

We realize ideas

Fiber In The Home Your way to fast Internet



Our strengths – your benefit

Your fiber optic connection -

Instructions for preparation



Only 3 steps to a ready connection!

1

Fiber In The Home - What does that actually mean? It is the English translation for fiber optics in the home, and as such, the technology of the future when it comes to the basis for fast data connection. But what do you need to do in order to use fiber optics in your house or apartment? The following brochure will help you and your electrician to create the necessary conditions.

1. Network owner

In the course of network expansion, the network owner (municipality or association established for a special purpose) has laid a fiber optic line to your house. That's why you have concluded a house connection with the network owner. The line ends, for example, in your cellar with the house transfer point APL.

2. Customer/Owner - What do you need to do?

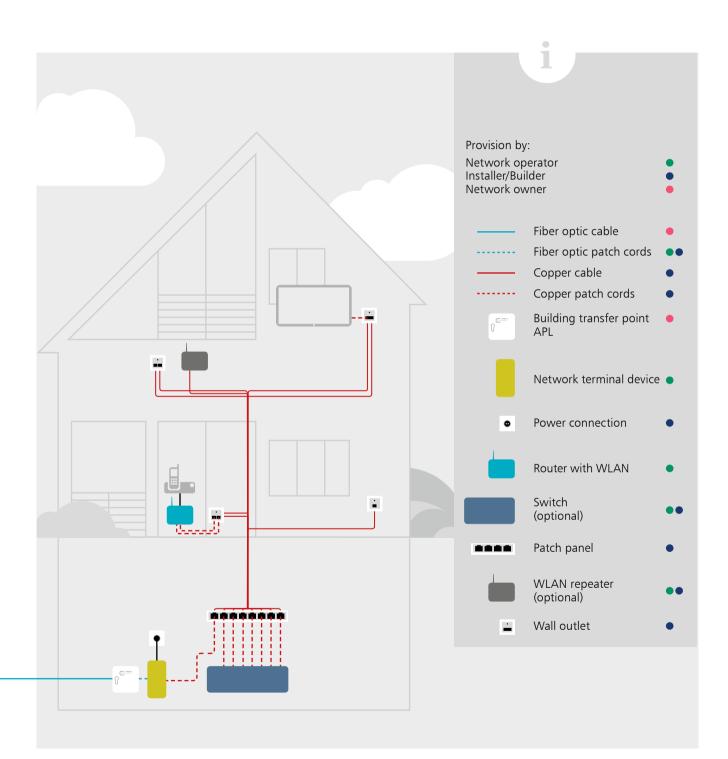
In order for the network operator to eventually send a signal into your living space, it's up to you to provide the specific cabling.

This means for a

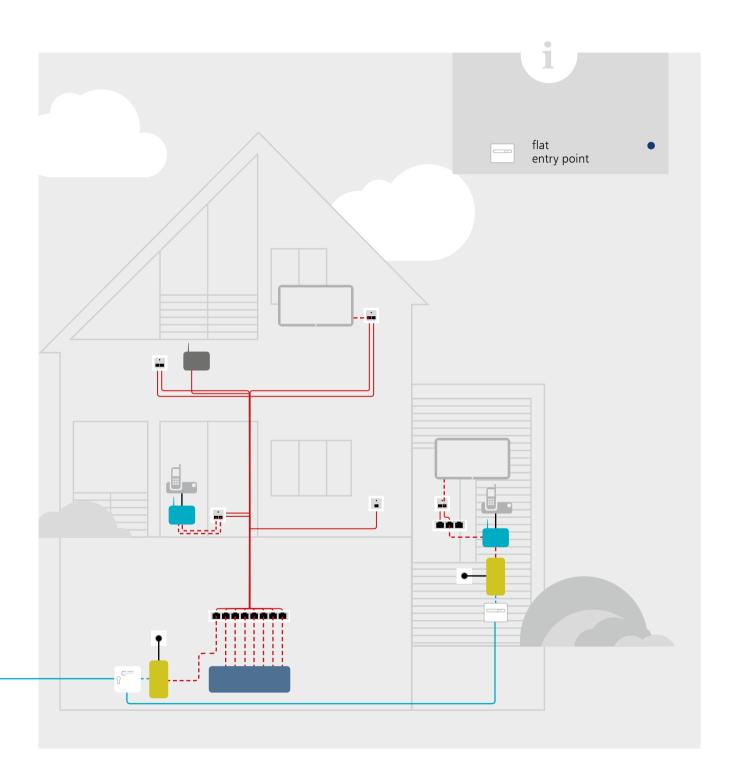
- > one family house: The network terminal device provided by the operator located near the APL requires a power connection. If your house already has a network cabling, you can immediately use this for your advantage. Otherwise, you will find cabling suggestions in this brochure.
- > multi-family dwelling: Installation of a fiber optic distributor in the cellar and the installation of fiber optic cables up to individual apartments, ending at the respective flat entry point.

