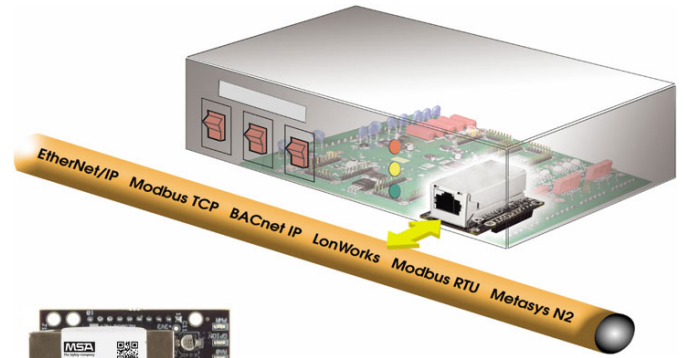# ProtoCessor

Overview

MSA Safety's ProtoCessor embedded gateways provide a TTL to RS-485, Ethernet, and LonWorks connection, enabling a cost-effective interface to Building Management Systems (BMS) and an immediate IoT Cloud interface for OEM products. For the OEM that needs an internal protocol translation solution for their devices, the ProtoCessor is a perfect fit with a minimal hardware footprint of one common TTL (TX/RX-5VDC) on the PCB hardware (2x10 pin ProtoCessor socket).

The ProtoCessor enables OEMs to compete in a broader market by meeting specifications for BMS connectivity. Integrated MSA Grid cloud platform support further enhances the ProtoCessor's value by enabling remote monitoring, control and data visualization. The only protocol gateway with a no-cost cloud interface, the ProtoCessor dramatically improves time to market and remote site support for OEM field devices. However, for OEM devices that do not have a host serial protocol, support for ASCII and binary protocols is also available.

MSA Grid cloud enabled devices change the game for OEMs. Users can view data via a configurable dashboard, download historical data and provide remote monitor/control for any connected device. Additionally, notification functions allow SMS/email for trouble or alarm conditions.

Each embedded gateway is delivered pre-configured for the OEM's specific requirements. No additional programming or mapping is necessary.

EtherNet/IP Modbus TCP BACnet IP LonWorks Modbus RTU Metasys N2

FPC-EO3   Ethernet Translation
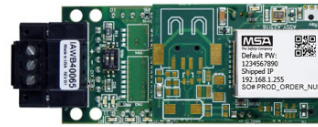
FPC-ED2   RS-485 & Ethernet Translation

FPC-ED4   LonWorks FTT10 & Ethernet Translation

ProtoCessor Features and Benefits

- Short time to market for BMS, industrial protocols and cloud connected devices.
- No configuration files need to be built in the field to support one or multiple of the OEM's devices.
- One ProtoCessor connects multiple Serial and Ethernet devices to field protocol networks (BACnet MS/TP, BACnet/IP, Metasys N2, SNMP, XML over HTTP, EtherNet/IP, DNP 3.0, KNX, M-Bus, LonWorks and many others).
- Supports up to 10,000 device points – determined by the model selected.
- Can support OEM proprietary protocols to building management systems.
- BTL and LonMark certified.
- The optional embedded BACnet Explorer allows reps and OEMs to quickly validate that their product is working on BACnet MS/TP and/or BACnet/IP without needing a BMS Integrator on site.
- On-board diagnostics allow easy troubleshooting for both serial and Ethernet communications.
- **FieldSafe** adds a wealth of security options, including: web configuration page authentication (self-signed certificates), robust user and password management features.

ProtoCessor	Point Count	Certifications
FPC-EO3	1,200	-
FPC-ED2 Level 1	1,500	BTL
FPC-ED2 Level 2	5,000	BTL
FPC-ED2 Level 3	10,000	BTL
FPC-ED4 Level 1	1,500	LonMark
FPC-ED4 Level 2	4,096	LonMark
FPC-ED4 Level 3	N/A	LonMark

Advantages of Using an MSA Safety ProtoCessor

- Penetrate new markets and increase sales: OEMs can easily offer their customers protocol support that to meets their interface specifications, enabling market expansion to new arenas.

- Expanded capabilities with minimal development and in-house protocol support costs: No need to reinvent the wheel, use MSA Safety's years of experience in protocol translation.

- Rapid Time-to-Market: Minimal coding, hardware demands, or changes to current OEM design required. Even less time and cost to add additional protocols!

