

Kyland Products Briefing

July, 2022

KYLAND

Kyland Products



Industrial
Communication Chips



Industrial Server



Traffic
Server & Solution



Edge
Computing Server



Precise
Timing Solution



Industrial
Ethernet Switch



Gateway



Serial Server

Intewell

Industrial Internet
OS/Cloud Platform

Kyland IES Family

KYLAND

Kyland Industrial
Ethernet
Switches

1

Rackmount
SICOM Series



2

DIN-RAIL
managed



3

EN50155
Aquam Series



4

Un-managed
Opal Series



5

POE



6

TSN&HSR/PRP
Ruby Series



Simplifying
Industrial
COMmunication



Kyland IES Key Features

1. Abudant Ports(Quantity & Type)
2. All speed(Up to 10G bits)
3. Ruggedized for all harsh environments
4. High Reliability with Redundancies(Hardware & Software)
5. Industrial Certifications(Utilitiy, Rail, Oil & Gas, Transportation) and Protocols
6. POE+ Available in some models
7. Widely adopted, tested and accepted

DIN-RAIL SWITCHES

01

Layer 2 Managed Switches—SICOM3000A/3000L/3416G/3000A-Lite/3009A/3000 Series

Supports DT-Ring (recovery time<50ms), DRP/DHP (recovery time<20ms), STP/RSTP/MSTP, G.8032ERPS, MRP, VLAN, multicast, QoS, SSH and many other Layer 2 software features. Kyvision centralized management based on SNMPv1/v2c/v3. It supports IEEE1588 PTPV2, Automatic Configuration Backup and Restore, DDM(SFP port), PROFINET (-PN Model), EtherNet/IP and Modbus/TCP protocols. Designed for harsh environments with wide operating temperature range, EMC level 3, IP40 protection class, strong vibration-resistant mounting clip for DIN-Rail installation, and can be deployed in **Factory automation, Transportation, Oil & gas, wind power, distribution network automation and many other industrial applications.**

02

Layer 3 Managed Switches—SICOM6416G/6000A Series

Layer 3 managed industrial Ethernet switch designed to operate reliably in electrically harsh and climatically demanding industrial environments. Supports DT-Ring (recovery time<50ms), DRP/DHP (recovery time<20ms), STP/RSTP/MSTP. Supports many Layer 2 software features such as port, VLAN, multicast, QoS, fast redundant ring and Layer 3 functions such as RIP, OSFP, PIM-SM, PIM-DM. It supports Console, Telnet, Web management and network management software based on SNMP. At present, the product is widely used at the backbone networks in many industrial communication systems.

DIN-RAIL Switches Roadmap

100 Megabit switch		All Gigabit switch	10 Gigabit switch
Layer 3 Managed			
Layer 2 Managed	 SICOM3009A 9 port layer 2 managed DIN-Rail switches	 SICOM6000A Layer 3 managed DIN-Rail switches	 SICOM6800-D Layer 3 managed DIN-Rail switches New
9 Ports	 SICOM3000A-LITE 8+2G port layer 2 managed DIN-Rail switches	 SICOM3000A Layer 2 managed DIN-Rail switches	 SICOM3416G 12G+4*10G port layer 3 managed DIN-Rail switches
10 Ports		 SICOM3000S 12G/8+4G port layer 2 managed DIN-Rail PoE switches	
8/20 Ports			
16 Ports			

DIN-RAIL Switches:Layer 2 Managed

SICOM3000A



- Provides 6/8/10/12/16/18/20 100 or 1000M ports options, 12/24/48/110/220V power input.
- Supports 100Base-X, 1000Base-X SFP ports
- Supports Redundancy protocols: **DT-Ring (recovery time<50ms), DRP/DHP (recovery time<20ms), STP/RSTP/MSTP, G.8032ERPS, MRP**
- Supports Network Security: HTTPS/SSL, SSH, TACACS+, IEEE802.1X, Radius, User Classification, MAC address binding with switch ports
- Supports CLI, Telnet, WEB management methods, Kyvision centralized management based on SNMPv1/v2c/v3
- Supports Automatic Configuration Backup and Restore
- Supports Hardware-based **IEEE1588 PTPv2** (BC, P2P TC, E2E TC clock modes, synchronization precision ± 100 ns)
- Supports **PROFINET (-PN Model), EtherNet/IP and Modbus/TCP protocols**
- Supports DDM(SFP port)
- Supports IP40 protection
- Complies with **IEC61850-3 and IEEE1613**
- CE, FCC, CB, EN50121-4, UL61010, Class I Div 2, IECEx, ATEX, WEEE certificates

SICOM3416G



- Supports Max four **10 gigabit ports, complies with 2.5 gigabit ports**, twelve gigabit ports
- Supports Redundancy protocols: DT-Ring (recovery time<50ms), DRP/DHP (recovery time<20ms), STP/RSTP/MSTP and VRRP for network redundancy
- Supports Qos, VLAN, SNMP v1/v2/v3, RMON(1,2,3,9 Group)
- Supports SFP Digital Diagnostics Monitoring
- Supports SNTP Client
- Supports NTP Client
- **Supports PTPv2, synchronization precision ± 100 ns**
- Operating temperature: -40°C - +75°C
- Supports IP40 protection
- Supports DDM(SFP port)
- It supports Console, Telnet, Web management and network management software based on SNMP. At present, the product is widely used at the backbone networks in many industrial communication systems.
- Complies with **IEC61850-3 and IEEE1613**
- CE, FCC, EN50121

DIN-RAIL Switches: Layer 3 Managed

SICOM6416G



- Supports Max four **10 gigabit ports**, complies with 2.5 gigabit ports, twelve gigabit ports
- Supports Redundancy protocols: DT-Ring (recovery time<50ms), DRP/DHP (recovery time<20ms), STP/RSTP/MSTP and VRRP for network redundancy
- Supports Qos, VLAN, SNMP v1/v2/v3, RMON(1,2,3,9 Group)
- Supports **Layer 3 functions such as RIP, OSFP, PIM-SM, PIM-DM**
- Supports **NAT**
- Supports SFP Digital Diagnostics Monitoring
- Supports SNTP Client
- Supports NTP Client
- Supports **PTPv2, synchronization precision ± 100 ns**
- Operating temperature: -40°C - +75°C
- Supports IP40 protection
- Supports DDM(SFP port)
- It supports Console, Telnet, Web management and network management software based on SNMP. At present, the product is widely used at the backbone networks in many industrial communication systems.
- Complies with **IEC61850-3 and IEEE1613**
- CE, FCC, EN50121

SICOM6000A



- Supports 4 100Base-X, 1000Base-X SFP ports; 8 10/100/1000Base-T(X) RJ45 ports
- Supports Redundancy protocols: DT-Ring (recovery time<50ms), DRP/DHP (recovery time<20ms), STP/RSTP/MSTP and VRRP for network redundancy
- Supports Qos, VLAN, SNMP v1/v2/v3, RMON(1,2,3,9 Group)
- Supports **Layer 3 functions such as RIP, OSFP, PIM-SM, PIM-DM**
- Supports SFP Digital Diagnostics Monitoring
- Supports SNTP Client
- Supports DHCP Server/Snooping/Client
- Supports DHCP Option 82
- Operating temperature: -40°C - +70°C
- Supports IP40 protection
- Supports DDM(SFP port)
- It supports Console, Telnet, Web management and network management software based on SNMP. At present, the product is widely used at the backbone networks in many industrial communication systems.
- CE, FCC, EN50121

RACKMOUNT SWITCHES

01

Layer2 Switches

SICOM3448G, SICOM3432G,
SICOM3024G, SICOM3024P,
SICOM2024M

Supports IEC61850 and IEEE1613 standards and approved by KEMA. 19-inch 1U rack mountable device and its internal modular design offers the maximum flexibility for easy expansion. supports VLAN, multicast, QoS, fast redundant ring.

02

Modular Switches

SICOM3028GPT-L2/L3

All-in-One solution integrating IEEE1588v2, Sync-E, full gigabit, and both layer 2 & Layer 3 availability specifically designed to operate reliably in electrically harsh and climatically demanding utility substation and industrial environments. supports up to 28 gigabit fiber/copper ports, meets the IEC61850 and IEEE1613 standards. Supports time synchronous like HSR/PRP, TimeServer, GPS, IRIG-B and TMS-trigger modules etc. By expanding the serial server module, the product can provide up to 24 RS232/422/485 serial ports. At present, the product is widely used at the intelligent substation and many other industrial communication systems.

03

Layer3 Switches

SICOM6448G, SICOM6432G

Layer 3 managed industrial Ethernet switch designed to operate reliably in electrically harsh and climatically demanding industrial environments. supports many Layer 2 software features such as port, VLAN, multicast, QoS, fast redundant ring and Layer 3 functions such as RIP, OSPF, PIM-SM, PIM-DM. At present, the product is widely used at the backbone networks in many industrial communication systems.

RACKMOUNT SWITCHES Roadmap

100 Megabit switch	All Gigabit switch	10 Gigabit switch
Layer 3 Managed	 SICOM6800 28G port layer 3 managed rack mountable switches	 SICOM6448G 48G+4*10G port layer 3 managed rack mountable switches
	 SICOM3028GPT 28G port layer 2/3 managed rack Mountable modular switches	 SICOM6432G 32G/24G+4*10G port layer 3 managed rack mountable switches
Layer 2 Managed	 SICOM2024M 28 port layer 2 managed rack mountable switches	 SICOM3024GS-L3G 24G+4*10G port layer 3 managed rack mountable PoE switches
	 SICOM2024M 26 port layer 2 managed rack mountable switches	 SICOM3448G 48G+4*10G port layer 2 managed rack mountable switches
26/28 Ports	28 Ports	24/28 Ports
		32/48 Ports

Rackmount Switches- Layer 2 Managed

SICOM3024P



24+4G port switches

- supports max 4 gigabit fiber/copper ports and 24 fast Ethernet fiber/copper ports
- Gigabit ports:
1000Base-X, SFP port;10/100/1000Base-T(X), RJ45 port
- Fast Ethernet ports:
100Base-FX, single/multi mode, SC/ST/FC connector
- 100Base-FX, SFP port(LC connector);10/100Base-T(X), RJ45 port
- Internal modular design for easy expansion
- **Supports IEC61850 MMS management(special firmware)**
- **Complies with IEC61850-3 and IEEE1613**
- Supports Redundancy protocols: **DT-Ring (recovery time<50ms), DRP/DHP (recovery time<20ms), STP/RSTP/MSTP**
- Supports Network Security: HTTPS/SSL, SSH, TACACS+, IEEE802.1X, Radius, User Classification, MAC address binding with switch ports
- Supports CLI, Telnet, WEB management methods, Kyvision centralized management based on SNMPv1/v2c/v3
- Supports DDM(SFP port)
- Supports IP40 protection
- **KEMA, CE, FCC, UL, NEMA TS2**

SICOM2024M



26 port switches

- Supports max 2 100Base-X SFP ports and 24 fast Ethernet RJ45 ports
- Supports DT-Ring, STP/RSTP for network redundancy
- Supports IP/MAC address conflict alarm, Power alarm, Port alarm, Ring alarm
- Supports SFP Digital Diagnostics Monitoring
- Allow front and rear panel mounting
- Supports Redundancy protocols: DT-Ring (recovery time<50ms), DRP/DHP (recovery time<20ms), STP/RSTP
- Supports Qos, VLAN, SNMP v1/v2/v3, RMON
- Supports SFP Digital Diagnostics Monitoring
- Supports SNTP Server & Client
- Operating temperature: -40°C - +75°C
- Supports IP40 protection
- Supports DDM(SFP port)
- It supports Console, Telnet, Web management and network management software based on SNMP. At present, the product is widely used at the backbone networks in many industrial communication systems.
- CE, FCC

Rackmount Switches- Layer 2 Managed

CERTIFICATE OF COMPLIANCE

Certificate Number 20151202-E346911
Report Reference E346911-20151130
Issue Date 2015-DECEMBER-02

Issued to: KYLAND TECHNOLOGY CO LTD
CHONGXIN CREATIVE BLDG
SHIXING EAST RD 18
SHIJINGSHAN DIST
BEIJING 100041 CHINA

This is to certify that representative samples of PROGRAMMABLE CONTROLLERS FOR USE IN HAZARDOUS LOCATIONS
Please see addendum

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/ISA 12.12.01, 2015, Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations. CAN/CSA C22.2 No. 213-15, Non-Incendive Electrical Equipment for Use in Class I, Div. 2 Hazardous Locations. UL508, 17th Ed., Industrial Control Equipment. CAN/CSA C22.2 No. 142-M1987, Process Control Equipment

Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

DNV-GL

Verification report of the functional and performance test in Kyland Technology Co., Ltd. SICOM3024P for IEC 61850-3:2013 applications

Kyland Technology Co., Ltd.

Report No.: 20-2784, Rev. 0
Date: 2020-08-24

KEMA Labs

KEMA TYPE TEST CERTIFICATE OF COMPLETE TYPE TESTS

Object Layer 2 managed industrial Ethernet switch 1221-21

Type SICOM3024P

Rated input voltage 110-220 (77-300) Vdc
100-240 (85-264) 50/60Hz Vac

Mechanical class 1
Device reliability class 1
EMC immunity location G/H/P
EMC emission class A

Communication ports 100Base-FX fiber optic SC/ST/FC port
10/100Base-TX RJ45 port
100Base-FX fiber optic SFP port
1000Base-X, 10/100/1000Base-TX SFP Port

Manufacturer Kyland Technology Co., Ltd.
Building No.2, Shixing Avenue 30#
Shijingshan District
100144 BEIJING China

Client Kyland Technology Co., Ltd.
Building No.2, Shixing Avenue 30#
Shijingshan District
100144 BEIJING China

Tested by KEMA B.V.,
Klingelbeekseweg 195, Arnhem, the Netherlands

Date of tests 20 June 2020 to 20 March 2021

The object, constructed in accordance with the description, drawings and photographs incorporated in this Certificate, has been subjected to the series of proving tests in accordance with the complete type test requirements of

IEC 61850-3:2013

The results are shown in the record of proving tests and the oscilloscopes attached hereto. The values obtained and the general performance are considered to comply with the above standard(s) and to justify the ratings assigned by the manufacturer as listed on page 8.

KEMA

REPORT OF PERFORMANCE

08-1441

OBJECT	Ethernet Switch	
TYPE	SICOM3024P	SERIAL No. See chapter 1
Uaux : 220 VAC; 220 VDC		
MANUFACTURER	Kyland Technology Co. Ltd. Beijing, China	
CLIENT	Kyland Technology Co. Ltd. Beijing, China	
TESTED BY	KEMA HIGH-VOLTAGE LABORATORY Arnhem, the Netherlands	
DATES OF TESTS	27 October until 26 November 2008	
TEST PROGRAMME	Selected tests in accordance with IEC 61850-3 (2002-01) and IEEE 1613 (2003) (see page 2).	
SUMMARY AND CONCLUSION	The tests were passed.	

