Netscale 72 Flexible. Dense. And automated.



Netscale 72 provides a single platform with best-in-class density, Base-8 and Base-12 fiber solutions for building large spine and leaf data center networks. It offers RFID-based automated port documentation and visual guidance of work orders.

You can take advantage of its deployment versatility to future-proof your network investment. To meet today's and tomorrow's business demands, both trunk cables and transition modules must provide a clear migration path to even higher speed Ethernet without increasing footprint. Netscale 72 solutions' split-tray design provides easy installation while minimizing network downtime. If you splice with Netscale 72, you are independent of cable types and fiber counts and can even splice a 144-fiber ribbon cable onto a 12-port MPO cassette.

R&M takes a big step into the future with Netscale 72. It marks the world premiere of numerous technical innovations. They enable flexible, modular cable management on a new level plus a new dimension in automated infrastructure management – among other things. The sum total of its innovations make Netscale 72 the most intelligent optical cabling system.



Netscale 72 housings mount in 19-in racks or cabinets and provide best-in-class ultra-high-density connectivity when combined with Netscale 72 modules and cassettes.

The unique design of Netscale 72 housings include sliding trays enabling module or cassette installation from the rear of the housing. The split tray feature allows each half of the tray to be pulled out independently, protecting connections from disruption. For you, this means increased uptime and reliability.

Each tray contains integrated cable routing elements to make real structured patch cable management possible

while providing unprecedented finger access without the need for tools or special push-pull connectors. The housing comes with additional side routing guides for patch cable integration to the cabinet.

The mounting and removal of trunks is a simple, quick, and tool-less operation enabling rapid deployment of high-fiber-count trunks for faster moves, adds, and changes (MACs).

Labelling the housing could not be simpler with a full-size mounting area on the inside of the front door for clear and concise information.

Article Number	Description	Height Unit	Number of cassettes/modules per housing
852202	Base-8 Housing	1U	18
852203	Base-12 Housing	1U	12
852204	Empty Housing	1 U	12 – 18 depending on configuration



Article Nr. 852202







Article Nr. 852204

Netscale 72 Housing Accessories



Ordering Information

Article Number	Description	Units
852207	Base-12 Tray	1
852206	Base-8 Tray	1
854504	Base-12 Blank Insert	1
854505	Base-8 Blank Insert	1
852209	Adjustable Cable Support Kit left/right	2
852210	Adjustable Cable Support Kit rear	1
827350	Size 1 snap-on clip	25
827352	Size 2 snap-on clip	25



Article Nr. 852207



Article Nr. 852206



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Article Nr. 854504

Similar product Article Nr. 854505



Article Nr. 852209



Article Nr. 852210



021.4310

Article Nr. 827350



Article Nr. 827352



021.4310

Netscale 72 MPO-to-LC modules provide the interface between the male MPO connectors on the trunk and the LC-Duplex patch cords that will then connect directly into the transceiver modules. It can either come as Base-12 or native Base-8 backbone type, containing six, four LC-Duplex ports respectively.

The LC-Duplex ports feature integrated laser shutters that move out of the way when the connector is inserted. The internal wiring of the module is based on Type S+ polarity to ensure the correct fiber polarity while requiring just one type of patch cord on both ends of the link.

The crossover of the fibers for duplex signal transmission takes place within the module. The connectivity diagram for the trunk cable and patch cord remains the same all the time.

The MPO-to-LC modules are easily swappable with MPO cassettes to migrate to MPO ports for parallel optics.



