SMP DA-3050 new product and roadmap discussions

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SMP Gateway Family

SMP SG-4260

SMP 4/DP

SMP DA-3050

SMP SG-4260

- Integrated HMI
- PTP/PRP/HSR
- GPS Master Clock
- IRIG-B Time Sync
- Codesys SoftPLC
- 128 Client / 20,000 Tags

SMP DA-3050

- Linux Operating System
- Embedded I/O
- DNP/Modbus Client
- DNP Server
- SNTP Time Synchronisation
- 8 Clients / 5,000 Tags

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SMP IO Family

SMP IO-2230

SMP IO-2330

SMP IO-2230

- Linux Operating System
- 64 I/O fully configurable
- DI/DO/AI
- Web HMI Commissioning tool
- Firewall
- DNP / 61850 Server

SMP IO-2330

- Linux Operating System
- Direct GE D20 I/O replacement
- ETERM / EDAC can be installed separately
- A/S/K/C1 model available
- DNP / 61850 Server

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SMP DA-3050 automation platform

Compact, powerful, rugged and reliable automation platform for secure data acquisition and management

- Feeds ADMS/SCADA applications with quality data to increase grid edge situational awareness
- Facilitates DER integration with local automation at the edge
- Vendor agnostic—interoperable platform for easy IED integration
- Robust platform for harsh environments, from substations to distribution pole-top cabinets
- Cybersecure platform for improved grid resiliency

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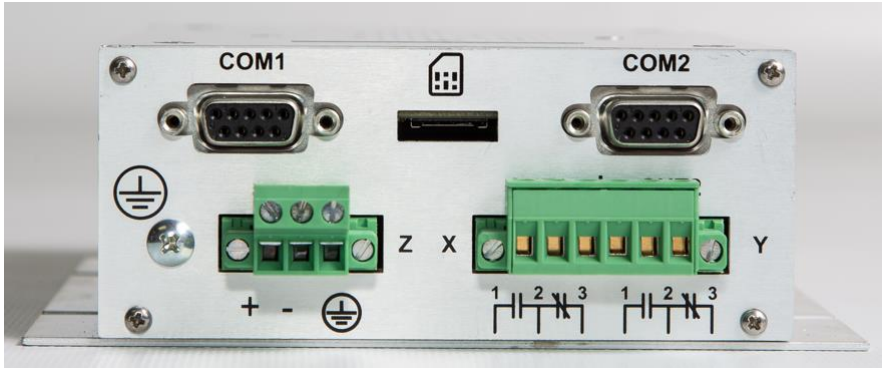
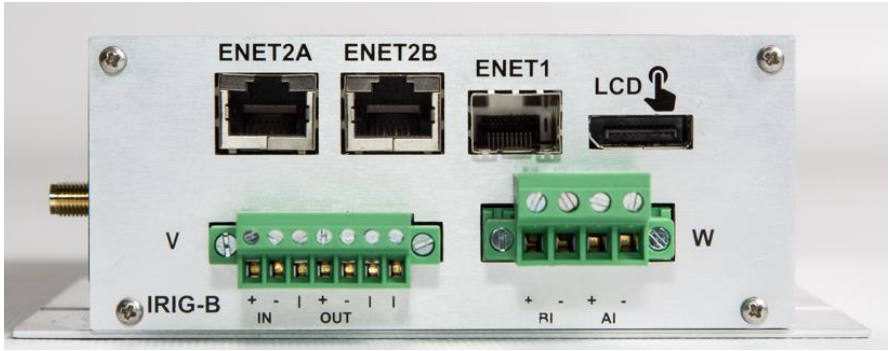
Use cases

- **Grid Edge Automation**
  - Increase situational awareness on grid edge devices
  - Implement wide-area protection scheme (Direct Transfer Trip)
  - Improve reliability and power quality
- **Distributed Energy Resources (DERs) Integration**
  - Increase DER visibility (monitoring)
  - Control/Dispatch DER
  - Optimize DER utilization at the edge (decentralized decision-making)
  - Meet regulatory compliance requirements
- **Modernization of legacy equipment**
  - Motorized Switch/Disconnect (MOD/MOS) modernization
  - Generation Dam monitoring and Control
  - Replace legacy RTU/PLC (Schneider ScadaPack/ GE iBox)
  - Security Gateway for Distribution IED
  - Create IEC61850 interface for legacy equipment
- **Asset Monitoring**
  - Asset Monitoring (e.g., transformer) / Condition-based maintenance

HW Features SMP DA-3050

- SMP 4/DP replacement
- 1 SFP for network connectivity + 2 fix Ethernet (RJ45)
- Built-in BI/BO/AI
- Video port for HMI display(v2)
- Integrated Cell Modem (v2)





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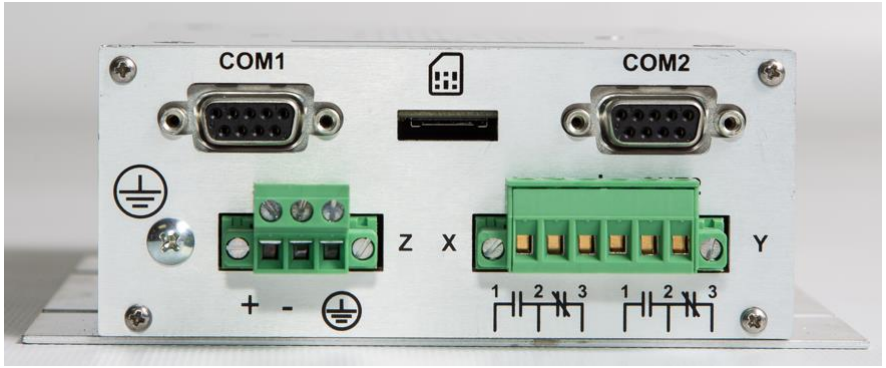
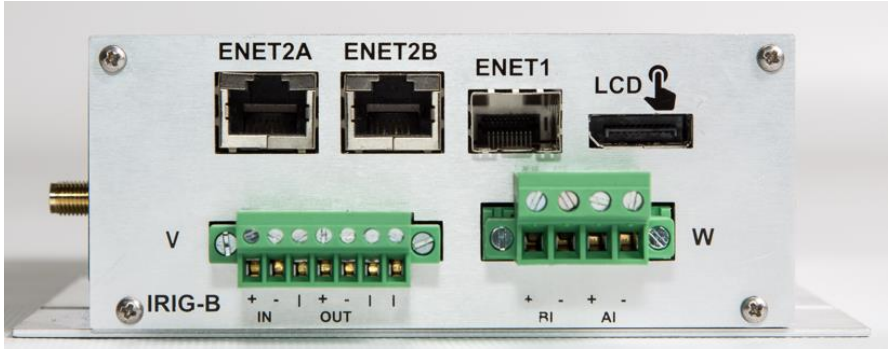
HW Features SMP DA-3050 (Sides)

- 2x Serial ports (RS-232/RS-485)
- Sim cards (Cell modem) (*)
- Power supply (24-48 VDC)
- BO (125 VDC / 8A)



- 2x Switch Ethernet Ports (100Mbits)
- SFP (100/1000 Mbits)
- HMI (*)
- IRIG-B IN/OUT (*)
- BI/AI (48 VDC)



* Not supported in version 1.0

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HW Features – Secure boot

- This process makes sure the unit only boots code that has been signed
- Internal e-fuse burned to secure the device in production:
  - The process is irreversible
  - Debug interface disabled in application
  - I,MX8 JTAG interface changes to “Secure JTAG mode”

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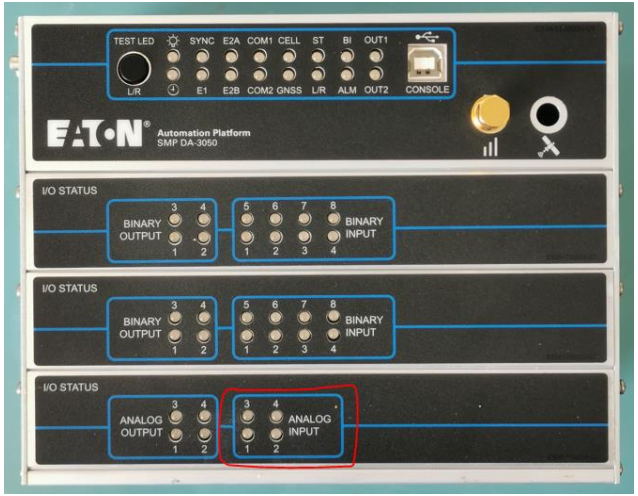
HW Features – Expansion AI (30x2 variant)

- Software-configurable mode
  - ±10V -> ±12V
  - ±1mA (Burden resistor 10kOhm 0.01%)
  - ±2mA (Burden resistor 5kOhm 0.01%)
  - ±20mA (Burden resistor 500R 0.01%)
  - All mode are 120% overrange capable
- Input impedance 12Meg
- Scan rate 5Hz (200ms)
  - Designed for slow-variation DC signal
- No need for external resistors in current mode



- Use-case:
  - Digitize slow-variation DC signals from sensors in closed-loop process controls

