



## DM1200E Series Ethernet Switches

May 2018

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## DM1200E Series

The DM1200E Series switches are designed to offer a Gigabit Ethernet wire speed solution to meet the growing bandwidth demand in corporate network applications.

Composed by different models in fixed configuration to be installed in 19-inch racks, enables the creation of low cost networks with high traffic capacity.

### Wire Speed Forwarding

The DM1200E Series switches provides an internal switching capacity of 136Gbit/s with all L2 packet switching and L3 static routing implemented in hardware level in wire speed, ensuring low latency in data switching without traffic blocking. The filter features are also performed in hardware, not affecting the CPU performance or packet forwarding.

### Management Facilities

The DM1200E Series switches provide a complete management interface in IPv4 and IPv6. The devices have a CLI (Command Line Interface) with automatic assistance in the syntax of commands and parameters, and it is accessible via SSH, Telnet and RS-232 Console. The equipment access is also available via internal Web Server with SSL and TLS, and SNMP agent. In order to ease the firmware version management and the configuration management, it is possible to store simultaneously two different firmware and two different configuration versions in the equipment memory, choosing which one of them should be used when starting up the unit.

### Security

To guarantee the network security, the switches allow the creation of a reliable management structure through a user authentication, authorization and accounting (AAA) via RADIUS and TACACS+. They also support the alarms notification via e-mail, a unique clock via SNTP, protection against Denial of Service (DoS/DDoS) and port and MAC Address

authentication via IEEE802.1x. It has mechanisms of protection against broadcast, multicast and Destination Lookup Failure (DLF).

## Switching

The DM1200E switches support many advanced functionalities, such as, simultaneous configuration of up to 1024 VLANs, Private VLANs, Link Aggregation and support to protection and network redundancy protocol Spanning Tree (STP, RSTP and MSTP).

Provide a complete support to Voice over IP (VoIP) applications by using Voice VLAN in conjunction with auto-VoIP.

## Routing

Functionalities of static routing IPv4 and IPv6 are available, allowing the usage of the switch as a router switch, besides the facility of creation of filters (ACLs), which works in hardware, enabling the configuration of many actions, such as, discarding of packets, QoS priority remarking, among others.

Sixty four IPv4 routes and 32 IPv6 routes are supported in the routing table in a simultaneous working for usage in network migration applications from IPv4 to IPv6 in Dual Stack format.

## QoS

To optimize the network, the DM1200E switches support up to 8 CoS queues per port, classifying the traffic by IEEE802.1p and DSCP, in addition of multiples matches using ACLs, enabling this way the bandwidth limitation and traffic balance.

For Stacking applications, the stacking protocol shares the queue of highest priority.

## Stacking

In order to amplify their capacity, the switches are capable to operate in stacking topology with up to 4 units through 2 interfaces with up to 12Gbit/s full duplex capacity. The

stacking can be seen by the management interface as a single unit and it is managed by a unique IP address.

## Power over Ethernet

DM1200E 24GP+4GX and DM1200E 24GP+4XS models are in compliance with the standard IEEE 802.3at, and provide 24 PoE+, limited to a instantaneous power consumption of up to 380W. It allows the data and power transmission through the same Cat.5e or Cat.6 cable. This application is recommended to perform the connection and power supply of Access Points, IP phones and IP cameras.

## Auxiliary Power Supply (RPU)

The DM1200E Series supports the auxiliary power supply (RPU) through the usage of the accessory DM1000E RPU 450. The RPU provides redundancy to the power supply for critical applications, keeping the device operational in case of failure of the internal power supply or absence of energy to the switch.

