BELDEN
SENDING ALL THE RIGHT SIGNALS

MIPP: The Industrial Termination
and Patching Solution

MIPP

Be certain.
Belden.

**Fiber Splice Box, Copper
Patch Panel, Mix or
MPO Patching**

BELDEN
SENDING ALL THE RIGHT SIGNALS

Robust quality, easy installation and high port-density

MIPP
The industrial-strength patch panel from Belden

Be certain. Belden.

Robust industrial quality offers long-term stability for performance-critical ethernet applications, delivering peace of mind to network engineers and system installers.

Belden's Modular Industrial Patch Panel (MIPP) is a robust and versatile termination panel for both fiber and copper cables that need to be connected from operating environment to active equipment. Easily installed on any standard 35mm DIN rail, MIPP features high port-density to meet expanding network connectivity needs within limited space. MIPP is Belden's high-quality solution for performance-critical Industrial Ethernet Applications.

Robust quality

The durable MIPP panels are constructed of lightweight, high strength aluminium, securely protecting copper and optical fiber connections under the harshest industrial conditions. The housing is able to withstand temperatures from -20°C to +70°C and is resistant to shocks and vibrations. The patch panel's industrial quality guarantees a secure termination point for reliable industrial Ethernet connectivity.

Fiber, copper, both

MIPP comes as either a Fiber Splice Box, Copper Patch Panel, Mix or MPO Patching Cassette. Where both fiber and copper cables are needed together the design enables simply connecting both to a single panel. MIPP allows flexible network design for network engineers and flexible patching for system installers.

Easy installation and maintenance

The smart housing design allows quick and flexible installation of the MIPP on a DIN rail or a wall. Maintenance is equally easy, since the modules can be individually removed without dismantling the MIPP from the DIN rail or wall mount. Just take out the modules that need work and save precious time.

Future proof

As network design may change over time, MIPP allows for modifications by simply swapping modules to meet the new design required. Installing a MIPP with blind* modules readies the
solution for any extensions or modifications to come. MIPP is the future proof termination and patching solution for dynamic industries.

Save space

Belden knows the importance of cabinet space in industrial sites. Continuous growth of system networks requires smart use of the existing space. MIPP is designed to fit. Thanks to its narrow housing design the required space is kept to a minimum. With three cable entry points (top and bottom) there is no need for special cabinet design or positioning.

Best fit

MIPP is the reliable solution for connecting Belden cables and Hirschmann switches.

MIPP's housing design reduces installation and maintenance time.
Just extract the modules that require work.

5 reasons why MIPP is the dependable industrial termination and patching solution

Wind tower installation application

1. **Robustness:** durable UL certified (UL 1863) solution for linking Hirschmann switches to Belden cabling with a guaranteed lifetime of well over 10 years.

2. **Versatility:** suitable in nearly any industrial application where fiber splicing, copper termination or both are required. A single MIPP allows for termination and patching of:
   • up to 72 fiber cables: MIPP Fiber Splice Box
   • up to 24 copper cables: MIPP Copper Patch Panel

3. **Ease of use:** mounted on a DIN rail or wall, any module can be individually extracted from the housing for maintenance actions.

4. **Future proof:** simply swap modules to meet new network demands or add blind modules at initial installation.

5. **Save space and cost:** high port density and multiple cable entry points.

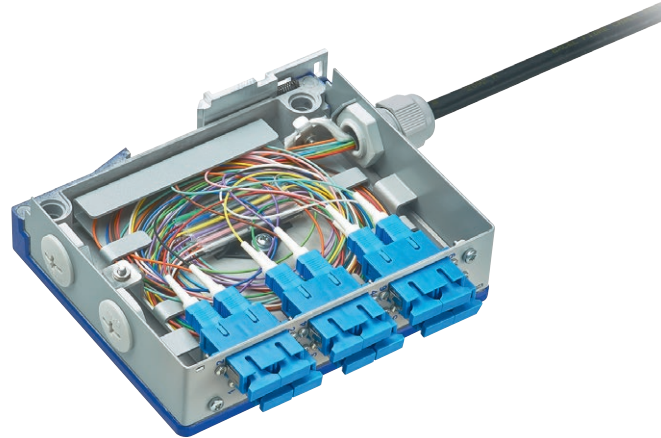* A blind module is a blanking plate with no cut-outs, for future proof.

