Ruby3

Managed Redundancy Box

Preliminary

- Compliant implementation of both PRP (IEC62439-3-4) and HSR (IEC62439-3-5)
- Supports combo ports as HSR/PRP port
- Supports IEEE 1588v2 and the synchronization precision reaches ±100 ns.
- Supports reset button for system reboot
- Complies with IEC 61850-3 and IEEE1613.

Overview

Ruby3 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 Ruby3 provides the ultimate in network reliability and zero failover time from network faults. Full FPGA hardware solution enables Kyland Ruby3 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 Ruby3.

Software Functions

Redundancy Protocol

Supports HSR and the recovery time is 0 ms.
Supports PRP and the recovery time is 0 ms.

Management & Maintenance

Supports Console, Telnet, and Web management methods.
Supports software update over FTP.
Supports power failure alarm
Supports LLDP.

Clock Synchronization

Supports PTPv2 (IEEE 1588-2008).

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)
▼ IEC62439-3-4(PRP)

Switch Properties

Number of VLANs	1
VLAN ID	1–4094
MAC table	512
Number of ring nodes	12
Switching delay	< 5 μs

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
▼ Port LED: Link/ACT
▼ HSR/PRP mode LED:PRP/HSR
▼

Button

Reset: supports system reboot

Power Requirements

Power input
▼ 24DCW(18-72VDC),
▼ 220AC/DCW(85-264VAC/77-300VDC)
Power terminal
▼ 5-pin 5.08 mm-spacing plug-in terminal block
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(WxHxD)
▼ 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% to 95% (non-condensing)

Quality Assurance

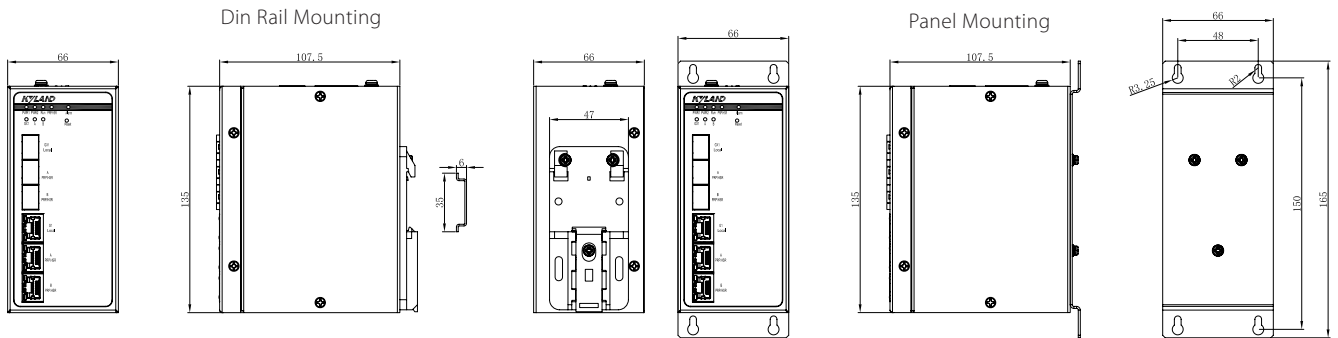MTBF   351,889 hrs
Warranty   5 years

Approvals

Please visit www.kyland.com for the latest news

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

Din Rail Mounting

Panel Mounting

Ordering Information

	Ruby3-Ports-PS
Ports	
3G	3x1000Base-X, 100Base-FX, 100/1000Base-T(X) Combo port;
PS	
HV	220AC/DCW(85-264VAC/77-300VDC)
L2-L2	24DCW(18-72VDC), dual 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