optical passives

DKT**COMEGA**

about dktcomega

DKTCOMEGA designs optical and coaxial products for professional broadband operators and service providers. DKTCOMEGA's unique fibre optical product line, combined with the company's extensive FTTx experience, makes it a strong partner for FTTx operators and service providers.

The company was founded in 1977. Its headquarters are in Denmark and it has subsidiaries in Sweden and Finland. It has always been DKTCOMEGA's philosophy to challenge the status quo and look for improvements to benefit the customer. In the late nineties DKTCOMEGA was therefore among the first to enter into the FTTx market and soon launched its own line of products in this field. By being an early mover in fibre optics DKTCOMEGA has gained in-depth technical knowledge and market respect, especially in the rapidly growing FTTH market.

DKTCOMEGA's mission

DKTCOMEGA's mission is to be a strong partner in network products for European broadband operators and solution providers. Based on know-how and natural enthusiasm, good ideas are developed into successful products. This is done together with the customer, who furthermore can appreciate the broad product range, the attractive quality/price level and the unique customised products. DKTCOMEGA's flexibility and proactive attitude assists in optimizing broadband networks. For requests, please contact: sales@dktcomega.com.

product introduction

Introduction
DKTCOMEGA offers a comprehensive line of optical passives for data, telecommunication and CATV applications. This extensive product line, including patch cables, pigtails, couplers, WDM and CWDM, has been designed for both digital and analogue transmissions and suit any passive optical installation. All products have been carefully selected together with international partners to comply with the highest industry standards and provide superior network performance.

Overview
The group consists of three different product series. The first series offers optical pigtails and patch cables. The product series provides various lengths and connecter types (Seikoh Giken or DKTCOMEGA) and provide low insertion loss and reflection.

The second series, optical couplers, offers 1x2 through to 1x64 way splitters. This series of optical couplers is based upon the latest PLC technology and provides excellent optical features, including low insertion loss and excellent uniformity.

Finally, WDM and CWDM. These consist of optical modules for network optimization. Whether the decision is to divide or combine the signal in the optical network, these modules provide excellent solutions.

With a wavelength range from 1260-1360 nm and 1430-1600 nm and a broad selection of connector types, all DKTCOMEGA optical passives have been designed to fit into modern telecommunication, CATV and FTTx networks.

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Advantages

- Very high quality with excellent performance
- Typ. <0.1 dB insertion loss per connector
- Test certificate available on each connector
- High reliability
- Increases network uptime

pigtails and patchcables

Product information

DKTCOMEGA's extensive range of optical patch cables has been selected to suit any passive optical installation. DKTCOMEGA offers a comprehensive range of patch cables and pigtails in various lengths and connector types for both data and CATV applications.

The new range of patch cables offers unique ultra low insertion loss and back reflection, securing a limited loss budget for the transmission system, resulting in an extended network reach, better signal quality and reduces amplifier costs.

Quality and test

Each connector is thoroughly tested and reported with an interferometric microscope. Additionally, each connector is tested with focus on Insertion Loss and Return Loss. Serial number, IL and RL are written on the labels at each connector end as a standard. This ensures a unique quality with excellent performance, resulting in an optimal connection and high network uptime.

Example of inspection sheet

Inspection Data									
Ferrule Endface Geometry					Optical Characteristic				
ROC (APC)	Fiber height	Apex Offset	Actual Angle	Key Error	Insertion Loss (1310nm)	Back Reflection (1310nm)	Insertion Loss (1550nm)	Back Reflection (1550nm)	Result
5-12 mm	±100nm	<50µm	8± 0.3°	± 0.5°	<0.2dB	>63dB	<0.2dB	>65dB	Pass/Fail
7.05	27.1	32.23	7.756	-0.095	0.08	68.7	0.09	69.9	Pass
7.04	26.9	36.36	7.761	-0.175	0.07	67.4	0.11	68.2	Pass

pigtails and patch cables

Optical connectors

DKTCOMEGA provides a variety of optical connectors. The DKTCOMEGA connectors are known for its locking mechanism that gives an audible click when pushed into the adapter. This push-pull design prevents rotation misalignment.

