Fibre Optic Solutions

Fibre optical solutions –
cables and systems for LAN, MAN, WAN and SAN

As the degree of automation increases in industry and the information density rises in office communication, higher and higher demands are made on the transmission of analog and digital data.
In this situation, conventional links based on copper cable engineering often reach the limits of their performance.

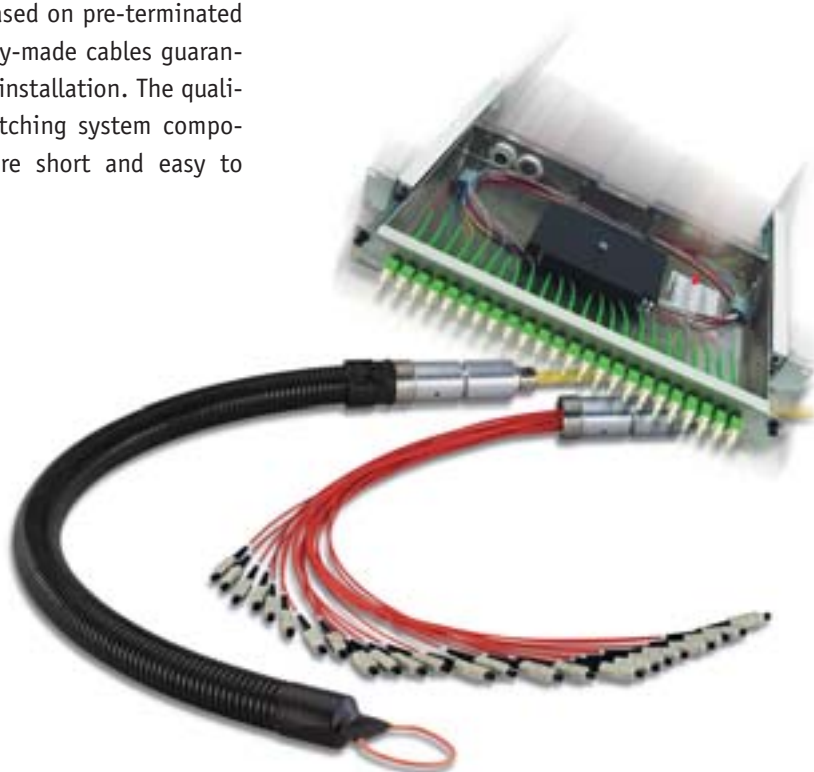### FLine® – the system for glass fibres

The constant increase in Internet and Intranet traffic, multimedia applications and the implementation of so-called SANs or Storage Area Networks in companies has led to fundamental changes in the traffic and load distribution in the networks. Also, new media require new passive network infrastructures.
On the basis of EN 50173, KERPEN has introduced the new FLine® classes "FLine® 110", "FLine® 300" and "FLine® 550" for link lengths for 10 GbE and GbE.
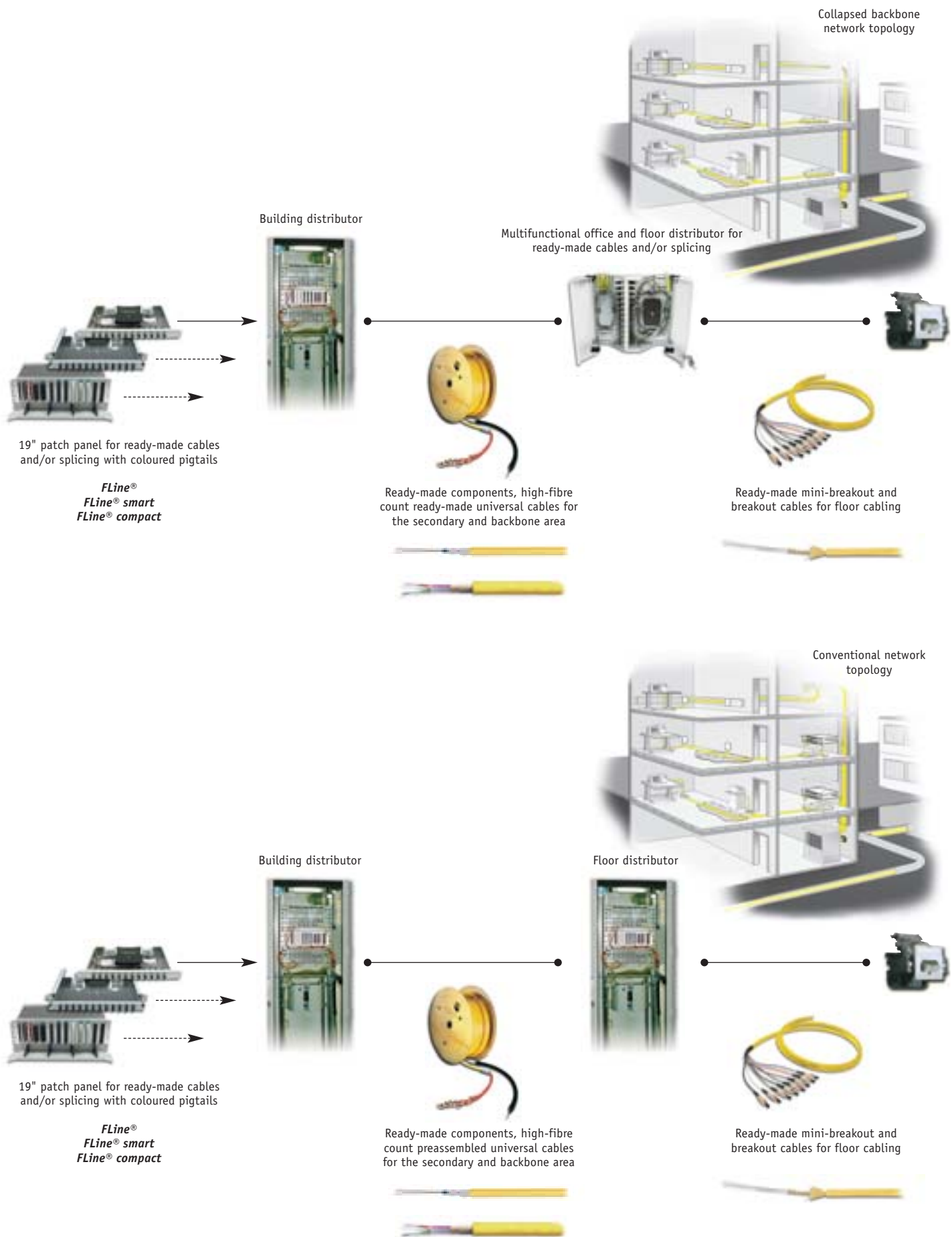
FLine® systems engineering is based on pre-terminated ready-to-connect units. The ready-made cables guarantee rapid, reliable and economic installation. The quality of the link is ensured by matching system components. The installation times are short and easy to calculate.

GigaLine® – enhanced fibre optic technology

In conjunction with multimode fibres and single-mode fibres, GigaLine® fibre optical cables offer reserves which go far beyond the specifications of the standard. Following the fibre categories OM1, OM2, OM3 and OS1 according to EN 50173, KERPEN offers the quality grades OM1e, OM2e, OM3e and OS1e with optimised transmission characteristics.

FLine® – the complete system for fibre-to-the-desk and fibre-to-the-office at maximum quality and security

Collapsed backbone network topology

Building distributor

Multifunctional office and floor distributor for ready-made cables and/or splicing

19" patch panel for ready-made cables and/or splicing with coloured pigtails

FLine®
FLine® smart
FLine® compact

Ready-made components, high-fibre count ready-made universal cables for the secondary and backbone area

Ready-made mini-breakout and breakout cables for floor cabling

Conventional network topology

Building distributor

Floor distributor

19" patch panel for ready-made cables and/or splicing with coloured pigtails

FLine®
FLine® smart
FLine® compact

Ready-made components, high-fibre count preassembled universal cables for the secondary and backbone area

Ready-made mini-breakout and breakout cables for floor cabling

FLine

FLine® 110, FLine® 300 und FLine® 550 – the new FLine® classes

In order to give the user a clear protocol-dependent planning foundation building up-on EN 50173 for link lengths at 10 GbE and GbE, KERPEN has introduced the new FLine® classes:

- **FLine® – 110**
- **FLine® – 300**
- **FLine® – 550**

110, 300 and 550 refer to the maximum link lengths for 10 GbE.

These FLine® classes include components optimised for performance and quality which together provide an ideally matched system.
The interaction of high-quality fibres (OM2e, OM3, OM3e) which go far beyond the standard and of high-quality plug connectors allow maximum range and performance for the applications involved (GbE / 10 GbE).

The system components are selected in such a way that the demands made on the link length (110, 300 and 550) and on the data rate are met.
This is why KERPEN consistently uses the same fibre quality for each system (cables, pigtails, patch cords).

For the user, this means that he selects the FLine® class (system) he requires depending on the link length he needs and the protocols to be transmitted (GbE / 10 GbE). Tables 1 and 2 give him the protocol-dependent attenuation budget according to EN 50173. From this he can derive the number of possible connections for the entire link.

When the FLine® classes were put together, the following matched system components were taken into account:

- Fibre optical cables (GigaLine®) with laser-/dispersion-optimised multimode fibres which go far beyond the requirements of the standard (OM2e, OM3 or OM3e) and have the necessary reserve performance.
  (For fibre specifications please see GigaLine®)

- Fibre optical connectors (LC or SC etc.) with low insertion losses and high return losses attenuation.

Maximum link lengths for 10 Gigabit Ethernet system solutions

Multimode G 50	FLine® classes for 10 GbE		
	FLine® 110	FLine® 300	FLine® 550
Maximum link length for 10 GbE 10GBASE-SR	110	300	550
Attenuation budget for the link and for 10 GbE application	1,8 dB	2,6 dB	2,6 dB
Recommended plug connectors	ST, SC, LC FC-PC E 2,000	SC, LC	SC,LC
Number of possible plug connections	4	8	6

All data refer to the first optical window, 850 nm

Maximum link lengths for 1 Gigabit Ethernet system solutions

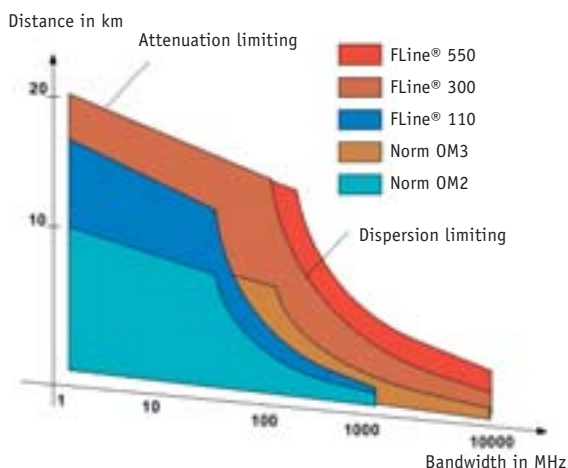| Multimode G 50	FLine® classes for 10 GbE		
	FLine® 110	FLine® 300	FLine® 550
Maximum link length for GbE	750	900	1,000
Attenuation budget for the link and for GbE application	3,56 dB	3,56 dB	3,56 dB
Recommended plug connectors	ST, SC, LC FC-PC E 2,000	SC, LC	SC,LC
Number of possible plug connections	4	6	5

All data refer to the first optical window, 850 nm

Diagram 1 shows the system reserves resulting from the high-quality fibres and connectors in relation to the EN 50173 standard.

The main advantages of these system reserves are as follows:

- Longer transmission distances for certain applications (100 Mb/s, 1 GbE/s, 10 GbE/s)
- The option of inserting more patch cords or splices
- Additional losses resulting from aging processes can be compensated for
- Network extensions can be implemented more easily and with a certain degree of security within the link length

Diagram 1: FLine® 110, 300 and 550 system reserves in relation to the standard

Distance in km

Attenuation limiting

	FLine® 550
	FLine® 300
	FLine® 110
	Norm OM3
	Norm OM2

Dispersion limiting

Bandwidth in MHz

Quality is our benchmark

In the manufacturing of fibre optical connectors, sophisticated grinding and polishing processes are necessary in addition to the adjustment of the fibres in the ferrule. The aim here is to use precisely optimised processes to fashion the connector in such a way that insertion losses and reflections are kept to a minimum. For this purpose, the so-called PC (physical contact) finish was developed, mainly for multimode fibres but also for single-mode ones. The spherical polish of the ferrule, which is flexibly supported in the plug housing, results in a fibre/fibre transition on the end faces.
Thus, when two connectors are inserted into a coupling, the spring pressure causes all of the air between the two fibres of both plugs to be pushed out.
The glass/glass transition then has virtually no reflections and low losses.

In order to maximise the performance of a PC plug, the surface parameters of the plugs must be carefully monitored during the polishing process. The interferometer is a leading edge measuring instrument for this purpose. The overlapping of coherent light waves is used as a basis for measuring the quality of optical surfaces (ferrule surfaces).

