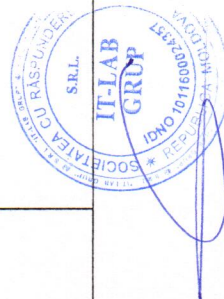


Specificații tehnice (F4.1)

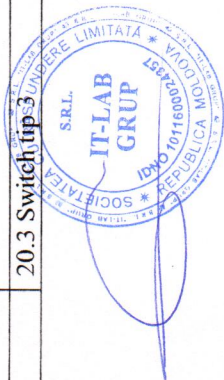
Numărul procedurii de achiziție 21002192 din 19.12.2018

Denumirea procedurii de achiziție: Piese de schimb și consumabile pentru tehnica de calcul

Cod CPV	Denumirea bunurilor/serviciilor	Modelul articolului	Țara de origine	Produsul	Specificarea tehnică deplină solicitată de către autoritatea contractantă	Specificarea tehnică deplină propusă de către ofertant	Standarde de referință
1	2	3	4	5	6	7	8
	Bunuri/servicii						
	Lot 20						
30200000-1	Switch+Router						
	20.1 Switch tip 1	CRS112-8P-4S-IN Cloud Router Switch 112-8P-4S-IN with QCA8511 400Mhz CPU, 128MB RAM, 8xGigabit LAN with PoE-out, 4xSFP, RouterOS L5, desktop case, PSU	Letonia	MikroTik	Fanless management PoE/PoE+ switch; Desktop-Rackmount case; 8x 10/100/1000 Ethernet PoE ports, Supports PoE+ IEEE 802.3at/af and 24 V Passive PoE, 4x 1.25Gbps SFP ports, 1x RJ45 serial port, 12 port non blocking wire speed Switch Chip; Non-Blocking Throughput: 12 Gbps; Switching Capacity: 24 Gbps; Forwarding Rate: min 17.8 Mpps; PCB temperature monitor; Minimum 400 MHz CPU; Minimum 128 MB RAM; Dimensiunea de stocare minimă 16MB; Adaptor de rețea inclus, Tensiunea de intrare 18 V - 57 V; SO trebuie sa ofere: Non-blocking Layer 2 switching capacity, 16K host table, IEEE 802.1Q VLAN, suport pînă la 4K simultan VLANs, Port isolation, Port security, Broadcast storm control, Port mirroring of ingress/egress traffic, Rapid Spanning Tree Protocol, Access Control List, neighbor discovery, SNMP, 9204-byte jumbo frames support, IGMP snooping, static link aggregation; Garantie minim 36 luni • Minim ani de experiență specifică în livrarea bunurilor și/sau serviciilor similare – 3 ani •	Fanless management PoE/PoE+ switch; Desktop-Rackmount case; 8x 10/100/1000 Ethernet PoE ports, Supports PoE+ IEEE 802.3at/af and 24 V Passive PoE, 4x 1.25Gbps SFP ports, 1x RJ45 serial port, 12 port non blocking wire speed Switch Chip; Non-Blocking Throughput: 12 Gbps; Switching Capacity: 24 Gbps; Forwarding Rate: min 17.8 Mpps; PCB temperature monitor; Minimum 400 MHz CPU; Minimum 128 MB RAM; Dimensiunea de stocare minimă 16MB; Adaptor de rețea inclus, Tensiunea de intrare 18 V - 57 V; SO trebuie sa ofere: Non-blocking Layer 2 switching capacity, 16K host table, IEEE 802.1Q	



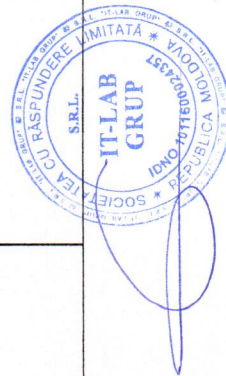
					Certificarea valida in domeniul calitatii al managementului companiei ISO9001 si ISO27001 • Statutul de partener oficial al producatorului echipamentului oferit pe teritoriul RM • Autorizarea de la producator pentru proiectul dat • Declarație privind asigurarea garanției minimum 36 luni next business day (NBD) • Minim 2 specialiști certificați (Routing/Switching/Inter-networking) pentru asistență tehnică NBD	VLAN, suport pina la 4K simultan VLANs, Port isolation, Port security, Broadcast storm control, Port mirroring of ingress/egress traffic, Rapid Spanning Tree Protocol, Access Control List, neighbor discovery, SNMP, 9204-byte jumbo frames support, IGMP snooping, static link aggregation; Garantie 36 luni	
20.2 Switch tip 2	CRS212-1G-10S-1S+IN Cloud Router Switch 212-1G-10S-1S+IN with Atheros QC8519 400Mhz CPU, 64MB RAM, 1xGigabit LAN, 10xSFP cages, 1xSFP+ cage, RouterOS L5, LCD panel, desktop case, PSU	Letonia	MikroTik	Switch cu management ; Rack mount carcasa; 10SFP ports; 1x SFP+ port suport 10 Gb SFP+, 1x RJ45 serial port; Minimum 400 Mhz CPU; Minimum 64 MB RAM; Dimensiunea de stocare minimă 16MB; OS featuring: Non-blocking Layer 2 switching capacity, 16K host table, IEEE 802.1Q VLAN, suport pina la 4K simultan VLANs, Port isolation, Port security, Broadcast storm control, Port mirroring of ingress/egress traffic, Spanning Tree Protocol/ Rapid Spanning Tree Protocol/ Multiple Spanning Tree Protocol, Access Control List, neighbor discovery, SNMP , Web-based GUI, Garantie minim 36 luni • Minim ani de experiență specifică în livrarea bunurilor și/sau serviciilor similare – 3 ani • Certificarea valida in domeniul calitatii al managementului companiei ISO9001 si ISO27001 • Statutul de partener oficial al producatorului echipamentului oferit pe teritoriul RM • Autorizarea de la producator pentru proiectul dat • Declarație privind asigurarea garanției minimum 36 luni next business day (NBD) • Minim 2 specialiști certificați (Routing/Switching/Inter-networking) pentru asistență tehnică NBD	Switch cu management ; Rack mount carcasa; 10SFP ports; 1x SFP+ port suport 10 Gb SFP+, 1x RJ45 serial port; Minimum 400 Mhz CPU; Minimum 64 MB RAM; Dimensiunea de stocare minimă 16MB; OS featuring: Non-blocking Layer 2 switching capacity, 16K host table, IEEE 802.1Q VLAN, suport pina la 4K simultan VLANs, Port isolation, Port security, Broadcast storm control, Port mirroring of ingress/egress traffic, Spanning Tree Protocol/ Rapid Spanning Tree Protocol/ Multiple Spanning Tree Protocol, Access Control List, neighbor discovery, SNMP , Web-based GUI, Garantie 36 luni		
20.3 Switch tip 3	CRS317-1G-	Letonia	MikroTik	Switch cu management ; Rack mount	Switch cu management ;		



		16S+RM Cloud Router Switch 317-1G- 16S+RM with 800MHz CPU, 1GB RAM, 1xGigabit LAN, 16xSFP+ cages, RouterOS L6 or SwitchOS (dual boot),passive cooling 1U rackmount enclosure, Dual redundant PSU			carcasa; 16 SFP+ port suport 1.25 Gb SFP si 10 Gb SFP+, 16 port non blocking wire speed Switch Chip; 1x RJ45 serial port; Minimum 800 Mhz CPU; Minimum 1 Gb RAM; Dimensiunea de stocare minimă 16MB; minimum 2 PSU; OS featuring: Non-blocking Layer 2 switching capacity, 16K host table, IEEE 802.1Q VLAN, suport pina la 4K simultan VLANs, Port isolation, Port security, Broadcast storm control, Port mirroring of ingress/egress traffic, Rapid Spanning Tree Protocol, Access Control List, neighbor discovery, SNMP v2/v3, Web-based GUI, suport pina la 4K simultan VLANs, Port isolation, Port security, Broadcast storm control, Port mirroring of ingress/egress traffic, Rapid Spanning Tree Protocol, Access Control List, neighbor discovery, SNMP v2/v3, Web-based GUI, Garantie 36 luni	Rack mount carcasa; x 16 SFP+ port suport 1.25 Gb SFP si 10 Gb SFP+, 16 port non blocking wire speed Switch Chip; 1x RJ45 serial port; Minimum 800 Mhz CPU; Minimum 1 Gb RAM; Dimensiunea de stocare minimă 16MB; minimum 2 PSU; OS featuring: Non-blocking Layer 2 switching capacity, 16K host table, IEEE 802.1Q VLAN, suport pina la 4K simultan VLANs, Port isolation, Port security, Broadcast storm control, Port mirroring of ingress/egress traffic, Rapid Spanning Tree Protocol, Access Control List, neighbor discovery, SNMP v2/v3, Web-based GUI, Garantie 36 luni
20.4 Switch tip 4		CRS328-4C-20S-4S+RM Cloud Router Switch 328-4C-20S-4S+RM with 800 MHz CPU, 512MB RAM, 24x SFP cages, 4xSFP+ cages, 4x Combo ports (1xGbit LAN or SFP), RouterOS L5 or SwitchOS (dual boot), 1U rackmount case, Dual PSU	Letonia	MikroTik	Switch cu management ; Rack mount carcasa; 20 x SFP ports; 4 x SFP+ ports; 4 x Combo ports (Gigabit Ethernet or SFP); CPU Minimum 800MHz; Minimum 512MB RAM; Storage size Minimum 16 MB; Dual Power Supplies 100-240 V; 1 x Serial port RJ45; CPU temperature monitor; Voltage Monitor; Dual boot OS; , Garantie minim 36 luni • Minim ani de experiență specifică în livrarea bunurilor și/sau serviciilor similare – 3 ani • Certificarea valida in domeniul calitatii al managementului companiei ISO9001 si Statutul de partener oficial al producatorului echipamentului oferit pe teritoriul RM • Autorizarea de la	Switch cu management ; Rack mount carcasa; 20 x SFP ports; 4 x SFP+ ports; 4 x Combo ports (Gigabit Ethernet or SFP); CPU Minimum 800MHz; Minimum 512MB RAM; Storage size Minimum 16 MB; Dual Power Supplies 100-240 V; 1 x Serial port RJ45; CPU temperature monitor; Voltage Monitor; Dual boot OS; Garantie 36 luni