Applicant company name:	Kyland Technology Co., Ltd.
Applicant address:	No.901 Floor 8, Building No.2, Shixing Avenue 30#, Shijingshan District, Beijing, 100041 China
Description of the apparatus:	Industrial Ethernet Switch
Trade name/brand name:	Kyland
Model/type indication:	SICOM3024P Series
Intended environment for use:	Industrial
Fixed installation:	Yes
Hardware version:	V4.0
Manufacturer company name:	Kyland Technology Co., Ltd.
Manufacturer address:	No.901 Floor 8, Building No.2, Shixing Avenue 30#, Shijingshan District, Beijing, 100041 China
TD reference:	SICOM3024P Series
WLL project number:	WTII596
Certificate number:	E000596

Washington Laboratories is designated as a Notified Body under the U.S.-EU Mutual Recognition Agreement for EMC Directive 2014/30/EU

KYLAND

Modular Rackmount Switches- SICOM3028GPT



SICOM3028GPT is a intelligent modular platform which is an All-in-One solution integrating IEEE1588v2, Sync-E, full gigabit, and both layer 2 & Layer 3 availability specifically designed to operate reliably in electrically harsh and climatically demanding utility substation and industrial environments. SICOM3028GPT supports up to 28 gigabit fiber/copper ports, meets the IEC61850 and IEEE1613 standards. It supports Power Profile and Telecom Profile, and supports many modules for time synchronous like HSR/PRP, TimeServer, GPS, IRIG-B and TMS-trigger etc. At present, the product is widely used at the intelligent substation and many other industrial communication systems.

- Flexible modular design for easy expansion, supports max 28 gigabit fiber/copper ports.
- Supports DT-Ring ,DRP, MSTP and VRRP for network redundancy.
- Supports Layer 3 routing protocols such as RIP and OSPF.
- Supports IEEE1588v2 and the synchronization precision reaches ± 100 ns, with SW based PTP 1588 and optional HW based PTP 1588.
- Supports ITU-T.G.8261/G.8262 synchronous Ethernet and the synchronization precision reaches ± 50 ns.
- Supports HSR/PRP module, TimeServer module, GPS module, IRIG-B module, TMS-trigger module, Serial server module, LED module.
- Supports Hot-Swappable Power Supplies.
- Supports IEC61850 MMS management.
- Supports cable test.
- Complies with IEC61850-3 and IEEE1613.
- Supports PTPv2 (IEEE1588-2008).
Supports Power profile (C37.238).
Supports Telecom profile (in special version).
Supports synchronous Ethernet (ITU-T.G.8261/G.8262).
Supports TMS function.
- Supports NTP & SNTP
- KEMA, CE, FCC, EN50155/EN50121, UL61010, NEMA-TS2.

Rackmount Switches- SICOM3028GPT Modules

Ethernet Module



1U or 0.5U structures, supports Gigabit/fast Ethernet, fiber/copper
Supports hot-swap for easy maintenance (only can replace the same type of module)

HSR/PRP Module



Full FPGA hardware solution with low switching latency
Compliant implementation of HSR (IEC62439-3-5) and PRP (IEC62439-3-4)
Supports hot-swap for easy maintenance (replace the same type only)

TimeServer Module



Report time status by SNMP, IEC61850 MMS, IEC60870-5-104, DNP over TCP etc.
Support Web, SNMP etc. management system
Support hot-swap for easy maintenance (only can replace the same type of module)

TMS-Trigger Module



Internal time synchronized as PTP slave with the chassis
Supports GOOSE publish and MMS report
Supports optical/electrical signal input/output
Support hot-swap for easy maintenance (only can replace the same type of module)

IRIG-B Module



14 channels GPS C/A coding receiver
High precision stable crystal oscillator with excellent time keeping performance
One PPS +5V TTL level output with BNC connector
Support hot-swap for easy maintenance (only can replace the same type of module)

PTP to IRIG-B high precision converting
2 IRIG-B(DC/AC) and 1 PPS outputs
Supports IRIG-B000,B001,B002,B003, B004,B005,B006,B007,B120,B121,B122,B123,B124,B125,B126,B127 output
Support hot-swap for easy maintenance (only can replace the same type of module)

Serial Module



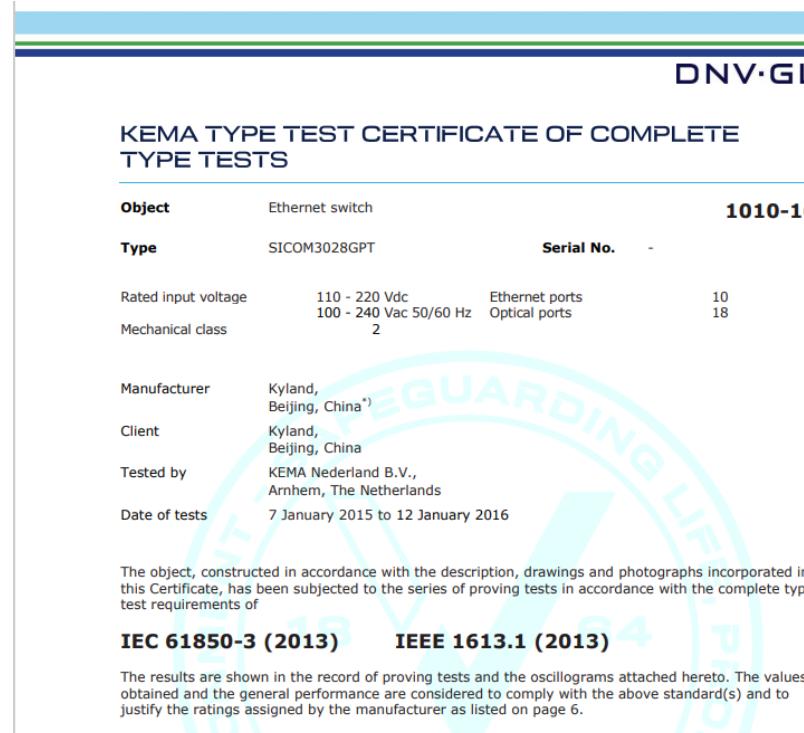
4 RS232/422/485 serial ports, one 100M interface (backplane)
Supports VLAN, white list, data mirror, configuration import/export
Reset button for easy module reset without need to reboot the device
±15kV ESD protection circuit for each serial port
Compliant with EMC industrial level 4 (only can replace the same type of module)

LED Module



0.5U structures, for slot 7 only

Rackmount Switches- SICOM3028GPT



TÜV SÜD Certification and Testing (China) Co., Ltd. Beijing Branch
M Building, No. 7 Wangjing Zhonghua Nandai, Chaoyang District, Beijing 100102, P.R. China



Choose certainty.
Add value.

Kyland Technology Co., Ltd.

Your referenceletter of 888001416201 Our referenceName Ms. Zhang Jing Tel. extension-mail +861065901185 Jing.Zhang@tuv-aud.cn Fax extension +861065901682 Date 2 April 2015 Page 1/1

Subject: Your Attestation of conformity

Dear Ms. XiaoLi Xu,
We are pleased to send you below listed certificate(s) of conformity.

Certificate No.	Product	Model
E8A.15.04.90637.004	Industrial Ethernet Switch	SICOM3028GPT-L3FT-MB-HV, SICOM3028GPT-L3FT-MB-HV-HV SICOM3028GPT-L3GT-MB-HV, SICOM3028GPT-L2GT-MB-HV-HV SICOM3028GPT-L2GT-MB-HV, SICOM3028GPT-L2G-MB-HV-HV SICOM3028GPT-L2FT-MB-HV, SICOM3028GPT-L2FT-MB-HV-HV SICOM3028GPT-L3FT-MB-HV, SICOM3028GPT-L3FT-MB-HV-HV SICOM3028GPT-L3GT-MB-HV, SICOM3028GPT-L3GT-MB-HV-HV SICOM3028GPT-L3G-MB-HV, SICOM3028GPT-L3G-MB-HV-HV

Applicant company name:	Kyland Technology Co., Ltd.
Applicant address:	No 901 Floor 8, Building No 2, Shixing Avenue 30#, Shijingshan District, Beijing, 100041 China
Description of the apparatus:	Industrial Ethernet Switch
Trade name/brand name:	Kyland
Model/type indication:	SICOM3028GPT Series
Intended environment for use:	Industrial
Fixed installation:	Yes
Hardware version:	V2.1
Manufacturer company name:	Kyland Technology Co., Ltd.
Manufacturer address:	No 901 Floor 8, Building No 2, Shixing Avenue 30#, Shijingshan District, Beijing, 100041 China
TD reference:	SICOM3028GPT Series
WLL project number:	WTHL597
Certificate number:	E000597

Washington Laboratories is designated as a Notified Body under the U.S.-EU Mutual Recognition Agreement for EMC Directive 2014/30/EU

KYLAND

Rackmount Switches- Layer 3 Switches

SICOM6432G



32G/24G+4*10G port switches

- Supports combo gigabit ports with option of 1000 Base-T(X) RJ45 or 1000 Base-X Fiber
- Support Max four 10 gigabit ports, 32 gigabit ports
- **Supports DRP/DHP, STP/RSTP/MSTP, ERPS(G.8032) and VRRP for network redundancy**
- Supports Layer 3 Static routing and routing protocols such as RIP v1/v2 and OSPF
- Supports Qos, VLAN, SNMP v1/v2/v3, RMON(1,2,3,9 Group)
- Supports SFP Digital Diagnostics Monitoring
- Support NAT
- Support PTPv2
- Support NTP & SNTP
- IP40 protection class
- CE, FCC, EN50121, IEC62368-1

SICOM6432G



48G+4*10G port switches

- Supports combo gigabit ports with option of 1000 Base-T(X) RJ45 or 1000 Base-X Fiber
- Support Max four 10 gigabit ports, 48 gigabit RJ45 ports or 16 gigabit RJ45 ports and 32 gigabit SFP ports
- **Supports DT-Ring ,STP/RSTP/MSTP and VRRP for network redundancy**
- Supports Layer 3 Static routing and routing protocols such as RIP v1/v2 and OSPF
- Supports Qos, VLAN, SNMP v1/v2/v3, RMON(1,2,3,9 Group)
- Supports SFP Digital Diagnostics Monitoring
- Support NAT
- Support PTPv2
- Support SNTP Client
- IP40 protection class
- CE, FCC, EN50121, IEC62368-1

Competitive Analysis

Brand	Kyland	MOXA	Hirschmann	Siemens
Product	SICOM3028GPT series	PT-G7728 series PT-G7828 series	GREYHOUND 1020/1030/1040	SCALANCE XR326-2C
Picture				
MAC table	16K	16K	/	/
Packet buffer	32Mb	12 Mbit	/	/
Jumbo Frames	9.6 KB	9.6 KB	/	/
Substation	IEC61850, IEEE1613	IEC61850, IEEE1613	IEC61850, IEEE1613	IEC61850, IEEE1613
Gigabits ports	Up to 28 ports	Up to 4 ports	Up to 28 ports	Up to 24 ports
Protection Class	IP40	IP30	IP30	IP30



HSR/PRP Products

—

Zero-Packet-Loss

	STP/RSTP/MSTP	DRP	HSR/PRP
Standards	802.1D/W/S	IEC 62439-6	IEC 62439-3
Recovery Time	>1S	<20~50ms	0ms
Network Size	<40 nodes	Unlimited	Unlimited
The Influence of Network Scale on Fault Recovery Time	Yes	No	No
Topology	Ring/Star/Tree	Ring	Ring Parallel Network
Configuration Difficulty	Middle	Easy	Easy
Standard Ethernet Frame	Yes	Yes	No for HSR Yes for PRP

HSR/PRP Products



Kyland Ruby3A

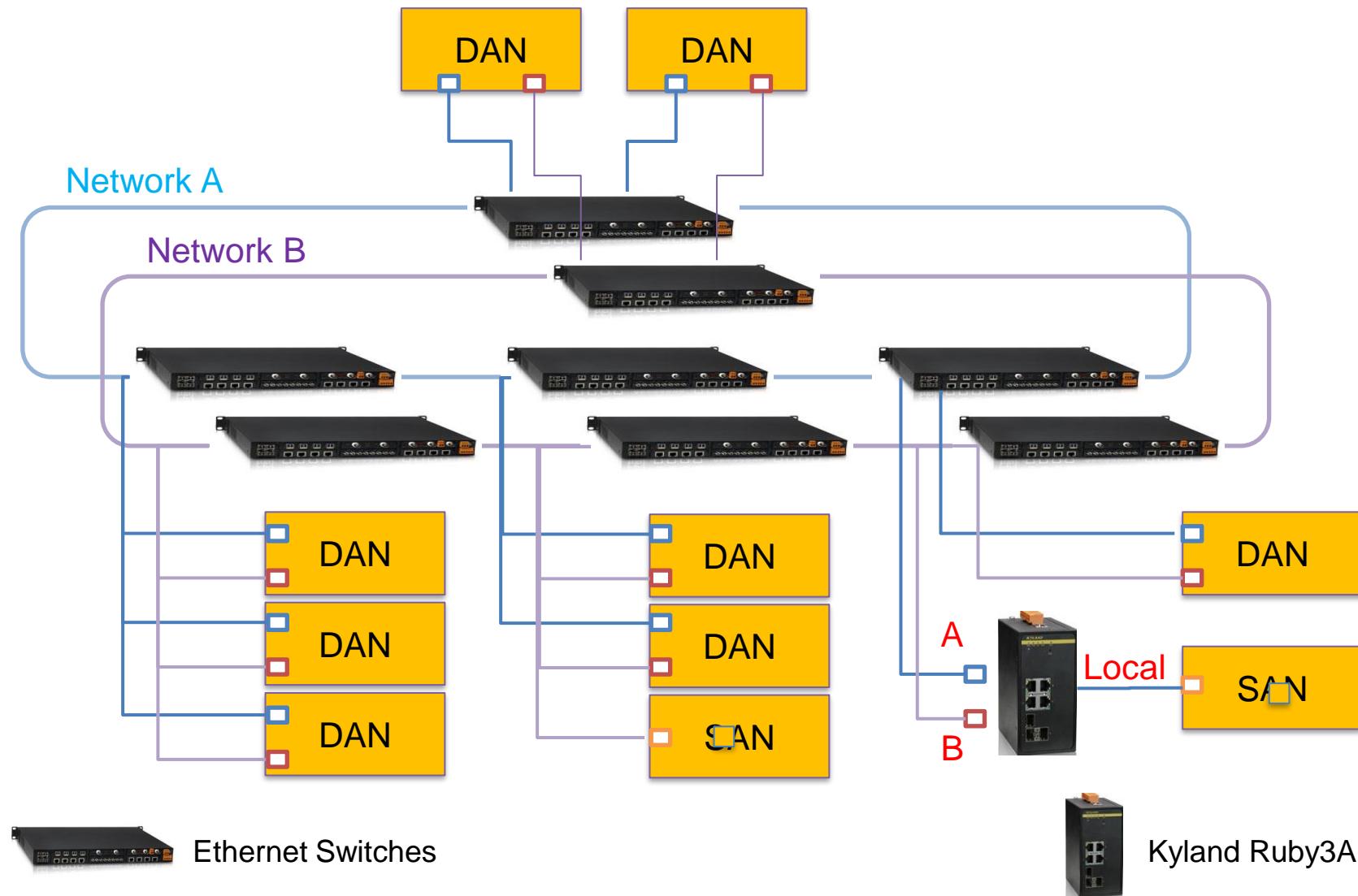
Compliant implementation of both
PRP (IEC62439-3-4) and HSR (IEC62439-3-5)
Supports combo ports as HSR/PRP port
Supports hardware based IEEE1588v2
Supports reset button for system reboot
Out of Band Management Port
Complies with IEC61850-3 and IEEE1613
Support HSR and the recovery time is 0 ms
Support PRP and the recovery time is 0 ms
Support PRP/HSR Coupling
Support Quadbox mode