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Article Number	Adapter Type and Color Front	Number of ports in front	Adapter Type Back	Number of ports in Rear	Fiber Category	Backbone Type
852220	LC-Duplex lime green	6	MPO	1	OM5	Base-12
853232	LC-Duplex black	6	MPO	1	OM4	Base-12
853234	LC-Duplex blue	6	MPO	1	OS2	Base-12
853594	LC-Duplex lime green	4	MPO	1	OM5	Base-8
853596	LC-Duplex black	4	MPO	1	OM4	Base-8
853598	LC-Duplex blue	4	MPO	1	OS2	Base-8



Netscale 72 adapter cassettes are pass-through inserts with LC-Duplex, MPO or SC adapters. The LC, MPO or SC trunk cables connect at the rear of the adapter cassettes. From the front side, various options are possible, ranging from LC-duplex, MPO or SC patch cords for equipment connections over harness cables to cross-connection used in main distribution areas (MDA).

Netscale 72 adapter cassettes are available as Base-12 versions with 6 ports and Base-8 versions with 4 ports for multimode and singlemode applications. Like all Netscale 72 inserts, the adapter cassettes are compatible with the RFID-sensor system of inteliPhy.



Article Number	Adapter Type	Adapter Color	Number of ports	Backbone Type
852212	MPO, key-up-to-key-down	black	6	Base-12
852213	LC-Duplex, multimode	black	6	Base-12
852214	LC-Duplex, singlemode PC	blue	6	Base-12
852216	SC, multimode	black	6	Base-12
852218	SC, singlemode APC	green	6	Base-12
853236	MPO, key-up-to-key-down	black	4	Base-8
853237	LC-Duplex, multimode	black	4	Base-8
853238	LC-Duplex, singlemode PC	blue	4	Base-8
853240	SC, multimode	black	4	Base-8
853592	SC, singlemode APC	breen	4	Base-8





Netscale 72 Splice Cassettes provide the interface between the bulk cable and the jumpers that connect directly into the electronics. Depending on the connector type, the splice cassette includes a one meter ribbon, twelve or 24 x 250 μ m single fiber pigtail, that is loaded within the cassette, and can be fusion spliced directly to either ribbon or loose fiber cable.

Article Number	Adapter Type	Adapter Color	Number of ports	Backbone Type
853599	LC-Duplex, PC	blue	12	24
853600	LC-Duplex	black	12	24
854501	SC, APC	green	12	12
851502	SC	black	12	12
862112	MPO, key-up-to-key-down	black	12	144
862119	MPO, key-up-to-key-down	black	12	144



Netscale Solutions

Optical Performance

Multimode

	Max. Insertion Loss Connector A (dB)	Return Loss Connector A (dB)	Max. Insertion Loss Connector B (dB)	Return Loss Connector B (dB)
MPO Trunks	0.30	≥ 35	0.30	≥ 35
Netscale Patch Cords	0.25	≥ 45	0.25	≥ 45
MPO Patch Cords	0.30	≥ 35	0.30	≥ 35
MPO-LC Fanouts	0.30	≥ 35	0.25	≥ 45
QSFP+ Conversion Cables	0.30	≥ 35	0.30	≥ 35
SFP+ Conversion Cables	0.30	≥ 35	0.25	≥ 45

Singlemode

	Max. Insertion Loss Connector A (dB)	Return Loss Connector A (dB)	Max. Insertion Loss Connector B (dB)	Return Loss Connector B (dB)
MPO Trunks	0.30	≥ 55	0.30	≥ 55
Netscale Patch Cords	0.25	≥ 45	0.25	≥ 45
MPO-LC Fanouts	0.30	≥ 55	0.25	≥ 45

Mechanical Characteristics

Fiber Count	Outer Diameter (mm)	Weight (kg/km)	Min. Bend Radius Installation (mm)	Min. Bend Radius Operation (mm)	Max. Tensile Strength Installation (N)
12	3.0	9	30	30	200
24	3.6	11	35	35	200
36	6.8	35	50	50	1000
48	6.8	40	50	50	1000
72	7.5	50	50	50	1000
96	8.5	60	50	50	1000
144	9.0	70	60	60	1000



Netscale Solutions MPO Base-12 Trunks

MPO trunks are pre-terminated cables with one or more 12-fiber MPO connectors on both ends. Trunks are purpose made for high density backbone connections between cabinets or zones in the data center. R&M's MPO trunks conform with TIA-568 C.O Types A or B polarity. Fast traceability is guaranteed with color coded jackets (OM5 - lime green, OM4 - heather violet, OM3 - aqua, OS2 - yellow).