MIPP Fiber Splice Box

Save cost and space: high port density and multiple cable entry points minimize required cabinet space.

MIPP Fiber Splice Box guarantees efficient fiber termination and is designed for use in a wide range of industrial applications. MIPP Fiber Splice Box accommodates various fiber types and connectors: LC, SC, SC metal, ST, ST metal and E-2000 fiber duplex adapters.

MIPP Fiber Splice Box gives you everything you need:
- Splice tray and multiple fingers for easy fiber management
- Up to three cable entries for single fiber module, ideal for ring topology applications
- High port density with up to 72 fiber counts (for a single MIPP) for efficient usage of space

Accessories for the MIPP Fiber Splice Box Brilliance connectors

Type of Adapters

Single Fiber Modules
(up to 12 fiber connections)
- 6 x SC duplex adapters
- 6 x SC metal duplex adapters
- 6 x LC duplex adapters
- 6 x ST duplex adapters
- 6 x ST metal duplex adapters
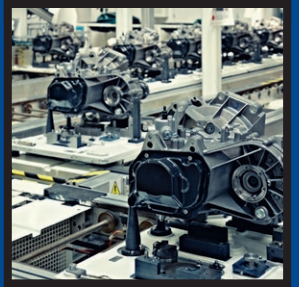- 6 x E-2000 duplex adapters

Double Fiber Modules
(up to 24 fiber connections)
- 12 x SC duplex adapters
- 12 x SC metal duplex adapters
- 12 x LC duplex adapters
- 12 x ST duplex adapters
- 12 x ST metal duplex adapters
- 12 x E-2000 duplex adapters

Fiber Applications
- Multimode: OM1, OM2, OM3 and OM4
- Singlemode: OS2 and OS2/APC

MIPP Fiber Splice Box is UL certified (UL 1863).

MIPP Copper Patch Panel

MIPP Copper Patch Panel ensures maximum reliability for Industrial Ethernet and PROFINET networks. The MIPP Copper Patch Panel compliments the market leading Hirschmann switches and high performance Belden cabling solutions by enabling cables to be terminated and linked to active equipment using DataTuff patch cords, in an organised and structured manner.

MIPP Copper Patch Panel covers all your copper termination and patching needs:
- High variety of media and connectors:
  - RJ45 copper keystone jacks (unshielded and shielded, Cat 5e, Cat 6, Cat 6_A)
  - RJ45 copper coupler (unshielded and shielded, Cat 6_A)
- Suitable in nearly any industrial application thanks to the robust aluminium housing (resisting an operating temperature range of -20°C to +70°C)

Perfect fit to the Belden cables and Hirschmann product families.

Type of Keystones

Single Copper Modules
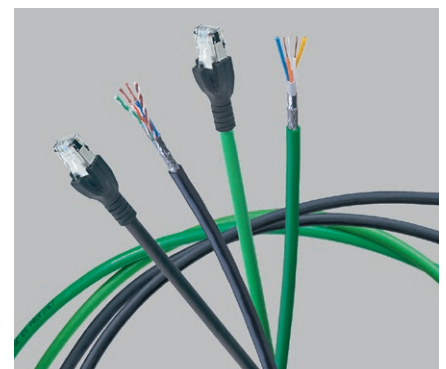- 2 or 4 x RJ45 keystone unshielded
- 2 or 4 x RJ45 keystone shielded
- 2 or 4 x RJ45 coupler unshielded
- 2 or 4 x RJ45 coupler shielded

Type of Cable Categories
- Cat 5e unshielded and shielded
- Cat 6 unshielded and shielded
- Cat 6_A unshielded and shielded

MIPP Copper Patch Panel is UL certified (UL 1863).