The connector family includes the Physical Contact (PC) pre-dome polished ferrule endface that reduces back reflection over a ferrule with a flat endface. To further reduce the unwanted back reflection DKTCOMEGA offers the Angled Physical Contact (APC) version that has a ferrule endface with an 8˚ angle. The DKTCOMEGA connector is available in a singlemode version with zirconia ceramic ferrules, and is fully compatible with NNT-SC hardware. The precision molded body and boot are made from UL-rated material.

All connector types are also available from Seikoh Giken upon request.

Specifications - for DKTCOMEGA connectors

Connector	SC type	LC type	FC type	E2000 type	LX5 type
Polish	APC and PC	APC and PC	APC	APC	APC
Insertion loss Max. (IL)	0.2dB	0.2dB	0.2dB	0.3dB	0.5dB
Insertion loss Typical (IL)	<0.1dB	<0.1dB	<0.1dB	<0.1dB	<0.15dB
Return loss (RL)	PC 55dB, APC 65dB	PC 55dB, APC 65dB	APC 65dB	APC 65dB	APC 60dB
Operating temp.	-40˚ + 75˚ C	-40˚ + 75˚ C	-40˚ + 75˚ C	-40˚ + 75˚ C	-40˚ + 75˚ C
Ferrule material	Zirconia	Zirconia	Zirconia	Zirconia	Zirconia
Connector material	Plastic	Plastic	Metal	Plastic	Plastic
Tested according to:	Telcordia, ANSI, IEC, TIA/EIA, NTT, JIS	Telcordia GR-326-CORE, IEC 61754-20, ANSI	Telcordia, ANSI, IEC, TIA/EIA, NTT, JIS	Telcordia, ANSI, IEC,	Telcordia, ANSI, IEC,
Fiber type	"SMF-28e SMF 9/125µm"	"SMF-28e SMF 9/125µm"	"SMF-28e SMF 9/125µm"	"SMF-28e SMF 9/125µm"	"SMF-28e SMF 9/125µm"
Buffer	2800µm, Yellow Optional 900µm	2800µm, Yellow Optional 900µm	2800µm, Yellow Optional 900µm	2800µm, Yellow Optional 900µm	3000µm, Yellow Optional 900µm
Standard	G.652D	G.652D	G.652D	G.652D	G.652D

DKTCOMEGA

pigtails and patch cables

Product overview

Below is an overview of DKTCOMEGA's product range of optical pigtails and patch cables including, which connector type is available for the different cables.

DKTCOMEGA Patchcables

Type	Standard lenght	Wavelenght	Connector type
P-SC/APC-X-DKT	0.5, 1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT or Seikoh Giken
P-LC/APC-X-DKT	2,5 meters	1285nm - 1625nm	DKT or Seikoh Giken
P-E2000/APC-X-DKT	0.5, 1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT
P-LX5/APC-X-DKT	0.5, 1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT
P-FC/APC-X-DKT	0.5, 1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT or Seikoh Giken
P-SC/PC-X-DKT	1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT or Seikoh Giken
P-LC/PC-X-DKT	1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT or Seikoh Giken
P-LX5/PC-X-DKT	1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT

DKTCOMEGA Hybrid Patchcables

Type	Standard lenght	Wavelenght	Connector type
P-SC/APC-LC/APC-X-DKT	1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT or Seikoh Giken
P-SC/APC-E2/APC-X-DKT	1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT
P-SC/APC-FC/APC-X-DKT	1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT or Seikoh Giken
P-SC/APC-SC/PC-X-DKT	2, 5 meters	1285nm - 1625nm	DKT or Seikoh Giken
P-E2/APC-LC/APC-X-DKT	2, 5 meters	1285nm - 1625nm	DKT
P-SC/PC-FC/PC-X-DKT	1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT or Seikoh Giken
P-SC/PC-LC/PC-X-DKT	1, 2, 3, 4, 5, 7, 10, 15, 20 meters	1285nm - 1625nm	DKT or Seikoh Giken

