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 engineers 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.
Visibility into manufacturing equipment or remote sites

Single-site manufacturing deployment

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 25°C
ESD/EFT/Surge protected
Accuracy: 0.1% FSR at 25°C

Analog Outputs
2, Isolated channels with 0-12 V or 0-24 mA
Resolution: 16-bit
Accuracy up to +/-0.2% FSR at 25°C
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
**DIGITAL AND ANALOG I/O**

**Digital Inputs/Outputs**

(Continued) - 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-AKT**

**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 x 320 x 65 mm (12.6 x 12.6 x 2.56 in)
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