

**LICITACION PUBLICA 154/2023**  
**ESPECIFICACIONES TECNICAS PARTICULARES**

**REGLON Nº1 SWITCH 48 PUERTOS POE**

Cada equipo deberá incluir 2 trancivers de 10GB/s y 2 transceivers de 1 gb/s, cables de stack y fuentes.

También deberán cumplir con las siguientes especificaciones:

**PRODUCT SPECIFICATIONS**

Function and Feature		Description	
Ethernet features	Ethernet basics	Full-duplex, half-duplex, and auto-negotiation	Yes
		Rate auto-negotiation on an interface	Yes
		Auto MDI and MDI-X	Yes
		Flow control on an interface	Yes
		Jumbo frames	Yes
		Link aggregation	Yes
		Load balancing among links of a trunk	Yes
		Transparent transmission of Layer 2 protocol	Yes

Function and Feature		Description	
		packets	
		Device Link Detection Protocol (DLDP)	Yes
		Link Layer Discovery Protocol (LLDP)	Yes
		Link Layer Discovery Protocol-Media EndpointDiscovery (LLDP-MED)	Yes
		Interface isolation	Yes
		Broadcast traffic suppression on an interface	Yes
		Multicast traffic suppression on an interface	Yes
		Unknown unicast traffic suppression on an interface	Yes
		VLAN broadcast traffic suppression	Yes
		VLAN multicast traffic suppression	Yes
		VLAN unknown unicast traffic suppression	Yes
	VLAN	VLAN specification	4094
		VLANIF interface specification	1024
		Access mode	Yes
		Trunk mode	Yes
		Hybrid mode	Yes
		QinQ mode	Yes
		Default VLAN	Yes
		VLAN assignment based on interfaces	Yes
		VLAN assignment based on protocols	Yes
		VLAN assignment based on IP subnets	Yes
		VLAN assignment based on MAC addresses	Yes
		VLAN assignment based on MAC address + IP address	Yes
		VLAN assignment based on MAC address + IP address + interface number	Yes
		Adding double VLAN tags to packets based on interfaces	Yes
		VLAN mapping	Yes
		Selective QinQ	Yes
		MUX VLAN	Yes
		Voice VLAN	Yes
		Guest VLAN	Yes

	GVRP	GARP	Yes
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Function and Feature		Description	
		GVRP	Yes
	VCMP	VCMP	Yes
	MAC	MAC address	32896(MAX)
		Automatic learning of MAC addresses	Yes
		Automatic aging of MAC addresses	Yes
		Static, dynamic, and blackhole MAC address entries	Yes
		Interface-based MAC address learning limiting	Yes
		Sticky MAC	Yes
		MAC address flapping detection	Yes
		MAC address spoofing defense	Yes
		Port bridge	Yes
	ARP	Static ARP	Yes
		Dynamic ARP	Yes
		ARP entry	4096(MAX)
		ARP aging detection	Yes
		Intra-VLAN proxy ARP	Yes
		Routed proxy ARP	Yes
Ethernet loop protection	MSTP	STP	Yes
		RSTP	Yes
		MSTP	Yes
		VBST	Yes
		BPDU protection	Yes
		Root protection	Yes
		Loop protection	Yes
		Defense against TC BPDU attacks	Yes
	Loopback detection	Loop detection on an interface	Yes
	SEP	SEP	Yes
	Smart Link	Smart Link	Yes
		Smart Link multi-instance	Yes
		Monitor Link	Yes
	RRPP	RRPP	Yes
		Single RRPP ring	Yes
		Tangent RRPP ring	Yes

Function and Feature		Description	
		Intersecting RRPP ring	Yes
		Hybrid networking of RRPP rings and other ringnetworks	Yes
	ERPS	G.8032 v1	Yes
		G.8032 v2	Yes
		ERPS semi-ring topology	Yes
		ERPS closed-ring topology	Yes
IPv4/IPv6 forwarding	IPv4 and unicast routing	IPv4 static routing	Yes
		VRF	Yes
		DHCP client	Yes
		DHCP server	Yes
		DHCP relay	Yes
		Routing policies	Yes
		IPv4 routes	4096(MAX)
		RIPv1	Yes
		RIPv2	Yes
		OSPF	Yes
		Policy-based routing (PBR)	Yes
	Multicast routingfeatures	IGMPv1/v2/v3	Yes
		PIM-DM	Yes
		PIM-SM	Yes
		MSDP	Yes
		IPv4 multicast routes	1500(MAX)
		IPv6 multicast routes	1500(MAX)
		Multicast routing policies	Yes
		RPF	Yes
	IPv6 features	IPv6 protocol stack	Yes
		ND	Yes
		ND entry	1024(MAX)
		ND snooping	Yes
		DHCPv6 snooping	Yes
		RIPng	Yes
		DHCPv6 server	Yes
		DHCPv6 relay	Yes