The most important parameters are as follows:

- The pole offset: this is the distance between the highest point of the ferrule and the centre of the fibre (eccentricity of the polish)
- The tolerances of the ferrule opening to the diameter of the fibre
- The optimum radius of the ferrule and the fibre.
- The fibre height in the ferrule (undercut, protrusion)

FLine®

These parameters are important factors determining the long-term behaviour of a connector after plastic deformation. The following are derived in this way:

- Physical contact
- Insertion losses / return losses
- Fibre stress
- Fibre migration

All FLine® components are subjected to the most stringent of pre-delivery inspections. These include the following:

- The attenuation measurement of each individual ready-made component. The defined limits for attenuation measurement go far beyond the requirements of the international standards
- Optional OTDR measurement, for example for ready-made components
- The monitoring of the individual process flows for plug manufacture via interferometer
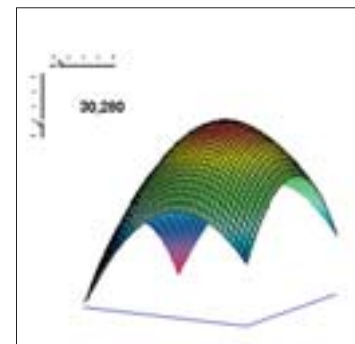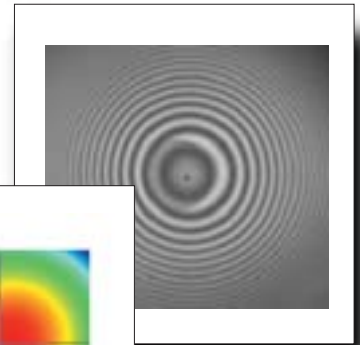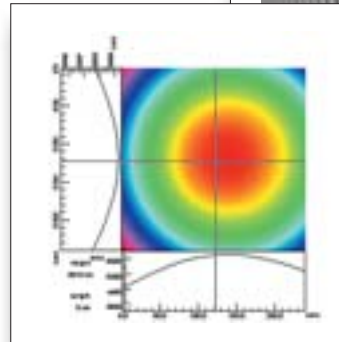
Application: 10 GbE; attenuation budget OM2 = 1.8 dB, OM3 = 2.6 dB

Link length in meters	Number of plug connectors						Insertion attenuation of plug connector in dB
	4	6	8	10	12	14	
FLine® 110	110	/	/	/	/	/	< 0.4
FLine® 300	300	300	300	240	80	/	< 0.2
FLine® 550	550	550	400	240	80	/	< 0.2

All data refer to the first optical window (850 nm)

Application: 1 GbE; attenuation budget 3.56 dB

Link length in meters	Number of plug connectors							Insertion attenuation of plug connector in dB
	4	6	8	10	12	14	16	
FLine® 110	750	460	140	/	/	/	/	< 0.4
FLine® 300	900	900	780	620	460	300	140	< 0.2
FLine® 550	550	550	550	550	460	300	140	< 0.2

All data refer to the first optical window (850 nm)

All the necessary PLANNING DOCUMENTS are available in the Internet: **www.kerpen.com**

Subject to printing errors, mistakes and technical changes.

GigaLine® ready-made – safely through "thick and thin"

Ready-to-connect units are at the heart of FLine® systems engineering. Ready-made GigaLine® cables guarantee rapid, reliable and economic installation. The quality of the link is ensured by matched system components. The installation times can now be calculated.

A permanent solution

On site installation often takes place in unfavourable conditions. Humidity, dirt and inaccessible places are common.

In order to do justice to the conditions involved, KERPEN has developed Distribution heads and installation tubes of different protection classes for fibre optical cables with filled loose tubes.

- **IP50** (dust-proof) for indoor cabling
- **IP67** (splash-proof) for rough construction site environments and for outdoor cabling

Ready-made GigaLine® ensures that these conditions do not affect the quality of the links, either during installation or afterwards.

The installation tube is flexible and has a small diameter. This means that the ready-made trunk can be easily fed into narrow, intricate shafts for secondary cabling and installation ducts.

There is a power grip connection to the distribution head. Like all other strain relief elements, it works on the cladding, not the cores. This means that the fibres remain stress-free. The design of the distribution head ensures the stability of the physical parameters and a long life.

Time is money

GigaLine® VKT stands for reliable and predictable installations. Reduced install time. Subsequent down times, for example due to the interruption of current operation of a computer system, are minimised.

This makes it possible to dispense with the splicing of cables or mounting of plugs, which often take place under adverse conditions on location. High investments in splicing devices and specially trained expert personnel can also be dispensed with.

GigaLine® VKT can also be used as cables with one end ready-made.

Fields of application

GigaLine® ready-made is the ideal choice for backbone cabling in the primary and secondary area and for collapsed backbones.

Quality means maximum safety

The assembly of plugs with high-quality ceramic ferrules is carried out in a clean environment. The end faces of the plugs are polished in an optimum way, this ensuring excellent plug transitions in reproducible quality (insertion and return losses).

A test report showing the attenuation values for each fibre is supplied with the unit. As an option, OTDR measurements can also be carried out.

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FLine®

VKT IP67 – GigaLine® DQ 100, 500, 625 N

Ready-made outdoor fibre optical cable, longitudinally watertight, with non-metallic rodent protection

Type: KL-A-DQ(ZNS)2Y

Aluminium distribution head with installation tube

- Protection from water and dirt
- Strain relief via distribution head
- Stress-free fibres
- Stability of transmission parameters
- Long life

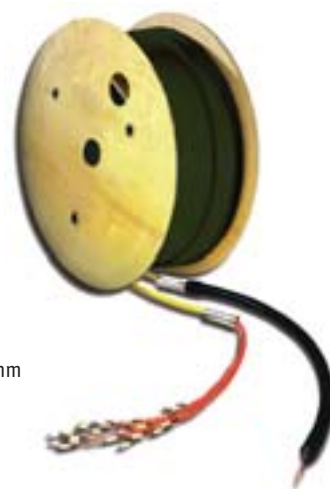## Characteristics of the distribution head:

Number of Fibres	Ø of distribution head in mm (max)	Ø of installation tube in mm (max)	Strain relief N (max)
2 to 12	28	41	750
16 to 24	36	48	750
48	36	60	750

Characteristics of plug:

Single-mode standard	Insertion losses: < 0.4 dB; return losses: > 40 dB
Multimode standard, FLine® 110	Insertion losses: < 0.4 dB; return losses: > 25 dB
Multimode FLine® 300, FLine® 550	Insertion losses: < 0.4 dB; return losses: > 35 dB

Characteristics of fibre:

E9...10/125	Single-mode fibre, transmission characteristics better than OS1. Attenuation coefficient: 0.36 dB/km at 1,310 nm; 0.25 dB/km at 1,550 nm. Dispersion: max. 3.5 ps/nm x km at 1,310 nm; max. 18ps/nm x km at 1,550 nm
G50/125	Multimode fibre optimised for Gigabit Ethernet, transmission characteristics better than OM1, OM2.
FLine® 110	Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm. Bandwidth: min. 600 MHz x km at 850 nm; min. 1,200 MHz x km at 1,300 nm. Segment length with Gigabit Ethernet: min. 750 m at 850 nm; min. 2,000 m at 1,300 nm. Segment length with 10 Gigabit Ethernet: min. 110 m at 850 nm; min. 900 m at 1,300 nm
G50/125 OM3	Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM3.
FLine® 300	Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm. Laser bandwidth: min. 2,000 MHz x km at 850 nm. Bandwidth: min. 1,500 MHz x km at 850 nm; min. 500 MHz x km at 1,300 nm. Segment length with Gigabit Ethernet: min. 900 m at 850 nm; min. 550 m at 1,300 nm. Segment length with 10 Gigabit Ethernet: min. 300 m at 850 nm; min. 300 m at 1,300 nm
G50/125 OM3 "e"	Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM3.
FLine® 550	Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm. Laser bandwidth: min. 4,700 MHz x km at 850 nm. Bandwidth: min. 3,500 MHz x km at 850 nm; min. 500 MHz x km at 1,300 nm. Segment length with Gigabit Ethernet: min. 1,000 m at 850 nm; min. 550 m at 1,300 nm. Segment length with 10 Gigabit Ethernet: min. 550 m at 850 nm; min. 300 m at 1,300 nm
G62,5/125	Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM1. Attenuation coefficient: 3.0 dB/km at 850 nm; 0.7 dB/km at 1,300 nm. Bandwidth: min. 250 MHz x km at 850 nm; min. 800 MHz x km at 1,300 nm. Segment length with Gigabit Ethernet: min. 500 m at 850 nm; min. 1,000 m at 1,300 nm. Segment length with 10 Gigabit Ethernet: min. 65 m at 850 nm; min. 450 m at 1,300 nm

Single-mode standard: insertion losses < 0.4 dB; return losses: > 40 dB

No. of Fibres	SC	ST	E2,000	E2,000HRL	FC-PC	FC-PC HRL
4	9VA00XXX	9VA09XXX	9VA0IXXX	9VA0SXXX	9VA33XXX	9VA3CXXX
6	9VA01XXX	9VA0AXXX	9VA0JXXX	9VA0TXXX	9VA34XXX	9VA3DXXX
8	9VA02XXX	9VA0BXXX	9VA0KXXX	9VA0UXXX	9VA35XXX	9VA3EXXX
12	9VA03XXX	9VA0CXXX	9VA0LXXX	9VA0VXXX	9VA36XXX	9VA3FXXX
16	9VA04XXX	9VA0DXXX	9VA0MXXX	9VA0WXXX	9VA37XXX	9VA3GXXX
24	9VA06XXX	9VA0FXXX	9VA0PXXX	9VA0YXXX	9VA39XXX	9VA3IXXX
48	9VA08XXX	9VA0HXXX	9VA0RXXX	9VA10XXX	9VA3BXXX	9VA3KXXX

FLine® 110, Multimode G50/125 OM2: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VA11XXX	9VA1AXXX	9VA1JXXX	9VA2KXXX	9VA3LXXX	9VA4WXXX
6	9VA12XXX	9VA1BXXX	9VA1KXXX	9VA2LXXX	9VA3MXXX	9VA4XXXX
8	9VA13XXX	9VA1CXXX	9VA1LXXX	9VA2MXXX	9VA3NXXX	9VA4YXXX
12	9VA14XXX	9VA1DXXX	9VA1MXXX	9VA2NXXX	9VA3PXXX	9VA4ZXXX
16	9VA15XXX	9VA1EXXX	9VA1NXXX	9VA2PXXX	9VA3QXXX	9VA50XXX
24	9VA17XXX	9VA1GXXX	9VA1QXXX	9VA2RXXX	9VA3SXXX	9VA52XXX
48	9VA19XXX	9VA1IXXX	9VA1SXXX	9VA2TXXX	9VA3UXXX	9VA54XXX

FLine® 300, Multimode G50/125 OM3: insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VA5XXXX	–	–	–	–	9VA55XXX
6	9VA5YXXX	–	–	–	–	9VA56XXX
8	9VA5ZXXX	–	–	–	–	9VA57XXX
12	9VA60XXX	–	–	–	–	9VA58XXX
16	9VA61XXX	–	–	–	–	9VA59XXX
24	9VA63XXX	–	–	–	–	9VA5BXXX
48	9VA65XXX	–	–	–	-	9VA5DXXX

FLine® 550, Multimode G50/125 OM3 "e": insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VAXXXXXX	–	–	–	–	9VA5EXXX
6	9VAXXXXXX	–	–	–	–	9VA5FXXX
8	9VAXXXXXX	–	–	–	–	9VA5GXXX
12	9VAXXXXXX	–	–	–	–	9VA5HXXX
16	9VAXXXXXX	–	–	–	–	9VA5IXXX
24	9VAXXXXXX	–	–	–	–	9VA5KXXX
48	9VAXXXXXX	–	–	–	–	9VA5MXXX

Multimode G62.5/125 OM1, standard: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VA1TXXX	9VA22XXX	9VA2BXXX	9VA2UXXX	9VA3VXXX	–
6	9VA1UXXX	9VA23XXX	9VA2CXXX	9VA2VXXX	9VA3WXXX	–
8	9VA1VXXX	9VA24XXX	9VA2DXXX	9VA2WXXX	9VA3XXXX	–
12	9VA1WXXX	9VA25XXX	9VA2EXXX	9VA2XXXX	9VA3YXXX	–
16	9VA1XXXX	9VA26XXX	9VA2FXXX	9VA2YXXX	9VA3ZXXX	–
24	9VA1ZXXX	9VA28XXX	9VA2HXXX	9VA30XXX	9VA41XXX	–
48	9VA21XXX	9VA2AXXX	9VA2JXXX	9VA32XXX	9VA43XXX	–

xxx – length in m; other designs with other connectors on request

All the necessary PLANNING DOCUMENTS are available in the Internet: **www.kerpen.com**

121

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GigaLine® ready-made

FLine®

VKT IP50 – GigaLine® DQ 100, 500, 625 U

Ready-made universal fibre optical cable, longitudinally watertight, with non-metallic rodent protection

Type: KL-U-DQ(ZNS)H

Aluminium distribution head with installation tube

- Protection from dirt
- Strain relief via distribution head
- Stress-free fibres
- Stability of transmission parameters
- Long life

Characteristics of the distribution head:

Number of Fibres	Ø of distribution head in mm (max)	Ø of installation tube in mm (max)	Strain relief N (max)
2 to 12	28	37	750
16 to 24	36	44	750
48	36	54	750

Characteristics of plug:

Single-mode standard	Insertion losses: < 0.4 dB; return losses: > 40 dB
Multimode standard, FLine® 110	Insertion losses: < 0.4 dB; return losses: > 25 dB
Multimode FLine® 300, FLine® 550	Insertion losses: < 0.4 dB; return losses: > 35 dB

Fibre characteristics:

E9...10/125
Single-mode fibre, transmission characteristics better than OS1.
Attenuation coefficient: 0.36 dB/km at 1,310 nm; 0.25 dB/km at 1,550 nm
Dispersion: max. 3.5 ps/nm x km at 1,310 nm; max. 18 ps/nm x km at 1,550 nm

G50/125
Multimode fibre optimised for Gigabit Ethernet,
transmission characteristics better than OM1, OM2.