DKTCOMEGA Pigtails

Type	Standard lenght	Wavelenght	Connector type
PT-SC/APC-X-DKT	1,5 and 3 meters	1285nm - 1625nm	DKT or Seikoh Giken
PT-LC/APC-X-DKT	1,5 and 3 meters	1285nm - 1625nm	DKT or Seikoh Giken
PT-FC/APC-X-DKT	1,5 and 3 meters	1285nm - 1625nm	DKT or Seikoh Giken
PT-LX5/APC-X-DKT	1,5 and 3 meters	1285nm - 1625nm	DKT
PT-SC/PC-X-DKT	1,5 and 3 meters	1285nm - 1625nm	DKT or Seikoh Giken
PT-LC/PC-X-DKT	1,5 and 3 meters	1285nm - 1625nm	DKT or Seikoh Giken
PT-LX5/PC-X-DKT	1,5 and 3 meters	1285nm - 1625nm	DKT
PT-FC/PC-X-DKT	1,5 and 3 meters	1285nm - 1625nm	DKT or Seikoh Giken

DKTCOMEGA

single mode dual window couplers (1x2)

Product information

In network design, optical couplers are often used, either for tap-off, or to divide/combine optical signals. For this purpose DKTCOMEGA can offer a range of 1x2 couplers with a splitting ratio ranging from 5/95 to 50/50 using on fused technology.

The product group features low insertion loss and is specially designed for broadband networks as well as long-haul transmission systems.

SC and LC are available as standard connectors.
Other connectors can be ordered upon request (see page 6).

Parameters	Unit	Data
Excess Loss (Typ.)	dB	0.10
Maximum Insertion Loss	dB	3.6
Uniformity	dB	Max. 0.6
Polarization Sensitivity	dB	0.2
Operating Wavelength	nm	1260...1360 + 1430...1600
Return loss / Directivity	dB	≥ 55
Operating Temperature / Storage Temperature	°C	-40 to 85
Fiber type		G.652.D 9/125/2800 µm or 9/125/2000 µm or 9/125/900 µm
Port Configuration		1x2
Housing dimensions	mm	98 x 14 x 8.5 or 100 x 80 x 9

Type no	Coupler ration	Insertion Loss - (Max)	Insertion Loss - (Typ.)
OSP-S-5050-N	50/50	3.4 dB	3.1 dB
OSP-S-5545-N	45/55	3.8 dB/2.8 dB	3.6 dB/2.7 dB
OSP-S-6040-N	40/60	4.5 dB/2.5 dB	4.3 dB/2.3 dB
OSP-S-6535-N	35/65	4.8 dB/2.1 dB	4.7 dB/2.0 dB
OSP-S-7030-N	30/70	5.8 dB/1.8 dB	5.5 dB/1.6 dB
OSP-S-7525-N	25/75	6.3 dB/1.5 dB	6.1 dB/1.4 dB
OSP-S-8020-N	20/80	7.6 dB/1.2 dB	7.5 dB/1.0 dB
OSP-S-8515-N	15/85	8.5 dB/1.0 dB	8.4 dB/0.8 dB
OSP-S-9010-N	10/90	10.8 dB/0.6 dB	10.6 dB/0.5 dB
OSP-S-9505-N	5/95	13.7 dB/0.4 dB	13.5 dB/0.3 dB

Note: All specifications referenced without connector.

DKTCOMEGA

single mode tree couplers (1x3 to 1x64 way)

Product information

In network applications, tree-couplers are very often used to either divide or combine signals from different locations in the optical network. For these applications DKTCOMEGA has a wide range of couplers to split and combine signals from 1x3 lines and up to 1x64 lines.

The product group features low insertion loss, low excess loss, high directivity and is specially designed for long-haul telecommunications, CATV systems, and LAN networks.