- 1 Choose fiber count 12 = 12 fibers 24 = 24 fibers 36 = 36 fibers 48 = 48 fibers 72 = 72 fibers 96 = 96 fibers 144 = 144 fibers
- 2 Choose fiber type S3Y = singlemode (OS2) M3T = multimode (OM3) M4H = multimode (OM4) M5L = multimode (OM5)
- 3 Choose jacket type S = standard jacket D = ruggedized jacket
- 4 Choose connector on end A 1M = male 12 fibers MTP 1F = female 12 fibers MTP 3M = male 12 fibers MPO-QR 3F = female 12 fibers MPO-QR

- 5 Choose polish angle 0 if multimode PC 8 if singlemode APC
- 6 Choose staggering scheme 05 = fanout length 0.5 m 08 = fanout length 0.8 m 10 = fanout length 1.0 m
 - 15 = fanout length 1.5 m
 - S1 = Suited for RCM
- Choose grip scheme on end A
 P = with grip
 O = without grip
- 8 Choose connector on end B 1M = male 12 fibers MTP 1F = female 12 fibers MTP 3M = male 12 fibers MPO-QR 3F = female 12 fibers MPO-QR
- 9 Choose polish angle 0 if multimode PC 8 if singlemode APC

- 10 Choose staggering scheme 05 = fanout length 0.5 m 08 = fanout length 0.8 m 10 = fanout length 1.0 m 15 = fanout length 1.5 m S1 = Suited for RCM
- 11 Choose grip scheme on end B P = with grip O = without grip
- 12 Choose polarity A = Type A B = Type B
- 13 Choose cable length from endface to endface 1.1 - 150 m (standard jacket)
 - 1.1 400 m (ruggedized jacket)



Netscale Solutions MPO Base-8 Trunks

MPO trunks are pre-terminated cables with one or more 8-fiber MPO connectors on both ends. Trunks are purpose made for high density backbone connections between cabinets or zones in the data center. R&M's MPO trunks conform with TIA-568 C.O Types A or B polarity. Fast traceability is guaranteed with color coded jackets (OM5 - lime green, OM4 - heather violet, OM3 - aqua, OS2 - yellow).





Netscale Solutions LC Trunks

LC trunks are pre-terminated cables with LC-QR uniboot connectors on both ends. Trunks are purpose made for high density backbone connections between cabinets or zones in the data center. Fast traceability is guaranteed with color coded jackets (OM5 - lime green, OM4 - heather violet, OM3 - aqua, OS2 - yellow).



Ordering Information FA-L LU Ν М _ LU Ν М В Ν 1 2 3 7 8 9 10 11 Choose fiber count Choose grade for LC uniboot Choose staggering scheme 10 12 = 12 fibers A = Grade Am if multimode 05 = fanout length 0.5 m24 = 24 fibers B = Grade B if singlemode 08 = fanout length 0.8 m 36 = 36 fibers C = Grade C if singlemode 10 = fanout length 1.0 m 48 = 48 fibers 15 = fanout length 1.5 m 72 = 72 fibers S1 = Suited for RCM Choose staggering scheme 96 = 96 fibers 05 = fanout length 0.5 m 08 = fanout length 0.8 m Choose grip scheme on end B 11 Choose fiber type 10 = fanout length 1.0 m P = with grip 2 S3Y = singlemode (OS2)15 = fanout length 1.5 m O = without grip S1 = Suited for RCM M3T = multimode (OM3) M4H = multimode (OM4)Choose cable length from M5L = multimode (OM5)Choose grip scheme on end A endface to endface P = with grip1,1 - 150 m (standard jacket) O = without grip 1,1 – 400 m (ruggedized jacket) Choose jacket type 3 S = standard jacket D = ruggedized jacket Choose polish angle 8 0 if multimode or singlemode PC Choose polish angle 8 if singlemode APC 0 if multimode or singlemode PC 8 if singlemode APC Choose grade for LC uniboot 9 A = Grade Am if multimode B = Grade B if singlemode C = Grade C if singlemode

