

PRODUCT DATASHEET

PRELIMINARY

eGW32-S3

Industrial Edge IIoT Node

Connect field data. Act locally. Stay connected.

Modbus RTU, environmental sensing and isolated digital I/O, with local alerts and Ethernet / Wi-Fi / 4G uplink.



Supplied product image. Interface availability follows the specifications and configuration notes in this document.

6 DI / 6 DO

Opto-isolated I/O

2 relays

Contact feedback

3 uplinks

Ethernet / Wi-Fi / 4G

600 tracked registers / **60** poll regions / **20** edge alert rules

eNode family | Hardware 2.0.0 (product documentation) | English edition

01 / ARCHITECTURE & APPLICATIONS

From field signals to useful data

Collect field signals, process values at the edge and connect to the cloud through three network paths.



Functional block diagram. Wi-Fi, Ethernet and 4G are separate uplink options; active-path priority is described in the Integration section.

Field to cloud workflow

01 Collect

Read field values from Modbus, digital I/O and configured sensors.

02 Act locally

Evaluate alert rules and control auxiliary DO/relay outputs.

03 Connect

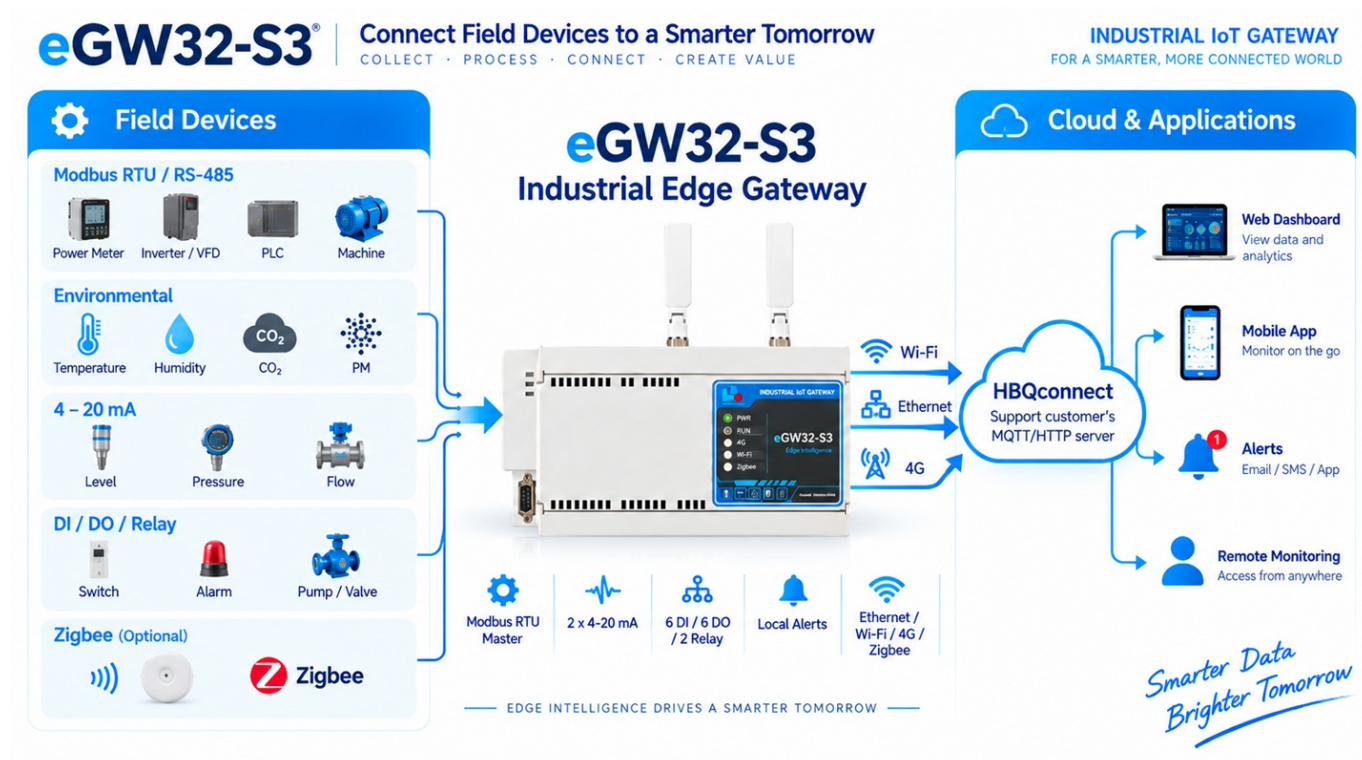
Send values to HBQconnect or a compatible customer deployment.