SC/APC is used as standard. Other connector types on request (see page 6).

Parameters	Unit	Couplers
Uniformity	dB	0.10 to 1.2(1x4), 1.8(1x8), 2.4(1x16), 3.0(1x32)
Polarization Sensitivity	dB	0.10 to 0.4(1x4), 0.6(1x8), 0.8(1x16), 1.0(1x32)
Operating Wavelength	nm	1260…1360 + 1430…1600
Return loss + Directivity	dB	≥55
Operating Temperature / Storage Temperature	°C	-40 to 85
Fiber type		G.652.D 9/125/2800um to 9/125/2800um, 9/125/2000um or 9/125/900um.
Housing dimensions	mm	80x60x12(1x3 to 1x6), 80x120x12(1x7 to 1x32) to 98x14x8.5 or 100x80x9(1x3 to 1x6) or 116x80x102(1x3 to 1x15), 145x95.5x142(1x16 to 1x32)

Type	Coupler	Insertion Loss - (Max)	Insertion Loss - (Typ.)
OSP-S-03-28-N	1x3	5.8 dB	4.9 dB
OSP-S-04-N	1x4	7.2 dB	6.2 dB
OSP-S-05-N	1x5	8.2 dB	7.2 dB
OSP-S-06-N	1x6	9.5 dB	8.0 dB
OSP-S-07-N	1x7	10.3 dB	8.7 dB
OSP-S-08-N	1x8	10.8 dB	9.3 dB
OSP-S-14-N	1x14	13.6 dB	11.8 dB
OSP-S-16-N	1x16	14.0 dB	12.4 dB
OSP-S-32-N	1x32	17.5 dB	15.6 dB
OSP-S-64-N	1x64	21,3 dB	19.3 dB

Note: All specifications referenced without connector

19'' rack cabinets

All tree-couplers can be supplied in 19" 1HU rack cabinets for rack mounting.

WDM - 1310/1550nm ±20nm
Insertion loss max 1.6dB
Isolation min. 45dB
no.: DKT WD
660

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wavelength division multiplexers

Product information

Our single mode, standard type wavelength division multiplexers divide and combine 1310 / 1550 nm wavelengths. The 1310 / 1550 nm WDM coupler is the basic component to make up dual window WDM vdevices.

The WDM components feature low insertion loss, low excess loss, high directivity and is specially designed for long-haul telecommunications, CATV systems, and LAN networks.

SC/APC is used as standard. Other connector types on request (see page 6).

Characteristics		DKT WDM-30-XX	DKT WDM-45-XX
Insertion loss - Typ.	dB	0.7	1.0
Isolation	dB	>30	>45
Polarization Sensitivity	dB	0.15	0.15
Operating Wavelength	nm	1310 ± 20, 1550 ± 20	
Directivity	dB	>60	
Return loss	dB	>50	
Operating Temperature / Storage Temperature	°C	-40 to 85	
Fiber types		G.652.D 9/125/900 µm or 9/125/2800 µm	
Fiber Pigtail Length		1m or custom on request	
Package Dimension	mm	100 x 80 x 9 mm	

Note: All specifications referenced without connector

DKTCOMEGA

Advantages

- Low Insertion Loss and High Isolation
- Good Wavelength Stability
- Optical path epoxy-free with good environment stability
- Bell-core 1221 compliant

coarse wavelength division multiplexers

Product information

The multiplexer module combines several wavelengths (channels) traveling in each separate single mode fibre into one single mode fibre, and the same module separates each specific wavelengths traveling in the common single mode fibre into wavelength, each traveling in a separate singlemode fibres.

The CWDM Modules are based on thin-film filter technology. This proven technology offers wide channel bandwidth, flexible channel configuration, low insertion loss and high isolation.
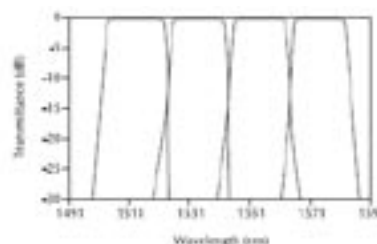
The CWDM modules are especially designed for WDM systems, metro networks, and CATV Systems.