Netscale Solutions LC-QR Patch Cords

The LC-QR patch cord features an innovative push-pull design with a textured boot to ensure easy access to and removal of the connector. It also allows for quick tool-less polarity reversal. Of special interest is the industry-leading 1.4 mm cable diameter design that enables unmatched ease of management in high density rack and panel configurations, as compared to legacy cords with diameters of 2 mm or more. And of course, it can be equipped with an R&MinteliPhy RFID-tag.

«Netscale utilizes the LC-QR connector and smallest diameter uniboot patch cords for minimal cabling bulk.»

Article Number	Product Description	Fiber Type	Length
832981	Patch Cord FO OM3 LCQU/LCQU	OM3	1 m
832982	Patch Cord FO OM3 LCQU/LCQU	OM3	2 m
832983	Patch Cord FO OM3 LCQU/LCQU	OM3	3 m
832984	Patch Cord FO OM3 LCQU/LCQU	OM3	5 m
832985	Patch Cord FO OM3 LCQU/LCQU	OM3	10 m
832986	Patch Cord FO OM4 LCQU/LCQU	OM4	1 m
832987	Patch Cord FO OM4 LCQU/LCQU	OM4	2 m
832988	Patch Cord FO OM4 LCQU/LCQU	OM4	3 m
832989	Patch Cord FO OM4 LCQU/LCQU	OM4	5 m
832990	Patch Cord FO OM4 LCQU/LCQU	OM4	10 m
841715	Patch Cord FO OM5 LCQU/LCQU	OM5	1 m
841717	Patch Cord FO OM5 LCQU/LCQU	OM5	2 m
841718	Patch Cord FO OM5 LCQU/LCQU	OM5	3 m
841719	Patch Cord FO OM5 LCQU/LCQU	OM5	5 m
841720	Patch Cord FO OM5 LCQU/LCQU	OM5	10 m
833968	Patch Cord FO G657A LCQU/LCQU	OS2	1 m
833970	Patch Cord FO G657A LCQU/LCQU	OS2	2 m
833973	Patch Cord FO G657A LCQU/LCQU	OS2	3 m
833975	Patch Cord FO G657A LCQU/LCQU	OS2	5 m
833977	Patch Cord FO G657A LCQU/LCQU	OS2	10 m



Netscale Solutions MPO Base-12 Patch Cords

MPO patch cords are pre-terminated cables with 12 fibers for MTP/MPO connectors on both ends (recommended are female connectors). R&M's MPO patch cord conform with TIA-568 C.0 types A or B polarity. Fast traceability is guaranteed with color coded jackets (OM5 - lime green, OM4 - heather violet, OM3 - aqua, OS2 - yellow).

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2

NL

3



Ordering Information

12

S

FA-

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1

2 3M = male 12 fibers MPO-QR 3F = female 12 fibers MPO-QR 1M = male 12 fibers MTP 1F = female 12 fibers MTP

3M = male 12 fibers MPO-QR

3F = female 12 fibers MPO-QR 1M = male 12 fibers MTP 1F = female 12 fibers MTP 4 Choose cable length from endface to endface 1.1 - 150 m



Netscale Solutions MPO Base-8 Patch Cords

MPO patch cords are pre-terminated cables with 8 fibers for MTP/MPO connectors on both ends (recommended are female connectors). R&M's MPO patch cord conform with TIA-568 C.0 types A or B polarity. Fast traceability is guaranteed with color coded jackets (OM5 - lime green, OM4 - heather violet, OM3 - aqua, OS2 - yellow).

