

HSR/PRP Switches



iRBX

Intelligent 6 Port Redundancy Ethernet Box



Features

- Modular design, up to 6 ports of 10/100/1000Base-TX or 100/1000Base-X
- Managed 6 ports Gigabit Ethernet Switch
- Fully compliant with IEC 62439-3 HSR "High-availability Seamless Redundancy"
- Fully compliant with IEC 62439-3 PRP "Parallel Redundancy Protocol"
- Supports two HSR/PRP RedBoxes or single QuadBox configurations
- Supports IEEE 1588v2 one-step transparent, boundary and ordinary clocks
- Provides redundancy with no single point of failure
- Zero time to recovery in case of failure
- Single network faults in the ring result in zero frame loss
- Network remains fully operational during maintenance
- Any device can be disconnected and replaced without breaking network connectivity
- Redundancy is supervised continuously for network and device management
- Operates independently of specific Ethernet protocols
- Suitable for any application that requires short reaction time and high availability such as substation automation, high-speed drives and transportation
- Supports Dual redundant hot swappable power supplies

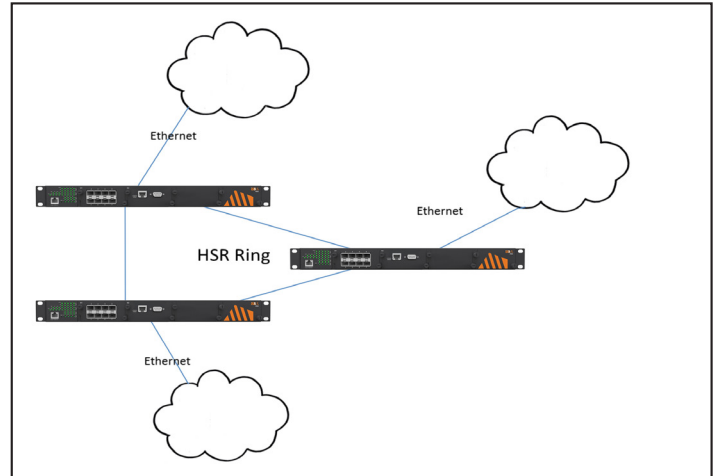


Figure 1 - HSR Ring Topology

Introduction

The iRBX switch provides redundant ports for critical and high-availability networks. It supports both high-availability seamless redundancy (HSR, IEC 62439-3 Clause 5) and parallel redundancy protocol (PRP, IEC 62439-3 Clause 4).

Both of these standards provide redundant paths with no single point of failure and zero time to recover in case of failure. Single network faults in the ring will not result in any frame loss. The network is fully operational during maintenance and any device can be disconnected and replaced without breaking network connectivity. HSR is typically used in a ring topology as shown in figure 1. PRP is typically used in a double star topology as shown in figure 2.