SC/APC is used as standard. Other connector types on request (see page 6).

Data				DKT CWDM 2	DKT CWDM 4+1	DKT CWDM 8+1
Channel Number			----	3 (1310 + 2 x optional)	5 (1310 + 4 x optional)	9 (1310 + 8 x optional)
Center Wavelength			nm	1310-1610		
Channel Spacing			nm	20		
Channel Pass Band (-0.5dB Bandwidth)		Min.	nm	±6.5		
Insertion Loss		Typ.	dB	0.6	1.0	1.8
		Max.	dB	0.8	1.2	2.1
Link Loss With Mux & Demux Combination		Max.	dB	1.2	2.0	3.6
Pass Band Flatness		Max.	dB	0.3		
Channel Uniformity		Max.	dB	0.5		
Isolation	Adjacent Channels	Min.	dB	30		
	Non-adjacent Channels	Min.	dB	50		
Directivity		Min.	dB	50		
Optical Return Loss		Min.	dB	45		
PDL		Max.	dB	0.1		
Thermal Stability		Max.	dB/°C	0.006		
Thermal Wavelength Drift		Max.	nm/°C	0.003		
Operating Temperature			°C	0 to 65		
Storage Temperature			°C	-40 to 85		
Package Dimension			mm	80x60x12		
Maximum Power Handling			mW	300		

Note 1: All specifications referenced without connector

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attenuators

Product information

The Seikoh Giken attenuator comes as a self-contained in-line unit, with an 8˚ angle polished male and female connector. Attenuation is generated by attenuating fiber and provides a controlled attenuation over a very broad bandwidth. The low return loss and high temperature range ensures excellent performance in the most demanding applications.

Wavelength Dependency of Plug Type Fixed Attenuators
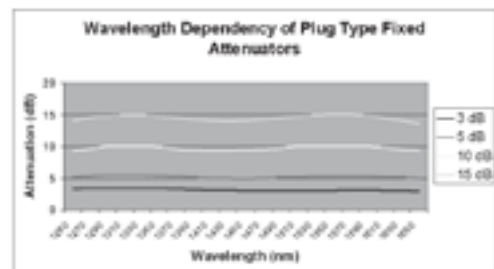
Attenuators	ATTN-FC/APC-205-X	ATTN-SC/APC-X	ATTN-LC/APC (Plastic)
Fiber type	Single mode 9/ 125 µm	Single mode 9/ 125 µm	Single mode 9/ 125 µm
Wavelength	1250-1650 nm	1250-1650 nm	1250-1650 nm
Connector	8˚ angle polished	8˚ angle polished	8˚ angle polished
Housing	Metal	Metal	Metal
Attenuation	1-10 dB 11-20 dB	1-10 dB 11-20 dB	Fixed 1, 2, 3, 4, 5, 6, 10, 15, 20 dB
Nominal attenuation	1-10 dB +/- 0.5dB 11-20 dB +/- 5%	1-10 dB +/- 0.5dB 11-20 dB +/- 5%	1-10 dB +/- 0.5dB 10-15 dB +/- 5% -20 dB +/- 1 dB
Back Reflection	>60dB	>60dB	>60dB

Other attenuator types are available on request

DKTCOMEGA

adaptors

Product information

Adaptors from DKTCOMEGA are designed and manufactured according to JIS, IEC, EIA/TIA and ANSI specifications for optimal performance and connectivity. The low insertion loss properties and easy fit characteristics of these adaptors make this type of fiber optic connection a durable solution for optical patch panels etc.