FLine® 110
Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm
Bandwidth: min. 600 MHz x km at 850 nm; min. 1,200 MHz x km at 1,300 nm
Segment length with Gigabit Ethernet: min. 750 m at 850 nm; min. 2,000 m at 1,300 nm
Segment length with 10 Gigabit Ethernet: min. 110 m at 850 nm; min. 900 m at 1,300 nm

G50/125 OM3
Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM3.

FLine® 300
Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm
Laser bandwidth: min. 2,000 MHz x km at 850 nm
Bandwidth: min. 1,500 MHz x km at 850 nm; min. 500 MHz x km at 1,300 nm
Segment length with Gigabit Ethernet: min. 900 m at 850 nm; min. 550 m at 1,300 nm
Segment length with 10 Gigabit Ethernet: min. 300 m at 850 nm; min. 300 m at 1,300 nm

G50/125 OM3 "e"
Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM3.

FLine® 550
Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm
Laser bandwidth: min. 4,700 MHz x km at 850 nm
Bandwidth: min. 3,500 MHz x km at 850 nm; min. 500 MHz x km at 1,300 nm
Segment length with Gigabit Ethernet: min. 1,000 m at 850 nm; min. 550 m at 1,300 nm
Segment length with 10 Gigabit Ethernet: min. 550 m at 850 nm; min. 300 m at 1,300 nm

G62,5/125
Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM1.
Attenuation coefficient: 3.0 dB/km at 850 nm; 0.7 dB/km at 1,300 nm
Bandwidth: min. 250 MHz x km at 850 nm; min. 800 MHz x km at 1,300 nm
Segment length with Gigabit Ethernet: min. 500 m at 850 nm; min. 1,000 m at 1,300 nm
Segment length with 10 Gigabit Ethernet: min. 65 m at 850 nm; min. 450 m at 1,300 nm

GigaLine® VKT IP50,
equipped with plugs at both ends and installation tube

Single-mode standard: insertion losses < 0.4 dB; return losses: > 40 dB

No. of Fibres	SC	ST	E2,000	E2,000HRL	FC-PC	FC-PC HRL
4	9VUI0XXX	9VUI9XXX	9VUIIXXX	9VUISXXX	9VUL3XXX	9VULCXXX
6	9VUI1XXX	9VUIAXXX	9VUIJXXX	9VUITXXX	9VUL4XXX	9VULDXXX
8	9VUI2XXX	9VUIBXXX	9VUIKXXX	9VUIUXXX	9VUL5XXX	9VULEXXX
12	9VUI3XXX	9VUICXXX	9VUILXXX	9VUIVXXX	9VUL6XXX	9VULFXXX
16	9VUI4XXX	9VUIDXXX	9VUIMXXX	9VUIWXXX	9VUL7XXX	9VULGXXX
24	9VUI6XXX	9VUIFXXX	9VUIPXXX	9VUIYXXX	9VUL9XXX	9VULIXXX
48	9VUI8XXX	9VUIHXXX	9VUIRXXX	9VUJ0XXX	9VULBXXX	9VULKXXX

FLine® 110, Multimode G50/125 OM2: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VUJ1XXX	9VUJAXXX	9VUJJXXX	9VUKKXXX	9VULLXXX	9VUMWXXX
6	9VUJ2XXX	9VUJBXXX	9VUJKXXX	9VUKLXXX	9VULMXXX	9VUMXXXX
8	9VUJ3XXX	9VUJCXXX	9VUJLXXX	9VUKMXXX	9VULNXXX	9VUMYXXX
12	9VUJ4XXX	9VUJDXXX	9VUJMXXX	9VUKNXXX	9VULPXXX	9VUMZXXX
16	9VUJ5XXX	9VUJEXXX	9VUJNXXX	9VUKPXXX	9VULQXXX	9VUN0XXX
24	9VUJ7XXX	9VUJGXXX	9VUJQXXX	9VUKRXXX	9VULSXXX	9VUN2XXX
48	9VUJ9XXX	9VUJIXXX	9VUJSXXX	9VUKTXXX	9VULUXXX	9VUN4XXX

FLine® 300, Multimode G50/125 OM3: insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VUNXXXX	–	–	–	–	9VUN5XXX
6	9VUNYXXX	–	–	–	–	9VUN6XXX
8	9VUNZXXX	–	–	–	–	9VUN7XXX
12	9VUP0XXX	–	–	–	–	9VUN8XXX
16	9VUP1XXX	–	–	–	–	9VUN9XXX
24	9VUP3XXX	–	–	–	–	9VUNBXXX
48	9VUP5XXX	–	–	–	–	9VUNDXXX

FLine® 550, Multimode G50/125 OM3 "e": insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VAXXXXXX	–	–	–	–	9VUNEXXX
6	9VAXXXXXX	–	–	–	–	9VUNFXXX
8	9VAXXXXXX	–	–	–	–	9VUNGXXX
12	9VAXXXXXX	–	–	–	–	9VUNHXXX
16	9VAXXXXXX	–	–	–	–	9VUNIXXX
24	9VAXXXXXX	–	–	–	–	9VUNKXXX
48	9VAXXXXXX	–	–	–	–	9VUNMXXX

Multimode G62.5/125 OM1, standard: insertion losses: < 0.4 dB; return losses > 25 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VUJTXXX	9VUK2XXX	9VUKBXXX	9VUKUXXX	9VULVXXX	–
6	9VUJUXXX	9VUK3XXX	9VUKCXXX	9VUKVXXX	9VULWXXX	–
8	9VUJVXXX	9VUK4XXX	9VUKDXXX	9VUKWXXX	9VULXXXX	–
12	9VUJWXXX	9VUK5XXX	9VUKEXXX	9VUKXXXX	9VULYXXX	–
16	9VUJXXXX	9VUK6XXX	9VUKFXXX	9VUKYXXX	9VULZXXX	–
24	9VUJZXXX	9VUK8XXX	9VUKHXXX	9VUL0XXX	9VUM1XXX	–
48	9VUK1XXX	9VUKAXXX	9VUKJXXX	9VUL2XXX	9VUM3XXX	–

xxx – length in m; other designs with other connectors on request

Subject to printing errors, mistakes and technical changes.

GigaLine® ready-made

FLine®

GigaLine® VKT mini-breakout IP50
GigaLine® M 100, 500, 625

Ready-made fibre optical mini-breakout cable.

Type: KL-J-V(ZN)H

Splice-free distribution with installation tube

- Protection from dirt
- Stability of transmission parameters
- Long life

Field of application: Floor cabling

Characteristics of installation tube:

No. of Fibres	Ø of installation tube in mm (max)	Strain relief in N (max)
2 to 12	37	350

Characteristics of plug:

Single-mode standard Multimode standard, FLine® 110	Insertion losses: < 0.4 dB; return losses: > 40 dB
Multimode FLine® 300, FLine® 550	Insertion losses: < 0.4 dB; return losses: > 25 dB
	Insertion losses: < 0.4 dB; return losses: > 35 dB

Fibre characteristics:

E9...10/125	Single-mode fibre, transmission characteristics better than OS1. Attenuation coefficient: 0.36 dB/km at 1,310 nm; 0.25 dB/km at 1,550 nm Dispersion: max. 3.5 ps/nm x km at 1,310 nm; max. 18 ps/nm x km at 1,550 nm
G50/125	Multimode fibre optimised for Gigabit Ethernet, transmission characteristics better than OM1, OM2.
FLine® 110	Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm Bandwidth: min. 600 MHz x km at 850 nm; min. 1,200 MHz x km at 1,300 nm Segment length with Gigabit Ethernet: min. 750 m at 850 nm; min. 2,000 m at 1,300 nm Segment length with 10 Gigabit Ethernet: min. 110 m at 850 nm; min. 900 m at 1,300 nm
G50/125 OM3	Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM3.
FLine® 300	Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm Laser bandwidth: min. 2,000 MHz x km at 850 nm Bandwidth: min. 1,500 MHz x km at 850 nm; min. 500 MHz x km at 1,300 nm Segment length with Gigabit Ethernet: min. 900 m at 850 nm; min. 550 m at 1,300 nm Segment length with 10 Gigabit Ethernet: min. 300 m at 850 nm; min. 300 m at 1,300 nm
G50/125 OM3 "e"	Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM3.
FLine® 550	Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm Laser bandwidth: min. 4,700 MHz x km at 850 nm Bandwidth: min. 3,500 MHz x km at 850 nm; min. 500 MHz x km at 1,300 nm Segment length with Gigabit Ethernet: min. 1,000 m at 850 nm; min. 550 m at 1,300 nm Segment length with 10 Gigabit Ethernet: min. 550 m at 850 nm; min. 300 m at 1,300 nm
G62,5/125	Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM1. Attenuation coefficient: 3.0 dB/km at 850 nm; 0.7 dB/km at 1,300 nm Bandwidth: min. 250 MHz x km at 850 nm; min. 800 MHz x km at 1,300 nm Segment length with Gigabit Ethernet: min. 500 m at 850 nm; min. 1,000 m at 1,300 nm Segment length with 10 Gigabit Ethernet: min. 65 m at 850 nm; min. 450 m at 1,300 nm

All the necessary PLANNING DOCUMENTS are available in the Internet: **www.kerpen.com**

GigaLine® VKT (ready-made) mini-breakout IP50, equipped with plugs at both ends and installation tube

Single-mode standard: insertion losses < 0.4 dB; return losses: > 40 dB

No. of Fibres	SC	ST	E2,000	E2,000HRL	FC-PC	FC-PC HRL
2	9VM00XXX	9VM06XXX	9VM0PXXX	9VM0VXXX	9VM0CXXX	9VM0IXXX
4	9VM01XXX	9VM07XXX	9VM0QXXX	9VM0WXXX	9VM0DXXX	9VM0JXXX
6	9VM02XXX	9VM08XXX	9VM0RXXX	9VM0XXXX	9VM0EXXX	9VM0KXXX
18	9VM03XXX	9VM09XXX	9VM0SXXX	9VM0YXXX	9VM0FXXX	9VM0LXXX
10	9VM04XXX	9VM0AXXX	9VM0TXXX	9VM0ZXXX	9VM0GXXX	9VM0MXXX
12	9VM05XXX	9VM0BXXX	9VM0UXXX	9VM10XXX	9VM0HXXX	9VM0NXXX

FLine® 110, Multimode G50/125 OM2: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VM11XXX	9VM17XXX	9VM1DXXX	9VM1QXXX	9VM1JXXX	9VUMWXXX
6	9VM12XXX	9VM18XXX	9VM1EXXX	9VM1RXXX	9VM1KXXX	9VUMXXXX
8	9VM13XXX	9VM19XXX	9VM1FXXX	9VM1SXXX	9VM1LXXX	9VUMYXXX
12	9VM14XXX	9VM1AXXX	9VM1GXXX	9VM1TXXX	9VM1MXXX	9VUMZXXX
16	9VM15XXX	9VM1BXXX	9VM1HXXX	9VM1UXXX	9VM1NXXX	9VUN0XXX
24	9VM16XXX	9VM1CXXX	9VM1IXXX	9VM1VXXX	9VM1PXXX	9VUN2XXX

FLine® 300, Multimode G50/125 OM3: insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VM3LXXX	–	–	–	–	9VM3SXXX
6	9VM3MXXX	–	–	–	–	9VM3TXXX
8	9VM3NXXX	–	–	–	–	9VM3UXXX
12	9VM3PXXX	–	–	–	–	9VM3VXXX
16	9VM3QXXX	–	–	–	–	9VM3WXXX
24	9VM3RXXX	–	–	–	–	9VM3XXXX

FLine® 550, Multimode G50/125 OM3 "e": insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VM3YXXX	–	–	–	–	9VM44XXX
6	9VM3ZXXX	–	–	–	–	9VM45XXX
8	9VM40XXX	–	–	–	–	9VM46XXX
12	9VM41XXX	–	–	–	–	9VM47XXX
16	9VM42XXX	–	–	–	–	9VM48XXX
24	9VM43XXX	–	–	–	–	9VM49XXX

Multimode G62.5/125 OM1, standard: insertion losses: < 0.4 dB; return losses > 25 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VM1WXXX	9VM22XXX	9VM2EXXX	9VM2KXXX	9VM28XXX	–
6	9VM1XXXX	9VM23XXX	9VM2FXXX	9VM2LXXX	9VM29XXX	–
8	9VM1YXXX	9VM24XXX	9VM2GXXX	9VM2MXXX	9VM2AXXX	–
12	9VM1ZXXX	9VM25XXX	9VM2HXXX	9VM2NXXX	9VM2BXXX	–
16	9VM20XXX	9VM26XXX	9VM2IXXX	9VM2PXXX	9VM2CXXX	–
24	9VM21XXX	9VM27XXX	9VM2JXXX	9VM2QXXX	9VM2DXXX	–

xxx – length in m; other designs with other connectors on request

Subject to printing errors, mistakes and technical changes.