## Models and Functionalities

MODELS	DM1200E 24GT+4GX and DM1200E 24GP+4GX (PoE+)	DM1200E 24GT+4XS and DM1200E 24GP+4XS (PoE+)
Ports	24 ports 10/100/1000Base-T (RJ45) 4 ports 1000Base-X (SFP) 2 stacking ports (when enabled it will disable two SFP ports)	24 ports 10/100/1000Base-T (RJ45) 4 ports 1G/10GBase-X (SFP/SFP+) 2 stacking ports (when enabled it will disable two SFP/SFP+ ports)
Performance	Switching capacity of up to 100Gbit/s Forwarding of up to 74,4Mpps MAC Table with 16,384 addresses	Switching capacity of up to 136Gbit/s Forwarding of up to 101,2Mpps MAC Table with 16,384 addresses

MODELS	DM1200E 24GT+4GX and DM1200E 24GP+4GX (PoE+)	DM1200E 24GT+4XS and DM1200E 24GP+4XS (PoE+)
Management	<p>IPv4 and IPv6 management</p> <p>Actions scheduling</p> <ul style="list-style-type: none"> <li>• ACLs</li> <li>• PoE resources</li> </ul> <p>Web Server HTTP/HTTPS with SSL (Secure Sockets Layer) and TLS (Transport Layer Security)</p> <p>Command Line Interface (CLI) via SSHv1, SSHv2, Telnet and RS-232 Console</p> <p>SNMP v1, v2c and v3</p> <p>Cable Diagnostics</p> <p>Memory to store up to 2 Firmwares (Running and Backup)</p> <p>Memory to store up to 2 configurations besides the default</p> <p>LLDP (Link Layer Discovery Protocol) and LLDP-MED</p> <p>Static or Dynamic IP address (DHCP/BOOTP)</p> <p>State and link speed LEDs (Link/ACT), System Power/Fail/Up and Stacking</p> <p>Global statistics, per user port, per Uplink port and per Stacking port</p> <p>Rules configuration with multiples comparisons and actions (L2, IPv4 and IPv6)</p> <p>Input and output traffic mirroring on ports and VLANs</p> <p>Transceivers inventory information and digital diagnostics in accordance with SFF 8472</p> <p>SNTP</p> <p>Time Zone configuration</p> <p>Errors and Event Logs</p> <p>Support to RMON groups 1 (statistics), 2 (historic), 3 (alarms) and 9 (events)</p> <p>Remote SPAN</p>	

MODELS	DM1200E 24GT+4GX and DM1200E 24GP+4GX (PoE+)	DM1200E 24GT+4XS and DM1200E 24GP+4XS (PoE+)
Switching	<p>Simultaneous configuration of 1024 VLANs with up to 4k VLAN IDs</p> <p>Ports configuration per Access profile and Uplink</p> <p>Dynamic VLANs via GVRP</p> <p>ARP static</p> <p>Voice VLAN</p> <p>Jumbo Frames up to 9,216 bytes</p> <p>Spanning Tree (STP), Multiple Spanning Tree (MSTP) and Rapid Spanning Tree (RSTP)</p> <p>Up to 4 Spanning Tree domains</p> <p>Link Aggregation of up to 6 groups with up to 8 ports per group</p> <p>Multicast IGMP Snooping</p> <p>Multicast IGMP Querier v1 and v2</p> <p>IPv4 and IPv6 DHCP Snooping</p> <p>DHCP Server IPv4 and IPv6</p> <p>MAC filter per port</p> <p>Port Security</p> <p>Configuration of groups of protected ports</p> <p>Private VLAN</p> <p>SPEED/Duplex configuration and auto negotiation per interface</p> <p>Auto MDI/MDIX</p> <p>Aging L2 Global configuration</p> <p>BPDU Protection</p> <p>Unidirectional Link Detection (UDLD)</p>	
System Utilities	<p>Ping IPv4 and IPv6</p> <p>Traceroute IPv4 and IPv6</p> <p>IP and MAC conflict status in the network</p> <p>Files Download in TFTP and FTP (Firmware, Configs and Logs)</p> <p>Files Upload in HTTP, TFTP and FTP (Firmware, Configs, Scripts and encrypted keys)</p> <p>DNS Client IPv4 and IPv6</p> <p>Trap log and trap manager</p>	

