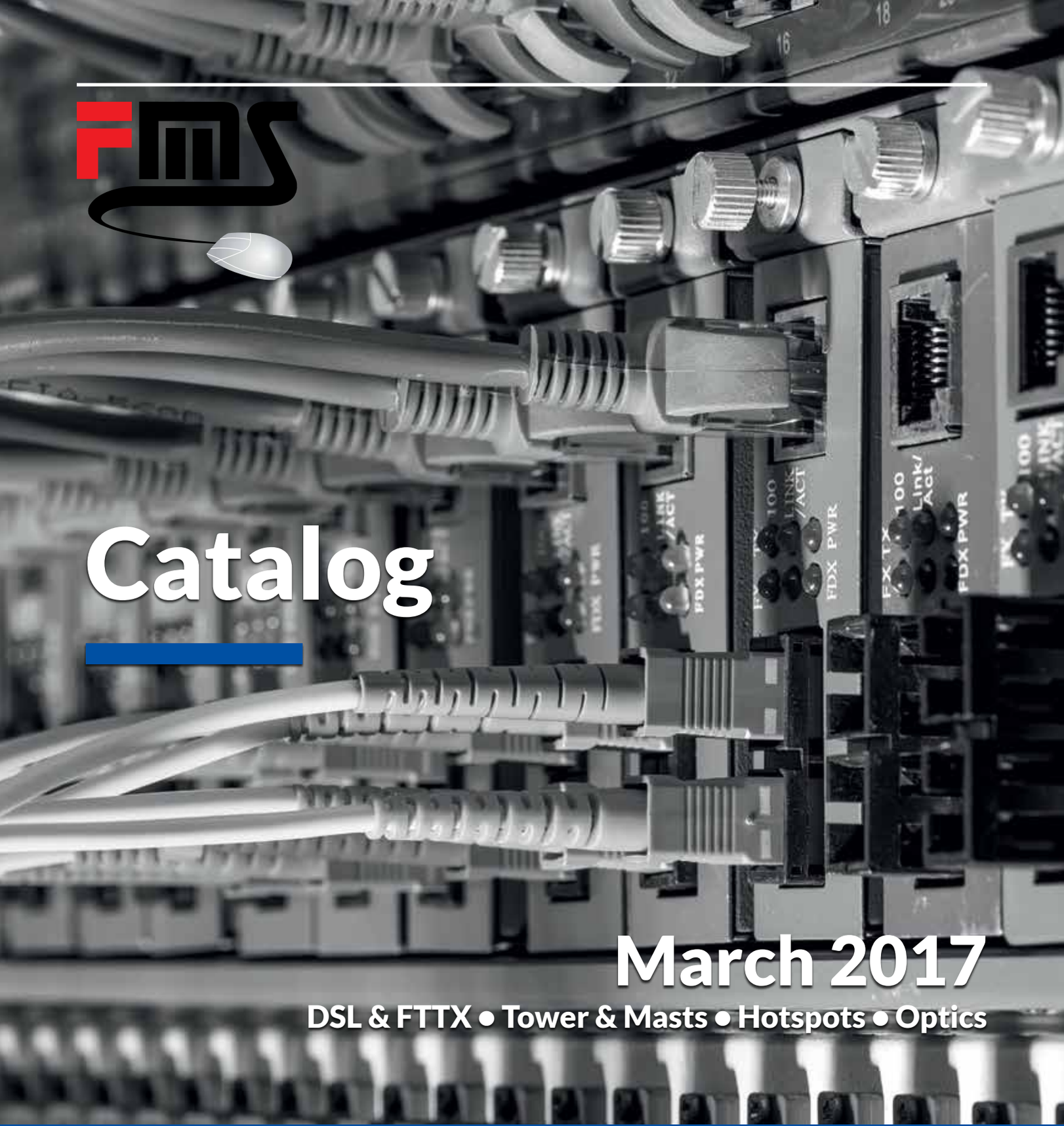

Catalog

March 2017

DSL & FTTX • Tower & Masts • Hotspots • Optics

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About Us

Company Profile

FMS Internetservice GmbH was founded as a distributor and local Wireless Internet Service Provider in 1997. In the last 20 years FMS grew up to a leading system supplier for small and medium-sized ISPs not only in Germany. Dedicated to create a better access to high-value products FMS provides a complete range of broadband solutions for Wireless-ISPs, VDSL deployments, professional radio links and FTTX projects.

Besides technical equipment FMS offers software for centralized network management, supports customers with large-scaled consultancy and planning services and offers regular trainings for network engineers all over the world.

FMS Internetservice GmbH

Firmenprofil

FMS Internetservice GmbH wurde 1997 als Distributor und lokaler Wireless Internet Service Provider gegründet. In den 20 Jahren des Bestehens hat sich das Unternehmen zu einem führenden Systemanbieter für kleine und mittelständische Internet Service Provider entwickelt.

Als Distributor bietet FMS seinen Kunden heute ein vollständiges Sortiment für alle Anforderungen des Breitbandausbaus an. Das Portfolio reicht vom traditionellen WISP-Bereich über professionelle Richtfunklösungen und VDSL-Ausbauten bis hin zu FTTX-Systemen.

Neben den technischen Lösungen stellt FMS auch die dazugehörige Software für das zentrale Netzwerkmanagement zur Verfügung, unterstützt Kunden mit umfangreichen Planungs- und Beratungsleistungen und bietet ein umfassendes Schulungsprogramm an.

FMS Internetservice GmbH

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01 DSL & FTTX

01.01. Nokia ISAM Access Nodes

01.01.01. Non-Modular ISAMs

Nokia (formerly Alcatel-Lucent) offers various non-modular low priced access nodes. This includes e.g. the ISAM 7353CX series with up to 24 VDSL2 ports. These compact, fanless DSLAMs come with an integrated AC power supply and are very easy to install. The ISAM 7353CX series is well suited for small outdoor installations and inhouse projects..

01.01.01. ISAMs mit statischer Konfiguration

Nokia (ehemals Alcatel-Lucent) bietet eine Reihe preiswerter Access-Knoten in statischer Konfiguration an. Hierzu zählt unter anderem die ISAM 7353CX Serie mit bis zu 24 VDSL2 Ports. Durch die kompakte, lüfterlose Bauform und das integrierte AC-Netzteil lässt sich diese Serie besonders einfach installieren und ist für die Überbauung kleiner KVZ oder den Einsatz von DSL im Inhouse-Bereich geeignet.

P.N. (Part Number - Used for Ordering)	SIZE	AC PSU	VDSL2 PORTS	ETHERNET PORTS	POTS	PRICE
3FE55062AA	19“ 1U	Internal	16	12	n / a	Please contact
3FE55478AA	19“ 1U	Internal	24	n / a	n / a	Please contact
3FE55072AA	19“ 1U	Internal	24	n / a	yes	Please contact

01.01.02. Modular Access Nodes

As one of the global market leaders, Nokia (formerly Alcatel-Lucent), offers a full range of modular access nodes for xDSL, active ethernet and GPON. The Nokia ISAM product family has a long history in large carrier networks all over the world, supporting all possible scenarios from standard outdoor VDSL-Vectoring installations up to huge FTTH projects. Even today, ISAM will deliver bleeding edge technologies like Vplus and G.fast. A summary of popular ISAM series can be found in the next table:

01.01.02. Modulare Access Knoten

Als einer der Weltmarktführer bietet Nokia (ehemals Alcatel-Lucent) innerhalb der ISAM Produktfamilie ein umfassendes Sortiment an modularen Access Knoten für xDSL, Active Ethernet und GPON, welches bei vielen führenden Carriern eingesetzt werden. Vom KVZ-Überbau mit Vectoring bis zu großen FTTH Projekten bietet die ISAM Serie für jedes Szenario das richtige Produkt und liefert schon heute zukünftige Technologien wie Vplus oder G.fast. Einen Auszug häufig eingesetzter ISAM Plattformen finden Sie in der folgenden Tabelle:

SERIES	VECTORING	PORTS W. /WO. VECTORING	ACTIVE ETHERNET	ETHERNET PORTS	GPON	PRICE
ISAM 7356	BLV (SA)	48/144	possible	12	n / a	**Please contact**
ISAM 7330	BLV / SLV	720/384	possible	n / a	possible	**Please contact**
ISAM 7363	SLV integrated	192	possible	n / a	n / a	**Please contact**

01.02. Outdoor cabinets

01.02.01. Cabinet with meter body

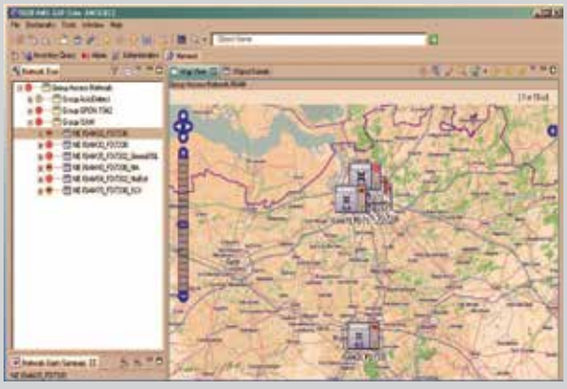
Ready to use outdoor cabinet with integrated meter body according to DIN 43870 for DSL or FTTX projects. This heavy duty single shell enclosure of fibre-glass reinforced polyester is produced and assembled in Germany. It comes with a double door and different locks to separate access between the power authorities meter and the ISPs transmission equipment. The product is shipped with a temperature controlled fan, LSA disconnection modules for 100 wires and dry fill material. It also comes with a 19'' swing frame, that will allow easy access to the back of the LSA modules and the ISP equipment. These enclosures have a short lead time and can be either delivered from stock or within a few weeks after the purchase order.

01.02.01. MFG für den KVZ- und FTTx-Ausbau

Schlüsselfertige Multifunktionsgehäuse für den KVZ-Überbau oder FTTx-Ausbau mit fertig vorbereiteter einphasiger Zähleranschlusssäule nach DIN 43870. Fertigung und Innenausbau dieses robusten einwandigen Gehäuses aus glasfaserverstärktem Polyester erfolgen in Deutschland. Die zweitürige Ausführung mit getrennten Schließungen bietet getrennte Bereiche für den EVU und die Übertragungskomponenten des ISPs. Die Lieferung erfolgt inkl. Lüfter mit Thermostat, LSA Trennleisten für 100DA, Trockenschüttung und Sockel. Zusätzlich ist das Gehäuse mit einem 19 Zoll Schwenkrahmen ausgestattet, so dass Übertragungskomponenten und LSA Module auch bequem von der Rückseite erreicht werden können. Der Artikel ist häufig ab Lager oder innerhalb weniger Wochen lieferbar.

P.N. (Part Number - Used for Ordering)	OUTER DIMENSIONS	HEIGHT OF BASE	19" FRAME	PRICE
KVZ/02	1370 x 1135 x 470mm	950 mm (350 mm above ground)	15U	**2070,- EUR**

01.03. Nokia Access Management System



01.03.01. Cloud-based Network Management

Nokia AMS helps to ease configuration and monitoring of an ISAM based access network. It's a valuable tool for an ISP's helpdesk as well as support and field engineers. With a central graphical interface, AMS will increase productivity of simple tasks as finding the state of a customer port and also with more complex processes like firmware updates or rolling back to a formerly saved backup.

Our unique hosting approach comes with the complete AMS features as a turn-key solution. It does not only includes all necessary AMS and ISAM licenses, but also ISAM software subscription to provide constant access to new ISAM software releases . Despite this huge scope of services, AMS hosting is easy and fast to implement and a very economical way to introduce an ISAM management platform.

01.03.01. Carrier-Grade Netzwerkmanagement als Hosting Service

Nokia AMS unterstützt Sie bei der Konfiguration und Überwachung Ihrer ISAM Infrastruktur und stellt Ihrem Helpdesk, Supportmitarbeitern und Feldtechnikern ein unschätzbares Werkzeug zur Verfügung. Über eine zentrale grafische Oberfläche mit hoch granularer Rechtestruktur steigert AMS die Produktivität bei einfachen Anfragen wie z.B. dem Status eines Ports bis hin zu komplexen Aufgaben wie Firmwareupdates oder der Rücksicherung archivierter Konfigurationen.

Unser Hosting Modell bietet Ihnen die gesamte AMS Funktionalität als schlüsselfertige Lösung, beinhaltet alle AMS und ISAM Lizenzen und ermöglicht über die enthaltene Software Subscription den Zugriff auf neue ISAM Software Releases. Trotz des großen Leistungsumfangs ist AMS Hosting ein kostengünstiger, einfacher und schneller Weg Netzwerkmanagement für ISAM einzuführen.

P.N. (Part Number - Used for Ordering)	DEDICATED PLATFORM	COLD STANDBY	SERVER LOCATION	PRICE
AMS/H01	Yes	optional	Germany	**Please contact**

02 Miscellaneous

02.01. Metal Constructions

02.01.01. Towers & Masts

Modular mast and towers made of steel or aluminium are an economical solution for all kinds of wireless installations. Our wide choice of stand-alone towers (up to 30m), guyed masts (up to 48m) and wall-mounted masts (up to 16m) is being completed with a great selection of accessories like ladders, holders, platforms and security systems.

02.01.01. Maste

Modulare Gittermaste aus Aluminium oder Stahl bieten eine preiswerte Lösung für Funkinstallationen aller Arten. Unser umfangreiches Standardsortiment beinhaltet freistehende Masten bis 30m, abgespannte Masten bis 48m und Masten für die Wandmontage bis 16m Höhe. Ausreichende Steifigkeit für Richtfunk, eine einfache und schnelle Montage sowie ein umfangreiches Zubehörsortiment aus Leitern, Steigschutz, Plattformen und Antennenhaltern sind nur einige der Vorteile dieser Produktserie.

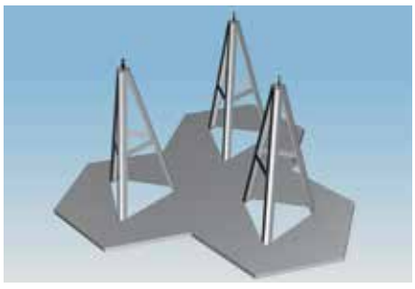
NAME	TYPE	HEIGHT (m)	WIDTH (mm)	WEIGHT (kg)	MAX. ANTENNA SURFACE
T1000	freestanding	4 ... 30	1000	24 ... 460	1.5 m²
T500	freestanding	4 ... 24	500	12 ... 170	0.5 m²
M250	anchored	4 ... 20	250	5 ... 42	0.5 m²
M400	anchored	4 ... 20	400	11 ... 66	0.7 m²
M500	anchored	4 ... 28	500	12 ... 106	1.0 m²
M1000	anchored	4 ... 48	1000	38 ... 654	2.0 m²
M500WM	wall mounted	12	500	36 ... 48	1.0 m²
M750WM	wall mounted	16	750	96 ... 124	1.5 m²

02.01.02. Foundations

Masts and towers require a firm foundation. We are not only offering anchors for standard concrete foundations, but also concrete-free foundations, that can be set up independent of the weather conditions on site.

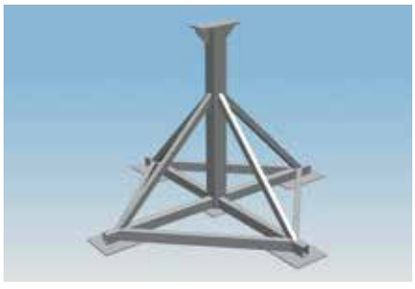
02.01.02. Fundamente

Die Grundlage von jedem Mast ist ein stabiles Fundament. Wir bieten hierzu verschiedene Lösungen an. Dazu gehören Anker für klassische Stahlbeton-Fundamente aber auch diverse Lösungen, die keinen Betonbau vor Ort erfordern und unabhängig von Witterung und Temperatur aufgebaut werden können.



Our most sophisticated solution are AC series alu cones. These aluminium cones use ground mass to stabilize the tower. They can be used as foundations for T500 & T1000 towers up to 20 metres.

Unsere fortschrittlichste Lösung stellt die AC-Serie dar. Diese Aluminium-Kegel nutzen die Masse des Erdreiches für die Stabilisierung des Masts. Sie können als Fundament für die Masttypen T500 und T1000 bis zu einer Höhe von 20 m genutzt werden.



Steel anchors are compatible with all masts up to 40 metres. They use ground weight for ballast and are relatively independent of soil type.

Bodenanker aus Stahl sind kompatibel zu allen abgespannten Masten bis zu einer Höhe von 40 Metern. Sie nutzen die Masse des Erdreiches zur Stabilisierung und sind relativ unabhängig vom Bodentyp einsetzbar.

Prefabricated concrete cones can be used as a base for towers up to 45m or as a base for masts and mast guy wire anchors for up to 90m. As with the AC series, these cones use the ground weight as ballast.

Vorgefertigte Stahlbetonkegel können für freistehende Masten bis 45m Höhe, sowie für abgespannte Masten und Mastabspannungen bis zu 90m Höhe verwendet werden. Wie bei der AC Serie nutzt auch dieser Fundamenttyp die Masse des Erdreichs zur Stabilisierung.