Ordering Information

M4H = multimode (OM4)

M5L = multimode (OM5)

S2Y = singlemode (OS2)



1M = male 12 fibers MTP

1F = female 12 fibers MTP

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1.1 - 150 m

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- 3
 - 3M = male 12 fibers MPO-QR 3F = female 12 fibers MPO-QR 1M = male 12 fibers MTP 1F = female 12 fibers MTP





Netscale Solutions MPO-LC Base-12 Fanouts

MPO-LC Fanouts combine MPO connectors that can be plugged either into MPO cassettes or LC-to-MPO modules, and LC-Duplex connectors that connect directly into SFP+ transceivers. This setup can be employed as an interconnect solution for port replication on the LCto- MPO module.



Ordering Information



- 1 Choose fiber count 12 = 12 fibers 24 = 24 fibers 36 = 36 fibers 48 = 48 fibers 72 = 72 fibers 96 = 96 fibers
- 2 Choose fiber type M3T = multimode (OM3) M4H = multimode (OM4) M5L = multimode (OM5) S2Y = singlemode (OS2)
- 3 Choose jacket type S = standard jacket D = ruggedized jacket
- 4 Choose connector on end A 1M = male 12 fibers MTP 1F = female 12 fibers MTP 3M = male 12 fibers MPO-QR 3F = female 12 fibers MPO-QR

- 5 Choose staggering scheme 05 = fanout length 0.5 m 08 = fanout length 0.8 m 10 = fanout length 1.0 m 15 = fanout length 1.5 m S1 = Suited for RCM
 - P = with grip O = without grip

Choose grade for LC uniboot
 A = Grade Am if multimode
 B = Grade B if singlemode
 C = Grade C if singlemode



- 15 = 1anout length 1.5
- S1 = Suited for RCM

Choose grip scheme on end B P = with grip O = without grip

9

10 Choose cable length from endface to endface 1.1 - 150 m (standard jacket) 1.1 - 400 m (ruggedized jacket)



Netscale Solutions MPO-LC Base-8 Fanouts

MPO-LC Fanouts combine MPO connectors that can be plugged either into MPO cassettes or LC-to-MPO modules, and LC-Duplex connectors that connect directly into SFP+ transceivers. This setup can be employed as an interconnect solution for port replication on the LCto- MPO module.



Ordering Information FA-L В Ν L LU 0 Ν М В Ν _ 2 3 7 8 9 10 Choose fiber count Choose staggering scheme Choose grip scheme on end B 1 9 8 = 8 fibers 05 = fanout length 0.5 mP = with grip24 = 24 fibers 08 = fanout length 0.8 m O = without grip 48 = 48 fibers 10 = fanout length 1.0 m 72 = 72 fibers 15 = fanout length 1.5 m Choose cable length from 10 96 = 96 fibers S1 = Suited for RCM endface to endface 1.1 - 150 m (standard jacket) Choose fiber type Choose grip scheme on end A 1.1 - 400 m (ruggedized jacket) 2 M3T = multimode (OM3) P = with gripM4H = multimode (OM4) O = without grip M5L = multimode (OM5)S2Y = singlemode (OS2)Choose grade for LC uniboot 7 A = Grade Am if multimode Choose jacket type B = Grade B if singlemode 3 S = standard jacket C = Grade C if singlemode D = ruggedized jacket Choose staggering scheme 8 Choose connector on end A 05 = fanout length 0.5 m4 1M = male 12 fibers MTP 08 = fanout length 0.8 m 1F = female 12 fibers MTP 10 = fanout length 1.0 m 3M = male 12 fibers MPO-QR 15 = fanout length 1.5 m 3F = female 12 fibers MPO-QR S1 = Suited for RCM



Netscale Solutions QSFP+ Conversion Cables

The QSFP+ conversion cable is a pre-terminated solution allowing networks to 100 % utilize MPO trunks based on 12 fibers when migrating to 40G, which uses technology based on 8 fibers (four fibers transmitting at 10G in each direction). Without this conversion, data centers running 40G parallel optics on their existing fiber backbone only use 66 percent of the installed fiber and waste a third of their invested capital.



