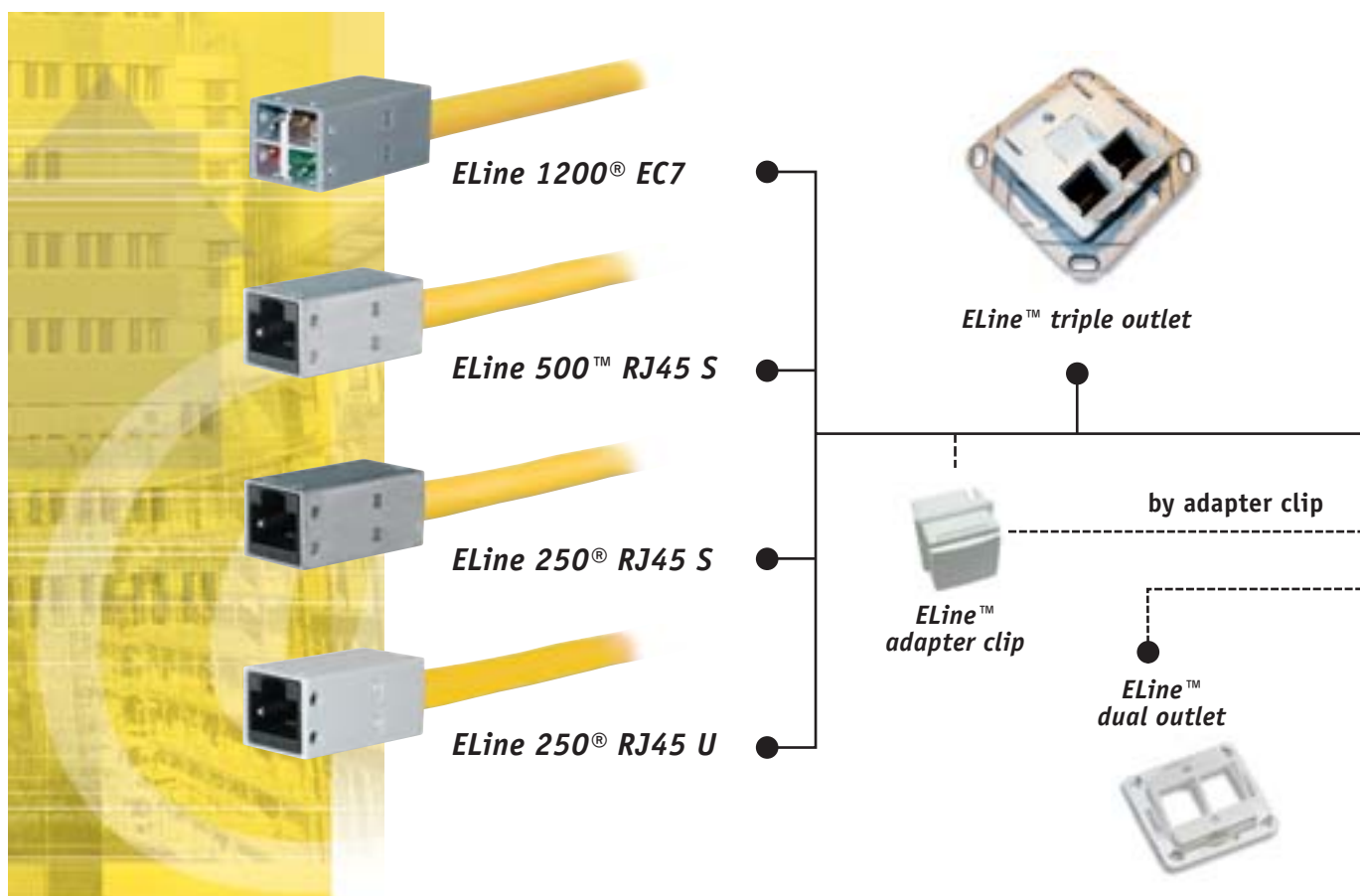
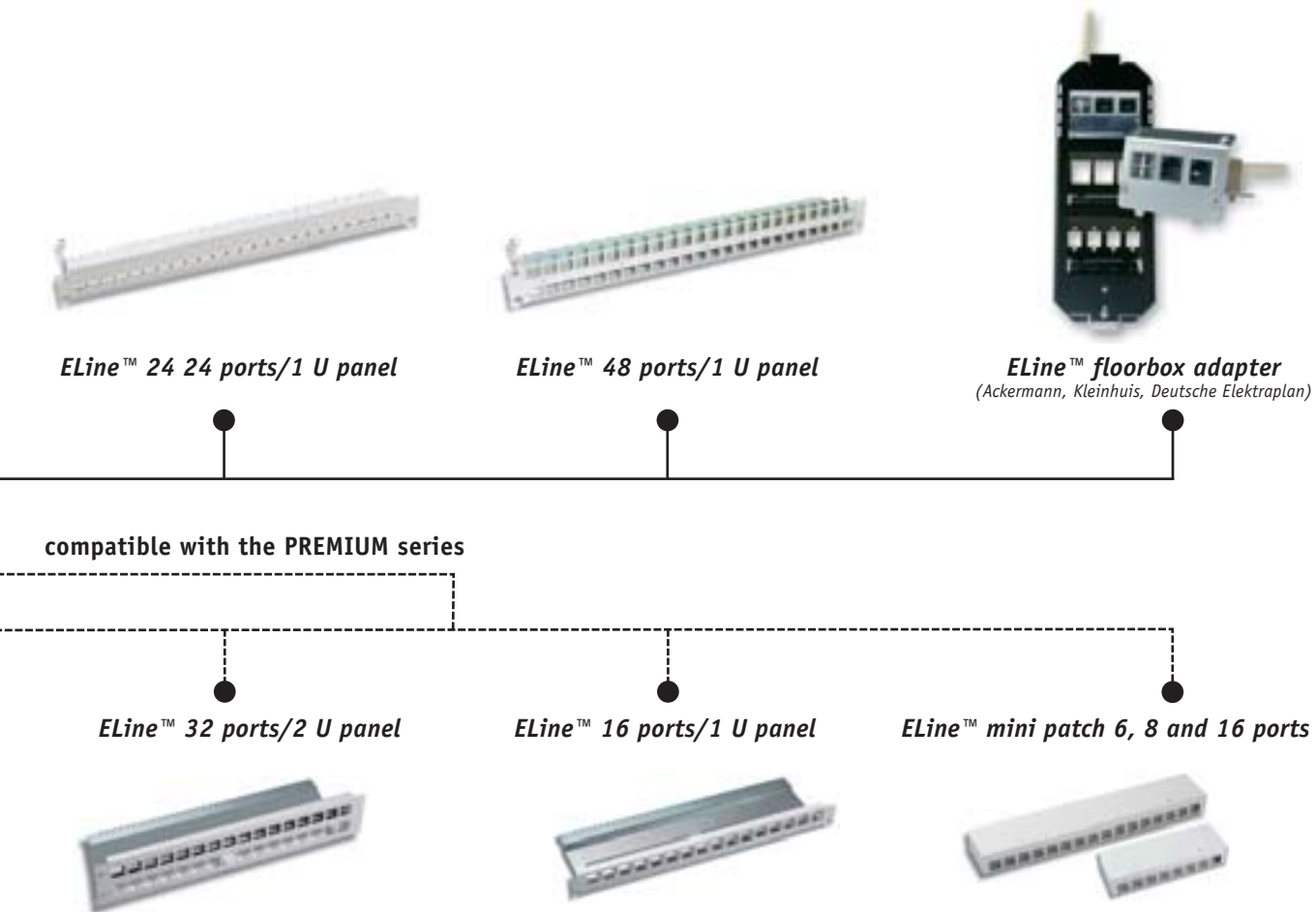


## The ELine™ PREMIUM system



## A combination meeting top requirements

The ELine™ PREMIUM system includes the modular jacks ELine 1200® EC7 for multimedia applications, ELine 500™ RJ45 S for Cat. "6A" applications according to the draft 3.0 standard IEEE 802.3an for 10 GbE Ethernet via copper and ELine 250® RJ45 for Cat. 6 applications in a shielded and an unshielded version. Due to their especially compact design, these high-performance jacks are easy to integrate into high-density racks and wall outlets. In addition to the ELine™ dual outlet, the ELine™ triple outlet provides space for up to three modular jacks. Besides the standard ELine™ 24-port panel, KERPEN also offers the ELine™ 48-port panel with double-density capacity on one rack unit only. The product range also includes patch cords tailor-made for the application in question. The ELine™ PREMIUM range is rounded off by an extensive set of accessories for under-floor installation.