FLine®

GigaLine® VKT Breakout IP50
GigaLine® AT 100, 500, 625

Ready-made fibre optical breakout cable

Type: KL-J-V(ZN)H

Splice-free distribution with installation tube
- Protection from dirt.
- Stability of transmission parameters.
- Long life.

Field of application: Floor cabling

Characteristics of installation tube:

No. of Fibres	Ø of installation tube in mm (max)	Strain relief in N (max)
2 to 12	37	350

Characteristics of plug:

Single-mode standard	Insertion losses: < 0.4 dB; return losses: > 40 dB
Multimode standard, FLine® 110	Insertion losses: < 0.4 dB; return losses: > 25 dB
Multimode FLine® 300, FLine® 550	Insertion losses: < 0.4 dB; return losses: > 35 dB

Fibre characteristics:

E9...10/125	Single-mode fibre, transmission characteristics better than OS1. Attenuation coefficient: 0.36 dB/km at 1,310 nm; 0.25 dB/km at 1,550 nm Dispersion: max. 3.5 ps/nm x km at 1,310 nm; max. 18 ps/nm x km at 1,550 nm
G50/125	Multimode fibre optimised for Gigabit Ethernet, transmission characteristics better than OM1, OM2.
FLine® 110	Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm Bandwidth: min. 600 MHz x km at 850 nm; min. 1,200 MHz x km at 1,300 nm Segment length with Gigabit Ethernet: min. 750 m at 850 nm; min. 2,000 m at 1,300 nm Segment length with 10 Gigabit Ethernet: min. 110 m at 850 nm; min. 900 m at 1,300 nm
G50/125 OM3	Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM3
FLine® 300	Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm Laser bandwidth: min. 2,000 MHz x km at 850 nm Segment length with Gigabit Ethernet: min. 900 m at 850 nm; min. 550 m at 1,300 nm Segment length with 10 Gigabit Ethernet: min. 300 m at 850 nm; min. 300 m at 1,300 nm
G50/125 OM3 "e"	Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM3.
FLine® 550	Attenuation coefficient: 2.5 dB/km at 850 nm; 0.7 dB/km at 1,300 nm Laser bandwidth: min. 4,700 MHz x km at 850 nm Bandwidth: min. 3,500 MHz x km at 850 nm; min. 500 MHz x km at 1,300 nm Segment length with Gigabit Ethernet: min. 1,000 m at 850 nm; min. 550 m at 1,300 nm Segment length with 10 Gigabit Ethernet: min. 550 m at 850 nm; min. 300 m at 1,300 nm
G62,5/125	Multimode fibre optimised for 10 Gigabit Ethernet, transmission characteristics better than OM1. Attenuation coefficient: 3.0 dB/km at 850 nm; 0.7 dB/km at 1,300 nm Bandwidth: min. 250 MHz x km at 850 nm; min. 800 MHz x km at 1,300 nm Segment length with Gigabit Ethernet: min. 500 m at 850 nm; min. 1,000 m at 1,300 nm Segment length with 10 Gigabit Ethernet: min. 65 m at 850 nm; min. 450 m at 1,300 nm

GigaLine® VKT breakout IP50, equipped with plugs at both ends and installation tube

Single-mode standard: insertion losses < 0.4 dB; return losses: > 40 dB

No. of Fibres	SC	ST	E2,000	E2,000HRL	FC-PC	FC-PC HRL
2	9VB00XXX	9VB06XXX	9VB0PXXX	9VB0VXXX	9VB0CXXX	9VB0IXXX
4	9VB01XXX	9VB07XXX	9VB0QXXX	9VB0WXXX	9VB0DXXX	9VB0JXXX
6	9VB02XXX	9VB08XXX	9VB0RXXX	9VB0XXXX	9VB0EXXX	9VB0KXXX
18	9VB03XXX	9VB09XXX	9VB0SXXX	9VB0YXXX	9VB0FXXX	9VB0LXXX
10	9VB04XXX	9VB0AXXX	9VB0TXXX	9VB0ZXXX	9VB0GXXX	9VB0MXXX
12	9VB05XXX	9VB0BXXX	9VB0UXXX	9VB10XXX	9VB0HXXX	9VB0NXXX

FLine® 110, Multimode G50/125 OM2: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VB11XXX	9VB17XXX	9VB1DXXX	9VB1QXXX	9VB1JXXX	9VUBWXXX
6	9VB12XXX	9VB18XXX	9VB1EXXX	9VB1RXXX	9VB1KXXX	9VUBXXXX
8	9VB13XXX	9VB19XXX	9VB1FXXX	9VB1SXXX	9VB1LXXX	9VUBYXXX
12	9VB14XXX	9VB1AXXX	9VB1GXXX	9VB1TXXX	9VB1MXXX	9VUBZXXX
16	9VB15XXX	9VB1BXXX	9VB1HXXX	9VB1UXXX	9VB1NXXX	9VUB0XXX
24	9VB16XXX	9VB1CXXX	9VB1IXXX	9VB1VXXX	9VB1PXXX	9VUB2XXX

FLine® 300, Multimode G50/125 OM3: insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VB3LXXX	–	–	–	–	9VB3SXXX
6	9VB3MXXX	–	–	–	–	9VB3TXXX
8	9VB3NXXX	–	–	–	–	9VB3UXXX
12	9VB3PXXX	–	–	–	–	9VB3VXXX
16	9VB3QXXX	–	–	–	–	9VB3WXXX
24	9VB3RXXX	–	–	–	–	9VB3XXXX

FLine® 550, Multimode G50/125 OM3 "e": insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VB3YXXX	–	–	–	–	9VB44XXX
6	9VB3ZXXX	–	–	–	–	9VB45XXX
8	9VB40XXX	–	–	–	–	9VB46XXX
12	9VB41XXX	–	–	–	–	9VB47XXX
16	9VB42XXX	–	–	–	–	9VB48XXX
24	9VB43XXX	–	–	–	–	9VB49XXX

Multimode G62.5/125 OM1, standard: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC	ST	E2,000	MT-RJ	FC-PC	LC
4	9VM1WXXX	9VM22XXX	9VM2EXXX	9VM2KXXX	9VM28XXX	–
6	9VM1XXXX	9VM23XXX	9VM2FXXX	9VM2LXXX	9VM29XXX	–
8	9VM1YXXX	9VM24XXX	9VM2GXXX	9VM2MXXX	9VM2AXXX	–
12	9VM1ZXXX	9VM25XXX	9VM2HXXX	9VM2NXXX	9VM2BXXX	–
16	9VM20XXX	9VM26XXX	9VM2IXXX	9VM2PXXX	9VM2CXXX	–
24	9VM21XXX	9VM27XXX	9VM2JXXX	9VM2QXXX	9VM2DXXX	–

xxx – length in m; other designs with other connectors on request

GigaLine® ready-made

FLine® and FLine® smart –
multifunctional housing engineering

FLine® and FLine® smart patch and splice housings can be used in all areas of in-house data cabling. The components are designed in such a way that speed and reliability are ensured in initial installation, maintenance and extensions.

FLine® patch and splice housings

A replaceable cable entry on the back offers the user all the freedom he requires during installation, no matter whether a straight cable entry, a 45° angled entry or breakout cable support is required. These parts can be replaced easily on location.

FLine® smart patch and splice housings

FLine® smart panel engineering differs in design due to a prespecified straight cable and distribution head entry (VKT). Here it is possible to mount up to four PG glands or two distribution heads.

Facts which guarantee rapid and reliable initial installation:

General
- Standard versions of the housings are available as 1 or 2 U
- The front panel is light grey, RAL 7035.
- One U can be equipped with up to 24 x SC-Duplex, 24 x LC-Duplex, 24 x MT_RJ, 24 x E 2,000, 24 x ST, 24 x FC couplings
- The body of the housing is made of aluminium, ensuring low weight
- Exchangeable front panels to accommodate all usual fibre optic couplings
- The couplings are premounted
- The admissible bending radii and the ease of assembly are observed even at high packing densities
- A telescopic extension makes the connecting components easy to access for the purposes of measurements and maintenance work

Splice housings
- Splice cassettes with pigtails already included
- The wires in the splice cassette are ready for splicing
- Pigtails are coloured (primary and secondary coating) according to the DIN IEC 60304 colour code
- The pigtails are marked (primary and secondary coating) according to the DIN IEC 60304 colour code. The result is rapid, safe assembly as it is no longer necessary to mark the individual pigtails

Patch housings
- The strain relief of the distribution head is based on fixing the distribution head into a V groove immediately on the housing. This means that no other complicated fixing measures are required for the distribution head on the housing
- The distribution head of the ready-made trunk is secured on the housing to prevent twisting

FLine® patch/splice housing, telescopic

FLine® splice housing

FLine® patch housing

FLine® breakout housing

19" housing, 1 / 2 U

Characteristics:

- Installation of a maximum of 2 fibre optic cables with a maximum total of 48 fibres
- Body of housing made of aluminium, exchangeable front panel made of sheet steel
- Telescopic, extension depth at least 300 mm
- Colour of front panel: light grey, RAL 7035
- Cable entry at an angle of 45° for better cable management
- Strain relief for the ready-made distribution head on the housing or PG gland for cable entries
- Dust protection
- Splice cassette with coloured pigtails, Gigabit Ethernet fibres (MM)
  Pigtail colour code:
  E9...10/125 according to DIN IEC 60304
  G50/125 according to DIN IEC 60304 G62,5/125 green
- Pigtails already inserted into splice cassette, splice protector
- Height: 44 mm (1 U)
  Width: 483 mm (19")
  Depth: 284 mm
  Weight: 2.4 kg
- Screen-printed markings: Channel 1-12 / 1-24, A/B coding with SC/ST/FC components

Components:

- Available with up to 24 slots or without components
- The following couplings can be used:
  SC-Duplex/SC-Duplex
  FC-PC, FC-PC(HRL) (SM)
  ST/ST
  E2,000/E2,000
  E2,000HRL/E2,000HRL (SM)
  MT-RJ/MT-RJ (MM)
  LC-Duplex

Accessories:

- Blind plug for front panel, Splice protector (maximum of 12 pcs. in one splice cassette)

Subject to printing errors, mistakes and technical changes.

FLine® splice housing, telescopic

Single-mode standard: insertion losses: < 0.4 dB; return losses: > 40 dB

No. of Fibres	SC-DX (Met/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	E2,000HRL (Plastic/Cer)	FC-PC (Met/Cer)	FC-PC HRL (Met/Cer)
4	9FX90204	9FX90223	9FX90232	9FX90236	9FX90240	9FX90245
8	9FX90404	9FX90423	9FX90432	9FX90436	9FX90440	9FX90445
12	9FX90604	9FX90623	9FX90632	9FX90636	9FX90640	9FX90645
24	9FX91204	9FX91223	9FX91232	9FX91236	9FX91240	9FX91245
48	9FX92404*	9FX92423*	9FX92432*	9FX92436*	9FX92440*	9FX92445*

FLine® 110, Multimode G50/125 OM2: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FX50204	9FX50203	9FX50223	9FX50232	9FX50237	9FX50255
8	9FX50404	9FX50403	9FX50423	9FX50432	9FX50437	9FX50455
12	9FX50604	9FX50603	9FX50623	9FX50632	9FX50637	9FX50655
24	9FX51204	9FX51203	9FX51223	9FX51232	9FX51237	9FX51255
48	9FX52404*	9FX52403*	9FX52423*	9FX52432*	9FX52437	9FX52455

FLine® 300, Multimode G50/125 OM3: insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FXB0204	–	–	–	–	9FXB0255
8	9FXB0404	–	–	–	–	9FXB0455
12	9FXB0604	–	–	–	–	9FXB0655
24	9FXB1204	–	–	–	–	9FXB1255
48	9FXB2404*	–	–	–	–	9FXB2455

FLine® 550, Multimode G50/125 OM3 "e": insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FXD0204	–	–	–	–	9FXD0255
8	9FXD0404	–	–	–	–	9FXD0455
12	9FXD0604	–	–	–	–	9FXD0655
24	9FXD1204	–	–	–	–	9FXD1255
48	9FXD2404*	–	–	–	–	9FXD2455

Multimode G62,5/125 OM1, Standard: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FX60204	9FX60203	9FX60223	9FX60232	9FX60237	9FX60255
8	9FX60404	9FX60403	9FX60423	9FX60432	9FX60437	9FX60455
12	9FX60604	9FX60603	9FX60623	9FX60632	9FX60637	9FX60655
24	9FX61204	9FX61203	9FX61223	9FX61232	9FX61237	9FX61255
48	9FX62404*	9FX62403*	9FX62423*	9FX62432*	9FX62437	9FX62455

*2U version, other or hybrid versions available on request
Included in delivery: mounting, splice box(es) with cover, splice protector with holder, 1xPG16 gland, pigtails marked (primary and secondary coating) and plugged into couplings ready for splicing, possibly with blind plugs

All the necessary PLANNING DOCUMENTS are available in the Internet: **www.kerpen.com**

Subject to printing errors, mistakes and technical changes.