A foundation of ground screws will not require concrete or digging. This can be a convenient way to set up towers with a height of up to 20m .

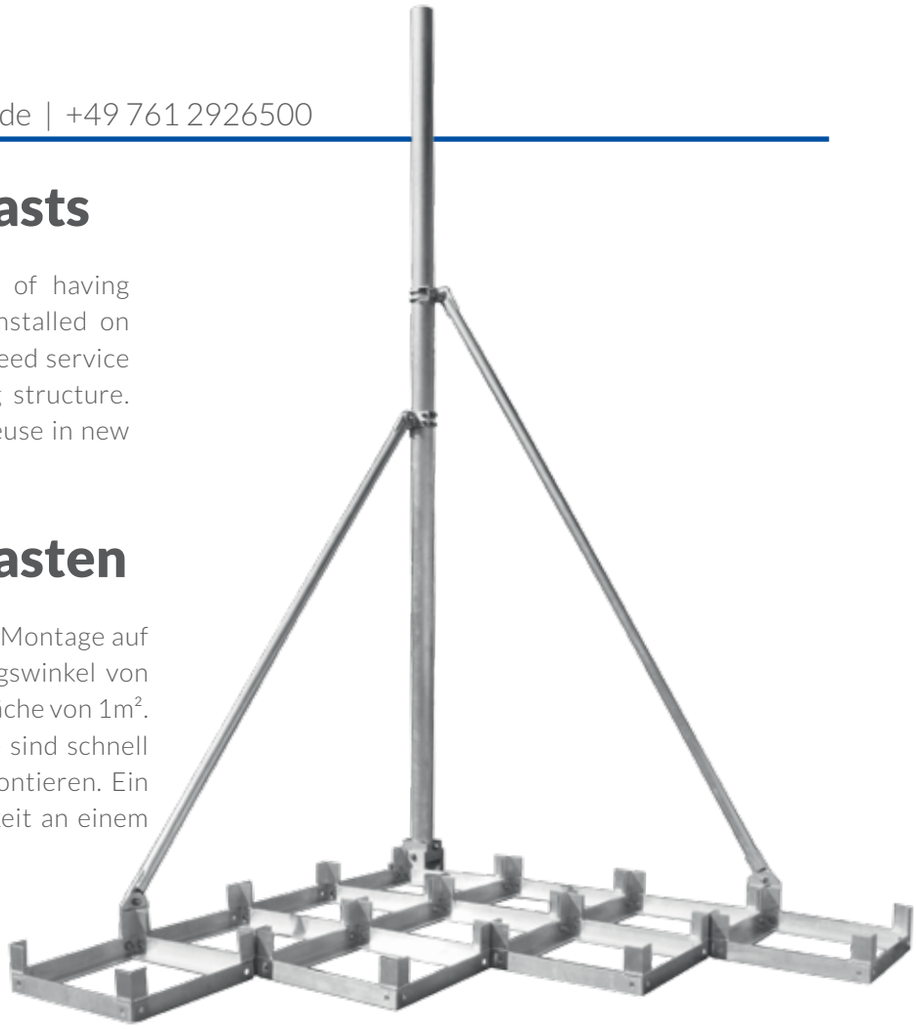
Ein Fundament aus Erdschrauben erfordert weder Beton noch sonstige Erdarbeiten. Diese Lösung kann eine einfache Methode zur Verankerung freistehender Masten mit bis zu 20m Höhe sein.

02.01.03. Ballast Masts

Ballast masts and poles are a great way of having antenna systems up to 1 square metres installed on flat roofs (max 10 deg. angle). They do not need service and you do not have to touch the building structure. Quick installation and portability for easy reuse in new location is also a plus.

02.01.03. Ballast Masten

Ballastmasten eignen sich besonders für die Montage auf Flachdächern mit einem maximalen Neigungswinkel von 10° und für Antennensysteme bis zu einer Fläche von 1m². Diese Masten benötigen keine Wartung. Sie sind schnell und ohne Eingriff in die Dachstruktur zu montieren. Ein weiterer Vorteil ist die Wiederverwendbarkeit an einem neuen Standort.



02.02. WiFi Hotspots

02.02.01. Hotspot Network Manager

An all-in-one appliance to manage, control authentications and administrate hotspot and PPPoE networks. This system transforms and improves the traditional performances of the hotspot services into a dynamic and interactive connection. Available as hardware appliance or virtual appliance with an integrated RADIUS server.

HotSpot Network Manager ist eine All-in-one-Lösung für zentrales Management und Administration sowie die Benutzerverwaltung von Hotspot- und PPPoE-Netzwerken. Das System bietet Nutzern ein dynamisches und interaktives Willkommensportal. Es ist als eigenständige Hardware oder als Virtuelle Appliance jeweils mit integriertem RADIUS-Server und ausgezeichneter MikroTik-Anbindung erhältlich. Zu den Highlights zählen SMS-Authentifizierung, Social-Media-Login, Integration von Zahlungssystemen, Load-Balancing, ein Werbe- und Umfragemodul sowie die Anlage hierarchischer Provisionsmodelle.

02.02.02. HSNM Ticket Printer

HSNM Printer is an integrated device for HotSpot Network Manager to create, display and dynamically print cards and vouchers.

HSNM Printer ist ein integrierter Drucker für den HotSpot Network Manager zum Erstellen, Anzeigen und Drucken von Vouchern

02.02.03. OEM Router & Access Points

Sometimes project requirements do not match any existing product or service providers want to create their own product in order to achieve higher margins, offer a unique item within a tender or simply to push the awareness of their corporate brand.

FMS develops such solutions, including individual cases, colours, labels, printed logos and boxing even for small quantities. Our OEM services are popular for ISP CPEs, access points for managed WIFI, integrated M2M communication for equipment manufacturers and many more.

Die Fertigung eines eigenen Accesspoints oder Router ist durch unseren optimierten OEM Service häufig auch bei kleinen Stückzahlen wirtschaftlich. So können unsere Kunden Projektanforderungen mit einer Sonderlösung exakt abbilden, durch die Vermeidung von Preisvergleichen nicht nur in Ausschreibungen höhere Margen erzielen oder ihre Markenpräsenz mit einer eigenen Hardwareserie steigern.

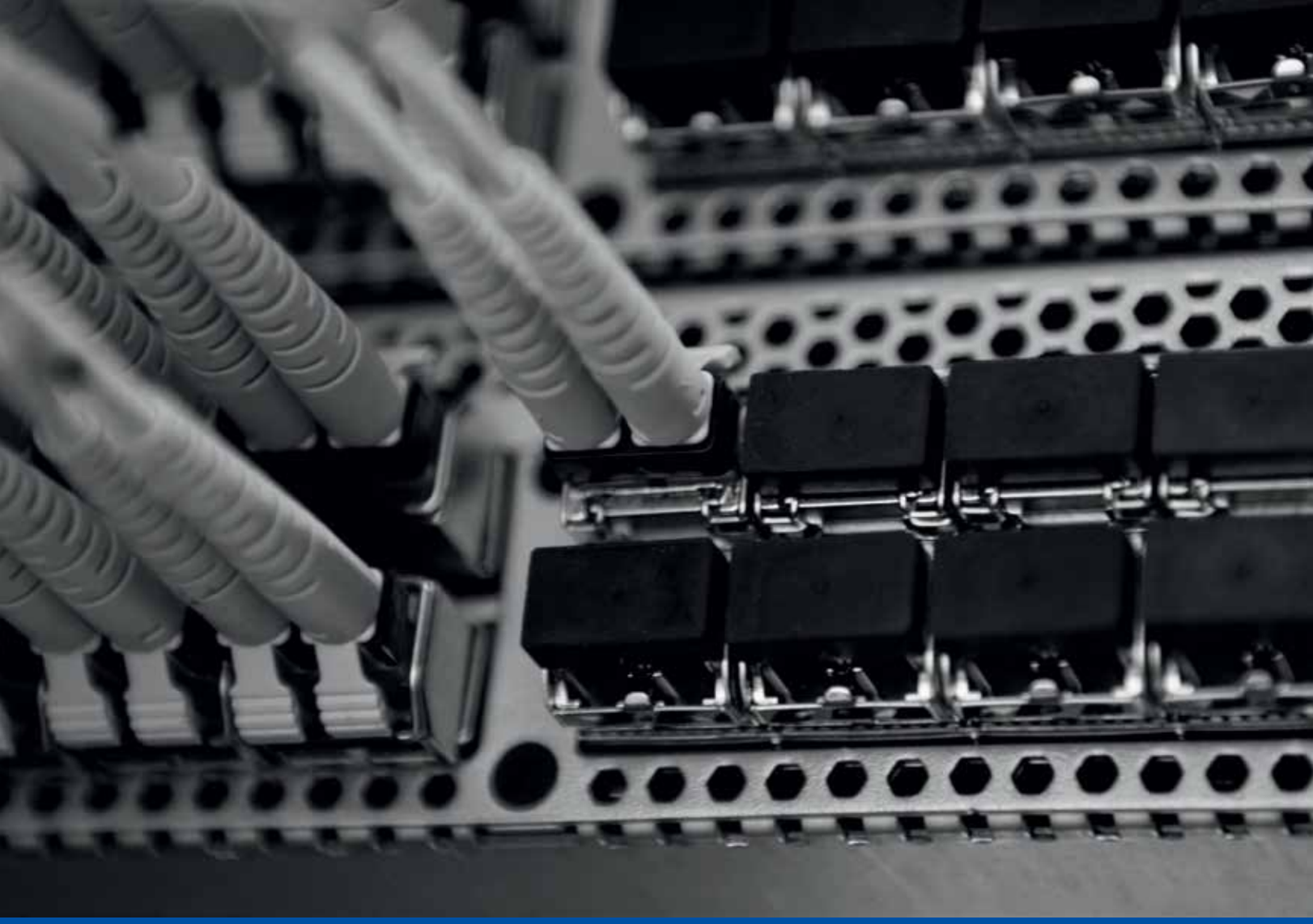
Neben einer Vielzahl von Basisboards gehören angepasste Gehäuse, Farben, Beschriftungen, Logos und sogar Kartonage zu unserem Standardangebot. Häufige Einsatzgebiete sind ISP CPEs, Accesspoints für Hotspot-Anbieter oder integrierte M2M-Kommunikation für Maschinenbauer.

Atlas Dualband AP AC(Desktop)

- Desktop Case with external antennas
- Atheros AR9342 600MHz CPU
- 1x Gigabit Port with PoE-in
- dual chain 2.4 GHz 802.11b/g/n radio with 2 x 4.5 dBi Omni
- dual chain 5 GHz 802.11a/n/ac radio with 2x 4.5 dBi Omni
- Wall mountable
- Custom colour, labels and logos possible
- Optical or LTE interface possible

Atlas Dualband ac Outdoor AP

- Aluminum Outdoor Case with external antennas
- Atheros AR9342 600MHz CPU
- 1x Gigabit Port with PoE-in
- dual chain 2.4 GHz 802.11b/g/n radio with 2 x 4.5 dBi Omni
- triple chain 5 GHz 802.11a/n/ac radio with 3 x 4.5 dBi Omni
- Custom logos and labels possible
- Optical or LTE interface possible



03 Optics

03.01. Passive WDM series

03.01.01. Single Fiber CWDM Muxes and OADMs

Single Fiber CWDM Mux/Demux and OADM series consist of passive multiplexers in order to help maximizing dark fiber use. We have implemented highest quality filters to achieve lowest possible insertion loss and longest transmission reach. Products come in LGX design and should be used with 19" inch LGX shelf (Section 1.5 in the price-book). Our Single Fiber CWDM Mux/Demux and OADM series are ITU G.694.2 and G.695 compliant, operating temperature -40~85 with LC connectors.

P.N. (Part Number - Used for Ordering)	TYPE	CH. (Number of Duplex Lines)	CHANNEL NO (According ITU-T G.694.2)	EXP. (Type of Expansion Ports)	INSERTION LOSS (Maximum in dB)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
SCMD-9A	Mux/Demux	9	Tx: 27/31/39/35/43/47/51/55/59 Rx: 29/33/37/41/45/49/53/57/61	No	<3.5 dB	Coming Soon	**€ 543.40**
SCMD-9B	Mux/Demux	9	Tx: 29/33/37/41/45/49/53/57/61 Rx: 27/31/39/35/43/47/51/55/59	No	<3.5 dB	Coming Soon	**€ 543.40**
SCMD-8A	Mux/Demux	8	Tx:31/39/35/43/47/51/55/59 Rx:29/33/37/41/49/53/57/61	No	<3.2 dB	Coming Soon	**€ 493.35**
SCMD-8B	Mux/Demux	8	Tx:29/33/37/41/49/53/57/61 Rx:31/39/35/43/47/51/55/59	No	<3.2 dB	Coming Soon	**€ 493.35**
SCMD-4A	Mux/Demux	4	Tx:47/51/55/59 Rx:49/53/57/61	No	<1.8 dB	Coming Soon	**€ 314.60**
SCMD-4B	Mux/Demux	4	Tx: 49/53/57/61 Rx:47/51/55/59	No	<1.8 dB	Coming Soon	**€ 314.60**
SCMD-4A-E	Mux/Demux	4	Tx:47/51/55/59 Rx:49/53/57/61	1270/1330	<1.8 dB EXP <0.8 dB	Coming Soon	**€ 397.54**
SCMD-4B-E	Mux/Demux	4	Tx: 49/53/57/61 Rx:47/51/55/59	1330/1270	<1.8 dB EXP <0.8 dB	Coming Soon	**€ 397.54**
SCLT-1-xx	One Side OADM (E or W)	1	xx	No	Bypass IL<1.0dB A/D IL<1.0dB	Coming Soon	**€ 122.98**
SCLT-2-xxyy	One Side OADM (E or W)	2	xx-yy	No	Bypass IL<1.5dB A/D IL<1.5dB	Coming Soon	**€ 168.74**
SCAD-1-xx	Two Side OADM (E and W)	1	xx	No	Bypass IL<1.5dB A/D IL<1.5dB	Coming Soon	**€ 168.74**
SCAD-2-xxyy	Two Side OADM (E and W)	2	xx-yy	No	Bypass IL<2.0dB A/D IL<2.0dB	Coming Soon	**€ 257.40**

03.01.02. Single Fiber DWDM Muxes and OADMs

Single Fiber DWDM Mux/Demux and OADM series consist of passive multiplexers in order to help maximizing dark fiber use. We have implemented highest quality filters to achieve lowest possible insertion loss and longest transmission reach. Products come in LGX design and should be used with 19inch LGX rack (Section 1.5 in the price-book). Our Single Fiber DWDM Mux/Demux and OADM series are ITU G.694.1 compliant, operating temperature -40~85 with LC connectors.

P.N. (Part Number - Used for Ordering)	TYPE	CH. (Number of Duplex Lines)	CHANNEL NO (According ITU-T G.694.2)	EXP. (Type of Expansion Ports)	INSERTION LOSS (Maximum in dB)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
SDMD-8A-E	Mux/Demux	8	Tx: 21/23/25/27/29/31/33/35 Rx: 22/24/26/28/30/32/34/36	Yes (for SDMD-8A)	IL<3.5dB EXP IL<2.5	Coming Soon	€ 729.30
SDMD-8B-E	Mux/Demux	8	Tx: 22/24/26/28/30/32/34/36 Rx: 21/23/25/27/29/31/33/35	Yes (for SDMD-8B)	IL<3.5dB EXP IL<2.5	Coming Soon	€ 729.30
SDMD-8A	Mux/Demux	8	Tx: 39/41/43/45/47/49/51/53 Rx: 40/42/44/46/48/50/52/54	No	IL<3.5dB	Coming Soon	€ 729.30
SDMD-8B	Mux/Demux	8	Tx:40/42/44/46/48/50/52/54 Rx: 39/41/43/45/47/49/51/53	No	IL<3.5dB	Coming Soon	€ 729.30
SDLT-1-xx	One Side OADM (E or W)	1	xx	No	Bypass IL<1.2dB A/D IL<1.5dB	Coming Soon	€ 150.15
SDLT-2-xxyy	One Side OADM (E or W)	2	xx-yy	No	Bypass IL<1.5dB A/D IL<2.0dB	Coming Soon	€ 225.94
SDAD-1-xx	Two Side OADM (E and W)	1	xx	No	Bypass IL<1.5dB A/D IL<1.5dB	Coming Soon	€ 225.94
SDAD-2-xxyy	Two Side OADM (E and W)	2	xx-yy	No	Bypass IL<2.5dB A/D IL<2.0dB	Coming Soon	€ 371.80

03.01.03. Double Fiber CWDM Muxes and OADMs

Double Fiber CWDM Mux/Demux and OADM series consist of passive multiplexers in order to help maximizing dark fiber use. We have implemented highest quality filters to achieve lowest possible insertion loss and longest transmission reach. Products come in LGX design and should be used with 19" inch LGX shelf (Section 1.5 in the price-book). Our Double Fiber CWDM Mux/Demux and OADM series are ITU G.694.2 and G.695 compliant, operating temperature -40~85 with LC connectors.