3. Network operator (Provider)

As soon as steps 1 and 2 are completed, i.e. the house connection is finished and the cabling is in place, you can make an appointment with the network operator. The prerequisite for this is a concluded signal supply contract. A technician sets the network terminal device, which then supplies your router and your terminal devices with fast Internet. Single family house

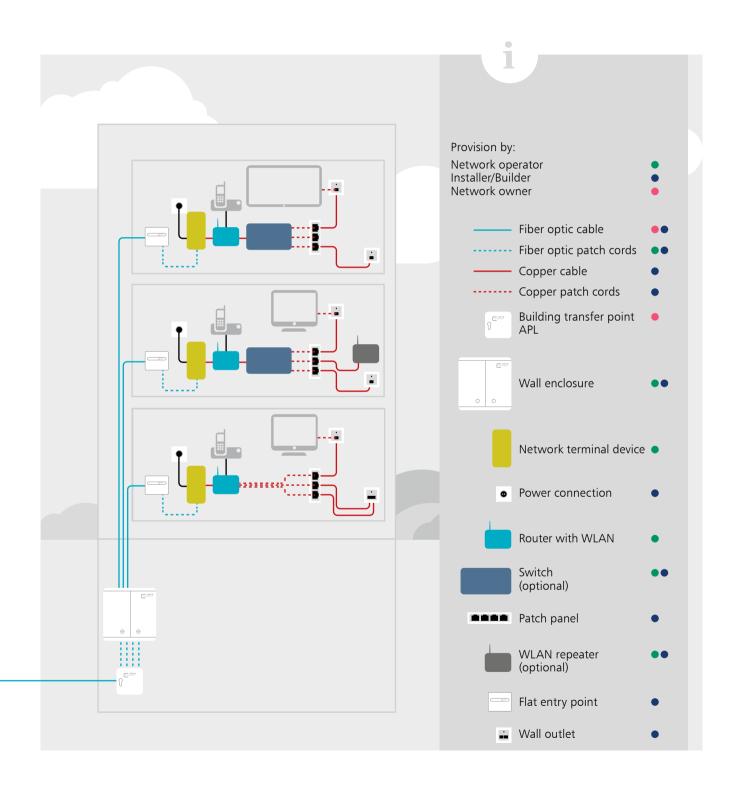


Single family house with self-contained apartment

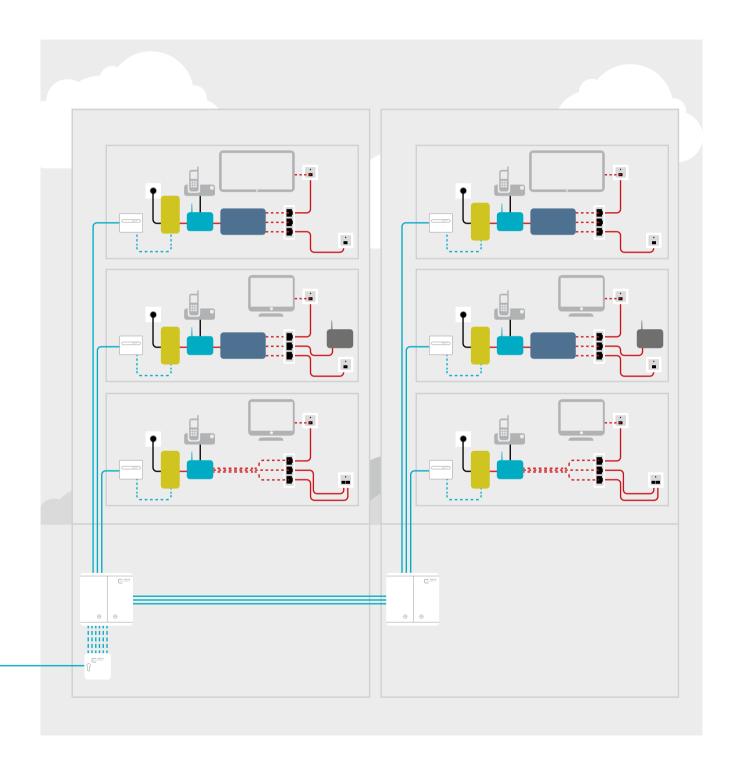


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Multi-family house



Properties with two or more houses



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Fiber optic components

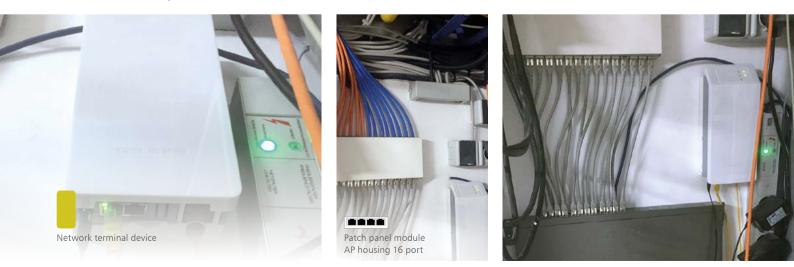
Once installed – enjoy unlimited freedom!

	DESCRIPTION	METZ CONNECT	PROVIDER	INSTALLER	NETWORK OWNER
	Building transfer point APL The building transfer point connects the external fiber optic cable with the internal	1501597GXXHC			
	cabling	1501591HXXHC			•
	Network terminal device (NAG) The network terminal device converts a fiber optic technology to a copper tech- nology. A power connection is necessary. Connection to the building transfer point via the fiber optic patch cords		•		
	Internet router Interface between your own network and the Internet. With a WLAN function. Rec- ommended: AVM FRITZ!Box 7490 4 x LAN, WLAN, AC + N, ISDN, DECT		•		
	A switch (copper 10 MB/100 MB/1 GB) duplicates the network connections from the router and controls the communication in the network; it is required if more than three terminal devices are to be connected		•	•	