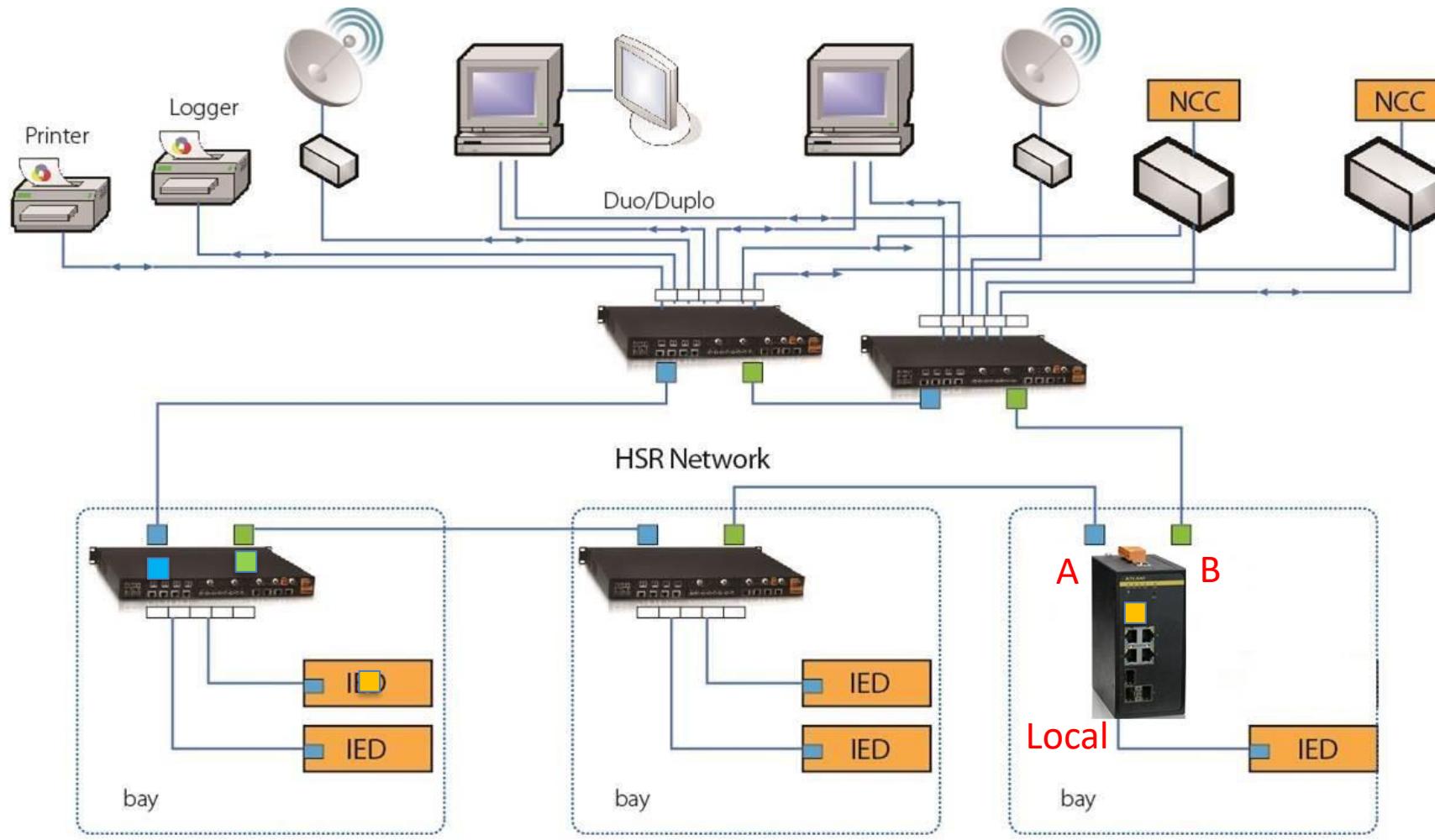
SICOM3028GPT HSR/PRP Modular

Plug-in Redbox module for reliable industrial networking in
SICOM3028GPT series
Full FPGA hardware solution with low switching latency
Compliant implementation of
HSR (IEC62439-3-5) and PRP (IEC62439-3-4)
Supports **hot-swap** for easy maintenance (replace the same type only)
Port A: 100/1000Base-T RJ45 port or 1000Base-X,100Base-FX
SFP port
Port B: 100/1000Base-T RJ45 port or 1000Base-X,100Base-FX
SFP port

PRP Application



HSR Application

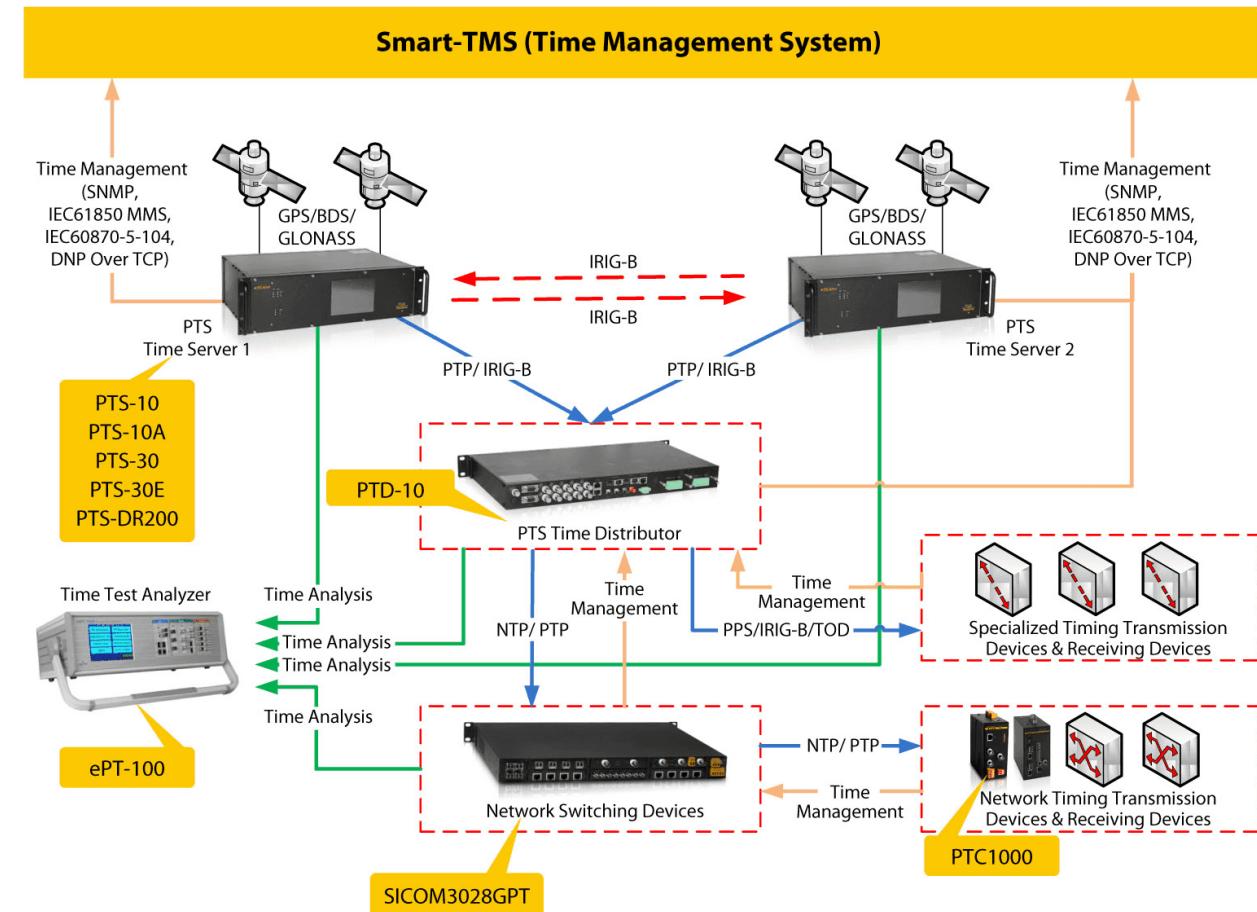


Kyland SICOM3028GPT industrial Ethernet Switches



Kyland Ruby3A

Precise Timing Solution



Kyland's Precise Timing Solution

PTS10 Time Server	PTS10A Time Server	PTS30 Time Server	PTS-DR200 Time Server	PTD-10 Time Distributer	PTC-2000 Time Convertor
					
<ul style="list-style-type: none"><input type="checkbox"/> 1U19 inch<input type="checkbox"/> Single satellite input<input type="checkbox"/> Single power supply<input type="checkbox"/> Up to 2 card slots<input type="checkbox"/> Up to 16 channels	<ul style="list-style-type: none"><input type="checkbox"/> 1U19 inch<input type="checkbox"/> Single/Dual Satellite Input<input type="checkbox"/> Single/Dual Power Supply<input type="checkbox"/> Fixed output interface	<ul style="list-style-type: none"><input type="checkbox"/> 3U19 inch<input type="checkbox"/> Single/Dual Satellite Input<input type="checkbox"/> Single/Dual Power<input type="checkbox"/> Supply Up to 8 card slots<input type="checkbox"/> Up to 64 channels	<ul style="list-style-type: none"><input type="checkbox"/> DIN-rail installation<input type="checkbox"/> Single satellite input<input type="checkbox"/> Single power supply<input type="checkbox"/> Fixed output interface	<ul style="list-style-type: none"><input type="checkbox"/> 2-channel redundant time source input<input type="checkbox"/> Up to 16 output ports for multi-device connection<input type="checkbox"/> Provide device alarm output node<input type="checkbox"/> Provide LCD time display	<ul style="list-style-type: none"><input type="checkbox"/> Receive PTP signal and convert it into NTP/IRIG-B/PPX/TOD;<input type="checkbox"/> Receive IRIG-B signal and convert it to PTP/NTP..<input type="checkbox"/> Accuracy ±50ns

Precise Timing Server- Key Performance

Signals	Interfaces	Accuracy
1PPS	Fiber	≤60ns
	TTL	≤60ns
	Differential	≤0.5us
	Idle Contact	≤3us
IRIG-B	Fiber	≤60ns
	TTL	≤60ns
	AC(3~12V,3:1~6:1)	≤3us
	Differential	≤0.5us
Serial	RS232	≤10us
	RS485	≤10us
NTP	Ethernet	≤50us
PTP	Ethernet	≤50ns

Precise Timing Server - PTS10A

Supports **GPS** (Global Positioning Service), **BDS** (Chinese Satellite System), and **GLONASS** (Russian Satellite System) as sky time sources and PTP (Precision Timing Protocol), IRIG-B as ground time sources.

Supports PTP (Precision Timing Protocol), **NTP** (Network Time Protocol), IRIG-B, 1PPS, 1PPM, 1PPH and TOD etc. time synchronization signal output as time synchronization purpose.

Supports TMS (Time Management System) features to report PTS-10A time status by **IEC61850**, **IEC60870-5-104**, **SNMP**, **Modbus TCP**, **DNP over TCP** etc.

Generate accurate GOOSE signal to trigger an event to monitor IED time status in power system and provides **GOOSE subscriber to send time status by IEC61850 MMS**.

