Samsara Industrial Control System

CLOUD-MANAGED INDUSTRIAL CONTROLLER FAMILY DATASHEET

Overview

Samsara's IG Series Industrial Controllers provide a modern platform that combines data collection, control, alerts, and analytics in an easy to deploy and easy to use system - from the plant floor to remote sites. Managed by Samsara's secure cloud dashboard, the IG Series combines the local control and data collection capabilities of a programmable logic controller (PLC) or remote terminal unit (RTU) with a 4G LTE cellular gateway into a single device designed to meet the harsh demands of water/wastewater, oil and gas, and industrial environments. Customers looking for added visibility of their assets will appreciate the open platform, out-of-the-box visibility of real-time and historical data, and simple alerting without the hasle of additional software or complexity.

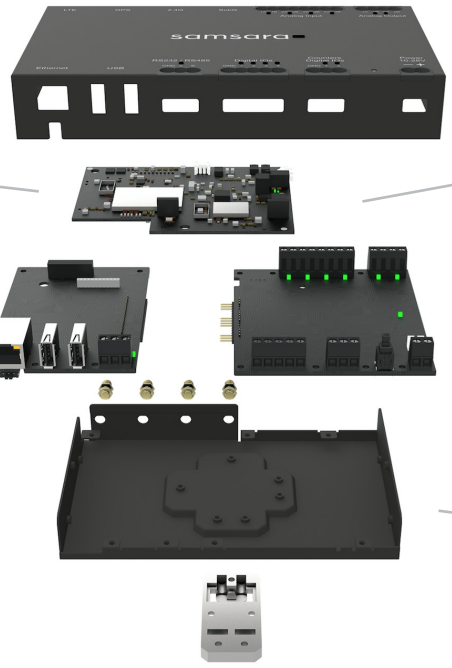
Highlights

- Modern, open platform for customers who need added visibility and control into manufacturing and remote sites
- Centralized data collection, local control, secure communication, and powerful analytics in a single, modern platform
- Operates in standalone mode or integrates alongside PLC/DCS systems using industry standard protocols (Modbus RTU, Modbus TCP)
- Deploys in minutes and scales from a single plant to distributed operations with thousands of sites with built in analog, digital, and counter IOs
- Secured with 256-bit AES encryption; automatically creates a secure encrypted tunnel connection to Samsara's cloud
- Certified for Class 1, Division 2, Groups A, B, C, D

Applications

- Designed for use in oil & gas, water / wastewater, food and beverage, mining and construction, agriculture, and manufacturing
- Monitor well and pump sites to control operations, view alerts, and measure equipment efficiency
- Monitor and control tank levels, pressure, flow.
- Gain live remote visibility into plant operations, production metrics, monitor critical equipment, set alerts, and manage overall operational efficiency
- Gain visibility and control into remote locations with built in 4G LTE