	A WLAN repeater can be optionally used if the WLAN range is not sufficient		•	•	
	Flat entry point with a cable drum Connection from apartment to fiber optic distributor, with open end for splicing or assembled on both sides.	150C049HKxxxxE 150F049HK00xxE		•	
	Fiber optic patch cords for connecting the building transfer point or network terminal device Length from 0.2 to 10 m is available	151P7JAJAxxE	•	•	
	Pre-terminated installation cable (VIK) for connecting the flat entry point. 4 fibers, ready mounted with connectors on both sides Length from 5 to 200 m available	152C049KK0xxxE		•	
(**)	Flat entry point without a cable drum without a cable, suitable for VIK, prepared for up to 4 fibers	1501107G02HC		•	

 DESCRIPTION	METZ CONNECT	PROVIDER	INSTALLER	NETWORK OWNER
Wall enclosure				
Serves as a central floor splice distributor for routing the fiber optic cables to the flats	15032976xx-E		•	
Universal cable for exterior installation e.g. house connection. Without a connector, number of fiber between 4 and 48	150UXXX9E120M		•	
 Mini breakout cable compact suitable for cable in-house installation, without a connector, 4 fibers	150C0049D010M		•	
FITH cable suitable for cable in-house installation, without a connector, 4 fibers	150F0049B040M		•	

Practical examples

D Make sure there is sufficient space for your installation. Consult your installer!

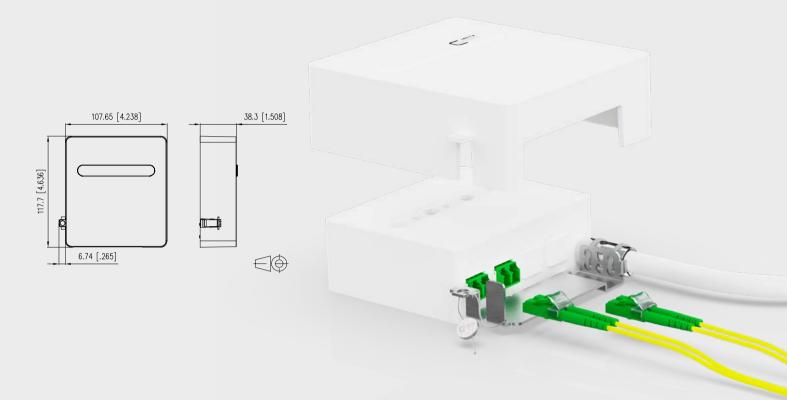


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For a smooth data flow in the building