P.N. (Part Number - Used for Ordering)	TYPE	CH. (Number of Duplex Lines)	CHANNEL NO (According ITU-T G.694.2)	EXP. (Type of Expansion Ports)	INSERTION LOSS (Maximum in dB)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
DCMD-8H-E	Mux/Demux	8	Tx: 47/49/51/53/55/57/59/61 Rx: 47/49/51/53/55/57/59/61	Yes (DCMD-8L or DCMD-4L)	IL<2.5dB EXP IL<1.2	Coming Soon	€ 500.00
DCMD-8H	Mux/Demux	8	Tx: 47/49/51/53/55/57/59/61 Rx: 47/49/51/53/55/57/59/61	No	IL<1.7dB	Coming Soon	€ 464.75
DCMD-4H-E	Mux/Demux	4	Tx: 51/53/55/57 Rx: 51/53/55/57	Yes (DCMD-8L or DCMD-4L)	IL<2.2dB EXP IL<1.2	Coming Soon	€ 321.75
DCMD-4H	Mux/Demux	4	Tx: 51/53/55/57 Rx: 51/53/55/57	No	IL<1.7dB	Coming Soon	€ 286.00
DCMD-8L	Mux/Demux	8	Tx: 29/31/33/35/37/39/41/43 Rx: 29/31/33/35/37/39/41/43	No	IL<2.0dB <3.5dB if combine with DCMD-8H-E	Coming Soon	€ 443.30
DCMD-4L	Mux/Demux	4	Tx: 29/31/33/35 Rx: 29/31/33/35	No	IL<1.7dB <3.0dB if combine with DCMD-8H-E	Coming Soon	€ 264.55
DCLT-1-xx	One Side OADM (E or W)	1	xx	No	Bypass IL<1.0db A/D IL<1.0dB	Coming Soon	€ 131.56
DCLT-2-xxyy	One Side OADM (E or W)	2	xx-yy	No	Bypass IL<1.0db A/D IL<2.0dB	Coming Soon	€ 179.89
DCLT-4-xxyy	One Side OADM (E or W)	4	xx-yy	No	Bypass IL<2.0db A/D IL<2.5dB	Coming Soon	€ 264.44
DCAD-1-xx	Two Side OADM (E and W)	1	xx	No	Bypass IL<1.5db A/D IL<1.0dB	Coming Soon	€ 175.89
DCAD-2-xxyy	Two Side OADM (E and W)	2	xx-yy	No	Bypass IL<2.0db A/D IL<2.0dB	Coming Soon	€ 264.55
DCAD-4-xxyy	Two Side OADM (E and W)	4	xx-yy	No	Bypass IL<2.5db A/D IL<2.5dB	Coming Soon	€ 443.30

03.01.04. Double Fiber DWDM Muxes and OADMs

Double Fiber DWDM Mux/Demux and OADM series consist of passive multiplexers in order to help maximizing dark fiber use. We have implemented highest quality filters to achieve lowest possible insertion loss and longest transmission reach.

All products come in LGX design and should be used with 19inch LGX rack (Section 1.5 in the price-book), except DDMD-40-100 and DDMD-32 which come in 19inch Rack design. Our Double Fiber DWDM Mux/Demux and OADM series are ITU G.694.1 compliant, operating temperature -40~85 with LC connectors. ITU G.694.2 and G.695 compliant, operating temperature 40~85 with LC connectors.

P.N. (Part Number - Used for Ordering)	TYPE	CH. (Number of Duplex Lines)	CHANNEL NO (According ITU-T G.694.2)	EXP. (Type of Expansion Ports)	INSERTION LOSS (Maximum in dB)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
DDMD-40-100	Mux/Demux	40	Tx: 21-60 Rx: 21-60	No	IL<6.8dB	Coming Soon	€ 1 140.00
DDMD-32	Mux/Demux	32	Tx: 21-59 Rx: 21-59	No	IL<5.0dB	Coming Soon	€ 900.00
DDMD-16-E	Mux/Demux	16	Tx: 21-39 Rx: 21-39	Yes (for DDMD-16)	IL<4.5dB Expansion IL <0.8dB	Coming Soon	€ 475.00
DDMD-16	Mux/Demux	16	Tx: 41-59 Rx: 41-59	No	IL<4.0dB	Coming Soon	€ 450.00
DDMD-8-E	Mux/Demux	8	Tx: 21-29 Rx: 21-29	Yes (for DDMD-8)	IL<4.0dB Expansion IL <3.8dB	Coming Soon	€ 280.00
DDMD-8	Mux/Demux	8	Tx: 31-39 Rx: 31-39	No	IL<3.0dB	Coming Soon	€ 255.00
DDMD-4-E	Mux/Demux	4	Tx: 21-24 Rx: 21-24	Yes (for DDMD-4)	L<2.5dB Expansion IL <2.0dB	Coming Soon	€ 180.00
DDMD-4	Mux/Demux	4	Tx: 26-29 Rx: 26-29	No	IL<2.5dB	Coming Soon	€ 160.00
DDLT-1-xx	One Side OADM (E or W)	1	xx-yy	No	Bypass IL<1.2dB A/D IL<1.2dB	Coming Soon	€ 110.00
DDLT-2-xxyy	One Side OADM (E or W)	2	xx-yy	No	Bypass IL<2.0dB A/D IL<2.5dB	Coming Soon	€ 160.00
DDLT-4-xxyy	One Side OADM (E or W)	4	xx-yy	No	Bypass IL<1.5dB A/D IL<2.0dB	Coming Soon	€ 255.00
DDLT-8-xxyy	One Side OADM (E or W)	8	xx-yy	No	Bypass IL<2.5db A/D IL<2.5dB	Coming Soon	€ 450.00
DDAD-1-xx	Two Side OADM (E and W)	1	xx-yy	No	Bypass IL<1.5db A/D IL<1.0dB	Coming Soon	€ 160.00
DDAD-2-xxyy	Two Side OADM (E and W)	2	xx-yy	No	Bypass IL<1.5db A/D IL<1.5dB	Coming Soon	€ 255.00
DDAD-4-xxyy	Two Side OADM (E and W)	4	xx-yy	No	Bypass IL<2.0db A/D IL<2.0dB	Coming Soon	€ 450.00

03.01.05. LGX Racks

Currently there are two variations of 19 inch LGX Racks which can be used together with WDM LGX cassettes.

P.N. (Part Number - Used for Ordering)	DESCRIPTION	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
LGX-RCK-2-1U	2 SLOT LGX RACK	Coming Soon	€ 84.00
LGX-RCK-4-2U	4 SLOT LGX RACK	Coming Soon	€ 150.00

03.02. CFP/CFP2/CFP4

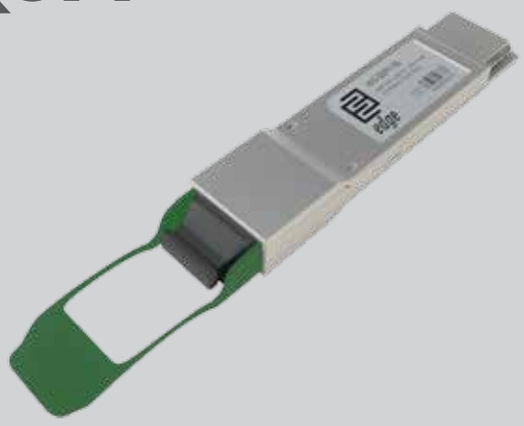
03.02.01. 100G CFP/CFP2/CFP4

100G CFP/CFP/CFP4 Transceivers are fully compliant to 100G CFP/CFP/CFP4 MSA and IEEE 802.3ae (100GBASE-SR4, 100GBASE-LR4) standards. The 100G-CFP-10/ 100G-CFP2-10/ 100G-CFP4-10 are 100G LR4 optical modules which use 4 CWDM channels 28Gbps per channel and can achieve up to 112Gbps OTU4 speeds. 100G-CFP-150/ 100G-CFP2-150/ 100G-CFP4-100 use 10x850nm Channels, each:

11.2Gbps, together up to 112Gbps. 100G CFP/CFP/CFP4 Transceivers family includes solution from 100m to 10km transmission ranges, from MMF to SMF, use MTP/MPO or Double LC connector and support normal operating **temperature range 0 - 70 Celsius**. Modules can be provided with custom-encoded firmware, in order to provide **compatibility with Cisco, Juniper, Huawei, Arista and other platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	OPTICAL BUDGET (Minimum)	WAVELENGHT (TX/Rx range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
100G-CFP-150	MMF	150m	1.9 dB	850/850 nm	Coming Soon	**€ 1 996.84**
100G-CFP-10	SMF	10km	6.2 dB	4xCWDM lines	Coming Soon	**€ 9 413.70**
100G-CFP-40	SMF	40km	18 dB	4xCWDM lines	Coming Soon	**€ 15 784.58**
100G-CFP2-100	MMF	100m	1.9 dB	850/850nm	Coming Soon	**€ 2 187.02**
100G-CFP2-10	SMF	10 km	6.2 dB	4xCWDM lines	Coming Soon	**€ 9 603.87**
100G-CFP2-40	SMF	40 km	18 dB	4xCWDM lines	Coming Soon	**€ 18 180.80**
100G-CFP4-100	MMF	100m	1.9 dB	850/850 nm	Coming Soon	**€ 1 426.32**
100G-CFP4-10	SMF	10 km	6.2 dB	4xCWDM lines	Coming Soon	**€ 9 603.87**
100G-CFP4-40	SMF	40km	18 dB	4xCWDM lines	Coming Soon	**€ 18 447.04**

03.03. QSFP



03.03.01. 100G QSFP28

100G QSFP28 Transceiver is a 100Gbps Small Form-factor Pluggable (QSFP28) optical module. The QSFP28 full-duplex optical module offers 4 independent transmit and receive channels, each capable of 25Gb/s operation for an aggregate data rate of 100Gbps. These optical modules supports following applications:

Ethernet: 100G Eth (103.125 Gbps) **Infiniband:** QDR and DDR

100G QSFP28 Transceivers family includes solution from 100m to 10km transmission ranges, from MMF to SMF, use MTP/MPO or Double LC connector and support normal operating temperature range 0 - 70 Celsius. 100G-QSFP28-2 use 4x25Gbps in 1310nm using independent PSM (parallel single mode fibers).

100G-QSFP28-10 use 4x25Gb/s LAN WDM EML TOSA (1295.56, 1300.05, 1304.58, 1309.14nm) for transmitting and 4x25Gb/s PIN ROSA for receiving. 100G QSFP28 Transceivers are fully compliant to QSFP28 MSA and IEEE 802.3ba (100GBASE-SR4, 100GBASE-LR4 and 100GBASE PSM4). Modules can be provided with custom-encoded firmware, in order to provide compatibility with Cisco, Huawei, Alcatel, Juniper and other platforms in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	OPTICAL BUDGET (Minimum)	WAVELENGHT (TX/Rx range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
100G-QSFP28-100	MMF	100m (OM4)	1.9 dB	850/850 nm	Click	**€ 912.84**
100G-QSFP28-2	SMF	2 km	10 dB	4x1310 PSM	Click	**€ 3 708.43**
100G-QSFP28-3	SMF	2 km	1.6 dB	4xCWDM lines	Coming soon	**€ 4 944.57**
100G-QSFP28-4	SMF	4 km	1.8 dB	4xCWDM lines	Coming soon	**€ 5 039.66**
100G-QSFP28-10	SMF	10 km	4.3 dB	4xCWDM lines	Click	**€ 5 420.01**
100G-QSFP28-25	SMF	25 km	13.8 dB	4xCWDM lines	Coming soon	**€ 11 981.07**
100G-QSFP28-40	SMF	40 km	18 dB	4xCWDM lines	Coming soon	**€ 16 164.93**

03.03.02. 40G QSFP+

40G QSFP+ Transceiver is a 40Gbps (Quad Small Form-factor Pluggable Plus) optical module. 40G QSFP+ use 4 independent transmit and receive channels, each capable of 10Gbps operation for an aggregated data rate of 40Gbps. These optical modules supports following applications:

Ethernet: 40G Eth (41.25 Gbps)
Infiniband: QDR (4 x 10G)
Optical Transmission Network: OTU3 (43.01Gbps), OTU3e2 (44.58Gbps)

40G QSFP+ Transceiver family includes solutions from 150m to 40km transmission, from MMF (MPO/MTP) to SMF (Double LC) and support normal operating temperature range 0 - 70 Celsius. 40G-QSFP-1.4 and 40G-QSFP-11 achieve 40Gbps using 4x10Gbps in 1310nm with independent PSM (parallel single mode fibers).

40G-QSFP-2, 40G-QSFP-10, 40G-QSFP-12, 40G-QSFP-40 achieve 40Gbps using 4x10Gbps CWDM lines: 1270nm, 1290nm, 1310nm, 1330nm. 40G QSFP+ Transceivers are fully compliant to QSFP+ MSA and IEEE 802.3ba. QSFP+ Transceivers can be provided with custom-encoded firmware, in order to provide compatibility with **Cisco**, **Juniper**, **Huawei**, **Alcatel**, **HP**, **Arista**, **Brocade**, **Force10**, **Moxa**, **Intel**, and many others brands in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
40G-QSFP-150	MMF	150m (OM4)	1.9 dB	850/850 nm	Click	**€ 133.12**
40G-QSFP-300	MMF	300m	2.4 dB	850/850 nm	Click	**€ 171.16**
40G-QSFP-1.4	SMF	1.4 km	5.5 dB	4x1310 PSM	Click	**€ 646.60**
40G-QSFP-2	SMF	2 km	4.5 dB	4xCWDM	Click	**€ 1 007.93**
40G-QSFP-2.1	S/MMF	150 m/2 km	2.0/4.7 dB	4xCWDM	Click	**€ 988.91**
40G-QSFP-10	SMF	10 km	4.5 dB	4xCWDM	Click	**€ 1 007.93**
40G-QSFP-11	SMF	10 km	8.6 dB	4x1310 PSM	Click	**€ 810.15**
40G-QSFP-40	SMF	40 km	14.3 dB	4xCWDM	Click	**€ 2 909.69**

03.04. SFP+

03.04.01. 10G RJ-45 Copper SFP+

10G RJ45 Copper SFP+ transceiver is designed to operate over Cat.6a and Cat.7 twisted pair cables with distance up to 30m. This transceiver support following data rates: **10GBASE-T/1000BASE-T/100BASE-T.** 10G RJ45 Copper SFP+ transceiver is equipped with **RJ45 connectors** and support normal operating **temperature range 0 - 70 Celsius**. 10G RJ45 Copper SFP+ transceivers are fully compliant to SFF-8431 MSA, SFF-8432 MSA, IEEE 802.3az and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	APPLICATION (Supported Applications)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
10G-SFP-T	Twisted Pair Cat 6a/7	30 m	100/1'000/10'000 Mbps	Click	**€ 380.35**

03.04.02. 10G Double Fiber SFP+

10G Double Fiber SFP+ transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from few meters up to 100km. These optical modules supports **10 Gigabit Ethernet application (10.31 Gbps)**, **STM-64 or OC-192 (9.95 Gbps)** and provides fallback speed of **Gigabit Ethernet (1.25 Gbps)**. 10G Double Fiber SFP+ are equipped with **double LC connectors** and support normal operating **temperature range 0 - 70° Celsius**. 10G Double Fiber SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8431 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
10G-SFP-300	MMF	300 m	4.6 dB	850/850 nm	Click	**€ 23.77**
10G-SFP-220	MMF	220 m	3.5 dB	1310/1310 nm	Click	**€ 49.07**
10G-SFP-10	SMF	10 km	6.0 dB	1310/1310 nm	Click	**€ 49.07**
10G-SFP-20	SMF	20 km	9 dB	1310/1310 nm	Click	**€ 49.07**

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
10G-SFP-40	SMF	40 km	14 dB	1550/1550 nm	Click	**€ 245.33**
10G-SFP-41	SMF	40 km	14 dB	1310/1310 nm	Click	**€ 152.14**
10G-SFP-80	SMF	80 km	23 dB	1550/1550 nm	Click	**€ 473.54**
10G-SFP-100	SMF	100 km	26 dB	1550/1550 nm	Click	**€ 855.79**

03.04.03. 10G BiDi SFP+

10G Single Fiber BiDi SFP+ transceivers are designed to operate over one single mode optical fiber with distances ranging from 10km up to 80km. These optical modules supports **10 Gigabit Ethernet application (10.31 Gbps)**, **STM-64 or OC-192 (9.95 Gbps)** and provides fallback speed of **Gigabit Ethernet (1.25 Gbps)**. We are using WDM technology, separating both transmission directions by using different wavelength. 10G Single Fiber SFP+ transceivers are equipped with **single LC connector** and support normal operating **temperature range 0 - 70 Celsius**. 10G Single Fiber SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8431 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-10G-SFP-10A	SMF	10 km	6.2 dB	1270/1330 nm	Click	**€ 79.87**
BIDI-10G-SFP-10B	SMF	10 km	6.2 dB	1330/1270 nm	Click	**€ 79.87**
BIDI-10G-SFP-20A	SMF	20 km	9 dB	1270/1330 nm	Click	**€ 79.87**
BIDI-10G-SFP-20B	SMF	20 km	9 dB	1330/1270 nm	Click	**€ 79.87**
BIDI-10G-SFP-40A	SMF	40 km	14 dB	1270/1330 nm	Click	**€ 116.01**
BIDI-10G-SFP-40B	SMF	40 km	14 dB	1330/1270 nm	Click	**€ 116.01**
BIDI-10G-SFP-60A	SMF	60 km	21 dB	1270/1330 nm	Click	**€ 342.32**
BIDI-10G-SFP-60B	SMF	60 km	21 dB	1330/1270 nm	Click	**€ 342.32**
BIDI-10G-SFP-80A	SMF	80 km	23 dB	1490/1550 nm	Click	**€ 1 426.32**
BIDI-10G-SFP-80B	SMF	80 km	23 dB	1550/1490 nm	Click	**€ 1 426.32**