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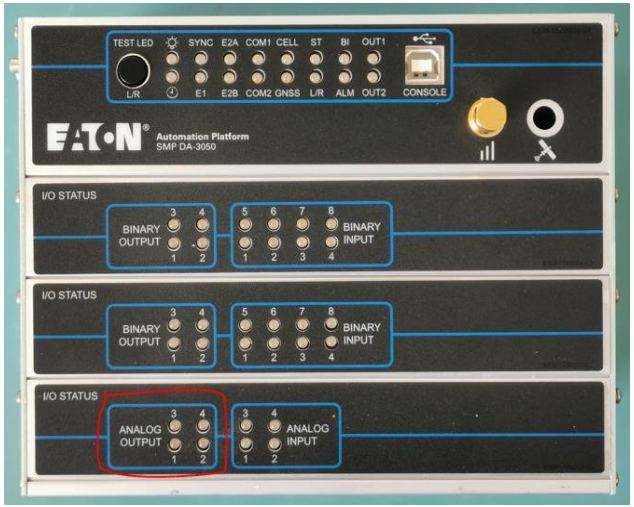
HW Features – Expansion AO (30x2 variant)

- Software-configurable mode:
  - ±10V – 115% overrange capable
    - Capacitive load <=100nF
    - Resistive load > 2kOhm
  - ±20mA – 105% overrange capable
    - Burden resistance <= 750Ohm
  - High-Z mode for redundancy applications (fail-safe)
- 12 bits resolution, ±0.2% accuracy
- Self-powered output – no need for external loop supply
- <= 500us typical step response



- Use-case:
  - Drive solenoids, valves and other analog actuators in closed-loop process controls

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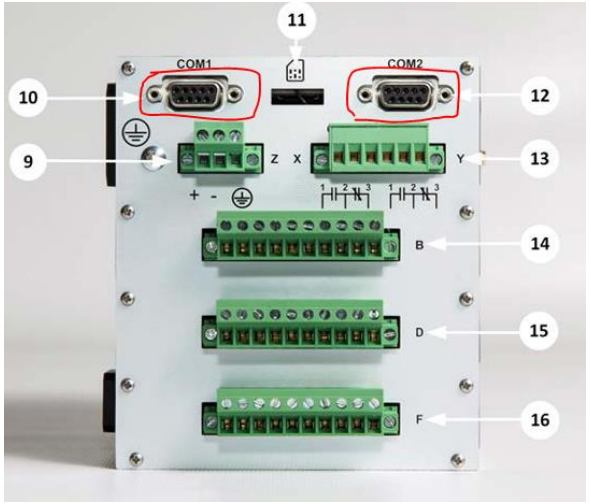
HW Features – Serial ports (232 – 485 - IRIG-B OUT)

- Dual serial port (COM1 – COM2) supports 3x software-configurable operating modes:
  - RS-232, 115200bps
  - RS-485, 115200bps
  - IRIG-B Output distribution
- RS-232
  - Full modem handshake
- RS-485*
  - Includes fail-safe idle biasing
  - Drives up to 320 unit loads
- IRIG-B Output*
- * : Not supported in 1.1R1 yet.



- Use-case:
  - Connect legacy modem / equipment through RS-232
  - Distribute IRIG-B time to other devices in the substation / cabinet

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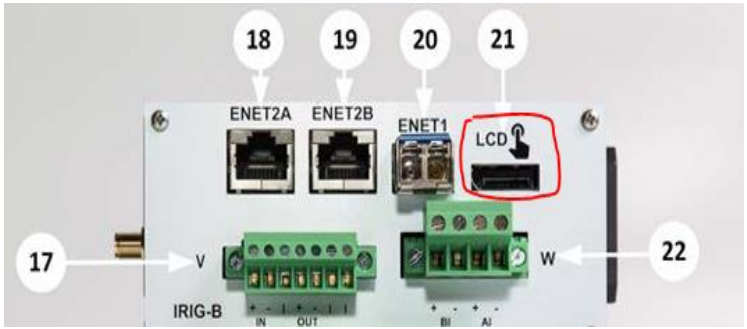
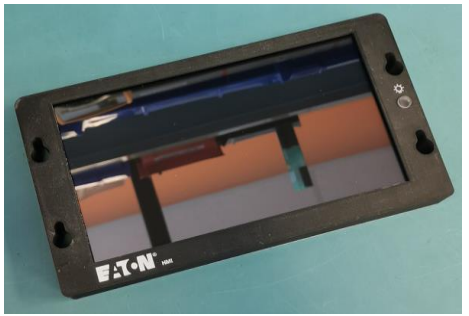
HW Features – HMI (Unreleased yet)

- DisplayPort connector (single cable)
  - Not compatible with COTS DisplayPort screen / devices
  - Non-destructive and fail-safe for both the SMP as well as the 3rd party device
- 7” 1024x600 high brightness LCD
  - Up to 10x simultaneous touch points
  - Projected capacitive touch technology
  - Industrial-grade touch panel, works with thin gloves (medical latex for example)
- Software-controlled backlight
- Display cable up to 3m
- Power-good LED



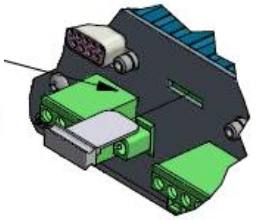
Prototype



Production sample

HW Features – Cellular modem (Unreleased yet)

- Telit ME910G1-WW
  - Worldwide coverage
- LTE CAT-M1 / NB IoT bands
  - For low-bandwidth, low-power, low throughput applications
- SIM card accessible from device enclosure, field exchangeable
  - 3FF size
- LED indicator
  - The behavior of this LED in operation is to be defined
- Firmware update OTA



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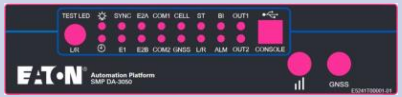
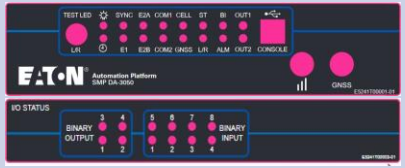
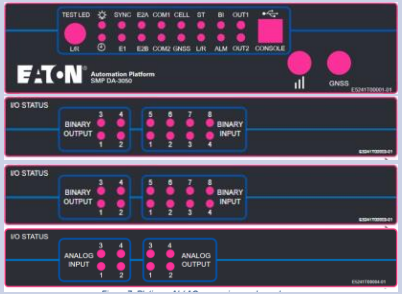
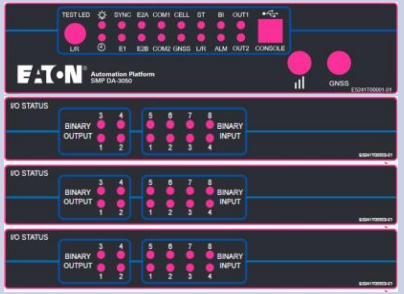
Hardware Options DA-3050

Standalone unit SMP DA-3050	DA Cabinet SMP DA-3051	Full I/O SMP DA-3052	DA Cabinet – Ex SMP DA-3053
			
• 1 BI / 2 BO / 1 AI	• 1 BI / 2 BO / 1 AI • **+8 BI / 4 BO**	• 1 BI / 2 BO / 1 AI • **+8 BI / 4 BO** • **+8 BI / 4 BO** • **+4 AI / 4 AO**	• 1 BI / 2 BO / 1 AI • **+8 BI / 4 BO** • **+8 BI / 4 BO** • **+8 BI / 4 BO**

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Main differences with SMP 4/DP

	SMP 4/DP	SMP DA-3050 v1.1
Power Supply	10-36 Vdc 19-75 Vdc 85-264 Vac/110-370 Vdc	24-48 Vdc
Serial Ports	COM1 RS-232/RS-485 COM2-4 RS-232	COM1-2 RS-232/RS-485
OS	Windows CE 6	Linux
Max Capacity	10,000 points 32 Clients	20,000 points 64 Clients
Protocols	Multiple protocols support	Client : DNP/Modbus/GOOSE Server : DNP/IEC-104/GOOSE
Time Sync	SNTP, IRIG-B In, Protocol	SNTP Client, Protocol

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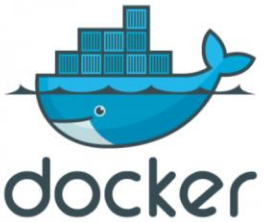
DA-3050 - Platform

- Linux YOCTO Build
- Containerized application
- Open platform with programmable interface to customize application (C#,C++, Python,..)



What is a container application ?

- Lightweight application that package all necessary library and files to execute the application
- It does not contain the OS which make it very small and easy to deploy
- Python is probably the best language and more open to use with this new way of creating app in SMP Platform
- REST API on SMP Platform is getting richer and we continue to develop it

Application example for SMP DA-3050

- Email Notification
- SNMP Client
- New Web Server UI
- Load management system
- Automatic Transfer Switch
- Ideas.. ?

Container app : what's the process ?

- Eaton will publish a container sample with examples using python and interacting with the DA-3050 REST API
- First release only Eaton employee will be able to develop app and sign application
- Second release we plan to provide a way to our customer to develop and sign their application.

