WoMaster

Product Introduction

MP310-HV

Industrial 7+3G L2 Managed M12 PoE Switch, 110V

MP310-MV

Industrial 7+3G L2 Managed M12 PoE Switch, 54V

Markets

Designed for rolling stock and wayside
-All M12 Connector for anti-vibration/shock
-EN50155 (EN50121-3-2 EMC)/IEC61373 (Vibration and Shock)
-Wide temperature **-40~70℃** and power input (HV/MV model)

MP310 Benefits

- Full L2 Management with cyber security+ (IEC62443)
- Focus on integration and solution
  - ITU-T G.8032 v1/v2 ERPS Ring Redundancy
    - Core network: Onboarding cabinet rackmount switch
    - Flexibility: Other devices with ERPS support
  - L2 local network and L3 routing: MP614
  - Wire and wireless redundant++ :WR314GPS
  - Standard PoE for all PD devices

MP310 Interfaces

Easy System Management
- 1 x M12 8 pin A-Code
- USB for Configuration/Firmware update
- RS232 console

Power Connector
- 1 x M12 4 pin A-Code

Ground Screw

Gigabit Uplink
- 3-port 100/1000Base-T M12 8-pin A-Code or X-Code
- 1-port with Gigabit PoE (Port 8)
- 2-port with Bypass Function (Port 9/10)

IEEE 802.3 af/at PoE
- 7-port 10/100MBase-TX M12 4 pin D-Code

System LED
- 1 x Power
- 1 x System Status
- 1 x Ring Status
- 1 x ALM
- 10 x Ethernet Port
- 8 x PoE

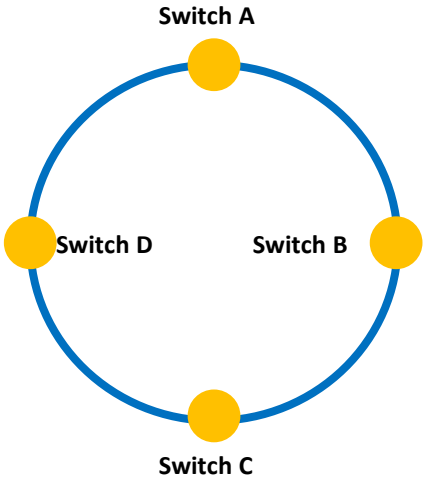
Wall Mount Screw Holes for Front/ Back Mounting

MP310 Features

- **HW/Mechanical Highlights:**
  - 7+3G Ethernet M12 ports with
    - 7x FE, IEEE 802.3af/at PoE
    - 3x GE, 1x PoE, 2x Link Bypass. A/X-code by model
  - Wide/Reduandant power input
    - MP310-HV: 77~137.5VDC
    - MP310-MV:46~57VDC
  - PoE power feeding
    - MP310-HV: 100W@70℃
    - MP310-MV: xxxW@70℃, xxxW@60℃
  - Exceptional heat dispassion design to sustain -40~70℃ wide temperature
  - Railway onboarding with EN 50155 certification (All screws with Nylok)
- **SW Highlights:**
  - Full L2 Managed with PoE management
  - USB for firmware/configuration update, VPN and universal extension
  - Cyber Security: 802.1X/RADIUS/MAB, IP/Port Security, VLAN
  - IEEE 1588 v1/2
  - LLDP, SNMP etc
  - ITU-T G.8032 v1/v2 ERPS Ring Redundancy, RSTP/MSTP

Redundant Ring

- Ring topology
  - Link backup/ network reliability by Redundant link
  - Broadcast storm/ MAC table unstable
- STP (RSTP/MSTP)
  - Restoration in seconds
- Proprietary ring protocols for efficiency
  - MOXA turbo ring/Huawei RRPP/ Korenix MSR/ Oring O-Ring for <50ms (carrier grade)
  - Hard for complicated network integration



ITU-T G.8032 ERPS

- ITU (International Telecommunication Union, 國際電訊聯盟)
  - Recommendation name: series.id (ex: H.264)
- Features & Benefits
  - ITU-T G.8032, Ethernet Ring Protection Switching, a standard ring protocol for interoperability
  - Supported by Cisco, Huawei, Juniper, D-link, etc
  - Version I for single ring; Version II for multi-ring instance
  - Carrier grade restoration time: <50ms
    - No computing time when topology changed (user specified blocking ports)
    - No flush required in some cases
      - Ex: RPL/blocking ports failure
    - No BPDU forwarding
  - Maintenance mode (force switch)
  - Revertive/non-revertive