Accessories for the MIPP Copper Patch Panel
DataTuff for cables and patch cords

MIPP Mix

Scan to view the MIPP Mix video

The market shows a clear trend in the growing use of both Industrial Ethernet and fiber infrastructures in industrial networks. MIPP addresses this by allowing the connection of both fiber and copper cables in a single solution*. Specifically designed for industrial use, MIPP's functionality and reliability can make a significant contribution to the uptime and availability of perfomance-critical systems.

MIPP Fiber Splice Box and Copper Patch Panel for varying industrial networking needs

* up to 6 single modules, 3 double modules or a combination can be used in one MIPP

MIPP Pre-Terminated MPO Cassette

MIPP Pre-Terminated MPO Cassette provides a simple, uncompromisingly flexible plug & play solution to adapt to the growing industrial applications connectivity needs.

Designed specifically for use in industrial environments, the 100% factory terminated and tested, MIPP MPO Cassette ensures top performance with minimum installation time.

Plug & play solution for an effortless fiber termination
- Efficient, fast and reliable plug & play one-person installation
- Allows for quick network reconfiguration in the event of moves, adds and changes
- No need to splice, cleave or polish when installing

100% pre-tested compact and rugged design
- Critical optical characteristics are tightly controlled and tested during manufacturing process
- Lightweight, high strength aluminium housing for an industrial fiber pre-terminated cassette

MIPP MPO: ingrained simplicity, quick network deployment and maintenance.

Type of Adapters

Patch Side
- LC Duplex
- LC/APC Duplex
- LC Duplex w/ Shutters
- LC/APC Duplex w/ Shutters
- SC Duplex
- SC/APC Duplex
- SC Duplex w/ Shutters
- SC/APC Duplex w/ Shutters
- ST Duplex

Trunk Side
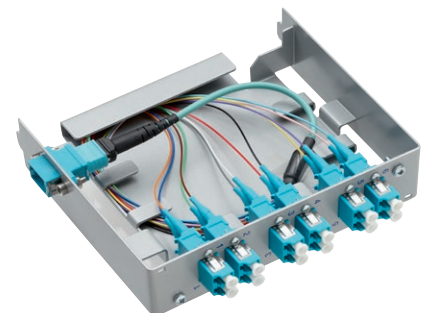- 1-Port MPO-12 (m)
- 1-Port MPO-12 (f)

Polarity
- Type - A
- Type - A ALT
- Type - B
- Type - C

Fiber Applications
- Multimode: OM1, OM2, OM3 and OM4
- Singlemode: OS2 and OS2/APC

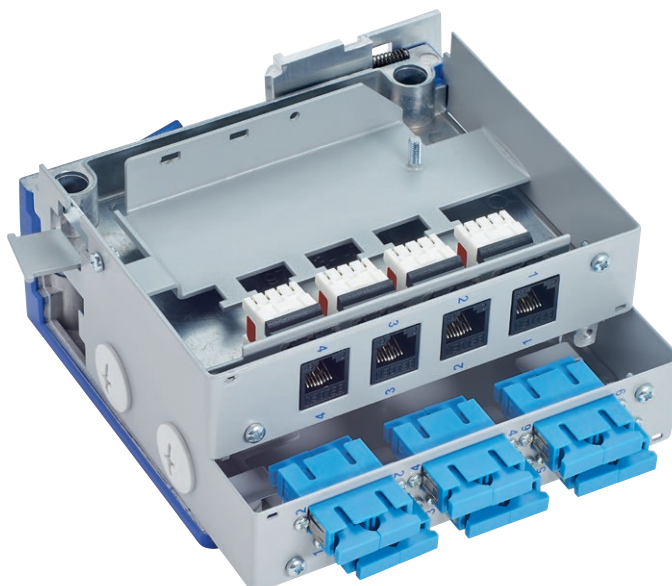MIPP Pre-Terminated MPO Cassette is UL certified (UL 1863).

