

EkkoLink R

Rack-mounted Data Aggregation



Part of the EkkoSense Critical Things® family of monitoring technology, EkkoLink R 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 1U rack-mount server deployment, EkkoLink R 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 R

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

Connectivity

EkkoLink R 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 R 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 R also has two RS485 ports configured for Modbus communication to connect directly to local devices such as power meters to retrieve data for forwarding to EkkoSoft Critical.

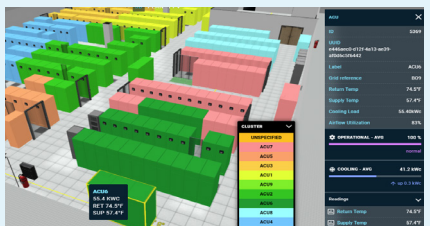
Security

EkkoLink R'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.

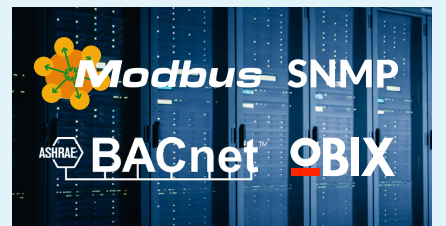
EkkoLink R features...



Secure connection using AWS
EkkoLink R provides a secure connection to EkkoSoft Critical in the EkkoSense Cloud through AWS IoT Core.



Real-time pre-processing
EkkoLink R gathers and processes real-time data collected from EkkoSensors via EkkoHubs and (optionally) other field devices. This pre-processed data is then available for viewing in the EkkoSense web application, accessible via the cloud only.



Comprehensive integration
Integration with a wide range of existing 3rd party systems for complete data center coverage.

Images show actual software footage



EkkoLink R



Inbound and Outbound Integration

EkkoLink R 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 R 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 R so that on-site SNMPtrap receivers immediately detect alarm conditions from EkkoSense sensors with zero latency

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 R is able to collect Modbus data over TCP via both eth1 (the dedicated EkkoSense network) and eth2 (the client network). The protocol is commonly used for direct power monitoring and systems integration

- **Modbus/TCP Gateway** – Installing a Modbus Gateway lets EkkoLink R connect to multiple devices that have already been connected via serial/485 cable. Deploying a dual port gateway lets EkkoLink R integrate with existing Modbus/RTU networks and enables shared access to devices
- **SNMP** – primarily used for UPS and In-Row PDU monitoring, EkkoLink R connects to any SNMP device using v1, v2c or v3 authentication to enable full EkkoSoft capacity management functionality
- **BACnet** – EkkoLink R enables communication with BACnet devices connected to eth 1 (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 R lets EkkoSoft collect data from the 1m+ Tridium systems utilizing the Niagara framework installed worldwide
- **Trend** – Modbus/TCP connectivity within EkkoLink R 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 R is implemented as an appliance running Debian 11. The core hardware is a shallow-depth (184mm) 1U 19" fanless rackmount platform.

The EkkoLink R appliance can be installed in client racks, or in a dedicated EkkoSense CM low profile wall-mount rack along with other infrastructure such as a PoE switch for the EkkoHubs.

Hardware specification

Processor: Intel® ATOM™ x7-3950 Processor, Quad Core, 2M Cache, 1.6GHz (2.0GHz), 12W Memory: Dual SO-DIMM DDR3L 8GB Display VGA and DP++

BIOS

Insyde SPI 64bit

Storage

1 x 2.5" SSD
Data storage backup configurable – default 24 hours

Operating System

Debian 11

Display

Intel® HD Graphics GT Series VGA: up to 2560x1600@60Hz DP++: up to 4096x2160@60Hz

Audio

Realtek ALC262-VC2-GR Line-Out via 3.5mm jack

On-board LAN

Quad RJ45 GbE Intel® I21xAT PCIe (10/100/1000Mbps)

Mechanical

Design: 19" Rackmount Construction: Heavy Duty Aluminium Front panel / Mounting ears black powder coating
Body raw clean finish
Dimensions (WxHxD mm): 429 x 44 x 184

Environment

Operating Temperature: 0°C to 60°C
Operating Humidity: 5 to 90% RH
Storage Temperature: -30°C to 80°C
Storage Humidity: 5 to 90% RH

Power Input

100-240 VAC
1.5A
50-60Hz

Data Transfer

Typical data transfer of 1MB per datapoint per month at 10/100Mbps
(1Gb per month / 1,000 datapoints)

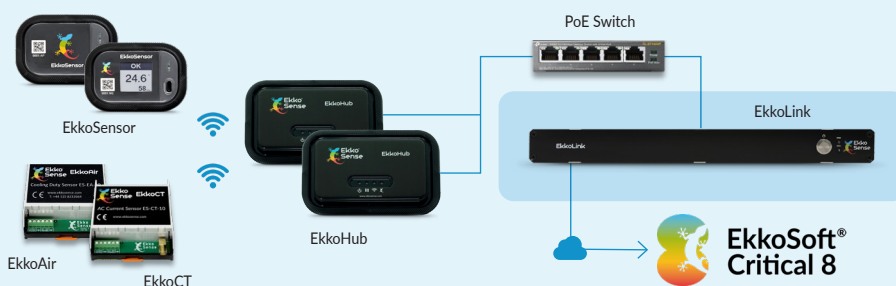
Regulatory approval

EkkoLink is CE marked and conforms to the following standards:

- **EMC Directive 2014/30/EU**
BS EN 55032:2012 Electromagnetic compatibility of multimedia equipment: Emission requirements.
BS EN 55024:2010 Information technology equipment. Immunity characteristics.
- **Low Voltage Directive (LVD) 2014/35/EU**
BS EN 60950-1:2006+A2:2013
- **RoHS Directive 2011/65/EU**

Standard deployment

Position in EkkoLink architecture



Secure 128-bit AES encryption



EkkoLink Mini mode for Edge support



Integration with existing 3rd party systems



Comprehensive integration capabilities for complete data center coverage

Bring the power of EkkoSense AI to your critical facilities

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