*Analog acquisition requires an ADC-enabled build. LoRa is optional; confirm the selected radio module and firmware configuration with HBQ.

02 / SYSTEM APPLICATIONS

Connect the complete system

Field devices, the edge node and cloud applications in a representative deployment.



System application illustration supplied by HBQ. Analog availability and server protocol compatibility depend on the selected configuration; Zigbee and LoRa are optional field-network functions.

Typical applications

Machine & meter monitoring

Read a meter, VFD or other Modbus RTU slave and publish named values to the monitoring platform.

Remote site monitoring

Use Wi-Fi and 4G fallback when Ethernet becomes unavailable; continue local collection and alerts.

Indoor air quality

Collect temperature, humidity, CO₂ and PM values for buildings and controlled indoor spaces.

Local status & actuation

Combine field DI with local rules and DO/relay actions for auxiliary, non-safety control.

Dashboard, mobile access and notifications are provided by the configured cloud application.

03 / TECHNICAL SPECIFICATIONS

Hardware, interfaces and limits

Functional capabilities are based on the supplied product documents. Electrical ratings remain preliminary.

System and connectivity

Parameter	Specification
CPU	32-bit CPU, up to 240 MHz
Ethernet	1 port; 10/100 Mbps; DHCP
Wi-Fi	2.4 GHz; station mode and SoftAP commissioning
Cellular	4G data via PPP; confirm modem/SIM configuration
Zigbee	Optional coordinator configuration; up to 20 child devices
LoRa	Optional radio module / firmware configuration

Field I/O and local operation

Parameter	Specification
RS485	1 interface; Modbus RTU Master
Digital inputs / outputs	6 DI + 6 DO; opto-isolated
Relays	2 relays with contact feedback; OFF at boot
Analog inputs	2 x 4-20 mA in the documented design; ADC enablement must be confirmed
Environmental sensing	Temperature, humidity, CO2; PM1.0 / PM2.5 / PM4.0 / PM10
Local access / service	Web Control Panel; 7-segment display; USB service/debug

Software capacity

Parameter	Specification
Modbus acquisition	1 slave focus; 600 tracked registers; 60 poll regions
Rules / live values	20 alert rules; 32 calibration rules; 64 proxy/live points
Sensor / telemetry limits	16 logical I2C sensors; telemetry FIFO: 120 samples
Web access	1 concurrent Web/API client recommended

CPU frequency is the processor maximum; the operating clock depends on firmware. Calibration requires ADC enablement. The telemetry FIFO is not a durable offline history store. Sensor accuracy and measurement ranges are not specified.

04 / INTEGRATION

Defined roles. Predictable behavior.

Use Modbus RTU for field acquisition and MQTT for upstream integration.

Modbus RTU Master

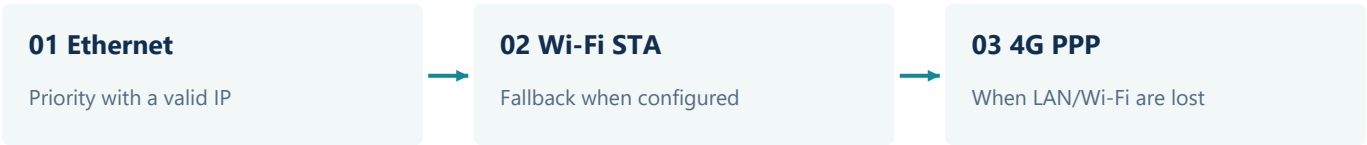
Parameter	Specification
Serial configuration	9600-115200 baud; default 19200, 8E1
Read / write support	FC03 Holding / FC04 Input regions; priority holding-register and coil writes
Data types	U16 / S16 / U32 / S32 / Float32 / Bit
32-bit byte order	ABCD / CDAB / BADC / DCBA
Register mapping	Web configuration or CSV import; one primary slave focus

The node is not a Modbus TCP/RTU slave and does not expose a fixed gateway register map for PLC polling.