Inside the IG20 and IG21 industrial control unit



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

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

Embedded Cellular (IG21)
4G LTE Connectivity

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

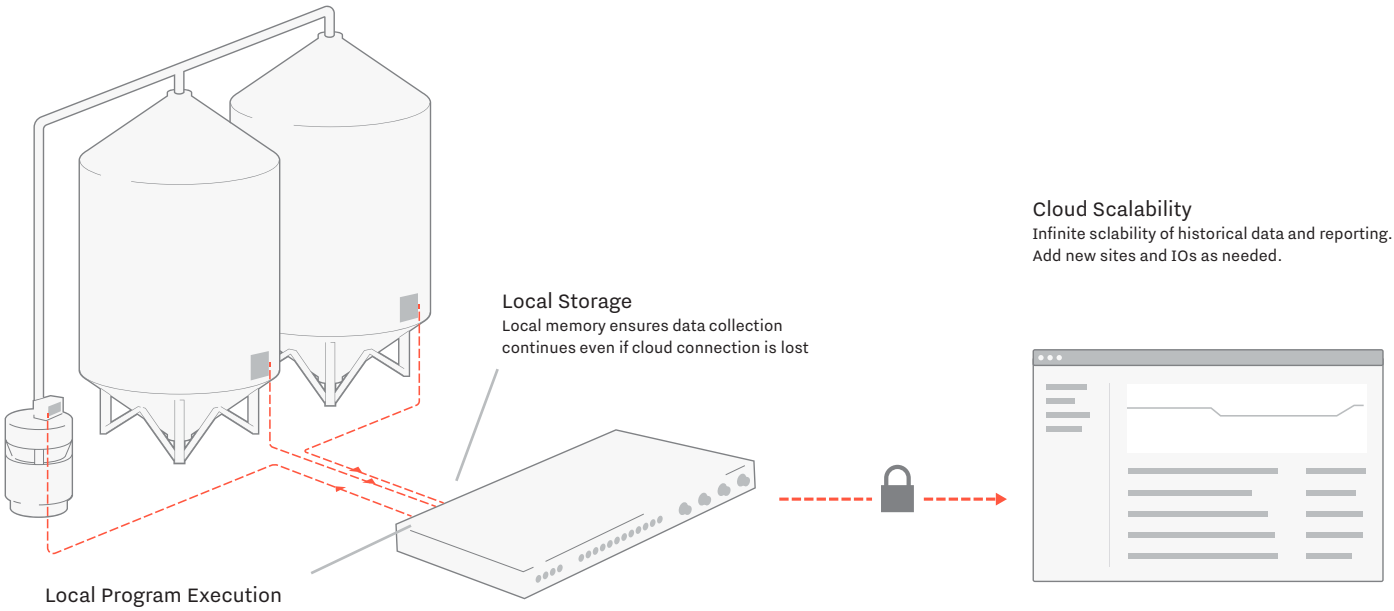
6 Digital IOs

2 Counter IOs

Certified for Class 1, Division 2
Ready for harsh environments

Low latency local control with infinite scalability of cloud

Samsara's architecture delivers the best of both worlds with enterprise grade on-premise hardware ensuring highly responsive local control functions, as well as on-device storage for mission critical data to ensure data continuity and integrity in the case of network outages. Samsara's included cloud dashboard provides unlimited scalabilty, and easy access to data across all sites - as a standalone system, or integrated with existing SCADA software.



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

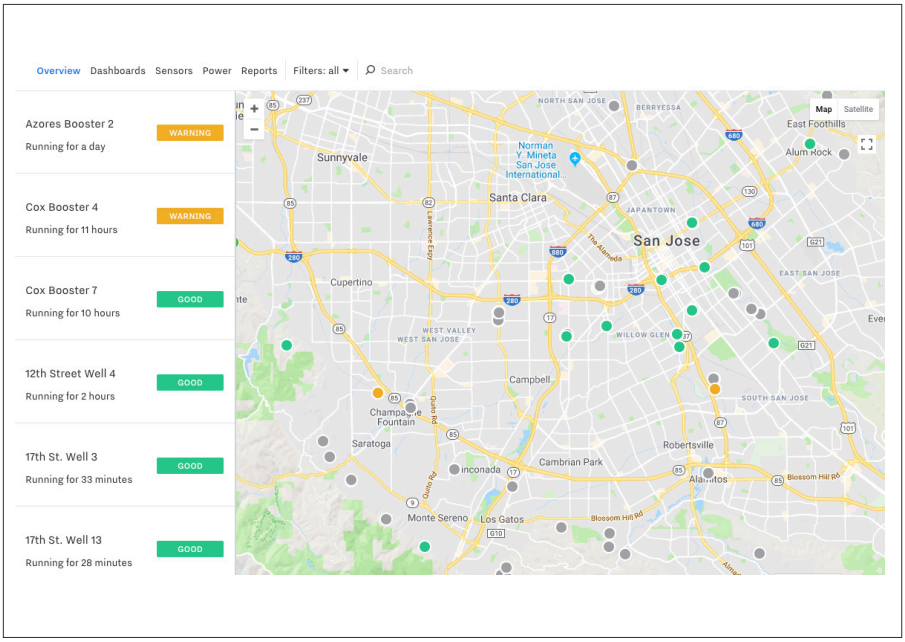
Local Storage
Local memory ensures data collection
continues even if cloud connection is lost

Local Program Execution
No dependency on connectivity for low
latency control functions

Features and Capabilities

FASTER, EASIER, AND CHEAPER TO DEPLOY

Integrated platform means that whether you are connecting critical equipment on the shop floor, or hundreds of remote locations, simply connect your IOs and gain immediate visibility on your browser or mobile device. No servers to set up, no software to manager, no complexity.



