CUBRO
NETWORK VISIBILITY

EXA48200

DATA SHEET

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Advanced Network Packet Broker
At a glance

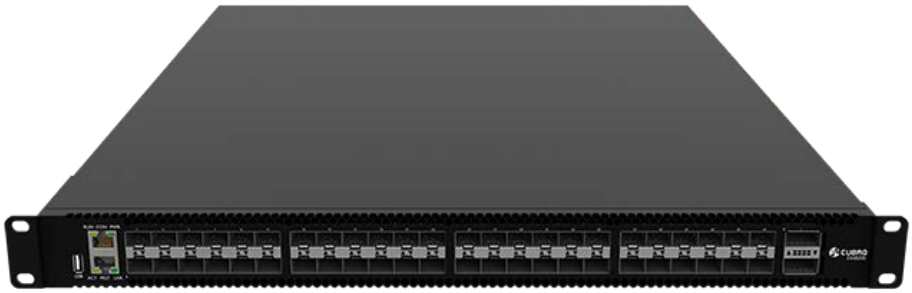
Definition

An Advanced Network Packet Broker (NPB) combines standard NPB functionalities like aggregation, L2 to L4 traffic filtering or load-balancing with higher layer functions such as Deduplication or Regex filtering in a single device. Thus, it is an ideal tool to cope with a wide range of monitoring and security applications.

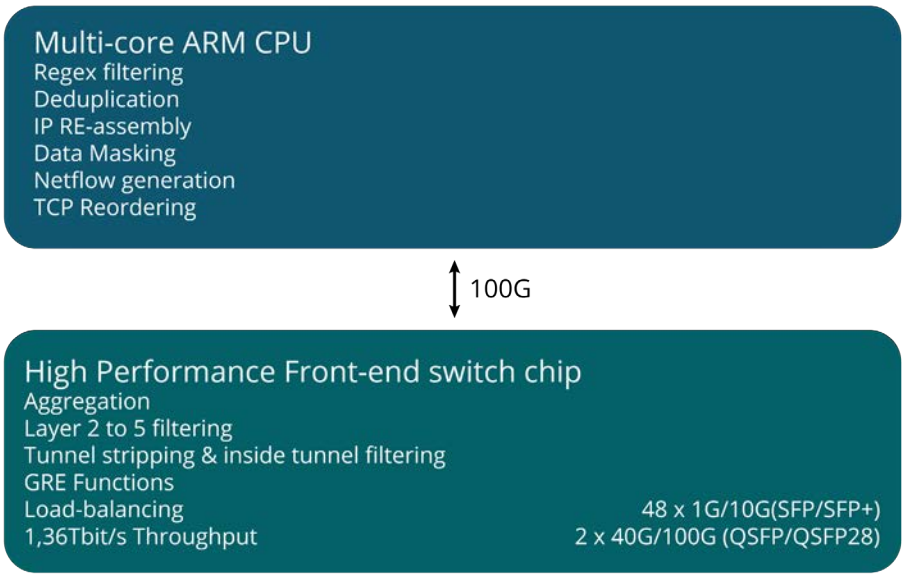
Highlights of EXA48200

- All-in-one visibility solution by combining highest throughput with advanced functions and features.
- Up to 48 x 1/10 Gbps (SFP/ SFP+) and 2 x 40/100 Gbps (QSFP/ QSFP28) ports
- Aggregation, Filtering and Load-Balancing
- Tunnel removal and inside tunnel filtering
- Deduplication, Regex filtering, Data masking and Packet Slicing
- Netflow generation
- Flexible port licensing model (12, 24, 36 or 48 ports enabled)
- Open for 3rd party transceivers
- 2-year base warranty period

Product Overview



The Advanced Packetmaster EXA48200 combines a high-performance switch engine with an extremely powerful ARM CPU into a single cabinet. This approach offers customers a greater choice and more functionality as well as flexibility and makes the unit ideal for advanced visibility and security applications. Multi-layer filtering, tunnel removal, load-balancing paired with higher layer functions such as deduplication and regex filtering allows to master any monitoring/visibility challenge. A flexible port license model allows customers to target a given application with minimum costs.