Accessories

MIPP Fiber Splice Box Accessories

	SC	LC	ST	E-2000
Pigtails	1 or 2 packs of 12 pigtails, 900 micron, 0.6 mtr in 12 different colours:	1 or 2 packs of 12 pigtails, 900 micron, 0.6 mtr in 12 different colours:	1 or 2 packs of 12 pigtails, 900 micron, 0.6 mtr in 12 different colours:	1 or 2 packs of 12 pigtails, 900 micron, 0.6 mtr in 12 different colours:
	• SC / UPC SM 9/125, OS2 • SC / APC SM 9/125, OS2 • SC / PC MM 62.5/125, OM1 • SC / PC MM 50/125, OM2 • SC / PC MM 50/125, OM3 • SC / PC MM 50/125, OM4	• LC / UPC SM 9/125, OS2 • LC / APC SM 9/125, OS2 • LC / PC MM 62.5/125, OM1 • LC / PC MM 50/125, OM2 • LC / PC MM 50/125, OM3 • LC / PC MM 50/125, OM4	• ST / UPC SM 9/125, OS2 • ST / PC MM 62.5/125, OM1 • ST / PC MM 50/125, OM2 • ST / PC MM 50/125, OM3 • ST / PC MM 50/125, OM4	• E-2000/UPC SM 9/125, OS2 • E-2000/APC SM 9/125, OS2 • E-2000/PC MM 62.5 ,OM1 • E-2000/PC MM 50/125,OM2 • E-2000/PC MM 50/125,OM3 • E-2000/PC MM 50/125,OM4
Brilliance Field Installable Connectors	12 or 24 brilliance connectors SC, 900 micron:	12 or 24 brilliance connectors LC, 900 micron:	12 or 24 brilliance connectors ST, 900 micron:	
	• OS2 Blue - AX105208 • OM1 Beige - AX105205 • OM2 Black - AX105206 • OM3/4 Aqua -AX105207	• OS2 Blue - AX105203 • OM1 Beige - AX105200 • OM2 Black - AX105201 • OM3/4 Aqua - AX105202	• OS2 Blue - AX105213 • OM1 Beige - AX105210 • OM2 Black - AX105211 • OM3/4 Aqua - AX105212	

MIPP Copper Panel Accessories

Industrial Ethernet DataTuff Patch Cords:	• Cat 5e 2 or 4 pairs • Cat 6 2 or 4 pairs • Cat 6$_A$ 2 or 4 pairs • Shielded or Unshielded • Twisted Pair or Bonded Pair • PVC, FRNC, TPE or PUR jackets

Find Your MIPP in 5 Steps

1 — What is your system build-up?

Fiber only	Copper only	Both Fiber and Copper
MIPP Fiber Splice Box	MIPP Copper Patch Panel	MIPP Mix

2 — How many Fibers/Copper cables do you need?

	MIPP Fiber Splice Box	MIPP Copper Patch Panel	MIPP Mix
Single module	Fiber count: **up to 12**	Copper cables: **up to 4**	depending on design, a combination can be used
Double module	Fiber count: **>12 and ≤ 24 in one cable**	N/A	
From 2 up to 6 modules	Fiber count: **up to 72**	Copper cables: **up to 24**	

Also available as blind modules or housing for future proof or module replacement

3 — How is it mounted?

On a DIN rail	On a wall
DIN rail version	wall mount plate

4 — What type of adapter/keystone do you need?

MIPP Fiber Splice Box	MIPP Copper Patch Panel
LC/LC Duplex adapters	Unshielded KeyConnect
SC/SC Duplex adapters	Shielded KeyConnect
ST/ST Duplex adapters	Unshielded Couplers
E-2000/E-2000 Duplex adapters	Shielded Couplers

5 — What fiber application/copper category do you need?

MIPP Fiber Splice Box		MIPP Copper Patch Panel
Multimode	Singlemode	Cat 5e
OM1	OS2	Cat 6
OM2	OS2/APC	Cat 6$_A$
OM3		
OM4		

Do you need Accessories?
See page 8

For selecting a MIPP Pre-Terminated MPO Cassette please contact Customer Service.