Function and Feature		Description	
		OSPFv3	Yes
		IPv6 routes	1024(MAX)
		VRRP6	Yes
		MLDv1/v2	Yes
		PIM-DM for IPv6	Yes
		PIM-SM for IPv6	Yes
Layer 2 multicast features	-	IGMPv1/v2/v3 snooping	Yes
		IGMP snooping proxy	Yes
		MLD snooping	Yes
		Multicast traffic suppression	Yes
		Inter-VLAN multicast replication	Yes
Device reliability	Stacking	Service interface-based stacking	Yes
		Maximum number of stacked devices	9
		Stack bandwidth (Bidirectional)	80Gbps(MAX)
	VRRP	VRRP standard protocol	Yes
Ethernet OAM	EFM (802.3ah)	Automatic discovery of links	Yes
		Link fault detection	Yes
		Link troubleshooting	Yes
		Remote loopback	Yes
	CFM (802.1ag)	Software-level CCM	Yes
		802.1ag MAC ping	Yes
		802.1ag MAC trace	Yes
	OAM association	Association between 802.1ag and 802.3ah	Yes
	Y.1731	Unidirectional delay and jitter measurement	Yes
		Bidirectional delay and jitter measurement	Yes
QoS features	Traffic classification	Traffic classification based on ACLs	Yes
		Configuring traffic classification priorities	Yes
		Matching the simple domains of packets	Yes
	Traffic behavior	Traffic filtering	Yes
		Traffic policing (CAR)	Yes
		Modifying the packet priorities	Yes
		Modifying the simple domains of packets	Yes
		Modifying the packet VLANs	Yes
	Traffic shaping	Traffic shaping on an egress interface	Yes

Function and Feature		Description	
		Traffic shaping on queues on an interface	Yes
	Congestion avoidance	Tail drop	Yes
	Congestion management	Priority Queuing (PQ)	Yes
		Weighted Deficit Round Robin (WDRR)	Yes
		PQ+WDRR	Yes
		Weighted Round Robin (WRR)	Yes
		PQ+WRR	Yes
ACL	Packet filtering at Layer 2 to Layer 4	Number of rules per IPv4 ACL	2K
		Number of rules per IPv6 ACL	2K
		Basic IPv4 ACL	Yes
		Advanced IPv4 ACL	Yes
		Basic IPv6 ACL	Yes
		Advanced IPv6 ACL	Yes
		Layer 2 ACL	Yes
		User-defined ACL	Yes
Configuration and maintenance	Login and configuration management	Command line interface (CLI)-based configuration	Yes
		Console terminal service	Yes
		Telnet terminal service	Yes
		SSH v1.5	Yes
		SSH v2.0	Yes
		SNMP-based NMS for unified configuration	Yes
		Web page-based configuration and management	Yes
		EasyDeploy (client)	Yes
		SVF	Yes
		Cloud management	Yes
		OPS	Yes
	File system	Directory and file management	Yes
		File upload and download	Yes
	Monitoring and maintenance	eMDI	Yes
		Hardware monitoring	Yes
		Log information output	Yes
		Alarm information output	Yes
		Debugging information output	Yes

