Ruby3A

Managed redundancy box

- 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

≫ Overview

Ruby3A from Kyland is specially designed for reliable industrial networking realizing both PRP (Parallel Redundancy Protocol) and HSR (High-availability Seamless Redundancy) which are defined in IEC62439-3. The Ruby3A provides the ultimate in network reliability and zero failover time from network faults. Full FPGA hardware solution enables Kyland Ruby3A low switching latency and PRP/HSR is selectable via software with the same hardware platform. Precision time synchronization in accordance with IEEE 1588v2 is supported on Kyland Ruby3A.

≫ Software functions

Redundancy Protocol

Supports HSR and the recovery time is 0 ms.
Supports PRP and the recovery time is 0 ms.
Supports PRP/HSR Coupling
Supports Quadbox mode

Management & Maintenance

Supports Console and Web management
Supports Telnet*
Supports Manage VLAN
Support SNMPv1/v2c
Support SNMPv3*

Support RMON*
Support LLDP
Support DHCP client*
Support software update
Support configuration download
Support configuration upload*
Support FTP/TFTP*
Support Syslog
Support Alarm
Support DDM*

Time synchronization

Support PTPv2(IEEE1588-2008) transparent precision<1us
Support power profile(IEC 61850-9-3 2016)*
Support NTP*
Support SNTP*

Security

Support SSH
Support SFTP*
Support SSL*
Support user grading

Other

Support IEC61850 MMS server*

*   Functions being developed

Product Specifications

Technical Specifications

Standard
- IEEE 802.3ab(1000Base-T)
- IEEE 802.3z(1000Base-SX/LX)
- IEEE 802.3u(100Base-TX and 100Base-FX)
- IEC62439-3-5(HSR, Edition 3.0 update ready)
- IEC62439-3-4(PRP, Edition 3.0 update ready)

Interface

Gigabit ports
- 1000Base-X, 100Base-FX, SFP port
- 100/1000Base-T(X), RJ45 port
- Console port: RS232,RJ45

Alarm contact
- 3-pin 5.08mm-spacing plug-in terminal block, 250 VAC/220 VDC Max, 2 A Max, 60 W Max

LED

LED on front panel
- Running LED: Run
- Alarm LED: Alarm
- Power LED: PWR1, PWR2
- Local port link LED: L
- HSR/PRP mode LED:Mode
- Port LED: Link/ACT

Button

Reset: supports system reboot

Power Requirements

Power input
- 24-48VDC(18-72VDC),
- 100-240VAC,50/60Hz;110-220VDC(85-264VAC/77-300VDC)

Power terminal
- 5-pin 5.08 mm-spacing plug-in terminal block (L2)
- 3-pin 7.62 mm-spacing plug-in terminal block (HV)

Power consumption	<8W
Overload protection	Support
Reverse connection protection	Support
Redundancy protection	Support

Physical Characteristics

Housing	Metal
Cooling	Natural cooling, fanless
Protection Class	IP40

Dimensions(W×H×D)
- 66×135×107.5 mm (2.60×5.31×4.23 in.)

Weight	1.25Kg (2.756pound)
Mounting	Din-rail or panel mounting

Environmental Limits

Operating temperature	-40°C to +85°C (-40°F to 185°F)
Storage temperature	-40°C to +85°C (-40°F to 185°F)
Ambient Relative Humidity	5% - 95% (non-condensing)

Quality Assurance

MTBF	351889h
Warranty	5 years

Industry Standard
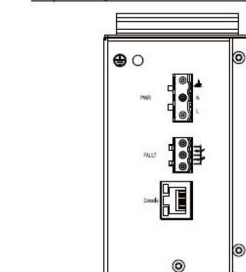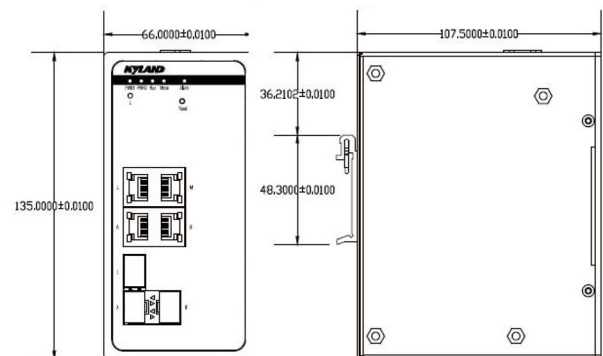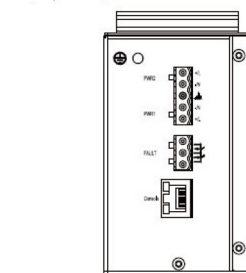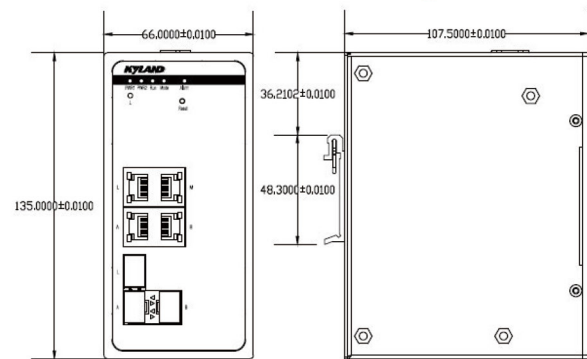
EMI
- FCC CFR47 Part 15,EN55022/CISPR22,Class A

EMS
- IEC61000-4-2(ESD) ±8kV(contact),±15kV(air)
- IEC61000-4-3(RS) 10V/m(80MHz-2GHz)
- IEC61000-4-4(EFT) Power Port:±4kV;Data Port:±2kV
- IEC61000-4-5(Surge) Power Port:±2kV/DM,±4kV/CM;Data Port:±2kV
- IEC61000-4-6(CS) 3V(10kHz-150kHz);10V(150kHz-80MHz)
- IEC61000-4-16(common mode conduction) 30V(cont.),300V(1s)

Machinery
- IEC60068-2-6 (vibration)
- IEC60068-2-27 (shock)
- IEC60068-2-32 (free fall)

Mechanical Drawing

⟫ Order Information

Product Model	Description
Ruby3A-3G-HV	3x1000Base-X, 100Base-FX, 100/1000Base-T(X) Combo port; 100-240VAC,50/60Hz;110-220VDC(85-264VAC/77-300VDC)
Ruby3A-3G-L2-L2	3x1000Base-X, 100Base-FX, 100/1000Base-T(X) Combo port; 24-48VDC(18-72VDC), redundant power inputs

⟫ Accessories

Accessory Model	Description
Gigabit SFP module	See the selection table of industrial gigabit SFP module.
100M Fiber SFP Module	See the selection table of industrial 100M Fiber SFP module.
DT-FCZ-RJ45-01	Single-port RJ45 dust plug
DT-BGAZ-09	Panel mounting board