

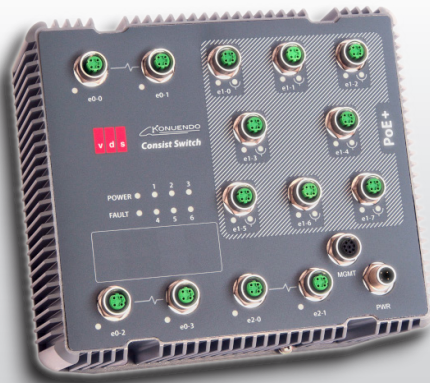
# FE Consist Switch

14 ports + PoE



**VDS Rail**  
The onboard networking company

KONUENDO NETWORKING



The Consist Switch is a Fast 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.

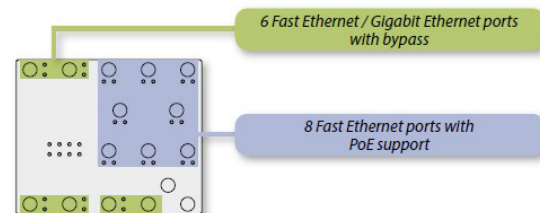
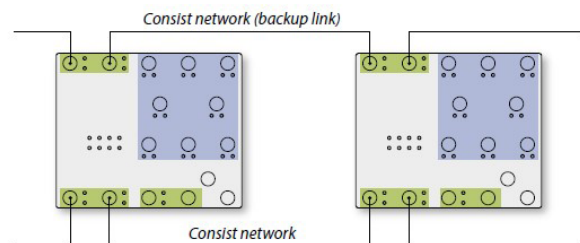
VDS Rail's Consist Switch provides advanced traffic switching capabilities, including support for VLANs, IGMP, Spanning Tree protocols (STP/RSTP) and the possibility to apply Quality of Service (QoS) policies. Layer 3 extensions include inter-VLAN routing with packet filtering together with NAT. OSPF and RIP dynamic protocols are also supported. Router redundancy can be provided through standard VRRP v2 protocol. 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 fourteen (14) Fast Ethernet ports (2 pairs with bypass function).

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 poweron. Both these features dramatically ease maintenance activities and provide smart tools for fine-grained control over device operations and configuration.

## Technical specifications

- Fourteen (14) Fast Ethernet ports
- M12 circular connectors
- IPv4 protocol supported
- Up to 2 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 v2 Router Redundancy
- Network Address Translation (SNAT, DNAT and R-NAT)
- Packets filtering
- Four (4) 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 (TTCMP©) technology to support project-based device configuration management, including network discovery and auto-configuration
- Coupled-Switch© configuration ready
- IEEE 802.3at PoE delivered on eight (8) ports



# FE Consist Switch 14 ports + PoE

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## Technical Specifications

### PHYSICAL DATA

System status indicators:	8 LEDs
Fast Ethernet connectors:	M12, female, 4-ways, D-coding
Power supply connector:	M12, male, 4-ways, A-coding
Maintenance port connector:	M12, female, 8-ways, A-coding
Power supply voltage range(insulated):	
24 Vdc nominal	14,4 Vdc ÷ 40 Vdc, according to EN 50155
37,5 Vdc nominal	23 Vdc ÷ 42,5 Vdc, according to IEEE Std1476-2000
48 Vdc nominal	28 Vdc ÷ 72 Vdc, according to EN 50155
72 Vdc nominal	44 Vdc ÷ 108 Vdc, according to EN 50155
110 Vdc nominal	66 Vdc ÷ 165 Vdc, according to EN 50155
Power supply class:	S2, according to EN 50155
PoE class:	0, 1, 2, 3 and 4, (max 30W per port), according to IEEE 802.3at Type-2
PoE max power:	60 W
Power consumption (PoE excluded):	22 W max
Overall dimensions:	
No PoE versions	207 x 184 x 51 mm
PoE versions	207 x 184 x 73 mm
Weight:	
No PoE versions	2,0 Kg
PoE versions	2,6 Kg
Operating temperature:	
Standard	-25 ÷ +70 °C (+85 °C for 10 min. according to EN 50155 class OT3 with extended operating temperature ST1)
Optional	-40 ÷ +70 °C (+85 °C for 10 min. according to EN 50155 class OT4 with extended operating temperature ST1)
Relative humidity (non-condensing):	0 ÷ 95 %
Storage temperature:	-40 ÷ +85 °C
Colour codes:	Pantone 430 / RAL 7045 (frame) Pantone 431 / RAL 7046 (front panel)
Degree of protection:	
Standard	IP40
Optional	IP54, IP65

### APPROVALS/ COMPLIANCE

EN 50155	Railway Applications (Electronic equipment used on rolling stock)
EN 50121-3-2	Electromagnetic compatibility rolling stock apparatus

### APPROVALS / COMPLIANCE

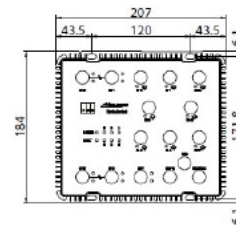
IEC 60068-2-1	Environmental testing: Tests - Test Ad: Cold
IEC 60068-2-2	Environmental testing: Tests - Test Bd: Dry heat
EN 60068-2-30	Environmental testing - Test Db variant 2 - Damp heat
EN 61373:2010/AC	Shock & Vibration - Category 1 class B
EN 50124-1	Insulation coordination
EN 45545-2	Fire & Safety standard

### INTERNETWORKING STANDARDS

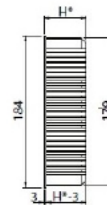
IEEE 802.3u	Fast Ethernet
IEEE 802.1Q	Tagged VLANs
IEEE 802.1D	Spanning Tree Protocol
IEEE 802.1w	Rapid Spanning Tree protocol
IEEE 802.1X	Port-based network access control
IEEE 802.1AB	Link Layer Discovery Protocol (LLDP)
IEEE 802.3ad	Link Aggregation Protocol (LACP)
RFC 2328	OSPF v2
RFC 2453	RIP v2
RFC 3768	VRRP v2

### Wall Mounting

Dimensions only for reference



FRONT VIEW



SIDE VIEW



TOP VIEW

H\*: see overall dimensions specification