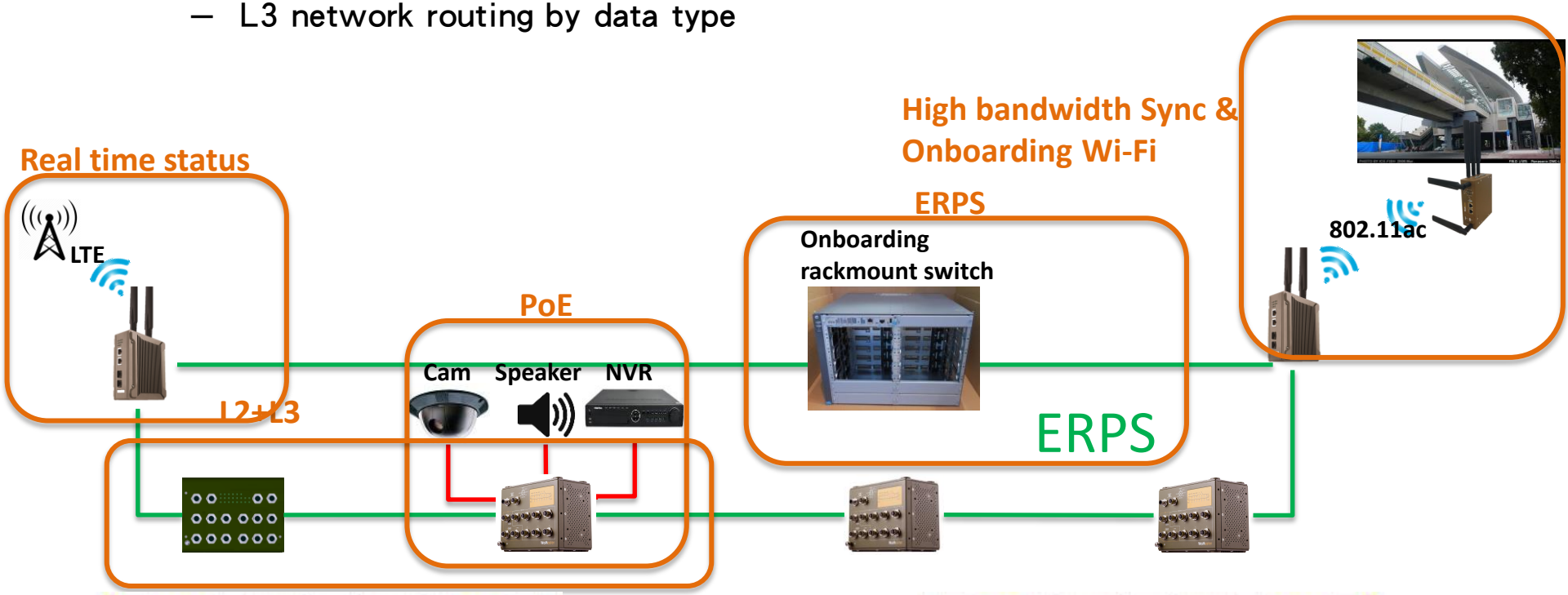
ERPS Performance Test

FW : V0.9.4	ERPS : V2	**3** units (DP310/DS310)		**10** units (DP310/DS310)		Note
Media	Spec.	Failure detect time	Recovery time	Failure detect time	Recovery time	
Copper 1000M	NA	350ms	3ms	352ms ~ 356ms	4ms~5ms	HW CFM for <50ms
Copper 100M	<50ms	3ms	3ms	4ms~5ms	4ms~5ms	64 unit? (TBC)
Copper 10M	NA	112ms	3ms	NT	NT	Minor
SFP 1000M	<50ms	25ms	3ms	18ms~25ms	4ms~5ms	64 unit? (TBC)
SFP 100M	<50ms	8ms	3ms	4ms~8ms	4ms~5ms	64 unit? (TBC)

1. More units should be scalable

On-Boarding Train Network

- MP310 L2 Managed PoE+ M12 Switch (middle carriage)
  - 8 PoE for IPCAM surveillance, 2 GE uplink
- MP614 L3 Managed Full-Giga PoE+ M12 Switch (front/end driver's room)
  - L3 network routing by data type



High-Speed & Reliable Vertical Communication