					prodicator pentru proiectul dat • Declarație privind asigurarea garanției minimum 36 luni next business day (NBD) • Minim 2 specialiști certificați (Routing/Switching/Inter-networking) pentru asistență tehnică NBD				
	20.5 Switch tip 5	CRS326-24G-2S+RM Cloud Router Switch 326-24G-2S+RM with 800 MHz CPU, 512MB RAM, 24xGigabit LAN, 2xSFP+ cages, RouterOS L5 or SwitchOS (dual boot), 1U rackmount case, PSU	Letonia	MikroTik	Switch cu management ; Rack mount carcasa; 24x 10/100/1000 Ethernet ports; 2x SFP+ port suport 1.25 Gb SFP si 10 Gb SFP+, 26 port non blocking wire speed Switch Chip; 1x RJ45 serial port; Minimum 800 Mhz CPU; Minimum 512 MB RAM; Dimensiunea de stocare minimă 16MB; Passive PoE in 11-30 V; OS featuring: Non-blocking Layer 2 switching capacity, 16K host table, IEEE 802.1Q VLAN, suport pina la 4K simultan VLANs, Port isolation, Port security, Broadcast storm control, Port mirroring of ingress/egress traffic, Rapid Spanning Tree Protocol, Access Control List, neighbor discovery, SNMP v1, Web-based GUI, Garanție minim 36 luni • Minim ani de experiență specifică în livrarea bunurilor și/sau serviciilor similare – 3 ani • Certificarea valida in domeniul calitatii al managementului companiei ISO9001 si ISO27001 • Statutul de partener oficial al producatorului echipamentului oferit pe teritoriul RM • Autorizarea de la producator pentru proiectul dat • Declarație privind asigurarea garanției minimum 36 luni next business day (NBD) • Minim 2 specialiști certificați (Routing/Switching/Inter-networking) pentru asistență tehnică NBD	Switch cu management ; Rack mount carcasa; 24x 10/100/1000 Ethernet ports; 2x SFP+ port suport 1.25 Gb SFP si 10 Gb SFP+, 26 port non blocking wire speed Switch Chip; 1x RJ45 serial port; Minimum 800 Mhz CPU; Minimum 512 MB RAM; Dimensiunea de stocare minimă 16MB; Passive PoE in 11-30 V; OS featuring: Non-blocking Layer 2 switching capacity, 16K host table, IEEE 802.1Q VLAN, suport pina la 4K simultan VLANs, Port isolation, Port security, Broadcast storm control, Port mirroring of ingress/egress traffic, Rapid Spanning Tree Protocol, Access Control List, neighbor discovery, SNMP v1, Web based GUI, Garanție 36 luni			
	20.6 Router tip 1	CCR1036-8G-2S+ Cloud Core Router 1036-8G-2S+ with Tileria Tile-Gx36 CPU (36-cores, 1.2Ghz per core), 4GB RAM,	Letonia	MikroTik	Ethernet Router; Rack mount carcasa; 8x Gigabit Ethernet ports; 2xSFP+ ports (DDMI support); CPU Minim 36 cores x 1.2GHz; Minim 4GB SODIMM DDR3 RAM; Storage size minim 1 GB; AC input range 100-240; Max power consumption 78W; Memory card support (microSD); 1x Serial port DB9	Ethernet Router; Rack mount carcasa; 8x Gigabit Ethernet ports; 2xSFP+ ports (DDMI support); CPU Minim 36 cores x 1.2GHz; Minim 4GB SODIMM DDR3 RAM; Storage size			



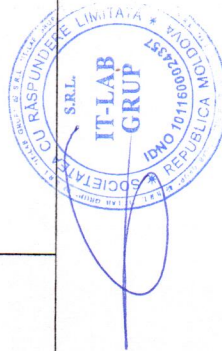
	2xSFP+ cage, 8xGbit LAN, RouterOS L6, 1U rackmount case, PSU, LCD panel	Letonia	MikroTik	RS232C; 1x USB slot type microUSB type AB; CPU temperature monitor; Current Monitor; PCB temperature monitor; Voltage Monitor; Fan speed controlled; Dimensiuni 355x145mm55mm; 41.5mpps fastpath; Up to 28Gbit/s throughput; Garanție minim 36 luni • Minim ani de experiență specifică în livrarea bunurilor și/sau serviciilor similare – 3 ani • Certificarea validă în domeniul calitatii al managementului companiei ISO9001 și ISO27001 • Statutul de partener oficial al producatorului echipamentului oferit pe teritoriul RM • Autorizarea de la producator pentru proiectul dat • Declarație privind asigurarea garanției minimum 36 luni next business day (NBD) • Minim 2 specialiști certificați (Routing/Switching/Inter-networking) pentru asistență tehnică NBD	minim 1 GB; AC input range 100-240; Max power consumption 78W; Memory card support (microSD); 1x Serial port DB9 RS232C; 1x USB slot type microUSB type AB; CPU temperature monitor; Current Monitor; PCB temperature monitor; Voltage Monitor; Fan speed controlled; Dimensiuni 355x145mm55mm; 41.5mpps fastpath; Up to 28Gbit/s throughput; Garanție 36 luni	
20.7 Router tip 2	RB1100AHx4 Dude Edition RouterBOARD 1100AHx4 Dude Edition with Annapurna Alpine AL21400 Cortex A15 CPU (4-cores, 1.4GHz per core), 1GB RAM, 13xGbit LAN, 60GB M.2 drive, RouterOS L6, 1U rackmount case, Dual PSU	Letonia	MikroTik	Ethernet Router; Rack mount carcasa; 13x Gigabit Ethernet ports; CPU minim 4xCore 1.4GHz; Minim 1 GB RAM; Storage size minim 128 MB + 60 GB m.2 SATA 3; PoE input Passive, 802.3at. 20 V - 57 V; Redundant power supply; Voltage monitor; PCB temperature monitor; Current monitor; Max Power consumption 25 W; 2x 2.5 inch SATA 3 slots; 1x Serial port RS232; Maximum throughput of up to 7.5 Gbit/s; IPsec hardware acceleration; Garanție minim 36 luni • Minim ani de experiență specifică în livrarea bunurilor și/sau serviciilor similare – 3 ani • Certificarea validă în domeniul calitatii al managementului companiei ISO9001 și ISO27001 • Statutul de partener oficial al producatorului echipamentului oferit pe teritoriul RM • Autorizarea de la producator pentru proiectul dat • Declarație privind asigurarea garanției minimum 36 luni next business day (NBD) • Minim 2 specialiști certificați	Ethernet Router; Rack mount carcasa; 13x Gigabit Ethernet ports; CPU minim 4xCore 1.4GHz; Minim 1 GB RAM; Storage size minim 128 MB + 60 GB m.2 SATA 3; PoE input Passive, 802.3at. 20 V - 57 V; Redundant power supply; Voltage monitor; PCB temperature monitor; Current monitor; Max Power consumption 25 W; 2x 2.5 inch SATA 3 slots; 1x Serial port RS232; Maximum throughput of up to 7.5 Gbit/s; IPsec hardware acceleration; Garanție 36 luni	