03.04.04. 10G CWDM SFP+

10G CWDM (Coarse Wavelength Division Multiplexing) SFP+ transceivers are designed to operate over single mode optical fiber with distances ranging from 10km up to 80km. These optical modules supports following applications:

Ethernet:

10G Eth (10.31Gbps)

SDH/SONET:

STM-64 (9.95Gbps)

Optical Transmission Network:

OTU2 (10.70Gbps)
OTU1e (11.049Gbps)
OTU2e (11.095Gbps)
OTU1f (11.27Gbps)
OTU2f (11.32Gbps)
ODU2 (10.037Gbps)
ODU2e (10.399Gbps)

Each transceiver uses one **20nm wide CWDM channel according ITU-T G.694.2 CWDM grid** for transmission, but can receive all CWDM range wavelengths (1270 – 1610 nm). In combination with CWDM passive mux/demux and OADM devices, is possible to achieve up to 18x10G connections over pair of fiber, or up to 9x10G connections over single fiber.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX Range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
CWDM-10G-SFP-10	SMF	10 km	9 dB	1270-1330 nm	Click	€ 264.34
CWDM-10G-SFP-10	SMF	10 km	9 dB	1350-1450 nm	Click	€ 264.34
CWDM-10G-SFP-10	SMF	10 km	9 dB	1470-1610 nm	Click	€ 494.46
CWDM-10G-SFP-40	SMF	40 km	13 dB	1270-1410 nm	Click	€ 283.36
CWDM-10G-SFP-40	SMF	40 km	14 dB	1430-1450 nm	Click	€ 283.36
CWDM-10G-SFP-40	SMF	40 km	14 dB	1470-1610 nm	Click	€ 283.36
CWDM-10G-SFP-80	SMF	80 km	23 dB	1270-1450 nm	Click	€ 494.46
CWDM-10G-SFP-80	SMF	80 km	23 dB	1470-1610 nm	Click	€ 816.08

03.04.05. 10G DWDM SFP+

10G DWDM (Dense Wavelength Division Multiplexing) SFP+ transceivers are designed to operate over single mode optical fiber with distances ranging from 40km up to 80km. These optical modules supports following applications:

Ethernet:

10G Eth (10.31Gbps)

SDH/SONET:

STM-64 (9.95Gbps)

Optical Transmission Network:

OTU2 (10.70Gbps)
OTU1e (11.049Gbps)
OTU2e (11.095Gbps)
OTU1f (11.27Gbps)
OTU2f (11.32Gbps)
ODU2 (10.037Gbps)
ODU2e (10.399Gbps)

Each fixed wavelenght DWDM transceiver uses one **DWDM channel according ITU-T 100GHz Channel Spacing C-Band DWDM grid** for transmission and tunable DWDM tranceiver uses one **DWDM channel according ITU-T 50GHz Channel Spacing C-Band DWDM grid**, but **can receive complete WDM range 1270-1610nm**.

In combination with DWDM passive mux/demux and OADM devices, is possible to achieve up to 45x10G connections over pair of fiber, or up to 22x10G connections over single fiber. 10G DWDM SFP+ transceivers are equipped with **double LC connector** and support normal operating **temperature range 0 - 70 Celsius**.

10G DWDM SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8431 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX Range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
DWDM-10G-SFP-40	SMF	40 km	14 dB	100GHz (C) (Ch. 17-61)	Click	€ 441.21
DWDM-10G-SFP-80	SMF	80 km	23 dB	100GHz (C) (Ch. 17-61)	Click	€ 644.70
DWDM-10G-SFP-80-TUN	SMF	80 km	23 dB	50GHz (C) (Ch. 13.5-61)	Coming Soon	€ 3 708.43

03.04.06. 10G SFP+ Converters

SFP + Converters are designed to provide investment protection and enable usage of currently most popular form factor SFP+ in equipment and line cards, with are still equipped with legacy optical transceiver form factor ports – such as XENPAK & X2.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX Range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
SFP-X2-CONV	As per inserted SFP+ Module				Click	**€ 180.67**
SFP-XENPAK-CONV	As per inserted SFP+ Module				Click	**€ 180.67**

03.05. XFP

03.05.01. 10G Double Fiber XFP

10G Double Fiber XFP transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from few meters up to 120km. These optical modules supports following applications:

Ethernet:

10G Eth (10.31Gbps)
Gigabit Eth (1.25Gbps)

SDH/SONET:

STM-64 (9.95Gbps)
STM-16 (2.488Gbps)

Fiber Channel:

10G FC (10.52 Gbps)
8.5G FC (8.5 Gbps)
4G FC (4.25 Gbps)
2G FC (2.125 Gbps)
1G FC (1.0625 Gbps)

Optical Transmission Network:

OTU1 (2.66Gbps)
OTU2 (10.70Gbps)
OTU1e (11.049Gbps)
OTU2e (11.095Gbps)
OTU1f (11.27Gbps)
OTU2f (11.32Gbps)
ODU0 (1.244Gbps)
ODU1 (2.498Gbps)
ODU2 (10.037Gbps)
ODU2e (10.399Gbps)

10G Double Fiber XFP are equipped with **double LC connectors** and support normal operating **temperature range 0 - 70 Celsius**. 10G Double Fiber XFPTransceivers are fully compliant to XFP Multi Source Agreement INF-8077i and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
10G-XFP-300	MMF	300 m	4.6 dB	850/850 nm	Click	**€ 63.71**
10G-XFP-2	SMF	2 km	6.2 dB	1310/1310 nm	Click	**€ 74.17**
10G-XFP-10	SMF	10 km	6.8 dB	1310/1310 nm	Click	**€ 74.17**
10G-XFP-20	SMF	20 km	9 dB	1310/1310 nm	Click	**€ 74.17**

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
10G-XFP-41	SMF	40 km	14 dB	1310/1310 nm	Click	**€ 152.14**
10G-XFP-40	SMF	40 km	14 dB	1550/1550 nm	Click	**€ 245.33**
10G-XFP-80	SMF	80 km	23 dB	1550/1550 nm	Click	**€ 492.56**
10G-XFP-120	SMF	120 km	26 dB	1550/1550 nm	Click	**€ 1 064.98**

03.05.02. 10G BiDi XFP

10G Single Fiber BiDi XFP transceivers are designed to operate over one single mode optical fiber with distances ranging from 10km up to 80km. We are using WDM technology, separating both transmission directions by using different wavelength.These optical modules supports following applications:

Ethernet:

10G Eth (10.31Gbps)
Gigabit Eth (1.25Gbps)

SDH/SONET:

STM-64 (9.95Gbps)
STM-16 (2.488Gbps)

Fiber Channel:

10G FC (10.52 Gbps)
8.5G FC (8.5 Gbps)
4G FC (4.25 Gbps)
2G FC (2.125 Gbps)
1G FC (1.0625 Gbps)

Optical Transmission Network:

OTU1 (2.66Gbps)
OTU2 (10.70Gbps)
OTU1e (11.049Gbps)
OTU2e (11.095Gbps)
OTU1f (11.27Gbps)
OTU2f (11.32Gbps)
ODU0 (1.244Gbps)
ODU1 (2.498Gbps)
ODU2 (10.037Gbps)

10G Single Fiber BiDi XFP are equipped with **single LC connector** and support normal operating **temperature range 0 - 70 Celsius**. 10G Single Fiber BiDi XFP Transceivers are fully compliant to XFP Multi Source Agreement INF-8077i and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-10G-XFP-10A	SMF	10 km		1270/1330 nm	Click	**€ 116.01**
BIDI-10G-XFP-10B	SMF	10 km	8 dB	1330/1270 nm	Click	**€ 116.01**
BIDI-10G-XFP-20A	SMF	20 km	12 dB	1270/1330 nm	Click	**€ 116.01**
BIDI-10G-XFP-20B	SMF	20 km	12 dB	1330/1270 nm	Click	**€ 116.01**
BIDI-10G-XFP-40A	SMF	40 km	14 dB	1270/1330 nm	Click	**€ 180.67**
BIDI-10G-XFP-40B	SMF	40 km	14 dB	1330/1270 nm	Click	**€ 180.67**
BIDI-10G-XFP-60A	SMF	60 km	20 dB	1270/1330 nm	Click	**€ 382.25**
BIDI-10G-XFP-60B	SMF	60 km	20 dB	1330/1270 nm	Click	**€ 382.25**
BIDI-10G-XFP-80A	SMF	80 km	23 dB	1490/1550 nm	Click	**€ 1 426.32**
BIDI-10G-XFP-80B	SMF	80 km	23 dB	1550/1490 nm	Click	**€ 1 426.32**

03.05.03. 10G CWDM XFP

10G CWDM (Coarse Wavelength Division Multiplexing) XFP transceivers are designed to operate over single mode optical fiber with distances ranging from 10km up to 80km. These optical modules supports following applications:

Ethernet:

10G Eth (10.31Gbps)
Gigabit Eth (1.25Gbps)

SDH/SONET:

STM-64 (9.95Gbps)
STM-16 (2.488Gbps)

Fiber Channel:

10G FC (10.52 Gbps)
8.5G FC (8.5 Gbps)
4G FC (4.25 Gbps)
2G FC (2.125 Gbps)
1G FC (1.0625 Gbps)

Optical Transmission Network:

OTU1 (2.66Gbps)
OTU2 (10.70Gbps)
OTU1e (11.049Gbps)
OTU2e (11.095Gbps)
OTU1f (11.27Gbps)
OTU2f (11.32Gbps)
ODU0 (1.244Gbps)
ODU1 (2.498Gbps)
ODU2 (10.037Gbps)
ODU2e (10.399Gbps)

Each transceiver uses one **20nm wide CWDM channel according ITU-T G.694.2** CWDM grid for transmission, but **can receive all CWDM range wavelengths (1270 – 1610 nm)**. In combination with CWDM passive mux/demux and OADM devices, is possible to achieve up to 18x10G connections over pair of fiber, or up to 9x10G connections over single fiber. 10G CWDM XFP are equipped with **double LC connectors** and support normal operating **temperature range 0 - 70° Celsius**.10G CWDM XFP Transceivers are fully compliant to XFP Multi Source Agreement INF-8077i and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
CWDM-10G-XFP-10	SMF	10 km	9 dB	1270-1330 nm	Click	**€ 264.34**
CWDM-10G-XFP-10	SMF	10 km	9 dB	1350-1450 nm	Click	**€ 473.54**
CWDM-10G-XFP-10	SMF	10 km	9 dB	1470-1610 nm	Click	**€ 568.63**
CWDM-10G-XFP-40	SMF	40 km	14 dB	1270-1410 nm	Click	**€ 275.75**
CWDM-10G-XFP-40	SMF	40 km	14 dB	1430-1450 nm	Click	**€ 321.40**
CWDM-10G-XFP-40	SMF	40 km	14 dB	1470-1610 nm	Click	**€ 513.47**
CWDM-10G-XFP-80	SMF	80 km	23 dB	1470-1610 nm	Click	**€ 692.70**

03.05.04. 10G DWDM XFP

10G DWDM (Dense Wavelength Division Multiplexing) XFP transceivers are designed to operate over single mode optical fiber with distances ranging from 40km up to 120km. These optical modules supports following applications:

Ethernet:

10G Eth (10.31Gbps)
Gigabit Eth (1.25Gbps)

SDH/SONET:

STM-64 (9.95Gbps)
STM-16 (2.488Gbps)

Fiber Channel:

10G FC (10.52 Gbps)
8.5G FC (8.5 Gbps)
4G FC (4.25 Gbps)
2G FC (2.125 Gbps)
1G FC (1.0625 Gbps)

Optical Transmission Network:

OTU1 (2.66Gbps)
OTU2 (10.70Gbps)
OTU1e (11.049Gbps)
OTU2e (11.095Gbps)
OTU1f (11.27Gbps)
OTU2f (11.32Gbps)
ODU0 (1.244Gbps)
ODU1 (2.498Gbps)
ODU2 (10.037Gbps)
ODU2e (10.399Gbps)

Each fixed wavelenght DWDM transceiver uses one **DWDM channel according ITU-T 100GHz Channel Spacing C-Band DWDM grid** for transmission and each tunable DWDM tranceiver uses one **DWDM channel according ITU-T 50GHz Channel Spacing C-Band DWDM grid**, but all **can receive complete WDM range 1270-1610nm**. In combination with DWDM passive mux/demux and OADM devices, is possible to achieve up to 45x10G connections over pair of fiber, or up to 22x10G connections over single fiber.

10G DWDM XFP are equipped with **double LC connectors** and support normal operating **temperature range 0 - 70° Celsius**. 10G DWDM XFP Transceivers are fully compliant to XFP Multi Source Agreement INF-8077i and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX Range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
DWDM-10G-XFP-40	SMF	40 km	14 dB	100GHz (C) (Ch. 17-61)	Click	**€ 441.21**
DWDM-10G-XFP-80	SMF	80 km	23 dB	100GHz (C) (Ch. 17-61)	Click	**€ 644.70**
DWDM-10G-XFP-80-TUN-F*	SMF	80 km	23 dB	50GHz (C) (Ch. 13.5-61)	Coming Soon	**€ 4621.27**

*** -F indicates that tunable XFP module supporting FEC (Forward Error Correction).**

03.06. X2

03.06.01. 10G Double Fiber X2

10G Double Fiber X2 transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from few meters up to 80km. These optical modules supports 10 Gigabit Ethernet application (10.31 Gbps). 10G Double Fiber X2 are equipped with **double SC connectors** and support normal operating **temperature range 0 - 70° Celsius**.

10G Double Fiber X2 transceivers are fully compliant to X2 MSA Rev.2.0b and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
10G-X2-300	MMF	300 m	4.6 dB	850/850 nm	Click	**€ 114.11**
10G-X2-220	MMF	220 m	3.5 dB	1310/1310 nm	Click	**€ 209.19**
10G-X2-10	SMF	10 km	6.2 dB	1310/1310 nm	Click	**€ 209.19**
10G-X2-40	SMF	40 km	14 dB	1550/1550 nm	Click	**€ 798.74**
10G-X2-80	SMF	80 km	23 dB	1550/1550 nm	Click	**€ 1 671.64**

03.06.02. 10G CWDM X2

10G CWDM X2 transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from 40km up to 80km. These optical modules supports 10 Gigabit Ethernet application **(10.31 Gbps.)** Each transceiver uses one **20nm wide CWDM channel according ITU-T G.694.2 CWDM grid** for transmission, but can receive all CWDM range wavelengths (1470 – 1610 nm). In combination with CWDM passive mux/demux and OADM devices, is possible to achieve up to 8x10G connections over pair of fiber, or up to 4x10G connections over single fiber.

10G CWDM X2 are equipped with **double SC connectors** and support normal operating **temperature range 0 - 70° Celsius**. 10G CWDM X2 transceivers are fully compliant to X2 MSA Rev.2.0b and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
CWDM-10G-X2-40	SMF	40 km	14 dB	1470-1610 nm	Click	**€ 1 443.43**
CWDM-10G-X2-80	SMF	80 km	23 dB	1470-1610 nm	Click	**€ 1 823.78**

03.06.03. 10G DWDM X2

10G DWDM (Dense Wavelength Division Multiplexing) X2 transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from 40km up to 80km. These optical modules supports 10 Gigabit Ethernet application (10.31 Gbps.) Each transceiver uses **one DWDM channel according ITU-T 100GHz Channel Spacing C-Band DWDM grid** for transmission, but can receive all DWDM C-Band range channels (17 – 61ch). In combination with DWDM passive mux/demux and OADM devices, is possible to achieve up to 45x10G connections over pair of fiber, or up to 22x10G connections over single fiber.

10G DWDM X2 are equipped with **double SC connectors** and support normal operating **temperature range 0 - 70° Celsius**. 10G DWDM X2 transceivers are fully compliant to X2 MSA Rev.2.0b and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
DWDM-10G-X2-40	SMF	40 km	14 dB	100GHz (C) (Ch. 17-61)	Click	**€ 1 443.43**
DWDM-10G-X2-80	SMF	80 km	23 dB	100GHz (C) (Ch. 17-61)	Click	**€ 1 823.78**

03.07. XENPAK

03.07.01. 10G Double Fiber XENPAK

10G Double Fiber XENPAK transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from few meters up to 80km. These optical modules supports 10 Gigabit Ethernet application **(10.31 Gbps)**. 10G Double Fiber XENPAK are equipped with **double SC connectors** and support normal operating **temperature range 0 - 70° Celsius**.

