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Data Sheet

General Availability

ETS-1-1G

Ethernet Access Switches

- L2+ switches
- Stacking support
- Multicast support (IGMP Snooping, MVR)
- Advanced security (multilayer ACLs, IP Source Guard, and Dynamic ARP Inspection)

MARKET SEGMENTS AND APPLICATIONS

New generation access switches provide end users connectivity to large-scale networks, small and medium business networks, and service provider networks, using Gigabit Ethernet interfaces.

The switches support VLANs, multicast groups, and advanced security.

CAPACITY

Throughput	See Table 1
Max. Frame Size	Jumbo Frame: 10K bytes
RAM (DDR3)	512 MB
ROM (RAW NAND)	512 MB
VLAN Table	4K
Buffer Memory	12 Mb

ETHERNET INTERFACES

Ports	See Table 1
Power over Ethernet (PoE)	PoE (15.4W per port): 802.3af
	PoE+ (30W per port): 802.3at
Features	Head-of-line blocking (HOL) protection
	Auto MDI/MDIX
	Flow control (IEEE 802.3X)
	Port mirroring
	Stacking
	Back pressure

LAYER 2

VLAN	802.1Q
	Q-in-Q
	Selective Q-in-Q (VLAN Translation)
	Voice VLAN
	GVRP
MAC Table	Independent learning mode per VLAN
	MAC Multicast Support
	Configurable aging time of MAC addresses
	Static MAC entries
	MAC Flapping logging
L2 Multicast	Multicast profiles
	Static Multicast groups
IGMP	IGMP Snooping v1,2,3
	Port/host-based IGMP Snooping Fast Leave
	IGMP querier
	IGMP proxy-report (for PoE options)
	IGMP authorization via RADIUS
MVR	
MLD	MLD Snooping v1,2
DHCP	DHCP snooping
	DHCP clients filtering
	DHCP autoprovision
	DHCP relay (IPv4 support)
	DHCP relay Option 82
PPPoE	PPPoE Intermediate Agent
	PPPoE Circuit-ID tag
BPDU	BPDU attacks prevention
	STP BPDU Guard
	BPDU Filtering

RAD

Your Network's Edge®

ETS-1-1G

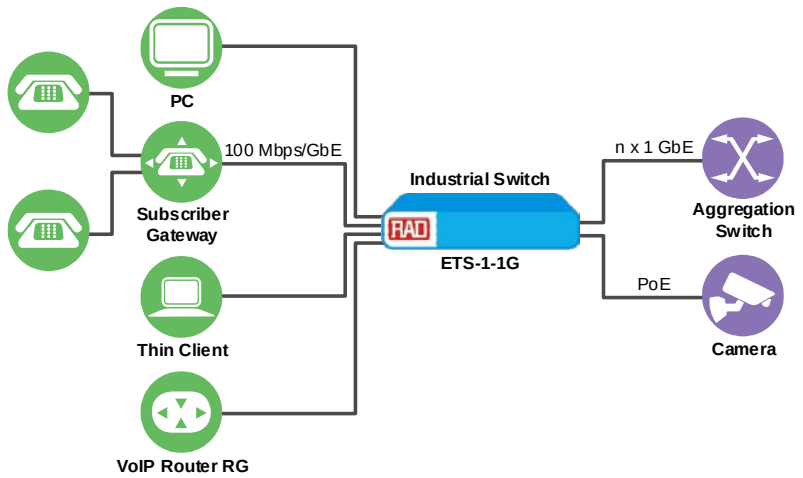
Ethernet Access Switches

IP ADDRESSING AND ROUTING

Addressing	IPv4 and IPv6
	IP Unnumbered
Routing Protocols	Dynamic routing protocols
	RIPv2
	OSPFv2, OSPFv3
	BGP (requires license, see Ordering)
	VRRP
	PIM SM, PIM DM, IGMP Proxy
	ECMP Load Balancing
	Address Resolution Protocol (ARP)
Routing Technologies	Static IP routes
DNS	Server and client

RESILIENCY

L2 Protection	ERPS (G.8032v2)
	STP (Spanning Tree Protocol, IEEE 802.1d)
	STP Multiprocess
	RSTP (Rapid Spanning Tree protocol, IEEE 802.1w)
	MSTP (Multiple Spanning Tree, IEEE802.1s)
	STP Root Guard
	STP Loop Guard
	STP BPDU Guard
	PVSTP+
	BPDU Filtering
	Spanning Tree Fast Link option
	Layer 2 Protocol Tunneling
	VLAN-based Loopback Detection (LBD)
	Private VLAN
Link Aggregation	Static LAG
	Dynamic LAG (LACP)
	LAG Balancing Algorithm



ETS-1-1G Ethernet Access Switches

ETS-1-1G

Ethernet Access Switches

MANAGEMENT

Configuration	Web-based interface
	Command Line Interface (CLI) with password-protected access
Control Port	RS-232 interface, RJ-45 connector
Protocols	SNTP (Simple Network Time Protocol)
	LLDP (802.1ab) + LLDP MED
	SNMPv3
	Traceroute
Access	Access control – privilege levels
	Local authentication
	IP addresses filtering for SNMP
	Flash File System
	Limiting of traffic to CPU
	Management interface blocking
	Redirecting output of CLI commands to an arbitrary file on ROM
	CLI commands logging
	Password encryption
	SSH server
	Macro commands
	System log
Configuration Download/ Upload	via TFTP/SCP
IPv6	IPv6 Host
	Dual-stack