Function and Feature		Description	
		Port mirroring	Yes
		Flow mirroring	Yes
		Remote mirroring	Yes
		Energy saving	Yes
	Version upgrade	Version upgrade	Yes
		Version rollback	Yes
Security	ARP security	ARP packet rate limiting	Yes
		ARP anti-spoofing	Yes
		Association between ARP and STP	Yes
		Dynamic ARP Inspection (DAI)	Yes
		Static ARP Inspection (SAI)	Yes
		Egress ARP Inspection (EAI)	Yes
	IP security	ICMP attack defense	Yes
		IPSG for IPv4	Yes
		IPSG user capacity	1K
		IPSG for IPv6	Yes
		IPSGv6 user capacity	512
	Local attack defense	CPU attack defense	Yes
	MFF	MFF	Yes
	DHCP snooping	DHCP snooping	Yes
		Option 82 function	Yes
		Dynamic rate limiting for DHCP packets	Yes
	Attack defense	Defense against malformed packet attacks	Yes
		Defense against UDP flood attacks	Yes
		Defense against TCP SYN flood attacks	Yes
		Defense against ICMP flood attacks	Yes
		Defense against packet fragment attacks	Yes
		Local URPF	Yes
User access and authentication	AAA	Local authentication	Yes
		Local authorization	Yes
		RADIUS authentication	Yes
		RADIUS authorization	Yes
		RADIUS accounting	Yes



Function and Feature		Description	
		HWTACACS authentication	Yes
		HWTACACS authorization	Yes
		HWTACACS accounting	Yes
	NAC	802.1X authentication	Yes
		MAC address authentication	Yes
		Portal authentication	Yes
		Hybrid authentication	Yes
	Policy association	Functioning as the access device	Yes
Network management	-	Ping	Yes
		Tracert	Yes
		NQA	Yes
		NTP	Yes
		sFlow	Yes
		SNMP v1	Yes
		SNMP v2c	Yes
		SNMP v3	Yes
		HTTP	Yes
		HTTPS	Yes
		RMON	Yes
		NETCONF/YANG	Yes
Interoperability	-	VLAN-based Spanning Tree (VBST)	Yes
		Link-type Negotiation Protocol (LNP)	Yes
		VLAN Central Management Protocol (VCMP)	Yes

## Hardware Specifications

Item		
Physical specifications	Dimensions (H xW x D)	43.6 mm x 442 mmx 220 mm
	Chassis height	1 U
	Chassis weight(including packaging)	4.28 kg
Fixed port	GE port	48(PoE+)
	GE SFP pot	NA
	10GE port	4
Management port	Console port(RJ45)	Supported
	USB Port	USB 2.0
CPU	Frequency	1000 MHz
	Core	2
Storage	Memory (RAM)	512 MB
	Flash memory	Hardware: 512 MB, of which 306 MB is available for users
Power supply system	Power supply type	Built-in AC
	Rated voltage range	AC input : 100 V AC to 240 V AC, 50/60 Hz
	Maximum voltage range	<ul style="list-style-type: none"> <li>AC input: 90 V AC to 290 V AC, 45 Hz to 65 Hz</li> <li>High-voltage DC input: 190 V DC to 290 V DC</li> <li>(meeting 240 V high-voltage DC certification)</li> </ul>
	Maximum input current	6A
	Maximum power consumption of the device	<ul style="list-style-type: none"> <li>76.1W(without PD)</li> <li>456.1W(with PD, PD Power consumption of :380W )</li> </ul>
	Power consumption in the case of 30% traffic load <sup>1</sup>	58.7 W
	Power consumption in the case of 100% traffic load <sup>1</sup>	60.5 W

Item		
Heat dissipation system	Heat dissipation mode	Air-cooled heat dissipation and intelligent fan speed adjustment
	Number of fan modules	2
	Airflow	Air flows in from the left side and front panel, exhausts from the right panel
	Maximum heat dissipation of the device (BTU/hour)	<ul style="list-style-type: none"> <li>Without PDs: 259.66</li> <li>With PDs: 1556.26</li> </ul>
Environment parameters	Long-term operating temperature	<ul style="list-style-type: none"> <li>0-1800 m altitude: -5°C to +50°C</li> <li>1800-5000 m altitude: The operating temperature reduces by 1°C every time the altitude increases by 220 m.</li> </ul>