	Multimedia shielded		Class E <sub>A</sub> / Cat. "6" A shielded		Class E / Cat. 6 shielded		Class E / Cat. 6 unshielded	
	ELine 1200® EC7	Article no.	ELine 500™ RJ45 S	Article no.	ELine 250® RJ45 S	Article no.	ELine 250® RJ45 U	Article no.
MegaLine® cable	G12-150 S/F SY22 SY23 F10-120 S/F F6-110 S/F	7KS80001 7KS01654 7KS01568 7KS70001 7KS70008	F10-120 S/F F10-110 S/F F6-90 S/F	7KS70001 7KS70008 7KS70010	F10-110 S/F F6-90 S/F F6-80 S/F E5-70 S/F E5-70 F/F	7KS70008 7KS70010 7KS70012 7KS60020 7KS60018	E2-30 U/U	7KS60001
ELine™ jack	EC7	9ZE44444	500 RJ45 S	9ZE33333	250 RJ45 S	9ZE30001	250 RJ45 U	9ZE30009
ELine™ outlet (50 x 50)	dual triple	9ZE30041 9ZE30010	dual triple	9ZE30041 9ZE30010	dual triple	9ZE30041 9ZE30010	dual triple	9ZE30041 9ZE30010
ELine™ panel 19"	24 ports 1 U 48 ports 1 U	9ZE30002 9ZE30008	24 ports 1 U 48 ports 1 U	9ZE30002 9ZE30008	24 ports 1 U 48 ports 1 U	9ZE30002 9ZE30008	24 ports 1 U 48 ports 1 U	9ZE30002 9ZE30008
ELine™ floorbox holder*	GB2 complete for a maximum of 2 inserts							9ZE60001
ELine™ floorbox holder*	GB3 complete for a maximum of 3 inserts							9ZE60002
Insert for floorbox holder	Insert for floorbox holder (up to 3 jacks)							9ZE60006
ELine™ patch cord flex (selection)	EC7-RJ45 0.5m EC7-RJ45 1.0m EC7-RJ45 2.0m EC7-RJ45 3.0m EC7-RJ45 5.0m	9KE03005 9KE03010 9KE03020 9KE03030 9KE03050	RJ45-RJ45 1.0m RJ45-RJ45 2.0m RJ45-RJ45 3.0m RJ45-RJ45 5.0m RJ45-RJ45 10m	9KW2T010 9KW2T020 9KW2T030 9KW2T050 9KW2T100	RJ45-RJ45 1.0m RJ45-RJ45 2.0m RJ45-RJ45 3.0m RJ45-RJ45 5.0m RJ45-RJ45 5.0m	9KW26010 9KW26020 9KW26030 9KW26050 9KW26100	RJ45-RJ45 1.0m RJ45-RJ45 2.0m RJ45-RJ45 3.0m RJ45-RJ45 5.0m RJ45-RJ45 10 m	9KW79010 9KW79020 9KW79030 9KW79050 9KW79100

\* Other floorbox holders on request

## ELine 1200® EC7 – Multimedia up to 1.5 GHz via twisted pairs!

If a passive cabling system is connected with the term “multimedia”, the question which immediately arises is “how does that all go together?” – after all, the term is more well-known in connection with products from entertainment electronics.

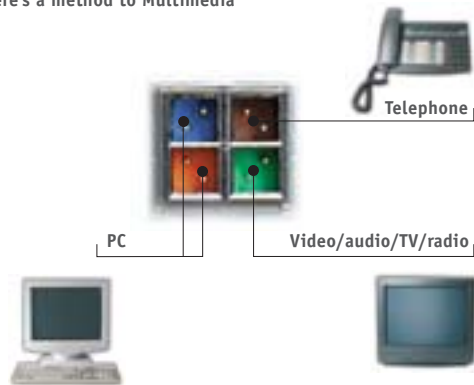
But ELine 1200® EC7 really does manage multimedia, because it allows the parallel use of different media via structured in-house cabling: data, voice, image and even television.



### ELine 1200® EC7 – the concept

Since the early 1990s, KERPEN has been offering 100 Ω data cables of the MegaLine® series with individual shielding of each pair. This principle was the model for the chamber system used in the ELine 1200® plug connector.

There's a method to Multimedia



Cable and plug connector form the ideal symbiosis: 4 pairs = 4 chambers with GHz performance.

The advantages are obvious: Consistent separation of the signal paths in an ideally matched system expands the possible applications in unimagined ways.

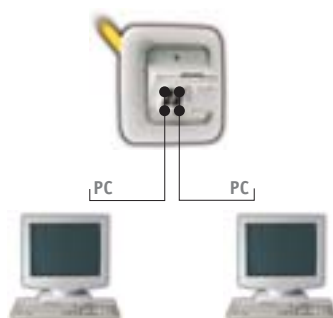
It is thus also possible to use two data services of Class A to F simultaneously via only one cable and one EC7 jack. However, different services such as telephone and data services can also be operated in parallel without the risk of NEXT problems. These possibilities are referred to under the name of “cable-sharing” or “service-sharing”.

The units are connected via appropriately matched 4-, 2- or 1-pair ELine™ EC7 work area cords:



The 4 individually shielded chambers, each containing one pair, make the EC7 plug connector an ideal improvement on individually shielded S/FTP cables.

2 data services of Class A to F



Mixed telephone/data services





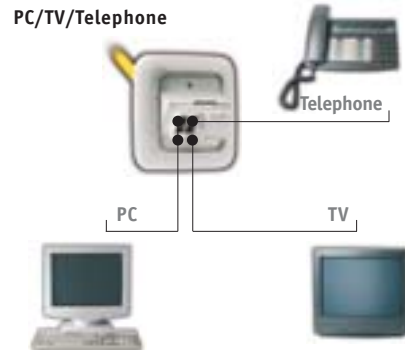
## TV via twisted pairs!

The task of transmitting analogue CATV services via twisted pairs is technically very demanding. In order to be able to transmit all channels, transmission frequencies of up to 862 MHz are necessary – this demands the utmost in reserve performance of the system and especially good attenuation characteristics.

During development, ELine 1200® EC7 was optimised especially for this purpose, the current product range providing a wide range of tools for transmitting CATV signals.

The world of twisted pairs (100  $\Omega$ ) is connected to the world of television (75  $\Omega$ ) via twisted passive work area cords with an integrated balun.

In contrast to conventional solutions, outlets can be used flexibly: Thus, from being a telephone or data outlet, EC7 is easy to turn into a TV connection later if necessary.



The reduction in the number of cables and outlets required usually allows reductions in the costs for cable channels, switching cabinets etc. "Service-sharing" via ELine 1200® EC7 allows you to cut costs.

## Our experience!

ELine 1200® EC7 includes many innovative new ways of going about things. This is why it could come as a surprise to discover that KERPEN introduced it into the market as early as 1996. Since then we have cooperated closely with our customers at all times, so that many of our customers' ideas on adding to or optimising our products have been included into the system concept over the last years.

Thus, ELine 1200® EC7 now includes a sophisticated system solution which follows the market requirements and is unparalleled at present!

As a four-lane data highway, ELine 1200® EC7 provides true multimedia "to the desk".

This is appreciated by customers all over the world – we can refer you to a widely installed basis with top references. Why not ask us for our up-to-date list?



## Economy!

There is a price to pay for "high-tech" and "added value". In the long run, it is not necessary for the system to cost more than conventional systems, which usually require a special cable and a special plug connector for each service.

ELine 1200® EC7 allows you to save up to 50 % of the cables, plug connectors, outlets and patch fields.

Multiple use reduces the system costs by between 15 and 30 % (depending on the services used).

## New jack design!

The ELine 1200® EC7 jack has been completely redesigned. Its robust full-metal design allows it to be integrated completely into the panel and the outlets used for the ELine™ PREMIUM series. This allows the use of up to 3 EC7 jacks in the PREMIUM outlet and up to 48 ports on one height unit in the switching cabinet! The PREMIUM series also allows the mixed equipping of outlets and panel with the Cat. 6 jacks ELine 250® RJ45 S and ELine 250® RJ45 U (mixed-media application).

Last but not least, the assembly time is reduced dramatically in comparison with the EC7 jack used up to now! The new jack consists of 3 individual elements only, thus allowing rapid and extremely easy assembly. The completely redesigned ELine 1200® EC7 jack makes assembly child's play and further improves performance while leaving the interface unchanged!

### Backward-compatible!

Our multimedia system has been put to widespread use over the years and made many friends. This is why it was especially important for us to keep the system backward-compatible to the old range although the jack was redesigned:

It goes without saying that all patch cords and work area cords ever supplied also fit into the new EC7 jack. Adapter clips allow the retrofitting of existing panels from the old ELine™ outlet/panel program.

More bandwidth, more flexibility with regard to connections, a more reliable future and more unbeatable value for money are not provided by any other system solution!