10G Double Fiber XENPAK transceivers are fully compliant to XENPAK Multi Source Agreement Rev.3 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
10G-XENPAK-300	MMF	300 m	4.6 dB	850/850 nm	Click	**€ 123.61**
10G-XENPAK-220	MMF	220 m	3.5 dB	1310/1310 nm	Click	**€ 218.70**
10G-XENPAK-10	SMF	10 km	6.2 dB	1310/1310 nm	Click	**€ 218.70**
10G-XENPAK-40	SMF	40 km	14 dB	1550/1550 nm	Click	**€ 796.84**
10G-XENPAK-80	SMF	80 km	23 dB	1550/1550 nm	Click	**€ 1 671.64**

03.07.02. 10G CWDM XENPAK

10G CWDM XENPAK transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from 40km up to 80km. These optical modules supports 10 Gigabit Ethernet application **(10.31 Gbps.)** Each transceiver uses one **20nm wide CWDM channel according ITU-T G.694.2 CWDM grid** for transmission, but can receive all CWDM range wavelengths (1470 – 1610 nm). In combination with CWDM passive mux/demux and OADM devices, is possible to achieve up to 8x10G connections over pair of fiber, or up to 4x10G connections over single fiber.

10G CWDM XENPAK are equipped with **double SC connectors** and support normal operating **temperature range 0 - 70° Celsius**. 10G CWDM XENPAK transceivers are fully compliant to XXENPAK Multi Source Agreement Rev.3 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
CWDM-10G-XENPAK-40	SMF	40 km	14 dB	1470-1610 nm	Click	**€ 1 443.43**
CWDM-10G-XENPAK-80	SMF	80 km	23 dB	1470-1610 nm	Click	**€ 1 823.78**

03.07.03. 10G DWDM XENPAK

10G DWDM (Dense Wavelength Division Multiplexing) XENPAK transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from 40km up to 80km. These optical modules supports 10 Gigabit Ethernet application **(10.31 Gbps.)** Each transceiver uses **one DWDM channel according ITU-T 100GHz Channel Spacing C-Band DWDM grid** for transmission, but can receive all DWDM C-Band range channels (17 – 61ch). In combination with DWDM passive mux/demux and OADM devices, is possible to achieve up to 45x10G connections over pair of fiber, or up to 22x10G connections over single fiber.

10G DWDM XENPAK are equipped with **double SC connectors** and support normal operating **temperature range 0 - 70° Celsius**. 10G DWDM XENPAK transceivers are fully compliant to XXENPAK Multi Source Agreement Rev.3 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
DWDM-10G-XENPAK-40	SMF	40 km	14 dB	100GHz (C) (Ch. 17-61)	Click	**€ 1 443.43**
DWDM-10G-XENPAK-80	SMF	80 km	23 dB	100GHz (C) (Ch. 17-61)	Click	**€ 1 823.78**

03.08. SFP

03.08.01. RJ45 Copper SFP Transceivers

RJ45 Copper SFP transceivers are designed to operate over Cat.5 and Cat. 6 twisted pair cables with distance up to 100m. These Transceivers supports data rates from **10 Mbps up to 1000 Mbps**. RJ45 Copper SFP transceivers are equipped with **RJ45 connectors** and support normal operating **temperature range 0 - 70° Celsius**.

RJ45 Copper SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	APPLICATION (Supported Applications)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
1000M-SFP-T	Twisted Pair Cat 5/6	100 m	10/100/1000 Mbps	Click	**€ 20.92**
100M-SFP-F	Twisted Pair Cat 5/6	100 m	10/100 Mbps	Click	**€ 28.53**
1000M-SFP-M	Twisted Pair Cat 5/6	100 m	1000 Mbps	Click	**€ 20.92**

03.08.02. GE Double Fiber SFP

GE 1.25G Double Fiber SFP transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from few meters up to 150km. These optical modules supports 1.25G Gigabit Ethernet application **(1.25 Gbps)** and 1G FC Fiber Channel **(1.0603 Gbps)**.

GE 1.25G Double Fiber SFP transceivers are equipped with **double LC connectors** and support normal operating **temperature range 0 - 70° Celsius**. GE 1.25G Double Fiber SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
1.25G-SFP-550D	MMF	550m	7.5 dB	850/850 nm	Click	**€ 11.79**
1.25G-SFP-2D	MMF	2 km	13 dB	1310/1310 nm	Click	**€ 11.79**
1.25G-SFP-10D	SMF	10 km	13 dB	1310/1310 nm	Click	**€ 11.79**
1.25G-SFP-20D	SMF	20 km	13 dB	1310/1310 nm	Click	**€ 11.79**
1.25G-SFP-41D	SMF	40 km	17 dB	1310/1310 nm	Click	**€ 24.72**
1.25G-SFP-40D	SMF	40 km	23 dB	1550/1550 nm	Click	**€ 17.12**
1.25G-SFP-80D	SMF	80 km	24 dB	1550/1550 nm	Click	**€ 38.04**
1.25G-SFP-120D	SMF	120 km	32 dB	1550/1550 nm	Click	**€ 85.58**
1.25G-SFP-150D	SMF	150 km	37 dB	1550/1550 nm	Click	**€ 283.36**

03.08.03. GE BiDi SFP (LC version)

GE 1.25G Single Fiber SFP transceivers are designed to operate over one single mode optical fiber with distances ranging from 3km up to 120km. These optical modules supports Gigabit Ethernet application **(1.25 Gbps)** and 1G FC Fiber Channel **(1.063 Gbps)**. We are using WDM technology, separating both transmission directions by using different wavelength. GE 1.25G Single Fiber SFP transceivers are equipped with **single LC connector** and support normal operating **temperature range 0 - 70° Celsius**. GE 1.25G Single Fiber SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-1.25G-SFP-3-AD	SMF	3 km	7 dB	1310/1550 nm	Click	**€ 15.21**
BIDI-1.25G-SFP-3-BD	SMF	3 km	7 dB	1550/1310 nm	Click	**€ 15.21**
BIDI-1.25G-SFP-10-AD	SMF	10 km	12 dB	1310/1550 nm	Click	**€ 13.31**
BIDI-1.25G-SFP-10-BD	SMF	10 km	12 dB	1550/1310 nm	Click	**€ 20.54**
BIDI-1.25G-SFP-20-AD	SMF	20 km	13 dB	1310/1550 nm	Click	**€ 13.31**
BIDI-1.25G-SFP-20-BD	SMF	20 km	13 dB	1550/1310 nm	Click	**€ 20.54**

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-1.25G-SFP-40-AD	SMF	40 km	17 dB	1310/1550 nm	Click	**€ 19.02**
BIDI-1.25G-SFP-40-BD	SMF	40 km	17 dB	1550/1310 nm	Click	**€ 38.04**
BIDI-1.25G-SFP-80-AD	SMF	80 km	22 dB	1490/1550 nm	Click	**€ 58.95**
BIDI-1.25G-SFP-80-BD	SMF	80 km	22 dB	1550/1490 nm	Click	**€ 58.95**
BIDI-1.25G-SFP-120-AD	SMF	120 km	31 dB	1490/1550 nm	Click	**€ 95.09**
BIDI-1.25G-SFP-120-BD	SMF	120 km	31 dB	1550/1490 nm	Click	**€ 95.09**
BIDI-1.25G-SFP-4-AD	SMF	3 km	7 dB	1310/1490 nm	Click	**€ 13.69**
BIDI-1.25G-SFP-4-BD	SMF	3 km	7 dB	1490/1310 nm	Click	**€ 32.52**
BIDI-1.25G-SFP-11-AD	SMF	10 km	12 dB	1310/1490 nm	Click	**€ 13.69**
BIDI-1.25G-SFP-11-BD	SMF	10 km	12 dB	1490/1310 nm	Click	**€ 28.53**
BIDI-1.25G-SFP-21-AD	SMF	20 km	13 dB	1310/1490 nm	Click	**€ 13.69**
BIDI-1.25G-SFP-21-BD	SMF	20 km	13 dB	1490/1310 nm	Click	**€ 28.53**
BIDI-1.25G-SFP-41-AD	SMF	40 km	17 dB	1310/1490 nm	Click	**€ 19.40**
BIDI-1.25G-SFP-41-BD	SMF	40 km	17 dB	1490/1310 nm	Click	**€ 39.75**
BIDI-1.25G-SFP-121-AD	SMF	120 km	31 dB	1510/1570 nm	Click	**€ 131.22**
BIDI-1.25G-SFP-121-BD	SMF	120 km	31 dB	1570/1510 nm	Click	**€ 131.22**

03.08.04. GE BiDi SFP (SC version)

GE 1.25G Single Fiber SFP transceivers are designed to operate over one single mode optical fiber with distances ranging from 3km up to 120km. These optical modules supports Gigabit Ethernet application **(1.25 Gbps)** and 1G FC Fiber Channel **(1.063 Gbps)**. We are using WDM technology, separating both transmission directions by using different wavelength. GE 1.25G Single Fiber SFP transceivers are equipped with **single SC connector** and support normal operating **temperature range 0 - 70° Celsius**. GE 1.25G Single Fiber SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-1.25G-SFP-3-ADS	SMF	3 km	7 dB	1310/1550 nm	Click	**€ 16.16**
BIDI-1.25G-SFP-3-BDS	SMF	3 km	7 dB	1550/1310 nm	Click	**€ 16.16**
BIDI-1.25G-SFP-10-ADS	SMF	10 km	12 dB	1310/1550 nm	Click	**€ 14.26**
BIDI-1.25G-SFP-10-BDS	SMF	10 km	12 dB	1550/1310 nm	Click	**€ 21.49**
BIDI-1.25G-SFP-20-ADS	SMF	20 km	13 dB	1310/1550 nm	Click	**€ 14.26**
BIDI-1.25G-SFP-20-BDS	SMF	20 km	13 dB	1550/1310 nm	Click	**€ 21.49**
BIDI-1.25G-SFP-40-ADS	SMF	40 km	17 dB	1310/1550 nm	Click	**€ 19.97**

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-1.25G-SFP-40-BDS	SMF	40 km	17 dB	1550/1310 nm	Click	**€ 38.99**
BIDI-1.25G-SFP-80-ADS	SMF	80 km	22 dB	1490/1550 nm	Click	**€ 59.91**
BIDI-1.25G-SFP-80-BDS	SMF	80 km	22 dB	1550/1490 nm	Click	**€ 59.91**
BIDI-1.25G-SFP-120-ADS	SMF	120 km	31 dB	1490/1550 nm	Click	**€ 96.04**
BIDI-1.25G-SFP-120-BDS	SMF	120 km	31 dB	1550/1490 nm	Click	**€ 96.04**
BIDI-1.25G-SFP-4-ADS	SMF	3 km	7 dB	1310/1490 nm	Click	**€ 14.64**
BIDI-1.25G-SFP-4-BDS	SMF	3 km	7 dB	1490/1310 nm	Click	**€ 33.47**
BIDI-1.25G-SFP-11-ADS	SMF	10 km	12 dB	1310/1490 nm	Click	**€ 14.83**
BIDI-1.25G-SFP-11-BDS	SMF	10 km	12 dB	1490/1310 nm	Click	**€ 29.48**
BIDI-1.25G-SFP-21-ADS	SMF	20 km	13 dB	1310/1490 nm	Click	**€ 14.64**
BIDI-1.25G-SFP-21-BDS	SMF	20 km	13 dB	1490/1310 nm	Click	**€ 29.48**
BIDI-1.25G-SFP-41-ADS	SMF	40 km	17 dB	1310/1490 nm	Click	**€ 20.35**
BIDI-1.25G-SFP-41-BDS	SMF	40 km	17 dB	1490/1310 nm	Click	**€ 40.70**
BIDI-1.25G-SFP-121-ADS	SMF	120 km	31 dB	1510/1570 nm	Click	**€ 132.17**
BIDI-1.25G-SFP-121-BDS	SMF	120 km	31 dB	1570/1510 nm	Click	**€ 132.17**

03.08.05. GE CWDM SFP

1.25Gbps CWDM (Coarse Wavelength Division Multiplexing) SFP transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from 40km up to 150km. These optical modules supports Gigabit Ethernet **(1.25 Gbps)** and 1G-FC Fiber Channel **(1.063 Gbps)** applications. Each transceiver uses one **20nm wide CWDM channel according ITU-T G.694.2 CWDM grid** for transmission, but can receive all CWDM range wavelengths (1270 – 1610 nm). GE 1.25G CWDM SFP transceivers are equipped with **double LC connectors** and support normal operating **temperature range 0 - 70° Celsius**. GE 1.25G CWDM SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
CWDM-1.25G-SFP-40	SMF	40 km	19 dB	1270-1610 nm	Click	**€ 57.05**
CWDM-1.25G-SFP-80	SMF	80 km	24 dB	1470-1610 nm	Click	**€ 57.05**
CWDM-1.25G-SFP-80	SMF	80 km	24 dB	1270-1450 nm	Click	**€ 57.05**
CWDM-1.25G-SFP-120	SMF	120 km	32 dB	1270-1610 nm	Click	**€ 57.05**
CWDM-1.25G-SFP-150	SMF	150 km	36 dB	1270-1450 nm	Click	**€ 104.60**
CWDM-1.25G-SFP-150	SMF	150 km	36 dB	1470-1610 nm	Click	**€ 370.84**

03.08.06. GE DWDM SFP

1.25G DWDM (Dense Wavelength Division Multiplexing) SFP transceivers are designed to operate over single mode optical fiber with distances ranging from 80km up to 160km. These optical modules supports Gigabit Ethernet **(1.25 Gbps)** and 1G-FC Fiber Channel **(1.063 Gbps)** applications. Each transceiver uses **one DWDM channel according ITU-T 100GHz Channel Spacing C-Band DWDM grid** for transmission, but can receive all DWDM C-Band range channels (17 – 61ch). GE 1.25G DWDM SFP transceivers are equipped with **double LC connectors** and support normal operating **temperature range 0 - 70° Celsius**. GE 1.25G DWDM SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
DWDM-1.25G-SFP-80	SMF	80 km	24 dB	100GHz (C) (Ch. 17-61)	Click	**€ 380.35**
DWDM-1.25G-SFP-120	SMF	120 km	32 dB	100GHz (C) (Ch. 17-61)	Click	**€ 380.35**
DWDM-1.25G-SFP-160	SMF	160 km	37 dB	100GHz (C) (Ch. 17-61)	Click	**€ 551.51**

03.08.07. FE Double Fiber SFP

100/155Mbps Double Fiber SFP transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from few meters up to 150km. These optical modules supports Fast Ethernet application **(100 Mbps)** and **STM-1/OC-3 (155 Mbps)**. 100/155Mbps Double Fiber SFP transceivers are equipped with **double LC connectors** and support normal operating **temperature range 0 - 70° Celsius**. 100/155Mbps Double Fiber SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
155M-SFP-2D	MMF	2 km	11 dB	1310/1310 nm	Click	**€ 13.69**
155M-SFP-15D	SMF	15 km	19 dB	1310/1310 nm	Click	**€ 13.69**
155M-SFP-40D	SMF	40 km	25 dB	1310/1310 nm	Click	**€ 22.82**
155M-SFP-80D	SMF	80 km	29 dB	1550/1550 nm	Click	**€ 28.53**
155M-SFP-120D	SMF	120 km	34 dB	1550/1550 nm	Click	**€ 57.05**
155M-SFP-150D	SMF	150 km	37 dB	1550/1550 nm	Click	**€ 302.38**

03.08.08. FE BiDi SFP (LC version)

100/155Mbps BiDi Single Fiber SFP transceivers are designed to operate over single fiber single mode optical cables with distances ranging from 2km up to 120km. These optical modules supports Fast Ethernet application **(100 Mbps)** and **STM-1/OC-3 (155 Mbps)** .We are using WDM technology, separating both transmission directions by using different wavelength. 100/155Mbps BiDi Single Fiber SFP transceivers are equipped with **one LC connector** and support normal operating **temperature range 0 - 70° Celsius**.