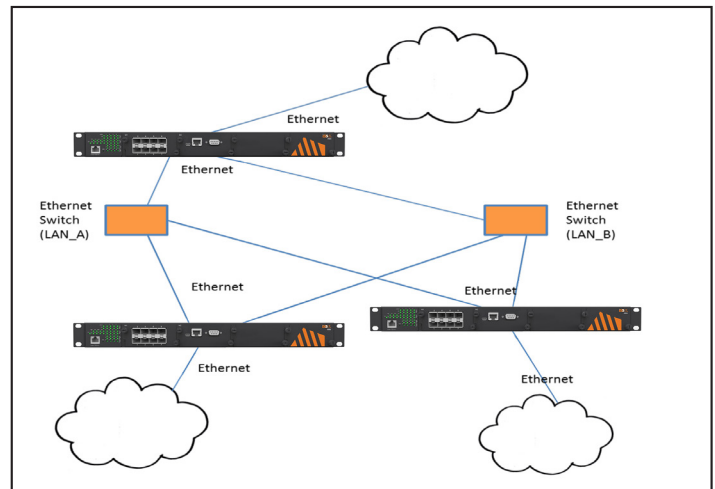


Figure 2 - PRP Double Star Topology

Specifications

Model Number iRBX	
Physical Ports	
Port Types	6 ports 10/100/1000 Base-Tx or 100/1000Base-X, SFPs
Technology	
Ethernet Standards	IEEE 802.3i for 10Base-T IEEE 802.3u for 100Base-TX and 100Base-FX IEEE 802.3ab for 1000Base-T IEEE 802.z for 1000Base-X IEEE 802.1Q for VLAN Tagging IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol) IEEE 1588v2 one-step transparent, boundary and ordinary clocks IEC 62439-3 HSR "High-availability Seamless Redundancy" IEC 62439-3 PRP "Parallel Redundancy Protocol"
Priority Queues	4
Time Synchronization	Supports IEEE 1588v2 transparent, boundary and ordinary clock
Network Redundancy	HSR, PRP as per IEC 62439-3, MRP - Media Redundancy Protocol as per IEC 62439-2. RSTP - Rapid Spanning Tree Protocol
Software Features	IEEE 1588v2 PTP clock synchronization, IEC 62439-3 HSR "High-availability Seamless Redundancy" IEC 62439-3 PRP "Parallel Redundancy Protocol" IEEE 802.1D Bridge, auto MAC address learning/aging and MAC address (static) Multiple Registration Protocol (MRP) MSTP (RSTP/STP compatible), Quality of Service (802.1p) for real-time traffic, IGMP Snooping IEEE 802.1Q VLAN support - 4095 simultaneous VLANs Multicast filtering - 16 MAC entries per input port, every entry has configurable mask IGMP multicast groups: 128 for each VLAN



iRBX (cont.)

Intelligent 6 Port Redundancy Ethernet Box



Specifications (cont.)

Power			
Redundant power input modular	Dual 24VDC power inputs at terminal block	Dual 48VDC (36-72VDC) power inputs at terminal block	Dual 110/220VDC/AC (88-300VDC / 85-264VAC) power inputs at terminal block
Overload current protection	Present	Present	Present
Physical Characteristic			
Enclosure	19 inches rack mountable		
Environmental			
Storage Temperature	-40 to 85oC (-40 to 185°F)		
Operating Temperature	-40 to 85oC (-40 to 185°F)		
Operating Humidity	5% to 95% Non-condensing		
Regulatory Approvals			
Power Automation	IEC 61850-3, IEEE 1613		
EMI	FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-2, EN55011, EN50121-4)		
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11		
Warranty			
Warranty	5 Years		

Ordering Information

Base	Power Supply 1	Power Supply 2	Mount	Slot 1*	Slot 2*	Description
iRBX	LV	LV	R	3GSFP**	3GSFP**	
iRBX						Core assembly and packaging
	XX	XX				None
	LV	LV				24VDC (18-36VDC)
	MV	MV				48 VDC (36-72VDC)
	HV	HV				88-300VDC or 85-264VAC
			RF			19" Rack Mount - Power terminal in the Front (same side as Ethernet ports)
			RR			19" Rack Mount - Rear Mount Power Terminal connection
			P			Panel Mounting
			N			No Mounting Hardware
				XX	XX	None
				3GSFP**	3GSFP**	2 X 100/1000Base T(X) SFP + 1 X 10/100/1000Base T(X) SFP
						Blank module

(SFP**) SEE ACCESSORIES LIST FOR SFP TRANSCEIVER OPTIONS

Example order code: iRBX-MV-LV-P-3GSFP**-C1

Description: 6 Port Redundancy Ethernet Box, Single Output Power Supply 1: 48 VDC (36-72VDC), Single Output Power Supply 2: 24 VDC (18-36VDC), Panel Mounting, 2 X 100/1000Base T(X) SFP + 1 X 10/100/1000Base T(X) SFP, Conformal Coating, Firmware version

C1=Add for conformal coating, FW - Leave blank for latest firmware

Note: Slot 1* - Ports 1 & 2 are HSR/PRP Port

Slot 2* - Port 3 is Interlink Port

Dimensions

All Dimensions are in Inches