ROMANIA

1000



	20.8 Router tip 3	RB3011UiAS-RM RouterBOARD 3011UiAS with Dual core 1.4GHz ARM CPU, 1GB RAM, 10xGbit LAN, 1xSFP port, RouterOS L5, 1U rackmount case, LCD panel	Letonia	MikroTik	(Routing/Switching/Inter-networking) pentru asistență tehnică NBD Ethernet Router; Rack mount carcasa; 10xGigabit Ethernet ports; 1x SFP 1.25G port; CPU minim DualCore 1.4 GHz per core; Minim 1 GB RAM; Storage size minim 128 MB; 1x USB 3.0 type A; PCB temperature monitor; Voltage Monitor; Max power consumption 10W; Passive PoE in; Passive PoE Out; 1x Serial port RJ45; Garantie 36 luni	Ethernet Router; Rack mount carcasa; 10xGigabit Ethernet ports; 1x SFP 1.25G port; CPU minim DualCore 1.4 GHz per core; Minim 1 GB RAM; Storage size minim 128 MB; 1x USB 3.0 type A; PCB temperature monitor; Voltage Monitor; Max power consumption 10W; Passive PoE in; Passive PoE Out; 1x Serial port RJ45; Garantie 36 luni
	20.9 Router tip 4	hAP ac ² RBD52G-5HacD2HnD-TC hAP ac ² with 716MHz CPU, 128MB RAM, 5 x Gbit LAN, built-in 2.4Ghz 802.11b/g/n Dual Chain wireless with integrated antenna, built-in 5GHz 802.11an/ac Dual Chain wireless with integrated antenna, USB, RouterOS L4, desktop/tower case, PSU	Letonia	MikroTik	WiFi router; 5x Gigabit Ethernet ports; 1x USB 2.0 type A; CPU minim 4xCore 716 MHz; Minim 128MB RAM; Storage size minim 16 MB; Passive PoE in; IPsec Hardware encryption; Dual chain wireless 2.4 GHz and 5GHz; Wireless protocol 802.11a/b/g/n/ac; 2x 2.5 dBi 360° Antenna; Max Power consumption 15 W; Garantie minim 36 luni • Minim ani de experiență specifică în livrarea bunurilor și/sau serviciilor similare – 3 ani • Certificarea valida in domeniul calitatii al managementului companiei ISO9001 si ISO27001 • Statutul de partener oficial al producatorului echipamentului oferit pe teritoriul RM • Autorizarea de la producator pentru proiectul dat • Declarație privind asigurarea garanției minimum 36 luni next	WiFi router; 5x Gigabit Ethernet ports; 1x USB 2.0 type A; CPU minim 4xCore 716 MHz; Minim 128MB RAM; Storage size minim 16 MB; Passive PoE in; IPsec Hardware encryption; Dual chain wireless 2.4 GHz and 5GHz; Wireless protocol 802.11 a/b/ g/n/ac; 2x 2.5 dBi 360° Antenna; Max Power consumption 15 W; Garantie 36 luni



					business day (NBD) • Minim 2 specialiști certificați (Routing/Switching/Inter-networking) pentru asistență tehnică NBD	
20.10 Router tip 5	hEX RB750Gr3 with Dual Core 880MHz MHz CPU, 256MB RAM, 5 Gigabit LAN ports, USB, RouterOS L4, plastic case, PSU	Letonia	MikroTik	Ethernet Router; 5x Gigabit Ethernet ports; CPU minim Dual Core 880MHz; Minim 256MB RAM; Storage size minim 16 MB; 1x USB port type A; microSD slot; Passive PoE in; Max power consumption 5W; IPsec hardware encryption; AES-128; Garantie minim 36 luni • Minim ani de experiență specifică în livrarea bunurilor și/sau serviciilor similare – 3 ani • Certificarea valida in domeniul calitatii al managementului companiei ISO9001 si ISO27001 • Statutul de partener oficial al producatorului echipamentului oferit pe teritoriul RM • Autorizarea de la producator pentru proiectul dat • Declarație privind asigurarea garanției minimum 36 luni next business day (NBD) • Minim 2 specialiști certificați (Routing/Switching/Inter-networking) pentru asistență tehnică NBD	Ethernet Router; 5x Gigabit Ethernet ports; CPU minim Dual Core 880MHz; Minim 256MB RAM; Storage size minim 16 MB; 1x USB port type A; microSD slot; Passive PoE in; Max power consumption 5W; IPsec hardware encryption; AES-128; Garantie 36 luni	
	TOTAL					

Semnat:



Ofertantul: IT-LAB GRUP SRL

Numele, Prenumele: Cioban Alexei

În calitate de: Director

Adresa: mun. Chisinau; str-la Studentilor 2/4 of 217

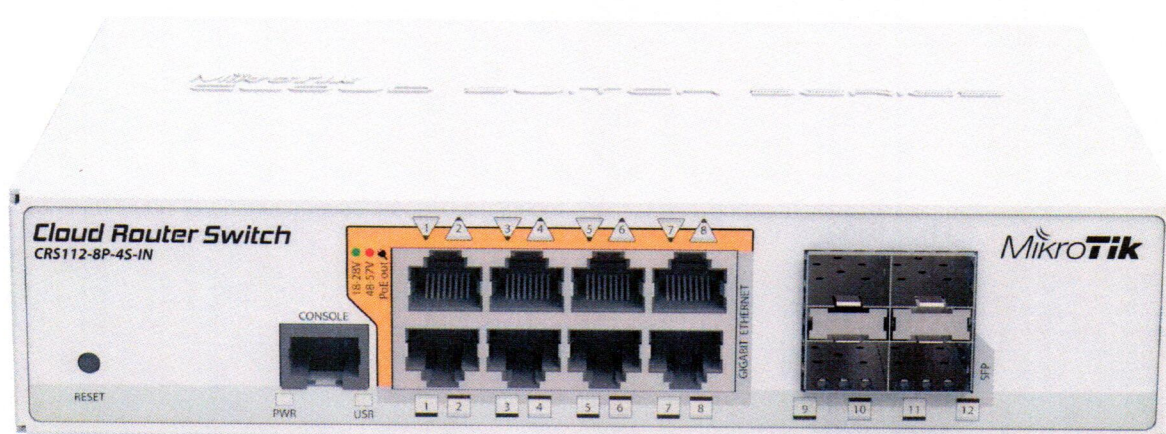
Specificarea tehnica pentru LOT 20

Lot 20.1 Cloud Router Switch 112-8P-4S-IN.....	1-2
Lot 20.2 Cloud Router Switch 212-1G-10S-1S+IN.....	3
Lot 20.3 Cloud Router Switch 317-1G-16S+RM.....	4-6
Lot 20.4 Cloud Router Switch 328-4C-20S-4S+RM.....	7-8
Lot 20.5 Cloud Router Switch 326-24G-2S+RM.....	9
Lot 20.6 Cloud Core Router 1036-8G-2S+.....	10
Lot 20.7 RouterBOARD 1100AHx4 Dude Edition.....	11-12
Lot 20.8 RouterBOARD 3011UiAS.....	13-14
Lot 20.9 RBD52G-5HacD2HnD-TC hAP ac ²	15-16
Lot 20.10 hEX RB750Gr3.....	17-18

CRS112-8P-4S-IN

CRS112-8P-4S-IN is eight Gigabit RJ45 ports PoE switch, that offers different power output options: auto-sensing 802.3af/at PoE/PoE+ and Passive PoE, and four SFP ports provide optical fiber connectivity options to support uplinks of up to 1 Gbps.

CRS112-8P-4S-IN is equipped with 12 independent switching ports. 28 V 3.4 A power supply is already included in the box. There is secondary DC jack on the back of the enclosure that supports 48-57 V power supply (not included, can be purchased separately). CRS112-8P-4S-IN can power 802.3af/at devices if 48-57 V DC input is used (unit will automatically detect and provide correct power to devices). Max current is 1 A per port if input voltage is 18-28 V, 450 mA if 48-57 V. Total limit is 2.8A@24V and 1.4A@48-57V.



Our CRS series combines a fully functional router and a manageable switch with L3 features, it's powered by the familiar RouterOS. All the specific Switch configuration options are available in a special Switch menu, but if you want, ports can be removed from the switch configuration, and used for routing purposes. It gives you all the basic functionality for a managed switch, plus more: allows to manage port-to-port forwarding, apply MAC filter, configure VLANs, mirror traffic, apply bandwidth limitation and even adjust some MAC and IP header fields. IGMP snooping is also supported.