	DESCRIPTION	METZ CONNECT	PROVIDER	INSTALLER
7777000	Ethernet installation cable MC GC1300 pro22 Cat.7A S/FTP 4P LSHF-FR 500 m fire performance: Class Dca s2 d2 a1 suitable for 10 Gigabit Ethernet	simplex 1308427B34141 duplex 1308427B34143		•
	Flush-mounted wall outlet with one or two RJ45 jacks E-DAT C6 _A UP LSA+ suitable for up to 10 Gigabit Ethernet, pure white	1 x RJ45 130C371002-1 2 x RJ45 130C381002-1		•
	Channel wall outlet with one or two RJ45 jacks E-DAT C6 _A UP LSA+ suitable for up to 10 Gigabit Ethernet, pure white	1 x RJ45 130C371102-I 2 x RJ45 130C381102-I		•
	Designable wall outlet with one or two RJ45 jacks E-DAT C6 _A UP0 LSA+ suitable for up to 10 Gigabit Ethernet	1 x RJ45 130C371200-I 2 x RJ45 130C381200-I		•
	Surface-mounted wall outlet with one or two RJ45 jacks E-DAT C6 _A AP LSA+ suitable for up to 10 Gigabit Ethernet, pure white	1 x RJ45 130C370002-I 2 x RJ45 130C380002-I		•
	Network connection unit for DIN rails Mounting for instal- lation in the switch cabinet REGplus incl. C6 _A module 180°M suitable for up to 10 Gigabit Ethernet	130B117003-E		•
	Patch panel with 6 RJ45 jacks LSA+ E-DAT C6 _A 6 port surface mount housing suitable for up to 10 Gigabit Ethernet, pure white	130862-21C-E		•
	Patch panel for network cabinet with 24 RJ45 jacks E-DAT C6 _A 24 port patch panel 1HE LSA+ suitable for up to 10 Gigabit Ethernet	130855C-E		•
	Module AP housing 6/12/16, unequipped Module housing surface-mounted unequipped for single modules in a module design, pure white	130861-0602-E 130861-1202-E 130861-1602-E		•

	DESCRIPTION	METZ CONNECT	PROVIDER	INSTALLER
	C6 _A module 180° jack Modular Cat.6 _A connector unit RJ45 suitable for 10 Gigabit Ethernet. For installation in the AP housing module and wall outlet	130B11-E		•
	COAX connector for installation in the AP housing module			
	COAX module F jack/F jack Coax connector with adapter in a module design, suitable for module applications. For installation in the AP housing module and wall outlet	130898-01-1		•
	C6 _A module 24 port 180°M 1RU 19 inch 1RU module rack incl. 24 single modules C6 _A module 180° suitable for 10 Gigabit Ethernet	130B11P0-E		•
	DIN rail adapter For mounting 6-way distribution modules 1RU in different distribution systems with one mounting rail (TH35)	1308990110-E		•
	Module frame 10 inch 1RU 10 inches for two 6-fold modules	854568-E		•
200	Patch cords Cat.6 _A AWG 26 0.5 m suitable for 10 Gigabit Ethernet, lengths from 0.5 up to 20 m are available, white	1308450588-E		•
	RJ45 connector suitable for field assembly C6 _A RJ45 field plug pro Direct connection, e.g. access point camera, suitable for 10 Gigabit Ethernet	130E405032-E		•
	RJ45 connector 360° suitable for field assembly C6 _A RJ45 field plug pro 360 RJ45 connector suitable for field assembly, suitable for 10 Gigabit Ethernet	130E405042-E		•
	UAE adapter for adapting analogue terminal devices with different pin assignments to the universal building cabling (network)	130450440101-E		•
	Module frame 6-fold 1RU Module frame for 6 individual modules in modular design $C6_A$ mo- dul 180 ° Jack 130B11-E 1RU module carrier for installation in surfa- ce-mounted housing, mounting rail adapter or 1RU module carrier	130922-00-E		•
·#·#·#·#·#·#	COAX distributors 1RU 6-fold COAX module with 6 F / F sockets, 1RU module for instal- lation in 1RU module frame, mounting rail adapter and 6-fold surface-mounted housing	130864-03-E		•



OpDAT APL

PART NUMBER	COLOR	VARIANT 1	 VARIANT 2
1501597G02HC	pure white RAL 9010	2xLC-D APC (OS2)	Surface mount
1501597G04HC	pure white RAL 9010	4xLC-D APC (OS2)	Surface mount
1501591H04HC	pure white RAL 9010	4xSC-S APC (OS2)	Surface mount