- Minimal impact to application hardware and software design: Only one socket is needed to embed any ProtoCessor in the OEM's design and it is compatible with 8/16/32 bit Micro-controllers.

- Compliance "built-in": MSA Safety's leadership in protocol translation means full protocol compliance through continuous testing and certification of the protocols via standards governing groups.

- Dramatically reduced NRE: No costly purchase of source code and/or significant engineering time is required. All required source code and hardware is provided.

MSA Grid - FieldServer Manager

- Registering ProtoCessor BMS/IoT Gateways on MSA's tenant based IoT cloud platform, effortlessly connects the OEM's devices to the cloud, allowing secure remote access for diagnostics, monitoring, alarming and configuration of their products in the field.

- MSA Grid - FieldVEU provides enriched data metrics (averages and real-time values displayed in gauges and graphs) enabling collaboration and comparison across multiple sites.

- No annual subscription to connect FieldServers to the FieldServer Manager for 50 data points per minute until 2023.
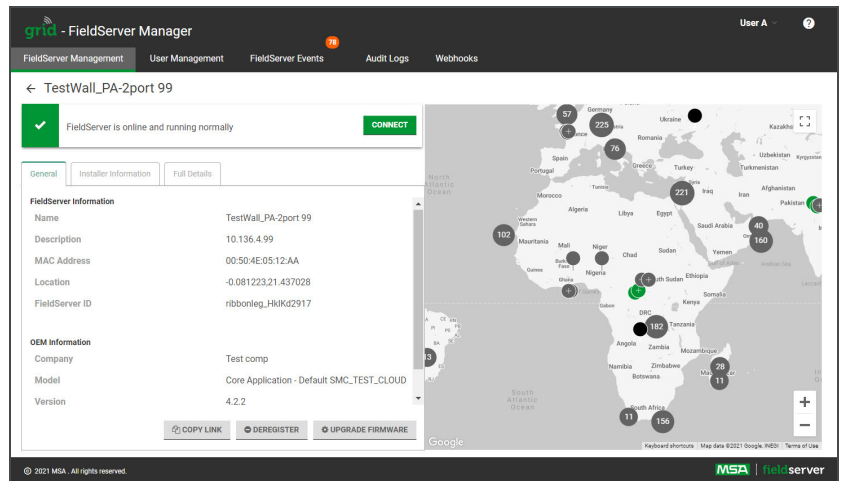
Hardware Specifications

Field Connections
FPC-EO3: Ethernet
FPC-ED2: RS-485 & Ethernet
FPC-ED4: FTT-10 & Ethernet

Host Connections
Standard Serial TTL Interface-TX and RX
Socket on Board: 2 x 10 20-pin
(Header Pins Samtec Part # TLW-110-05-G-S)

Temperature
Ambient: -40°F to 185°F (-40°C to 85°C)
Storage: -40°F to 257°F (-40°C to 125°C)
Humidity: 5 to 90% RH

Power Consumption
FPC-EO3 5VDC +/- 4% @208 mA
FPC-ED2 5VDC +/- 4% @350 mA
FPC-ED4 5VDC +/- 4% @480 mA

Dimensions (LxWxH)
FPC-E03: 1.8 x 1.2 x 0.8 in. (4.6 x 3.0 x 2.0 cm)
FPC-ED2: 2.7 x 1.2 x 0.8 in. (6.9 x 3.0 x 2.0 cm)
FPC-ED4: 3.3 x 1.2 x 0.8 in. (8.5 x 3.0 x 2.0 cm)

Serial Port Isolation
- 1500v galvanic isolation

LonMark Certification on the FPC-ED4
SPID: 80:00:95:46:00:84:04:05
Profiles: 0000 – Node object (1)
0001 – Open Loop Sensor Object (5)
0003 – Open Loop Actuator Object (5)

Weight (Net)
0.10 lbs. (0.04 Kg)

Approvals
CE and FCC part 15
BTL marked ver 16 and LonMark 3.4 certified
UL 916 and CAN/CSA C22.2
DNP 3.0 and Modbus conformance tested
RoHS3 and WEEE compliant
UKCA compliant

Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment, this equipment may cause radio interference

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LonWorks® is a registered trademark of Echelon Corp
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MSA Safety
1991 Tarob Court, Milpitas, California 95035 USA
O. +1 408 262-6611 **TF.** +1 800 727-4377 **E.** SMC-insidesales@msasafety.com
www.MSAsafety.com