Switching features

- Non-blocking Layer 2 switching capacity
- 16K host table
- IEEE 802.1Q VLAN
- Supports up to 4K simultaneous VLANs
- Port isolation
- Port security
- Broadcast storm control
- Port mirroring of ingress/egress traffic
- Rapid Spanning Tree Protocol
- Access Control List
- MikroTik neighbor discovery
- SNMP
- 9204-byte jumbo frames support
- IGMP snooping
- static link aggregation

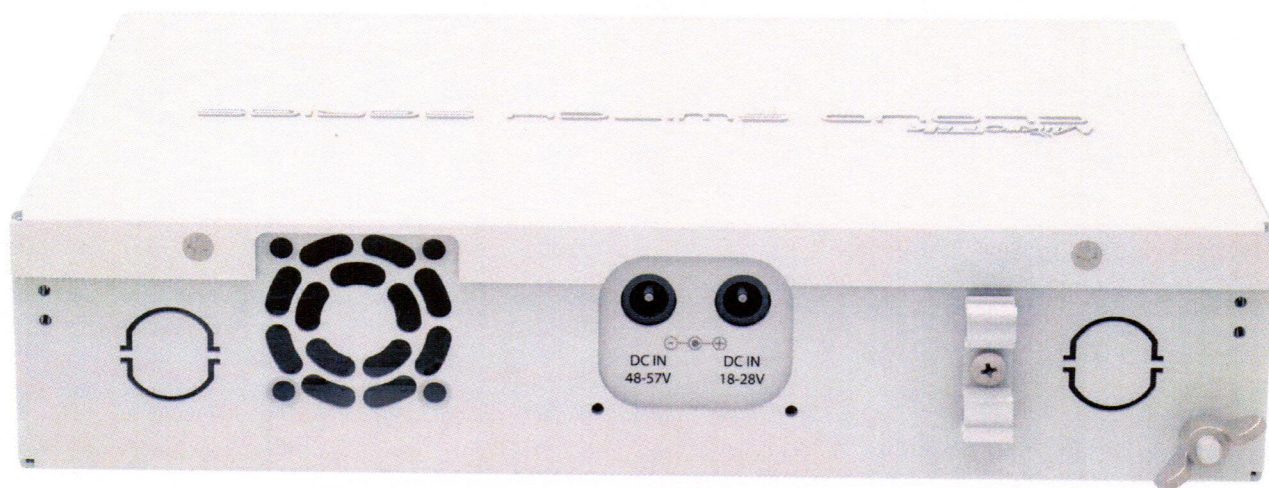
Quick specifications

- 8 Gigabit RJ45 Ports
- 4 SFP Ports
- Non-Blocking Throughput: 12 Gbps
- Switching Capacity: 24 Gbps
- Forwarding Rate: 17.8 Mpps
- Maximum Power Consumption: 10 W (without PoE devices connected)
- Supports PoE+ IEEE 802.3at/af and 24 V Passive PoE
- Quiet, Fanless Operation
- Desktop-Rackmount



Specifications

Product code	CRS112-8P-4S-IN
CPU nominal frequency	QCA8511
Size of RAM	128 MB
Storage type	Flash
Storage size	16 MB
10/100/1000 Ethernet ports	8
SFP ports	4
Serial port	RJ45
PoE out	Yes, 802.3af/at
Supported input voltage	18 V - 57 V
Dimensions	200 x 143 x 40 mm
Operating system	RouterOS, level 5 license
Max Power consumption	10 W



Power adapter
28 V 3.4 A



Rackmount ears



Power cord



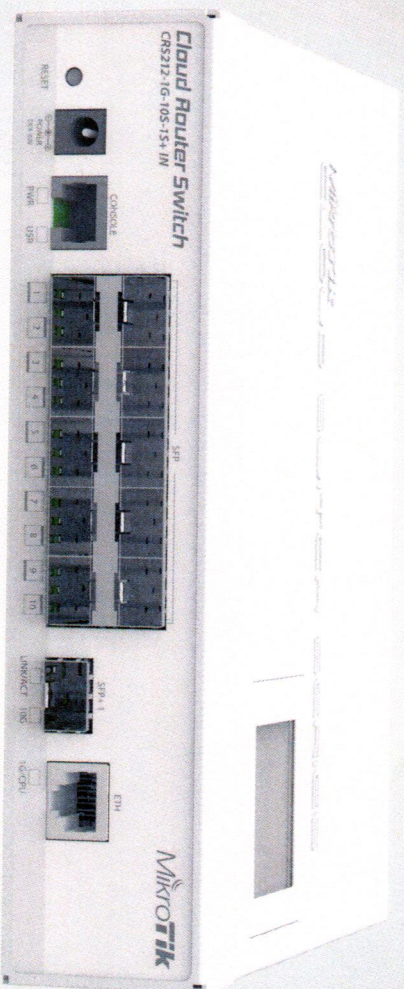
Screws



Cloud Router Switch CRS212-1G-10S-1S+IN

Cloud Router Switch 212-1G-10S-1S+IN is new "small size low cost" member of our CRS series. It comes with one Gigabit Ethernet RJ45 port, ten SFP cages and one 10G SFP+ cage, as well as LCD panel and serial port (RJ45). Product includes indoor desktop case and power supply.

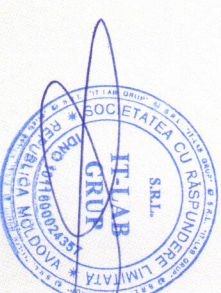
Our CRS series combines the best features of a fully functional router and a Layer 3 switch, is powered by the familiar RouterOS. All the specific Switch configuration options are available in a special Switch menu, but if you want, ports can be removed from the switch configuration, and used for routing purposes.



CPU	Qualcomm Atheros 8519 400MHz
Memory	DDR2 64MB
Ethernet	1x 10/100/1000 Mbps Ethernet with Auto-MDIX
SFP	1x 10G SFP+ cage, 10x SFP cages (Mini-GBIC; SFP+ module not included), DDMI support.
Storage	16MB Flash
Serial port	One RJ45 serial port
Extras	Reset switch; beeper; voltage and temperature monitoring; touchscreen LCD
Power options	8-30V, 24V 1.2A PSU included
Power consumption	20W
Case dimensions	200x144x47mm
Temperature	-35C to +65C tested
OS	MikroTik RouterOS v6, Level 5 license
Included	CRS switch, power adapter



24V 1.2A Adapter

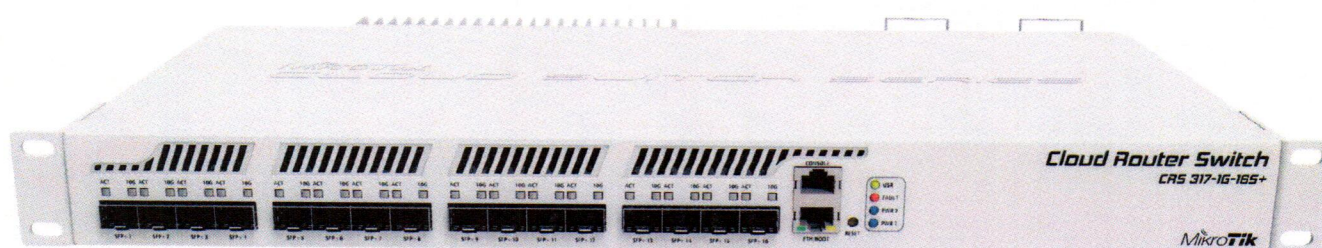


CRS317-1G-16S+RM

The new Cloud Router Switch 317-1G-16S+RM is a rack-mountable manageable switch with Layer3 features, it has 16 SFP+ ports for high performance 10GbE connectivity and a 1GbE copper port for management.

CRS317-1G-16S+RM is powered by a next generation switching chip, giving you wire speed performance for all sixteen 10GbE ports with any Ethernet frame size. New features such as hardware-based Spanning Tree Protocol (MSTP) and Link Aggregation (LACP) provide enhanced protection and true professional performance for your demanding network.

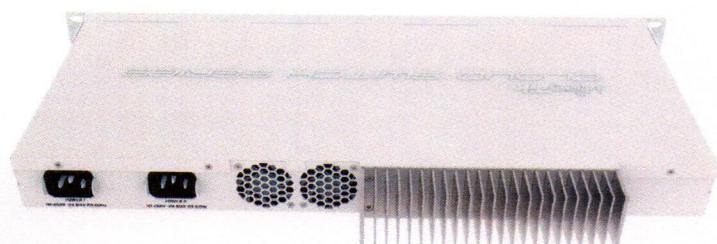
The unit has dual redundant power supplies and passive cooling case, so it's completely silent - for hot environments, like outdoor communications boxes, two redundant fans will automatically keep the system cool if needed.