- > Compact termination point in minimalist design
- > Accommodates microducts with a diameter of up to 10 mm
- > Suitable for up to 2x LC Duplex, 4x SC Simplex or 4x E2000 Simplex adapters
- > Sealable and tamper-proof due to safety screw
- > Prepared for splicing incoming fibers to pigtails
- > All singlemode adapters are equipped with laser shutters
- > Unused openings are sealed with blind plugs
- > Splice tray incl. Shrink splice protection

- > Easy installation due to foldable and removable splice tray
- > Space for fiber reserve available
- > Mountable as surface mount housing
- Break-out latches for vertical and horizontal and horizontal mounting on DIN rail systems
- > Dimensions (WxHxD): 108 x 118 x 39 mm

Flat entry point with a cable drum

Figure: Variante Plug-In



Configurator

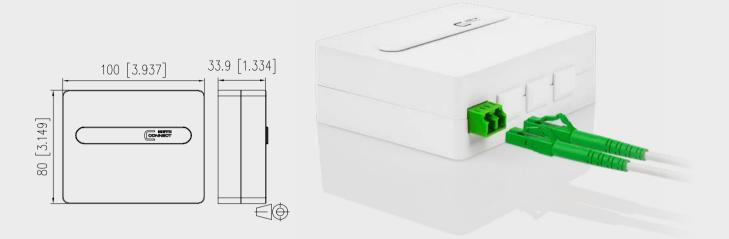
OpDAT VADT

PART NUMBER	COLOR	LENGTH	VARIANT
150C049HK0030E	white	30 m	Wall outlet with 4 x LC APC – Variant Splice
150C049HK0050E	white	50 m	Wall outlet with 4 x LC APC – Variant Splice
150C049HK00A0E	white	100 m	Wall outlet with 4 x LC APC – Variant Splice
150C049HKK530G	white	30 m	Wall outlet 4xLC APC both sides incl. IP50 Feeding aid + Mounting kit – Variant Plug-In
150C049HKK550G	white	50 m	Wall outlet 4xLC APC both sides incl. IP50 Feeding aid + Mounting kit – Variant Plug-In
150C049HKK5A0G	white	100 m	Wall outlet 4xLC APC both sides incl. IP50 Feeding aid + Mounting kit – Variant Plug-In

- > compact fiber optic connection unit for surface mounting on flush-mounted or cavity wall outlets
- > equipped with LC APC adapters including laser protection
- > for the connection of up to four fiber optic patch cables (SM, 9/125 μ m, OS2)
- ready to mount, pre-terminated with mini breakout cable compact (inner cable)
- > lengths between 10 and 100 m
- > fixing material included in delivery

- > Splice variant: with an open cable end for splicing to a distributor
- > Plug-in variant: with SC, LC or E2000 plugs for a direct plug connection. To protect the fanout, bubble wrap or a pull-in aid with IP50 are available
- > for cable details see p.19
- > color of cover parts pure white RAL 9010
- > further variants on request

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OpDAT ADT

PART NUMBER	COLOR	VARIANT
1501107G01HC	white	Wall outlet VIK for 2 x LC APC
1501107G02HC	white	Wall outlet VIK for 4 x LC APC

- > compact fiber optic walloutlet for surface mounting on flush-mounted or cavity wall outlets. Also suitable for DIN rail mounting in the switch cabinet.
- > equipped with LC APC adapters including laser protection
- > prepared for connecting of VIK with compact mini breakout cable (interior cable) or FITH cable.
- > cover is removable without tools

- > color of cover parts pure white RAL 9010
- > fixing material included in delivery
- > further variants on request
- > access protection prevents the patch cords from being pulled out by completely covering the connectors

Pre-terminated installation cable (VIK)





Configurator

OpDAT VIK C

PART NUMBER	COLOR	LENGTH	VARIANT
152C049KK2030E	white	30 m	4 x LC APC / 4 x LC APC
152C049KK2050E	white	50 m	4 x LC APC /4 x LC APC
152C049KK2080E	white	80 m	4 x LC APC / 4 x LC APC

- > pre-terminated installation cables (VIK) with mini breakout cables compact are equipped fiber optic (FO) cables equipped with connectors on one or both sides. These are individually manufactured by hand under the highest quality requirements at METZ CONNECT in Blumberg
- > they enable a quick and easy to install point-to-point connection between the house and flat entry point
- > suitable for indoor use. For outdoor installation, e.g. between 2 buildings, we recommend VIKs with an universal cable (see page 18)
- > with four SM fibers, for more details about the cable, see page 19
- > assembled with LC APC connectors
- > available as cable ring or on wooden spool (depending on length and cable type)
- > for further variants, see the cable configurator below: www.metz-connect.com/configurator