PTS-10A
1U rack mounting high-precision time servers

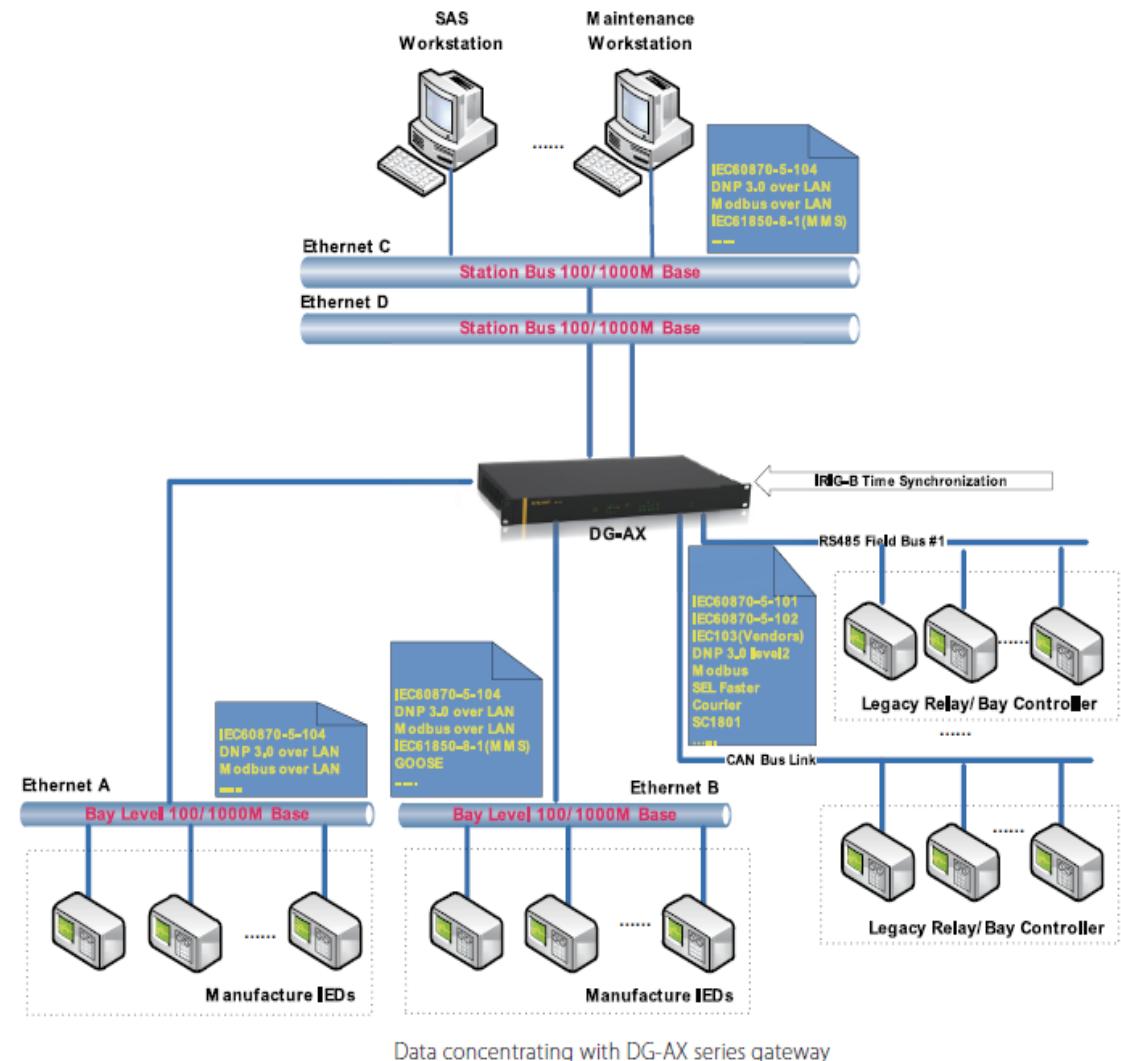


Intelligent Gateways

—

Protocol gateways for Smart Grid

Typical Application



Intelligent Gateway – DGW Series

Easy IEC 61850 SCL(CID/ICD) import and configuration process

Configurable MMS (IEC 61850-8-1) server & client application

Support GOOSE publish and subscribe

Built-in SoftPLC calculating task

Configurable hardware watchdog

Full functional NTP for time synchronization

Support IRIG-B DC time synchronization

Dual mode of RS232/RS485 isolated serial ports

Remote diagnosis or maintenance by network

Compliant to IEC 61850-3, IEEE 1613 standards

Support protocol IEC-101/103/104,Modbus/RTU,Modbus/TCP

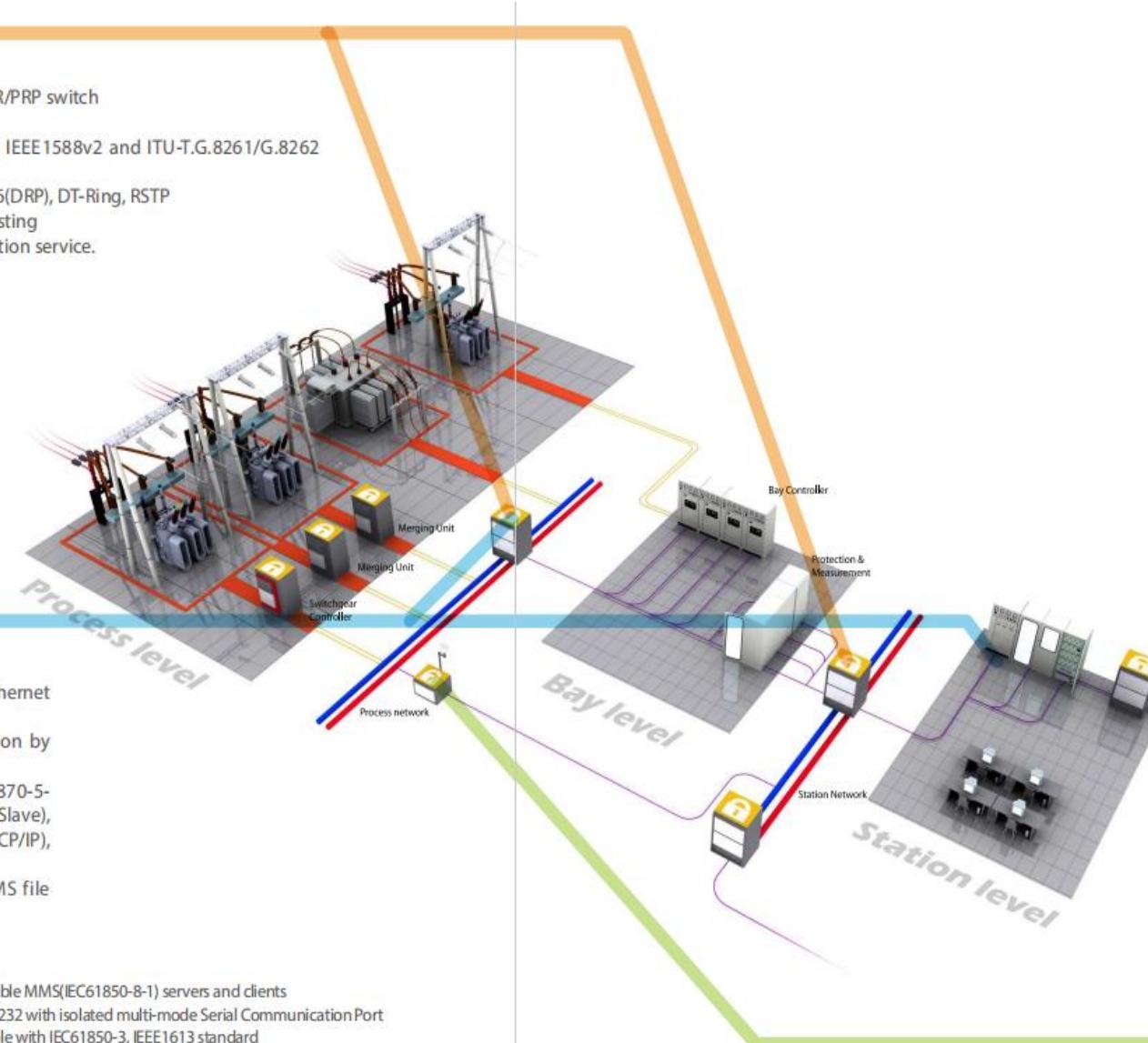


Complete Solution for Power Automation

IEC61850-3 Industrial Ethernet Switches

Why Kyland:

- Provide a variety of products: process layer switch, station layer switch, HSR/PRP switch
- Compliant with IEC61850-3 and IEEE 1613 and KEMA certified
- Support SV switching delay awareness, precision < 20ns, support NTP, IEEE1588v2 and ITU-T.G.8261/G.8262 (synchronous Ethernet)
- Support multiple redundant protocols: IEC 62439-3(HSR / PRP), IEC 62439-6(DRP), DT-Ring, RSTP
- Support business security, function security, code security, pass security testing
- Built-in MMS server, support IEC61850 information model and communication service.



Intelligent Gateways

Why Kyland:

- Support data collection from both legacy IEDs and IEC61850 IEDs with ethernet and serial connections
- Intelligent gateways are easy to configure and support configuration by importing standard CID files into the integrated configuration tool
- Support multiple power protocols and profiles: IEC60870-5-101, IEC60870-5-102 (Master), IEC60870-5-103 (Master& Slave), IEC60807-5-104 (Master & Slave), MODBUS (Master & Slave - RTU/TCP), DNP3.0(Master & Slave - Serial/over TCP/IP), SEL(Master - Fast Meter/SER), AREVA(Master - Courier)
- Support IEC61850 BRCB and URCB reports, GOOSE subscriptions, MMS file transfer applications, etc.

DG-A8/A16

Industrial rackmount Intelligent gateway
easy to import and configure IEC61850 SCL (CID/ICD)
Supports GOOSE publish and subscribe
Supports NTP/IRIG-B DC time synchronization
Supports CAN bus communication protocol

Configurable MMS(IEC61850-8-1) servers and clients
RS485/RS232 with isolated multi-mode Serial Communication Port
Compatible with IEC61850-3, IEEE1613 standard

Precise Time Synchronization Solution

Why Kyland:

- Product portfolio includes time server, IEEE1588v2 Switch, clock converter, time test instrument
- High precision time server with ± 100 ns accuracy with multiple reference satellite systems: GPS, BD, GLONASS
- Supports multiple reference source switchover within 200ns
- Different oscillator options support holdover performance up to 6us/24h
- IEEE1588 to IRIG-B conversion device for backward compatibility
- Reliable multiple source selection algorithm and holdover performance
- Optional management protocols of MMS/IEC60870-5-104/SNMP for time server
- Compliant with IEEE PC 37.238 Power Profile



References

01 PEA-Substation Control and Protection System (Thailand)

02 CFE – IEC61850 upgrade Transmission Substation(Mexico)

Substation Control and Protection System (SCPS)

End User

Provincial Electricity Authority (PEA), Thailand

Project implementation period

Since 2018

Delivered devices

- SICOM3028GPT-Hotswappable *350
- PTS-10X *30
- Ruby3A *200

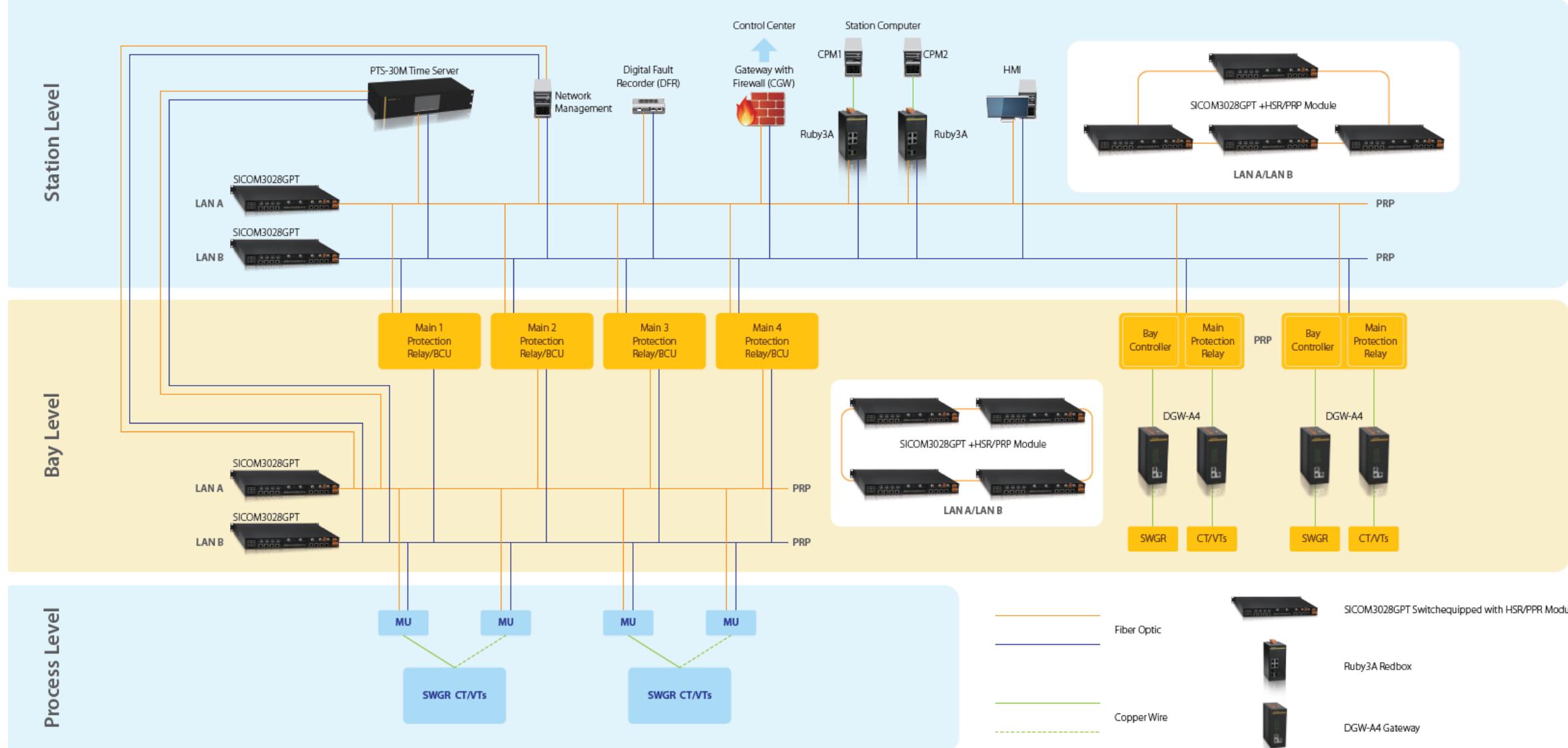
Substation Control and Protection System (SCPS)

Requirement	Requirement	Comments
	EMC and Environmental Type Tests	<ol style="list-style-type: none">1) EMI-hardening2) Protection Graded3) IEC 61850-3 and IEEE 16134) Type test certificate to be provided as evidence
Operating Temperature	- 40 to + 85 °C	
Power Supply	Dual redundant, load sharing, hot-swappable	
Ethernet Module	Field replaceable	
Ports	High density: 28 ports, all gigabit capable RJ45 with a secure copper connector, or fiber for future expansion	
Fiber Type Connector	ST, or LC	
Network Switch and Time Synchronization	Where applicable: IEEE 1588 Power Profile Transparent Clock Boundary Clock Ordinary Clock <ul style="list-style-type: none">- GPS input time source synchronization- Best Master Clock algorithm support- IEEE 1588 / IRIG-B Conversion	

Substation Control and Protection System (SCPS)

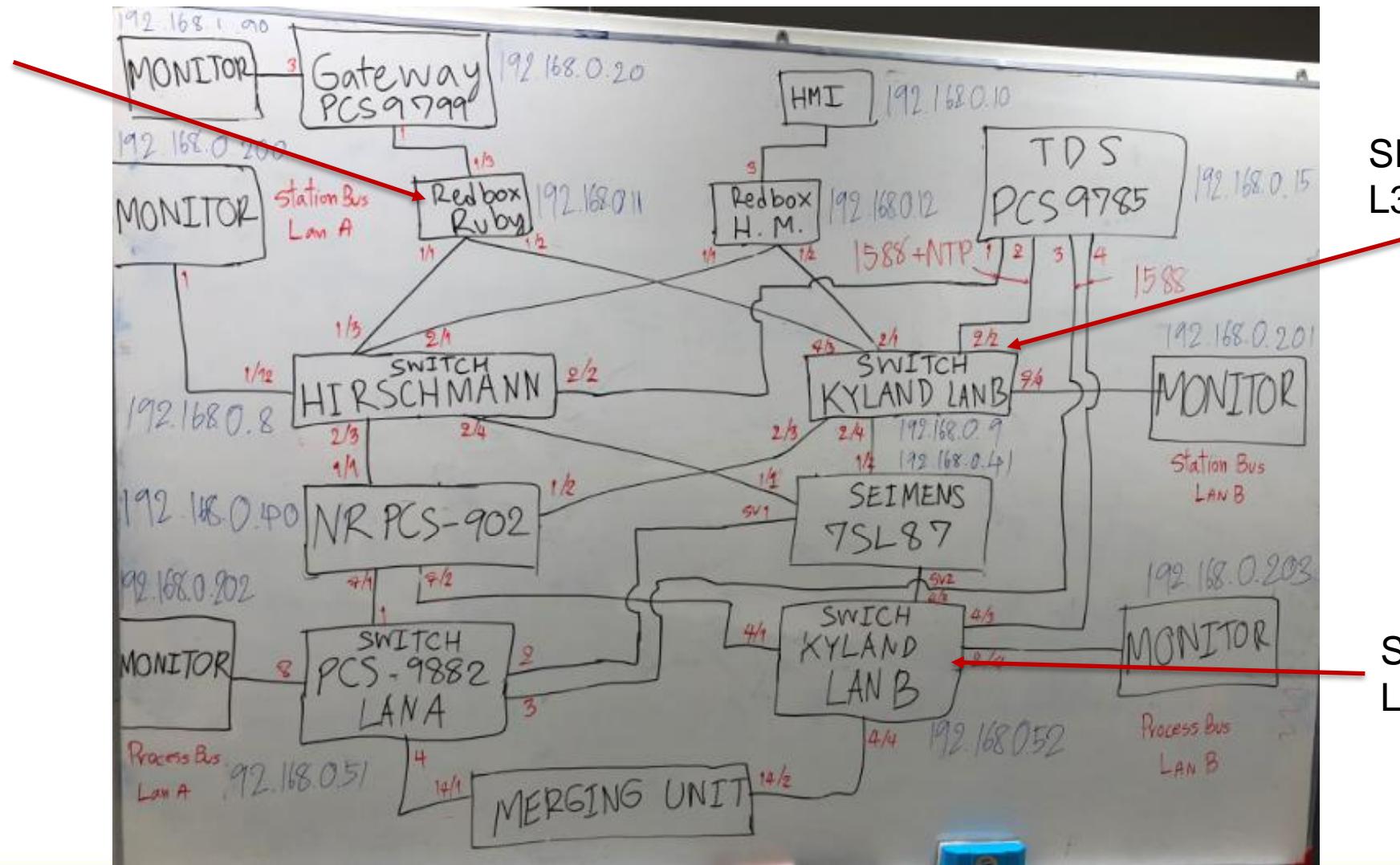
Requirement	Comments
Device output protocol type	<ol style="list-style-type: none">1) NTP Server (for network connection, with RJ45 Ethernet Interface)2) IEEE 1588 or IRIG-B (for direct-wired connection)
Auxiliary supply	<ol style="list-style-type: none">1) 125VDC nominal voltage (substation DC system)2) Minimum range 80-120% of nominal voltage
EMC and environmental type tests	<ol style="list-style-type: none">1) Withstand substation EMI2) EMI-hardening
Protocol for NTP server	<ol style="list-style-type: none">1) NTP2) Internet protocol suite standard for time synchronization3) Network Time Protocol v4.0 or higher4) Should be compatible with IEEE 1588/IEC 61588 standard
Expected accuracy (\pm) between Network devices	<ol style="list-style-type: none">1) 0.1ms (Expected Time Synchronizing of IED Clocks – one order of magnitude better than IED time stamp resolution)2) Note: Typical Accuracy3) 1-2 ms (NTP)4) 1 microsec (IEEE 1588 or IRIG-B)