- Boot option for SwOS or RouterOS
- Non-blocking Layer 2 switching capacity
- 16K host table
- IEEE 802.1Q VLAN
- Supports up to 4K simultaneous VLANs
- Port isolation and Port security
- MSTP
- HW MPLS forwarding coming in future software update
- SFP 1.25 and SFP+ 10Gbit module support
- 800 MHz dual core CPU
- Dual power supplies
- Broadcast storm control
- Port mirroring of ingress/egress traffic
- Rapid Spanning Tree Protocol (RSTP)
- Link Aggregation (LACP)
- Access Control List
- MikroTik neighbour discovery
- SNMP v2/v3
- Rackmount and tabletop
- Supports -20 to +60 C ambient temperatures
- Passive cooling with automatic fan for high temperatures

"Dual boot" feature allows you to choose which operating system you prefer to use, RouterOS or SwOS. If you prefer to have a simplified switch only OS with more switch specific features, use SwOS. If you are used to Winbox and would like the ability to use routing and other Layer 3 features on some ports in your CRS, boot and use RouterOS. You can select the desired operating system from RouterOS, from SwOS or from the RouterBOOT loader settings.

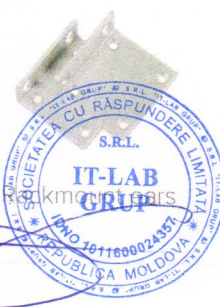
It gives you all the basic functionality for a managed switch, plus more: allows to manage port-to-port forwarding, apply MAC filter, configure VLANs, mirror traffic, apply bandwidth limitation and even adjust some MAC and IP header fields. SFP+ cages supports both 1.25 Gb SFP and 10 Gb SFP+ modules.



CRS317-1G-16S+RM



2x IEC cord

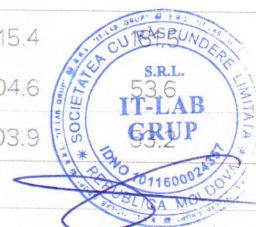


Specifications

Product code	CRS317-1G-16S+RM
CPU	98DX8216B0 800 MHz
CPU cores	2
Size of RAM	1 GB
Storage type	Flash
Storage size	16 MB
SFP+	16 (supports both 1.25 Gb SFP and 10 Gb SFP+ modules; modules are not included), DDIM support
Dimensions	443 x 224 x 44 mm
License level	6
Operating System	RouterOS or SwitchOS
Number of AC inputs	2
AC input range	110 - 240 V
Redundant supply	Yes
Max Power consumption	42 W
Active case cooling	Yes
CPU temperature monitor	Yes
Operating temperature	-40 to 70° C
LEDs	38
Serial port	RJ45

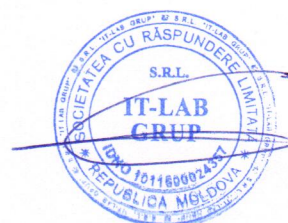
Ethernet test results

CRS317-1G-16S+RM		98DX8216B0 all port test					
Mode	Configuration	1518 byte		512 byte		64 byte	
		kpps	Mbps	kpps	Mbps	kpps	Mbps
Bridging	none (fast path)	268.3	3258.2	361.2	1479.5	355.2	181.9
Bridging	25 bridge filter rules	98.4	1195.0	98.6	403.9	98	50.2
Routing	none (fast path)	254.4	3089.4	309.8	1268.9	315.4	
Routing	25 simple queues	104.6	1270.3	104.4	427.6	104.6	
Routing	25 ip filter rules	104.6	1270.3	103.4	423.5	103.9	



Switching results

CRS317-1G-16S+RM							
Mode	Configuration	64 byte		512 byte		1518 byte	
		kpps	Mbps	kpps	Mbps	kpps	Mbps
Switching	Non blocking Layer 2 throughput	239,583.3	122,666.7	37,828.9	154,947.4	13,085.2	158,906.4
Switching	Non blocking Layer 2 capacity	239,583.3	245,333.3	37,828.9	309,894.7	13,085.2	317,812.7
Switching	Non blocking Layer 1 throughput	239,583.3	161,000.0	37,828.9	161,000.0	13,085.2	161,000.0
Switching	Non blocking Layer 1 capacity	239,583.3	322,000.0	37,828.9	322,000.0	13,085.2	322,000.0



CRS328-4C-20S-4S+RM

The CRS328-4C-20S-4S+RM is a 28 independent port switch with a combo group.

This device has twenty SFP ports, four SFP+ ports for 10G modules and four combo ports, where you can choose to use SFP or RJ45 ports from the combo group. These ports can also be software selected, so if you have plugged in all eight cables, you can use scripting, to decide which four combo ports will be active.

The device comes in a 1U rackmount case with two 100-240 V power supplies with failover functionality. A RJ45 console port is available for management and debugging, and a mode button can be customised to execute any RouterOS commands.

The device has a "Dual boot" feature that allows you to choose between two operating systems - RouterOS or SwOS.

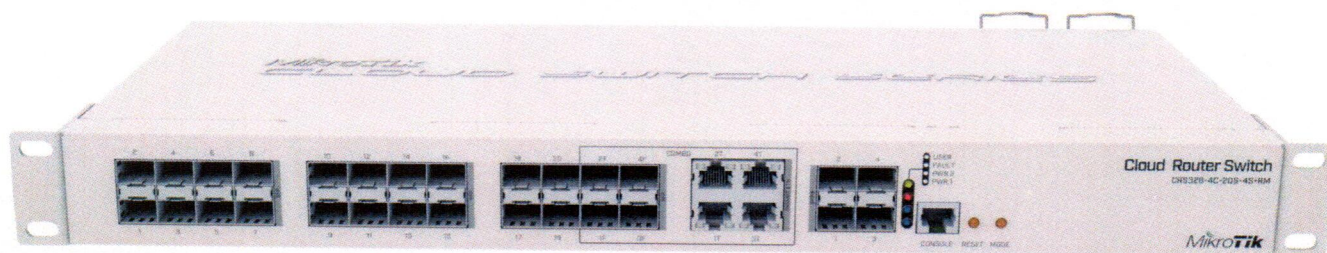
If you prefer to have a simplified operating system with only switch specific features, use SwOS. If you would like the ability to use routing and other Layer 3 features in your CRS, use RouterOS. You can select the desired operating system from RouterOS, from SwOS or from the RouterBOOT loader settings. All the feature set comes with our disruptive price, providing best price/performance on the market.

Switching features

- Non-blocking Layer 2 switching capacity
- 16K host table
- IEEE 802.1Q VLAN
- Supports up to 4K simultaneous VLANs
- Port isolation
- Port security
- Broadcast storm control
- Port mirroring of ingress/egress traffic
- STP / RSTP / MSTP
- Access Control List
- MikroTik neighbor discovery
- SNMP
- 10218-byte jumbo frames support
- IGMP snooping
- IEEE 802.3ad and static link aggregation

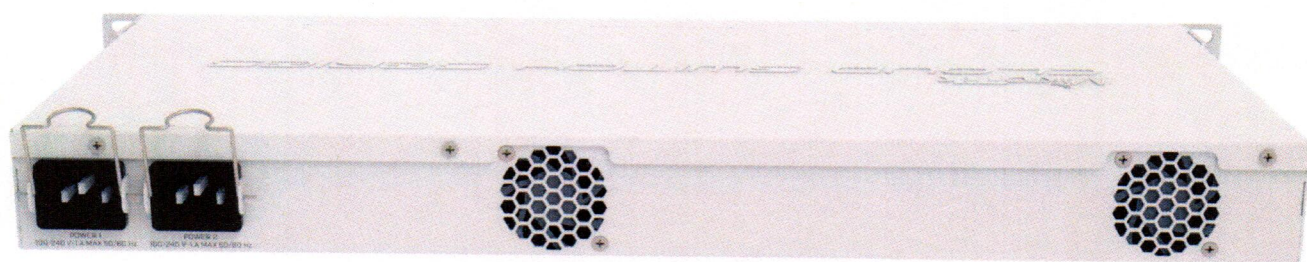
Quick specifications

- 20 SFP ports
- 4 ETH/SFP combo ports
- 4 SFP+ ports
- Non-Blocking throughput: 64 Gbps
- Switching capacity: 128 Gbps
- Forwarding rate: 95.2 Mpps
- RJ45 serial console port
- Dual PSU
- Maximum power consumption: 43 W
- Temperature based fan control
- 1U rackmount



Specifications

Product code	CRS328-4C-20S-4S+RM
CPU	98DX3236A1 800 MHz
RAM	512 MB
Storage type	Flash
Storage size	16 MB
Switch chip model	98DX3236A1
SFP cages	20
SFP+ cages	4
Ethernet/SFP Combo ports	4
Operating system	SwOS / RouterOS (Dual boot)
Supported input voltage	100 - 240 V
Dimensions	443 x 200 x 44 mm
Operating temperature	-20°C .. +60°C tested
Max power consumption	43 W
Serial port	RJ45
License level	5



Two IEC power
cords



Rack ears



CRS326-24G-2S+RM

We are announcing a special version of the CRS326-24G-2S+RM switch, with added RouterOS as a second boot option, the new CRS326-24G-2S+RM.

