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 means that whether you are monitoring critical equipment on the shop floor or hundreds of remote sites, it’s easy to gain immediate visibility on your browser or mobile device. Simply connect your IOs—no servers to set up, no software to manage, 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 VISIBILITY AND ALERTS
Samsara’s cloud dashboard acts as historian and HMI to provide immediate visibility into real-time and historical data, and allows for simple, easy to manage alerts. Cloud infrastructure allows infinite scalability without any infrastructure investment, and on-device storage means data is captured even if the network connection is down.

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
IG21 Industrial Controller Datasheet

**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 x 118 x 32 mm (7.09 x 4.65 x 1.26 in)
- **Weight**: 725 g (1.6 lbs)
- **Mounting**: Toolless DIN rail mounting
- **Operating Temperature**: -40 to 80 °C (-40 to 176 °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**: 1 x RS-232: Up to 1Mbps, 2-wire, full or half-duplex
  (ESD Protected) 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
IG21 Industrial Controller Datasheet

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
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: N Jack

Dimensions: 320 × 320 × 65 mm (12.6 × 12.6 × 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