Patch cords



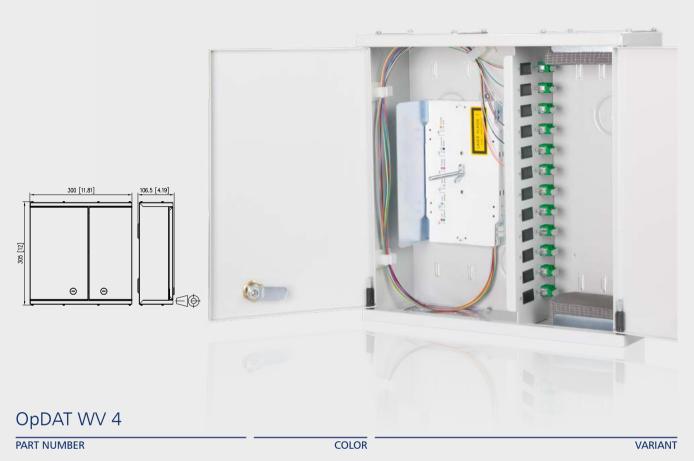
OpDAT PK

PART NUMBER	COLOR	LENGTH	VARIANT
151P7JAJA10E 151P7EAJA10E 151P7EOJA10E	white	1.0 m	LC APC/ LC APC LC APC/ SC APC LC APC/ LC APC
151P7JAJA20E 151P7EAJA20E 151P7EOJA20E	white	2.0 m	LC APC/ LC APC LC APC/ SC APC LC APC/ LC APC
151P7JAJA30E 151P7EAJA30E 151P7EOJA30E	white	3.0 m	LC APC/ LC APC LC APC/ LC APC LC APC/ SC UPC

- > simplex patch cords with LC APC connectors at both ends
- > for connecting the building transfer point or the network terminal device
- > single mode fiber OS2, E9/125 μ m insensitive to bending in accordance with IEC 60793-2-50 type B6_a and B6_b and G.657.A2, compatible with G.652.D
- > outer diameter: 2.8 mm
- > color: white

- > cable sheath is halogen-free with low smoke emission LSHF-FR (Low smoke, halogen free, flame retardant)
- > 100 % tested for insertion loss and return loss
- > all patch cords are provided with a serial number
- > for further variants, see the cable configurator below: www.metz-connect.com/configurator
- > available in different lengths (between 0.2 and 20 m)

Wall enclosure



1503297602-E4	white	with 2 x LC-D APC adapters and 4 pigtails
1503297604-E4	white	with 4 x LC-D APC adapters and 8 pigtails
1503297608-E	white	with 8 x LC-D APC adapters and 16 pigtails
1503297612-E	white	with 12 x LC-D APC adapters and 24 pigtails

- > universally applicable distributor for use as floor cabling or as a house distribution point in the utility room
- > equipped with LC-DAPC adapters and LCAPC pigtails
- > unoccupied breakouts are closed with dummy plugs
- > surface-mounted housing with two lockable hinged doors, two different locks for the separation between the network wiring and other wiring in the house
- > simple, space-saving wall mounting

- > good access possibilities and safe guidance of the pigtails or VIK
- > one splice cassette with 4 pigtails per apartment
- > flexible cable feed through variously designed cable entries (can take place from above or below)
- > cable entry for fixing up to six mini breakout cables compact
- > further variants on request

Universal cable





Configurator

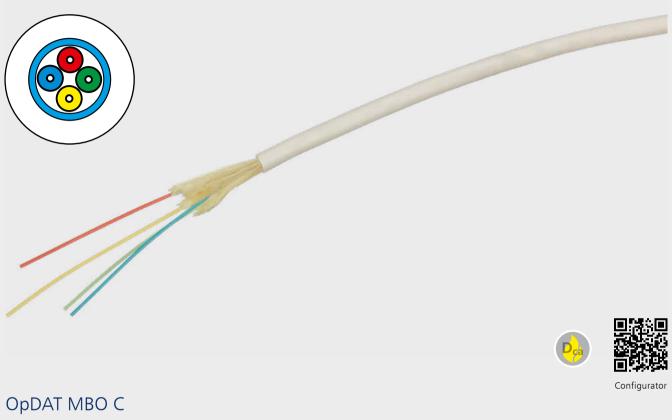
OpDAT universal cable

PART NUMBER	OUTER DIAMETER	NUMBER OF FIBERS	FIBER TYPE
150U0049E120M	7.3 mm	4 fibers	E9/125 μm (OS2)
150U0089E120M	7.3 mm	8 fibers	E9/125 μm (OS2)
150U0129E120M	7.3 mm	12 fibers	E9/125 μm (OS2)
150U0249E240M	7.3 mm	24 fibers	E9/125 μm (OS2)
150U0489E120M	11.0 mm	48 fibers	E9/125 μm (OS2)

