The Consist Switch is a Fast/Gigabit/10Giga Ethernet Layer 2 managed switch specifically designed for network applications in Rolling-Stock environments. Besides providing wire speed layer 2 forwarding, it supports also Layer 3 capabilities allowing IPv4 unicast and multicast routing among different VLANs. Its purpose is to enable the implementation of network topologies in a train. The Consist Switch is ready for next generation TSN (Time Sensitive Network). The Consist Switch can have up to five 10GBase-T ports.

The Consist Switch provides advanced traffic switching capabilities, including support for VLANs, IGMP, Spanning Tree protocols (STP/RSTP) and the possibility to apply Quality of Service (QoS) policies. Layer 3 extensions include inter-VLAN routing with packet filtering together with NAT. OSPF and RIP dynamic protocols are also supported. IPv4 router redundancy can be provided through standard VRRP protocol. Moreover, it has and integrated Per Port DHCP server. The bypass feature makes the device completely transparent to the network in case of power loss or failure, thus avoiding or reducing the impact of possible local dropouts or malfunction on network performance. Available in different models, the Consist Switch supports up to five 10Gbase-T Ethernet ports (up to 2 pairs with bypass function) eleven 1000Base-T Ethernet ports (4 with PoE+ capability) and twelve 100Base-T ports) with optional PoE+ capability.

Designed to operate in harsh environmental conditions typical of rolling-stock applications, the Consist Switch is fully EN 50155 compliant and provides the highest level of reliability and robustness required by the railway industry. Besides the standard features provided by this class of devices, the Consist Switch provides advanced software facilities for on-board network discovery and configuration.

The device includes a sophisticated programming interface and is capable of completely auto-configure itself from an abstract project definition right after power-on. Both these features dramatically ease maintenance activities and provide smart tools for fine-grained control over device operations and configuration.

Technical Specifications

- Up to five (5) 10GBase-T Ethernet ports or five (5) 1000Base-T Ethernet ports
- Eleven (11) 1000Base-T Ethernet ports - 4 of them with optional PoE+ capability
- Twelve (12) 100Base-T Ethernet ports with optional PoE+ capability
- M12 circular connectors for Ethernet ports
- M23 circular connector for power supply
- IPv4 protocol supported
- Up to 2 hardware bypasses for maximum reliability
- Spanning tree (STP 802.1D) and Rapid Spanning Tree (RSTP 802.1w)
- Link aggregation protocol (LACP 802.3ad)
- Up to 4096 802.1Q VLANs
- DHCP option 82 handling
- Advanced and flexible per-port DHCP server
- IGMP versions 1, 2 and 3 snooping
- SNMP v1, v2c, v3 device management
- Extended RMON counters
- Link Layer Discovery Protocol (LLDP 802.1ab)
- 802.1X port authentication
- RADIUS authentication
- DSCP/802.1p Class of Service
- Static IPv4 unicast and multicast routing
- OSPF and RIP dynamic routing protocols
- VRRP Router Redundancy for IPv4
- Network Address Translation (SNAT, DNAT and R-NAT)
- Packets filtering
- 8 output hardware queues for each port
- Strict priority or weighted (WRR) scheduler
- Ingress/egress/broadcast traffic rate limiting
- In-band (SSH) and out-of-band (console) CLI interface for device management
- In-band and out-of-band firmware upgrade
- Fallback firmware images for maximum reliability
- Train Topology and Configuration Management Protocol (TTCP©) technology to support project-based device configuration management, including network discovery and auto-configuration
- IEEE 802.3at PoE delivered on up to 16 ports

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Technical Specifications

PHYSICAL DATA

System status indicators: 8 LEDs
Fast Ethernet connectors: M12, female, 4-ways, D-coding
Gigabit Ethernet connectors: M12, female, 8-ways, X-coding
10 Gigabit Ethernet connectors: M12, female, 8-ways, X-coding
Power supply connector: Power-M23, male, 6-ways
Power supply voltage range (insulated):
   No PoE version
   Nominal 24-110Vdc  Range according to EN 50155:2017
   PoE Version
   Nominal 24Vdc  Range according to EN 50155:2017
   Nominal 37.5 Vdc  Range according to IEEE Std 1476-2000
   Nominal 48 Vdc  Range according to EN 50155:2017
   Nominal 72 Vdc  Range according to EN 50155:2017
   Nominal 96-110 Vdc  Range according to EN 50155:2017
   Interruption voltage supply class: S2, according to EN 50155:2017
PoE class: 0, 1, 2, 3 and 4, according to IEEE 802.3at Type-2
PoE max power: 250 W
Power consumption (PoE excluded): 30 W max
Overall dimensions: 315 x 240 x 73 mm (without connectors)
Weight: 4.5 Kg
Operating temperature:
   Standard -25 ÷ +70 °C (OT3+ ST1 class according to EN 50155:2017)
   Optional -40 ÷ +70 °C (OT4+ ST1 class according to EN 50155:2017)
Relative humidity (non condensing): 0 ÷ 95 %
Storage temperature: -40 ÷ +85 °C
Color codes: Pantone 430 / RAL 7045 (frame)
             Pantone 431 / RAL 7046 (front panel)
Degree of protection:
   Standard IP40
   Optional IP54, IP65

APPROVALS / COMPLIANCE

EN 60068-2-30:2005  Environmental testing - Tests - Test Db
   Variant 2: Damp heat
EN 61373:2010  Shock & Vibration - Category 1 class B
EN 50124-1:2017  Insulation coordination

INTERNETWORKING STANDARDS

IEEE 802.3  Fast Ethernet (100BASE-T)
IEEE 802.3ad  Link Aggregation Protocol (LACP)
IEEE 802.1Q  Tagged VLANs
IEEE 802.1D  Spanning Tree Protocol
IEEE 802.1w  Rapid Spanning Tree protocol
IEEE 802.1x  Port-based network access control
IEEE 802.1AB  Link Layer Discovery Protocol (LLDP)
IEEE 802.3ad  Link Aggregation Protocol (LACP)
RFC 2328  OSPF v2
RFC 2453  RIP v2
RFC 3768  VRRP v2
RFC 5798  VRRP v3
802.1AS, 802.1Qat, 802.1Qav and 802.1Qbv  Time Sensitive Networking (TSN)

Wall Mounting

Dimensions only for reference