Substation Control and Protection System (SCPS)



Substation Control and Protection System (SCPS)

Ruby3A



SICOM3028GPT-L3GT

SICOM3028GPT-L2GT

CFE – IEC61850 upgrade Transmission Substation

- End User
 - Comision Federal de Electricidad
 - Project implementation period
 - Since 2020
- Delivered devices
 - SICOM3024P * 914 pcs,
 - PTS-10A * 270 pcs
- Project:
 - Bay Bus and Process Bus on Transmission
 - Substations



CFE
Comisión Federal de Electricidad®

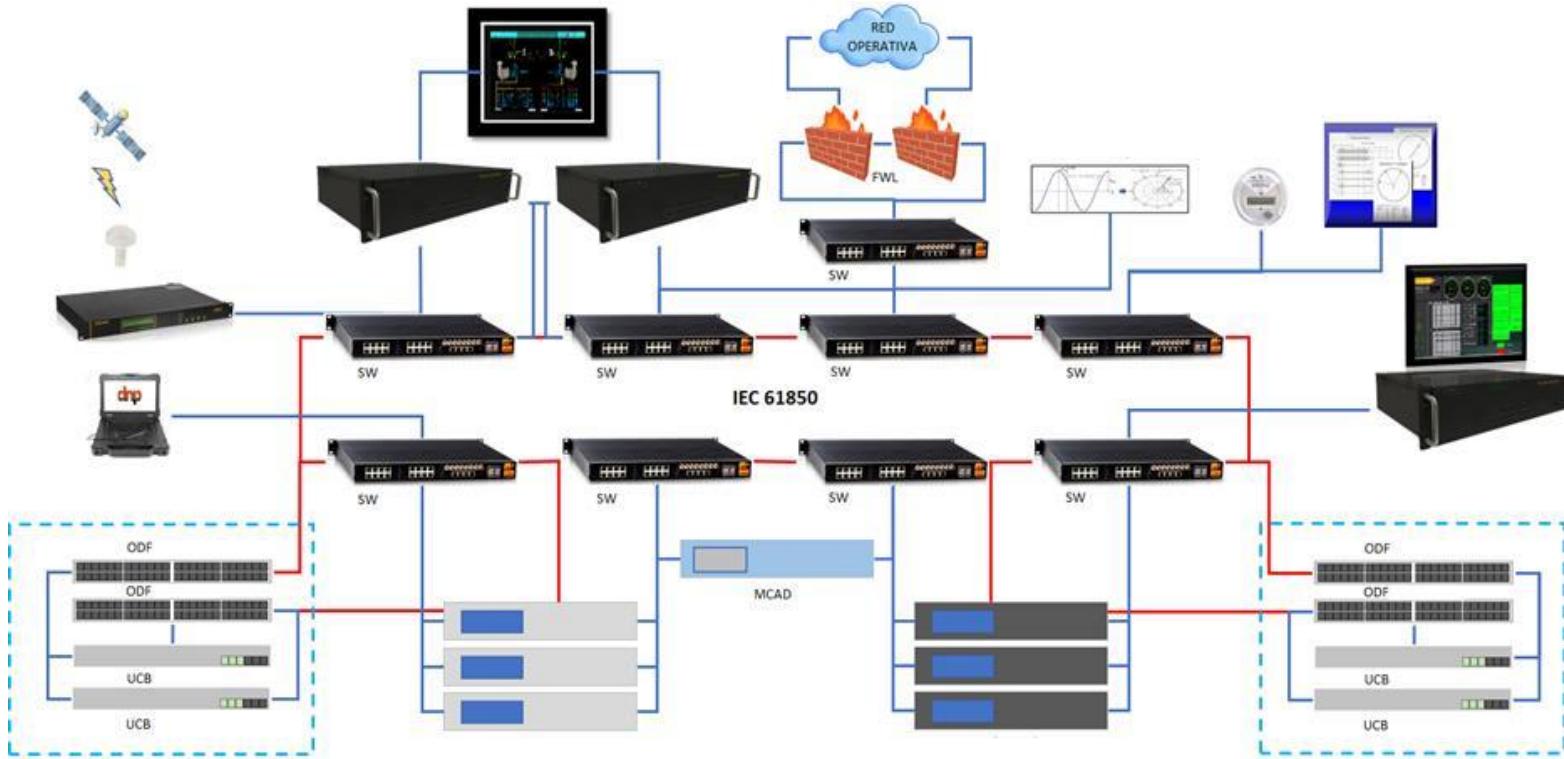
CFE – IEC61850 upgrade Transmission Substation

Comision Federal de Electricidad (CFE) is the only Mexican Utility on charge of all energy process, including Generation, Transmission and Distribution process. From 2020 CFE Transmission started with one project to upgrade the existing substation to one new scheme under IEC61850 standard with the idea to keep levels of energy flux between their Generations Plants and their Distribution Substation and finally to distribution lines to end users.

One of the most important parts of this upgrade process was the implementation of Communication and Control Networks into substations from 115Kv up to 440Kv voltage level.

Customer requirement:	Kyland Solution
<ul style="list-style-type: none">Industrial and Substation grade devicesRedundant recovery technologyFanless devicesFast Ethernet and Gigabit Ethernet portsGoose Message FilteringHigh Availability Operation (Redundant Power Supply)Resistant to high EMC levelsHigh accuracy synchronization levels (Time Servers)NTP/SNTP support	<ul style="list-style-type: none">SICOM3024P up to 4 gigabit fiber/copper ports and 24 fast Ethernet fiber/copper portsmeets the IEC61850 and IEEE1613 standards and approved by KEMA.a 19-inch 1U rack mountablesupports DT-Ring, DRP, RSTP for network redundancy. Supports Operating temperature range from -40° C to +85° C, and redundant power supply for VAC/VDC.

System Diagram



Why Kyland?

- Zero-Packet Loss Ethernet Switches for Goose Message transmissions.
- High port density on Switches.
- IEC61850 and IEEE1613 compliant devices.
- Support IEEE1588v2 (PTP) synchronization on Time Servers.

High accuracy on Time servers.

KYLAND

EN50155 Switches



- ETB Network
- ECN Network
- To End Device

EN50155 Switch

IP65, Mounting Wall mounting				IP40, Mounting 1U/2U rack mountable		Core Board	
Layer 3 Managed	Aquam8512A	Aquam8612	Aquam8620	Aquam8628	Aquam8512A-1U	Aquam8612-2U	
Layer 2 Managed	Aquam8012A	Aquam8112	Aquam8120	Aquam8128	Aquam8012A-1U	Aquam8112-2U	SICOM2000
Unmanaged	Aquam5S/8S/9S <small>PoE</small>						
	Aquam5/8/8A, 5G/8G						
	5/8 Ports	9/12 Ports	16/20 Ports	24/28 Ports	12 Ports	24 Ports	22/24 Ports

EN50155 Switch

Aquam86xx/81xx



- Supports up to 4 10/100/1000Base-TX with X-coded M12 connectors and 8 10/100Base-TX ports with D-coded M12 connectors.
- Supports up to 120W PoE/PoE+ (IEEE 802.3af/at) on all 12 10/100Base-TX PoE ports with devices 'own 24VDC/110VDC power supplies, and up to 240W PoE/PoE+ with an external 50-54VDC power supply. (POE Model)
- Supports optional bypass function
- Supports RSTP,DRP ring network redundancy protocols
- Supports Layer 3 routing protocols such as static Routing, OSPF, RIP and VRRP(L3 switch only)
- Complies with IEC61375 standard, supporting TTDP, TTDB and TRDP(ETBN Model only)
- Supports NAT, NAPT (L3 Switch only)
- Supports SNTP client
- Supports PTPv2 TC
- Supports bypass power failure bypass function
- Complies with the requirements of EN50155 and EN50121 industrial standards
- Supports Automatic Configuration Backup and Restore
- **IP65 protection class**
- **CE, FCC, EN50155, EN45545, EN50121**

Aquam8512A/8012A



- Supports up to 3 10/100/1000Base-TX and 9 10/100Base-TX ports or 4 10/100/1000Base-TX and 8 10/100Base-TX ports, and support a maximum 9 PoE ports.
- Supports X-coded M12 connector with Gigabit ports, and D-coded M12 connector with 100M ethernet ports
- Supports optional bypass function
- Supports DT-Ring protocols and RSTP/MSTP,DRP ring network redundancy protection and VRRP
- Supports Layer 3 routing protocols such as OSPF v2.0(L3 switch only)
- Complies with IEC61375 standard, supports TTDP(Train Topology Discovery Protocol) (ETBN Model Only)
- Complies with the requirements of EN50155 and EN50121 industrial standards
- Supports Automatic Configuration Backup and Restore
- Supports R-NAT(pending)
- IP67 protection class
- **CE, FCC, EN50155, EN45545, EN50121, EN60950**

Aquam8612/8112-1U



- Supports 12 10/100/1000Base-T(X) M12 X-Code ports, among which 4 10/100/1000Base-T(X) ports are Bypass ports
- Supports OSPFv2, RIPv2 and static routing(L3 switch only)
- Supports NAT function(L3 switch only)
- Supports 802.3af/at PoE/PoE+
- Supports RSTP/MSTP
- Supports DT-Ring, with recovery time <50ms
- Supports DRP/DHP, with recovery time <20ms
- Supports 1-1 NAT, NAPT(L3 switch only)
- Supports SNTP client
- Supports PTPv2 Transparent Clock mode
- Supports Bypass power failure bypass function
- **CE, FCC, EN62368(CE-LVD), EN50155, EN50121, EN45545(PENDING)**

Technical Report


Product Services

Technical Report No.: 704202012114-00

Date: 2020-07-29

Client: Kyland Technology Co., Ltd.
No.901 Floor 8, Building No.2, Shixing Avenue 30#, Shijingshan District, 100041 Beijing, People's Republic of China

Test subject: Product: Industrial Ethernet Switch

Type: Aquam8120-16T-L2-L2, Aquam8120-16T-PP-L2-L2, Aquam8120-4GE16T-L2-L2, Aquam8120-4GE16T-PP-L2-L2, Aquam8120-B-4GE16T-L2-L2, Aquam8120-B-4GE16T-PP-L2-L2, Aquam8120-16P-L2-L2, Aquam8120-16P-PP-L2-L2, Aquam8120-4GE16P-L2-L2, Aquam8120-4GE16P-PP-L2-L2, Aquam8120-B-4GE16P-L2-L2, Aquam8120-B-4GE16P-PP-L2-L2, Aquam8620-16T-L2-L2, Aquam8620-16T-PP-L2-L2, Aquam8620-4GE16T-L2-L2, Aquam8620-4GE16T-PP-L2-L2, Aquam8620-B-4GE16T-L2-L2, Aquam8620-B-4GE16T-PP-L2-L2, Aquam8620-16P-L2-L2, Aquam8620-16P-PP-L2-L2, Aquam8620-4GE16P-L2-L2, Aquam8620-4GE16P-PP-L2-L2, Aquam8620-B-4GE16P-L2-L2, Aquam8620-B-4GE16P-PP-L2-L2, Aquam8620-NAT-16T-L2-L2, Aquam8620-NAT-16T-PP-L2-L2, Aquam8620-NAT-4GE16T-L2-L2, Aquam8620-NAT-4GE16T-PP-L2-L2, Aquam8620-NAT-B-4GE16T-L2-L2, Aquam8620-NAT-B-4GE16T-PP-L2-L2, Aquam8620-NAT-16P-L2-L2, Aquam8620-NAT-16P-PP-L2-L2, Aquam8620-NAT-4GE16P-L2-L2, Aquam8620-NAT-4GE16P-PP-L2-L2, Aquam8620-NAT-B-4GE16P-L2-L2, Aquam8620-NAT-B-4GE16P-PP-L2-L2, Aquam8620-NAT-B-4GE16T-L2-L2-ETBN, Aquam8620-NAT-B-4GE16T-PP-L2-L2-ETBN, Aquam8620-NAT-B-4GE16P-L2-L2-ETBN, Aquam8620-NAT-B-4GE16P-PP-L2-L2-ETBN

Test specification: EN 50155:2017

Purpose of examination: Test according to the test specification

Test result: See Item 3 for details

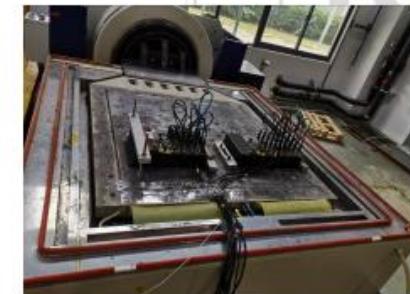
Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details please see testing and certification regulation, chapter A-3.4.