Item		
	Short-term operating temperature <sup>3</sup>	<ul style="list-style-type: none"> <li>0-1800 m altitude: -5°C to +55°C</li> <li>1800-5000 m altitude: The operating temperature reduces by 1°C every time the altitude increases by 220 m.</li> </ul>
	Storage temperature	-40°C to +70°C
	Relative humidity	5%-95%(non-condensing)
	Operating altitude	5000 m
	Noise under normal temperature (sound power)	50 dB(A)
	Noise under hightemperature (sound power)	73 dB(A)
	Noise under normal temperature (sound pressure)	38.2 dB(A)
	Surge protection specification (RJ45 service port)	±7 kV in commonmode
Reliability	Surge protection specification (power port)	<ul style="list-style-type: none"> <li>Differential mode: ± 6 kV</li> <li>Common mode: ± 6 kV</li> </ul>
	MTBF (year) <sup>2</sup>	44.03
	MTTR (hour)	2
Certification	Availability	> 0.99999
		<ul style="list-style-type: none"> <li>EMC certification</li> <li>Safety certification</li> <li>Manufacturing certification</li> </ul>

Item		
Physical specifications	Dimensions (H x W x D)	43.6 mm x 442 mm x 420 mm
	Chassis height	1 U
	Chassis weight (including packaging)	8.7 kg
Fixed port	GE port	48(PoE+)
	GE SFP port	NA
	10GE port	4
Management port	Console port (RJ45)	Supported
	USB port	USB 2.0
CPU	Frequency	1000 MHz
	Core	4
Storage	Memory (RAM)	1 GB
	Flash memory	Hardware: 512 MB, of which 306 MB is available for users
Power supply system	Power supply type	<ul style="list-style-type: none"> <li>600 W PoE AC (pluggable)</li> <li>1000 W PoE AC(pluggable)</li> <li>1000 W PoE DC(pluggable)</li> </ul>
	Rated voltage range	<ul style="list-style-type: none"> <li>AC input(600 /1000W AC PoE): 100 V AC to 130 V AC, 200 V AC to 240 V AC, 50/60 Hz</li> <li>High-Voltage DC input(600 /1000W AC PoE): 240 VDC</li> <li>DC input(1000 W DC PoE): -48 V DC to -60 V DC</li> </ul>
	Maximum voltage range	<ul style="list-style-type: none"> <li>AC input(600 /1000W ACPoE): 90 V AC to 290 V AC, 45 Hz to 65 Hz</li> <li>High-Voltage DC input(600 /1000W AC PoE): 190 VDC to 290 V DC</li> <li>DC input(1000 W DC PoE): -38.4 V DC to -72 V DC</li> </ul>
	Maximum input current	8 A
	Maximum power consumption of the device	<ul style="list-style-type: none"> <li>80 W (without PD)</li> <li>914 W (with PD, PD power consumption of 874 W)</li> </ul>

Power consumption in the case of  
30% traffic load<sup>1</sup>

59 W

Item		
	Power consumption in the case of 100% traffic load <sup>1</sup>	68 W
Heat dissipation system	Heat dissipation mode	Air-cooled heat dissipation and intelligent fan speed adjustment
	Number of fan modules	2
	Airflow	Air flows in from the left, right sides and front panel, exhausts from the rear panel
	Maximum heat dissipation of the device (BTU/hour)	<ul style="list-style-type: none"> <li>Without PDs: 262.7</li> <li>With PDs: 5667</li> </ul>
Environment parameters	Long-term operating temperature	<ul style="list-style-type: none"> <li>0-1800 m altitude: -5°C to +50°C</li> <li>1800-5000 m altitude: The operating temperature reduces by 1°C every time the altitude increases by 220 m.</li> </ul>
	Short-term operating temperature <sup>3</sup>	<ul style="list-style-type: none"> <li>0-1800 m altitude: -5°C to +55°C</li> <li>1800-5000 m altitude: The operating temperature reduces by 1°C every time the altitude increases by 220 m.</li> </ul>
	Storage temperature	-40°C to +70°C
	Relative humidity	5%-95%(non-condensing)
	Operating altitude	5000 m
	Noise under normal temperature (sound power)	58.9dB (A)
	Noise under high temperature (sound power)	75dB (A)
	Noise under normal temperature (sound pressure)	43.8dB (A)
	Surge protection specification (RJ45 service port)	±7 kV in common mode
	Surge protection specification (power port)	<ul style="list-style-type: none"> <li>Differential mode: ± 6 kV</li> <li>Common mode: ±6 kV</li> </ul>
Reliability	MTBF (year) <sup>2</sup>	61.7
	MTTR (hour)	1.94
	Availability	> 0.99999

Item	
Certification	<ul style="list-style-type: none"> <li>• EMC certification</li> <li>• Safety certification</li> <li>• Manufacturing certification</li> </ul>