Functions / Benefits:

- Easy to configure via secure Web GUI and REST API
- Filtering on Layer 2 to Layer 5 packet headers
- Hash-based, session aware load balancing to keep up&down stream information together
- Regex filtering to search for complex ASCII strings or Hex patterns anywhere in packets
- Deduplication function
- Data masking
- Tunnel termination and inner tunnel filtering (VXLAN, GTP, ERSPAN, MPLS, MPLSoGRE, GRE, CFP)
- Active GRE endpoint function
- SNMPv2c and SNMPv3 support
- Straight and easy development of filtering strings using MS Excel with download function
- Cost efficient due to flexible port licensing model

Product Capabilities / Features

Number of Ports	48 x SFP/SFP+ 1/10 Gbps; 2 x QSFP/QSFP28 40/100 Gbps; QSFP/QSFP28 ports can be used in break-out mode supporting 4 x 10/25 Gbps
Link/Port Aggregation	1:1; 1:n; n:1; n:n - at all port/link speeds
Traffic distribution/load balancing	Traffic can be easily distributed to single ports, parallel ports or load-balancing groups
Filtering	- Up to OSI Layer 4 including MAC, VLAN, Ethertype, VXLAN VNI, IPv4/IPv6, DSCP, Protocol type, Layer 4 Port Numbers - Multiple stage filtering (ingress, egress and loopback ports) - Regex filtering to search for ASCII strings and/or Hex pattern in complete packets
Tunnel Termination and inner tunnel filtering	- MPLS, MPLS over UDP, GRE, GTP, ERSPAN, VXLAN, CFP - Generic pattern removal via offset and length
Packet Slicing	Supported at all ports and port speeds for any user selectable packet size
Deduplication	Supported at all ports and port speeds
Data masking	Overwrite any part of a packet to comply with GDPR regulations
Netflow generation	v5 and v9 supported
Throughput / Latency	Non-blocking architecture with 1360 Gbps throughput

Latency	< 700ns
Buffer	24 Mbyte with intelligent buffer management to avoid congestion due to micro-bursts
Supervision/Logging	SNMPv2c and SNMPv3; Syslog and Activity Log function
Unit Control	WebUI via https and RestAPI via 10/100/1000B-T management interface
MTBF	178213 hours
Electrical Power	Dual 100-240 V AC or 36-72 V DC available

Technical Data / Specifications

Inputs*

48 x 1 Gbps / 10 Gbps full duplex SFP Ports for any kind of SFP/SFP+
2 x 40 Gbps / 100 Gbps full duplex Ports for any kind of QSFP/QSFP28
*Each port can be input and / or output depending on the application and configuration
*All QSFP/ QSFP28 ports support breakout cables to 4x10G or 4x25G interfaces

Outputs*

48 x 1 Gbps / 10 Gbps full duplex SFP Ports for any kind of SFP/SFP+
2 x 40 Gbps / 100 Gbps full duplex Ports for any kind of QSFP/QSFP28
*Each port can be input and / or output depending on the application and configuration
*All QSFP/ QSFP28 ports support breakout cables to 4x10G or 4x25G interfaces

Performance

- Performance up to 1,36 Tbps
- Non-blocking design
- Boot time from power on to working 180 sec

Management

- Management Port: (1) RJ45 10/100/1000 Mbit Configuration

Operating specifications:

Operating Temperature: 0ºC to 40ºC
Storage Temperature: -10ºC to 70ºC
Relative Humidity: 10% min, 95% max (non-condensing)

Mechanical specifications:

Dimension (WxDxH): 444 x 565 x 44 mm
Weight: 12,1 kg
Airflow: Front-back

Electrical specifications:

Input Power: 100-240V
Maximum Power Consumption: 220W
Power Supply Module: 2 (redundant & hot- swappable)

Certifications:

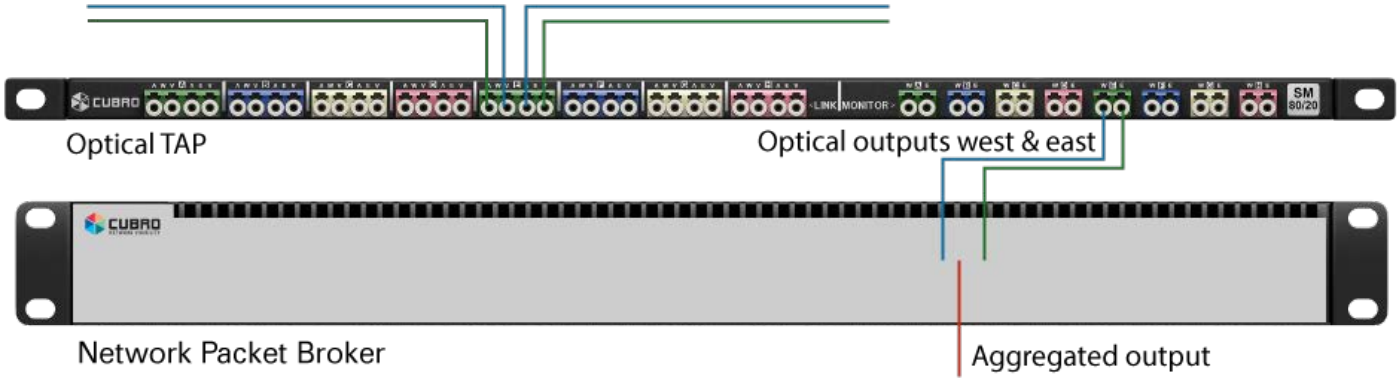
Compliance and Safety: EN 61000-3-2:2019; EN 61000-3-3:2013/A1:2019;
EN 62368-1:2014; EN 55035/2017/A11:2020;
EN 55032:2015/A1:2020
EU Directives compliance:2014/35/EU and 2014/30/EU
RoHs Compliance: RoHS 6

Applications / Solutions

Aggregation

The EXA48200 is able to receive traffic from a single or multiple 1/10/40 or 100 Gbps link(s) via the monitoring ports of an inline tapping device. The incoming traffic can be further aggregated to a single or multiple outputs to connect analyzers and monitoring tools as required.

The example below shows how EXA48200 aggregates upstream and downstream traffic of a 100 Gbit link to a single output port for more economical usage of connected traffic probes/ analytics systems.



By utilizing the various filtering capabilities of the EXA48200 the user is able to further reduce traffic volume that needs to be processed, thus enabling quicker and more accurate analysis and troubleshooting. Moreover, incoming traffic can be VLAN tagged per physical port to allow easy identification at which physical port a packet original arrived.

Superior filtering capabilities

The Packetmaster EXA48200 supports up to 16000 parallel running filters. These filters can be used to redirect a selected part of the incoming traffic to a low bandwidth monitoring tool. Filtering parameters include:

Layer 2	Layer 3	Layer 4
MAC Src / Dst	MPLS Label	Port Src / Dst
VLAN tag	IPv4 Src / Dst	TCP Flag
Ethertype	IPv6 Src / Dst	
VXLAN VNI	DSCP	
	Fragmentation	
	Protocol	

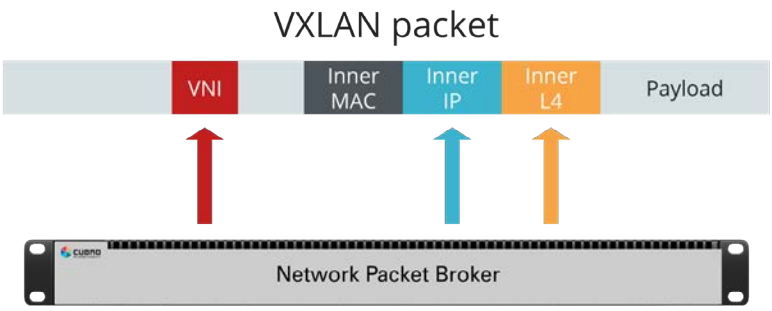
Besides standard OSI L2 to L4, the EXA48200 also supports filtering inside tunnels like GTP, VXLAN or GRE – see next section for details.

By default, filtering is done at ingress but can be easily extended to egress as well as loopback ports allowing maximum flexibility to forward the right traffic to the right probing/analyzer system.

State-of-the-art tunnel removal and inside tunnel filtering

The EXA48200 supports the termination of various tunnels such as:

- ERSPAN II and III
- GRE
- MPLS over UDP
- GTP
- VXLAN
- CFP

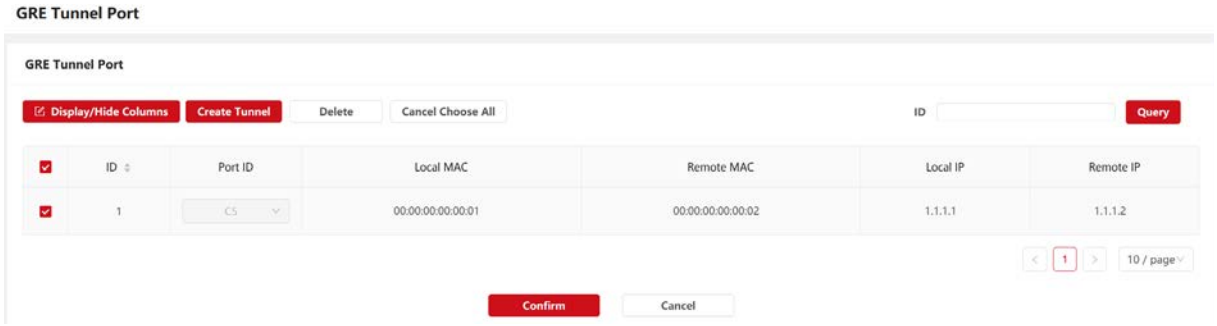


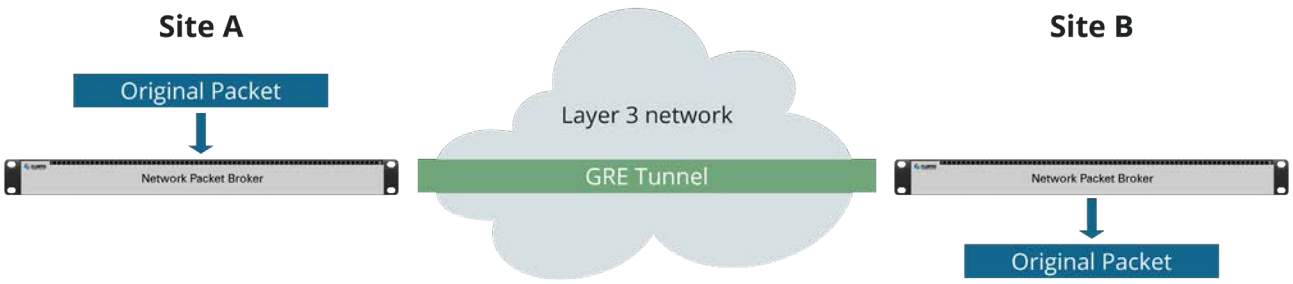
Every port of the EXA48200 supports an independent MAC and IP setup. Thus, the EXA48200 can be used as an active tunnel end-point. Besides tunnel termination, it also allows filtering inside tunnels.

This superior functionality makes the EXA48200 perfectly suited for any modern overlay network.

GRE Encapsulation Function

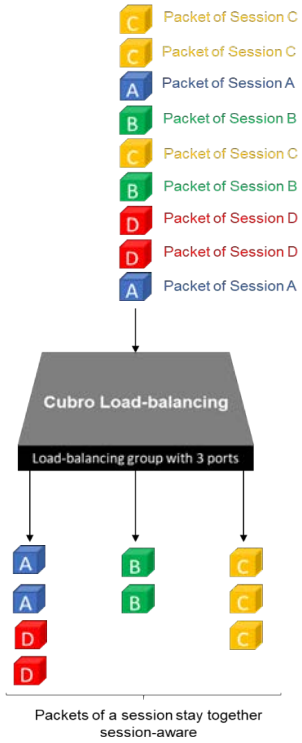
To transport filtered packets from site A to site B over a routed Layer 3 network, the EXA48200 supports a GRE encapsulation function.





Session-aware load-balancing

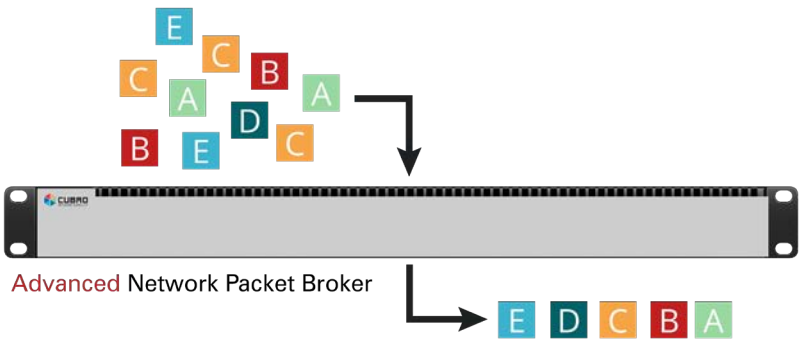
Load-balancing is a vital function to distribute traffic across different monitoring tools evenly and correctly. The Cubro EXA48200 supports Session-aware load balancing that allows every packet belonging to the same conversation/flow to be sent to the same physical output port within a load-balancing group. This ensures that connected packet sniffer or other monitoring tools will get every packet of a given conversation. The EXA48200 maintains the association of packets with each flow or conversation between any two network endpoints such that all traffic from a given flow will be output from a consistent monitor port within a load balanced group.



