KSwitch R16

EN50155 compliant Ethernet Switch



EN50155 compliant Ethernet Switch

- Up to 16 port modular Ethernet Switch from 100Mbit/s to 10 Gigabit/s
- IEEE1588v2, TSN and PoE PSE support
- Rugged - highly shock and vibration resistant
- Extended Temperature Range -40 to +70°C (85°C)

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Product Highlights

The Kontron KSwitch R16 is a Railway compliant (EN 50155) modular non blocking fully managed L2/L3 FE/1/10 Gigabit Ethernet Switch with Precision Time Protocol that provides a rich and versatile feature set.
The IEEE1588v2 features enable precise timing synchronization and packet time stamping for time sensitive applications.
It also supports intelligent Power Over Ethernet devices by built in firmware.

Bandwidth
The KSwitch R16 is designed for future oriented applications requiring out-standing bandwidth and communication safety.
The default port configuration allows
16x 10/100/1000 BASE-T
On project request, support for different configurations can be provided.

Reliability
The robust design including components for extended temperature range provides the basis for rugged, railway compliant Ethernet Sswitch. A 24VDC to 110 VDC single supply voltage gives the option for a broad portfolio of power supplies.
Built-In test capabilities enable effective switch maintenance.

Management
The KSwitch R16 module can be monitored via SNMP over serial line or Ethernet. Web based management and a comprehensive commandline interface enable layer 2/3 management including full IPv6 support. Features like IP forwarding & Multicast, Routing & Switching, Quality of Service, VLANs etc. enable complex network routing.

Technical Information

NETWORK	Switch DEVICE OS OPERATION MODE INTERFACES	Microchip LAN969x TSN Switch Family Microchip iStaX Store and forward, full wire-speed, non-blocking switch core. Low latency cut-through forwarding mode Flexible port configuration: 16x 1000BASE-T, push pull connectors and PoE (PSE) capability Other product options on project request
BRIDGE, VLANS, PROTOCOLS	SWITCHING ROUTING FLOW CONTROL MAX VLANS VLAN TYPES MULTICAST PROTOCOLS NETWORK DISCOVERY	IPv4/IPv6 unicast and multicast L2 switching IPv4/IPv6 unicast and multicast L3 forwarding with RPF IEEE 802.3x (full duplex) and back-pressure (half duplex) 4095 Port-based VLAN, IEEE 802.1Q tag-based VLAN IGMPv1, IGMPv2, IGMPv3, MLDv1 MLDv2 up to 255 multicast groups IGMP snooping, querying IEEE 802.1ab LLDP
TRAFFIC MANAGEMENT & QOS	PRIORITY NUMBER OF QUEUES PER PORT SCHEDULING SCHEMES	IEEE 802.1p QoS 8 Strict Priority Queuing (SPQ), Deficit-Weighted Round Robin Queuing (DWRR)
TIME SENSITIVE NETWORKING	SHAPING & FILTERING REDUNDANCY / RELIABILITY FORWARDING SCHEME TIMING & SYNCHRONIZATION	IEEE 802.1Qbv-2015 Time Aware Shaping IEEE 802.1Qbu/802.3br – Frame Preemption IEEE 802.1Qav AVB traffic shaping IEEE 802.1Qci-2017 per Stream Filtering and Policing Redundancy with IEEE 802.1CB Frame Replication and Elimination for Reliability (FRER) Protection switching (line or ring) Cut-through option per TSN Stream and Store and Forward IEEE 802.1AS-2020 1-step and 2-step IEEE 1588v2 1-step and 2-step for Ordinary Clock, Boundary Clock and Transparent Clock.
NETWORK REDUNDANCY	SPANNING TREE PROTOCOL PORT TRUNK / LACP	IEEE 802.1D/1w/1S, STP/RSTP/MSTP Static trunk or LACP (Link Aggregation Control Protocol) G.8032, MRP IEC-62439-2 2016
SECURITY	PORT SECURITY STORM CONTROL	IP and MAC-based Access Control/Filter, Auth User / Privilege Level Control, IEEE802.1X Multicast / Broadcast / Flooding Storm Control / Port Access Control / Limiters

Technical Information

MANAGEMENT	USER MANAGEMENT INTERFACES MANAGEMENT SECURITY UPGRADE & RESTORE DIAGNOSTIC DHCP NETWORK TIME SYNCHRONIZATION SYSTEM STATUS GREEN ETHERNET	Web-based management, Command Line Interface SNMP V1, V2c, Trap, Telnet (5 sessions) RFC 3411 SNMP Management Frameworks RFC 3414 User-based Security Model for SNMPv3 RFC 3415 View-based access Control Model for SNMP RFC 2613 SMON - PortCopy HTTPs, SSH, Access Management, Loop Protection TFTP/HTTP for Configuration Import / Export TFTP/HTTP for firmware upgrade Syslog, Level Info / Warning / Error Port Mirror, Per VLAN mirroring, CPU Load Monitor, Traffic Counter ICMP Ping Client Mode, Server Mode, Relay Mode, Snooping NTP client Device info/status; Ethernet port status Port power savings
POWER	INPUT VOLTAGE POWER CONSUMPTION PoE	24VDC to 110VDC +/- 20% approx. 30...40W PoE/PoE+; 90W total by internal Power Supply Up to 600W by external PoE Power Supply
INDICATORS	POWER STATUS ETHERNET PORT	Power Good LED Link and Speed LED
ENVIRONMENTAL & COMPLIANCE	OPERATING TEMPERATURE STORAGE TEMPERATURE HUMIDITY EMC SAFETY ROHS & WEEE PROTECTION ALTITUDE	-40°C - +70°C (10 min +85°C) -40°C - +85°C 5 - 93 % (non-condensing @40 °C) EN 55032, EN 55035, EN 61000-6-2:2005, EN 61000-6-4 EN 62368-1; designed to meet UL RoHS (Pb free), REACH and WEEE compliant IP54 3000m
MECHANICAL	DIMENSION (H x D x W) WEIGHT INSTALLATION	118 x 120 x 290 mm appr. 4.5 kg Wall mount, Rackmount

Subjects preliminary

Ordering Information

PRODUCT	ORDERING CODE	DESCRIPTION
KSWITCH R16-MXT-GGGG	2-A302-2001	KSwitch R16 Railway EN50155 compliant Ethernet Switch Managed L2/L3 16x Gigabit Ethernet M12-X PoE with up to 90W 24VDC..110VDC acc. EN50155 -40 ...+70(85) °C operating
MAIN POWER CONNECTOR	1074-7511	M12 K coded main power input connector, shielded, no cable Phoenix Contact Oder Code: 1080228 Included in KSwitch package
SERIAL INTERFACE CABLE	1075-0197	M12 to DSUB9 connectors and cable 3m long For configuration management Order at Kontron; not included in KSwitch R20 package
1/10G INTERFACE CABLE		M12X coded to RJ45 plug 5m long Phoenix Contact Order Code: 1584452
PoE OPTION POWER CONNECTOR		Power connector M12 L coded for additional 57VDC PoE with cable 3m long Phoenix Contact order code: 1414791
RACK MOUNT KIT	9-5000-1165	19 inch Rack Mount KSwitch for KSwitch R16 incl. 2 brackets and srews
WALL MOUNT KIT	9-4720-0080	Wall Mount Kit for KSwitch R16 incl. 2 brackets and srews
USB DONGLE	1080-5786	USB Dongle for configuration management

Note: Kontron suggests only sample cables and connectors. Customers are free to use appropriate connectors from their own suppliers. Details, see Users Manual.

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