FLine® distribution panel, telescopic

Single-mode-standard

No. of Fibres	SC-DX (Met/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	E2,000HRL (Plastic/Cer)	FC-PC (Met/Cer)	FC-PC HRL (Met/Cer)
4	9FV90204	9FV90223	9FV90232	9FV90236	9FV90240	9FV90245
8	9FV90404	9FV90423	9FV90432	9FV90436	9FV90440	9FV90445
12	9FV90604	9FV90623	9FV90632	9FV90636	9FV90640	9FV90645
24	9FV91204	9FV91223	9FV91232	9FV91236	9FV91240	9FV91245
48	9FV92404*	9FV92423*	9FV92432*	9FV92436*	9FV92440*	9FV92445*

FLine® 110, FLine® 300, FLine® 550, Multimode-G50, G62.5

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FV90204	9FVM0203	9FV90223	9FVM0232	9FVM0237	9FVM0255
8	9FV90404	9FVM0403	9FV90423	9FVM0432	9FVM0437	9FVM0455
12	9FV90604	9FVM0603	9FV90623	9FVM0632	9FVM0637	9FVM0655
24	9FV91204	9FVM1203	9FV91223	9FVM1232	9FVM1237	9FVM1255
48	9FV92404*	9FVM2403*	9FV92423*	9FVM2432*	9FVM2437	9FVM2455

*2U version, other or hybrid versions available on request
Included in delivery: mounting, 1 ready-made holder, possibly with blind plugs

FLine® housing

Subject to printing errors, mistakes and technical changes.

FLine

FLine® patch/splice housing, fixed

19" housing, 1 / 2 U

Characteristics:
- Installation of a maximum of 2 fibre optic cables with a maximum total of 48 fibres
- Body of housing made of aluminium, exchangeable front panel made of sheet steel
- Colour of front panel: light grey, RAL 7035
- Cable entry at 45° angle for better cable management
- Strain relief for the ready-made distribution head on the housing or PG gland for cable entries
- Dust protection
- Splice cassette with coloured pigtails, Gigabit Ethernet fibres (MM)
- Pigtail colour code:
  E9...10/125 according to DIN IEC 60304
  G50/125 according to DIN IEC 60304
  G62.5/125 green
- Pigtails already inserted into splice cassette, splice protector

- Height: 44 mm (1 U)
  Width: 483 mm (19")
  Depth: 240 mm
  Weight: 1.2 kg
- Screen-printed markings: Channel 1-12 / 1-24, A/B coding with SC/ST/FC components

Components:
- Available with up to 24 slots or without components
- The following couplings can be used:
  SC-Duplex/SC-Duplex
  FC-PC, FC-PC(HRL) (SM)
  ST/ST
  E2,000/E2,000
  E2,000HRL/E2,000HRL (SM)
  MT-RJ/MT-RJ (MM)
  LC-Duplex

Accessories:
- Blind plug for front panel, splice protector (maximum of 12 pcs. in one splice cassette)

FLine® patch housing, fixed

Single-mode standard:

No. of Fibres	SC-DX (Met/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	E2,000HRL (Plastic/Cer)	FC-PC (Met/Cer)	FC-PC HRL (Met/Cer)
4	9FW90204	9FW90223	9FW90232	9FW90236	9FW90240	9FW90245
8	9FW90404	9FW90423	9FW90432	9FW90436	9FW90440	9FW90445
12	9FW90604	9FW90623	9FW90632	9FW90636	9FW90640	9FW90645
24	9FW91204	9FW91223	9FW91232	9FW91236	9FW91240	9FW91245
48	9FW92404*	9FW92423*	9FW92432*	9FW92436*	9FW92440*	9FW92445*

FLine® 110, FLine® 300, FLine® 550, Multimode-G50, G62.5

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FW90204	9FWM0203	9FW90223	9FWM0232	9FWM0237	9FWM0255
8	9FW90404	9FWM0403	9FW90423	9FWM0432	9FWM0437	9FWM0455
12	9FW90604	9FWM0603	9FW90623	9FWM0632	9FWM0637	9FWM0655
24	9FW91204	9FWM1203	9FW91223	9FWM1232	9FWM1237	9FWM1255
48	9FW92404*	9FWM2403*	9FW92423*	9FWM2432*	9FWM2437	9FWM2455

*2U version, other or hybrid versions available on request
Included in delivery: mounting, 1 ready-made holder, possibly with blind plugs

All the necessary PLANNING DOCUMENTS are available in the Internet: **www.kerpen.com**

Subject to printing errors, mistakes and technical changes.

FLine® splice housing, fixed

Single-mode E9..10/125, insertion losses: < 0.4 dB; return losses: > 40 dB

No. of Fibres	SC-DX (Met/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	E2,000HRL (Plastic/Cer)	FC-PC (Met/Cer)	FC-PC HRL (Met/Cer)
4	9FY90204	9FY90223	9FY90232	9FY90236	9FY90240	9FY90245
8	9FY90404	9FY90423	9FY90432	9FY90436	9FY90440	9FY90445
12	9FY90604	9FY90623	9FY90632	9FY90636	9FY90640	9FY90645
24	9FY91204	9FY91223	9FY91232	9FY91236	9FY91240	9FY91245
48	9FY92404*	9FY92423*	9FY92432*	9FY92436*	9FY92440*	9FY92445*

FLine® 110, Multimode G50/125 OM2: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FY50204	9FY50203	9FY50223	9FY50232	9FY50237	9FY50255
8	9FY50404	9FY50403	9FY50423	9FY50432	9FY50437	9FY50455
12	9FY50604	9FY50603	9FY50623	9FY50632	9FY50637	9FY50655
24	9FY51204	9FY51203	9FY51223	9FY51232	9FY51237	9FY51255
48	9FY52404*	9FY52403*	9FY52423*	9FY52432*	9FY52437	9FY52455

FLine® 300, Multimode G50/125 OM3: insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FYB0204	–	–	–	–	9FYB0255
8	9FYB0404	–	–	–	–	9FYB0455
12	9FYB0604	–	–	–	–	9FYB0655
24	9FYB1204	–	–	–	–	9FYB1255
48	9FYB2404*	–	–	–	–	9FYB2455

FLine® 550, Multimode G50/125 OM3 "e": insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FYD0204	–	–	–	–	9FYD0255
8	9FYD0404	–	–	–	–	9FYD0455
12	9FYD0604	–	–	–	–	9FYD0655
24	9FYD1204	–	–	–	–	9FYD1255
48	9FYD2404*	–	–	–	–	9FYD2455

Multimode G62,5/125 OM1, standard: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FY60204	9FY60203	9FY60223	9FY60232	9FY60237	9FY60255
8	9FY60404	9FY60403	9FY60423	9FY60432	9FY60437	9FY60455
12	9FY60604	9FY60603	9FY60623	9FY60632	9FY60637	9FY60655
24	9FY61204	9FY61203	9FY61223	9FY61232	9FY61237	9FY61255
48	9FY62404*	9FY62403*	9FY62423*	9FY62432*	9FY62437	9FY62455

*Model with 2 U; other or mixed designs available on request
Included in delivery: assembly, splice cassette(s) with cover, splice protector with holder, 1xPG16 gland,
pigtails marked and plugged into couplings ready for splicing, possibly blind plugs.

Subject to printing errors, mistakes and technical changes.

FLine

FLine® patch/splice housing smart, telescopic

19" housing, 1 / 2 U

Characteristics:
- Installation of a maximum of 2 fibre optic cables with a maximum total of 48 fibres
- Body of housing made of aluminium, exchangeable front panel made of sheet steel
- Telescopic extension, extension depth at least 300 mm
- Colour of front panel: grey, RAL 7035
- Strain relief for the ready made distribution head on the housing or PG gland for cable entries
- Dust protection
- Splice cassette with coloured pigtails, Gigabit Ethernet fibres (MM)
- Pigtail colour code:
  - E9...10/125 according to DIN IEC 60304
  - G50/125 according to DIN IEC 60304
  - G62.5/125 green
- Pigtails already inserted into splice cassette, splice protector

- Height: 44 mm (1 U)
- Width: 483 mm (19")
- Depth: 282 mm
- Weight: 2.4 kg
- Screen-printed markings: Channel 1-12 / 1-24, A/B coding with SC/ST/FC components

Components:
- Available with up to 24 slots or without components
- The following couplings can be used:
  - SC-Duplex/SC-Duplex
  - FC-PC, FC-PC(HRL) (SM)
  - ST/ST
  - E2,000/E2,000
  - E2,000HRL/E2,000HRL (SM)
  - MT-RJ/MT-RJ (MM)
  - LC-Duplex

Accessories:
- Blind plug for front panel, splice protector (maximum of 12 pcs. in one splice cassette)

FLine® patch/splice housing, telescopic

Single-mode standard:

No. of Fibres	SC-DX (Met/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	E2,000HRL (Plastic/Cer)	FC-PC (Met/Cer)	FC-PC HRL (Met/Cer)
4	9FF90204	9FF90223	9FF90232	9FF90236	9FF90240	9FF90245
8	9FF90404	9FF90423	9FF90432	9FF90436	9FF90440	9FF90445
12	9FF90604	9FF90623	9FF90632	9FF90636	9FF90640	9FF90645
24	9FF91204	9FF91223	9FF91232	9FF91236	9FF91240	9FF91245
48	9FF92404*	9FF92423*	9FF92432*	9FF92436*	9FF92440*	9FF92445*

FLine® 110, FLine® 300™, FLine® 550, Multimode-G50, G62.5

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FF90204	9FFM0203	9FF90223	9FFM0232	9FFM0237	9FFM0255
8	9FF90404	9FFM0403	9FF90423	9FFM0432	9FFM0437	9FFM0455
12	9FF90604	9FFM0603	9FF90623	9FFM0632	9FFM0637	9FFM0655
24	9FF91204	9FFM1203	9FF91223	9FFM1232	9FFM1237	9FFM1255
48	9FF92404*	9FFM2403*	9FF92423*	9FFM2432*	9FFM2437	9FFM2455

*Model with 2 U; other or mixed designs available on request
Included in delivery: assembly, 1 ready-made holder, possibly blind plugs.

FLine® patch/splice housing smart, telescopic

Single-mode E9..10/125, insertion losses: < 0.4 dB; return losses: > 40 dB

No. of Fibres	SC-DX (Met/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	E2,000HRL (Plastic/Cer)	FC-PC (Met/Cer)	FC-PC HRL (Met/Cer)
4	9FS90204	9FS90223	9FS90232	9FS90236	9FS90240	9FS90245
8	9FS90404	9FS90423	9FS90432	9FS90436	9FS90440	9FS90445
12	9FS90604	9FS90623	9FS90632	9FS90636	9FS90640	9FS90645
24	9FS91204	9FS91223	9FS91232	9FS91236	9FS91240	9FS91245
48	9FS92404*	9FS92423*	9FS92432*	9FS92436*	9FS92440*	9FS92445*

FLine® 110, Multimode G50/125 OM2:insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FS50204	9FS50203	9FS50223	9FS50232	9FS50237	9FS50255
8	9FS50404	9FS50403	9FS50423	9FS50432	9FS50437	9FS50455
12	9FS50604	9FS50603	9FS50623	9FS50632	9FS50637	9FS50655
24	9FS51204	9FS51203	9FS51223	9FS51232	9FS51237	9FS51255
48	9FS52404*	9FS52403*	9FS52423*	9FS52432*	9FS52437	9FS52455

FLine® 300, Multimode G50/125 OM3: insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FSB0204	–	–	–	–	9FSB0255
8	9FSB0404	–	–	–	–	9FSB0455
12	9FSB0604	–	–	–	–	9FSB0655
24	9FSB1204	–	–	–	–	9FSB1255
48	9FSB2404*	–	–	–	–	9FSB2455

FLine® 550, Multimode G50/125 OM3 "e": insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FSD0204	–	–	–	–	9FSD0255
8	9FSD0404	–	–	–	–	9FSD0455
12	9FSD0604	–	–	–	–	9FSD0655
24	9FSD1204	–	–	–	–	9FSD1255
48	9FSD2404*	–	–	–	–	9FSD2455

Multimode G62,5/125 OM1, standard: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FS60204	9FS60203	9FS60223	9FS60232	9FS60237	9FS60255
8	9FS60404	9FS60403	9FS60423	9FS60432	9FS60437	9FS60455
12	9FS60604	9FS60603	9FS60623	9FS60632	9FS60637	9FS60655
24	9FS61204	9FS61203	9FS61223	9FS61232	9FS61237	9FS61255
48	9FS62404*	9FS62403*	9FS62423*	9FS62432*	9FS62437	9FS62455

*Model with 2 U; other or mixed designs available on request
Included in delivery: assembly, splice cassette(s) with cover, splice protector with holder, 1xPG16 gland,
pigtails marked and plugged into couplings ready for splicing, possibly blind plugs.