Adaptor Combination	Type	Sleeve Material	Adaptor Material
SC/APC – SC/APC	Square	Zirconia	Green plastic body and flange w. metal clips
SC/PC – SC/PC	Square	Zirconia	Blue plastic body and flange w. metal clips
SC/APC - SC/APC, Duplex	Square	Zirconia	Green plastic body and flange w. metal clips
FC/APC – FC/APC	DD – type, Narrow key – 2.05mm	Zirconia	Metal body and flange
FC/APC – FC/APC	Oval type, Narrow key – 2.05mm	Zirconia	Metal body and flange
FC/PC – FC/PC	DD – type, Wide key – 2.40mm	Zirconia	Metal body and flange
E2000/APC – E2000/APC	Square	Zirconia	Green plastic body and flange w. metal clips
E2000/PC – E2000/PC	Square	Zirconia	Blue plastic body and flange w. metal clips

Other adaptor types are available on request

DKTCOMEGA

Advantages

- Extended (3 coupling panels per 1U) and rodent protected version available
- Bend radius protection allows management and rearrangement of cable slack
- Accommodates up to 24 fibers in 1 rack unit
- Removable top provides unrestricted access
- Pivoting shelf eases connector routing and cable routing
- Accepts the industry's most common connector types

cable network panels

Product information

The DKTCOMEGA Cable Network Panels are economical rack-mountable patch panels for use with manufactured pigtails or field-installable connectors.

Cables are strain-relieved at the rear of the unit. A shelf equipped with either splice tray holder or bend radius protection guides, stores and organizes excess slack. This prevents damage to fibers prior to routing into couplings. The CNP is used in installations where space is limited.

Type	Description	Item No.
CNP-1U-S	Standard Cable Network Panel with two panel openings on front	69915

Type	Description	Item No.
CNP-1U-E	Extended Cable Network Panel with three panel openings on front	69916

Type	Description	Item No.
CNP-1U-P	Standard Cable Network Panel with two panel openings on front and rodent protection	69917

Type	Description	Item No.
MCMH-3S-LP	DKT Cable Network Cabinet	69730
MCMH-6S-LP	DKT Cable Network Cabinet	69735

Type	Description	Item No.
CNP-1U-SPLICE	Splice cassette for 12 splicing. Option for CNP series	69918

Type	Description	Order No.
CNP-1U-BRP	Bend Radius Protectors. Option for CNP series	69919

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Advantages

- Compatible with all standard adaptors
- High port density
- Singlemode and Multimode
- Easy installation
- Panels with RJ-45 sockets: available for copper twisted pairs

coupling panels

Product information

Our Fiber Optic Coupling Panels are manufactured from an aluminium sheet metal. They accommodate all the standard fiber optic couplings and hybrid adaptors.

We offer a series of high density coupling panels that fit all our fiber management products. These Coupling Panels are available with a variety of standard coupling styles and counts.

Custom coupling panels can be designed to suit your needs.

Fiber optic panels

Type	Numbers of adaptors	fiber capacity	Item No.
CNPM-ST-06	6 x ST type	6	69933
CNPM-ST-08	8 x ST type	8	69934
CNPM-FC-06	6 x FC type	6	69935
CNPM-FC-08	8 x FC type	8	69936
CNPM-SC-06	6 x SC type	6	69937
CNPM-SC-08	8 x SC type	8	69938
CNPM-DSC-06	6 x duplex SC type	12	69939
CNPM-E2-06	6 x LSH (E2000) type	6	69940
CNPM-E2-08	8 x LSH (E2000) type	8	69941
CNPM-E2-12	12 x LSH (E2000) type	12	69942
CNPM-MJ-06	6 x MT-RJ type	12	69943
CNPM-DLC-06	6 x duplex LC type	12	69944
CNPM-DMU-06	6 x duplex MU type	12	69945
CNPM-00	Blank panel		69946

Note: Excl. adaptors

RJ-45 socket panels

Type	Numbers of adaptors	Fiber capacity
CNPM-STP-06	6 x RJ-45 (STP)	Supplied including RJ-45 sockets
CNPM-UTP-06	6 x RJ-45 (UTP)	Supplied including RJ-45 sockets

Note: Excl. adaptors

Samples of Coupling Panels