SECURITY

ACL	L2-L3-L4 ACL
	IPv6 ACL
	ARP ACL over GRE tunnel
	Dynamic ACL
	ACL based on: • Physical port number • IEEE 802.1p • VLAN ID • EtherType • DSCP • Protocol type • TCP/UDP port number • User defined bytes • Time-based
TACACS+	TACACS+ clients
RADIUS	RADIUS clients
CoA	Change of Authorization
Syslog	
Passwords	Password encryption
	Password recovery
Security Features	IP Source Guard
	Dynamic ARP Inspection
	Traffic segmentation
	Debugging commands
	MAC-based authentication, Port Security, Static MAC entries
	Protection against non-authorized DHCP servers
	sFLow
	NetBIOS/NetBEUI filtering
	DoS attacks prevention
SSL/SSH	SSH server/SSL
IEEE 802.1X	Port-based authentication IEEE 802.1x

QUALITY OF SERVICE (QOS) AND RATE LIMITING

Class of Service	IEEE 802.1p Class of Service (CoS)
Bandwidth Control	8 egress queues per port
	Shaping
	Policing
	Storm Control
	Scheduling algorithms: Strict Priority/Weighted Round Robin (WRR)
	ACL-based traffic classification
	ACL-based VLAN assignment
	IEEE 802.1p priority for management VLAN
	802.1p, DSCP mark assignment for IGMP
	DSCP to CoS/CoS to DSCP remarking
	QoS statistics

MONITORING AND DIAGNOSTICS

Diagnostic	Ping (IPv4/IPv6 support)
	Virtual Cable Testing (VCT)
	Optical transceiver diagnostics
Monitoring	Statistics on interfaces
	CPU utilization monitoring per task and per queue
	RAM utilization monitoring
	Temperature monitoring
	TCAM utilization monitoring
	RMON/SMON
	Green Ethernet
OAM/CFM	802.3ah Ethernet Link OAM
	Dying Gasp
	802.1ag Connectivity Fault Management (CFM)
	802.3ah Unidirectional Link Detection (UDLD)

Table 1. Technical Features – ETS-1-1G Product Family

Specification	ETS-1-1G/2CMB/8U/AC	ETS-1-1G/2S/2U/8P/AC	ETS-1-1G/2S/2U/8P/DC
Packet Processor	Marvell 98DX3233		
	Interfaces		
10/100/1000BASE-T (RJ-45) PoE/PoE+	-	8	
10/100/1000BASE-T (RJ-45)	8	2	
1000BASE-X (SFP)	-	2	
10/100/1000BASE-T/1000BASEX/ 100BASE-FX Combo	2		
Console port	RS-232/RJ45		
	Performance		
Bandwidth	20 Gbps	24 Gbps	
Throughput for 64 bytes	14.7 MPPS	17.7 MPPS	
MAC table	16K		
Quality of Service (QoS)	8 egress queues per port		
TCAM	For routing: 1024 For traffic processing: 1024 x 24B		
ARP table*	1K		
Link Aggregation Groups (LAG)	16, up to 8 ports per LAG		
Maximum size of ECMP groups	8		
L2 Multicast groups (IGMP Snooping)	2K		
Stacking	8 devices		
Hardware support for Dying Gasp	yes	no	

**For each host in the ARP table, an entry is created in the routing table*

ETS-1-1G

Ethernet Access Switches

Data Sheet

Ordering

ETS-1-1G/2CMB/8U/AC
ETS-1 Ethernet switch, 8 x 10/100/1000BASE-T ports, 2 x 10/100/1000BASE-T/1000BASE-X/100BASE-FX Combo, L2+

ETS-1-1G/2S/2U/8P/AC
ETS-1 Ethernet switch, 8 x 10/100/1000BASE-T (PoE/PoE+) ports, 2 x 1000BASE-X ports, 2 x 10/100/1000BASE-T ports, L2+

ETS-1-1G/2S/2U/8P/DC
ETS-1 Ethernet switch, 8 x 10/100/1000BASE-T (PoE/PoE+) ports, 2 x 1000BASE-X ports, 2 ports of 10/100/1000BASE-T, L2+, 48 VDC

OPTIONAL ACCESSORIES

CBL-SGW-RJ45-D9-F-6FT

RJ-45 to DB-9 console cable

ETS-1-BGP-LIC

License for using BGP protocol

Power, Physical, and Environmental Specifications – ETS-1-1G Product Family

Specification	ETS-1-1G/2CMB/8U/AC	ETS-1-1G/2S/2U/8P/AC	ETS-1-1G/2S/2U/8P/DC
Maximum power consumption (including PoE)	15W	270W	
PoE budget	-	240W	
Power supply	100 VAC – 264 VAC, 50 Hz	100 VAC – 264 VAC, 50 Hz	36 VDC – 72 VDC
Operating temperature	-20 to 45°C (-4 to 113°F)	-20 to 50°C (-4 to 122°F)	-20 to 45°C (-4 to 113°F)
Storage temperature	-40 to 70°C (-40 to 158°F)		
Operating humidity	Up to 95% non-condensing		
Cooling	Passive cooling		
Dimensions (W x D x H)	310 x 158 x 44 mm (12.2 x 6.2 x 1.7 in)	430 x 158 x 44 (17 x 6.2 x 1.7 in)	
Weight (net, kg)	2.26	3.14	3.14
Weight (gross, kg)	2.4	3.3	3.3

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