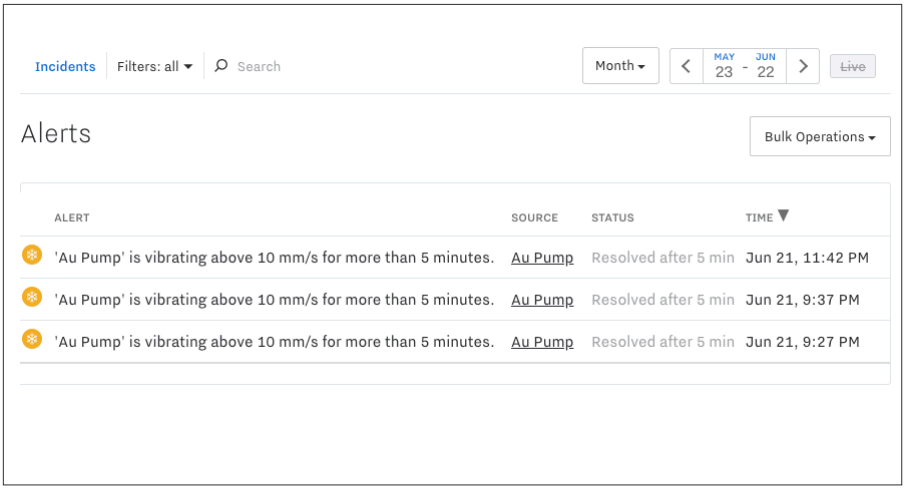
OPERATIONAL DATA AT YOUR FINGERTIPS

View critical data in Samsara's cloud dashboard, easily export to analytics tool of your choice, or directly integrate with your existing historian through modern API functionality. Samsara makes getting your data easy, and lets you manipulate it to get the most out of it.

Features and Capabilities (cont'd)

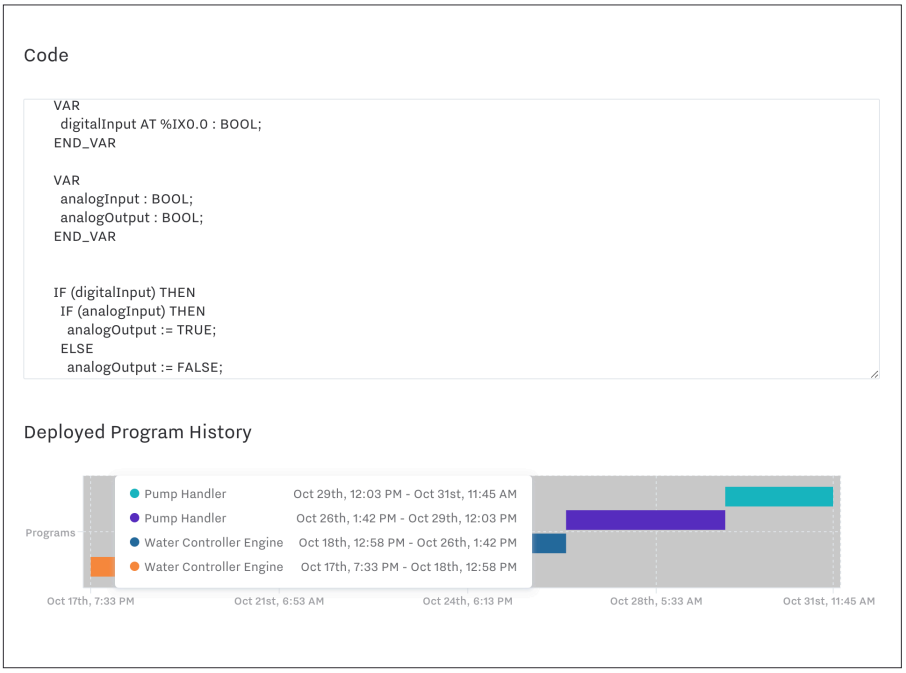
CUSTOMIZABLE INTERFACE, REAL TIME VISIBILITY AND ALERTS

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 custom dashboards. Cloud infrastructure allows infinite scalability without any infrastructure investment, and on device storage means data is captured even if network connection is down.



EASILY VIEW AND DEPLOY PROGRAM CODE

Modern IEC 61131-3 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 6113103 programs can be written and deployed across any number of locations.