 No.: 748221466401
 Date: 30-May-2019

Frequency (Hz)	ASD (m ² /s ³)	Slope (dB)
5 to 20	0.0144	-
20 to 150	-	-6
-	Test Direction: Longitudinal	
-	Test Time: 10 minutes	

Test Setup:


Vertical



Transverse

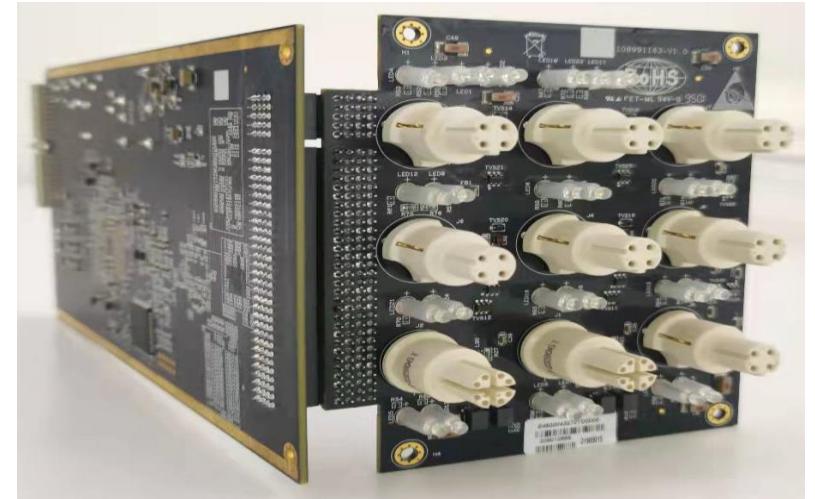
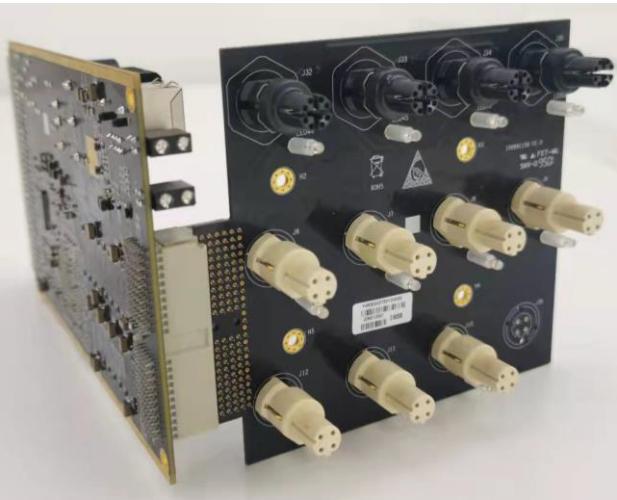


Longitudinal

Test Result:

Sample No.	Test Results
1#	<ul style="list-style-type: none"> - No visible damage was observed on the sample after test. - The sample worked normally during and after the test.

Diversified Customized Switch Board



References





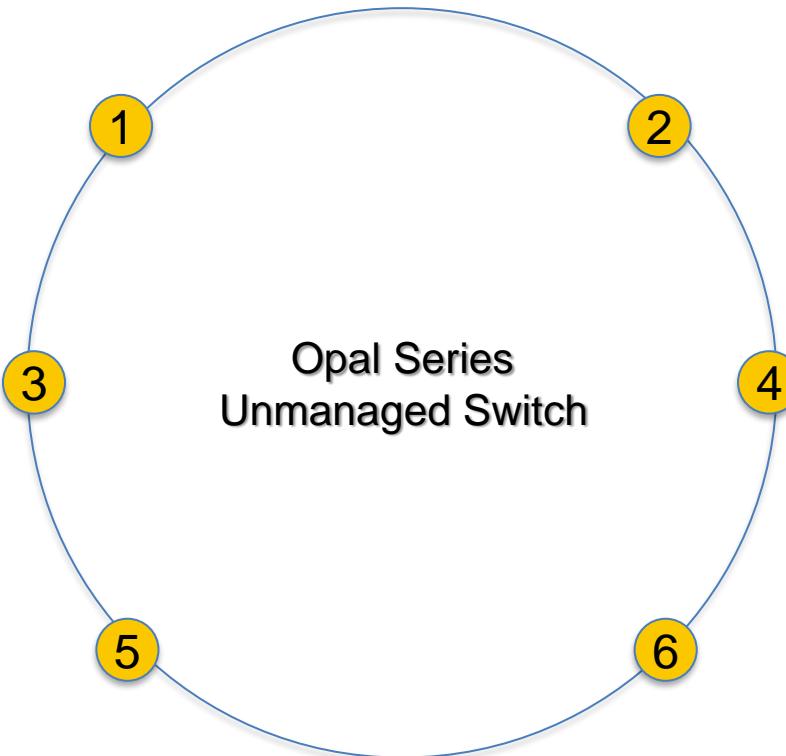
Opal Series

Unmanaged Industrial Ethernet Switch

Unmanaged Switches

Full Gigabit	Opal5G	Opal5GS	Opal5GL	Opal8GL	Opal10G	Opal10GS	Opal10GL	Opal20GL
Gigabit Uplink								
Full 100M	Opal5	Opal5S	Opal5L	Opal8	Opal8A	Opal8L	Opal10	Opal10S
5 Ports	Opal5	Opal5S	Opal5L	Opal8	Opal8A	Opal8L	Opal10	Opal10S
8 Ports								
10 Ports								
20 Ports								

Key Features



Appearance

Power Connector

- 4-pin 5.08mm-spacing power terminal
- Redundant power inputs
- 12-48VDC/18-30VAC

Fast Ethernet RJ45

- 10/100Base-TX Port
- Interface LED: Link/ACT

Fast Ethernet fiber

- 100Base SFP Slot
- Interface LED: Link/ACT



Earthing Screw

LED

- PWR1, PWR2

Gigabit Ethernet RJ45

- 10/100/1000Base-TX port
- Interface LED: Link/ACT, Speed

Gigabit Ethernet Fiber

- 1000Base-X SFP Slot
- Interface LED: Link/ACT

Opal5L Opal8L

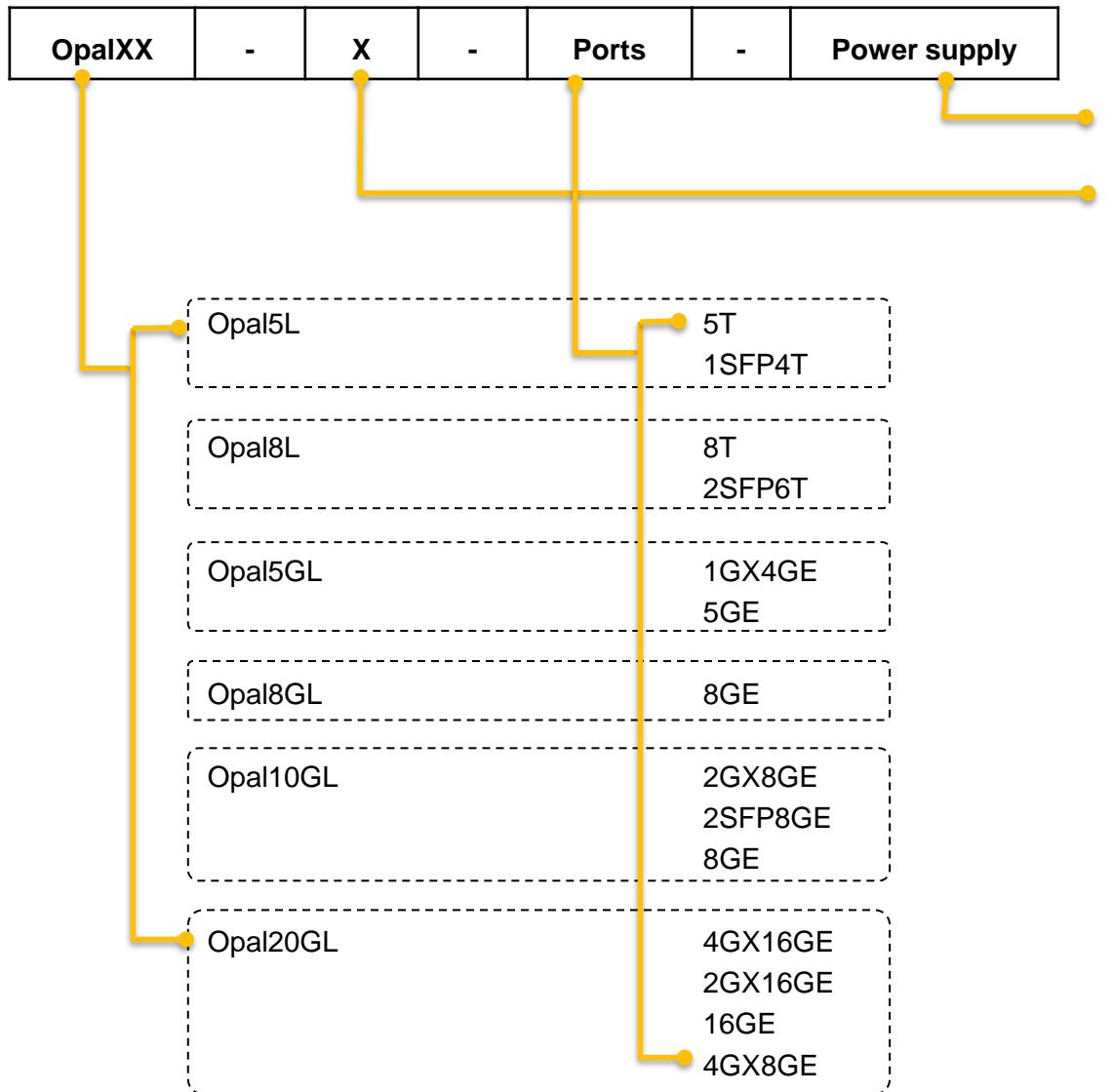
Keep Opal5/8 housing design

Opal5L Opal8L

Opal5GL Opal8GL Opal10GL

New housing design

Selection List



LV-LV: 12-48VDC/18-30VAC, redundant power inputs

Blank: -40 °C to 75 °C

E: -10 °C to 60 °C

Ports:

- GX: 1000Base SFP Slot
- SFP: 100Base SFP Slot
- GE: 10/100/1000Base-TX RJ45 port
- T: 10/100Base-TX RJ45 port

Technical Parameters



	Opal5L-5T	Opal8L-8T	Opal5L-1SFP4T	Opal8L-2SFP6T	Opal5GL	Opal8GL	Opal10GL	Opal20GL
MAC Table	2K					4K		
Packet Buffer	1Mbit					1.5Mbit		
Interface	5×10/100Base-TX	8×10/100Base-TX	1×100Base SFP 4×10/100Base-TX	2×100Base SFP 6×10/100Base-TX	1×1000Base SFP 4×10/100/1000Base-TX or 5×10/100/1000Base-TX	8×10/100/1000Base-TX	2×1000Base SFP 8×10/100/1000Base-TX	4×1000Base SFP 16×10/100/1000Base-TX
Jumbo frame	2048 bytes maximum packet					9216 bytes		
Power Input	12-48VDC/18-30VAC	12-48VDC/18-30VAC	12-48VDC/18-30VAC	12-48VDC/18-30VAC	12-48VDC/18-30VAC	12-48VDC/18-30VAC	12-48VDC/18-30VAC	12-48VDC/18-30VAC
Power Connector	4-pin 5.08mm-spacing power terminal	4-pin 5.08mm-spacing power terminal	4-pin 5.08mm-spacing power terminal	4-pin 5.08mm-spacing power terminal				
Housing, IP rating	Metal, IP30		Metal, IP40					
Dimension (W×H×D)	29.6×114.5×68mm	45.6×114.5×68mm	31.3×114.5×95mm	45.6×114.5×95mm	31.3×114.5×95mm	29.6×147×95mm	53.6×134×106mm	
Mounting	DIN-Rail, Wall Mounting							
Operating Temp.	-10°C~+60°C (-E) -40°C~+75°C							
EMS	Level 3							
EMI	Class A							



4. Almost Zero Failure Return



One of the biggest nightmares of those who manage industrial systems is devices that fail in remote areas. Failure of a device on a running system not only reduces system efficiency, but also wastes additional time and resources by sending personnel to the field, trying to find the root cause of the failure, and waiting for the failed device to be replaced. For this reason, it is desired that the devices commissioned have high MTBF (mean-time-between-failure) values. One of Kyland's most pleasing features for the GSL is that there has been almost no return of defective equipment from customers over the years.

*1.5 million units shipments
for Opal series since products launch!*



Industrial Gateway & Serial Port Server & Converter



KGW:
Modbus TCP and Modbus
RTU/ASCII conversion



KPS:
Serial port equipment to
Ethernet connection



KOM:
Copper to fiber
media converters

KPS Overview



Powerful features and affordable prices

- Provides 1 or 2 Ethernet port; 1, 2, 4, 8 RS-232/485 serial port
- Support socket operating modes, including TCP Server, TCP Client and UDP, etc.
- Support alarm and one-click recovery function
- The serial port supports 2kv isolation protection
- IP40 Protection Class
- Metal body, wide temperature operation (-40° C ~+75° C)
- Modbus RTU data transmission
- CE , FCC

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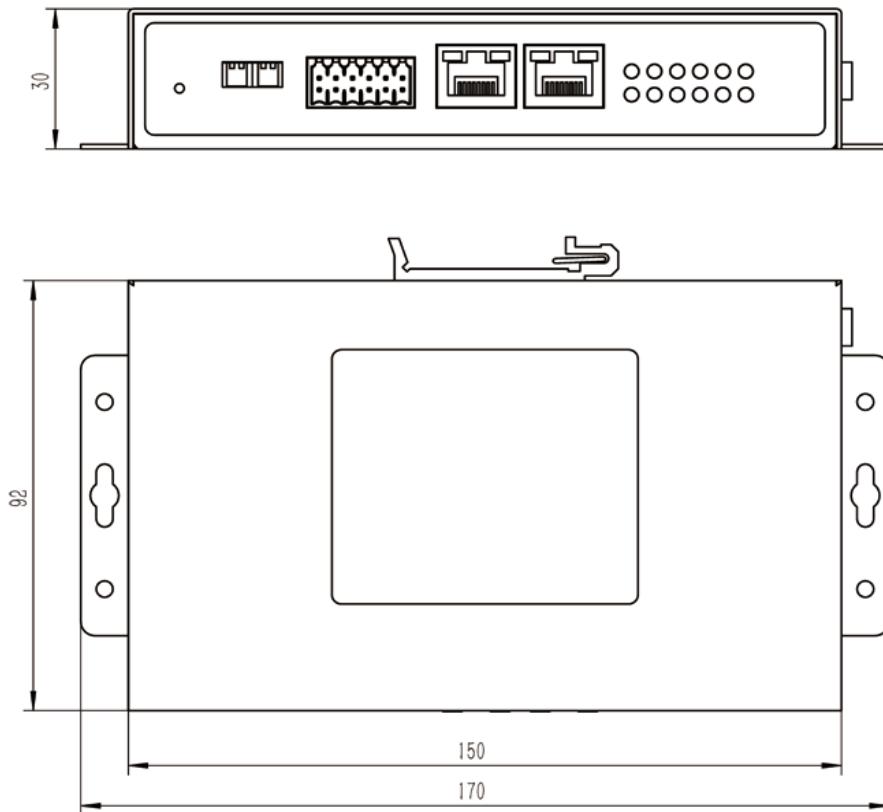
KPS Selection List