Subject to printing errors, mistakes and technical changes.

FLine

FLine® patch/splice housing smart, fixed

19" housing, 1 / 2 U

Characteristics:
- Installation of a maximum of 2 fibre optic cables with a maximum total of 48 fibres
- Body of housing made of aluminium, exchangeable front panel made of sheet steel
- Colour of front panel: light grey ,RAL 7035
- Strain relief for the ready-made distribution head on the housing or PG gland for cable entries
- Dust protection
- Splice cassette with coloured pigtails, Gigabit Ethernet fibres (MM)
- Pigtail colour code:
  E9...10/125 according to DIN IEC 60304
  G50/125 according to DIN IEC 60304
  G62.5/125 green
- Pigtails already inserted into splice cassette, splice protector

- Height: 44 mm (1 U)
  Width: 483 mm (19")
  Depth: 240 mm
  Weight: 1.2 kg
- Screen-printed markings: Channel 1-12 / 1-24, A/B coding with SC/ST/FC components

Components:
- Available with up to 24 slots or without components
- The following couplings can be used:
  SC-Duplex/SC-Duplex
  FC-PC, FC-PC(HRL) (SM)
  ST/ST
  E2,000/E2,000
  E2,000HRL/E2,000HRL (SM)
  MT-RJ/MT-RJ (MM)
  LC-Duplex

Accessories:
- Blind plug for front panel, splice protector (maximum of 12 pcs. in one splice cassette)

FLine® patch housing smart, fixed

Single-mode standard:

No. of Fibres	SC-DX (Met/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	E2,000HRL (Plastic/Cer)	FC-PC (Met/Cer)	FC-PC HRL (Met/Cer)
4	9FF90204	9FF90223	9FF90232	9FF90236	9FF90240	9FF90245
8	9FF90404	9FF90423	9FF90432	9FF90436	9FF90440	9FF90445
12	9FF90604	9FF90623	9FF90632	9FF90636	9FF90640	9FF90645
24	9FF91204	9FF91223	9FF91232	9FF91236	9FF91240	9FF91245
48	9FF92404*	9FF92423*	9FF92432*	9FF92436*	9FF92440*	9FF92445*

FLine® 110, FLine® 300™, FLine® 550, Multimode-G50, G62.5

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FF90204	9FFM0203	9FF90223	9FFM0232	9FFM0237	9FFM0255
8	9FF90404	9FFM0403	9FF90423	9FFM0432	9FFM0437	9FFM0455
12	9FF90604	9FFM0603	9FF90623	9FFM0632	9FFM0637	9FFM0655
24	9FF91204	9FFM1203	9FF91223	9FFM1232	9FFM1237	9FFM1255
48	9FF92404*	9FFM2403*	9FF92423*	9FFM2432*	9FFM2437	9FFM2455

*Model with 2 U; other or mixed designs available on request
Included in delivery: assembly, 1 ready-made holder, possibly blind plugs.

FLine® splice housing smart, fixed

Single-mode E9..10/125, insertion losses: < 0.4 dB; return losses: > 40 dB

No. of Fibres	SC-DX (Met/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	E2,000HRL (Plastic/Cer)	FC-PC (Met/Cer)	FC-PC HRL (Met/Cer)
4	9FG90204	9FG90223	9FG90232	9FG90236	9FG90240	9FG90245
8	9FG90404	9FG90423	9FG90432	9FG90436	9FG90440	9FG90445
12	9FG90604	9FG90623	9FG90632	9FG90636	9FG90640	9FG90645
24	9FG91204	9FG91223	9FG91232	9FG91236	9FG91240	9FG91245
48	9FG92404*	9FG92423*	9FG92432*	9FG92436*	9FG92440*	9FG92445*

FLine® 110, Multimode G50/125 OM2, insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FG50204	9FG50203	9FG50223	9FG50232	9FG50237	9FG50255
8	9FG50404	9FG50403	9FG50423	9FG50432	9FG50437	9FG50455
12	9FG50604	9FG50603	9FG50623	9FG50632	9FG50637	9FG50655
24	9FG51204	9FG51203	9FG51223	9FG51232	9FG51237	9FG51255
48	9FG52404*	9FG52403*	9FG52423*	9FG52432*	9FG52437	9FG52455

FLine® 300, Multimode G50/125 OM3: insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FGB0204	–	–	–	–	9FGB0255
8	9FGB0404	–	–	–	–	9FGB0455
12	9FGB0604	–	–	–	–	9FGB0655
24	9FGB1204	–	–	–	–	9FGB1255
48	9FGB2404*	–	–	–	–	9FGB2455

FLine® 550, Multimode G50/125 OM3 "e": insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FGD0204	–	–	–	–	9FGD0255
8	9FGD0404	–	–	–	–	9FGD0455
12	9FGD0604	–	–	–	–	9FGD0655
24	9FGD1204	–	–	–	–	9FGD1255
48	9FGD2404*	–	–	–	–	9FGD2455

Multimode G62,5/125 OM1, standard: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX (Plastic/Cer)
4	9FG60204	9FG60203	9FG60223	9FG60232	9FG60237	9FG60255
8	9FG60404	9FG60403	9FG60423	9FG60432	9FG60437	9FG60455
12	9FG60604	9FG60603	9FG60623	9FG60632	9FG60637	9FG60655
24	9FG61204	9FG61203	9FG61223	9FG61232	9FG61237	9FG61255
48	9FG62404*	9FG62403*	9FG62423*	9FG62432*	9FG62437	9FG62455

*Model with 2 U; other or mixed designs available on request
Included in delivery: assembly, splice cassette(s) with cover, splice protector with holder, 1xPG16 gland,
pigtails marked and plugged into couplings ready for splicing (primary and secondary coating), possibly blind plugs.

Subject to printing errors, mistakes and technical changes.

FLine® Hybrid

FLine® Hybrid was developed for special system applications in SANs, LANs and Data Centres where combined fibre optic and copper cabling is used.

The Hybrid panel has a high packing density and is easy to mount. The basic housing was designed to accommodate up to four modular ELine 250® RJ, ELine 500™ RJ or EC7 jacks and up to 12 x SC-Duplex and up to 12 x LC-Duplex couplings. An optional splice cassette holder allows the entry and processing of up to 24 fibre pigtails.

The FLine® Hybrid system combines the advantages of fibre optic and copper cabling.

FO: high bandwidths
        long ranges
Copper: for data and telecommunications
        (conventional / Voice over IP
        Power over LAN

Characteristics:
- Compact design 1 U
- The front panel is light grey, RAL 7035
- Exchangeable front panel
- The front panel can be equipped with up to 24 x ELine 250® RJ, 24 x ELine 500™ and 24 x EC7
- 12 x SC-Duplex, 12 x LC-Duplex
- The couplings are premounted
- Front panel with combined screen-printed 1–24 for jacks and couplings
- The body of the housing is made of sheet steel

Optional splice insert:
- The splice insert is detachable
- Up to two splice cassettes with 12 fibres each can be inserted
- Splice cassettes with pigtails already included and ready for splicing
- Pigtails are marked (primary and secondary coating) according to the DIN IEC 60304 colour code
- The result is rapid, safe assembly as it is no longer necessary to mark the individual pigtails

FLine® Hybrid housings:

Front panel with:	SC-DX	LC-DX
Housing	9FJZ0004	9FJZ0055
Splice insert	9FZZ0189	9FZZ0189

Single-mode E9..10/125, insertion losses: < 0.4 dB; return losses >40 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	SC-DX (Plastic/PhBz)	LC-DX (Plastic/Cer)	LC-DX (Plastic/PhBz)
6	9FJ90304	9FJ90303	9FJ90305	9FJ90355	9FJ90356
12	9FJ90604	9FJ90603	9FJ90605	9FJ90655	9FJ90656
24	9FJ91204	9FJ91203	9FJ91205	9FJ91255	9FJ91256

FLine® 110, Multimode G50/125 OM2e, insertion losses: < 0.4 dB; return losses >25 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	SC-DX (Plastic/PhBz)	LC-DX (Plastic/Cer)	LC-DX (Plastic/PhBz)
6	9FJ90304	9FJ90303	9FJ90305	9FJ90355	9FJ90356
12	9FJ90604	9FJ90603	9FJ90605	9FJ90655	9FJ90656
24	9FJ91204	9FJ91203	9FJ91205	9FJ91255	9FJ91256

FLine® 300, Multimode G50/125 OM3: insertion losses: < 0.2 dB; return losses >35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	SC-DX (Plastic/PhBz)	LC-DX (Plastic/Cer)	LC-DX (Plastic/PhBz)
6	9FJB0304	9FJB0303	9FJB0305	9FJB0355	9FJB0356
12	9FJB0604	9FJB0603	9FJB0605	9FJB0655	9FJB0656
24	9FJB1204	9FJB1203	9FJB1205	9FJB1255	9FJB1256

FLine® 550, Multimode G50/125 OM3 "e": insertion losses: < 0.2 dB; return losses >35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	SC-DX (Plastic/PhBz)	LC-DX (Plastic/Cer)	LC-DX (Plastic/PhBz)
6	9FJD0304	9FJD0303	9FJD0305	9FJD0355	9FJD0356
12	9FJD0604	9FJD0603	9FJD0605	9FJD0655	9FJD0656
24	9FJD1204	9FJD1203	9FJD1205	9FJD1255	9FJD1256

Multimode G62,5/125 OM1, standard: insertion losses: < 0.4 dB; return losses >25 dB

No. of Fibres	SC-DX ((Met/Cer)	SC-DX (Plastic/Cer)	SC-DX (Plastic/PhBz)	LC-DX (Plastic/Cer)	LC-DX (Plastic/PhBz)
6	9FJ60304	9FJ60303	9FJ60305	9FJ60355	9FJ60356
12	9FJ60604	9FJ60603	9FJ60605	9FJ60655	9FJ60656
24	9FJ61204	9FJ61203	9FJ61205	9FJ61255	9FJ61256

Available equipped with other components on request.

Subject to printing errors, mistakes and technical changes.

FLine

FLine® compact –
high packing density and maximum flexibility

FLine® compact is a user-friendly fibre optic cable patch system to hold a maximum of up to 144 fibres with conventional couplings like SC, ST, E 2,000 and even 240 fibres with LC and 288 fibres with MT-RJ. In spite of its compactness, the system offers optimum fibre optic cable management. FLine® compact is used when there is little room and maximum flexibility is required (computer centres, subnetworks).

Characteristics of FLine® compact

- 3 U (height units) high, 3 DU (division units) deep, aluminium front panels with screen printing (exception for LC, 8 DU)
- Maximum flexibility through optional equipping with SC, ST, E2,000, E2,000 HRL, FC-PC, MT-RJ, LC, LC HRL and FC-PC (by the module)
- Can be equipped with up to 12 modules (10 with LC-Duplex)
- Protection of pigtails through closable cable management and splice cassettes
- The pigtails are coloured (primary and secondary coating) according to the DIN IEC 60304 colour code for safe and rapid installation
- The wires in the splice cassette are marked and ready for splicing
- The couplings can be mounted at any time later

Cable management bar

- The cable management bar can be pulled out to the rear, takes up the filled loose tube reserve loops and serves to fix the fibre optic cables
- The switching channel on the front panel organises the patch cord guidance while observing the bending radii

All the necessary PLANNING DOCUMENTS are available in the Internet: **www.kerpen.com**

Subject to printing errors, mistakes and technical changes.

FLine® compact module

Characteristics:
- Installation of a maximum of 24 fibres
- Body of housing made of sheet steel
- Front panel made of aluminium
- Colour of front panel: aluminium
- With cable management and splice cassette rest
- With splice cassette incl. pigtails, Gigabit Ethernet fibres (MM)
- Pigtail colour code:
  E9...10/125 according to DIN IEC 60304
  G50/125 according to DIN IEC 60304
  G62.5/125 green
- Pigtails already inserted into splice cassette, splice protector
- Depth: 220 mm (without components).
- Protection of pigtails via closable cable management and splice cassettes
- The wires in the splice cassette are marked and ready for splicing
- Fixing screws

Components:
- Available with up to 4, 8 or 12 slots or without components
- The following couplings can be used:
  SC-Duplex/SC-Duplex
  FC-PC, FC-PC(HRL) (SM)
  ST/ST
  E2,000/E2,000
  E2,000HRL/E2,000HRL (SM)
  MT-RJ/MT-RJ (MM)
  LC-Duplex (8TE)

Accessories:
- Blind plug for front panel, splice protector

Compact Modul with LC-Duplex 8 TE

Subject to printing errors, mistakes and technical changes.