Deployment process :

- Eaton/Customer do the development based on sample
- Eaton/Customer test and package the final app container
- Eaton to provide an interface to deploy the app on the device
  - SMP Config, Web Server, SMP Manager
- Container will have interface to publish to Logs/Stats/Trace for debugging
- All information about container (version, errors, stats) will be available in the SMP Tools

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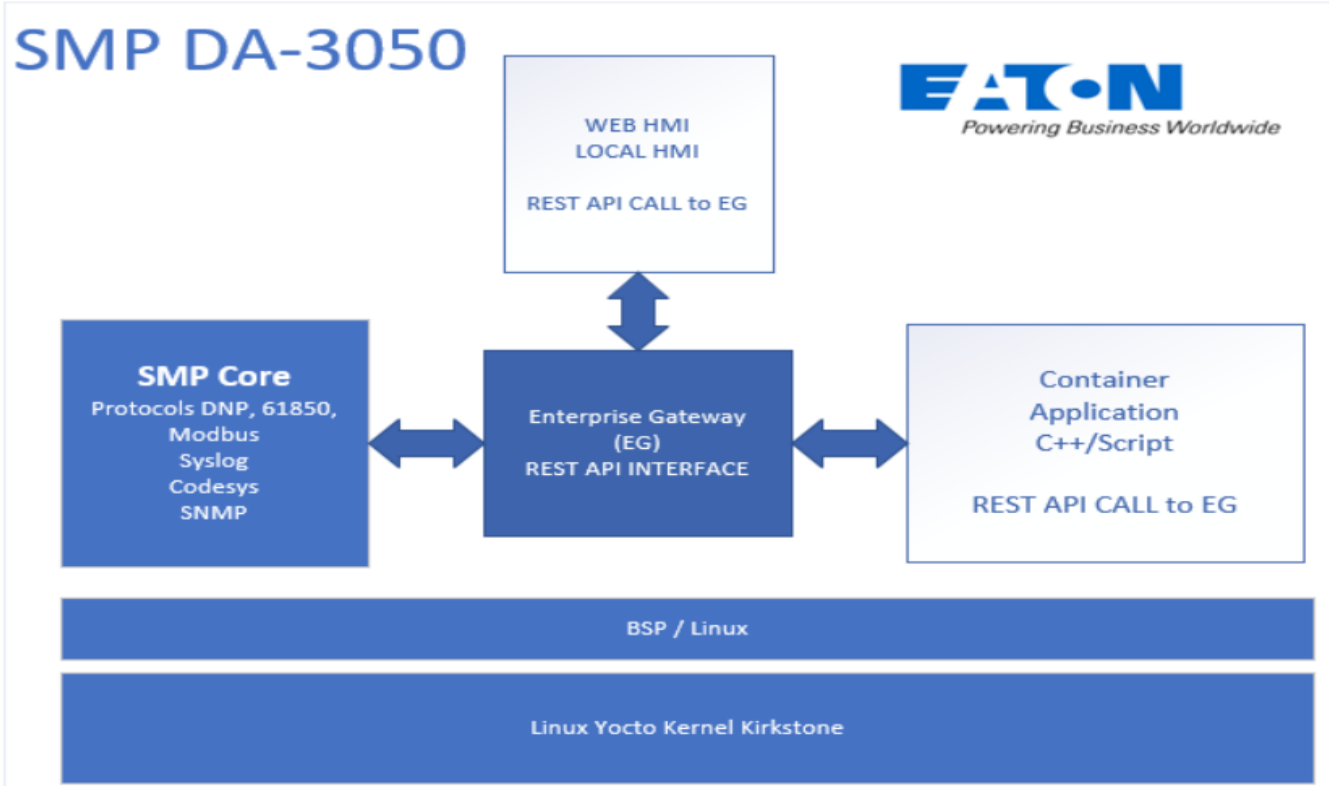
Architecture

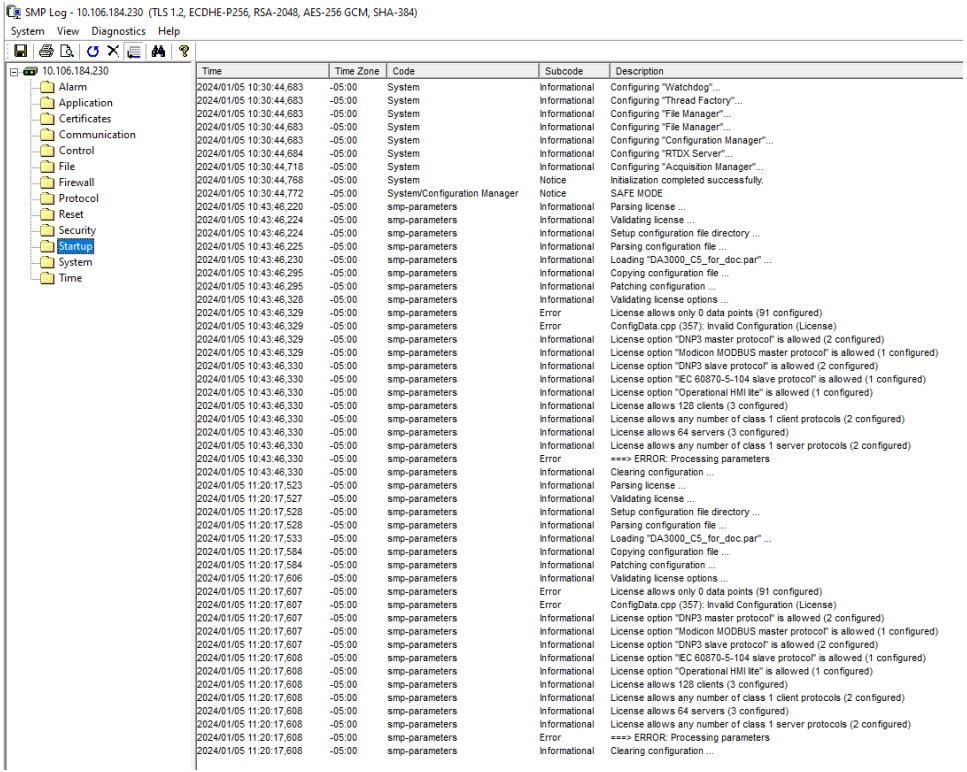


SMP Manager

- Requires SMP Manager version 8.3P2 to work with SMP DA-3050 1.XR1

SMP Logs

- Alarm
- Application
- Certificates
- Communication
- Control
- File
- Firewall
- Protocol
- Reset
- Security
- Startup
- System
- Time



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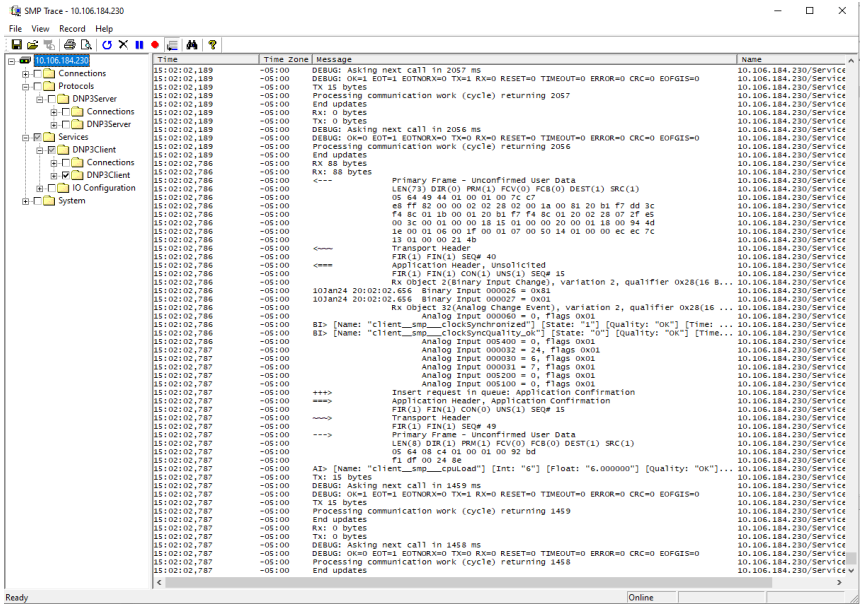
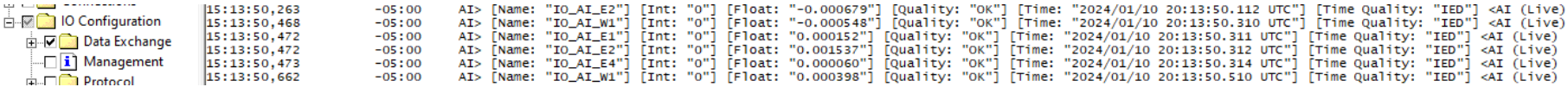
SMP Trace

Traces are different from what we had in 4260/4DP, the tree structure on the left is different.

- Clients are under Services
- Server are under Protocols
- Connections are duplicated: under connections(top) at the top and under each instance.



IO Configuration : Good way to see all hardwire I/O update and time

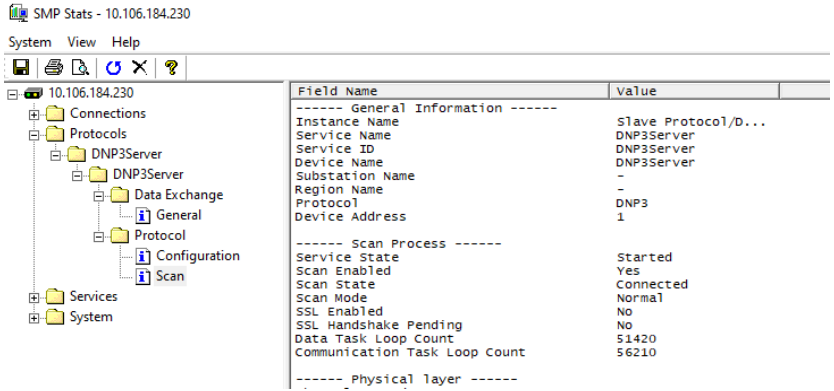


SMP Stats

Stats are different from what we had in 4260/4DP, the tree structure on the left is different.