MIPP Fiber Splice Box Single Module
Standard Part Number Reference Guide

1	System build-up	MIPP Fiber Splice Box

2	Number of Fibers	Single Module (Fiber count up to 12)

3	Mounting Type	DIN rail (wall mount also available)

4	Adapter	LC *				SC *			

5	Application	OM1	OM2	OM3	OS2	OM1	OM2	OM3	OS2
	Color	Beige	Beige	Aqua	Blue	Beige	Beige	Aqua	Blue
	Adapter sleeve material	Phosphor Bronze		Ceramic		Phosphor Bronze		Ceramic	
	Part Number	MIPP-01-030	MIPP-01-033	MIPP-01-003	MIPP-01-005	MIPP-01-007	MIPP-01-010	MIPP-01-012	MIPP-01-013

Accessories

Pigtails	Part Number	MIPP-01-031	MIPP-01-002	MIPP-01-004	MIPP-01-006	MIPP-01-008	MIPP-01-011	MIPP-01-037	MIPP-01-014
Brilliance Connectors	Part Number	MIPP-01-032	MIPP-01-001	MIPP-01-034	MIPP-01-035	MIPP-01-036	MIPP-01-009	MIPP-01-038	MIPP-01-039

4	Adapter	ST *			

5	Application	OM1	OM2	OM3	OS2
	Color	Beige	Beige	Aqua	Blue
	Adapter sleeve material	Phosphor Bronze		Ceramic	
	Part Number	MIPP-01-015	MIPP-01-042	MIPP-01-017	MIPP-01-019

Accessories

Pigtails	Part Number	MIPP-01-040	MIPP-01-016	MIPP-01-018	MIPP-01-045
Brilliance Connectors	Part Number	MIPP-01-041	MIPP-01-043	MIPP-01-044	MIPP-01-046

* SC and ST available also in metal adapters via Customer Service
* E-2000 adapters available via Customer Service
* OM4 fibers available via Customer Service

Material	Steel (powder coated)
Weight (gr)	560
Protection Class	IP40
Cable Entry	• 3 possible cable entries
	• 1 M16 Gland installed
	• 1 extra M16 Gland supplied
Diameter Cable	3 to 10 mm
Cable Types	loose-tube, mini-breakout or breakout cables of up to 12 fibers
Mating Cycles	500 cycles (E-2000 1000 cycles)

MIPP Copper Patch Panel Single Module
Standard Part Number Reference Guide

1	System build-up	MIPP Copper Patch Panel

2	Number of Copper Cables	Single Module (Copper cables up to 4)

3	Mounting Type	DIN rail (wall mount also available)

4	Keystone	Unshielded KeyConnect	Shielded KeyConnect	Unshielded Couplers	Shielded Couplers

5	Category		CAT 5e	CAT 6	Cat 6$_A$	CAT 5e	CAT 6	Cat 6$_A$	Cat 6$_A$	Cat 6$_A$
	Weight (gr)		515	515	515	640	640	640	515	640
	Connector Part Number		AX101310	AX101321	AX102283	AX104595	AX104596	AX104562	AX104024	AX104501
	4 Keystones*	Part Number	MIPP-01-021	MIPP-01-020	MIPP-01-022	MIPP-01-023	MIPP-01-024	MIPP-01-025	MIPP-01-026	MIPP-01-027

*Available also with 2 keystones via Customer Service

Material	Steel (powder coated)
Protection Class	IP20
Cable Entry	• 1 cable entry point
	• with tie wrap fixing latch
Diameter Cable	4 x 7.5 mm
Mating Cycles	750 cycles