FLine® compact 3 U/7 DU splice plug-in module

Splice solution:

Single-mode E9..10/125, insertion losses: < 0.4 dB; return losses: > 40 dB

No. of Fibres	SC-DX (Met/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	E2,000HRL (Plastic/Cer)	FC-PC (Met/Cer)	FC-PC HRL (Met/Cer)
4	9FK90204	9FK90223	9FK90232	9FK90236	9FK90240	9FK90245
8	9FK90404	9FK90423	9FK90432	9FK90436	9FK90440	9FK90445
12	9FK90604	9FK90623	9FK90632	9FK90636	9FK90640	9FK90645

FLine® 110, Multimode G50/125 OM2, insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX* (Plastic/Cer)
4	9FK50204	9FK50203	9FK50223	9FK50232	9FK50237	9FK50255
8	9FK50404	9FK50403	9FK50423	9FK50432	9FK50437	9FK50455
12	9FK50604	9FK50603	9FK50623	9FK50632	9FK50637	9FK50655
24	–	–	–	–	9FK51237	9FK51255

FLine® 300, Multimode G50/125 OM3: insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX* (Plastic/Cer)
4	9FKB0204	–	–	–	–	9FKB0255
8	9FKB0404	–	–	–	–	9FKB0455
12	9FKB0604	–	–	–	–	9FKB0655
24	–	–	–	–	–	9FKB1255

FLine® 550, Multimode G50/125 OM3 "e": insertion losses: < 0.2 dB; return losses: > 35 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX* (Plastic/Cer)
4	9FKD0204	–	–	–	–	9FKD0255
8	9FKD0404	–	–	–	–	9FKD0455
12	9FKD0604	–	–	–	–	9FKD0655
24	–	–	–	–	–	9FKD1255

Multimode G62.5/125 OM1, standard: insertion losses: < 0.4 dB; return losses: > 25 dB

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX* (Plastic/Cer)
4	9FK60204	9FK60203	9FK60223	9FK60232	9FK60237	9FK60255
8	9FK60404	9FK60403	9FK60423	9FK60432	9FK60437	9FK60455
12	9FK60604	9FK60603	9FK60623	9FK60632	9FK60637	9FK60655
24	–	–	–	–	9FK61237	9FK61255

* 8 DU splice plug-in-module
Other or mixed designs available on request
Included in delivery: assembly, splice cassette(s) with cover, splice protector with holder,
pigtails marked and plugged into couplings ready for splicing, possibly blind plugs.

FLine® compact 3 U/7 DU patch plug-in module

Solution for ready-made breakout cables:

Single-mode standard:

No. of Fibres	SC-DX (Met/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	E2,000HRL (Plastic/Cer)	FC-PC (Met/Cer)	FC-PC HRL (Met/Cer)
4	9FKS0204	9FKS0223	9FKS0232	9FKS0236	9FKS0240	9FKS0245
8	9FKS0404	9FKS0423	9FKS0432	9FKS0436	9FKS0440	9FKS0445
12	9FKS0604	9FKS0623	9FKS0632	9FKS0636	9FKS0640	9FKS0645

FLine® 110, FLine® 300, FLine® 550, Multimode-G50, G62.5

No. of Fibres	SC-DX (Met/Cer)	SC-DX (Plastic/Cer)	ST (Met/Cer)	E2,000 (Plastic/Cer)	MT-RJ (Plastic)	LC-DX* (Plastic/Cer)
4	9FKS0204	9FKM0203	9FKS0223	9FKM0232	9FKM0237	9FKM0255
8	9FKS0404	9FKM0403	9FKS0423	9FKM0432	9FKM0437	9FKM0455
12	9FKS0604	9FKM0603	9FKS0623	9FKM0632	9FKM0637	9FKM0655
24	–	–	–	–	9FKM1237	9FKM1255

* 8 DU splice plug-in-module
Other or mixed designs available on request
Included in delivery: assembly, splice cassette(s) with cover, splice protector with holder,
pigtails marked and plugged into couplings ready for splicing, possibly blind plugs.

Splice distributor Compact

Cable management bar

Product description:

- 19" component chassis, 3 U, 84 DU, mounted and without components
- Body of housing and front panel made of aluminium
- Depth: 243 mm (without compact module)

Product description:

- 19" component chassis, 1 U
- Front panel with patch cord guidance/ cable management
- Drawer for clear organisation of filled loose tube reserve loops and fixing
- Drawer can be extended backwards
- Completely assembled incl. fastening material
- Colour: light grey, RAL 7035
- Depth: 350 mm

Article number: 9FKZ0001

Article number: 9FKZ0004

Subject to printing errors, mistakes and technical changes.

FLine (sideways logo)

FLine® patch cords
GigaLine® DX 100, 500, 625

Ready-made fibre optical duplex cables for patch field and workplace cabling

Type: KL-J-V(ZN)H

Sheath material: halogen-free, flame-retardant compound
Sheath colour: yellow (single-mode), orange (multimode)

Single-mode standard: insertion losses: < 0.4 dB; return losses: > 40 dB

SC-Duplex/SC-Duplex	SC-Duplex/ST	ST/ST	FC-PC
9FP40XXX	9FP41XXX	9FP42XXX	9FP45XXX
FC-PC HRL/FC-PC HRL	**E2,000/E2,000**	**E2,000 HRL/E2,000 HRL**	**LC-DX/LC-DX (mini-zip)**
9FP46XXX	9FP43XXX	9FP44XXX	9FP1AXXX (orange)
FC-DX/LC-DX (Duplex)	**LC-DX/SC-Duplex (mini-zip)**	**LC-DX/SC-Duplex (Duplex)**	**LC-DX/LC-DX (mini-zip)**
9FP3XXXX (yellow)	9FP1XXXX (yellow)	9FP2FXXX (yellow)	9FP3ZXXX (yellow)

FLine® 110, Multimode G50/125 OM2: insertion losses: < 0.4 dB; return losses: > 25 dB

SC-Duplex/SC-Duplex	SC-Duplex/ST	ST/ST	E2,000/E2,000
9FP02XXX	9FP05XXX	9FP08XXX	9FP11XXX
MT-RJ/MT-RJ	**SC-Duplex/MT-RJ**	**LC-DX/LC-DX (mini-zip)**	**LC-DX/LC-DX (Duplex)**
9FP14XXX	9FP17XXX	9FP5AXXX	9FP2CXXX
LC-DX/MT-RJ (mini-zip)	**SC-Duplex/LC-DX (mini-zip)**	**SC-Duplex/LC-DX (Duplex)**	**ST/LC-DX (Duplex)**
9FP1IXXX	9FP47XXX	9FP2DXXX	9FP3JXXX

FLine®, Multimode G50/125 OM3: insertion losses: < 0.4 dB; return losses: >25 dB

SC-Duplex/SC-Duplex	SC-Duplex/ST	ST/ST	E2,000/E2,000
9FP52XXX	9FP31XXX	9FP3TXXX	9FP3FXXX
LC-DX/LC-DX (Duplex)	**LC-DX/LC-DX (mini-zip)**	**SC-Duplex/LC-DX (Duplex)**	**ST/LC-DX (Duplex)**
9FP2GXXX	9FP3LXXX	9FP2YXXX	9FP4AXXX

FLine® 300, Multimode G50/125 OM3: insertion losses: < 0.2 dB; return losses: >35 dB

SC-Duplex/SC-Duplex	LC-DX/LC-DX
9FP3CXXX	9FP3YXXX

FLine® 550, Multimode G50/125 OM3 "e": insertion losses: < 0.2 dB; return losses: >35 dB

SC-Duplex/SC-Duplex	LC-DX/LC-DX
9FP4CXXX	9FP4YXXX

Multimode G62,5/125 OM1, standard: insertion losses: < 0.4 dB; return losses: >25 dB

SC-Duplex/SC-Duplex	SC-Duplex/ST	ST/ST	E2,000/E2,000
9FP03XXX	9FP06XXX	9FP09XXX	9FP12XXX
MT-RJ/MT-RJ	**SC-Duplex/MT-RJ**	**LC-DX/LC-DX (mini-zip)**	**SC-Duplex/LC-DX (mini-zip)**
9FP15XXX	9FP18XXX	9FP6AXXX	9FP6XXXX

XXX – length in decimetres
Other or mixed designs available on request
Example: KL-J-V(ZN)H 2 E9...10/125 with SC-Duplex/SC-Duplex ready-made, length: 2 meters: 9FP40020

All the necessary PLANNING DOCUMENTS are available in the Internet: **www.kerpen.com**

Subject to printing errors, mistakes and technical changes.

FLine® office and floor distributors – multifunctional housings for FTTD/FTTO cabling

Network installations are increasingly being implemented with disturbance-proof fibre optic systems technology with future capabilities.
This allows EMC problems as well as different earthing potentials to be avoided for cabling reaching through whole buildings.

When a fibre optic cabling with a star structure is used in a building, the long ranges involved make it possible to dispense with active components on the individual floors.

19" distributor cabinets and separate security areas (rooms) are no longer necessary.

The space-saving office and floor cables are perfectly suited for the transitions from high-fibre backbone cables to breakout cables for workplace cabling.

They are easy to install and offer space-saving organisation and optimum protection for FO systems engineering.

Characteristics which ensure a high degree of flexibility

- The FLine® office and floor distributors can be optionally equipped with splice cassettes and/or distributor plates for taking up fibre optical couplings.
- Later modifications to the components used are possible at any time
- Takes up a maximum of up to 192 fibres
- The pigtails are coloured (primary and secondary coating) according to the DIN IEC 60304 colour code for safe and reliable installation
- The pigtails in the splice cassette are ready for splicing
- The arriving and departing fibre optic cables are fixed to a strain relief strip in the housing
- The cable entries are sealed via brush strips or PG glands
- Housing with two pivoted doors, lockable
- Housing colour: light grey, RAL 7035
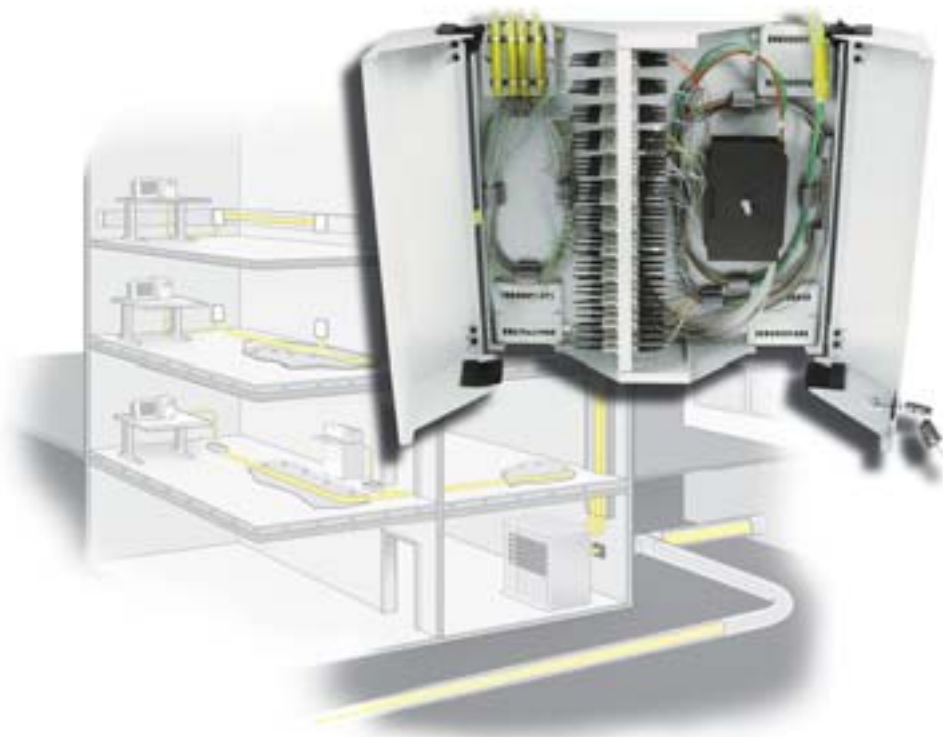
Subject to printing errors, mistakes and technical changes.