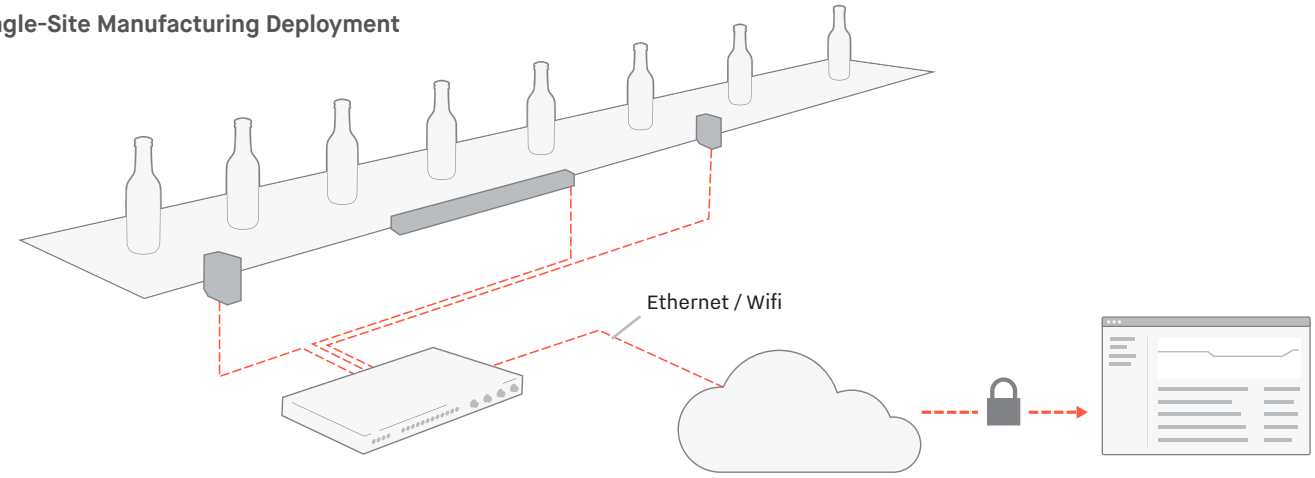


DESIGNED FOR MODERN DATA SECURITY

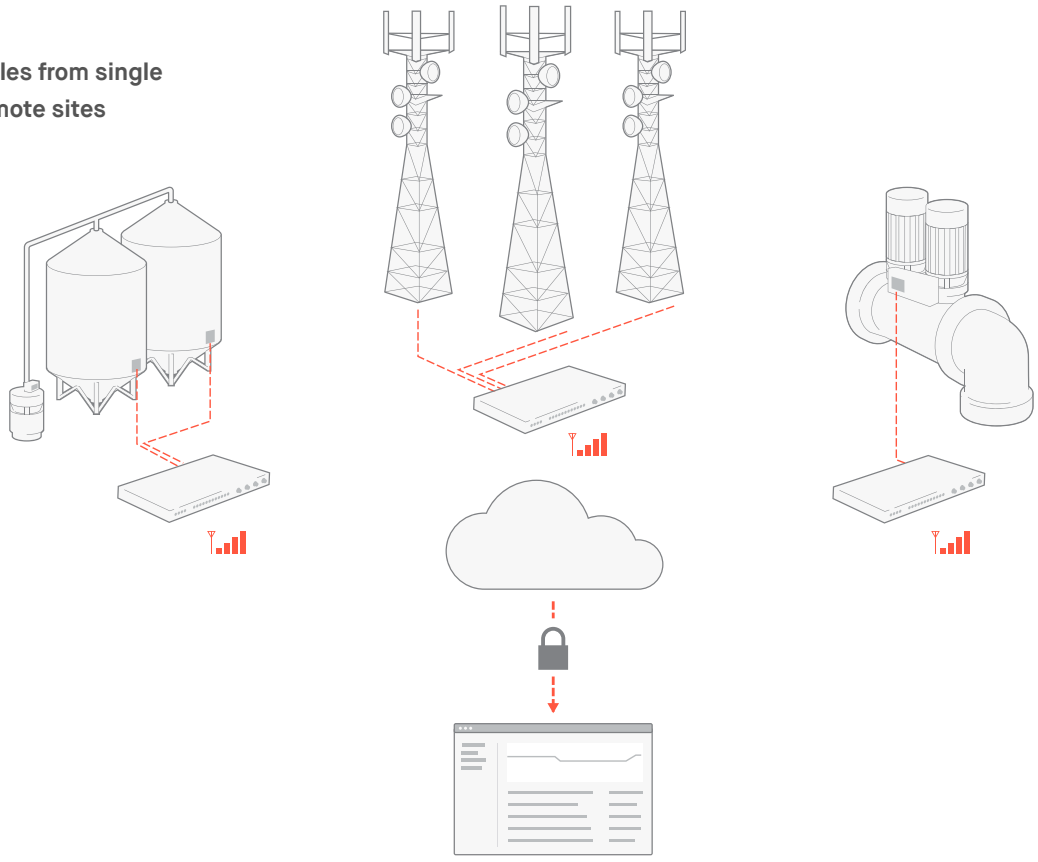
Unlike legacy solutions that were designed in a different era and patched over time, Samsara is purpose-built to aggregate and process sensor data securely. Cyber threats continously evolve - your industrial IoT architecture should as well. Samsara's architecture ensures always up-to-date cloud software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