MIPP Fiber Splice Box Standard Part Number Reference Guide

Max Number Fibers	Type of Module	DIN rail	Wall Mount	LC	SC	ST	E-2000™	OM1	OM2	OM3	OS2	OS2/APC	Pigtails	Brilliance Connectors	Part Number
	No Housing - Blind Module														MIPP-00-001
12	No Housing Single			•					•						MIPP-00-002
12	No Housing Single				•				•						MIPP-00-003
12	No Housing Single				•						•				MIPP-00-004
12	1 x Single	•		•				•							MIPP-01-030
12	1 x Single	•		•				•					•		MIPP-01-031
12	1 x Single	•		•				•						•	MIPP-01-032
12	1 x Single	•		•					•						MIPP-01-033
12	1 x Single	•		•					•				•		MIPP-01-002
12	1 x Single	•		•					•					•	MIPP-01-001
12	1 x Single	•		•						•					MIPP-01-003
12	1 x Single	•		•						•			•		MIPP-01-004
12	1 x Single	•		•						•				•	MIPP-01-034
12	1 x Single	•		•							•				MIPP-01-005
12	1 x Single	•		•							•		•		MIPP-01-006
12	1 x Single	•		•							•			•	MIPP-01-035
12	1 x Single	•			•			•							MIPP-01-007
12	1 x Single	•			•			•					•		MIPP-01-008
12	1 x Single	•			•			•						•	MIPP-01-036
12	1 x Single	•			•				•						MIPP-01-010
12	1 x Single	•			•				•				•		MIPP-01-011
12	1 x Single	•			•				•					•	MIPP-01-009
12	1 x Single	•			•					•					MIPP-01-012
12	1 x Single	•			•					•			•		MIPP-01-037
12	1 x Single	•			•					•				•	MIPP-01-038
12	1 x Single	•			•						•				MIPP-01-013
12	1 x Single	•			•						•		•		MIPP-01-014
12	1 x Single	•			•						•			•	MIPP-01-039
12	1 x Single	•				•		•							MIPP-01-015
12	1 x Single	•				•		•					•		MIPP-01-040
12	1 x Single	•				•		•						•	MIPP-01-041
12	1 x Single	•				•			•						MIPP-01-042
12	1 x Single	•				•			•				•		MIPP-01-016
12	1 x Single	•				•			•					•	MIPP-01-043
12	1 x Single	•				•				•					MIPP-01-017
12	1 x Single	•				•				•			•		MIPP-01-018
12	1 x Single	•				•				•				•	MIPP-01-044
12	1 x Single	•				•					•				MIPP-01-019
12	1 x Single	•				•					•		•		MIPP-01-045
12	1 x Single	•				•					•			•	MIPP-01-046
1 x 24	1 x Double	•					•					•	•	•	MIPP-10-001
1 x 24	1 x Double	•		•					•						MIPP-10-002
1 x 24	1 x Double	•		•						•					MIPP-10-003
1 x 24	1 x Double	•		•							•				MIPP-10-004
1 x 24	1 x Double	•		•							•		•		MIPP-10-005
1 x 24	1 x Double	•			•			•							MIPP-10-006
1 x 24	1 x Double	•			•			•					•		MIPP-10-007
1 x 24	1 x Double	•			•					•					MIPP-10-008
1 x 24	1 x Double	•			•						•				MIPP-10-012
1 x 24	1 x Double	•			•						•		•		MIPP-10-009
1 x 24	1 x Double	•				•		•					•		MIPP-10-010
1 x 24	1 x Double		•		•			•							MIPP-10-011
1 x 24	2 x Single	•		2x				2x							MIPP-02-001
1 x 24	2 x Single	•		2x				2x					2x		MIPP-02-002
1 x 24	2 x Single	•			2x			2x							MIPP-02-003
1 x 24	2 x Single	•			2x			2x					2x		MIPP-02-004
1 x 24	2 x Single	•			2x				2x						MIPP-02-006
1 x 24	2 x Single	•			2x						2x				MIPP-02-008
48	2 x Double	•		2x							2x				MIPP-20-001
48	4 x Single	•		4x					4x						MIPP-04-001

Be Certain with Belden

MIPP Copper Patch Panel Standard Part Number Reference Guide

Max Number Fibers	Type of Module	Mounting Type	Keystone Type				Cable Type			Part Number
		DIN rail	KeyConnect		Couplers		Cat 5e	Cat 6	Cat 6$_A$	
			Unshielded	Shielded	Unshielded	Shielded				
	No Housing - Blind Module									MIPP-00-001
4	No Housing Single			•			•			MIPP-00-005
4	No Housing Single		•					•		MIPP-00-006
4	1 x Single	•	•				•			MIPP-01-021
4	1 x Single	•	•					•		MIPP-01-020
4	1 x Single	•	•						•	MIPP-01-022
4	1 x Single	•		•			•			MIPP-01-023
4	1 x Single	•		•				•		MIPP-01-024
4	1 x Single	•		•					•	MIPP-01-025
4	1 x Single	•			•				•	MIPP-01-026
4	1 x Single	•				•			•	MIPP-01-027
8	2 x Single	•	•					•		MIPP-02-010
16	4 x Single	•			4x				4x	MIPP-04-002

