



Critical Things®

EkkoLink CM



Data Aggregation



Part of the EkkoSense Critical Things® family of monitoring technology, EkkoLink CM operates as a data aggregator – receiving data from EkkoHub wireless data receivers and securely forwarding it over a wired or cellular Internet connection to EkkoSoft® Critical software in the cloud.



Designed for wall-mounting rather than rack-mounting, EkkoLink CM integrates with SNMP, Modbus, and BACnet to retrieve data from other on-site third-party devices and networks before forwarding it to EkkoSoft Critical.

Ensuring flexible, safe and secure data continuity with EkkoLink CM

In the event of a temporary loss of external connectivity, EkkoLink CM buffers site data and automatically transfers it to EkkoSoft Critical software when the connection is restored. EkkoLink CM can also make EkkoSense measurement data available to other applications via an oBIX API.

Connectivity

EkkoLink CM connects to EkkoSoft through AWS IoT Core. This is a secure connection using TLS version 1.2 to encrypt all communication with an X.509 client certificate used for authentication.

EkkoLink CM features three LAN ports. One is dedicated to the external internet connection, one to the on-site EkkoSense network (for EkkoHubs), and one that can be configured for local data integration. Network configuration and security rules are applied separately for each network to provide robust segregation. EkkoLink CM also has an RS485 port configured for Modbus communication to connect directly to local devices such as power meters to retrieve data for forwarding to EkkoSoft Critical.

Security

EkkoLink CM's operating system has been hardened using Lynix and is configured for unattended upgrades. In-house C++ applications are developed using CPPdepend, CPPcheck and CPPlint to ensure best practices. The web interface is written in PHP and code quality and licensing is continually assessed using SonarCloud and Snyk respectively. Penetration testing is also carried out bi-annually on EkkoLink and EkkoHub devices by a CREST-approved cyber security consultancy.

Inbound and Outbound Integration

EkkoLink CM is the principal aggregation device that collates information from a variety of sources on site, and also provides a secure connection to EkkoSoft Critical in the cloud.

Inbound/Outbound integration options include:

Outbound Integration

- **oBIX** – EkkoLink CM presents all raw data using the oBIX protocol for integration with existing 3rd party systems, and is available with a minimum 1-year EkkoSoft license
- **SNMPtraps** – when alerts are configured centrally via the EkkoSoft platform, SNMPtraps can be alerted on EkkoLink CM so that on-site SNMPtrap receivers immediately detect alarm conditions from EkkoSense sensors with zero latency



Secure 128-bit AES encryption



EkkoSoft direct mode for Edge support



Integration with existing 3rd party systems



Comprehensive integration capabilities for complete data center coverage



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Inbound Integration

- **Modbus/RTU** – Integration over RS485 on a dedicated serial port for connectivity to both existing and new Modbus equipment that has not previously been connected into client networks. Up to 30 devices on each serial network can be supported
- **Modbus/TCP** – EkkoLink is able to collect Modbus data over TCP via both eth1 (the dedicated EkkoSense network) and eth2 (the client network). This protocol is commonly used for direct power monitoring and systems integration.
- **Modbus/TCP Gateway** – Installing a Modbus Gateway lets EkkoLink CM connect to multiple devices that have already been connected via serial/485 cable. Deploying a dual port gateway lets EkkoLink CM integrate with existing Modbus/RTU networks and enables shared access to devices
- **SNMP** – Primarily used for UPS and In-Row PDU monitoring, EkkoLink CM connects to any SNMP device using v1, v2c or v3 authentication to enable full EkkoSoft capacity management functionality
- **BACnet** – EkkoLink CM enables communication with BACnet devices connected to eth1 (EkkoSense network) and eth2 (Client Network) – enabling a key data communication protocol for Building Automation and Control Networks, BMS integration and modern cooling systems
- **Tridium (Niagara)** – with integration via a dedicated controller such as the JACE-8000, EkkoLink CM lets EkkoSoft collect data from the 1m+ Tridium systems utilizing the Niagara framework installed worldwide
- **Trend** – Modbus/TCP connectivity within EkkoLink CM also enables EkkoSoft to integrate with Trend Controls – providing the main controller has been installed with the appropriate license for Modbus/TCP translation and the relevant data mapping has been carried out

Technical Specifications

EkkoLink CM is implemented as an appliance running Debian 10. The core hardware is a 1.4U (62mm) fan-less appliance. This is supplied housed in a low-profile wall-mount cabinet along with other infrastructure such as a PoE switch for the EkkoHubs, and a PoE injector for a modem.

Parameter	Specification
Hardware specification	Processor: Intel® Elkhart Lake SoC Processor, Quad Core, 2M Cache, 1.6GHz (2.0GHz), 12W Memory: 1x SO-DIMM 8GB DDR4-3200MHz
BIOS	Insyde SPI 64bit
Storage	64GB NVMe Data storage backup configurable – default 24 hours
Data Transfer	Typical transfer rate: <25kB per datapoint per day at 10/100 Mbps (~1GB per month for 1,500 datapoints)
Communication protocols	Inbound – Modbus/RTU, Modbus/TCP, SNMP, BACnet Outbound – oBIX
Operating System	Debian 10
I/O	1 x Power button, 1 x Reset button, 1 x Power LED 4 x RJ45 ethernet ports (Intel® i225V 2.5GbE) 1 x RS485 serial port USB ports are disabled
Mechanical	Housed in mild steel wall mount cabinet. Colour: RAL 7032 Pebble Grey Dimensions (mm): 400 (W) x 400 (D) x 200 (H) Weight: 14kg
Environment	Operating Temperature: 0°C to 30°C Operating Humidity: 20 to 60% RH Storage Temperature: -20°C to 70°C Storage Humidity: 20 to 60% RH
Power Input	Single IEC 60320 C13 cable mount socket is required to supply power to all devices. Power required is 100-240 VAC, 1.5A maximum, 50-60Hz
Regulatory approval	The EkkoLink appliance is CE marked and conforms to the following standards: <ul style="list-style-type: none"> • EMC Directive 2014/30/EU • BS EN 55032:2012 Electromagnetic compatibility of multimedia equipment: Emission requirements. Class A equipment • BS EN 55024:2010 Information technology equipment. Immunity characteristics. Limits and methods of measurement • Low Voltage Directive (LVD) 2014/35/EU • BS EN 60950-1:2006+A2:2013 • RoHS Directive 2011/65/EU • The restriction of the use of certain hazardous substances in electrical and electronic equipment

Specifications are subject to change without notice.



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