ELine 1200® EC7 jack, pair separator from front and strain relief

## Technical data



### Compatible outlets/panels etc.

- See PREMIUM series
- ELine 1200® EC7 (old series) via ELine™ mounting clip (Article number: 9ZE30021)

### Category

- Better than Category 7/Class F according to ISO/IEC 11801 and EN 50173 2<sup>nd</sup> Edition
- Better than IEC 15018 SOHO standard

### Jack type

- EC7 multimedia jack
- New design:  
Full metal body  
3-part jack set
- Shielded
- Connection method: push-in, gas-tight IDC
- Shielding: 360°
- Recommended conductors: AWG 22 /23)
- Colour coding





## ELine 500™ RJ45 S – a new cabling system for 10 Gigabit Ethernet

With ELine 500™ RJ45 S, KERPEN presents a new shielded RJ45 cabling system specially developed and optimised for the future transmission standard 10 Gigabit Ethernet (IEEE 802.3an).

In order to improve the signal-to-noise ratio which is critical at 10 GbE, it is also planned to reduce the attenuation and to define the Alien NEXT for the first time with the aim of reducing interference to a minimum.

Alien NEXT is the sum of the interference affecting a data pair in a cable A and induced by one or more data pairs in an adjacent cable B.



Fig. 1: "The new ELine 500™ RJ45 S jack from KERPEN"

### 10 Gigabit Ethernet

With a transmission performance 10 times as high as that prescribed by the old 1,000 BASE-T standard, the requirements for cabling systems designed to meet the demands of the future have also increased considerably.

In order to guarantee the transmission of 10 GbE, the relevant cabling committees have agreed on the standardisation of a new Class E<sub>A</sub> with a bandwidth of 500 MHz. As with ISO/TEC 11801 and EN 50173 2<sup>nd</sup> Edition, a channel with a length of 100m is to be supported using a maximum number of 4 connector transitions.

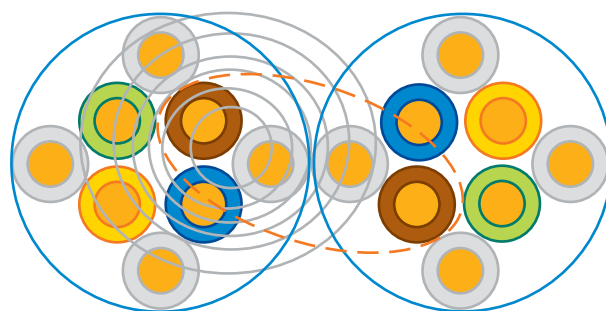


Fig. 2: "Diagram of Alien NEXT"

The use of shielded cabling is the safest and most economical method of reducing the Alien NEXT to a negligible value.

### ELine 500™ RJ45 S – performance

Although the future cabling standard provides for a bandwidth of 500 MHz, ELine 500™ RJ45 S was evaluated up to a maximum frequency of 625 MHz. Evaluation is based on the channel requirements according to JTC1 SC25 N981 –

- a) The NEXT of ELine 500™ RJ45 S has a security reserve of >15 dB up to 300 MHz compared with the limits of Class E. The security reserve is still >5dB compared with the limits extrapolated up to 500 MHz.

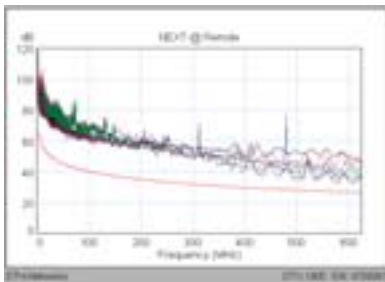


Fig. 3: "NEXT curve" up to 625 MHz

- b) The RL curve shows excellent homogeneity of the components selected within the ELine™ 500 RJ45 S cabling system.

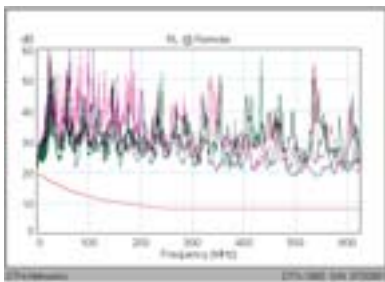


Fig. 4: "RL curve" up to 625 MHz

- c) The ELFEXT of ELine 500™ RJ45 S behaves extremely safely, especially at the limits above 500 MHz.

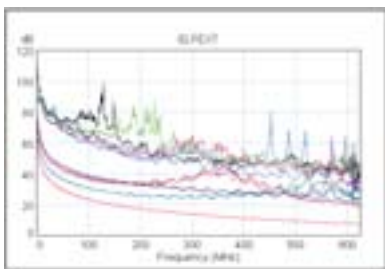


Fig. 5: "ELFEXT curve" up to 625 MHz

The measurements were carried out successfully on long cable links (80 m) as well as short ones (15 m).

### ELine 500™ RJ45 S – short description

Extremely well-matched components are used for ELine 500™ RJ45 S.

The jack is an improved version of the ELine 250® RJ45 S jack. The dimensions have remained unchanged. However, the engine at the heart of it has been optimised once more for frequencies of more than 250 MHz. The refined surface of the housing allowed optimum shield attenuation values to be achieved. The high-quality products MegaLine® F6-90 S/F and F6-90 S/F flex tested at more than 600 MHz are used as cables.

### ELine 500™ RJ45 S – other highlights in a nutshell

#### Space-saving

The components of the ELine 500™ RJ45 S system have especially small dimensions. 3 jacks fit into the space taken up by a conventional dual outlet. A new panel with 1 U provides room for 48 ports.

#### Extremely easy to mount

Only three components in one compact high-grade zinc die-cast housing – the ELine 500™ RJ45 is easy to mount quickly and safely.

The clear colour coding virtually makes mounting errors and the resulting additional costs a thing of the past. The compact ELine 500™ RJ45 S modules can be mounted in panel and outlet from the front and from the back.

#### Compatible

The ELine 500™ RJ45 S is part of the PREMIUM product family and is therefore compatible with the existing ELine 1200® EC7 and ELine 250® RJ45 S components.

#### Economical

Easy to mount, designed to meet the demands of the future and priced to suit the market – all in all, ELine 500™ RJ45 is a highly economical system with a high degree of investment protection!



## ELine 250® RJ45 – the real Category 6

ELine 250® RJ45 S (shielded) and ELine 250® RJ45 U (unshielded)

ELine 250® RJ45 jacks of the PREMIUM system were developed for the highest of demands:

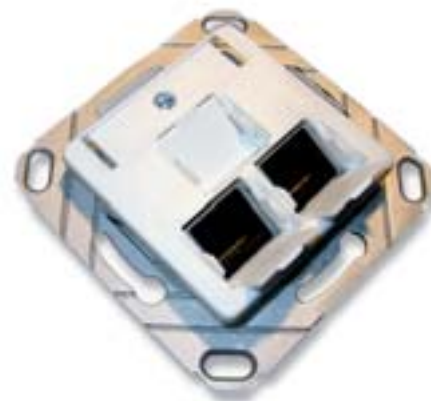
Optimum performance, easy assembly and compact design for high packing density make this series unique.

In addition, the dimensions of the housing are compatible with the multimedia jack ELine 1200® EC7.

This ensures problem-free upgrading within the PREMIUM system.

### ELine 250® RJ45: the concept

ELine 250® RJ45 plug connectors are based on completely redesigned plug connections. Extremely short individual contacts and a multilayer circuit board of a very short design are used. The concept makes parallel conductors largely unnecessary, thus minimising coupling between the individual pairs of contacts.



### Extremely easy to mount!

ELine 250® RJ45 is a convincing solution due to its simple, rapid and flexible (modular) connecting technology. Only three components in one compact zinc die-cast housing – the ELine 250® RJ45 is easy to mount quickly and safely. The clear colour coding virtually makes mounting errors and the resulting additional costs a thing of the past.

### The benefits!

#### Space-saving

The ELine 250® RJ45 is very much smaller than conventional RJ45 plug connectors and provides maximum performance in a small space. The components of the ELine 250® RJ45 system have especially small dimensions.

A triple outlet only takes up the space of a conventional dual outlet. A new panel with 1 HU provides room for 24/48 ports. Of course, the conventional panels in the ELine™ system can also be used via mounting clips.



Protection from incorrect use via RJ11, RJ12 or incorrectly moulded RJ45 work area cords increases safety. The compact ELine 250® RJ45 modules can be mounted in panels and outlets from the front and from the back.

The fully shielded ELine 250® RJ45 offer good electro-magnetic compatibility and supports EN 55022/50082.