100/155Mbps BiDi Single Fiber SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-155M-SFP-2-AD	SMF	2 km	12 dB	1310/1550 nm	Click	**€ 13.88**
BIDI-155M-SFP-2-BD	SMF	2 km	12 dB	1550/1310 nm	Click	**€ 13.88**
BIDI-155M-SFP-15-AD	SMF	15 km	17 dB	1310/1550 nm	Click	**€ 13.88**
BIDI-155M-SFP-15-BD	SMF	15 km	17 dB	1550/1310 nm	Click	**€ 13.88**
BIDI-155M-SFP-40-AD	SMF	40 km	24 dB	1310/1550 nm	Click	**€ 18.07**
BIDI-155M-SFP-40-BD	SMF	40 km	24 dB	1550/1310 nm	Click	**€ 19.21**
BIDI-155M-SFP-80-AD	SMF	80 km	31 dB	1490/1550 nm	Click	**€ 32.33**
BIDI-155M-SFP-80-BD	SMF	80 km	31 dB	1550/1490 nm	Click	**€ 32.33**
BIDI-155M-SFP-120-AD	SMF	120 km	34 dB	1490/1550 nm	Click	**€ 55.15**
BIDI-155M-SFP-120-BD	SMF	120 km	34 dB	1550/1490 nm	Click	**€ 57.05**
BIDI-155M-SFP-16-AD	SMF	20 km	17 dB	1310/1490 nm	Click	**€ 15.21**
BIDI-155M-SFP-16-BD	SMF	20 km	17 dB	1490/1310 nm	Click	**€ 19.97**
BIDI-155M-SFP-41-AD	SMF	40 km	24 dB	1310/1490 nm	Click	**€ 18.26**
BIDI-155M-SFP-41-BD	SMF	40 km	24 dB	1490/1310 nm	Click	**€ 25.86**

03.08.09. FE BiDi SFP (SC version)

100/155Mbps BiDi Single Fiber SFP transceivers are designed to operate over single fiber single mode optical cables with distances ranging from 2km up to 120km. These optical modules supports Fast Ethernet application **(100 Mbps)** and **STM-1/OC-3 (155 Mbps)** .We are using WDM technology, separating both transmission directions by using different wavelength.

100/155Mbps BiDi Single Fiber SFP transceivers are equipped with **one SC connector** and support normal operating **temperature range 0 - 70° Celsius**. 100/155Mbps BiDi Single Fiber SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-155M-SFP-2-ADS	SMF	2 km	12 dB	1310/1550 nm	Click	**€ 14.83**
BIDI-155M-SFP-2-BDS	SMF	2 km	12 dB	1550/1310 nm	Click	**€ 14.83**
BIDI-155M-SFP-15-ADS	SMF	15 km	17 dB	1310/1550 nm	Click	**€ 14.83**
BIDI-155M-SFP-15-BDS	SMF	15 km	17 dB	1550/1310 nm	Click	**€ 14.83**
BIDI-155M-SFP-40-ADS	SMF	40 km	24 dB	1310/1550 nm	Click	**€ 19.02**
BIDI-155M-SFP-40-BDS	SMF	40 km	24 dB	1550/1310 nm	Click	**€ 20.16**
BIDI-155M-SFP-80-ADS	SMF	80 km	31 dB	1490/1550 nm	Click	**€ 33.28**
BIDI-155M-SFP-80-BDS	SMF	80 km	31 dB	1550/1490 nm	Click	**€ 33.28**
BIDI-155M-SFP-120-ADS	SMF	120 km	34 dB	1490/1550 nm	Click	**€ 56.10**
BIDI-155M-SFP-120-BDS	SMF	120 km	34 dB	1550/1490 nm	Click	**€ 58.00**
BIDI-155M-SFP-21-ADS	SMF	20 km	17 dB	1310/1490 nm	Click	**€ 16.16**
BIDI-155M-SFP-21-BDS	SMF	20 km	17 dB	1490/1310 nm	Click	**€ 20.92**
BIDI-155M-SFP-41-ADS	SMF	40 km	24 dB	1310/1490 nm	Click	**€ 19.21**
BIDI-155M-SFP-41-BDS	SMF	40 km	24 dB	1490/1310 nm	Click	**€ 26.81**

03.08.10. FE CWDM SFP

100/155 Mbps CWDM (Coarse Wavelength Division Multiplexing) SFP transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from 80km up to 120km. These optical modules supports **Fast Ethernet (100 Mbps)** application and **STM-1/OC-3 (155 Mbps)** applications. Each transceiver uses **one 20nm wide CWDM channel according ITU-T G.694.2 CWDM grid** for transmission, but can receive all CWDM range wavelengths (1270 – 1610 nm). 100/155 Mbps CWDM SFP transceivers are equipped with **double LC connectors** and support normal operating **temperature range 0 - 70° Celsius**. 100/155 Mbps CWDM SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
CWDM-155M-SFP-80	SMF	80 km	29 dB	1270-1610 nm	Click	**€ 66.56**
CWDM-155M-SFP-120	SMF	120 km	36 dB	1270-1450 nm	Click	**€ 104.60**
CWDM-155M-SFP-120	SMF	120 km	36 dB	1470-1610 nm	Click	**€ 104.60**

03.08.11. Multirate 2.67G Double Fiber SFP

2.67G Double Fiber Multirate SFP transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from few meters up to 120km. These optical modules supports following applications:

Ethernet:
Fast Ethernet (100 Mbps)
Gigabit Eth (1.25Gbps)

SDH/SONET:
STM-1 (155Mbps)
STM-4 (622Mbps)
STM-16 (2.488 Gbps)

OTN:
OTU1 (2.67Gbps)
ODU0 (1.24416Gbps)
ODU1 (2.499Gbps)

CPRI:
2.458 Gbps
1.229 Gbps
614.4 Mbps

Fiber Channel:
1G FC (1.063Gbps)
2G FC (2.125Gbps)

OBSAI:
1.536 Gbps
768 Mbps

2.67G Double Fiber Multirate SFP transceivers are equipped with **double LC connectors** and support normal operating **temperature range 0 - 70° Celsius**. 2.67G Double Fiber Multirate SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
2.67G-SFP-300D	MMF	300 m	7.5 dB	850/850 nm	Click	**€ 22.82**
2.67G-SFP-2D	SMF	2 km	8.5 dB	1310/1310 nm	Click	**€ 22.82**
2.67G-SFP-10D	SMF	10 km	12 dB	1310/1310 nm	Click	**€ 40.89**
2.67G-SFP-15D	SMF	15 km	13 dB	1310/1310 nm	Click	**€ 40.89**
2.67G-SFP-41D	SMF	40 km	18 dB	1310/1310 nm	Click	**€ 39.94**
2.67G-SFP-40D	SMF	40 km	18 dB	1550/1550 nm	Click	**€ 43.74**
2.67G-SFP-80D	SMF	80 km	26 dB	1550/1550 nm	Click	**€ 152.14**
2.67G-SFP-120D	SMF	120 km	32 dB	1550/1550 nm	Click	**€ 237.72**

03.08.12. Multirate 2.67G BiDi SFP (LC version)

2.67G Single Fiber Multirate BiDi SFP transceivers are designed to operate over one fiber single mode optical cables with distances ranging from 2km up to 80km. We are using WDM technology, separating both transmission directions by using different wavelength.These optical modules supports following applications:

Ethernet:
Fast Ethernet (100 Mbps)
Gigabit Eth (1.25Gbps)

SDH/SONET:
STM-1 (155Mbps)
STM-4 (622Mbps)
STM-16 (2.488 Gbps)

OTN:
OTU1 (2.67Gbps)
ODU0 (1.24416Gbps)
ODU1 (2.499Gbps)

CPRI:
2.458 Gbps
1.229 Gbps
614.4 Mbps

Fiber Channel:
1G FC (1.063Gbps)
2G FC (2.125Gbps)

OBSAI:
1.536 Gbps
768 Mbps

2.67G Single Fiber Multirate BiDi SFP transceivers are equipped with **single LC connector** and support normal operating **temperature range 0 - 70° Celsius**. 2.67G Single Fiber Multirate BiDi SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-2.67G-SFP-2-AD	SMF	2 km	13 dB	1310/1550 nm	Click	**€ 35.18**
BIDI-2.67G-SFP-2-BD	SMF	2 km	13 dB	1550/1310 nm	Click	**€ 39.94**
BIDI-2.67G-SFP-15-AD	SMF	15 km	13 dB	1310/1550 nm	Click	**€ 35.18**
BIDI-2.67G-SFP-15-BD	SMF	15 km	13 dB	1550/1310 nm	Click	**€ 39.94**
BIDI-2.67G-SFP-40-AD	SMF	40 km	18 dB	1310/1550 nm	Click	**€ 49.45**
BIDI-2.67G-SFP-40-BD	SMF	40 km	18 dB	1550/1310 nm	Click	**€ 55.15**
BIDI-2.67G-SFP-80-AD	SMF	80 km	28 dB	1490/1550 nm	Click	**€ 161.65**
BIDI-2.67G-SFP-80-BD	SMF	80 km	28 dB	1550/1490 nm	Click	**€ 161.65**

03.08.13. Multirate 2.67G BiDi SFP (SC version)

2.67G Single Fiber Multirate BiDi SFP transceivers are designed to operate over one fiber single mode optical cables with distances ranging from 2km up to 80km. We are using WDM technology, separating both transmission directions by using different wavelength.These optical modules supports following applications:

Ethernet:
Fast Ethernet (100 Mbps)
Gigabit Eth (1.25Gbps)

SDH/SONET:
STM-1 (155Mbps)
STM-4 (622Mbps)
STM-16 (2.488 Gbps)

OTN:
OTU1 (2.67Gbps)
ODU0 (1.24416Gbps)
ODU1 (2.499Gbps)

CPRI:
2.458 Gbps
1.229 Gbps
614.4 Mbps

Fiber Channel:
1G FC (1.063Gbps)
2G FC (2.125Gbps)

OBSAI:
1.536 Gbps
768 Mbps

2.67G Single Fiber Multirate BiDi SFP transceivers are equipped with **single SC connector** and support normal operating **temperature range 0 - 70° Celsius**. 2.67G Single Fiber Multirate BiDi SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-2.67G-SFP-2-ADS	SMF	2 km	13 dB	1310/1550 nm	Click	**€ 36.13**
BIDI-2.67G-SFP-2-BDS	SMF	2 km	13 dB	1550/1310 nm	Click	**€ 40.89**
BIDI-2.67G-SFP-15-ADS	SMF	15 km	13 dB	1310/1550 nm	Click	**€ 36.13**
BIDI-2.67G-SFP-15-BDS	SMF	15 km	13 dB	1550/1310 nm	Click	**€ 40.89**
BIDI-2.67G-SFP-40-ADS	SMF	40 km	18 dB	1310/1550 nm	Click	**€ 50.40**
BIDI-2.67G-SFP-40-BDS	SMF	40 km	18 dB	1550/1310 nm	Click	**€ 56.10**
BIDI-2.67G-SFP-80-ADS	SMF	80 km	28 dB	1490/1550 nm	Click	**€ 162.60**
BIDI-2.67G-SFP-80-BDS	SMF	80 km	28 dB	1550/1490 nm	Click	**€ 162.60**

03.08.14. Multirate 2.67G CWDM SFP

2.67G CWDM (Coarse Wavelength Division Multiplexing) Multirate SFP transceivers are designed to operate over two fiber single mode optical cables with distances ranging from 40km up to 120km. Each transceiver uses one **20nm wide CWDM channel according ITU-T G.694.2 CWDM grid** for transmission, but **can receive all CWDM range wavelengths (1270 – 1610 nm)**. These optical modules supports following applications:

Ethernet:
Fast Ethernet (100 Mbps)
Gigabit Eth (1.25Gbps)

SDH/SONET:
STM-1 (155Mbps)
STM-4 (622Mbps)
STM-16 (2.488 Gbps)

OTN:
OTU1 (2.67Gbps)
ODU0 (1.24416Gbps)
ODU1 (2.499Gbps)

CPRI:
2.458 Gbps
1.229 Gbps
614.4 Mbps

Fiber Channel:
1G FC (1.063Gbps)
2G FC (2.125Gbps)

OBSAI:
1.536 Gbps
768 Mbps

2.67G CWDM Multirate SFP transceivers are equipped with **double LC connector** and support normal operating **temperature range 0 - 70° Celsius**. 2.67G CWDM Multirate SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
CWDM-2.67G-SFP-40	SMF	40 km	15 dB	1270-1610 nm	Click	€ 142.63
CWDM-2.67G-SFP-80	SMF	80 km	28 dB	1270-1610 nm	Click	€ 152.14
CWDM-2.67G-SFP-120	SMF	120 km	30 dB	1270-1610 nm	Click	€ 180.67

03.08.15. Multirate 2.67G DWDM SFP

2.67G DWDM (Dense Wavelength Division Multiplexing) SFP transceivers are designed to operate over single mode optical fiber with distances ranging from 40km up to 120km. Each transceiver uses **one DWDM channel according ITU-T 100GHz Channel Spacing C-Band DWDM** grid for transmission, but **can receive all DWDM C-Band range channels (17 – 61ch)**. These optical modules supports following applications:

Ethernet:
Fast Ethernet (100 Mbps)
Gigabit Eth (1.25Gbps)

SDH/SONET:
STM-1 (155Mbps)
STM-4 (622Mbps)
STM-16 (2.488 Gbps)

OTN:
OTU1 (2.67Gbps)
ODU0 (1.24416Gbps)
ODU1 (2.499Gbps)

CPRI:
2.458 Gbps
1.229 Gbps
614.4 Mbps

Fiber Channel:
1G FC (1.063Gbps)
2G FC (2.125Gbps)

OBSAI:
1.536 Gbps
768 Mbps

2.67G DWDM Multirate SFP transceivers are equipped with **double LC connector** and support normal operating **temperature range 0 - 70° Celsius**. 2.67G DWDM Multirate SFP transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
DWDM-2.67G-SFP-40	SMF	40 km	15 dB	100GHz (C) (Ch. 17-61)	Click	**€ 435.50**
DWDM-2.67G-SFP-80	SMF	80 km	28 dB	100GHz (C) (Ch. 17-61)	Click	**€ 435.50**
DWDM-2.67G-SFP-120	SMF	120 km	32 dB	100GHz (C) (Ch. 17-61)	Click	**€ 454.52**

03.09. GBIC

03.09.01. RJ45 Copper GBIC Transceivers

RJ45 Copper GBIC transceivers are designed to operate over Cat.5 and Cat. 6 twisted pair cables with distance up to **100m**. These Transceivers supports data rate **1000 Mbps.**

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	APPLICATION (Supported Applications)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
1000M-GBIC-T	Twisted Pair Cat 5/6	100 m	1000 Mbps	Click	**€ 36.13**

03.09.02. GE Double Fiber GBIC:

1.25G Double Fiber GBIC transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from few meters up to 80km. These optical modules supports 1.25G Gigabit Ethernet application **(1.25 Gbps)** and 1G FC Fiber Channel **(1.0603 Gbps)**. 1.25G Double Fiber GBIC transceivers are equipped with **double SC connectors** and support normal operating **temperature range 0 - 70° Celsius**. 1.25G Double Fiber GBIC transceivers are fully compliant to GBIC Multi Source Agreement SFF-8053 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
1.25G-GBIC-550	MMF	550m	7.5 dB	850/850 nm	Click	**€ 28.53**
1.25G-GBIC-10	SMF	10 km	12 dB	1310/1310 nm	Click	**€ 29.48**
1.25G-GBIC-40	SMF	40 km	19 dB	1550/1550 nm	Click	**€ 83.68**
1.25G-GBIC-80	SMF	80 km	24 dB	1550/1550 nm	Click	**€ 98.89**

03.09.03. GE BiDi GBIC

1.25G Single Fiber BiDi GBIC transceivers are designed to operate over one single mode or multi mode optical fiber with distances ranging from 2km up to 80km. These optical modules supports Gigabit Ethernet application **(1.25 Gbps)** and 1G FC Fiber Channel **(1.063 Gbps)**. We are using WDM technology, separating both transmission directions by using different wavelength. 1.25G BiDi GBIC transceivers are equipped with **single SC connector** and support normal operating **temperature range 0 - 70° Celsius**. 1.25G BiDi GBIC transceivers are fully compliant to GBIC Multi Source Agreement SFF-8053 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-1.25G-GBIC-02-A	MMF	2 km	12 dB	1310/1550 nm	Click	**€ 34.23**
BIDI-1.25G-GBIC-02-B	MMF	2 km	12 dB	1550/1310 nm	Click	**€ 34.23**
BIDI-1.25G-GBIC-20-A	SMF	20 km	14 dB	1310/1550 nm	Click	**€ 39.94**
BIDI-1.25G-GBIC-20-B	SMF	20 km	14 dB	1550/1310 nm	Click	**€ 57.05**
BIDI-1.25G-GBIC-40-A	SMF	40 km	19 dB	1310/1550 nm	Click	**€ 76.07**
BIDI-1.25G-GBIC-40-B	SMF	40 km	19 dB	1550/1310 nm	Click	**€ 76.07**
BIDI-1.25G-GBIC-80-A	SMF	80 km	24 dB	1490/1550 nm	Click	**€ 133.12**
BIDI-1.25G-GBIC-80-B	SMF	80 km	24 dB	1550/1490 nm	Click	**€ 133.12**

03.09.04. GE CWDM GBIC

1.25G CWDM (Coarse Wavelength Division Multiplexing) GBIC transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distance 80km. These optical modules supports Gigabit Ethernet **(1.25 Gbps)** and 1G-FC Fiber Channel **(1.063 Gbps)** applications. Each transceiver uses one 20nm wide CWDM channel according ITU-T G.694.2 CWDM grid for transmission, but can receive all CWDM range wavelengths (1270 – 1610 nm).