- > loose tube cable for outdoor use
- > single mode fiber OS2, E9/125 μm , insensitive to bending in accordance with IEC 60793-2-50 type B6_a and B6_b and G.657.A1, compatible with G.652.D
- > UV-resistant, metal-free, longitudinally watertight, guaranteed tensile strength and rodent-repellent
- > strain relief: Longitudinal watertight winding, Glass roving elements

- > cable sheath: LSHF
- > for pipe installation or direct buried installation in a suitable sand bed
- > applicable standards: EN 50173-1, ISO 11801 2nd edition, IEC 60794-1, EN 187000
- > fire performance: Class E_{CA}
- > for further variants, see the cable configurator below: www.metz-connect.com/configurator

Mini breakout cable compact

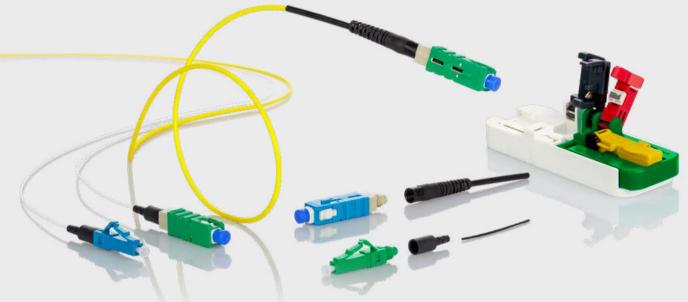


PART NUMBER	OUTER DIAMETER	NUMBER OF FIBERS	FIBER TYPE
150C0049D010M	4.5 mm	4 fibers	E9/125 μm (OS2)

- > compact mini-breakout cable for indoor applications for horizontal and backbone cabling
- > single mode fiber OS2, E9/125 μ m insensitive to bending in accordance with IEC 60793-2-50 type B6_a and B6_b and G.657.A1, compatible with G.652.D
- > with 4-colour solid buffers (Ø 0.9 mm) and aramid yarn for strain relief
- > cable sheath is halogen-free with low smoke emission and self-extinguishing. LSHF-FR (Low smoke, halogen free, flame retardant)
- > outer diameter: 4.5 mm
- > color: white
- > applicable standards: IEC 60794-2-20
- > fire performance: Class D_{CA}



- > FITH cable for indoor applications
- > for horizontal and backbone cabling
- > single mode fiber OS2, SM9/125 μm , bend insensitive according to IEC 60793-2-50 type B6_a, ITU G.657.A compatible to ITU-T G.652.D
- > with 4 colored fibers incl. secondary coating (Ø 0.25 mm) and aramid yarn for strain relief
- > cable jacket halogen free with low smoke development and flame-extinguishing, LSHF (low smoke, halogen free)
- > outer diameter 2.3 mm
- > color: white
- > applicable standards: IEC 60794-2-20
- > fire behaviour: class B2ca s1a d0 a1 acc. to EN 50399 (classification according to EN 13501-6)



FAST[™] is a registered trademark of Fujikura Ltd, Japan.

OpDAT FAST[™] Hybrid

CONNECTOR TYPE	CABLE TYPE	SCOPE OF DELIVERY	SCOPE OF DELIVERY	
		ACCESSORIES	CONNECTOR KITS	
		Cleaver set, fiber guide	100	1509QAJA010C-E
LC APC	0.25 + 0.9 mm	Cleaver set, fiber guide	20	1509QAJA002C-E
		_	10	1509QAJA0010-E
	2.0 + 3.0 mm	Cleaver set, fiber guide Cable assembly set	100	1509QKJA010C-E
		Cleaver set, fiber guide Cable assembly set	20	1509QKJA002C-E
		-	10	1509QKJA0010-E
SC APC		Cleaver set, fiber guide	100	1509QAEA010C-E
	0.25 + 0.9 mm	Cleaver set, fiber guide	20	1509QAEA002C-E
		_	10	1509QAEA0010-E
		Cleaver set, fiber guide Cable assembly set	100	1509QKEA010C-E
	2.0 + 3.0 mm	Cleaver set, fiber guide Cable assembly set	20	1509QKEA002C-E
		_	10	1509QKEA0010-E