## Technical data



### Compatible outlets/panels etc.

- See PREMIUM series (pages 58–59)

### Category

- Better than Category 5 and Category 6 according to ISO/IEC 11801 and EN 50173 2<sup>nd</sup> Edition for Class D (up to 100 MHz) and Class E (up to 250 MHz)
- Cat. 6 de-embedded according to EIA/TIA-568-B.2-1

### Jack type

- RJ45, Cat. 6 (de-embedded) for 250 MHz performance
- Shielded (ELine 250® RJ45 S, Article number 9ZE30001) or
- Unshielded (ELine 250® RJ45 U, Article number: 9ZE30009)
- Connecting method: punch-down, gas-tight IDC
- Recommended conductors: AWG 23/ ..22
- Colour coding

### Certificates

- Certified by GHMT\* according to:
  - Class E in a 3-connector permanent link
  - Class E in a 4-connector channel
  - According to ISO/IEC 11801 and EN 50173 2<sup>nd</sup> Edition
- Cat. 6 de-embedded

### The real Cat. 6!

Thanks to the revolutionary design, a worldwide first, ELine 250® RJ45 goes far beyond all requirements of Class E/Category 6 according to ISO/IEC 11801 and EN 50173, 2<sup>nd</sup> Edition. Measurements and certificates from the accredited test laboratory GHMT prove the excellent electrical characteristics of the system. ELine 250® RJ45 offers maximum performance even in worst case configurations in a 4-connector channel and a 3-connector permanent link. The excellent values for NEXT, ELFEXT and ACR provide maximum headroom in comparison to the standard for all pair combinations up to 250 MHz.

The certification of the ELine 250® RJ45 module according to Category 6 (de-embedded measuring method according to IEC 60603-7-5 and TIA 586 B 2.1) gives the system the rating 'real Category 6'.

### What we recommend today:

Invest in ELine 250® RJ45 for standardised Class E cabling with excellent transmission characteristics, for example in connection with MegaLine® F6-90 S/F and MegaLine® F6-90 S/F flex.



## Jacks, outlets and patch panels

Multimedia – 1.5 GHz



**ELine 1200® EC7 jack**

16 x 14 x 36.9 mm (WxHxD)

Mounting depth: 40 mm



**ELine 500™ RJ45 S jack**

16 x 14 x 36.9 mm (WxHxD)

Mounting depth: 40 mm

### Product description:

- Jack body: zinc die-cast, silver-plated
- Strain relief: nickel silver
- Contacts: gold-plated
- IDC contacts: bronze, tinned
- Short assembly time
- Suitable for use in patch panels, floorboxes and outlet inserts of the PREMIUM series

Article number: 9ZE44444

Pcs. per packing unit: 8

### Product description:

- Jack body: zinc die-cast, silver-plated
- Strain relief: nickel silver
- Contacts: 8-pole RJ45 jack
- Short assembly time
- Suitable for use in patch panels, floorboxes and outlet inserts of the PREMIUM series

Article number: 9ZE33333

Pcs. per packing unit: 8



**ELine 250® RJ45 S jack**

16 x 14 x 36.9 mm (WxHxD)

Mounting depth: 40 mm



**ELine 250® RJ45 U jack**

16 x 14 x 36.9 mm (WxHxD)

Mounting depth: 40 mm

### Product description:

- Jack body: fully shielded
- Strain relief: metal
- Contacts: 8-pole RJ45 jack
- Short assembly time
- Suitable for use in patch panels, floorboxes and outlet inserts of the PREMIUM series

Article number: 9ZE30001

Pcs. per packing unit: 8

### Product description:

- Jack body: fully shielded
- Strain relief: metal
- Contacts: 8-pole RJ45 jack
- Short assembly time
- Suitable for use in patch panels, floorboxes and outlet inserts of the PREMIUM series

Article number: 9ZE30009

Pcs. per packing unit: 8

## Jacks, outlets and patch panels

Multimedia – 1.5 GHz



**ELine™ PREMIUM triple outlet insert**

50 x 50 x 30.5 mm (WxHxD)

Mounting depth: 25 mm

Inclination: 30°



**ELine™ PREMIUM dual outlet insert**

50 x 50 x 30.5 mm (WxHxD)

Mounting depth: 25 mm

Inclination: 30°

### Product description:

- Without components
- Suitable for mounting in parapet ducts and for surface mounting, concealed mounting and many underfloor systems
- M4 thread for earth connection
- Dust protection cover
- Delivery without cover frame
- For up to 3 jacks
- Compatible with ELine 250® RJ45 S, ELine 250® RJ45 U and ELine 1200® EC7 jacks
- Pure white, RAL 9010

Article number: 9ZE30010

Pcs. per packing unit: 8

### Product description:

- Without components
- Suitable for mounting in parapet ducts and for surface mounting, concealed mounting and many underfloor systems
- M4 thread for earth connection
- Dust protection cover
- Delivery without cover frame
- For up to two modules
- Compatible with ELine 1200® EC7, ELine 500™ RJ45 S, ELine 250® RJ45 S and ELine 250® RJ45 U
- Pure white, RAL 9010

Article number: 9ZE30041

Pcs. per packing unit: 8



**ELine™ PREMIUM patch panel,  
1 U, 48 ports (RJ45/EC7)**

483 x 1 U x 98 mm (WxHxD)



**ELine™ patch panel,  
1 U, 24 ports (RJ45/EC7)**

483 x 1 U x 98 mm (WxHxD)

### Product description:

- Without components, takes up a maximum of 48 jacks (including mixed media): ELine 250® RJ45 S, ELine 250® RJ45 U, ELine 250® EC7 on one U!
- Front panel light grey, RAL 7035
- Snap-in assembly
- Mounting clip not required
- Traction relief
- Earth connection

Article number: 9ZE30008

Pcs. per packing unit: 1

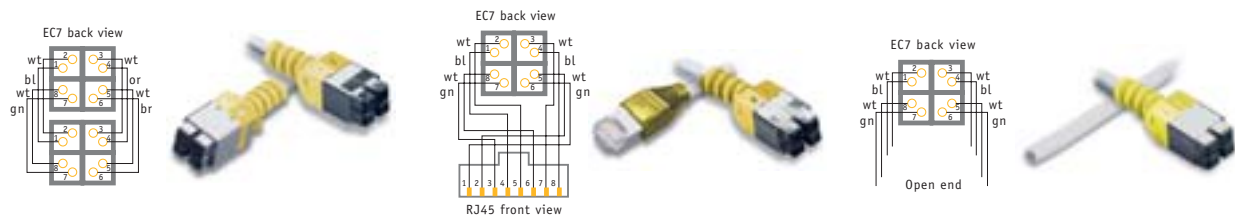
### Product description:

- Without components, takes up a maximum of 24 jacks (including mixed media): ELine 250® RJ45 S, ELine 250® RJ45 U, ELine 1200® EC7
- Front panel light grey, RAL 7035
- Snap-in assembly
- Mounting clip not required
- Traction relief
- Earth connection

Article number: 9ZE30002

Pcs. per packing unit: 1

## Patch cords and work area cords (data)



ELine 1200® EC7 patch cord/work area cord

ELine 1200® EC7 patch cord/work area cord

ELine 1200® EC7 patch cord/work area cord

## Product description:

- 4P (7KS01189), light grey – RAL 7035
- A end equipped with 4-pair EC7 plug
- B end equipped with 4-pair EC7 plug
- Assignment: 1/1
- Colour of bending protection sleeve EC7/EC7: yellow
- Application: Gigabit Ethernet

## Product description:

- 4P (7KS01189), light grey – RAL 7035
- A end equipped with 4-pair EC7 plug
- B end equipped with RJ45 plug
- Assignment EC7-RJ45
- Colour of bending protection sleeve EC7/RJ45: yellow
- Application: Gigabit Ethernet

## Product description:

- 4P (7KS01189), light grey – RAL 7035
- A end equipped with 4-pair EC7 plug
- Colour of bending protection sleeve EC7/RJ45: yellow
- B end without components (for self-mounted RJ45 plug etc.)

Article number: 9KEC1010

Article number: 9KEC2010

Article number: 9KEC0010

9KEC1020

9KEC2020

9KEC0020

9KEC1030

9KEC2030

9KEC0030

9KEC1050

9KEC2050

9KEC0050

Pcs. per packing unit: 1

Pcs. per packing unit: 1

Pcs. per packing unit: 1



ELine 1200® EC7 patch cord/work area cord



ELine 1200® EC7 patch cord/work area cord

## Product description:

- 2P (7KS01068), light grey, RAL7035
- A end equipped with 2-pair EC7 plug
- B end equipped with 2-pair EC7 plug
- Colour of bending protection sleeve: light grey, RAL 7035

## Product description:

- 2P (7KS01068), light grey, RAL7035
- A end equipped with 2-pair EC7 plug
- B end unterminated (for self-mounted RJ45 plug etc.)
- Colour of bending protection sleeve: light grey, RAL 7035