MQTT, local API and maintenance

Parameter	Specification
Cloud interface	ThingsBoard device API; access token as MQTT username
Telemetry	Change-of-State register publishing and configured periodic/chunked updates
Remote Modbus writes	ThingsBoard shared attributes (inv_t_write); local HTTP write API
RPC status	Subscription exists; RPC method execution is not implemented in the documented build
Local HTTP	Web Control Panel and JSON configuration APIs; use a trusted LAN
OTA	HTTPS download; dual-bank image; SHA-256 verification; boot-failure rollback

Uplink priority

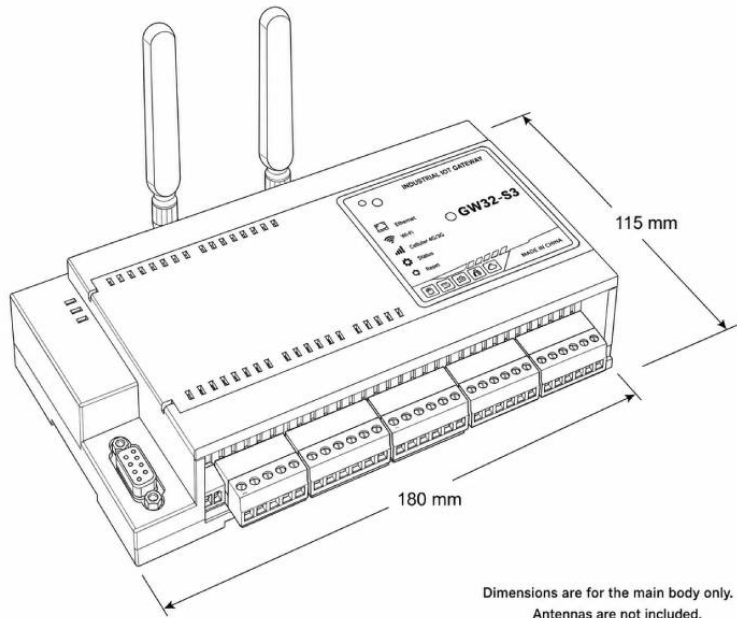


After IP recovery, the node synchronizes time with SNTP and reconnects MQTT. Local collection and alerts continue during a cloud outage; long outages can leave gaps in cloud history. Failover timing and MQTT TLS availability are not specified.

05 / MECHANICAL & INTERFACES

Plan the enclosure and connections

Use the matching released mechanical and terminal drawings for installation.



Dimensions are for the main body only.
Antennas are not included.

180 x 115 mm

Reference body footprint

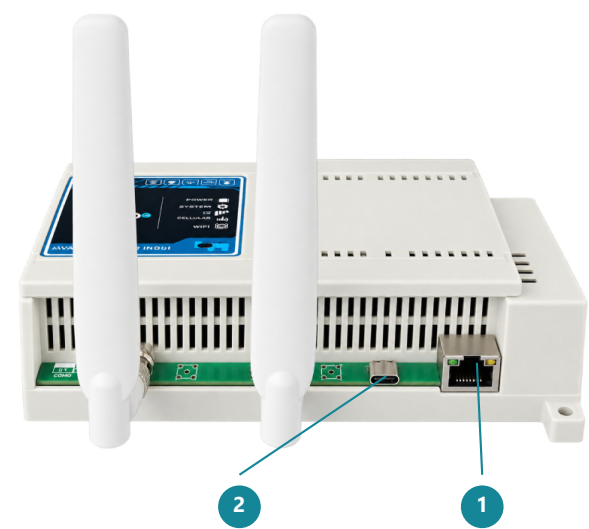
Shown in the supplied drawing;
antennas excluded. Production
dimensions and tolerances are not yet
released.

Height / mounting / weight

To be confirmed by HBQ.

Reference illustration from eGW32-S3_dimension.jpg. Do not scale the drawing for manufacture or cabinet cut-outs.

Connection reference



1 Ethernet RJ45 2 USB service

Rear connection view supplied by HBQ.