- Clients are under Services
- Server are under Protocols

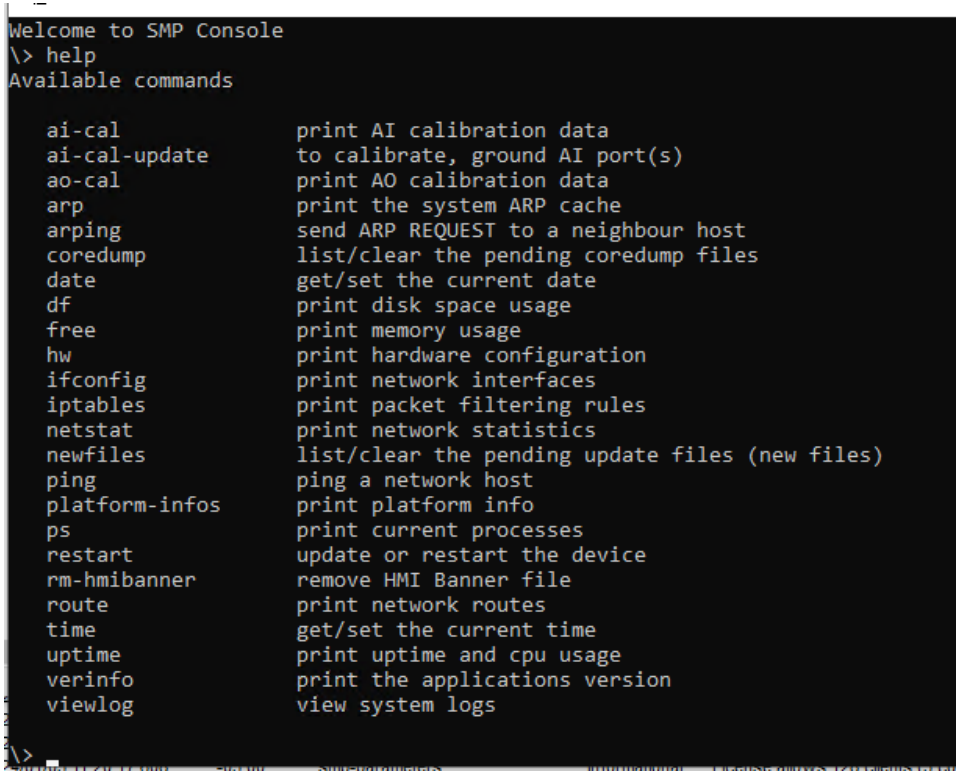
Interesting information for Client and Server are under sub folder Protocol (Configuration and Scan)



SMP Console

commands are pre-defined and pre-configured

Help command will display all available commands



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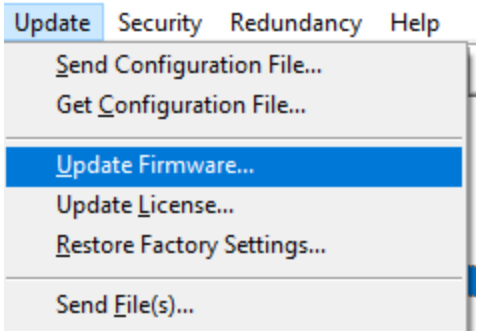
Firmware Update

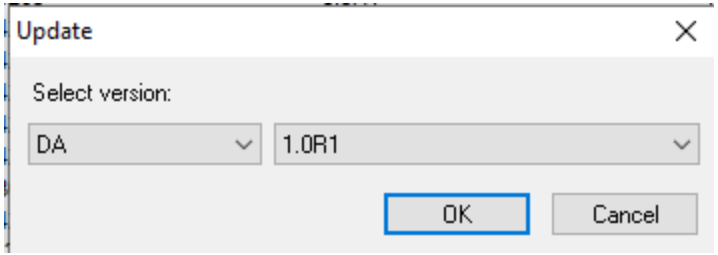
Firmware update is made through the Update Menu

Only 1 file to send on device (.smp)

SMP DA-3050 will automatically update or try to convert the .par file to work with the new firmware.

No need to upgrade .par file during firmware update.





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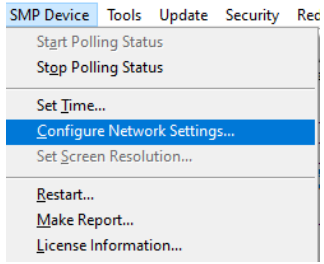
Factory Reset

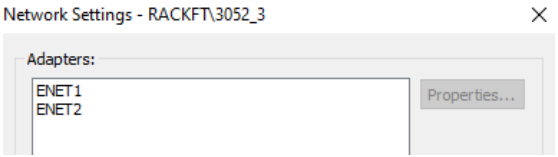
- Factory reset mechanism is the same as all SMP device
- Requires a USB connection
- Will delete all information (.par) and Ethernet address

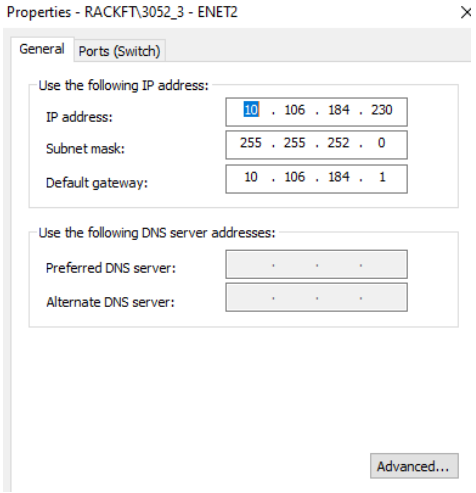
Licenses

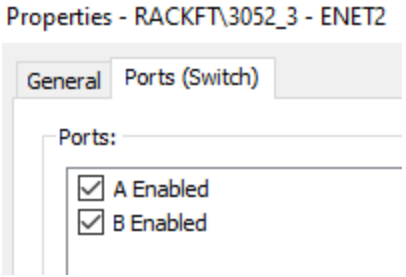
- Default License
  - 5000 points (up to 20,000 points)
  - 8 IEDs (up to 64 IEDs)
  - 1 Server (up to 16 Servers)
- All Class 1 protocol are now included (1.1R1)
  - DNP C/S
  - Modbus C
  - IEC-104 S
  - GOOSE
- User pay for additional Devices and Points and Options (HMI, CODESYS, etc)

Set IP Address









For more information :

See user manual in section

7.3. Network adapter configuration

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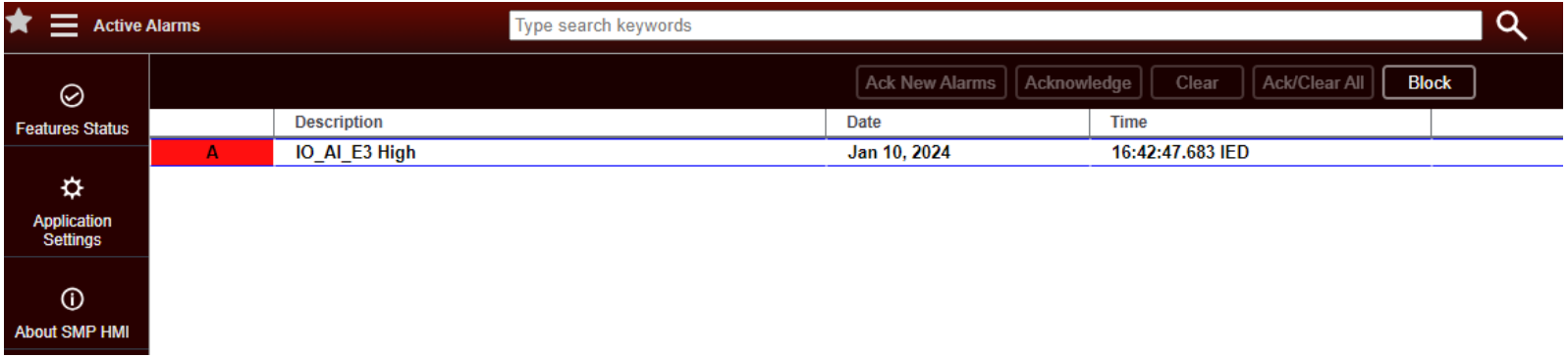
Automation Functions 1.1R1

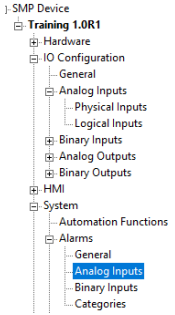
- All functions from the previous implementation are all present in version 1.1R1.