Article number: 9KE01005 – 0.5 m

Article number: 9KE02005 – 0.5 m

9KE01010 – 1.0 m

9KE02010 – 1.0 m

9KE01020 – 2.0 m

9KE02020 – 2.0 m

9KE01030 – 3.0 m

9KE02030 – 3.0 m

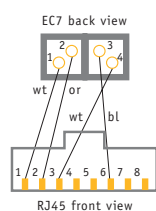
9KE01050 – 5.0 m

9KE02050 – 5.0 m

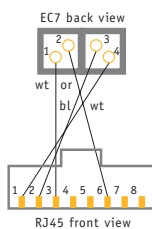
Pcs. per packing unit: 1

Pcs. per packing unit: 1

## Patch cords and work area cords (data)



ELine 1200® EC7 patch cord/work area cord



ELine 1200® EC7 patch cord/work area cord

## Product description:

- 2P (7KS01068), light grey, RAL7035
- A end equipped with 2-pair EC7 plug
- B end equipped with RJ45 plug
- Assignment RJ45: 1/2, 3/6
- Colour of bending protection sleeve EC7/RJ45: yellow
- Sticker: **Crossover**
- Application: Ethernet crossover

## Product description:

- 2P (7KS01068), light grey, RAL7035
- A end equipped with 2-pair EC7 plug
- B end equipped with RJ45 plug
- Assignment RJ45: 1/2, 3/6
- Colour of bending protection sleeve EC7/RJ45: yellow
- Application: Ethernet

Article number: 9KE31005 – 0.5 m

Article number: 9KE03005 – 0.5 m

9KE31010 – 1.0 m

9KE03010 – 1.0 m

9KE31020 – 2.0 m

9KE03020 – 2.0 m

9KE31030 – 3.0 m

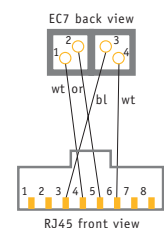
9KE03030 – 3.0 m

9KE31050 – 5.0 m

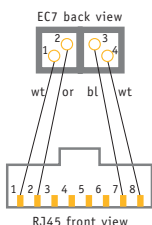
9KE03050 – 5.0 m

Pcs. per packing unit: 1

Pcs. per packing unit: 1



ELine 1200® EC7 patch cord/work area cord



ELine 1200® EC7 patch cord/work area cord

## Product description:

- 2P (7KS01068), light grey, RAL7035
- A end equipped with 2-pair EC7 plug
- B end equipped with RJ45 plug
- Assignment RJ45: 1/2, 3/6
- Colour of bending protection sleeve EC7/RJ45: blue
- Application: Token Ring

## Product description:

- 2P (7KS01068), light grey, RAL7035
- A end equipped with 2-pair EC7 plug
- B end equipped with RJ45 plug
- Assignment RJ45: 1/2, 3/6
- Colour of bending protection sleeve EC7/RJ45: green
- Application: ATM and TP-PMD

Article number: 9KE04005 – 0.5 m

Article number: 9KE05005 – 0.5 m

9KE04010 – 1.0 m

9KE05010 – 1.0 m

9KE04020 – 2.0 m

9KE05020 – 2.0 m

9KE04030 – 3.0 m

9KE05030 – 3.0 m

9KE04050 – 5.0 m

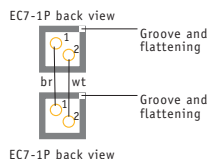
9KE05050 – 5.0 m

Pcs. per packing unit: 1

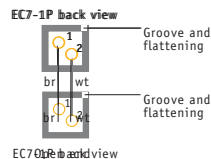
Pcs. per packing unit: 1



## Patch cords and work area cords (telephone)



ELine 1200® EC7 patch cord/work area cord



ELine 1200® EC7 patch cord/work area cord

### Product description:

- 3 conductors (7KS01184), black
- A end equipped with 1-pair EC7 plug
- B end equipped with 1-pair EC7 plug
- Colour of bending protection sleeve: black
- Application: analog and digital telecommunication systems

Article number: 9KE74005 – 0.5 m

9KE74010 – 1.0 m

9KE74020 – 2.0 m

9KE74030 – 3.0 m

9KE74050 – 5.0 m

Pcs. per packing unit: 1

### Product description:

- 3 conductors (7KS01184), black
- A end equipped with 1-pair EC7 plug
- Colour of bending protection sleeve: black
- B end unterminated (for self-mounted RJ11 plug etc.)
- Application: analog and digital telecommunication systems

Article number: 9KE75005 – 0.5 m

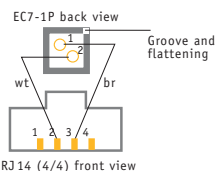
9KE75010 – 1.0 m

9KE75020 – 2.0 m

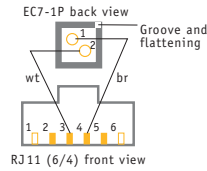
9KE75030 – 3.0 m

9KE75050 – 5.0 m

Pcs. per packing unit: 1



ELine 1200® EC7 patch cord/work area cord



ELine 1200® EC7 patch cord/work area cord

### Product description:

- 3 conductors (7KS01184), black
- A end equipped with 1-pair EC7 plug
- Colour of bending protection sleeve: black
- B end equipped with RJ10 plug (4/4)
- Application: analog and digital telecommunication systems

Article number: 9KE76005 – 0.5 m

9KE76010 – 1.0 m

9KE76020 – 2.0 m

9KE76030 – 3.0 m

9KE76050 – 5.0 m

Pcs. per packing unit: 1

### Product description:

- 3 conductors (7KS01184), black
- A end equipped with 1-pair EC7 plug
- Colour of bending protection sleeve: black
- B end equipped with RJ11 plug (6/4)
- Application: analog and digital telecommunication systems

Article number: 9KE78005 – 0.5 m

9KE78010 – 1.0 m

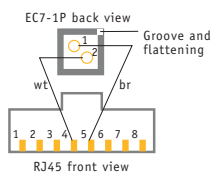
9KE78020 – 2.0 m

9KE78030 – 3.0 m

9KE78050 – 5.0 m

Pcs. per packing unit: 1

## Patch cords and work area cords(telephone)



**ELine 1200® EC7 patch cord/work area cord**

### Product description:

- 3 conductors (7KS01184), black
- A end equipped with 1-pair EC7 plug
- Colour of bending protection sleeve: black
- B end equipped with RJ45 plug
- Application: digital telephony

Article number: 9KE79005 – 0.5 m

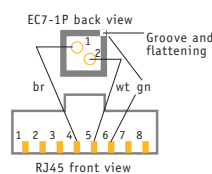
9KE79010 – 1.0 m

9KE79020 – 2.0 m

9KE79030 – 3.0 m

9KE79050 – 5.0 m

Pcs. per packing unit: 1



**ELine 1200® patch cord/work area cord**

### Product description:

- 3 conductors (7KS01184), black
- A end equipped with 1-pair EC7 plug
- Colour of bending protection sleeve: black
- B end equipped with RJ45 plug
- Application: analog telephony for terminal devices with earth key

Article number: 9KE80005 – 0.5 m

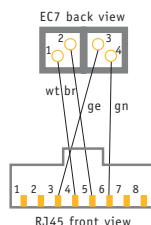
9KE80010 – 1.0 m

9KE80020 – 2.0 m

9KE80030 – 3.0 m

9KE80050 – 5.0 m

Pcs. per packing unit: 1



**ELine 1200® patch cord/work area cord**

### Product description:

- 4 conductors (7KS01184), black
- A end equipped with 2-pair EC7 plug
- Colour of bending protection sleeve: black
- B end equipped with RJ45 plug, without bending protection
- Assignment RJ45 = 3/6, 4/5
- Application: ISDN

Article number: 9KE67005 – 0.5 m

9KE67010 – 1.0 m

9KE67020 – 2.0 m

9KE67030 – 3.0 m

9KE67050 – 5.0 m

Pcs. per packing unit: 1

## Components for CATV use



ELine 1200® EC7-CATV work area cord

### Product description:

- 1 conductor (7KS01072), grey
- A end equipped with EC7 1P plug
- Colour of bending protection sleeve: black
- B end equipped with CATV balun 100/75  $\Omega$  F plug (slide-on)
- Additional adapter: F jack to IEC plug
- Application: CATV cable

Article number: 9KE30002 – 0.2 m

9KE30010 – 1.0 m

Pcs. per packing unit: 1



ELine 1200® EC7-CATV patch cord

### Product description:

- 1 conductor (7KS01072), grey
- A end equipped with EC7 1P plug
- B end equipped with EC7 1P plug
- Colour of bending protection sleeve: black
- Application: CATV patch cord for 2 x quadruple balun etc.