FLine® office and floor distributors – multifunctional housings for FTTD/FTTO cabling

FLine®

Size A: 300 x 250 x 110 mm
The wall distributor/splice box can be equipped with the following components:
- Up to 8 splice cassettes with a total of 96 fibres
- One integrated coupling panel can be equipped with up to 48 couplings for fibre optic connectors
- Optionally, 2 different cable entry modules can be used (1 x at top and 1 x at bottom)
- light grey, RAL 7035

Size B: 410 x 410 x 110 mm
The wall distributor/splice box can be equipped with the following components:
- Up to 16 splice cassettes with a total of 192 fibres
- One integrated coupling panel can be equipped with up to 96 couplings for fibre optic plug connectors
- Optionally, 4 different cable entry modules can be used (2 x at top and 2 x at bottom)
- light grey, RAL 7035

In general:
- Optionally, 4 different cable entry modules can be used (2 x at top at 2 x at bottom)
  - Brush strip
  - 2 x PG 16
  - 2 x PG 21

Scope of delivery:
- Fibre optical wall distributor/splice box housing empty, without cable entry modules with standard closing cylinder

Coupling panel

Cable entry modules

Accessories:
- Coupling panel to take up ST, SC-Duplex, E 2,000, LC-Duplex, MT-RJ
- Splice cassette with holder and cover
- Pigtails
- Crimp/shrink splice protector
- Cable guide bar with velcro® band
- Dummy plates

Office/wall distributor/splice box		Article no.	Office/wall distributor/splice box		Article no.
Size A:	300 x 250 x 110 mm Housing empty	9FW048V	**Size B:**	410 x 410 x 110 mm Housing empty	9FW096V

Coupling panel

for a max. of	12 x SC-Duplex	9FZW1204	for a max. of	24 x SC-Duplex	9FZW2404
for a max. of	24 x ST 24 x FC-PC	9FZW1223	for a max. of	48 x ST 48 x FC-PC	9FZW2423
for a max. of	24 x E 2,000, 12 x LC-Duplex 24 x MT-RJ	9FZW1232	for a max. of	48 x E 2,000 24 x LC-Duplex 48 x MT-RJ	9FZW2432

All the necessary PLANNING DOCUMENTS are available in the Internet: **www.kerpen.com**

Subject to printing errors, mistakes and technical changes.

Couplings

Multimode		Single-mode	
SC-Duplex	9FZ90004	SC-Duplex	9FZ90004
ST	9FZ90023	ST	9FZ90023
LC-Duplex	9FZM0055	LC-Duplex	9FZ90055
E 2,000	9FZM0032	E 2,000	9FZ90032
MT-RJ	9FZM0037	MT-RJ	9FZ90037
FC-PC	9FZM0040	FC-PC	9FZ90040

Cable entry modules

2 x PG 16	9FZZ0069
2 x PG 21	9FZZ0070
Brush strip	9FZZ0071
Dummy plate	9FZZ0072
Cable guide bar with velcro® band	9FZZ0073
Splice cassette	9FZZ0005
Cover for the splice cassette	9FZZ0021
Splice protector	9FZZ0006
Splice protector holder	9FZZ0007

Splice cassettes with inserted pigtails	Article number
FLine® 110, Multimode G 50/125, insertion losses < 0.4 dB; return losses > 25 dB "OM2e"	
Splice cassette with 12 x SC pigtails	9F350601
Splice cassette with 12 x ST pigtails	9F350620
Splice cassette with 12 x LC pigtails	9F350655
Splice cassette with 12 x E 2,000 pigtails	9F350632
Splice cassette with 12 x FC-PC pigtails	9F350640
FLine® 300, Multimode G 50/125, insertion losses < 0.2 dB; return losses > 35 dB "OM3"	
Splice cassette with 12 x SC pigtails	9F3B0601
Splice cassette with 12 x LC pigtails	9F3B0655
FLine® 550, Multimode G 50 / 125 , insertion losses < 0.2 dB; return losses > 35 dB "OM3e "	
Splice cassette with 12 x SC pigtails	9F3D0601
Splice cassette with 12 x LC pigtails	9F3D0655
Single-mode E 9...10/125, insertion losses < 0.4 dB, return losses > 40 dB	
Splice cassette with 12 x SC pigtails	9F390601
Splice cassette with 12 x ST pigtails	9F390620
Splice cassette with 12 x LC pigtails	9F390655
Splice cassette with 12 x E 2,000 HRL pigtails	9F390636
Splice cassette with 12 x E 2,000 pigtails	9F390632
Splice cassette with 12 x FC-PC pigtails	9F390640
Splice cassette with 12 x FC-PC-HRL pigtails	9F390645

FLine® office and floor distributors

All the necessary PLANNING DOCUMENTS are available in the Internet: **www.kerpen.com**

Subject to printing errors, mistakes and technical changes.

FLine® – the complete fibre-to-the-desk system

Compact fibre optical connection engineering – high performance, immunity to disturbances, future capabilities

Of course, the FLine® system also includes comprehensive connectivity solutions for fibre-to-the-desk. Here it is possible to use a wide range of outlets with the corresponding materials for installation in ducts and floorbox solutions
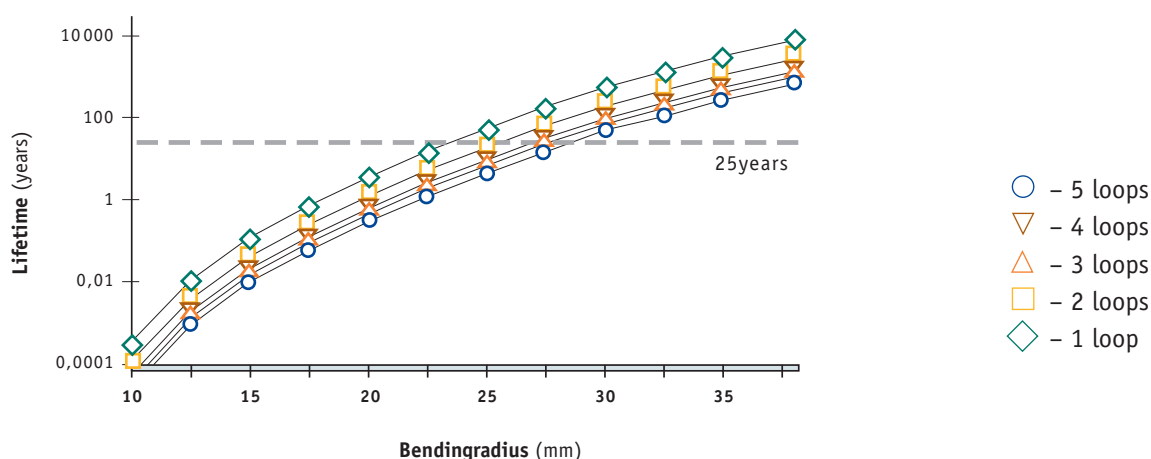

As a result of a specific outlet design, bending never goes below the admissible bending radii of the fibres, thus ensuring that the fibre keeps its full functionality even in the long term.

- A defined bending radius of the fibre ensures the lifetime
- An effective strain relief for cables and pigtails and clean guidance within the outlet ensure minimum strain on the fibre and preservation of the physical characteristics
- The dimensions of the outlets are as small as possible

FLine® UP outlet

The UP outlet can be installed in ducts or concealed mounting can be used. The special features of this professional version are as follows:

- It can be equipped with up to two duplex or 4 simplex couplings
- Possible types of coupling: SC-Duplex, ST-Simplex, E 2,000, LC-Duplex
- The bending radius of the fibre of at least 30 mm is ensured by the cable reservoir and the cable guide
- The outlet has a downward inclination of 10°. This ensures optimum protection against mechanical stress.
- The universal carrying frame is compatible with usual mounting cups
- All current connecting techniques are supported:
  - Mounting of fibre optical plugs on location
  - Use of ready-made cables
  - Splicing of pigtails

FLine® UP outlet
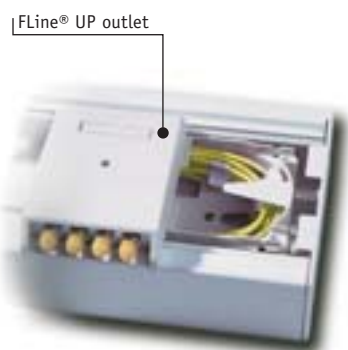
FLine® outlets

FLine® outlet   **FLine® cable reservoir KR**   **FLine® cable guide KF**

Product description:

- For mounting in parapet ducts and for underfloor mounting
- Termination of up to 4 channels/ 6 fibres
- Outlet direction: downwards at an angle of 10°
- Bending radius > 30 mm in conjunction with cable reservoir KR or cable guide KF
- Marking insert enclosed
- Delivery: completely equipped with all components
- Colour: pearl white, RAL 1013

Article number: 9FK03051

Pcs. per packing unit: 1

Product description:

- For UP jack
  to take up excessive cable lengths and/or safety reserves (at least 4 x 1 m at an external diameter of 3 mm)
- Minimum bending radius > 30 mm
- Direction-independent cable entry with cable tie strain relief on input and output side
- FLine® cable reservoir KR
- Installation height 50 mm
- Installation height 55 mm

Article number: 9FK03007/9ZK03008

Pcs. per packing unit: 1

Product description:

- For UP FO jack
  to comply with the minimum bending radii for FO cables (> 30 mm) in conjunction with assembly holder
- FLine® cable guide KF

Article number: 9FK03009

Pcs. per packing unit: 10

FLine® EK outlet

FLine® EK outlet

The advantage of the EK outlet is its compact design. It can be installed in ducts in a horizontal or vertical position.

The EK outlet has the following characteristics:
- It can be equipped with up to one duplex coupling or two simplex couplings
- Possible types of coupling: SC-Duplex, ST-Simplex, E 2,000, LC-Duplex
- The integrated cable guide ensures compliance with the admissible bending radius

- The universal central piece can be combined with various different switch programs
- Ready-mounted plugs as well as plugs mounted on location can be used

Subject to printing errors, mistakes and technical changes.

FLine® outlets

FLine® EK outlet	**FLine® assembly holder MH**	**FLine® assembly holder MH**

Product description:

- For horizontal and vertical mounting in parapet ducts, termination of 1 channels/2 fibres
- Outlet direction: downwards at an angle of 45°, defined bending radius in conjunction with suitable assembly holder MH
- Cable tie strain relief
- Central piece 50 x 50 mm according to DIN 41075 Part 1, 1989
- Colour: pearl white, RAL 1013

Article number: 9FK03050

Pcs. per packing unit: 1

Product description:

- For EK or UP outlet in conjunction with cable guide KF
- Horizontal mounting
- Suitable for all Tehalit duct systems and Ackermann
- Te li ko (WIK + SIS)
- Installation height 50 mm
- Installation height 55 mm

Article number: 9FK03014/9FK03015

Pcs. per packing unit: 10

Product description:

- For EK or UP outlet in conjunction with cable guide KF
- Horizontal mounting
- Suitable for all Tehalit duct systems and Ackermann
- Te li ko (WIK + SIS)
- Installation height 50 mm
- Installation height 55 mm

Article number: 9FK03016/9FK03017

Pcs. per packing unit: 10

Designation, coupling	Article No.
ST/ST Monomode, ceramic	9FK03010
SC/ST Monomode, ceramic	9FK03011
SC/SC Monomode, ceramic	9FK03012
ST/ST Multimode, ceramic	9FK03043
SC/ST Multimode, ceramic	9FK03044

Designation, coupling	Article No.
SC/SC Multimode, ceramic	9FK03045
ST/ST Multimode, PhBz	9FK03046
SC/ST Multimode, PhBz	9FK03047
SC/SC Multimode, PhBz	9FK03048

Installation systems for Ackermann floorbox GES 6 and GES 9

More and more frequently, modern office infrastructures are being based on flexible underfloor systems (double floors, duct systems).
KERPEN has followed the leading manufacturers of these systems and developed suitable connecting components.

Product features:

- The device cup can take up 4 X SC Duplex, 4 x E 2,000, 4 x MT-RJ and 4 X LC Duplex
- The device cup consists of 1.5 mm sheet steel
- Surface powder-coated black, RAL 9005
- Self-adhesive marking strips for marking as required

Solution for ready-made cables

FLine® device cup (dual)

FLine® device cup (triple)

FLine® adjustable cable strain relief

Product description:

- For taking up the mounting plates for fibre optic couplings
- For Ackermann floorboxes GES 6

Article number: 9ZE60001

Product description:

- For taking up the mounting plates for fibre optic couplings (as in examples on top right)
- For Ackermann floorboxes GES 6

Article number: 9ZE60002

Product description:

- For up to 9 individual cables

Article number: 9ZE60004

FLine® mounting plate

FLine® mounting plate

Product description:

- For up to 4 x SC-Duplex couplings

Article number: 9FZZ0038

Product description:

- For up to
  4 x LC/Duplex and/or
  4 x E 2,000 Simplex

Article number: 9FZZ0079

Floorbox solutions for splices (pigtails)

FLine® cable management module

FLine® splice tray with splice holder

Product description:

- For storing the wires and for the strain relief of the fibre optic cables

Article number (GES 9): 9FZZ0080

Article number (GES 6): 9FZZ0018

Product description:

- For 12 x splice protector

Article number (GES 9): 9FZZ0081

Article number (GES 6): 9FZZ0082

All the necessary PLANNING DOCUMENTS are available in the Internet: **www.kerpen.com**

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