireless sensors
Range	2.4GHz: 30m (line of sight)

LICENSE

Requires IG license. License includes cloud software, mobile apps, ongoing firmware updates, maintenance, and support

DIGITAL AND ANALOG I/O

Analog Inputs	4, Isolated channels with 0-12 V or 0-24 mA Resolution: 14-bit ADC Accuracy: 0.1% FSR at 25C ESD/EFT/Surge protected Accuracy: 0.1% FSR at 25C
Analog Outputs	2, Isolated channels with 0-12 V or 0-24 mA Resolution: 16-bit Accuracy up to +/-0.2% FSR at 25C ESD/EFT/Surge protected Settling Time: 5us Load Range: 1000 ohm (12V) - 600 ohm (20mA)
Digital Inputs/Outputs	6, User-configurable as inputs or outputs (open-drain) ESD/EFT/Surge protected

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DIGITAL AND ANALOG I/O

Digital Inputs/Outputs (Continued)	As Input:
	- Dry-contact (internally sourced 3.3V @ 1mA)
	As Output: Sinking MOSFET output, rated 30V, 0.5A
Counter Inputs	2, Counter Input (0-30V)
	Up to 10Hz (dry-contact)
	Up to 10kHz (wet-contact)
I/O Expansion	Digital and Analog input/output expansion modules available

ACCESSORY ANTENNAS

LTE Directional Antenna

ACC-DIR-ANT

RF Specifications

Frequency Range: 699~960 MHz, 1710~2170 MHz, 2300~2690 MHz

Polarization: Dual Slant +/- 45°

HPBW (+45°):

  66° at 699~824 MHz

  62° at 824~960 MHz

  40° at 1710~2170 MHz

  33° at 2300~2690 MHz

HPBW (-45°):

  66° at 699~824 MHz

  62° at 824~960 MHz

  40° at 1710~2170 MHz

  33° at 2300~2690 MHz

Gain:

  8 dBi at 699~824 MHz

  7 dBi at 824~960 MHz

  10 dBi at 1710~2170 MHz

  12 dBi at 2300~2690 MHz

VSWR: 4.0 max:1, 2.5 max:1, 2.5 max:1

Isolation: >15 dB

Power Handling: 2W (cw)

Impedance: 50 ohm

Connector: SMA Plug

Dimensions: 320 × 320 × 65 mm (12.6 × 12.6 × 2.56 in)

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ACCESSORY ANTENNAS

LTE Array Antenna

ACC-ARR-ANT

RF Specifications

Frequency Range: 698~960 MHz, 1710~2170 MHz, 2500~2690 MHz

Polarization: Linear

HPBW (Horizontal): 360°

HPBW (Vertical): 90°

Gain: 2.6 dBi, 3.2 dBi, 3.3 dBi max (exclude cable loss)

VSWR: 4.0 max:1, 2.5 max:1, 2.5 max:1

Power Handling: 2W (cw)

Impedance: 50 ohm

Connector: SMA Plug

Enclosure

Dimensions: 240 x 65.6 x 38.7 mm (9.45 x 2.58 x 1.52 in)

Temperature: -40 to 70 °C (-40 to 158 °F)

Humidity: 95% at 55 °C (131 °F)

Waterproof Rating: IPX7