Article number: 9KE69005 – 0.5 m

9KE69010 – 1.0 m

9KE69020 – 2.0 m

9KE69030 – 3.0 m

9KE69050 – 5.0 m

Pcs. per packing unit: 1



ELine 1200® EC7-CATV dual quadruple balun 75/100  $\Omega$

(distributor insert)

49 x 26 x 103 mm (WxHxD)

### Product description:

- Input: 2 x coax, F jack (75  $\Omega$ )
- Output: 2 x ELine 1200® EC7 jack (8x1P 100  $\Omega$ )
- Metal housing with cover and mounting thread, also suitable for earth connection
- When mounted in ELine 1200® EC7 distributor: occupies two ports
- 6 x terminating resistors
- Application: 2 x quadruple CATV balun function
- Only in conjunction with ELine™ patch panel (16 ports) (Article number 9ZE10127), see p. 77 – additional accessories

Article number: 9ZE10271

Pcs. per packing unit: 1



ELine 1200® EC7 equalizer

### Product description:

- Input: coax, F jack (75  $\Omega$ )
- Output: coax, F jack (75  $\Omega$ )
- Switchable via jumper: 9 dB, 18 dB, 27 dB

Article number: 9ZE10242

Pcs. per packing unit: 1

## Components for telephone use



### ELine 1200® EC7 telephone patch panel

485 x 44 x 106 mm (WxHxD)

Mounting depth: 104 mm

### Product description:

- Complete with 25 x (1 x 4) two-conductor jacks
- 100 double conductors for operation with up to 100 telephone services on 1 U
- Rear connections 25 x 8 LSA
- Punch-down connections on 5 x 5 basic modules

Article number: 9ZE10221

Pcs. per packing unit: 1

## Measuring equipment



### ELine 1200® EC7 measuring adapter pair for Fluke DTX 1,800

(distributor insert)

49 x 26 x 103 mm (WxHxD)



### ELine 1200® E7 back-to-back plug

### Product description:

- Suitable for testing EC7 cabling systems up to Class F (600 MHz), permanent link and channel
- Measuring tip consists of an EC7 back-to-back plug which can be replaced when worn out

Article number: 9ZE30038

Pcs. per packing unit: 1 pair

### Product description:

- ELine 1200® E7 back-to-back plug
- Plug face: four-pair EC7 on both sides
- Application: EC7 measuring tip for Class F measurements, for permanent link and channel measuring adapter for Fluke DTX 1,800

Article number: 9ZE30043

Pcs. per packing unit: 1

## Other accessories for ELine 1200® EC7 and ELine 250® RJ45

**ELine™ PREMIUM mini patch panel**

457 x 47 x 82 mm (WxHxD)

**Product description:**

- Closed
- Without components
- For mounting on wall, floor or ceiling, in industrial environments etc.
- 16 dual ports to take up a maximum of 16 ELine 1200® EC7 or ELine 250® RJ45 jacks for mounting with adapter clip (Article number 9ZE30006)

Article number: 9ZE10106

Pcs. per packing unit: 1

**ELine™ PREMIUM mini patch panel**

237 x 47 x 82 mm (WxHxD)

**Product description:**

- Closed
- Without components
- For mounting on wall, floor or ceiling in industrial environments etc.
- 8 dual ports to take up a maximum of 8 ELine 1200® EC7 or ELine 250® RJ45 jacks for mounting with adapter clip (Article number 9ZE30006)

Article number: 9ZE10108

Pcs. per packing unit: 1

**ELine™ PREMIUM mini patch panel**

184 x 47 x 82 mm (WxHxD)

**Product description:**

- Closed
- Without components
- For mounting on wall, floor or ceiling, in industrial environments etc.
- 6 dual ports to take up a maximum of 6 ELine 1200® EC7 or ELine 250® RJ45 jacks for mounting with adapter clip (Article number 9ZE30006)

Article number: 9ZE10007

Pcs. per packing unit: 1

**ELine™ PREMIUM mounting clip**

184 x 47 x 82 mm (WxHxD)

**Product description:**

- For mounting ELine 250® RJ45, ELine 500™ RJ45 and ELine 1200® EC7 jacks to existing patch panels/ outlets from the old ELine™ range
- Pure white, RAL 9010
- Hinged dust protection cover

Article number: 9ZE30021

Pcs. per packing unit: 8

## Other accessories for ELine 1200® EC7 and ELine 250® RJ45



### ELine™ PREMIUM patch panel, 1 U

485 x 44 x 150 mm (WxHxD)

Mounting depth: 148 mm

### ELine™ PREMIUM patch panel, 2 U

485 x 88 x 150 mm (WxHxD)

Mounting depth: 148 mm

### Product description:

- Without components
- Takes up a maximum of 16 ELine 1200® EC7 or ELine 250® RJ45 jacks for mounting with adapter clip, Article number 9ZE30006
- 1 U
- Light grey, RAL 7035

Article number: 9ZE10127

Pcs. per packing unit: 1

### Product description:

- Without components
- Takes up a maximum of 32 ELine 1200® EC7 or ELine 250® RJ45 jacks for mounting with adapter clip, Article number 9ZE30006
- 2 U
- Light grey, RAL 7035

Article number: 9ZE10128

Pcs. per packing unit: 1



## Other accessories for ELine 1200® EC7 and ELine 250® RJ45



ELine 1200® EC7 bending protection sleeve



ELine 1200® EC7 terminator plug

### Product description:

- For ELine 1200® EC7 patch cords and work area cords
- Reversible fastening
- Available in different colours for optical coding

Article number: 9ZE10069 – red

9ZE10070 – blue

9ZE10071 – yellow

9ZE10072 – green

9ZE10074 – black

9ZE10075 – grey

Pcs. per packing unit: 50

### Product description:

- EC7 resistive plug, 2P, with 2 x 100 Ω terminator resistors
- Application: Pluggable terminator for ISDN So-Bus networks ELine 1200® EC7

Article number: 9ZE10104

Pcs. per packing unit: 1



ELine™ PREMIUM assembly tool

### Product description:

- For simple, safe connection of the jacks  
ELine 250® RJ45 S  
ELine 250® RJ45 U and  
ELine 1200® EC7

Article number: 9ZE30007

Pcs. per packing unit: 1

## ELine™ floorbox solutions



ELine™ device adapter



ELine™ floorbox insert



ELine™ floorbox insert

### Product description:

- For mounting in ELine™ floorbox insert (for Ackermann UF system GES – other underfloor systems on request!)
- Mass connection Earth connection
- Integrated strain relief
- Adapter made of 1.5 mm sheet steel
- Surfaces electroplated
- Device adapter for:
  - 1 – 3 pcs. ELine 1200® EC7
  - 1 – 3 pcs. ELine 500™ RJ45 S
  - 1 – 3 pcs. ELine 250® RJ45 S
  - 1 – 3 pcs. ELine 250® RJ45 U

### Product description:

- GES6 insert for a maximum of 2 mounting plates
- For mounting in Ackermann floorbox GES 6 and TEHALIT floorbox
- Device cup and locking device made of 1.5 mm sheet steel
- Surfaces powder-coated deep black RAL 9005
- Self-adhesive marking strips for marking as required
- Adjustable cable strain relief for up to 9 individual cables/copper. The cable strain relief is not part of the scope of delivery)
- Dust protection cover for fibre optical (optional)
- Optionally available mounting plates:
  - FLine® 4 x SC duplex
  - FLine® 4 x E2,000/SC/MTRJ
  - ELine™ device adapter
  - Dummy cover
- The following system accessories are available:  
Separate strain relief 45 mm and 64.5 mm

### Product description:

- GES6 insert for a maximum of 3 mounting plates
- For mounting in Ackermann floorbox GES 6 and TEHALIT floorbox
- Device cup and locking device made of 1.5 mm sheet steel
- Surfaces powder-coated deep black RAL 9005
- Self-adhesive marking strips for marking as required
- Adjustable cable strain relief for up to 9 individual cables/copper. (The cable strain relief is not part of the scope of delivery)
- Dust protection cover for fibre optical (optional)
- Optionally available mounting plates:
  - FLine® 4 x SC duplex
  - FLine® 4 x E2,000/SC/MTRJ
  - ELine™ device adapter
  - Dummy cover
- The following system accessory is available:  
Separate strain relief 45 mm and 64.5 mm