This is a SwOS/RouterOS powered 24 port Gigabit Ethernet switch with two SFP+ ports, wire speed connectivity with several new switching features!

The "Dual boot" feature that allows you to choose which operating system you prefer to use, RouterOS or SwOS. If you prefer to have a simplified switch only OS with more switch specific features, use SwOS. If you are used to Winbox and would like the ability to use routing and other Layer 3 features on some ports in your CRS, boot and use RouterOS. You can select the desired operating system from RouterOS, from SwOS or from the RouterBOOT loader settings.

It gives you all the basic functionality for a managed switch, plus more: allows to manage port-to-port forwarding, apply MAC filter, configure VLANs, mirror traffic, apply bandwidth limitation and even adjust some MAC and IP header fields. SFP cage supports both 1.25 Gb SFP and 10 Gb SFP+ modules.

Specifications

Product code	CRS326-24G-2S+RM
CPU	98DX3236A1 800 MHz
RAM	512 MB
Storage type	Flash, 16 MB
Switch chip model	98DX3236A1
10/100/1000 Ethernet ports	24
SFP+ cages	2
Operating system	SwOS /RouterOS (Dual boot)
Supported input voltage	9 - 30 V (jack or passive PoE)
Dimensions	440 x 144 x 44 mm
Operating temperature	-40°C .. +60°C tested
Max power consumption	24 W
Serial port	RJ45

SwOS Features

- Non-blocking Layer 2 switching capacity
- 16K host table
- IEEE 802.1Q VLAN
- Supports up to 4K simultaneous VLANs
- Port isolation
- Port security
- Broadcast storm control
- Port mirroring of ingress/egress traffic
- Rapid Spanning Tree Protocol
- Access Control List
- MikroTik neighbor discovery
- SNMP v1
- Web-based GUI

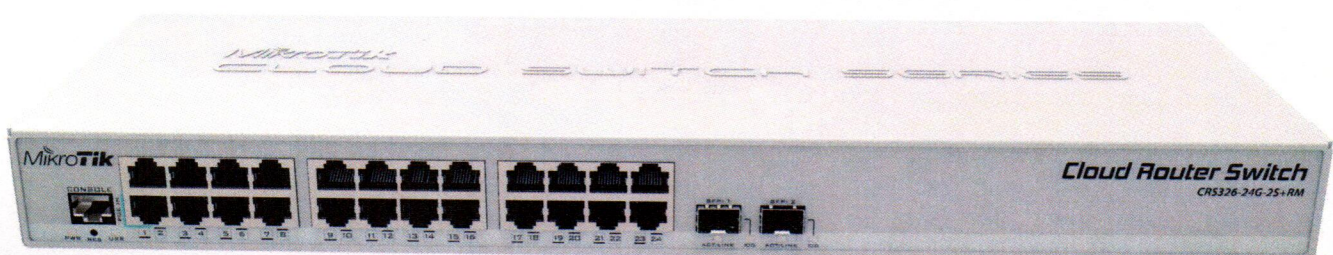
Included



24 V 1.2 A power adapter



Rack ears



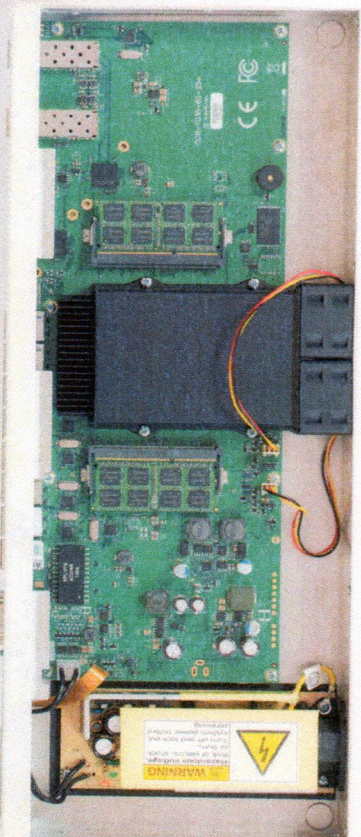
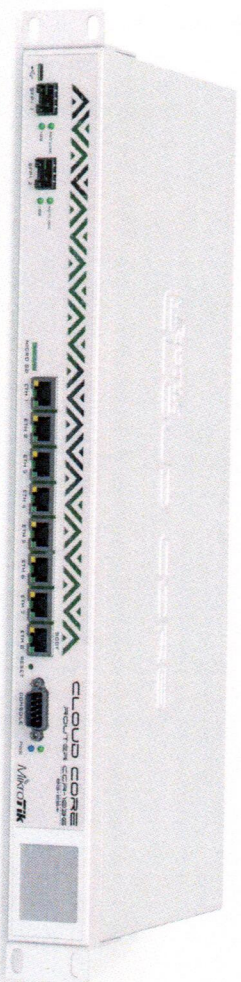
Cloud Core Router

CCR1036-8G-2S+

Our fastest router has now become even better - the new CCR1036-8G-2S+ now has two SFP+ ports for 10G interface support (SFP+ module available separately). It uses the same 36 core Tilera CPU as our other CCR1036 model, and delivers the same performance, but now, ten gigabit links are possible.

The device comes in a 1U rackmount case, has two SFP+ ports, eight Gigabit ethernet ports, a serial console cable and a USB port.

The CCR1036-8G-2S+ has two SODIMM slots, by default it is shipped with 4GB of RAM, but has no memory limit in RouterOS (will accept and utilize 16GB or more). Also available now, the EM model with 16GB of RAM!



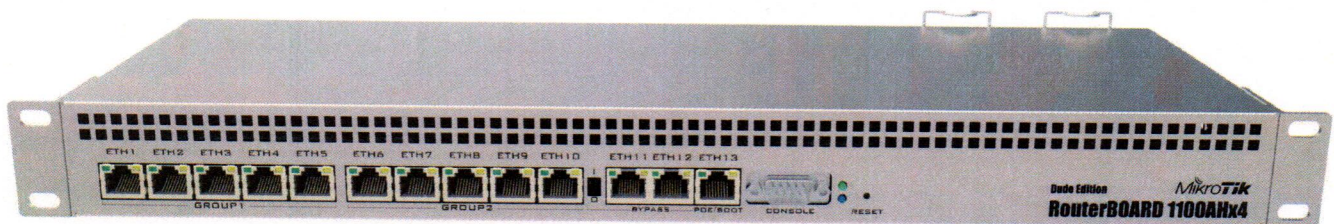
New generation CPU	Highest performance	Full set of features
36 core CPU 1.2GHz clock per core 12 Mbytes total on-chip cache State of the art TILE GX architecture	8 mpps standard forwarding 41.5 mpps fastpath forwarding (wire speed for all ports) Up to 28Gbit/s throughput	1U rackmount case 8x Gigabit ports 2x SFP+ ports Color touchscreen LCD Ports directly connected to CPU

CPU	Tilera Tile-Gx36 CPU (36-cores, 1.2GHz per core)
Memory	Two SODIMM DDR3 slots, 4GB (2x2GB) installed (no hardware or software max limit) CCR1036-8G-2S+EM: 16GB (2x8GB) RAM installed
Ethernet	Eight 10/100/1000 Mbit/s Gigabit Ethernet with Auto-MDIX
SFP	Two 10G Ethernet SFP+ cages (Mini-GBIC; SFP module not included), DDMM support
Expansion	microUSB port, host and device mode
Storage	1GB Onboard NAND
Serial port	One DB9 RS232C asynchronous serial port
Extras	Reset switch; speed controlled fan; beeper; voltage, current and temperature monitoring
Power options	IEC C14 standard connector 110/220V (PSU included), up to 60W power consumption
Board dimensions	355x145mm55mm
Temperature	Max ambient temperature 50° @ 1.2GHz; 70° @ 1GHz CPU core frequency
OS	MikroTik RouterOS v6 (64bit), Level 6 license
Included	Router in a 1U case with LCD, PSU, power cable, usb-cable