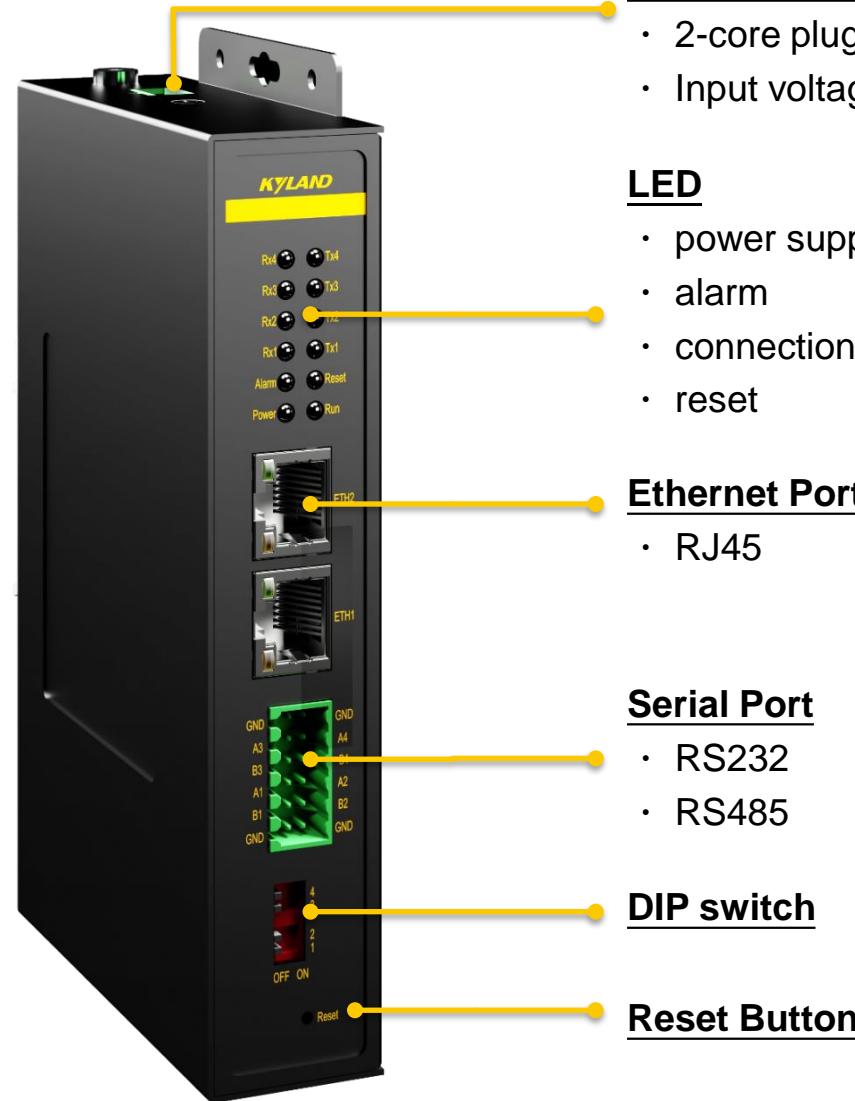
Model:

- KPS3101A-E-1T1D-232-L17
- KPS3101A-E-1T1D-485-L17
- KPS3102A-E-1T2D-232-L17
- KPS3102A-E-1T2D-485-L17
- KPS3204A-E-2T4D-232-L17
- KPS3204A-E-2T4D-485-L17
- KPS3208A-E-2T8D-232-L17
- KPS3208A-E-2T8D-485-L17

KPS Appearance



Support Din-Rail and Wall Mounting



KPS Highlight: Perfect Software Features



- **Security feature:** SSH
MAC Address Filtering
User classification
- **Management Feature:** HTTP/HTTPS
KyCMT
ICMP, SNMP, LLDP, ARP, DNS, DHCP
- **Device maintenance:** Upgrade by WEB
FTP, TFTP, Syslog
SMTP
...
- **Access control:** Setting serial port data frame format
Serial heartbeat packet
Channel cipher check
Automatic disconnect after timeout
...

KPS Highlight : Reliable Hardware Functionality



- All Ports isolation
- Support multiple network segment set to achieve network redundancy
- Cascading function supported
- Supports adjustable resistor of 485 serial terminal
- EMC3
- IP40 protection class
- Support Din-Rail and Wall Mounting
- Operation temperature -40°C～+75°C

Competitive Analysis

	KPS-A (Kyland)	Nport (MOXA)	EKI (Advantech)
SSH	✓		
MAC filtering	✓		
User classification	✓		
Web Management	✓	✓	✓
SNMP	✓	✓	✓
LLDP	✓	✓	
DHCP server	✓		✓
DHCP client	✓	✓	✓
FTP	✓		
Syslog	✓		
SMTP	✓	✓	✓
Bootp	✓	✓	✓
Telnet	✓	✓	✓

KGW Intelligent Gateway



A economic protocol converter

- Conversion of common protocols
- Provide secondary development environment
- Protocol customize service available
- Perfect security management service
- Support 4G wireless communication
- The specified configuration tool

KGW Intelligent Gateway



Modbus RTU

Modbus TCP

OPC UA Client

DNP 3.0

DLT_645 2007

...

DLT_645 1997

IEC-60870-101

IEC-60870-103

IEC-60870-104

Siemens S7

MQTT

KPS/KGW: Setting device by HTTPS

KYLAND

Path: Home >> Network >> Interface Bridge

Interface Bridge

Enable Bridge	<input checked="" type="checkbox"/>
IPv4 address	192.168.0.249
IPv4 netmask	255.255.255.0
IPv4 gateway	
Use custom DNS servers	
Cover the following interface	<input checked="" type="checkbox"/> Ethernet Adapter: "eth0" <input type="checkbox"/> Ethernet Adapter: "eth1"
Protocol(WAN)	Static address
IPv4 address(WAN)	10.12.2.249
IPv4 netmask(WAN)	255.255.255.0
IPv4 gateway(WAN)	
Use custom DNS servers(WAN)	

Apply

KYLAND

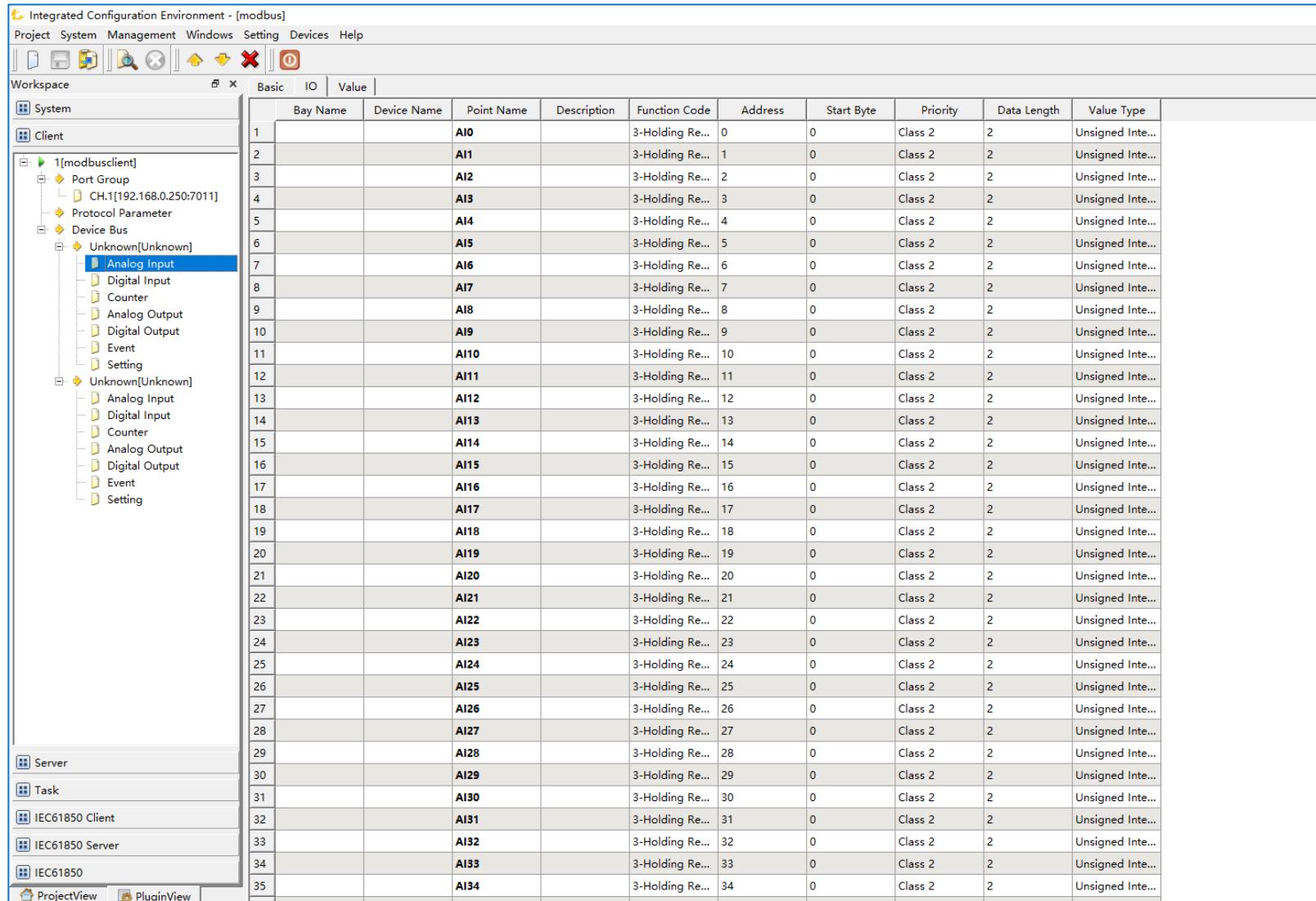
Path: Home >> Serial Servers >> Serial Interface

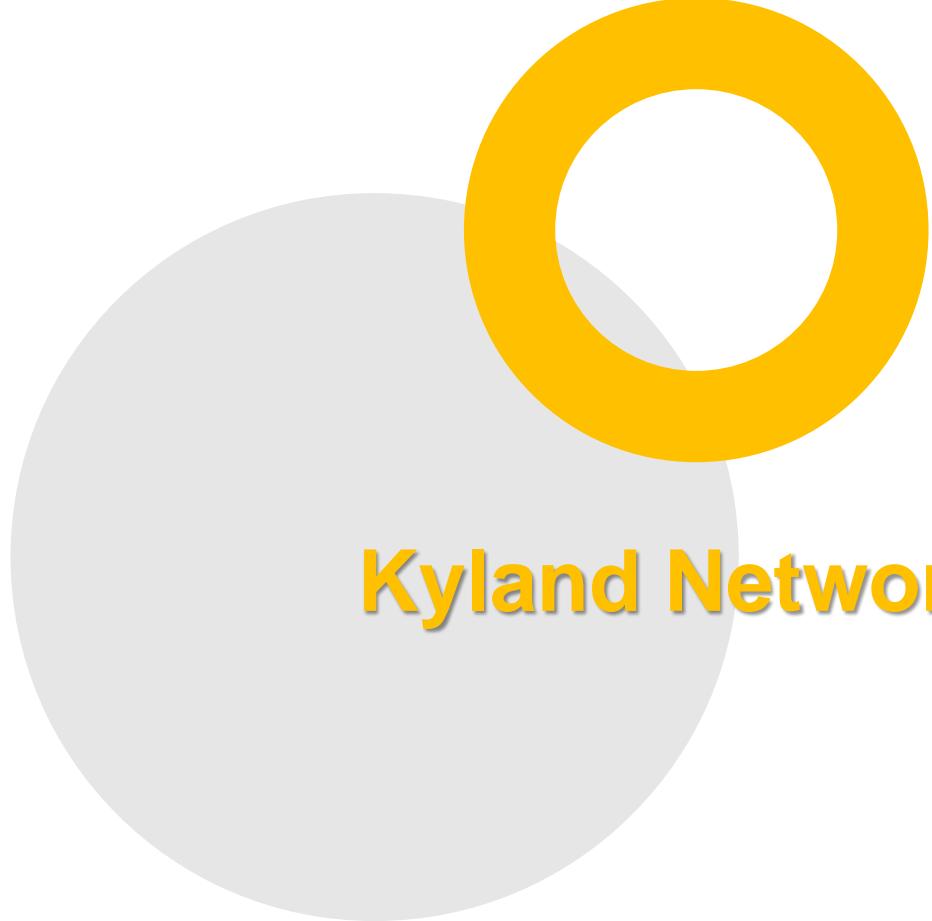
Serial Interface

SerialPort1	SerialPort2	SerialPort3	SerialPort4		
Baud Rate	Date Bits Used	Parity	Stop Bits Used	Serial Frame bytes(0~1460)	Character Interval(100~500ms)
9600	8	None	1	0	500
Network Mode	Tcp/Server				
Transmit Mode	Transparent	Simplex Mode			
Serial Heartbeat Packet					
Serial Heartbeat Time(s)	60				
Channel Check					
Connect Information	Disable				
Local Tcp Port					
Max Client Num	4				
Keepalive Time(s)	10				
Max No data Time(s)	200				