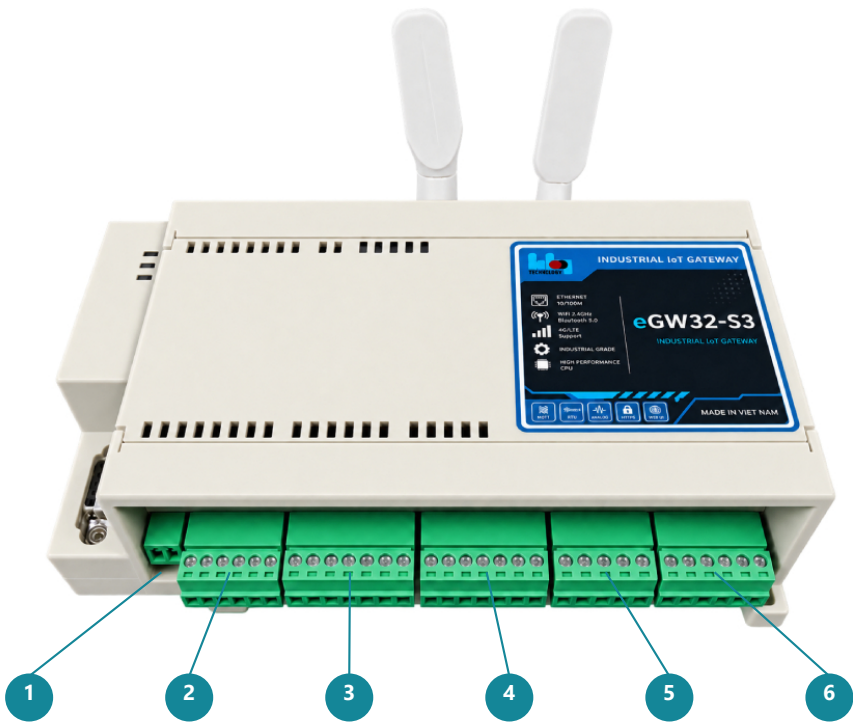
Interface	Function
Ethernet	LAN uplink / DHCP
USB	Service and debug
RS485	Modbus RTU Master
Field terminals	DI, DO, relay, analog and supply connections

Terminal pin order and field ratings must be checked against the
drawing matching the delivered hardware.

06 / TERMINAL PIN DIAGRAM

Field terminal connections

Front terminal view. Block order and pin names follow the board-view reference supplied by HBQ.



01 POWER / P5

1	2
VIN	GND

02 I2C / P4

1	2	3	4	5	6
V_SM	GND	SC_P	SC_N	SD_P	SD_N

03 DIGITAL INPUTS / P2

1	2	3	4	5	6	7	8
DI_COM	DGND	DI1	DI2	DI3	DI4	DI5	DI6

04 DIGITAL OUTPUTS / P3

1	2	3	4	5	6	7	8
DO_COM	DGND	DO1	DO2	DO3	DO4	DO5	DO6

05 RELAYS / P6

1	2	3	4	5	6
NC1	COM1	NO1	NC2	COM2	NO2

06 ANALOG / SENSOR SUPPLY / P1

1	2	3	4	5	6
AGND	AI1	AI2	AI3	AI4	VSEN

Each block is shown left to right as in the supplied terminal view; numbers identify pin positions within that block. P1-P6 are the corresponding schematic connector references.

AI1-AI4 are physical connector labels. Two analog acquisition channels are documented; ADC enablement depends on the selected firmware. Supply and field-load ratings require confirmation.

07 / COMMISSIONING & ORDERING

Prepare the project configuration

Define the field device, I/O requirements, network paths and MQTT service before deployment.

1 Connect locally

Join HBQ.eGW32-S3_<SN> and open <http://192.168.4.1/>, or use the device LAN address.

2 Set uplink and MQTT

Configure Ethernet / Wi-Fi / optional 4G, then enter the broker, port, access token and topics.

3 Map and verify field data

Set the slave ID and serial format, import CSV regions, and compare live readings with known values.

4 Enable local functions

Configure alert actions and optional Zigbee joining. Verify I/O behavior and cloud telemetry, then save settings.

Ordering configuration

Parameter	Specification
eGW32-S3	Industrial Edge IIoT Node; hardware 2.0.0 per product documentation
Confirm with HBQ	4G/SIM and antenna package; Zigbee / LoRa option; analog enablement; accessories; availability and lead time

Preliminary electrical and environmental data

Supply voltage, power consumption, VSEN output rating, DI thresholds, DO/relay load ratings, isolation withstand, operating/storage limits, IP rating and compliance are not released. Confirm the applicable values before installation.

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Basis: eGW32-S3 Datasheet, User Manual and Integration Guide v1.0; schematic rev1.0; supplied product images. Hardware revision alignment remains to be confirmed. Capabilities vary with the delivered build. Use the matching release documents for final design.