1.25G CWDM GBIC transceivers are equipped with **double SC connectors** and support normal operating **temperature range 0 - 70° Celsius**. 1.25G CWDM GBIC transceivers are fully compliant to GBIC Multi Source Agreement SFF-8053 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
CWDM-1.25G-GBIC-80	SMF	80km	24 dB	1470 - 1610 nm	Click	**€ 114.11**

03.10. Fiber Channel SFP

03.10.01. 16G FC SFP+

16G Fibre Channel SFP+ Transceiver is a (Small Form-factor Pluggable Plus) optical module designed to operate over double fiber multi-mode or single mode optical cables with distances ranging from few meters up to 10km. These optical modules supports following Fibre Channel applications: **16G FC (14.025 Gbps), 10GFC (10.51875 Gbps), 8GFC (8.5 Gbps), 4GFC (4.25 Gbps)** 16G Double Fiber SFP+ are equipped with **double LC connectors** and support normal operating **temperature range 0 - 70° Celsius**.

16G Double Fiber SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8431 and it can be provided with custom-encoded firmware, in order to provide **compatibility Cisco, Juniper, Brocade, Huawei, Alcatel, Force10 platforms** industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/Rx range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
16GFC-SFP-100	MMF	100 m	5.7dB	850/850 nm	Coming Soon	**€ 161.65**
16GFC-SFP-10	SMF	10 km	6.2 dB	1310/1310 nm	Coming Soon	**€ 370.84**
16GFC-SFP-25	SMF	25 km	12.1 dB	1310/1310 nm	Coming Soon	**€ 418.39**
16GFC-SFP-40	SMF	40 km	14 dB	1550/1550 nm	Coming Soon	**€ 1 274.18**

03.10.02. 10G FC Double Fiber SFP+

10G Fibre Channel Double Fiber SFP+ transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from few meters up to 100km. These optical modules support following Fibre Channel applications: 1**0GFC (10.51875 Gbps), 8GFC (8.5 Gbps), 4GFC (4.25 Gbps).** 10G FC Double Fiber SFP+ are equipped with double **LC connectors** and support normal operating temperature range **0 - 70° Celsius**. 10G FC Double Fiber SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8431 and it can be provided with custom-encoded firmware, in order to provide c**ompatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
10GFC-SFP-300	MMF	300 m	4.6 dB	850/850 nm	Coming Soon	€ 23.77
10GFC-SFP-220	MMF	220 m	3.5 dB	1310/1310 nm	Coming Soon	€ 49.07
10GFC-SFP-10	SMF	10 km	6.0 dB	1310/1310 nm	Coming Soon	€ 49.07
10GFC-SFP-20	SMF	20 km	9 dB	1310/1310 nm	Coming Soon	€ 49.07
10GFC-SFP-40	SMF	40 km	14 dB	1550/1550 nm	Coming Soon	€ 245.33
10GFC-SFP-41	SMF	40 km	14 dB	1310/1310 nm	Coming Soon	€ 152.14
10GFC-SFP-80	SMF	80 km	23 dB	1550/1550 nm	Coming Soon	€ 473.54
10GFC-SFP-100	SMF	100 km	26 dB	1550/1550 nm	Coming Soon	€ 855.79

03.10.03. 10G FC BiDi SFP+

10G Fibre Channel BiDi SFP+ transceivers are designed to operate over one single mode optical fiber with distances ranging from 10km up to 80km. These optical modules support following Fibre Channel applications: **10GFC (10.51875 Gbps), 8GFC (8.5 Gbps), 4GFC (4.25 Gbps), 2GFC (2.125 Gbps), 1GFC (1.0625 Gbps).**

We are using WDM technology, separating both transmission directions by using different wavelength.

10G FC BiDi SFP+ transceivers are equipped with **single LC connector** and support normal operating **temperature range 0 - 70° Celsius**. 10G FC Single Fiber SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8431 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-10GFC-SFP-10A	SMF	10 km	6.2 dB	1270/1330 nm	Coming Soon	€ 79.87
BIDI-10GFC-SFP-10B	SMF	10 km	6.2 dB	1330/1270 nm	Coming Soon	€ 79.87
BIDI-10GFC-SFP-20A	SMF	20 km	9 dB	1270/1330 nm	Coming Soon	€ 79.87
BIDI-10GFC-SFP-20B	SMF	20 km	9 dB	1330/1270 nm	Coming Soon	€ 79.87
BIDI-10GFC-SFP-40A	SMF	40 km	14 dB	1270/1330 nm	Coming Soon	€ 116.01
BIDI-10GFC-SFP-40B	SMF	40 km	14 dB	1330/1270 nm	Coming Soon	€ 116.01
BIDI-10GFC-SFP-60A	SMF	60 km	21 dB	1270/1330 nm	Coming Soon	€ 342.32
BIDI-10GFC-SFP-60B	SMF	60 km	21 dB	1330/1270 nm	Coming Soon	€ 342.32
BIDI-10GFC-SFP-80A	SMF	80 km	23 dB	1490/1550 nm	Coming Soon	€ 1 426.32
BIDI-10GFC-SFP-80B	SMF	80 km	23 dB	1550/1490 nm	Coming Soon	€ 1 426.32

03.10.04. 10G FC CWDM SFP+

10G Fibre Channel CWDM (Coarse Wavelength Division Multiplexing) SFP+ transceivers are designed to operate over single mode optical fiber with distances ranging from 10km up to 80km. These optical modules supports following Fibre Channel applications: **10GFC (10.51875 Gbps), 8GFC (8.5 Gbps), 4GFC (4.25 Gbps), 2GFC (2.125 Gbps), 1GFC (1.0625 Gbps).** Each transceiver uses one **20nm wide CWDM channel according ITU-T G.694.2 CWDM grid** for transmission, but can receive all CWDM range wavelengths (1270 – 1610 nm).

In combination with CWDM passive mux/demux and OADM devices, is possible to achieve up to 18x10G connections over pair of fiber, or up to 9x10G connections over single fiber. 10G FC CWDM SFP+ transceivers are equipped with **double LC connector** and support normal operating **temperature range 0 - 70° Celsius**. 10G FC CWDM SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8431 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX Range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
CWDM-10GFC-SFP-10	SMF	10 km	9 dB	1270-1330 nm	Coming Soon	**€ 264.34**
CWDM-10GFC-SFP-10	SMF	10 km	9 dB	1350-1450 nm	Coming Soon	**€ 264.34**
CWDM-10GFC-SFP-10	SMF	10 km	9 dB	1470-1610 nm	Coming Soon	**€ 494.46**
CWDM-10GFC-SFP-40	SMF	40 km	13 dB	1270-1410 nm	Coming Soon	**€ 283.36**
CWDM-10GFC-SFP-40	SMF	40 km	14 dB	1430-1450 nm	Coming Soon	**€ 283.36**
CWDM-10GFC-SFP-40	SMF	40 km	14 dB	1470-1610 nm	Coming Soon	**€ 494.46**
CWDM-10GFC-SFP-80	SMF	80 km	23 dB	1270-1450 nm	Coming Soon	**Upon request**
CWDM-10GFC-SFP-80	SMF	80 km	23 dB	1470-1610 nm	Coming Soon	**€ 760.70**

03.10.05. 10G FC DWDM SFP+

10G Fibre Channel DWDM (Dense Wavelength Division Multiplexing) SFP+ transceivers are designed to operate over single mode optical fiber with distances ranging from 40km up to 80km. These optical modules supports following Fibre Channel applications:**10GFC (10.51875 Gbps), 8GFC (8.5 Gbps), 4GFC (4.25 Gbps), 2GFC (2.125 Gbps), 1GFC (1.0625 Gbps).** Each fixed wavelenght DWDM transceiver uses one **DWDM channel according ITU-T 100GHz Channel Spacing C-Band DWDM grid** for transmission and each tunable DWDM tranceiver uses one **DWDM channel according ITU-T 50GHz Channel Spacing C-Band DWDM grid**, but **can receive complete WDM range 1270-1610nm**.

In combination with DWDM passive mux/demux and OADM devices, is possible to achieve up to 45x10G connections over pair of fiber, or up to 22x10G connections over single fiber. 10G FC DWDM SFP+ transceivers are equipped with **double LC connector** and support normal operating **temperature range 0 - 70° Celsius**. 10G FC DWDM SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8431 and it can be provided with custom-encoded firmware, in order to provide **compatibility of most equipment vendors platforms** in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX Range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
DWDM-10GFC-SFP-40	SMF	40 km	14 dB	100GHz (C) (Ch. 17-61)	Coming Soon	€ 441.21
DWDM-10GFC-SFP-80	SMF	80 km	23 dB	100GHz (C) (Ch. 17-61)	Coming Soon	€ 644.70
DWDM-10GFC-SFP-80-TUN	SMF	80 km	23 dB	50GHz (C) (Ch. 13.5-61)	Coming Soon	€ 3 708.43

03.10.06. 4G FC Double Fiber SFP

4G Fibre Channel Double Fiber SFP transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from few meters up to 40 km. These optical modules support following Fibre Channel applications: **4GFC (4.25 Gbps), 2GFC (2.125 Gbps), 1GFC (1.0625 Gbps).**

4G FC Double Fiber SFP are equipped with **double LC** connectors and support normal operating **temperature range 0 - 70° Celsius.** 4G FC Double Fiber SFP Transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to **provide compatibility of most equipment vendors platforms** in data and telecom communications industry:

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
4.25G-SFP-550D	MMF	550 m	6.0 dB	850/850 nm	Coming Soon	€ 35.18
4.25G-SFP-5D	SMF	5 km	9.0 dB	1310/1310 nm	Coming Soon	€ 72.27
4.25G-SFP-10D	SMF	10 km	10.0 dB	1310/1310 nm	Coming Soon	€ 72.27
4.25G-SFP-40D	SMF	40 km	18.0 dB	1550/1550 nm	Coming Soon	€ 171.16

03.11. DAC

03.11.01. 100G QSFP28 DAC Copper

100G QSFP28 Direct Attach Copper (Twinax) cables support aggregated data rates of 100Gbps avaliable for short distance connections (1-3 meters) and support normal operating temperature range 0 - 70° Celsius. These Twinax cables support following applications: 100G Ethernet and InfiniBand EDR (4x25Gbps) and are fully compliant to SFF-8665 and can be provided with custom-encoded firmware, in order to provide compatibility with Mellanox and other equipment vendor platforms in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Physical)	TYPE (Passive (P) or Active (A))	CABLE TYPE (Form Factor)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
100GDAC-QSFP28-P1M	AWG30	1 m	P	QSFP28 to QSFP28	Coming Soon	**€ 212.05**
100GDAC-QSFP28-P2M	AWG30	2 m	P	QSFP28 to QSFP28	Coming Soon	**€ 233.92**
100GDAC-QSFP28-P3M	AWG26	3 m	P	QSFP28 to QSFP28	Coming Soon	**€ 277.66**

03.11.02. 40G QSFP+ AOC

QSFP+ AOC is a high data rate parallel active optical cable (AOC), to overcome the bandwidth limitation of traditional copper cable. The AOC offers 4 independent data transmission channels and 4 data receiving channels via the multimode ribbon fibers, each capable of 10Gbps operation. Consequently, an aggregate data rate of 40Gbps over 100 meters transmission can be achieved by this cable for supporting the ultra- fast computing data exchange.

Ethernet:

40G Eth (44.8 Gbps)
10G Eth (10.31 Gbps)

Infiniband:

QDR (4 x 10Gbps)
DDR (4 x 5Gbps)
SDR (4 x 2.5Gbps)

Fibre Channel:

32GFC (28.05 Gbps)
16G FC (14.025 Gbps)
10GFC (10.51875 Gbps)
8GFC (8.5 Gbps)
4GFC (4.25 Gbps)

40G QSFP+ AOC support optical/electrical connection according to the QSFP+ Multi-Source Agreement (MSA) and SFF- 8436 can be provided with custom-encoded firmware, in order to provide compatibility with Cisco, Arista, Juniper, Mellanox, Brocade, Extreme Networks, Huawei, H3C, HP, IBM and other equipment vendor platforms in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Fiber Type)	DISTANCE (Physical)	CABLE TYPE (Form Factor)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
40GAOC-QSFP-A1M	OM3	1 m	QSFP+ to QSFP+	Coming Soon	€ 404.88
40GAOC-QSFP-A5M	OM3	5 m	QSFP+ to QSFP+	Coming Soon	€ 451.82
40GAOC-QSFP-A10M	OM3	10 m	QSFP+ to QSFP+	Coming Soon	€ 473.90
40GAOC-QSFP-A15M	OM3	15 m	QSFP+ to QSFP+	Coming Soon	€ 503.01
40GAOC-QSFP-A20M	OM3	20 m	QSFP+ to QSFP+	Coming Soon	€ 549.97
40GAOC-QSFP-A25M	OM3	25 m	QSFP+ to QSFP+	Coming Soon	€ 592.91

03.11.03. 40G QSFP+ DAC Copper

40G QSFP+ Direct Attach Copper (Twinax) cables can either be passive or active and can support QSFP+ to QSFP+ connections or breakout cable connections QSFP+ to 4xSFP+ or QSFP+ to 4xXFP.

Ethernet:

40G Eth (44.8 Gbps)
10G Eth (10.31 Gbps)

Infiniband:

QDR (4 x 10Gbps)
DDR (4 x 5Gbps)
SDR (4 x2.5Gbps)

Fibre Channel:

32GFC (28.05 Gbps)
16G FC (14.025 Gbps)
10GFC (10.51875 Gbps)
8GFC (8.5 Gbps)
4GFC (4.25 Gbps)

QSFP+ DAC Copper are fully compliant to SFF-8436 and QSFP+ MSA can be provided with custom-encoded firmware, in order to provide compatibility with Cisco, Arista, Juniper, Mellanox, Brocade, Extreme Networks, Huawei, H3C, HP, IBM and other equipment vendor platforms in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Physical)	TYPE (Active or Passive)	CABLE TYPE (Form Factor)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
40GDAC-QSFP-A1M	AWG30	1 m	Active	QSFP+ to QSFP+	Coming Soon	€ 262.44
40GDAC-QSFP-A5M	AWG30	5 m	Active	QSFP+ to QSFP+	Coming Soon	€ 294.77
40GDAC-QSFP-A10M	AWG28	10 m	Active	QSFP+ to QSFP+	Coming Soon	€ 532.49
40GDAC-QSFP-P0.5M	AWG30	0.5 m	Passive	QSFP+ to QSFP+	Coming Soon	€ 76.07
40GDAC-QSFP-P1M	AWG30	1 m	Passive	QSFP+ to QSFP+	Coming Soon	€ 76.07
40GDAC-QSFP-P2M	AWG30	2 m	Passive	QSFP+ to QSFP+	Coming Soon	€ 88.43
40GDAC-QSFP-P3M	AWG30	3 m	Passive	QSFP+ to QSFP+	Coming Soon	€ 104.60
40GDAC-QSFP-P5M	AWG28	5 m	Passive	QSFP+ to QSFP+	Coming Soon	€ 117.91
40GDAC-QSFP-P7M	AWG24	7 m	Passive	QSFP+ to QSFP+	Coming Soon	€ 163.55
QSFP-4xSFP-P0.5M	AWG30	0.5 m	Passive	QSFP+ to 4xSFP+	Coming Soon	€ 131.22
QSFP-4xSFP-P1M	AWG30	1 m	Passive	QSFP+ to 4xSFP+	Coming Soon	€ 131.22
QSFP-4xSFP-P2M	AWG30	2 m	Passive	QSFP+ to 4xSFP+	Coming Soon	€ 148.34
QSFP-4xSFP-P3M	AWG30	3 m	Passive	QSFP+ to 4xSFP+	Coming Soon	€ 163.55

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Physical)	TYPE (Active or Passive)	CABLE TYPE (Form Factor)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
QSFP-4xXFP-P0.5M	AWG30	0.5 m	Passive	QSFP+ to 4xXFP	Coming Soon	€ 247.23
QSFP-4xXFP-P1M	AWG30	1 m	Passive	QSFP+ to 4xXFP	Coming Soon	€ 247.23

03.11.04. 10G SFP+ AOC

SFP+ AOC is a high data rate active optical cable (AOC), to overcome the bandwidth limitation of traditional copper cable using high reliability 850 nm technology with VCSEL transmitter and PIN receiver.

Ethernet:

10G Eth (10.31 Gbps)
1G Eth (1.25 Gbps)

Infiniband:

QDR (10 Gbps)
DDR (2 x 5Gbps)
SDR (4 x2.5Gbps)

Fibre Channel:

10GFC (10.51875 Gbps)
8GFC (8.5 Gbps)
4GFC (4.25 Gbps)
2GFC (2.125 Gbps)
1GFC (1.0625 Gbps)

These AOCs can be used as an alternative solution to SFP+ passive and active copper cables, while providing improved signal integrity, longer distances, superior electromagnetic immunity and better bit error rate performance. SFP+ AOC cable are fully compliant to SFF-8432 and SFP+ MSA can be provided with custom-encoded firmware, in order to provide compatibility with Cisco, Arista, Juniper, Mellanox, Brocade, Extreme Networks, Huawei, H3C, HP, IBM and other equipment vendor platforms in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Physical)	CABLE TYPE (Form Factor)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
10GAOC-SFP-A2M	OM2	2 m	SFP+ to SFP+	Coming Soon	€ 98.13
10GAOC-SFP-A3M	OM2	3 m	SFP+ to SFP+	Coming Soon	€ 100.79
10GAOC-SFP-A5M	OM2	5 m	SFP+ to SFP+	Coming Soon	€ 106.50
10GAOC-SFP-A7M	OM2	7 m	SFP+ to SFP+	Coming Soon	€ 114.11
10GAOC-SFP-A10M	OM2	10 m	SFP+ to SFP+	Coming Soon	€ 122.66
10GAOC-SFP-A12M	OM2	12 m	SFP+ to SFP+	Coming Soon	€ 127.99
10GAOC-SFP-A15M	OM2	15 m	SFP+ to SFP+	Coming Soon	€ 136.55

03.11.05. 10G SFP+ DAC Copper

10G SFP+ Direct Attach Copper (Twinax) cables can either be passive or active and can support SFP+ to SFP+ connections.