MIPP Mix Standard Part Number Reference Guide

Type of Module	Mounting Type DIN rail	Module 1	Module 2	Module 3	Module 4	Module 5	Part Number
No Housing - Blind Module							MIPP-00-001
2 x Single	•	Fiber: LC OM2 with Pigtails	Blind Module				MIPP-02-011
2 x Single	•	Fiber: SC OM1 wtih Pigtails	Copper: Unshielded Keystones Cat 5e				MIPP-02-005
2 x Single	•	Fiber: SC OS2	Copper: Unshielded Keystones Cat 6				MIPP-02-007
2 x Single	•	Fiber: SC OS2 with Pigtails	Copper: Unshielded Keystones Cat 5e				MIPP-02-009
3 x Single	•	Copper: Unshielded Coupler, Cat 6	Copper: Unshielded Coupler, Cat 6	Fiber: SC OM3			MIPP-03-001
1 x Single, 2 x Double	•	Copper: Unshielded Coupler, Cat 5e	Fiber Double Module: ST OM2	Fiber Double Module: ST OM2			MIPP-21-001
5 x Single	•	Fiber: LC OS2 with Pigtails	Copper:Unshielded Coupler, Cat 6$_A$	Blind Module	Blind Module	Blind Module	MIPP-05-001

MIPP Pre-Terminated MPO Cassette Standard Part Number Reference Guide

Type of Module	Mounting Type DIN rail	Module 1	Part Number
1 x Single	•	MIPP with Pre-Terminated MPO Cassette with 6 LC OS2/UPC duplex adapters (blue) to 1 MPO-12 (male), Polarity Type-A	MIPP-P1-001
1 x Single	•	MIPP with Pre-Terminated MPO Cassette with 6 LC OM4 duplex adapters (aqua) to 1 MPO-12 (male), Polarity Type-A	MIPP-P1-002

* For more information on other configurations please contact Customer Service

Fit for any industry

MIPP is ideal for use in a wide range of industrial networking applications requiring maximum system reliability and flexibility. The industrial design makes it highly suited for use in Machine Building, Transportation, Alternative Power Generation, Power Transmission & Distribution, and Oil & Gas markets, as well as more general use in enterprise, buildings and other applications.

Always Stay Ahead with Belden

In a highly competitive environment, it is crucial to have reliable partners who are able to add value to your business. When it comes to signal transmissions, Belden is the number one solutions provider. We understand your business and want to know your specific challenges and targets to see how effective signal transmission solutions can push you ahead of the competition. By combining the strengths of our three leading brands, Belden; Hirschmann; and Lumberg Automation, we are able to offer the solution you need. Today it may be a single cable, a switch or a connector, thus solving a specific issue; tomorrow it can be a complex range of integrated applications, systems and solutions.

We guarantee the superior performance of your mission-critical systems, even in the most demanding circumstances. If signal transmission is vital to your business, get in touch with the partner that delivers. Be certain. Belden.

MIPP
Delivering peace of mind to network engineers and system installers.

www.beldensolutions.com

GLOBAL LOCATIONS

For more information, please visit us at:
www.beldensolutions.com

Be certain
you stay
in touch.

Contact For
Belden Brand

Edisonstraat 9
5928 PG Venlo
The Netherlands
Phone: +31-77-3878-555
Fax: +31-77-3878-488
www.beldencables-emea.com
venlo.salesinfo@belden.com

Contact For
Hirschmann Brand

Stuttgarter Straße 45-51
72654 Neckartenzlingen
Germany
Phone: +49-7127-14-0
Fax: +49-7127-14-1970
www.hirschmann.com
inet-sales@belden.com

Contact For Lumberg
Automation Brand

Im Gewerbepark 2
58579 Schalksmühle
Germany
Phone: +49-2355-5044-000
Fax: +49-2355-5044-333
www.lumberg-automation.com
icos-sales@belden.com

MIPP_BR_V1_INCA_BDC_0416_A_EMEA