- > with hybrid technology for better and constant optical insertion damping values
- > simple, easy to learn, fast and cost-effective mounting in less than two minutes
- > available with connector types LC and SC for single mode (UPC and APC polish)
- > connector kits for FO buffers with Ø 0.25 and Ø 0.9 mm
- > connector kits for FO cables with Ø 2.0 and Ø 3.0 mm
- > the connector can be assembled up to three times

- > the separating device included in the scope of delivery (cleaver) provides a slanted cut, so that high return damping values are achieved.
- > it is maintenance-free and can be used up to 200 times
- > every OpDAT FAST[™] hybrid connector has a serial number, so that traceability is ensured at all times

Terms and abbreviations

- APL: Terminal point line technology (= APL)
- APN: Switch point of the network operator in the house entry point (= APL)
- ASG: Application-specific device, e.g. fiber optic modem at the subscriber interface
- **CO**: Central office (= VST or POP)
- **CPE:** Customer Premises Equipment: Generic term for the devices on the customer's premises, such as ASG, ONT, ONU, IAD
- **DP:** Distribution point: Distribution point between the POP and HÜP, e.g. cable junction box, fiber optic ferrule
- **ENS:** External network interface, describes the transition from the operator network to the apartment network and includes the fiber optic modem (ASG)
- **EPON:** Ethernet via passive optical networks with transmission rates of 1.244 Gbit/s, which are distributed among the subscribers via passive optical splitters
- GPON: Gigabits via passive optical networks with transmission rates of 2.488 Gbit/s, which are distributed among the subscribers via passive optical splitters
- **Gf-AP:** fiber optic terminal point of the network operator (= APN or APL)
- **Gf-GV:** fiber optic building distributor (= PV)
- Gf-TA: fiber optic subscriber outlet (=TS)
- HÜP: Building transfer point of the network operator
- IAD: Integrated Access Device: Multifunctional device with router, WLAN-AP, switch, e.g. FRITZ!Box. The ASG can also be integrated into the IAD
- **KVz:** Cable junction box: Distribution point, usually placed at the roadside
- LC- FO connectors with angled polish for optimal APC: Return damping
- **ONT:** Optical Network Termination: Termination device in Ethernet point-to-point solutions on the customer's premises, e.g. fiber optic modem.

Belongs to the network operator or service provider, converts the light signals into electrical signals and offers an RJ45 Ethernet interface and optionally a coax connection for TV signals

- ONU: Optical Network Unit: Termination device in point-tomulti-point solutions on the customer's premises, comparable with ONT
- OTO: Optical Terminal Outlet: Subscriber interface
- **POP:** Point of Presence: central interface of the network operator or (=VST or CO)
- **PON:** Passive optical network
- PPPoE: Point-to-Point Protocol over Ethernet
- **PV:** Primary distributor as a building distributor (=Gf-GV)
- SC- FO connectors with angled polish for optimal
- APC: Return damping
- SkV: Secondary distributor: Floor distributors in large multifamily dwellings
- SM: Single mode fiber: $9/125 \mu m$, OS2
- TA: Subscriber connection, e.g. RJ-45 junction box for the terminal devices in the apartment
- TS: Subscriber interface in a wall outlet or connecting the fiber optic modem, network termination point (=Gf-TA or OTO)
- VST: Central exchange of the network operator
- WDM: Wavelength division multiplexing in PON networks
- WV: Apartment distributor: Multimedia distributor in the apartment: From now on the cables go in a star shape to the RJ45 connections (TA) in the apartment from the feeder

Cabling: Connection cable from the central exchange of the network operator to the cable junction box

Drop cabling: Connection cable between the distribution point and house entry point of the network operator and between the primary distributor as a building distributor and subscriber interface in a wall outlet

Riser cabling: Connection cable between the primary distributor as a building distributor and secondary distributor Notes

This information brochure provides general information on how to set up a fiber optic network in exemplary buildings. All information, descriptions and illustrations are non-binding and are not a substitute for precise planning by competent specialists on site. Individual case-specific features may lead to deviations from our planning proposals and specifications and restrictions in terms of feasibility.

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