Article number: 9ZE60006

Pcs. per packing unit: 1

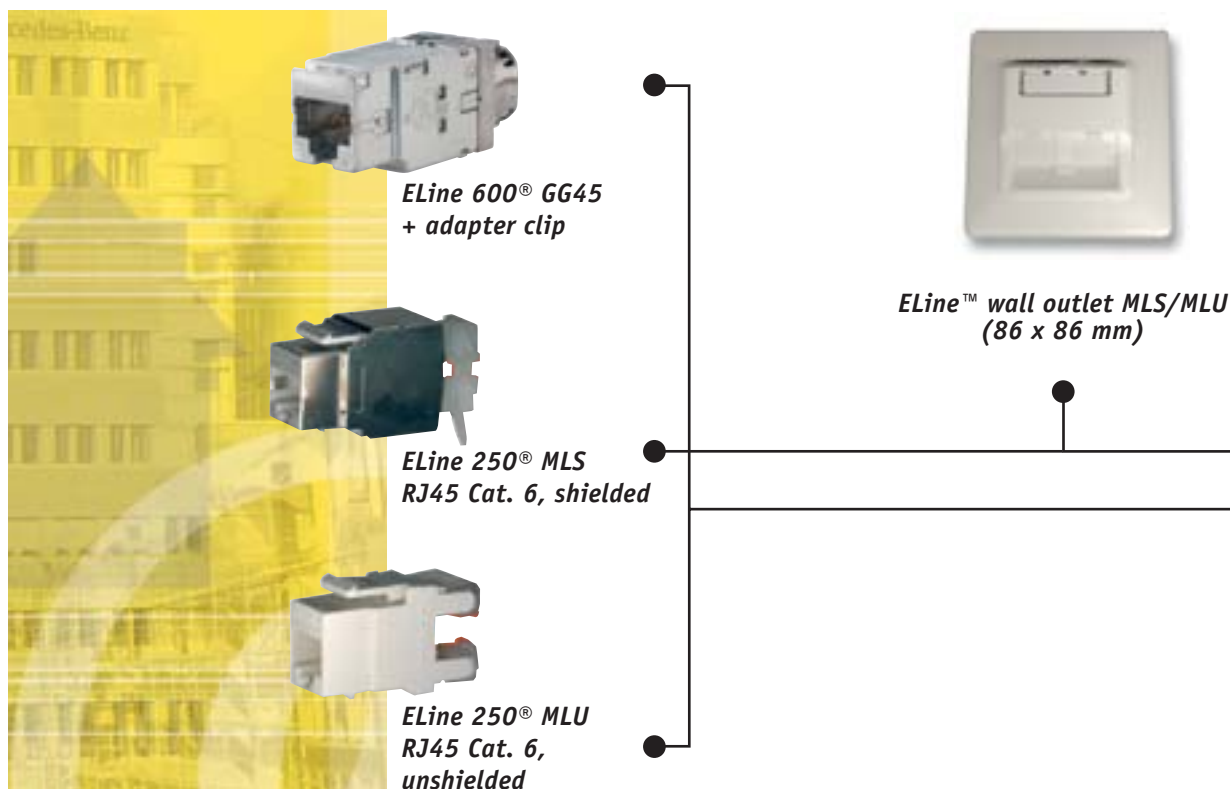
Article number: 9ZE60001

Pcs. per packing unit: 1

Article number: 9ZE60002

Pcs. per packing unit: 1

## The ELine™ NOVUM system



## ELine 250® MLU and ELine 250® MLS – with flexible NOVUM technology

The universal NOVUM technology is a concept for flexibly combining ELine™ jacks of different power stages with NOVUM outlets and panels.

At the centre of the NOVUM series are RJ45 ELine 250® MLU (unshielded) and ELine 250® MLS (shielded) jacks\*.

Extremely easy mounting and good performance in conjunction with MegaLine® data cables guarantee optimum value for money!

\* Both models can be mounted in the NOVUM panel and the NOVUM outlets



**ELine™ wall outlets MLS/MLU  
(45 x 45 mm)**



**ELine™ wall outlets MLS/MLU  
(80 x 80 mm)**

**ELine™ 24 port/1U panel GG45 MLS/MLU**



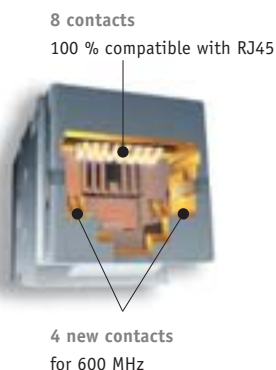
Class F / Kat. 7			Class E / Cat. 6 shielded		Class E / Cat. 6 shielded	
	ELine 600® GG45	Article no.	ELine 250® RJ45 MLS	Article no.	ELine 250® RJ45 MLU	Article no.
MegaLine® cable	SY22	7KS01654	E5-70 S/F	7KS60020	E2-30 U/U	
	SY23	7KS01568	E5-70 F/F E2-45 F/F E2-45 U/F E2-30 F/U	7KS60018 7KS60014 7KS60005 7KS60004		
ELine™ jack	GG45 (Keystone)	9ZE20001	MLS (Keystone)	9ZK00023	MLU (Keystone)	9ZK00002
ELine™ outlet	German 50 x 50 mm 2 p	9ZE20005	german 80 x 80 mm	9ZK00005	german 80 x 80 mm	9ZK00005
			50 x 50 mm 2p flat		50 x 50 mm 2p flat	
			german 80 x 80 mm	9ZK00004	german 80 x 80 mm	9ZK00004
			50 x 50 mm 2p 45°		50 x 50 mm 2p 45°	
			french 80 x 80mm	9ZK00011	french 80 x 80mm	9ZK00011
			45 x 45 mm 1p flat		45 x 45 mm 1p flat	
ELine™ panel (Keystone)	19", 1 U, 24 Port	9ZK00024	french 80 x 80 mm	9ZK00010	french 80 x 80 mm	9ZK00010
			45 x 22,5 mm 2p flat		45 x 22,5 mm 2p flat	
			GB 86 x 86 mm	9ZK00007	GB 86 x 86 mm	9ZK00007
			50 x 60 mm 2p flat		50 x 60 mm 2p flat	
			GB 86 x 86 mm	9ZK00006	GB 86 x 86 mm	9ZK00006
			50 x 60 mm 2p 45°		50 x 60 mm 2p 45°	
ELine™ patch cord (selection)	GG45-GG45 1 m	9KN01010	RJ45-RJ45 1 m	9KW26010	RJ45-RJ45 1 m	9KW79010
	GG45-GG45 2 m	9KN01020	RJ45-RJ45 2 m	9KW26020	RJ45-RJ45 2 m	9KW79020
	GG45-GG45 3 m	9KN01030	RJ45-RJ45 3 m	9KW26030	RJ45-RJ45 3 m	9KW79030
	GG45-GG45 5 m	9KN01050	RJ45-RJ45 5 m	9KW26050	RJ45-RJ45 5 m	9KW79050
	GG45-GG45 10 m	9KN01100	RJ45-RJ45 10 m	9KW26100	RJ45-RJ45 10 m	9KW79100

## ELine 600® GG45 – two in one: Cat. 6 and Cat. 7 ... now up to 1,000 MHz



### ELine 600® GG45: the concept

At the heart of the GG45 concept is the snap-in connector. For the development of the GG45, four new contacts for Cat. 7 transmission were added to the RJ45. These are activated via a switch mechanism in the jack. The GG45 jack thus has the first ever switching mechanism for passive cabling.



In conjunction with the GG45 plug, transmission up to 1,000 MHz is possible on the outer 4 contacts with a suitable cable. This transmission bandwidth ensures that applications of the future F<sub>A</sub> class can also be transmitted. The GG45 plug activates the switch via a spacer on the front which activates the 4 new contacts responsible for Cat. 7 transmission.

When the RJ45 is snapped in, the usual 8 contacts are activated and 100, 250 or 500 MHz are transmitted depending on the cable used. The integrated switch is extremely robust and reliable mechanically. Even after over 1,500 plug-in cycles (RJ45 onto new contacts), there is virtually no wear on the switch. The RJ45 leaves no plastic deposits in the jack and does not affect performance in any way.

### Two in one: Cat. 6 and Cat. 7!

As a two-in-one connector (complete RJ45 and new 600 MHz interface), GG45 is fully backward-compatible and meets all requirements of Categories 5, 6 and 7. If you invest in ELine 600® GG45 for Class E and F today, considerable savings are guaranteed in comparison with other Class F cabling: For patch and work area purposes, you can for example continue to use the conventional RJ45 patch cords/work area cords. If necessary, you can then successively invest in Category 7 patch cords/work area cords.



### Class E



### Class F



GG45 is a registered trademark of Nexans HQ, Paris

## A secure future and backward compatibility!

ELine 600® GG45 allows economical migration from Cat. 5e and 6 to Cat. 7 by simply replacing the patch cords. This makes the decision for later Class F cabling a “just-in-time” investment: the performance is not paid for until it is required!

### Compatibility matrix

Jack	Plug	Cable	Performance of channel
GG45	GG45	1,000 MHz	1,000 MHz
GG45	GG45	250 MHz	250 MHz
GG45	RJ45	500 MHz	250 MHz (depending on quality of RJ45)
RJ45	GG45	600 MHz	Not compatible

## Flexibility of use – only with panels and outlets of the NOVUM series!

The choice is yours: The ELine 600® GG45 jack can be mounted into the specially designed GG45 patch panel and in outlet inserts – or integrated into the NOVUM series via an adapter clip.

## Easy assembly in standard environments

The GG45 is integrated into standard technology and can be used with standard components like a standard cover frame and standard floorboxes. The installation is based on existing technology and can be used like Cat. 5 and Cat. 6 installations.

The EMC covers on the back of the connector ensure optimum EMC protection via 360° shielding.

With the two system cables MegaLine® SY22 (AWG 22) and SY23 (AWG 23), KERPEN offers two system cables specially designed for this connector which make it much easier to install.