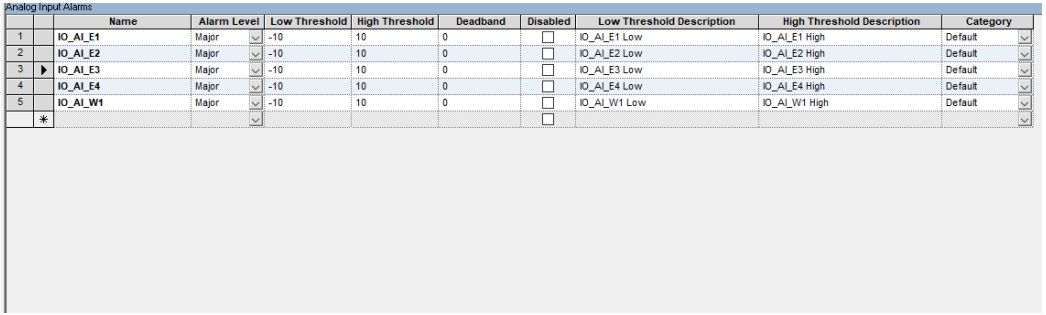
Time Synchronization options

- Protocol synchronization
  - Client can set time on device through DNP
  - Server DNP/104 can receive time synchronization from SCADA
- SNTP Client
  - DA-3050 can receive synchronization from SNTP Server

Alarm History







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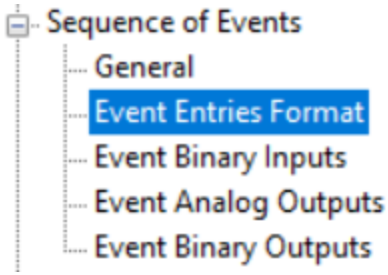
SOE (Sequence of Events)

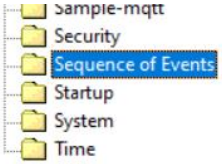


Event Entries Format

		Point Type	Format
1	▶	Event Binary Inputs	[LABEL] | Event: [POINTNAME] updated to [STATE] ([QUALITY])
2		Event Analog Outputs	[LABEL] | [CONTROL]: Set [POINTNAME] to [CONTROLVALUE], Result: [CONTROLRESULT]
3		Event Binary Outputs	[LABEL] | [CONTROL]: [CONTROLTYPE] on [POINTNAME], Result: [CONTROLRESULT]

Allowed Keywords

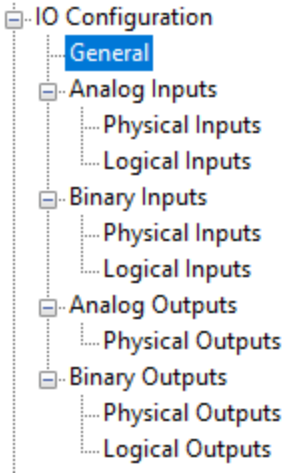
		Keyword	Description
1	▶	*[LABEL]*	*Label of the point that triggered the event*
2		*[POINTDESC]*	*Description of the point that triggered the event*
3		*[POINTNAME]*	*Name of the point that triggered the event*
4		*[QUALITY]*	*Quality of the point that triggered the event*
5		*[STATE]*	*State of the point that triggered the event*



2024/03/20 13:47:12,533	-04:00	Protocols/Sequence of Event...	Notice	2024-03-20 17:47:12.531 +0000* : Quality | Event: IO_BI_A4 updated to 0 Off (Suspect)
2024/03/20 13:47:18,267	-04:00	Protocols/Sequence of Event...	Notice	SYSTEM STARTED at 2024/03/20 17:47:18.267 UTC (Please refer to Reset log for details)
2024/03/20 13:47:18,277	-04:00	Protocols/Sequence of Event...	Notice	2024-03-20 17:47:18.271 +0000* IED : Quality | Event: IO_BI_A4 updated to 0 Off (Good)
2024/03/20 14:32:10,541	-04:00	Protocols/Sequence of Event...	Notice	SYSTEM STARTED at 2024/03/20 18:32:10.541 UTC (Please refer to Reset log for details)
2024/03/20 14:32:10,551	-04:00	Protocols/Sequence of Event...	Notice	2024-03-20 18:32:10.544 +0000* IED : Quality | Event: IO_BI_A4 updated to 0 Off (Good)
2024/03/20 16:17:10,376	-04:00	Protocols/Sequence of Event...	Notice	SYSTEM STARTED at 2024/03/20 20:17:10.376 UTC (Please refer to Reset log for details)
2024/03/20 16:17:10,386	-04:00	Protocols/Sequence of Event...	Notice	2024-03-20 20:17:10.379 +0000* IED : Quality | Event: IO_BI_A4 updated to 0 Off (Good)
2024/03/20 16:41:20,892	-04:00	Protocols/Sequence of Event...	Notice	SYSTEM STARTED at 2024/03/20 20:41:20.892 UTC (Please refer to Reset log for details)
2024/03/20 16:41:20,902	-04:00	Protocols/Sequence of Event...	Notice	2024-03-20 20:41:20.894 +0000* IED : Quality | Event: IO_BI_A4 updated to 0 Off (Good)
2024/03/20 17:03:33,402	-04:00	Protocols/Sequence of Event...	Notice	SYSTEM STARTED at 2024/03/20 21:03:33.402 UTC (Please refer to Reset log for details)
2024/03/20 17:03:33,412	-04:00	Protocols/Sequence of Event...	Notice	2024-03-20 21:03:33.405 +0000* IED : Quality | Event: IO_BI_A4 updated to 0 Off (Good)
2024/04/02 16:51:47,489	-04:00	Protocols/Sequence of Event...	Notice	SYSTEM STARTED at 2024/04/02 20:51:47.489 UTC (Please refer to Reset log for details)
2024/04/02 16:51:47,499	-04:00	Protocols/Sequence of Event...	Notice	2024-04-02 20:51:47.491 +0000* IED : Quality | Event: IO_BI_A4 updated to 0 Off (Good)

IO Configuration

This section is used to configure physical I/O parameter: like voltage input and control type. Setting and understanding those parameters is necessary to obtain the right value from an external hardwired connection.



Physical Inputs

	Name	Disabled	Transducer Type	Resistor Value	Low Input Value	Engineering Value at Low	High Input Value	Engineering Value at High	Units
1	AI_W1		48V Onboard	0	-48	-48	48	48	Volt
2	AI_E1		10V	0	-10	-10	10	10	Volt
3	AI_E2		10V	0	-10	-10	10	10	Volt
4	AI_E3		10V	0	-10	-10	10	10	Volt
5	AI_E4		10V	0	-10	-10	10	10	Volt

Physical Inputs

	Name	Disabled	Voltage Level	Voltage Type	Tolerance Filter	Intolerance Filter	Filter Time Tagging
1	BI_W1		Low Voltage Input	DC	4	4	Start of Tolerance
2	BI_A1		High Voltage Input	DC	4	4	Start of Tolerance
3	BI_A2		High Voltage Input	DC	4	4	Start of Tolerance
4	BI_A3		High Voltage Input	DC	4	4	Start of Tolerance

Physical Outputs

	Name	Disabled	Transducer Type	Output Control	Engineering Value at Low	Engineering Value at High
1	AO_F1		Off	Raw	-10	10
2	AO_F2		Off	Raw	-10	10
3	AO_F3		Off	Raw	-10	10
4	AO_F4		Off	Raw	-10	10

Physical Outputs

	Name	Disabled	Control Type	Protocol Duration Allowed	Duration Time
1	BO_OUT1		Local/Remote		500
2	BO_OUT2		Local/Remote		500
3	BO_B1		Trip/Close pair (Trip)		500
4	BO_B2		Trip/Close pair (Close)		500
5	BO_B3		Trip/Close pair (Trip)		500
6	BO_B4		Trip/Close pair (Close)		500
7	BO_D1		Trip/Close pair (Trip)		500
8	BO_D2		Trip/Close pair (Close)		500
9	BO_D3		Trip/Close pair (Trip)		500
10	BO_D4		Trip/Close pair (Close)		500

For more information :
See user manual in section
8.3 Application - Inputs/Outputs configuration

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REST API

REST API Addition with Recent development

- Alarm History (4260 and 3050)
- Security Certificates (4260)
- System Factory Reset (3050)
- System Time (3050)

Documentation

- Documentation Online
- Product Landing page
  - Distribution controller | I/O | edge | HMI | Eaton
- Catalog (Datasheet)
  - SMP DA-3050 automation platform catalog (eaton.com)
- Brochure
  - A scalable compact grid edge automation platform (eaton.com)

Software Roadmap Schedule

Phase	Target	Protocols	Options
1.0RX 1.1RX	March 2024	Client: DNP/Modbus/104/GOOSE Server: DNP/104/Interconnect/GOOSE	• Automation Function • Web Server/Commissioning Tool • Syslog • SNTP Client • SOE/Alarms
1.XRX 2.XRX	2024-2025	• **61850 Client(1)** / 103(7) / OPC UA / SEL Events • Client Multidrop support • Server : DNP Secure / OPC UA / 61850 Server(12) / MODBUS(8)	• Passthrough (2) • SNMP • Containers support(11) • Cell Modem support(4) • IRIG-B Support(6) • SoftPLC Codesys (9) • Web HMI Support (3) • Local HMI Support(5) • .par file upgrade (10)

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Hardware Roadmap Schedule

Phase	Target	Power Supply	Expansion
1.XRX	2025	• 12 VDC option • 125 VDC option	• 2-4 additional RS-232/RS-485 port • +5V on Pin 1 for Serial converter 

SMP SG-4260 and 4/DP 8.2R5

- 8.2R5 Maintenance (June 2024) **Highlights**
  - Support of new Ethernet Controller
  - WebHMI new certificates requirement from Chromium (Edge and Chrome)
  - Fix a problem in 8.2R4 when generating Gateway Report, sometimes empty or error
  - Subscribe to more than once to the same point in SoftPLC
  - Fix “again” the Screensaver issue with LocalHMI

SMP SG-4260 Maintenance

- SMP SG-4260 Congatec CPU A4 with specific serial number (< 9000650)
  - Risk of failure due to intel malfunction, need upgrade.
- Compact Flash with version < 8.2R1
  - Risk of failure due to excessive writing
  - SMP Gateway flash memory writing, a guide to good practiceMN912197EN-v4.pdf
- Web HMI access with Microsoft Edge and Google Chrome
  - HMI access with Edge and Chrome applications-MN912215EN-v6.pdf


Technical Note MN912215EN, version 6

Problem with HMI access when using Edge or Chrome

Recently, when trying to access the SMP Devices' HMI, you get the following error using Microsoft Edge or Chrome: (ERR_SSL_KEY_USAGE_INCOMPATIBLE. This problem affects all SMP Devices; a fix will be provided on upcoming firmware releases for Linux-based SMP Products and in the version 6.2R5 and later for the Windows-based SMP automation platforms (SMP SG-4Cxx and SMP 4/DP automation platforms). Meanwhile, workarounds are available for the different web browsers; they are described in the first section of this document.