Gain operational visibility into manufacturing equipment or remote sites

Single-Site Manufacturing Deployment



Plug & play deployment scales from single location to thousands of remote sites



Works alongside mission critical systems

With industry standard protocols and RESTful API, Samsara makes working alongside existing PLC/RTUs, Historians, and SCADA systems an easy way to gain additional visibility into new sites. Gain visibility into additional IOs at a fraction of the cost of expanding legacy systems; leverage Samsara API to integrate new data into legacy historians or management platforms.

Technical Specifications

Models Availables

HW-IG21	LAN Ethernet, WIFI, and Cellular Connectivity
HW- IG20	LAN Ethernet and WIFI Connectivity
ACC-ARR-ANT	IG Array Antenna
ACC-IGIO-8AI	Expansion module - 8 analog inputs
ACC-IGIO-8AO	Expansion module - 8 analog outputs
ACC-IGIO-8DI	Expansion module - 8 digital inputs
ACC-IGIO-8DO	Expansion module - 8 digital outputs
LIC-IG-ENT	License for IG Series Industrial Control System

Digital and Analog Inputs / Outputs

The IG Family is designed to maximize usability with built-in IO support for basic remote sites out-of-the-box and support for scalable expansion IO modules for higher density deployments.

Built-in 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 Input Resistance @ 24mA: 300 ohm
Built-in 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)
Built-in Digital Inputs/ Outputs	6, User-configurable as inputs or outputs (open-drain) ESD/ EFT/Surge protected As Input, - Dry-contact (internally sourced 3.3V @ 1mA) - Wet-contact (0-30V) As Output: Sinking MOSFET output, rated 30V, 0.5A
Built-in Counter Inputs	2, Counter Input (0-30V) Up to 10Hz (dry-contact) Up to 10kHz (wet-contact)
IO Expansion	Digital and Analog input/output expansion modules available

IG21 and IG20 license covers up to 32 IO expansion inputs or outputs. CPU supports additional IO, contact Samsara for pricing.

Built-in Power

Rated Voltage	10-28 Vdc
Maximum Power draw without analog outputs	10.8W @ 12V
Maximum Power draw with analog outputs	20W @ 12V

Technical Specifications (cont'd)

Communications	
Serial Port	RS485: Up to 20Mbps, 2-wire, half-duplex RS232: Up to 1Mbps, 2-wire, full or half-duplex (ESD Protected)
Serial Protocols	Modbus slave/master
Ethernet	8-pin modular RJ45 jack, 10/100 Mbps (10/100 Base-T), transformer-isolated
USB Host	(2) USB 2.0 compatible "A"-type receptacle

Internet Connectivity	
Cellular (IG21 only)	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, Mexico
LAN Ethernet	10/100 Mbps
Wifi	WiFi 802.11 b/g/n
Data Security	All Internet connectivity secured via SSL with 256-bit AES encryption

Data Transmission and Storage	
Real-time connectivity	Streams sensor data to the Samsara Cloud in real time
Built-in storage for offline logging	Sensor data stored in built-in flash memory when Internet connectivity is unavailable, syncs with cloud when connectivity is restored to ensure no data interuptions

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)

Enclosure	
Dimensions	180mm x 118mm x 32mm (7.09in x 4.65in x 1.26in)
Weight	725g
Operating Temperature	0° to 60°C
Mounting	Tool-less DIN rail mounting
Hazardous Locations	Certified for Class I, Division 2, Groups A, B, C, D