RB1100AHx4 Dude edition

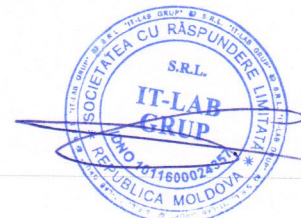
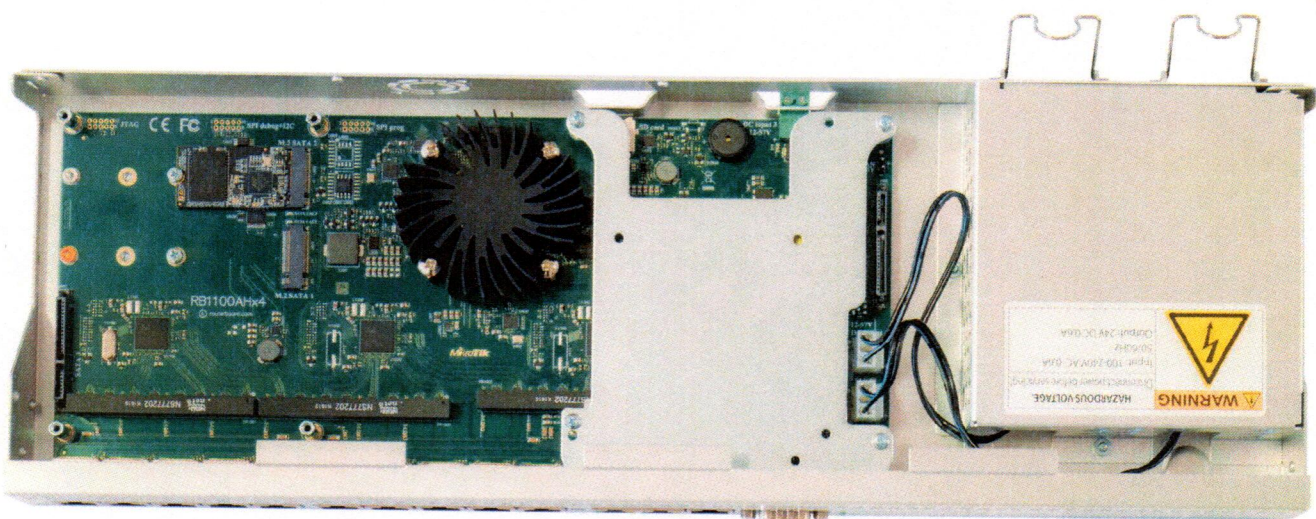
The new RB1100AHx4 Dude Edition uses a new quad core Cortex A15 chip from Annapurna labs, an Amazon company. The chip is clocked at 1.4 GHz, for a maximum throughput of up to 7.5 Gbit/s.

The unit features several high speed storage connectors (two SATA and two M.2) for using a Dude database, proxy cache or any other storage intensive feature. It includes a 60 GB M.2 drive and comes with Dude package already installed to work out-of-the box.



The RB1100AHx4 Dude Edition supports IPsec hardware acceleration and is faster at it than any previous RouterBOARD device.

The unit features two IEC failover power connectors, supports passive or 802.3at/af PoE input and has a DC telecom power connector for -48V DC powering. It uses passive cooling and is absolutely quiet.

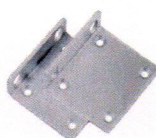


Specifications

Product code	RB1100AHx4 Dude edition
CPU	AL21400, 4 cores, 1.4 GHz
Size of RAM	1 GB
Storage type	NAND
Storage size	128 MB + 60 GB m.2 SATA 3 drive included
10/100/1000 Ethernet ports	13
Ethernet bypass	Ethernet 11/12
Power jack	2x IEC. 100 V - 240 V
DC telecom power	20 V - 57 V (-48 V supported)
PoE input	Passive, 802.3at. 20 V - 57 V
Redundant power supply	Yes
Voltage monitor	Yes
PCB temperature monitor	Yes
Current monitor	Yes
Dimensions	444 x 148 x 47 mm
Operating temperature	-40°C .. +70°C tested
Operating system	RouterOS, level 6 license
Max Power consumption	25 W
microSD	1
SATA	2x 2.5 inch SATA 3
M.2 slots	2x SATA 3 compatible (supports 2242, 2260 and 2280 sizes, M-key)
Serial port	RS232
Beeper	Yes



SATA cables


K-10 R2
screw kit


Rack ears



2x IEC cord



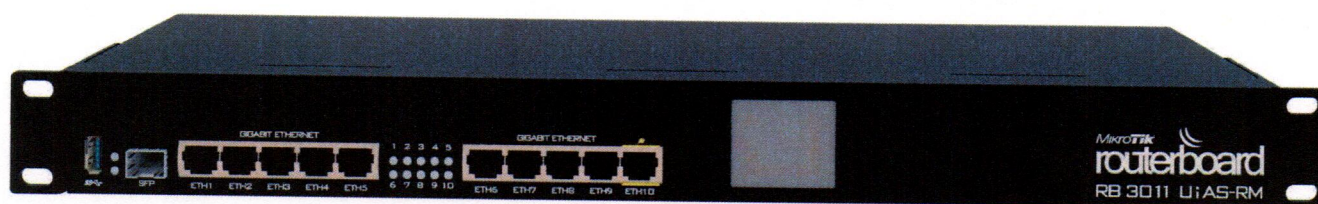
M.2 SSD 60 GB



RB3011UiAS-RM

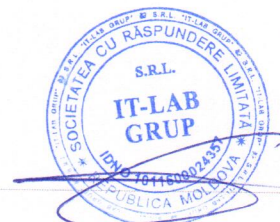
The RB3011 is a new multi port device, our first to be running an ARM architecture CPU for higher performance than ever before. The RB3011 has ten Gigabit ports divided in two switch groups, an SFP cage and for the first time a Superspeed full size USB 3.0 port, for adding storage or an external 3G/4G modem.

Unit comes with 1U rackmount enclosure, a touchscreen LCD panel, a serial console port and PoE output functionality on the last Ethernet port.



Specifications

Product code	RB3011UiAS-RM
CPU nominal frequency	1.4 GHz
CPU core count	2
Size of RAM	1 GB
10/100/1000 Ethernet ports	10
Switch chip model	QCA8337-AL3C-R
Power Jack	1
PoE in	Yes (passive only)
PoE out	Yes (port 10)
Supported input voltage	10 V - 30 V
Voltage Monitor	Yes
PCB temperature monitor	Yes
Dimensions	443x92x44mm
License level	5
Operating System	RouterOS
CPU	IPQ-8064
Max Power consumption	10 W



Specifications

SFP port	1
USB slot type	USB 3.0 type A
Number of USB ports	1
Serial port	RJ45

Included



24V 1.2A Power adapter

Performance test results

RB3011UiAS		All port test		RouterOS v6.30rc23			
Mode	Configuration	1518 byte		512 byte		64 byte	
		Mbps	kpps	Mbps	kpps	Mbps	kpps
Bridging	none (fast path)	3,946.8	325.0	3,849.4	939.8	783.5	1,530.2
Bridging	25 bridge filter rules	3,946.8	325.0	1,573.7	384.2	178.5	348.6
Routing	none (fast path)	3,946.8	325.0	3,849.4	939.8	736.1	1,437.6
Routing	25 simple queues	3,946.8	325.0	1,718.7	419.6	214.9	419.7
Routing	25 ip filter rules	2,453.1	202.0	836.0	204.1	96.5	188.4

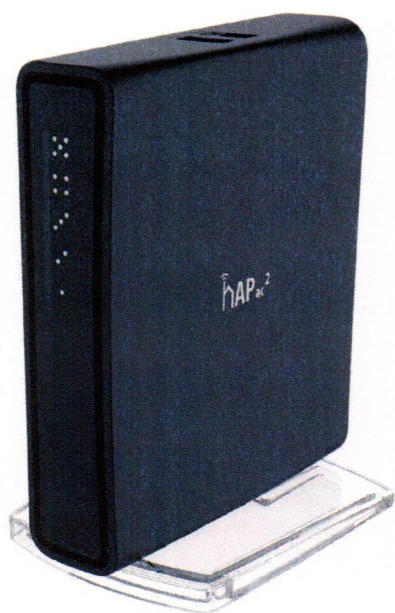
1. All tests are done with Xena Networks specialized test equipment (XenaBay), and done according to RFC2544 (Xena2544)
2. Max throughput is determined with 30+ second attempts with 0,1% packet loss tolerance in 64, 512, 1518 byte packet sizes
3. Values in *italic* indicate that max throughput was reached without maxing out CPU, but because board interface configuration was maxed out
4. Test results show device maximum performance, and are reached using mentioned hardware and software configuration, different configurations most likely will result in lower results



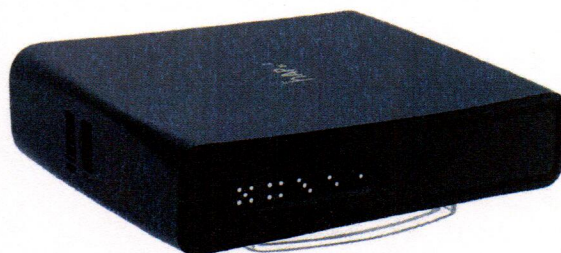
hAP ac²

The hAP ac² is a Dual-concurrent Access Point, that provides Wifi coverage for 2.4 GHz and 5 GHz frequencies at the same time. Five 10/100/1000 Ethernet ports provide Gigabit connections for your wired devices, and USB can be used for external storage or 4G/LTE modem. Also IPsec Hardware encryption and dude server package are supported.

