BCS-MX Edge Computer

Quad-core fanless DIN-rail industrial IIoT gateway

Features and Benefits

- ARMv8 Cortex-A53 64-bit SoC @ 1.2 GHz
- Ethernet connectivity for OT data acquisition
- Supports Modbus ASCII/RTU/TCP and OPC UA Server
- Tag-based register mapping for structured industrial telemetry
- RS-485 interface and modular I/O expansion via Dinkle Bus
- DC power input supported through barrel connector or terminal block
- Secure MQTT over TLS with certificate management and watchdog
- 0°C to 70°C commercial operating temperature range
- Built-in diagnostic UI for configuration, communication testing, and data verification
- Tested with AWS IoT Device Advisor for secure connectivity with AWS IoT Core

Introduction

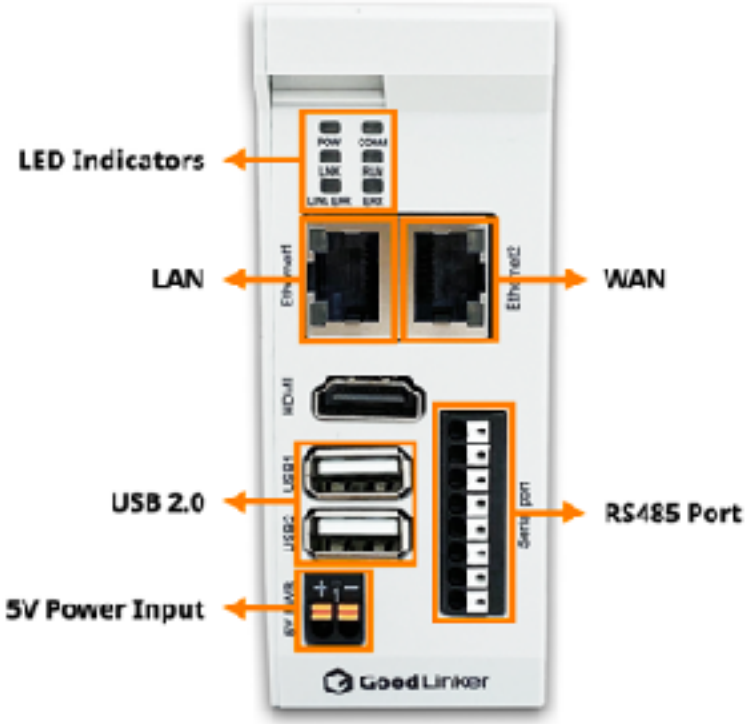
The BCS-MX is a DIN-rail-mountable, fanless industrial data acquisition gateway powered by a Broadcom quad-core ARM processor. It is purpose-built for OT/IIoT integration and supports Modbus ASCII/RTU/TCP and OPC UA Server for connecting PLCs, power meters, industrial sensors, and utility systems.

The device provides tag-based register mapping to define communication addresses, data types, and polling intervals, forming unified and structured industrial telemetry. It supports MQTT over TLS with certificate management and has been tested using AWS IoT Device Advisor for secure connectivity with AWS IoT Core.

For on-site deployment, the BCS-MX includes a built-in diagnostic interface for device configuration, protocol validation, and live data verification. Typical applications include smart factory upgrades, intelligent buildings, ESG data collection, quality traceability, predictive maintenance, and standardized data panels for energy or machinery measurement..

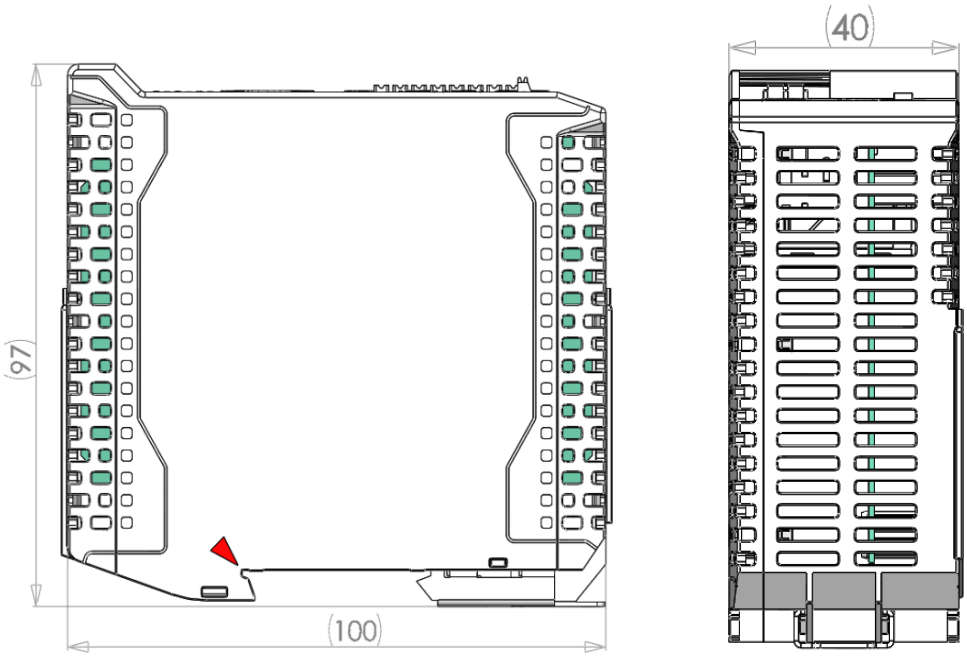
Appearance

BCS-MX



Dimensions

BCM-100



Specifications

Computer

CPU	Cortex-A53, 64-bit SoC @ 1.2GHz
GPU	VideoCore IV with OpenGL ES 1.1, 2.0
RAM	ELPIDA B8132B4PB-8D-F 1GB LPDDR2
Memory	32GB eMMC Flash Memory
OS	ArchLinux (Linux Kernel: 4.19.xx)

Computer Interface

Display	1 x HDMI
USB	2 x USB 2.0
Ethernet	1 x 100 Mbps Port (SMSC LAN9514-JZX)
Indicator	6 x LED for System Status
COMM	1 x RS-485 via Dinkle Bus

Ethernet Interface

Ethernet Ports	Auto-sensing 10/100 Mbps ports (RJ45)

Serial Interface

Serial Ports	1 x RS-485
Data Bits	7, 8
Parity	Even, Odd, None
Stop Bits	1, 2
Baud Rate	1.2K, 2.4K, 4.8K, 9.6K, 14.4K, 19.2K, 38.4K, 57.6K, 115.2K

Serial Signals

RS485-2w	Data+, Data-, GND

Physical Characteristics

Housing	Polycarbonate
Dimensions (W x D x H)	40 x 100 x 90.5 mm
Weight	180 g
Installation	DIN-rail Mounting
Wire Range	0.2 mm^2 ~ 1.5 mm^2 / AWS 28 ~16
Terminals	DN00510D, DN00710D

Power Supply

Input Voltage	5V
Input Current	1A
Power Consumption	5W

Mechanical & Environmental

Operating Temperature	0°C…+50°C (32°F…+122°F)
Storage Temperature	-20°C…+75°C(-4°F…+167°F)
Storage Humidity	RH 95%, Non-condensing

LED Indicators

POW	Power
COMM	Module/Modbus Connection
LINK	Server Connection
RUN	System Run
LINK ERR	Data Upload Error
ERR	System Operation Error