Ethernet:

10G Eth (10.31 Gbps)
1G Eth (1.25 Gbps)

Infiniband:

QDR (10 Gbps)
DDR (2 x 5Gbps)
SDR (4 x2.5Gbps)

Fibre Channel:

10GFC (10.51875 Gbps)
8GFC (8.5 Gbps)
4GFC (4.25 Gbps)
2GFC (2.125 Gbps)
1GFC (1.0625 Gbps)

SFP+ DAC Copper are fully compliant to SFF-8432 and SFP+ MSA can be provided with custom-encoded firmware, in order to provide compatibility with Cisco, Arista, Juniper, Mellanox, Brocade, Extreme Networks, Huawei, H3C, HP, IBM and other equipment vendor platforms in data and telecom communications industry.

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Physical)	TYPE (Active or Passive)	CABLE TYPE (Form Factor)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
10GDAC-SFP-A5M	AWG30	5 m	Active	SFP+ to SFP+	Coming Soon	**€ 110.30**
10GDAC-SFP-A7M	AWG30	7 m	Active	SFP+ to SFP+	Coming Soon	**€ 118.29**
10GDAC-SFP-A10M	AWG28	10 m	Active	SFP+ to SFP+	Coming Soon	**€ 151.19**
10GDAC-SFP-A12M	AWG28	12 m	Active	SFP+ to SFP+	Coming Soon	**€ 239.62**
10GDAC-SFP-A15M	AWG28	15 m	Active	SFP+ to SFP+	Coming Soon	**€ 279.56**
10GDAC-SFP-P0.5M	AWG30	0.5 m	Passive	SFP+ to SFP+	Coming Soon	**€ 26.43**
10GDAC-SFP-P1M	AWG30	1 m	Passive	SFP+ to SFP+	Coming Soon	**€ 26.43**
10GDAC-SFP-P2M	AWG30	2 m	Passive	SFP+ to SFP+	Coming Soon	**€ 30.81**
10GDAC-SFP-P3M	AWG30	3 m	Passive	SFP+ to SFP+	Coming Soon	**€ 34.80**
10GDAC-SFP-P5M	AWG24	5 m	Passive	SFP+ to SFP+	Coming Soon	**€ 66.56**
10GDAC-SFP-P7M	AWG24	7 m	Passive	SFP+ to SFP+	Coming Soon	**€ 83.68**
10GDAC-SFP-P10M	AWG24	10 m	Passive	SFP+ to SFP+	Coming Soon	**€ 107.45**
10GDAC-SFP-P12M	AWG24	12 m	Passive	SFP+ to SFP+	Coming Soon	**€ 124.57**

03.12. CPRI/OBSAI SFP+

03.12.01. 10GFH Double Fiber SFP+ (CPRI/OBSAI)

10GFH (Fronthaul) CPRI/OBSAI LTE Double Fiber SFP+ transceivers are designed to operate over two fiber multi-mode or single mode optical cables with distances ranging from few meters up to 100km. **CPRI (Common Public Radio Interface)** is industry specification defining connections of radio base stations between the Radio Equipment Control (REC) and the Radio Equipment (RE). The parties cooperating to define the specification are Ericsson AB, Huawei Technologies Co. Ltd, NEC Corporation, Alcatel Lucent and Nokia Networks. Our CPRI Transceivers supporting following **CPRI rates: 10.1376 Gbps, 9.830 Gbps, 7.373 Gbps, 6.144 Gbps, 4.915 Gbps, 2.458 Gbps, 1.229 Gbps.**

The **OBSAI** family of specifications provides the architecture, function descriptions and minimum requirements for integration of a set of common modules into a base transceiver station (BTS). RP3 of OBSAI is the interface between baseband block and RF block. Our transceivers are compatible with OBSAI specification and we can support following rates: **6.144 Gbps, 3.072 Gbps, 1.536 Gbps.** CPRI 10GFH Double Fiber SFP+ are equipped with **double LC** connectors and support normal operating **temperature range 0 - 70° Celsius.** CPRI 10GFH Double Fiber SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to **provide compatibility with Ericsson, Huawei, NSN, ZTE and other vendor BBU/RRU units**:

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	OPTICAL BUDGET (Minimum)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
10GFH-SFP-300	MMF	300 m	4.6 dB	850/850 nm	Click	**€ 23.77**
10GFH-SFP-220	MMF	220 m	3.5 dB	1310/1310 nm	Click	**€ 49.07**
10GFH-SFP-10	SMF	10 km	6.0 dB	1310/1310 nm	Click	**€ 49.07**
10GFH-SFP-20	SMF	20 km	9 dB	1310/1310 nm	Click	**€ 49.07**
10GH-SFP-40	SMF	40 km	14 dB	1550/1550 nm	Click	**€ 49.07**
10GFH-SFP-41	SMF	40 km	14 dB	1310/1310 nm	Click	**€ 245.33**
10GFH-SFP-80	SMF	80 km	23 dB	1550/1550 nm	Click	**€ 152.14**
10GFH-SFP-100	SMF	100 km	26 dB	1550/1550 nm	Click	**€ 473.54**

03.12.02. BiDi 10GFH SFP+ (CPRI/OBSAI)

10GFH (Fronthaul) CPRI/OBSAI LTE Single Fiber BiDi SFP+ transceivers are designed to operate over one single mode optical fiber with distances ranging from 10km up to 80km. We are using WDM technology, separating both transmission directions by using different wavelength. **CPRI (Common Public Radio Interface)** is industry specification defining connections of radio base stations between the Radio Equipment Control (REC) and the Radio Equipment (RE). The parties cooperating to define the specification are Ericsson AB, Huawei Technologies Co. Ltd, NEC Corporation, Alcatel Lucent and Nokia Networks. Our CPRI Transceivers supporting following **CPRI rates: 10.31Gbps, 9.830 Gbps, 7.373 Gbps, 6.144 Gbps, 4.915 Gbps, 2.458 Gbps, 1.229 Gbps.**

The **OBSAI** family of specifications provides the architecture, function descriptions and minimum requirements for integration of a set of common modules into a base transceiver station (BTS). RP3 of OBSAI is the interface between baseband block and RF block. Our transceivers are compatible with OBSAI specification and we can support following rates: **6.144 Gbps, 3.072 Gbps, 1.536 Gbps.** CPRI 10GFH BiDi SFP+ are equipped with **single LC** connector and support normal operating **temperature range 0 - 70° Celsius.**

CPRI 10GFH BiDi SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to **provide compatibility with Ericsson, Huawei, NSN, ZTE and other vendor BBU/RRU units**:

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	OPTICAL BUDGET (Minimum)	WAVELENGHT (TX/RX)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
BIDI-10GFH-SFP-10A	SMF	10 km	6.2 dB	1270/1330 nm	Click	€ 79.87
BIDI-10GFH-SFP-10B	SMF	10 km	6.2 dB	1330/1270 nm	Click	€ 79.87
BIDI-10GFH-SFP-20A	SMF	20 km	9 dB	1270/1330 nm	Click	€ 79.87
BIDI-10GFH-SFP-20B	SMF	20 km	9 dB	1330/1270 nm	Click	€ 79.87
BIDI-10GFH-SFP-40A	SMF	40 km	14 dB	1270/1330 nm	Click	€ 116.01
BIDI-10GFH-SFP-40B	SMF	40 km	14 dB	1330/1270 nm	Click	€ 116.01
BIDI-10GFH-SFP-60A	SMF	60 km	21 dB	1270/1330 nm	Click	€ 342.32
BIDI-10GFH-SFP-60B	SMF	60 km	21 dB	1330/1270 nm	Click	€ 342.32
BIDI-10GFH-SFP-80A	SMF	80 km	23 dB	1490/1550 nm	Click	€ 1426.32
BIDI-10GFH-SFP-80B	SMF	80 km	23 dB	1550/1490 nm	Click	€ 1426.32

03.12.03. CWDM 10GFH SFP+ (CPRI/OBSAI)

10GFH (Fronthaul) CPRI/OBSAI LTE CWDM (Coarse Wavelength Division Multiplexing) SFP+ transceivers are designed to operate over one single mode optical fiber with distances ranging from 10km up to 80km. Each transceiver **uses one 20nm wide CWDM channel according ITU-T G.694.2 CWDM grid** for transmission, but can receive all CWDM range wavelengths (1270 – 1610 nm). In combination with CWDM passive mux/demux and OADM devices, is possible to achieve up to 18×10G (CPRI over CWDM) connections over pair of fiber, or up to 9×10G (CPRI over CWDM) connections over single fiber. **CPRI (Common Public Radio Interface)** is industry specification defining connections of radio base stations between the Radio Equipment Control (REC) and the Radio Equipment (RE). The parties cooperating to define the specification are Ericsson AB, Huawei, NEC Corporation, Alcatel Lucent and Nokia Networks. Our CPRI Transceivers supporting following **CPRI rates: 10.137Gbps, 9.830 Gbps, 7.373 Gbps, 6.144 Gbps, 4.915 Gbps, 2.458 Gbps, 1.229 Gbps.**

The **OBSAI** family of specifications provides the architecture, function descriptions and minimum requirements for integration of a set of common modules into a base transceiver station (BTS). RP3 of OBSAI is the interface between baseband block and RF block. Our transceivers are compatible with OBSAI specification and we can support following rates: **6.144 Gbps, 3.072 Gbps, 1.536 Gbps.** CPRI 10GFH CWDM SFP+ are equipped with **double LC** connectors and support normal operating **temperature range 0 - 70° Celsius.**

CPRI 10GFH CWDM SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to **provide compatibility with Ericsson, Huawei, NSN, ZTE and other vendor BBU/RRU units**:

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX Range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
CWDM-10GFH-SFP-10	SMF	10 km	9 dB	1270-1330 nm	Click	€ 264.34
CWDM-10GFHSFP-10	SMF	10 km	9 dB	1350-1450 nm	Click	€ 264.34
CWDM-10GFH-SFP-10	SMF	10 km	9 dB	1470-1610 nm	Click	€ 494.46
CWDM-10GFH-SFP-40	SMF	40 km	13 dB	1270-1410 nm	Click	€ 283.36
CWDM-10GFH-SFP-40	SMF	40 km	14 dB	1430-1450 nm	Click	€ 283.36
CWDM-10GFH-SFP-40	SMF	40 km	14 dB	1470-1610 nm	Click	€ 494.46
CWDM-10GFH-SFP-80	SMF	80 km	23 dB	1270-1450 nm	Click	€ 816.08
CWDM-10GFH-SFP-80	SMF	80 km	23 dB	1470-1610 nm	Click	€ 760.70

03.12.04. DWDM 10GFH SFP+ (CPRI/OBSAI)

10GFH (Fronthaul) CPRI/OBSAI LTE DWDM (Dense Wavelength Division Multiplexing) SFP+ transceivers are designed to operate over one single mode optical fiber with distances ranging from 40km up to 80km. Each transceiver uses one **DWDM channel according ITU-T 100GHz Channel Spacing C-Band DWDM grid** for transmission, but can receive all DWDM C-Band range channels (17 – 61ch). In combination with DWDM passive mux/demux and OADM devices, is possible to achieve up to 45×10G (CPRI over DWDM) connections over pair of fiber, or up to 22×10G (CPRI over DWDM) connections over single fiber. **CPRI (Common Public Radio Interface)** is industry specification defining connections of radio base stations between the Radio Equipment Control (REC) and the Radio Equipment (RE). The parties cooperating to define the specification are Ericsson AB, Huawei Technologies Co. Ltd, NEC Corporation, Alcatel Lucent and Nokia Networks. Our CPRI Transceivers supporting following CPRI rates: **10.137 Gbps, 9.830 Gbps, 7.373 Gbps, 6.144 Gbps, 4.915 Gbps, 2.458 Gbps, 1.229 Gbps.**

The OBSAI family of specifications provides the architecture, function descriptions and minimum requirements for integration of a set of common modules into a base transceiver station (BTS). RP3 of OBSAI is the interface between baseband block and RF block. Our transceivers are compatible with OBSAI specification and we can support following rates: 6.144 Gbps, 3.072 Gbps, 1.536 Gbps. CPRI 10GFH DWDM SFP+ are equipped with **double LC** connectors and support normal operating **temperature range 0 - 70° Celsius.** CPRI 10GFH DWDM SFP+ Transceivers are fully compliant to SFP Multi Source Agreement SFF-8472 and it can be provided with custom-encoded firmware, in order to **provide compatibility with Ericsson, Huawei, NSN, ZTE and other vendor BBU/RRU units**:

PART NUMBER (Used for Ordering)	MEDIA (Cable Type)	DISTANCE (Calc. according Budget)	BUDGET (Minimum Optical Budget)	WAVELENGHT (TX Range)	SPECIFICATION (Link to Website)	PRICE (EXW Latvia without VAT)
DWDM-10GFH-SFP-40	SMF	40 km	14 dB	100GHz (C) (Ch. 17-61)	Click	€ 441.21
DWDM-10GFH-SFP-80	SMF	80 km	23 dB	100GHz (C) (Ch. 17-61)	Click	€ 644.70
DWDM-10GFH-SFP-80-TUN	SMF	80 km	27 dB	50GHz (C) (Ch. 13.5-61)	Coming Soon	€ 3 708.43

Compatibility

All transceivers in this catalog can be provided with custom-encoded firmware, in order to provide compatibility with more then 50 vendor brands in data and telecom communications industry:

MS - General MSA
AD - ADVA
AL - Alcatel-Lucent
AR - Arista
AV - Avaya
BR - Brocade
CN - Ciena
CI - Cisco
DL - Dell & Force10
DK - D-Link
EM - EMC2
ET - Enterasys

ER - Ericsson
EX - Extreme Networks
F5 - F5 Networks
FO - Fortinet
FU - Fujitsu
H3 - H3C
HI - Hirschmann
HP* - HP Networking
HS* - HP Storage
HU - Huawei
IB - IBM
IF - Infinera

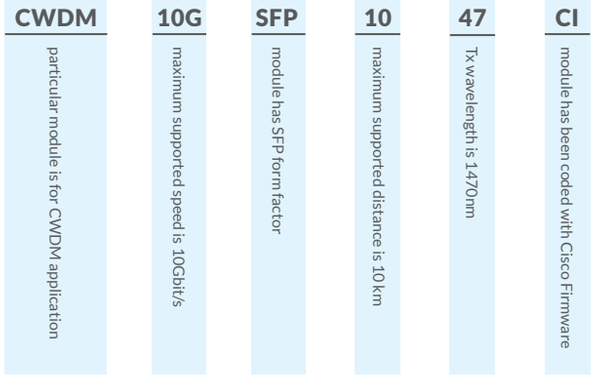
IN - Intel
JU - Juniper Networks
LI - Linksys
ML - Mellanox
ME - Meraki (Cisco)
MT - MikroTik
MO - Moxa
MR - MRV
NG - Netgear
NS - NSN
PA - Palo Alto Network
QL - Qlogic

RD - RAD
RU - Ruijie Networks
SM - Supermicro
SY - Synology
TC - Telco Systems
TP - TP-LINK
TN - Trendnet
WG - WatchGuard
ZT - ZTE
XX - Other

***** - Please note HP compatible module prices can be higher then prices indicated in this material due to special requirements in coding. If you require HP compatibility, for exact pricing please contact our sales team: sales@fmsweb.de

Product Naming

For example product with **CWDM-10G-SFP-10-47-CI** part number:



Terms & Conditions

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All offers and prices are in euro without value added tax. Prices indicated in the catalog refer to the time of publishing. The right to change prices is reserved.

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http://www.mikrotik-shop.de/Unsere-AGB:_:3.html

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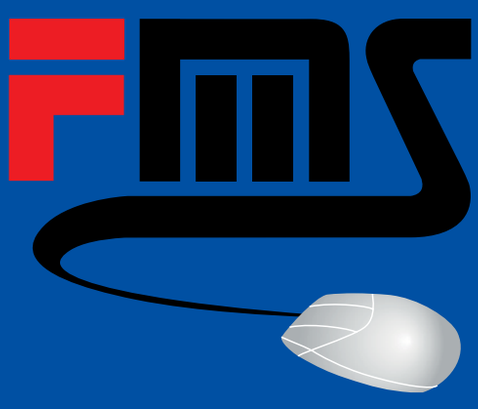

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