Flow association is done by examining selected fields within each packet and performing a mathematical algorithm called hash key calculation. The result of the calculation is used to consistently separate and distribute traffic to specific ports within a load balanced group. Depending on the requirements, the EXA48200 allow different hash key calculations methods and thus allow to make sure that packets always arrive at the correct interface of the monitoring appliance.

Deduplication

The EXA48200 is capable of finding and deleting duplicate packets. Duplicates can cause a lot of issues. The obvious issue is that double the amount of data requires double the amount of processing power, memory, power, etc. However, the main issue is false positives: errors that are not really errors or threats that are not actually threats. One common way that duplicates effect analysis is by an increase in TCP out-of-order or retransmission warnings. Debugging these issues takes a lot of time, usually the time an overworked, understaffed network operations or security team does not have. In addition, any analysis performed based on this information is probably not reliable, so this only exacerbates the issue. The Cubro EXA48200 offers a deduplication function to eliminate duplicated packets and protect monitoring equipment from getting overloaded.



Regex Filtering

The Regex filter function of the EXA48200 is the perfect solution to find packets that can not be found by using usual L2 to L4 packet parameters like IP Address, Protocol or UDP/TCP port number.
Regex is the perfect alternative for ASCII string as well as Hex pattern filtering.

- Searches in the whole packet including packet header
- ASCII string with case insensitive support
- Hex pattern to filter on specific protocol messages
- Flow-aware - once the filter has matched, it finds all packets that belong to this traffic flow

It can also be combined with Data masking to identify relevant packets and overwrite sensitive content inside a packet.

IP Reassembly function

IP fragmentation breaks packets into smaller pieces (fragments), therefore, the resulting pieces can pass through a link with a smaller maximum transmission unit (MTU) than the original packet size. The fragments are reassembled by the receiving host. Fragmentation might cause troubles for monitoring tools or will need additional processing resources of the tool to re-assemble the fragments. The EXA48200 keeps monitoring tools clear by providing an easy-to-use reassembly function.

Other Advanced Features

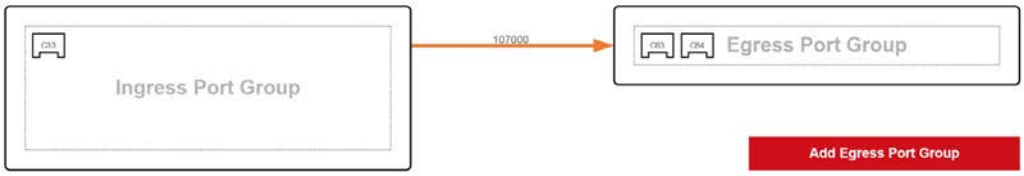
Due to its multi-core ARM CPU and the special software suite included, the EXA48200 takes network visibility to the next level by supporting:

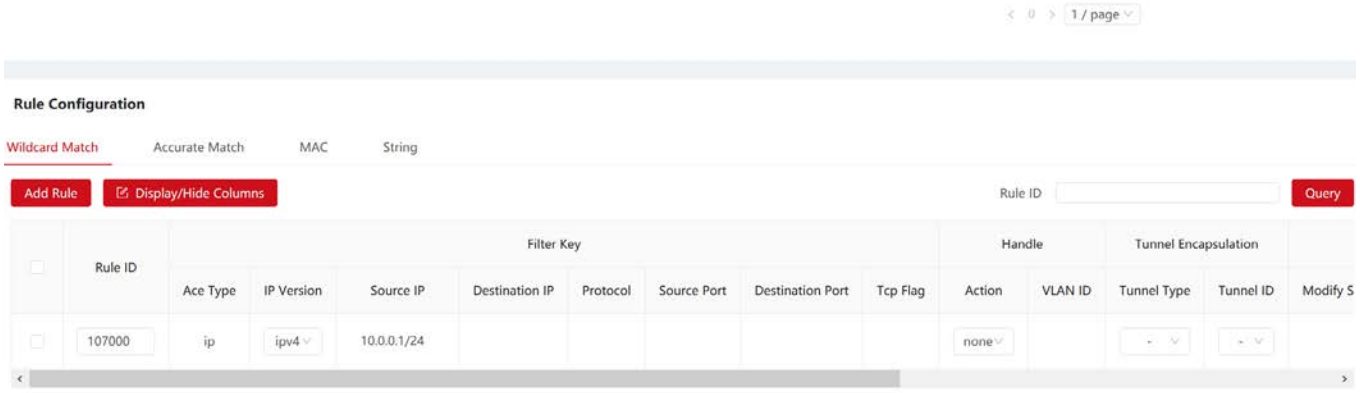
- Data-masking to protect sensitive data and comply with GDPR
- TCP Re-ordering function
- Offset Stripping for maximum flexibility when headers need to be removed; it can also be used as packet slicing function for any packet size
- Full ACL filtering capabilities
- Netflow generation (v5 – v9)
- VLAN (up 15 tags), MPLS (up to 15 labels), GRE, VXLAN (up to 2 VNIs) stripping

Easy Operation with low learning curve

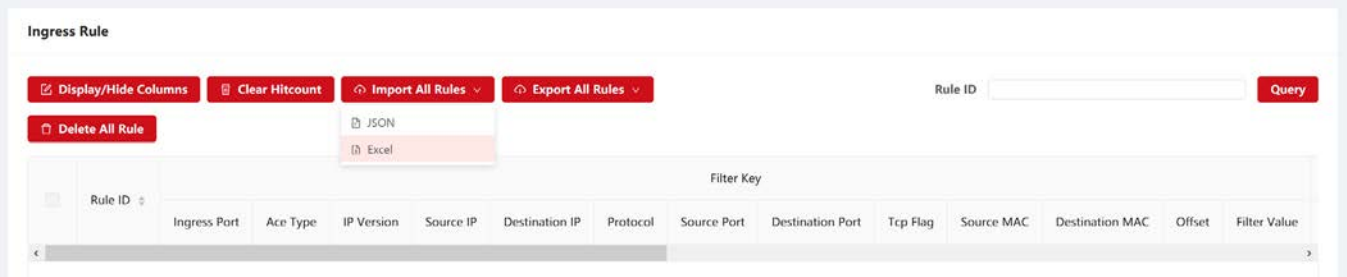
The EXA48200 features an extremely easy to use graphical way of operation.

The innovative and logical WebUI allows the user to create a backup, setup new users, check port link status/statistics or define a powerful filtering scenario which will help to do the job quickly.





Filters can also be created using Microsoft® Excel and uploaded to the EXA48200.



Ordering Information

Product Components:

- Cubro EXA48200
- AC or DC power supply modules
- Power cord
- Transceivers not included

Part Number	Description
CUB.APM-EXA48200-12	Advanced Packetmaster EXA48200, 12x1G/10G and 2x40G/100G, Dual AC powered
CUB.APM-EXA48200-24	Advanced Packetmaster EXA48200, 24x1G/10G and 2x40G/100G, Dual AC powered
CUB.APM-EXA48200-36	Advanced Packetmaster EXA48200, 36x1G/10G and 2x40G/100G, Dual AC powered
CUB.APM-EXA48200-48	Advanced Packetmaster EXA48200,48x1G/10G and 2x40G/100G, Dual AC powered
CUB.APM-EXA48200-12-DC	Advanced Packetmaster EXA48200,12x1G/10G and 2x40G/100G, Dual DC powered
CUB.APM-EXA48200-24-DC	Advanced Packetmaster EXA48200, 24x1G/10G and 2x40G/100G, Dual DC powered
CUB.APM-EXA48200-36-DC	Advanced Packetmaster EXA48200, 36x1G/10G and 2x40G/100G, DC powered
CUB.APM-EXA48200-48-DC	Advanced Packetmaster EXA48200, 48x1G/10G and 2x40G/100G, DC powered

Spare parts:

Part Number	Description
CUB.PM-AC-E	AC Power supply module for CUBRO EX32100A/EX48600/ OMNIA120/EX48200 series
CUB.PM-DC-E	DC Power supply module for CUBRO EXA32100A/EX48600/ OMNIA120/EX48200 series

For more information please check our website www.cubro.com.