Ordering Information



- Choose fiber type 1 M3T = multimode (OM3) M4H = multimode (OM4)M5L = multimode (OM5)S2Y = singlemode (OS2)
- Choose jacket type 2 S = standard jacket D = ruggedized jacket
- Choose connector on end A 3 1M = male 12 fibers MTP 1F = female 12 fibers MTP 3M = male 12 fibers MPO-QR 3F = female 12 fibers MPO-QR
- Choose staggering scheme 05 = fanout length 0.5 m08 = fanout length 0.8 m 10 = fanout length 1.0 m 15 = fanout length 1.5 m
 - S1 = Suited for RCM

- Choose grip scheme on end A P = with gripO = without grip
- Choose connector on end B 1M = male 12 fibers MTP 1F = female 12 fibers MTP 3M = male 12 fibers MPO-QR 3F = female 12 fibers MPO-QR

Choose staggering scheme 7

- 05 = fanout length 0.5 m 08 = fanout length 0.8 m
- 10 = fanout length 1.0 m 15 = fanout length 1.5 m
- S1 = Suited for RCM
- Choose grip scheme on end B 8 P = with gripO = without grip

- Choose polarity A = Type A S = Type S
- Choose cable length from 10

9

- endface to endface 1.1 - 150 m (standard jacket)
- 1.1 400m (ruggedized jacket)



Netscale Solutions SFP+ Conversion Cables

SFP+ conversion cables aggregate four 10G SFP+ transceiver modules with LC-Duplex ports in a 40G QSFP+ transceiver with an MPO port.



Ordering Information

Choose staggering scheme

05 = fanout length 0.5 m

08 = fanout length 0.8 m 10 = fanout length 1.0 m 15 = fanout length 1.5 m

S1 = Suited for RCM



08 = fanout length 0.8 m

10 = fanout length 1.0 m

15 = fanout length 1.5 m S1 = Suited for RCM

P = with grip O = without grip

7

Choose grip scheme on end B

3

Netscale 72 inteliPhy

R&MinteliPhy opens up a new era for IT managers. Now, they can manage their physical infrastructure intelligently and fully automatic. Notepads are things of the past, as are hard-to-manage tables. With R&MinteliPhy, data centers immediately improve the capacity utilization, profitability and availability. IT managers gain control over all ports and more. This is because R&MinteliPhy helps with analysis and documentation, with the introduction of standardized processes and with all typical management tasks associated with passive infrastructure.

For further information regarding additional hardware and the inteliPhy net software, please refer to R&MinteliPhy Quickreference.

« Capacity management is becoming an increasingly important topic for infrastructure and network managers. »



Ordering Information

Description
inteliPhy Netscale 72 Kit
RFID Clips for LC-QR patch cords, 10 pairs
RFID Clips for MPO-QR patch cords, 10 pairs



Article Nr. 827357



Enjoy the numbers



FLEXIBILITY

Choose (nearly) any combination between preterm & splice, Base-12 & Base-8, and MPO, LC & SC



best-in-class density for 100 % fiber utilization



AUTOMATION

Reduction in meant time to repair by finding faults instantly

Connectivity that matters

As a global Swiss developer and provider of connectivity systems for high quality, high performance data center networks, R&M off ers trusted advice and tailor-made solutions that help Infrastructure and Operation Managers delivering agile, reliable and cost-eff ective services for a business-oriented IT infrastructure.

Knowing that highest quality products alone are not enough to guarantee faultless operation, R&M works with you on a thorough analysis followed by a structured and forward-looking design of the physical network to provide efficient solutions.

If you are looking for trusted advice and enduring postsales service – R&M can help.

For additional information, please visit www.rdm.com

«Flexible. Dense. And automated.»