New design universal case allows unit to be positioned either horizontally (desktop) or vertically (tower case). Wall anchored mounting kit is provided.

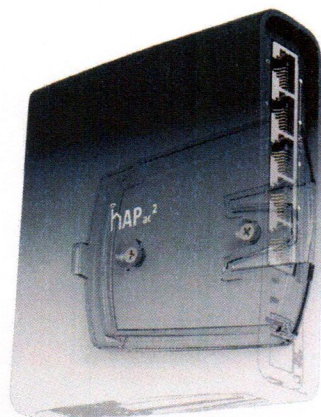


- Dual chain wireless 2.4 GHz
- Dual chain wireless 5 GHz
- 4 core 716 MHz CPU
- 128 MB of RAM
- Five x 10/100/1000 Mbps Ethernet ports
- USB port for 3G/4G modem
- IPsec Hardware encryption



The hAP ac² can be powered from the power jack or with passive PoE from a PoE injector. The power adapter is included.

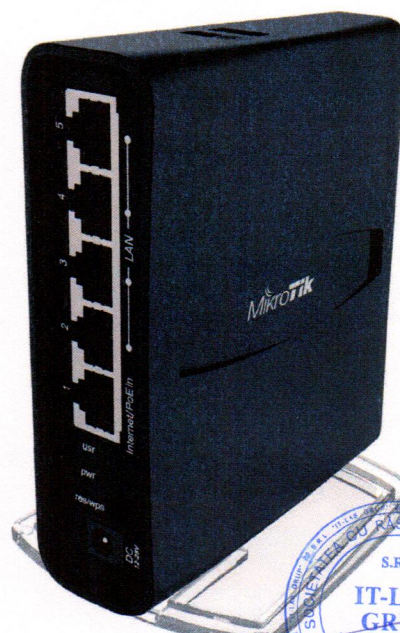
The hAP ac² is preconfigured, so all you need to do, is plug in the Internet cable, the power, and start using the internet by connecting to the MikroTik network.



Can be attached to the wall.



24 V 0.8 A power adapter



Specifications

Product code	RBD52G-5HacD2HnD-TC (International) RBD52G-5HacD2HnD-TC-US (USA)		
CPU	IPQ-4018 716 MHz		
CPU core count	4		
Size of RAM	128 MB		
Storage type	Flash		
Storage size	16 MB		
10/100/1000 Ethernet ports	5		
Wireless bands	5 GHz radio		2.4 GHz radio
Wireless regulations	Specific frequency range may be limited by country regulations		
Operating frequency	International	5150 - 5875 MHz	International 2412 - 2484 MHz
	USA	5170 - 5250 MHz 5725 - 5835 MHz	USA 2412 - 2462 MHz
Protocols	802.11a/n/ac		802.11b/g/n
Chains	Dual-chain		Dual-chain
Antenna gain	2.5 dBi		2.5 dBi
Wireless chip model	IPQ-4018		IPQ-4018
Antenna beam width	360°		
PoE in	Yes (18 - 28 V)		
Supported input voltage	12 V - 30 V (Jack or Passive PoE)		
Operating temperature	-40°C .. +50°C		
Extras	USB 2.0 Type A full size port, 1 A		
Dimensions	34 x 119 x 98mm		
License level	4		
Operating System	RouterOS		
Max Power consumption	15 W		

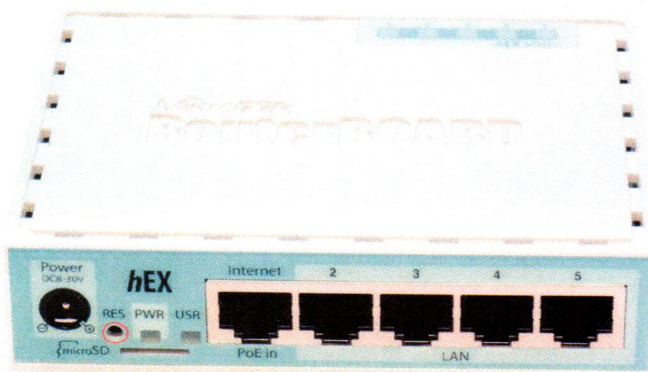
Wireless specifications

RATE (2.4 GHz)	Tx (dBm)	Rx (dBm)	RATE (5 GHz)	Tx (dBm)	Rx (dBm)
1MBit/s	27	-100	6MBit/s	26	-96
11MBit/s	27	-94	54MBit/s	22	-80
6MBit/s	27	-96	MCS0	26	-96
54MBit/s	24	-78	MCS7	21	-75
MCS0	27	-96	MCS9	19	-70
MCS7	23	-73			



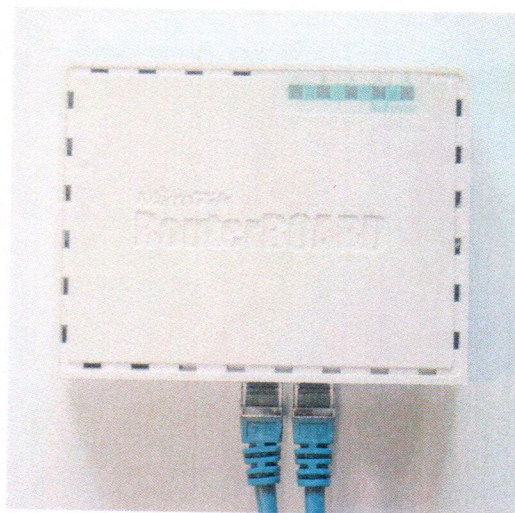
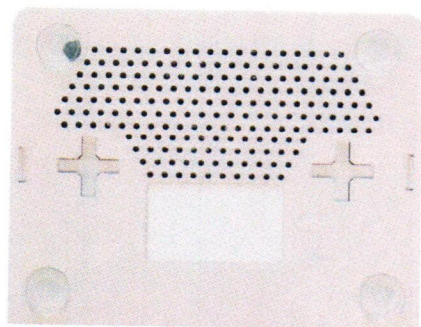
hEX

hEX is a five port gigabit ethernet router for locations where wireless connectivity is not required. The device has a USB 2.0 port. This new updated revision of the hEX brings several improvements in performance.



- hEX (revision 3)
- 880 MHz CPU, 2 cores and 4 threads
- 256 MB RAM
- microSD slot for "Dude Server" support
- Full size USB
- IPsec hardware acceleration ~450 Mbps
- Same form factor
- Same price

It is affordable, small and easy to use, but at the same time comes with a very powerful dual core 880MHz CPU and 256MB RAM, capable of all the advanced configurations that RouterOS supports. IPsec Hardware encryption (~450Mbps) and dude server package is supported, microSD slot on it also provides improved r/w speed for database storage on microSD card.



Performance comparison

Previous r2	64 byte	1518 byte	1400 byte
Bridging	396 Mbps	986 Mbps	986 Mbps
Routing	373 Mbps	986 Mbps	986 Mbps
AES-128	9 Mbps	52 Mbps	50 Mbps



New r3	64 byte	1518 byte	1400 byte
Bridging	523 Mbps	1972 Mbps	1972 Mbps
Routing	530 Mbps	1972 Mbps	1972 Mbps
AES-128	21 Mbps	472 Mbps	450 Mbps

Specifications

Product code	RB750Gr3
CPU nominal frequency	880 MHz
CPU core count	2
Size of RAM	256 MB
10/100/1000 Ethernet ports	5
PoE in	Yes
Supported input voltage	8 - 30 V
PCB temperature monitor	Yes
Voltage Monitor	Yes
USB	Yes, type A 2.0
Hardware encryption	Yes
Dude server package support	Yes
Dimensions	113x89x28mm
License level	4
Operating System	RouterOS
CPU	MT7621A
Max Power consumption	5 W

Included



24V 0.38A Power
adapter

