SMP IO-2230 platform— Reliable. Scalable. Affordable.

Eaton's SMP IO-2230 is the first platform belonging to the new generation of substation-grade distributed I/O platforms, specially designed to meet modern industry and utility requirements.

This new evolutive I/O platform is fully integrated with the SMP Manager Software and Tools and includes many new features, greatly enhancing user experience.

Eaton relies on the same expertise and high industry standards used to develop our SMP Gateway product line to offer a highly reliable, easy to set up and flexible I/O module, at a very competitive price.

Rugged and reliable platform

The innovative and evolving design of the substation-grade SMP IO-2230 I/O platform leverages Eaton's decades of experience in industrial automation and utility applications.

The SMP IO-2230 platform can be used standalone or integrated seamlessly with the SMP Gateway software and tools applications; communicating with standard DNP3 protocol over serial RS-485 or TCP/IP using copper or fiber Ethernet.

The SMP IO-2230 is a powerful platform operating in a wide temperature range of –40 °C to +85 °C (–40 °F to +185 °F). Also, its power supply and digital inputs are designed to accept a broad voltage range (24–250 Vdc), thus a single model can accommodate most utility requirements.

The SMP IO-2230 distributed I/O platform complies with the latest standards including IEC 61850-3 ed 2.0 (2013) and IEEE® Std 1613 (2009). Numerous cybersecurity features were integrated into this new platform to help users meet their compliance requirements, including NERC CIP.

Eaton's RTU replacement solution is fully compatible with this new SMP IO-2230 platform.

Typical applications

The SMP IO-2230 platform deployed as a standalone unit can be connected directly to a DNP3 master station and used for asset monitoring and control with accurate IRIG-B time stamping. Its Commissioning Tool is accessible with the USB port. The SMP IO-2230 is ready for remote management by Eaton's IED Manager Suite (IMS) and for monitoring, alarm management and much more when using Eaton's Visual T&D application.

Deployed behind an SMP Gateway automation platform, the SMP IO-2230 platform also adds access to the SMP Gateway advanced logic and HMI's numerous functions like the status dashboard, name plate information, real-time data and Commissioning Tool, for an enhanced device setup.

Easy setup and integration

This new SMP IO-2230 platform is fully integrated with the SMP Gateway automation platform software and tools for device configuration and maintenance. The powerful SMP Manager application tools allow for seamless, fast and easy device integration into the system.

The template-driven configuration tool, SMP Config, allows for data points mapping and multi-protocol instances. The maintenance and debugging tools: SMP Stats, SMP Trace and SMP Logs are also available when the I/O module operates as a standalone device.

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SMP IO-2230 platform—rear view

Standalone SMP IO-2230 platform—I/O commissioning web interface

SMP IO-2230 platform main features

- 2U form factor, no moving parts
- Individual LED for each I/O
- Universal power supply (wide input AC/DC voltage range)
- Clock synchronization via IRIG-B input (demodulated), NTP or protocols
- One USB 2.0 maintenance port (Type B)
- Two programmable output relays
- Two 10/100BASE-T/TX Ethernet ports for daisy chain connections (optional optical LC ports)
- Linux® operating system
- SMP Software and Tools support (SMP Stats, SMP Trace and SMP Logs)
- Configuration with SMP Config: multi instances, configurable point mapping
- Remote management (firmware upgrade, setting changes, license update)
- Integrated self-diagnostics and watchdog timer
- Micro-PLC for programmable logic
- System alarms
- Secured remote maintenance (SMP Gateway and IMS passthrough)

Supported protocols and connections

- DNP3: Serial, TCP/IP
- DNP3 event queue (up to 1000 events/slave)
- Up to 5 upstream connections

Security features

- Integrated Ethernet firewall
- AES-128/256 encryption
- Account and access management
- All system components digitally signed
- Settings integrity validation
- Integrity validation
- Secure remote management capabilities
- Secure USB maintenance port and command shell
- Ability to disable any unused port
- Factory reset in case of admin password loss
- IEEE 1686-2013 compliant
- Integrated Ethernet firewall

Flexible I/O configuration

Flexible input and output configurations can be arranged together in blocks of 16 I/Os, up to a full populated device with 64 I/Os, thus adaptable to your evolving needs.

I/O row	I/O blocks	Possible I/O configuration
4 (top)	[49,56] and [57,64]	16 BI
3	[33,40] and [41,48]	16 BO (relays)
2	[17,24] and [25,32]	16 HBO
1 (bottom)	[1,8] and [9,16]	8 BI and 8 HAI

I/O features

Analog inputs (high isolation, HAI)

- User calibration at fixed ambient temperature
- High/low warning support
- Deadband, scaling and units

Binary inputs

- Deadband, scaling and units
- AC and DC inputs
- Tolerance/Intolerance filtering
- Chatter protection
- Fail safe circuit (active level in normal state)
- Binary points software polarity reversal
- Timetag at the beginning or end of filtering (setting)
- Persisted counters (total transitions, up/down direction), with deadband, scaling and roll over detection
- Freeze, clear, freeze and clear counters support

Binary outputs (BO and fast speed and high-current interrupting output, HBO)

- Output protection against single component failure
- Trip/close pair, latch, pulse, pulse pair support
- Persisted operation counter/operation time
- Binary points software polarity reversal
- Control queuing allowing up to 10 parallel requests, sequentially processed when the same point is targetted

Coming soon

- Protocols: IEC 61850, GOOSE, Modbus®
- Advanced Ethernet Module supporting PRP/HSR for network management and PTP for clock synchronization
- SNMP for statistics
- Syslog support

For Eaton product information, visit **Eaton.com**

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