Another connection problem with the SMP Devices' HMI arose in April 2024 when using Microsoft Edge or Chrome, only for Windows-based SMP automation platforms (SMP SG-4Cxx and SMP 4/DP automation platforms): The connection for this site is not secure *IP address> sent an invalid response (ERR_SSL_PROTOCOL_ERROR). A fix will be available the version 6.2R5 and later. Meanwhile, a workaround is available for the different web browsers; it is described in the second section of this document.

This technical note provides detailed procedures on how bypass those situations to be able to access the SMP Devices' HMI.

SMP Gateway Lifecycle

SMP Gateway - Life Cycle and compatibilities — *Last Update: June 2023*

Versions	Release Date (SR)	End of Support (EoSS)	End of Cyber-Security Watch	Last Revision	Windows Server Operating System Supported	Windows Client Operating System Supported	MS SQL Version Supported	Web Browser Supported	JAVA Runtime Required	SMP Gateway supported by SMP Manager	SMP Gateway supported models	SMP I/O Supported
Version 8												
8.2	Jul 2021	Jul 2024	Jul 2029	8.2R4	2019 2016	11 10 x64 b1909	2019 Express LocalDB 2014 Express LocalDB (others)	Chrome Edge	None	Any model: Version 5.2 to 8.2	SG-4260 SG-4250 SMP 4/DP	2.0 & 3.0
8.1	Jul 2020	Jul 2023	Jul 2028	8.1R5	2019 2016 2012 R2	10 8.1	2014 Express LocalDB (others) 2008 R2 Express (2003)	Chrome Edge	None	Any model: Version 5.2 to 8.1	SG-4260 SG-4250 SMP 4/DP	2.0 & 3.0
8.0	Apr 2018	Apr 2023	Apr 2028	8.0R9	2016 2012 R2 2008 R2	10 8.1 7	2014 Express LocalDB (others) 2008 R2 Express (2003)	IE 11 IE 10 IE 9 Chrome	None	Any model: Version 5.0 to 8.0	SG-4260 SG-4250 SMP 4/DP SMP 16/XX-CM SMP 16/XX-PM	2.0 & 3.0
Version 7												
7.2	Apr 2017	Apr 2020	Apr 2025	7.2R6	2012 R2 2008 R2	10 8.1 7	2014 Express LocalDB (others) 2008 R2 Express (2003)	IE 11 IE 10 IE 9 Chrome	None	Any model: Version 5.0 to 7.2	SG-4250 SMP 4/DP SMP 16/XX-CM SMP 16/XX-PM	2.0 & 3.0
7.1	Aug 2015	Aug 2018	Aug 2023	7.1R5	2012 R2 2008 R2 2003 R2	10 8.1 7	2014 Express LocalDB (others) 2008 R2 Express (2003)	IE 11 IE 10 IE 9 Chrome	None	Any model: Version 5.0 to 7.1	SG-4250 SMP 4/DP SMP 16/XX-CM SMP 16/XX-PM	2.0 & 3.0
7.0	Jun 2014	Jun 2017	Jun 2022	7.0R7	2012 R2 (>= 7.0R5) 2008 R2 2003 R2	8.1 (>= 7.0R5) 7	2008 R2 Express (others) 2000 MSDE (2003)	IE 11 IE 10 IE 9	8 (>= 7.0R5) 6 (<7.0R5)	Any model: Version 5.0 to 7.0	SG-4250 SMP 4/DP SMP 16/XX-CM SMP 16/XX-PM	2.0 & 3.0

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SMP Gateway Lifecycle

Last Update: December 2023	SMP SG-4200 Product family		SMP 16 Product family			SMP 4 Product family	
	SMP SG-4260 Intel® Atom E3845 Quad Core 1.91 GHz	SMP SG-4250 Atom D525 1.8 GHz	SMP 16/CP-PM SMP 16/SG-PM Pentium 1.4 GHz	SMP 16/CP-CM SMP 16/SG-CM Celeron 600 MHz	SMP 16/CP SMP 16/SG Geode 266 MHz	SMP 4/DP OMAP35x 600 MHz	SMP 4 Geode 266 MHz
Hardware Release Date (HR)	Oct 2017	Jun 2014	Mar 2007	Feb 2013	May 2005	Mar 2011	May 2005
Not recommended for new design (NRND) Last time buy announcement (LTBA)	Dec 2026	Dec 2017	Jun 2015	Jun 2015	Aug 2010	Jun 2023	Aug 2010
Last time buy (LTB)	Mar 2027	Sep 2019	Mar 2017	Mar 2017	Mar 2011	Dec 2024	Oct 2010
End of delivery (EoD)	Mar 2028	Mar 2020	Jul 2017	Jul 2017	Jul 2011	Jun 2025	Dec 2010
End of hardware support (EoHS)	2038-12-31[2]	2027-12-31[2]	2025-06-30[2]	2025-06-30[2]	Mar 2020	2030-06-30[2]	Dec 2020
Last supported software version	To Be Determined[1]	To Be Determined[1]	8.0	8.0	6.3	To Be Determined[1]	6.3
End of new software features development	Dec 2027	Dec 2027	Apr 2018	Apr 2018	Mar 2013	Dec 2023	Mar 2013
End of software support (EoSS)	Dec 2032	Dec 2032	Apr 2023	Apr 2023	Mar 2018	Dec 2028	Mar 2018
End of cyber-security watch (EoCSW)	Dec 2037	Dec 2037	Apr 2028	Apr 2028	Mar 2023	Dec 2033	Mar 2023

Note 1: To Be Determined means that the life-cycle of this model is not near the end.
Note 2: Or with compatible hardware if not available

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Virtual SMP (vSMP) – What is it ?

What ?

Software Only solution with SMP core functionalities

- TCP IP Protocols
  - 61850 MMS, DNP, Modbus, IEC-104, SEL Events, SEL FM, OPC UA, ICCP
- PTP/SNTP Time Synchro
- SoftPLC CODESYS
- WebHMI (Single Line, Alarms)
- Sequence of Events
- Syslog
- SNMP Client/Server
- FTPS
- RESTAPI

How ?

- Configured with the same suite of SMP Tools using SMP Manager and SMP Config, Trace, Stats

- Can be deployed to :
  - Linux Virtual Machine (.ovf format)
  - Linux(ARM) Containerized application (Docker)
- Software license

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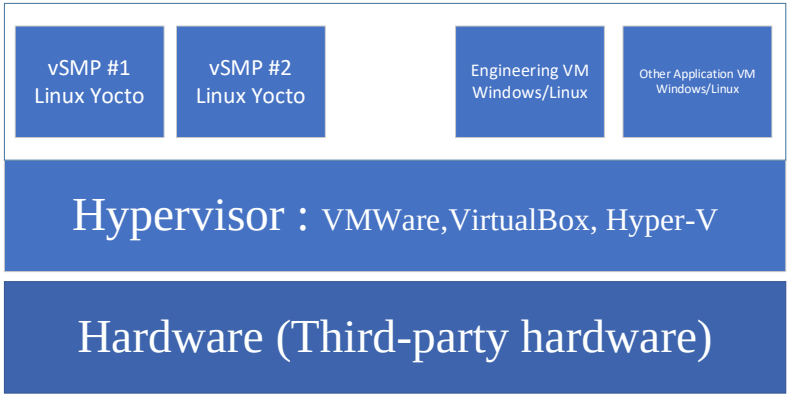
Virtual SMP (vSMP)

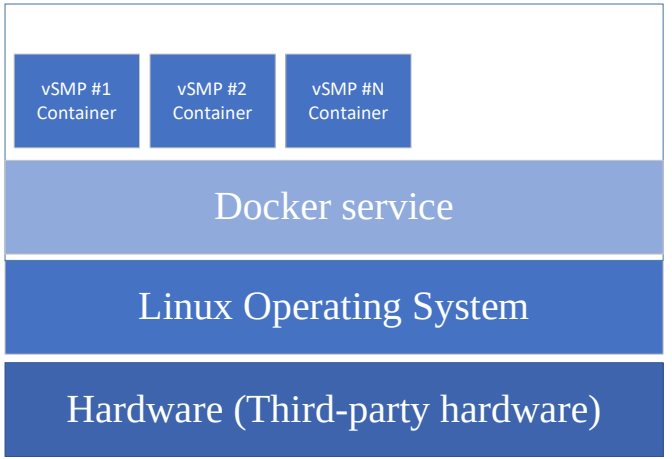
Why
- Detach Hardware/software
- Future proof scalability
- Easily deploy new RTU
- Leverage IT Solutions (Hypervisor)
- Dynamic Reconfiguration (not lose the whole system on reboot)