MODELS	DM1200E 24GT+4GX and DM1200E 24GP+4GX (PoE+)	DM1200E 24GT+4XS and DM1200E 24GP+4XS (PoE+)
Routing	Static IPv4 routing support of up to 64 routes and 445 hosts Static IPv4 routing support of up to 32 routes and 128 hosts Up to 63 layer 3 interfaces (VLANs with configured IP) DHCP Relay IPv4 and IPv6 Inter VLAN Routing Simultaneous working of IPv4 and IPv6 (Dual Stack)	
Security	Ports Authentication via IEEE 802.1x Authentication IEEE 802.1x MAC Based Support for up to 48 MAC addresses authenticated per port (Multiple Supplicant mode) Authentication Server IEEE 802.1x integrated IEEE 802.1x Dynamic VLAN and IEEE 802.1x VLAN Assignment support IEEE 802.1x Unauthenticated VLAN and Guest VLAN support Dot1x VLAN-Assignment Syslog Local and Remote IPv4 and IPv6 Notification via e-mail Authentication, authorization and Accounting (AAA) of users by RADIUS or TACACS+ servers Protection Mechanisms against Broadcast, Multicast or DLF attacks, defined per port Protection Mechanisms against Denial of Service attacks Detection and Suppression Mechanisms against ARP attacks	



MODELS	DM1200E 24GT+4GX and DM1200E 24GP+4GX (PoE+)	DM1200E 24GT+4XS and DM1200E 24GP+4XS (PoE+)
QoS	<p>Up to 8 priority queues per port (highest priority queue is shared with the stacking)</p> <p>Packet Buffer of 12Mbits</p> <p>50 ACLs containing 10 rules in each ACL</p> <p>Traffic classification via IEEE 802.1p and DSCP</p> <p>Balance of traffic per queue</p> <p>Traffic classification, bandwidth limitation and forwarding using filters by</p> <ul style="list-style-type: none"> <li>• Ethertype</li> <li>• VLAN</li> <li>• Source and destination MAC Address</li> <li>• Source and destination Protocol/Port</li> <li>• Source and destination IP</li> <li>• IGMP Type</li> <li>• ICMP Type, Code and Message</li> <li>• TCP Flag</li> <li>• IP Precedence</li> <li>• IP TOS</li> </ul> <p>Ingress rate-limit</p> <p>Backpressure (Half Duplex) and IEEE 802.3x Pause Frames (Full Duplex)</p> <p>AutoVoip – Automatic CoS settings for VoIP</p> <p>Scheduling of queues (Strict Priority and WFQ)</p> <p>Voice VLAN</p> <p>Diffserv</p>	
Characteristics of Hardware	<p>Dimensions (without mounting brackets for 19-inch racks):</p> <p>430mm (width) x 146mm (depth) x 43mm (height) (24GT+4GX and 24GT+4XS models)</p> <p>430mm (width) x 255mm (depth) x 43mm (height) (24GP+4GX and 24GP+4XS models)</p> <p>Power source AC (100V<sub>ac</sub> ~ 240V<sub>ac</sub>, 50Hz or 60Hz)</p> <p>Operation temperature 0°C ~ 45°C</p> <p>Storage Temperature: -40°C ~ 70°C</p> <p>Maximum Consumption: 25W (version 24GT+4GX) and 27W (version +24GT+4XS)</p> <p>Maximum Consumption: 500W (version 24GP+4GX and 24GP+4XS)</p> <p>The GP models (PoE) has a power budget for PoE+ of up to 380W</p> <p>ARM Cortex A9 Processor with 400 MHz and with 256 MBytes of RAM and 64 Mbytes of Flash</p>	

## RPU Models

MODELS	DM1000E RPU 450 (GP) and DM1000E RPU 450 (GT)
Characteristics of Hardware	Dimensions (without mounting brackets for 19-inch racks): 414,6mm (width) x 136mm (depth) x 36mm (height) Power source AC (100V <sub>ac</sub> ~ 240V <sub>ac</sub> , 50Hz or 60Hz) Overvoltage protection of 250V <sub>AC</sub> Overcurrent protection of 6,3A Operation temperature 0°C ~ 45°C Storage Temperature: -40°C ~ 70°C Maximum Consumption: 37W (when connected to a 24GT model) Maximum Consumption: 500W (when connected to a 24GP model)