Apply **Refresh**

KPS/KGW: Setting device by specified configuration tools



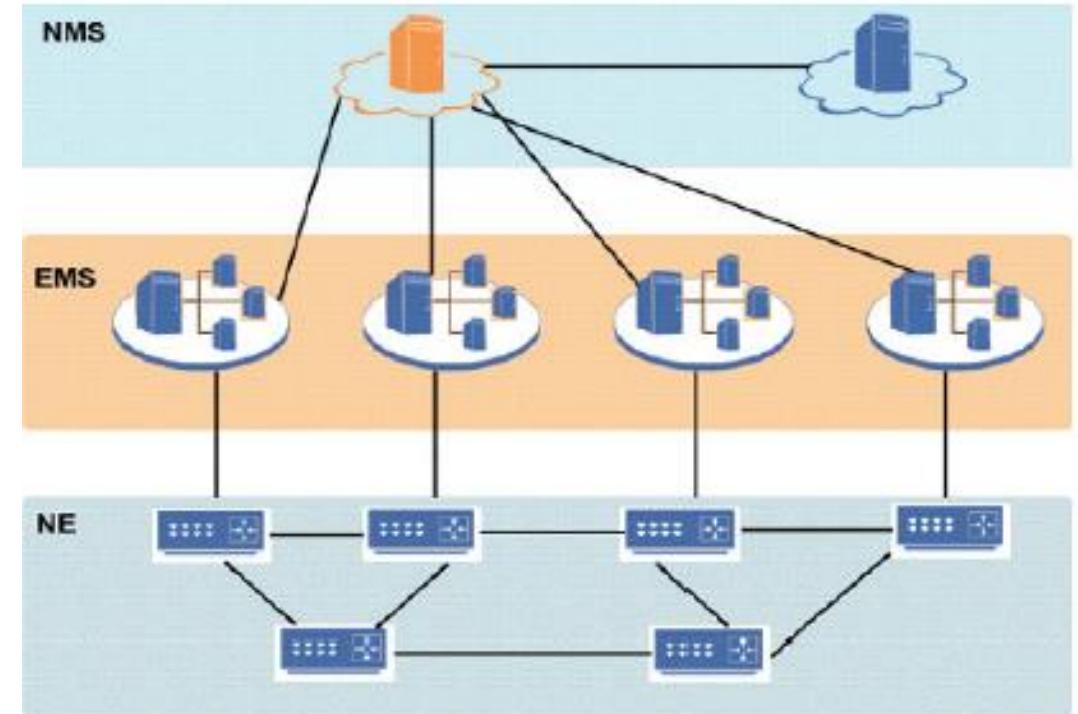


Kyland Network Management Software

Kyland Network Management Platform

Kyvision and Kyview

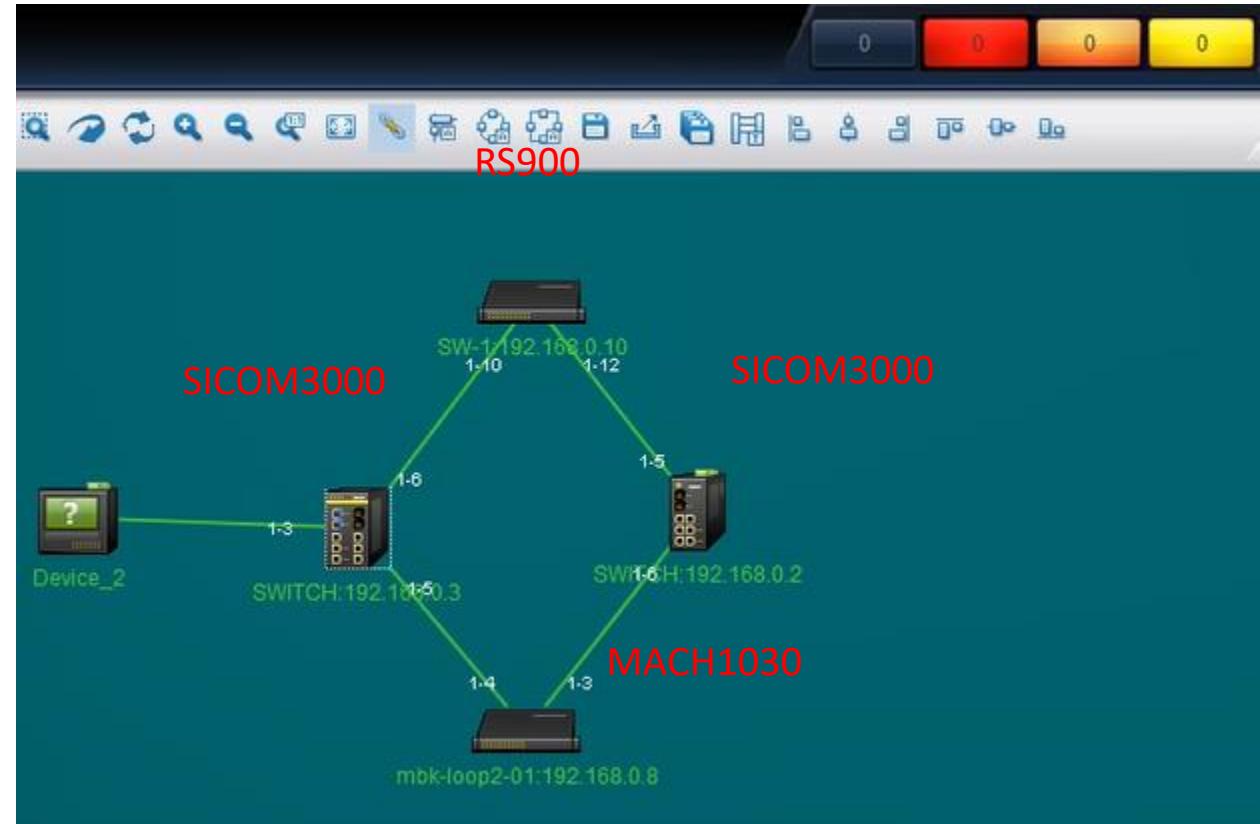
- **Kyview**
 - Network Management System (NMS)
 - To manage networks in different regions and equipment from different suppliers
 - Up to 10,000 network equipment managed
- **Kyvision**
 - Element Management System (EMS)
 - Focus on the end to end network equipment management and maintenance within the regions and network.
 - Up to 1,000 network equipment managed



Kyvision

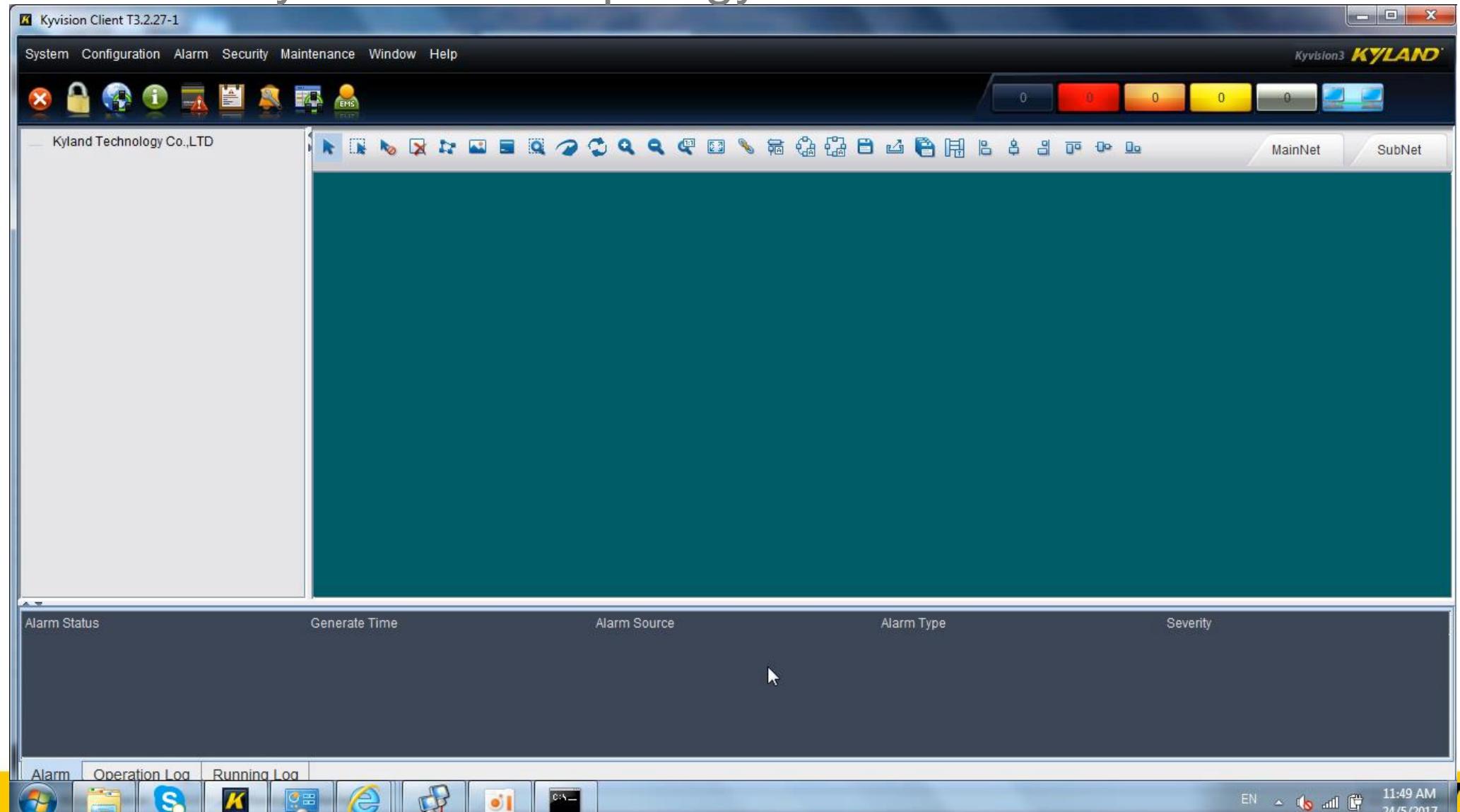
Element Management System (EMS)

- Support auto-topology of networks by IP address
- Show the device status, connections and port statistics
- Show alarm with 3 colors to indicate severity levels
- Import and export configuration
- Save Log information in database.
- Compatible with 3rd party SNMP devices
(Such as RS900 and MACH1030)



Live Demo with 3rd Party Devices

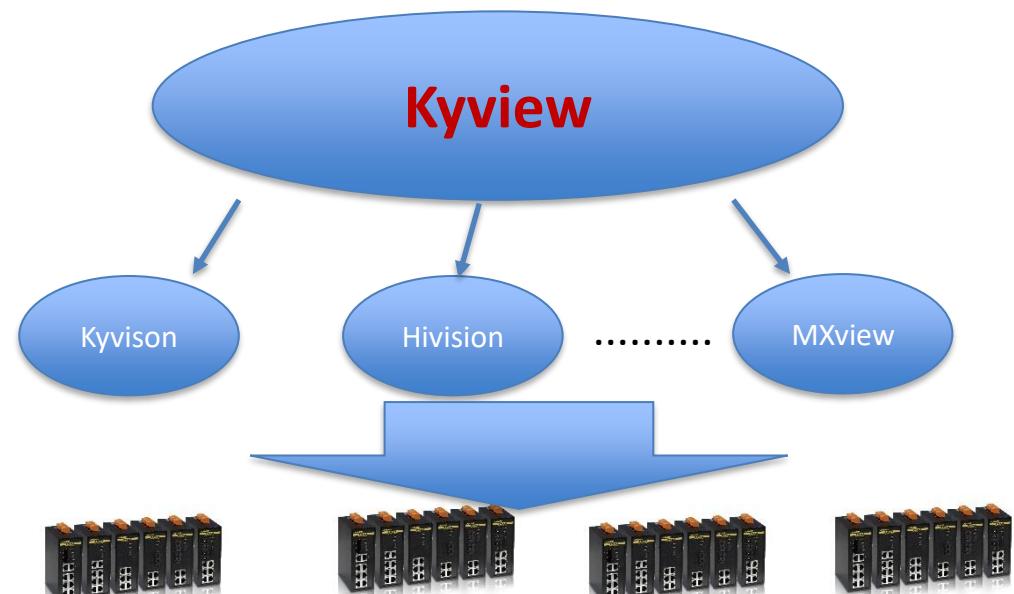
Auto Discovery and Auto Topology



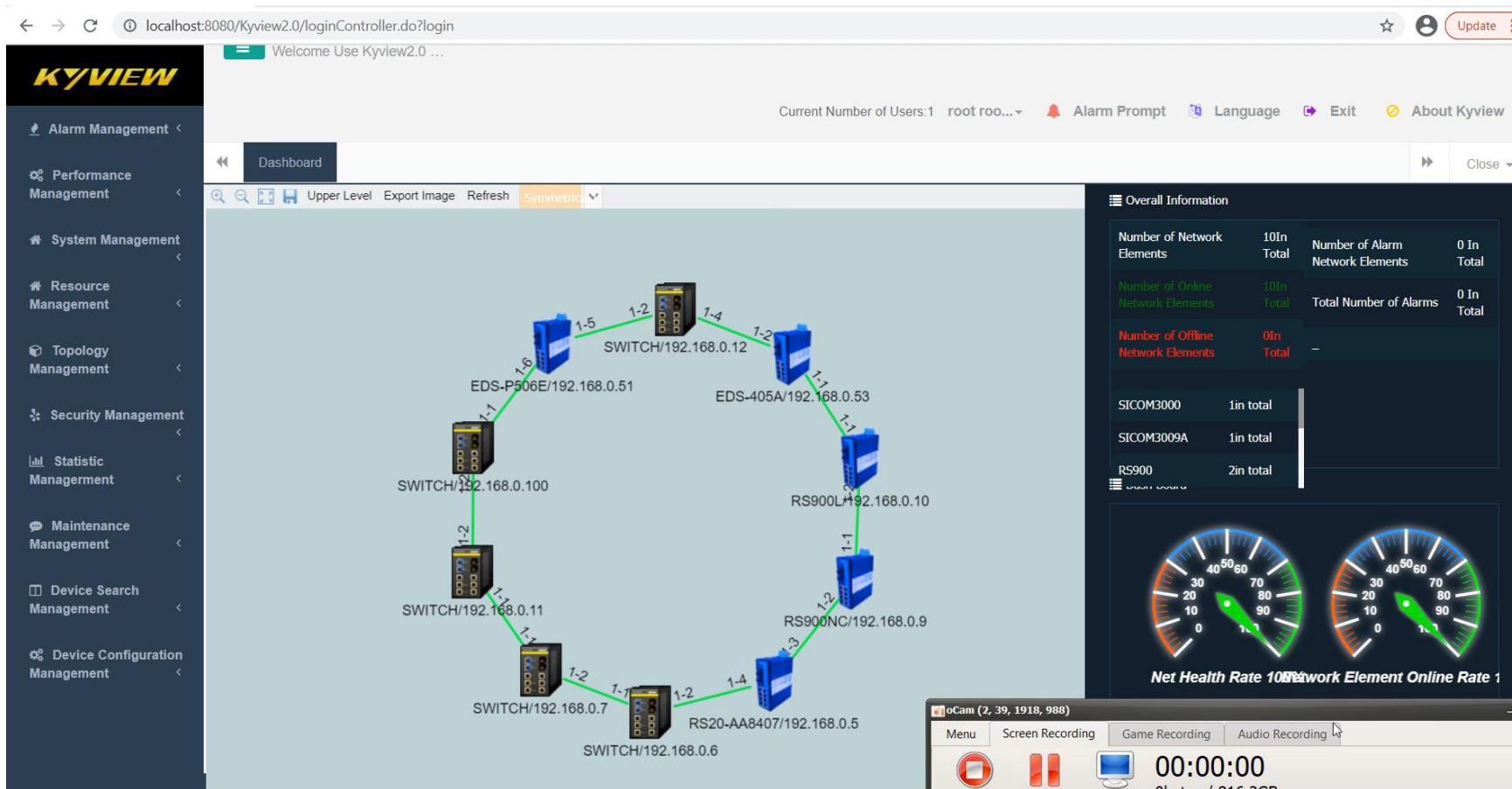
Kyview

Network Management System (NMS)

- Dynamic acquisition and statistics of configuration with Multi-level view.
- Real-time monitoring of status, parameters of equipment and performance analysis
- Providing quick and intelligent processing of alarms
- Providing daily report of performance, alarms and resources.
- **Compatible with 3rd party EMS via Corba (Common Object Request Broker Architecture) interface**



Kyview Demo



Confidential

KYLAND

Kyland Advantages Summary

1. Top Industrial Ethernet Switches Brand in China, concentrating on IES for more than 22 years;
2. Abundant, Reliable and Trust-worthy products well-proven and accepted around the world;
3. Market and Customer Oriented with flexibility;
4. Fast delivery time;
5. Cost-efficient.

Thank you!