Use case
- Digitalized substation
- Centralized data acquisition
- Data center integration

Option #1



Option #2



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SMP SG-5000 (Substation Gateway)

Two options	Hardware
Evolution of SG-4260 hardware (new CPU) Linux firmware/application (embedded appliance)	
Virtualization with VMWare (vSMP) Runs on 3rd party hardware platform	

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SMP IO-2230

- 64 input/output (DI, DO, AI)
- DNP3, IEC 61850
- Ethernet, RS-485
- IRIG-B
- SMP Tools

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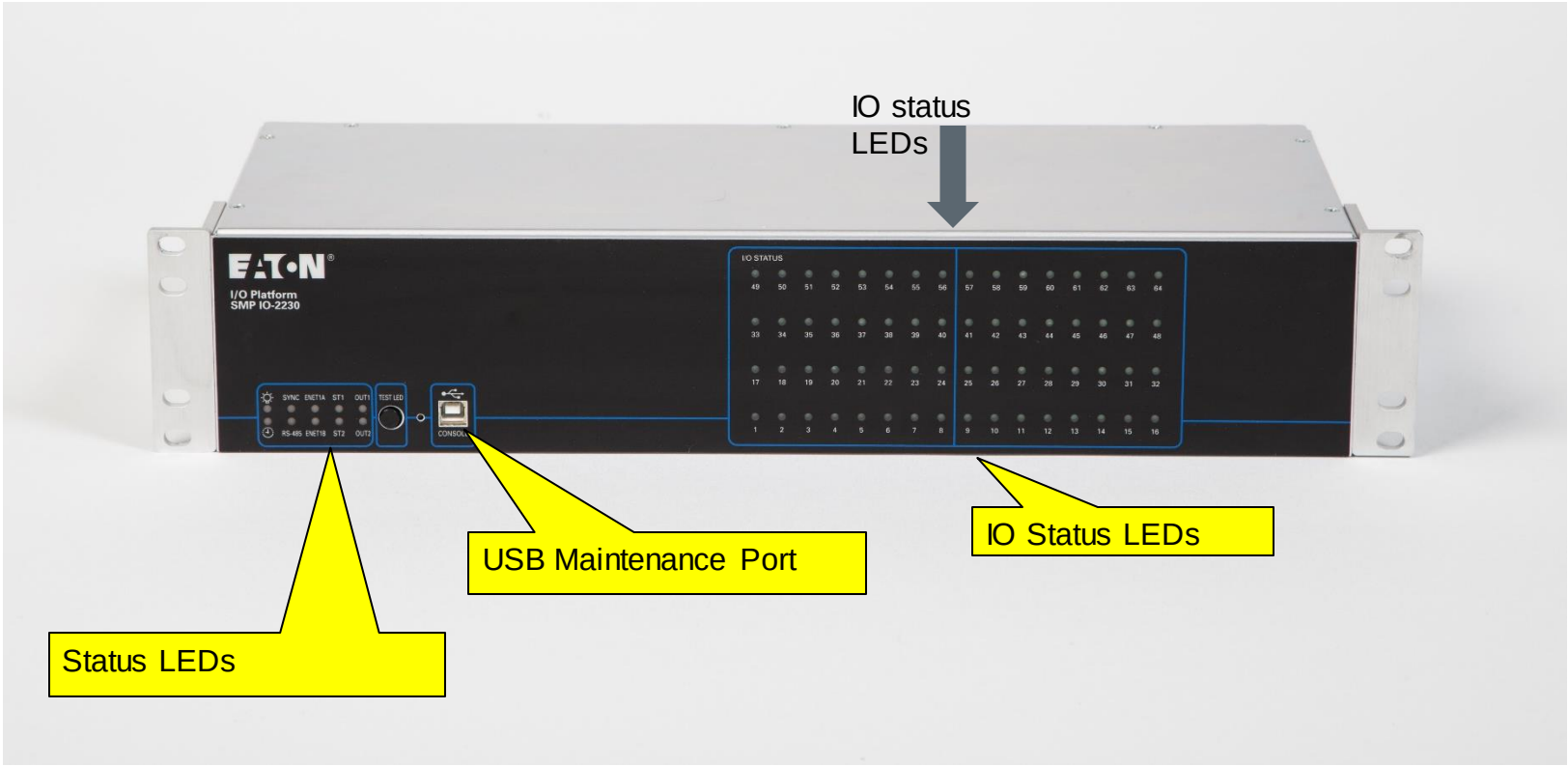
Front Panel Main Features



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Back Panel

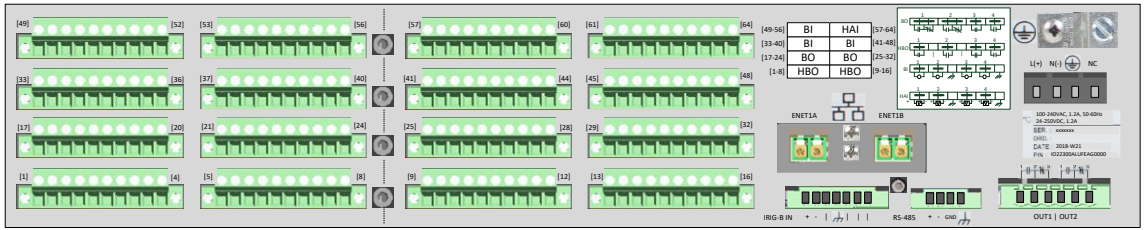
Universal Power supply and wide range binary input voltage

- Easy ordering with one universal part
- Simplify maintenance / stocking / spares

24-250 Vdc ,100-240 Vac

Back Panel

- 2 Ethernet ports (fiber or RJ-45) for daisy chain.
- IRIG-B time sync
- RS-485 port



Card Configuration – The Basics

4 card type configurations :

- Binary Inputs (16)
- Binary Output (16)
- High Current Binary Output (16)
- Analog Input (8) / Binary Input (8)

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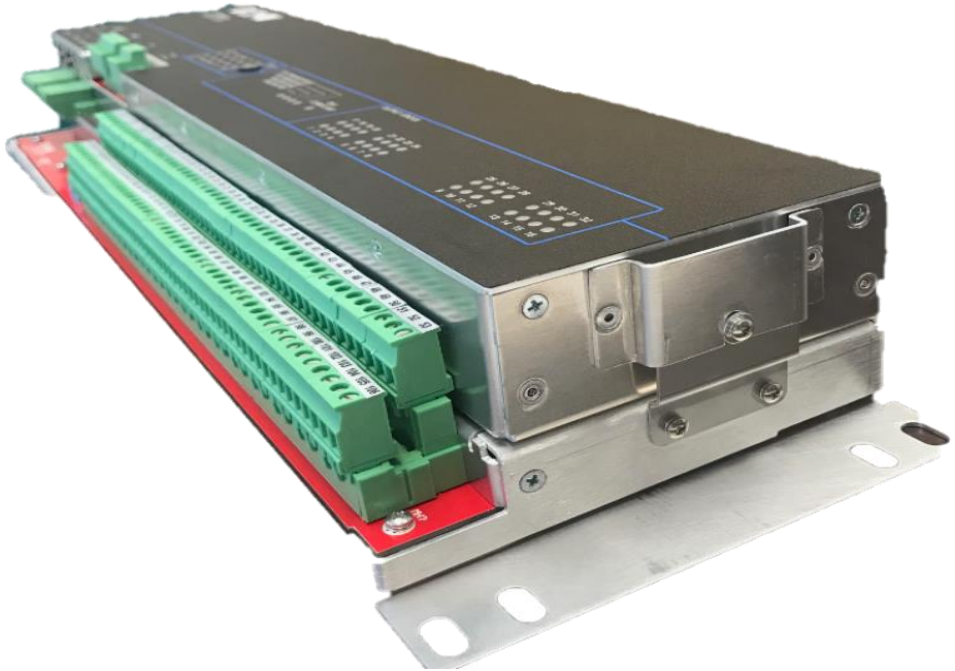
IO-2330 Solution

D20 Wall Mount Replacement solution With the SMP IO-2330



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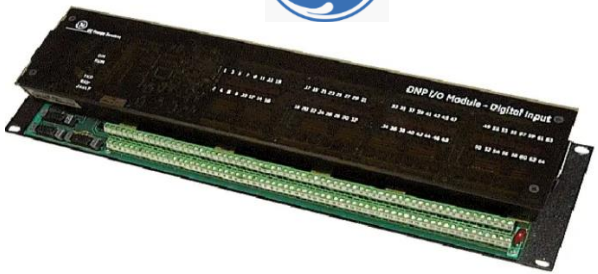
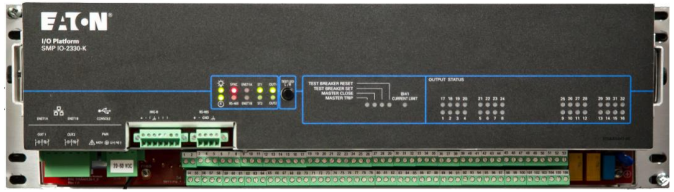
IO-2330 D20 Wall Mount