## Main Standards Compliance

IEEE	Description
802.1ab	Link Layer Discovery Protocol (LLDP)
802.1d	Spanning Tree Protocol
802.1p	Ethernet Priority with User Provisioning and Mapping
802.1q	Virtual LANs with Port-Based VLANs
802.1s	Multiple Spanning Tree
802.1w	Rapid Spanning Tree
802.1x	Port-based Network Access Control
802.3af	Power over Ethernet (PoE)
802.3at	Power over Ethernet Plus (PoE+)
802.3i	10Base-T
802.3u	100Base-TX
802.3x	Flow Control
802.3z	1000Base-SX/LX
802.3ab	1000Base-T
802.3ac	VLAN Tagging
802.3ad	Link Aggregation
802.3ae	10GBase-X

IETF	Description
RFC768	User Datagram Protocol
RFC783	The TFTP Protocol (Revision 2)
RFC791	Internet Protocol IP

IETF	Description
RFC792	Internet Control Message Protocol (ICMP)
RFC793	Transmission Control Protocol (TCP)
RFC826	An Ethernet Address Resolution Protocol or Converting Network Protocol Addresses to 48.bit Ethernet Address for Transmission on Ethernet Hardware
RFC1157	Simple Network Management Protocol (SNMP)
RFC1213	Management Information Base for Network Management of TCP/IP based internets: MIB-II
RFC1493	Definitions of Managed Objects for Bridges
RFC2030	Simple Network Time Protocol (SNTP)
RFC2131	Dynamic Host Configuration Protocol (DHCP)
RFC2233	The Interfaces Group MIB using SMIV2
RFC2246	The TLS Protocol Version 1.0
RFC2460	Internet Protocol, Version 6 (IPv6) Specification
RFC2474	Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers
RFC2475	An Architecture for Differentiated Services
RFC2818	HTTP Over TLS
RFC2819	Remote Network Monitoring Management Information Base
RFC2863	The Interfaces Group MIB
RFC2865	Remote Authentication Dial In User Service (RADIUS)
RFC2866	RADIUS Accounting
RFC3046	DHCP Relay Agent Information Option
RFC3315	DHCPv6 Client
RFC3579	RADIUS (Remote Authentication Dial In User Service) Support For Extensible Authentication Protocol (EAP)
RFC3596	DNS Extensions to Support IP Version 6

IETF	Description
RFC4193	Unique Local IPv6 Unicast Addresses
RFC4251	The Secure Shell (SSH) Protocol Architecture
RFC4252	The Secure Shell (SSH) Authentication Protocol
RFC4253	The Secure Shell (SSH) Transport Layer Protocol
RFC4254	The Secure Shell (SSH) Connection Protocol
RFC4291	IP Version 6 Addressing Architecture
RFC4443	Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification
RFE4541	Considerations for Internet Group Management Protocol (IGMP) Snooping Switches
RFC4861	Neighbor Discovery for IP version 6 (IPv6)
RFC4862	IPv6 Stateless Address Autoconfiguration
RFC6724	Default Address Selection for Internet Protocol version 6 (IPv6)

## EMI, EMC and Safety Compliances

Anatel Resolution 442, 242 e 323

CE-Mark Compliant

EMC Directive 2014/30/UE

RoHS Directive 2014/30/UE

The Low Voltage Directive 2014/30/UE

The Directive on waste electrical and electronic equipment 2012/19/EU

ETSI EN 55022: Information technology equipment. Radio Disturbance Characteristics

EN 300 386 V1.6.1 (2012-09) Electromagnetic compatibility and Radio Spectrum Matters (ERM)

EN 60950: Safety

IEC – 60825-1 - Laser Safety Class

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IEC – EN 61000-4-2: Electrostatic Discharge Immunity Test

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IEC – EN 61000-4-3: Radiated, radio-frequency, electromagnetic field immunity test

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IEC – EN 61000-4-4: Electrical fast transient/burst immunity test

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IEC – EN 61000-4-5: Surge immunity test

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IEC – EN 61000-4-6: Immunity to conducted disturbances, induced by radio-frequency fields

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