Introducing new SMP IO-2330 with exact same GE D20 form factor





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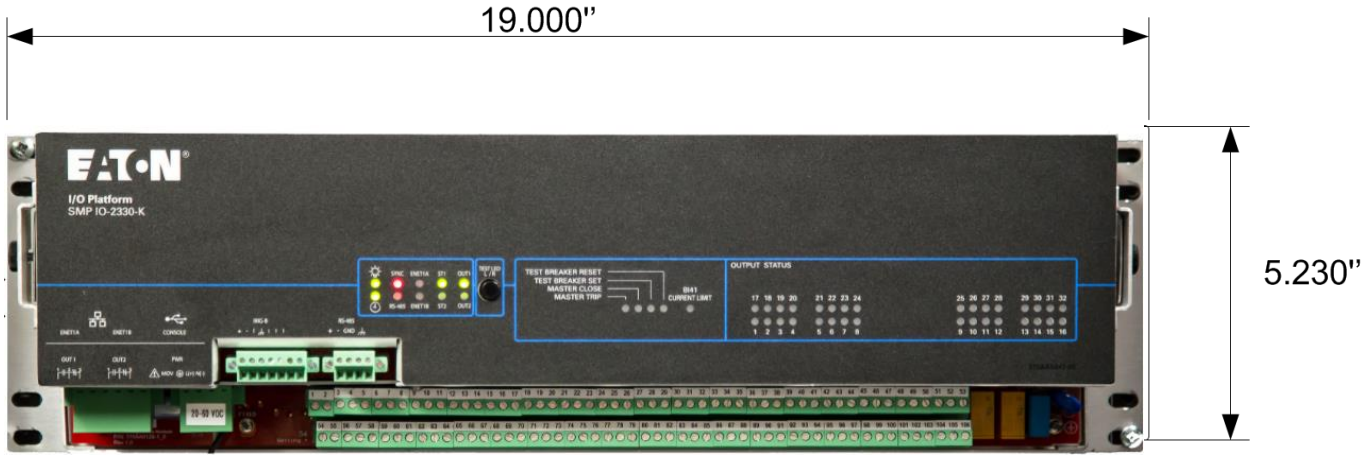
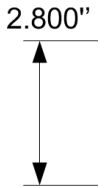
IO-2330 Wall Mount Design – Front View

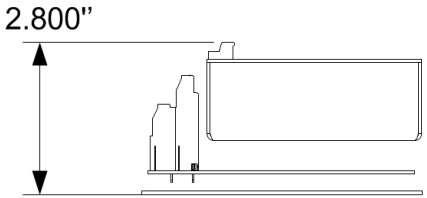


IO-2330 Wall Mount Design

Bottom View



Side View



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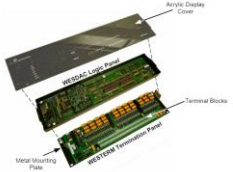
Modular and easily replaceable

E-DAC
(WESDAC)

E-TERM
(WESTERM)



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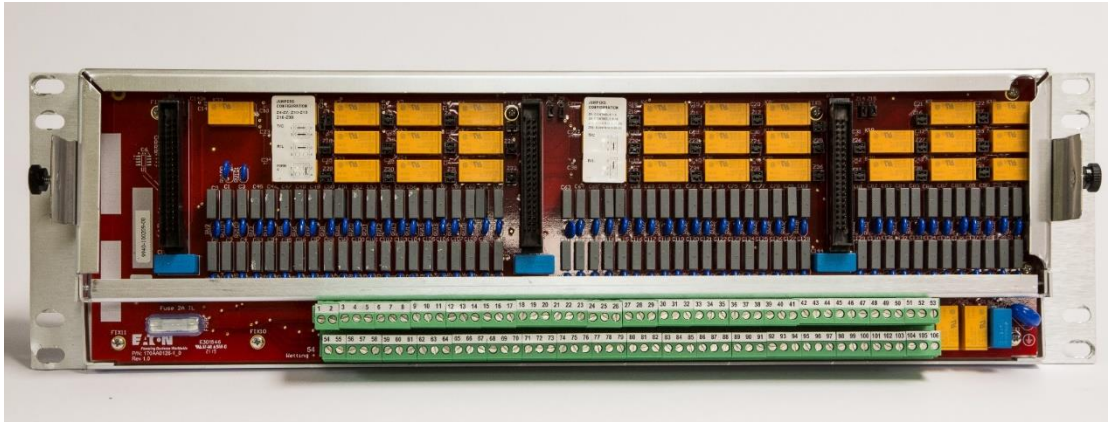
E-TERM

Eaton design – not compatible with GE WESDAC



E-DAC

Eaton design – FULLY Compatible with GE WESDAC
Need the specific E-DAC to match E-TERM or WESTERM

Connectivity : **Fiber LC or Copper @ 100 Mbit / RS-485**
Time Synchronisation : **IRIG-B / NTP**
Power : **20-60 VDC External Power Supply**

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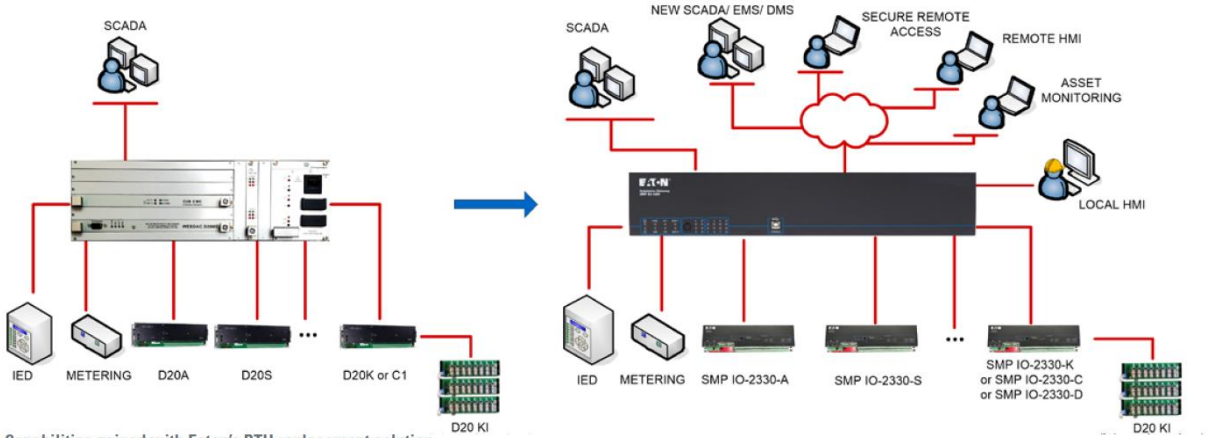
GE to Eaton solution transition



Capabilities gained with Eaton's RTU replacement solution

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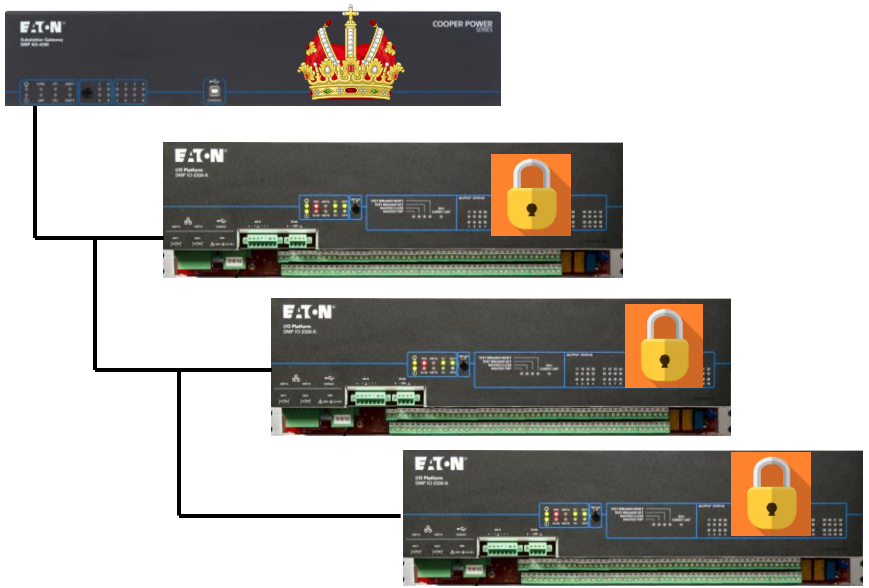
Software

- Using the SMP Gateway you can control all IO-2330 modules with one configuration file
- Securely communicate with all IO-2330 modules using DNP, 61850 or GOOSE
- Using Linux Operating System
- Firewall , Local Security , Web HMI and more



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Full D20 Wall Mount replacement solution with IO-2330-K/A/S/D

Model	GE D20 Type	Available Connectors	Description
IO-2330-K	D20K	Compression TB and DB25	32 DO
IO-2330-S	D20S	Compression TB and DB25	64 DI
IO-2330-A	D20A	Compression TB and DB25	32 AI
IO-2330-C	D20-C/C1	Compression TB and DB25	16 DI / 8 DO / 16 AI

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