## Optimum performance – certified

Measurements by the “Gesellschaft für Hochfrequenz-technik” GHMT (association high-frequency measuring technology) prove the excellent electrical performance of ELine 600® GG45 systems for Class E and F. Even in the worst-case configuration with 4 connectors, the system provides real Cat. 6 and Cat. 7 respectively and high NEXT reserves.

## Who needs Class E and F?

If it's a secure future and reserve performance you're after, the answer is obvious: everybody does! One look at the current standardisation shows that Cat. 5/Class D is being phased out.

Use for 1,000BASE-TX specified in draft standard 4657-1 of ANSI TIA/EIA-854 requires a Class E cabling. In contrast to the Gigabit Ethernet standard 1,000BASE-T used up to now, this standardisation project includes only 2 pairs each for transmitting and receiving, i.e. it allows a considerable reduction in the Gigabit Ethernet cards required (“low-cost Gigabit Ethernet”).

Cell-based 1,000 Mbit/s (CB1G), the use specified by the ATM Forum in af-phy-0162000, is not supported by Class D/Cat. 5 cabling.

Applications requiring Class F are also planned. Key word: Standardisation for TP and Fibre Channel via Class F (ISO/IEC CD 14165-114).

However, the largest project of all is 10 GbE via copper: IEEE 802.3an is to support 10 GbE via Class F (100 m).





## Class F and multimedia

The GG45 is at present designed for connecting information technology at the workplace. The concept will be expanded in future to include additional products in order to allow multimedia applications.

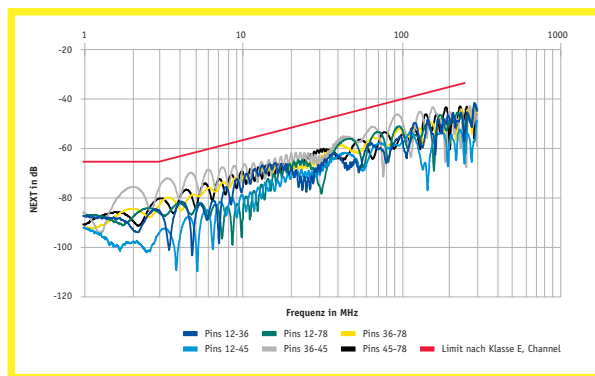
### Conclusion:

The ELine 600® GG45 cabling system offers considerable advantages and potential savings: When you first take it into operation, you can connect reasonably priced RJ45 patch cords to the GG45 jack. If more performance is expected of the LAN in later years, you can upgrade the system to a Class F system by simply replacing the RJ45 patch cords by GG45 patch cords. The advantage of this upgrading method is that it can be carried out by the network operator himself. The purchase cost is reduced via "just-in-time" invest-

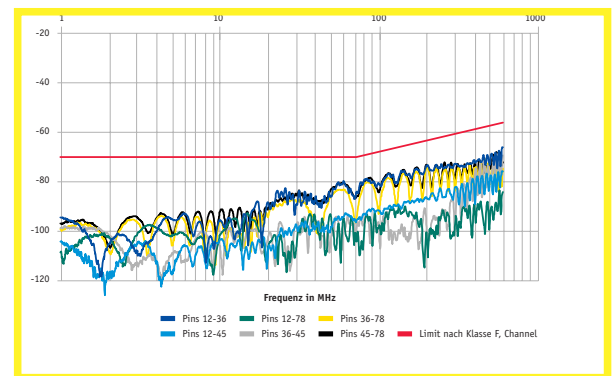
ments (work area cords). And you get the security which only a product standardised worldwide provides! Excellent electrical performance is guaranteed, even in worst case configurations.

A cabling system remains in a building for an average of 15 years. It is impossible to foresee today what new demands will be made on networks during this period. If it's economy and a secure future you're looking for, you should invest in Class F right away.

Today we recommend that you invest in ELine 600® G45 for a Class E and F cabling, for example in conjunction with the MegaLine® SY22 and SY23 GG45 system cable!



NEXT Class E



NEXT Class F

## Technical data



### Compatible outlets/panels etc

- NOVUM (see p. 80–81) and ELine 600® GG45

### Category

- Mode 1: Cat. 6 IEC 60603-7-4 FJ45 up to 250 MHz
- Mode 2: Cat. 7 IEC 60603-7-7 up to 600 MHz

### Jack type

- GG45, Cat. 7 – backward-compatible to RJ45 plug connectors
- Article number: 9ZE20001
- Connecting technology: punch-down, gas-tight IDC

### System cable

- Recommended system cable:  
MegaLine® SY22  
Article number: 7KS01654
- MegaLine® SY23  
Article number: 7KS01568

### Certificate

- GHMT certificate for RJ45 Mode  
Category 6/Class E
- GHMT certificate for GG45 Mode  
Category 7/Class F 600



## Technical data

### Compatible outlets/panel etc.

- ELine™ outlet inserts MLS/MLU
- ELine™ panel MLS/MLU



### Jack type

- RJ45, Cat. 6 (mated) for 250 MHz performance
- Shielded (ELine 250® MLS, Article number: 9ZK00023)  
or
- Unshielded (ELine 250® MLU, Article number: 9ZK00002)
- Connection method: 110 type punch-down, gas-tight
- Recommended conductors: AWG 24 / AWG 23
- Colour coding according to 568A and 568B

### Certificates

- ETL certified according to Cat. 6 (mated link)
- UL certified according to EIA/TIA-568-A-5  
(UL/cUL 1863 listed)



## Jacks

Category 6/7 – 250/1,000 MHZ



**ELine 600® GG45 jack (individual module)**

17 x 20 x 42 mm (WxHxD)

Mounting depth: 45 mm



**ELine 250® MLS RJ45 jack, shielded**

### Product description:

- Snap-in jack for use in panels/outlet inserts of the following series:  
ELine 600® GG45 or NOVUM via adapter clip
- Incl. keystone clip

Article number: 9ZE20001

Pcs. per packing unit: 8

### Product description:

- Shielded
- 8-pole RJ45 jack
- Suitable for use in patch panels and outlet inserts of the NOVUM series (see page 88–89)
- Category 6

Article number: 9ZK00023

Pcs. per packing unit: 1



**ELine 250® MLS RJ45 jack, unshielded**

### Product description:

- Shielded
- 8-pole RJ45 jack
- Suitable for use in patch panels and outlet inserts of the NOVUM series (see page 88–89)
- Category 6

Article number: 9ZK00002

Pcs. per packing unit: 24

## Jacks, outlets and patch panels

Category 6/7 – 250/600 MHz



**ELine™ NOVUM patch panel, 24 ports**

483 mm (= 19") x 44 mm x 150 mm (WxHxD)



**ELine 600® GG45 patch panel, 24 ports 4 x 6**

19", 1 U, 480 x 44 x 135 mm (WxHxD)

Mounting depth: 155 mm

### Product description:

For a maximum of

- 24 x GG45 or 24 x RJ45 MLS/MLU or mixed media
- Front panel: light grey RAL 7035
- Extremely easy to mount
- Traction relief on back
- Can be earthed via screw connection

### Product description:

- Without components
- Steel design, can be equipped with up to 24 ELine 600® GG45 outlets, 4 x sextuple mounting clips, snap-in assembly of outlets, clip-on cable guide with large-surface shield contacting, insertable marking strips, front panel
- Scope of delivery: Modular patch panel, marking strips
- Colour: light grey, RAL 7035

Article number: 9ZK00024

Pcs. per packing unit: 1

Article number: 9ZE20012, fixed – 9ZE20010, telescopic

Pcs. per packing unit: 1



**ELine 600® GG45 dual outlet insert, long**

50 x 50 x 20 mm (WxHxD)

Mounting depth: 35 mm

Inclination: 45°



**ELine 600® GG45 dual outlet insert, short**

50 x 50 x 20 mm (WxHxD)

Mounting depth: 35 mm

Inclination: 45°

### Product description:

- Without components
- For concealed and underfloor mounting
- Can be equipped with up to 2 ELine 600® GG45 jacks, screwless mounting of jacks
- Connecting point for an additional terminal clamp for traction relief or earthing
- Suitable for 50 x 50 frames
- Pure white, RAL 9010
- Scope of delivery: central panel (50 x 50), snap-in mounting ring, marking window (delivery without cover frame)

### Product description:

- Without components
- For concealed and cable duct mounting
- Can be equipped with up to 2 ELine 600® GG45 jacks, screwless mounting of jacks
- Suitable for 45 mm round hole frames and 50 x 50 frames
- Pure white, RAL 9010
- Scope of delivery: central panel (50 x 50), snap-in mounting ring, marking window (delivery without cover frame)

Article number: 9ZE20005

Pcs. per packing unit: 8

Article number: 9ZE20004

Pcs. per packing unit: 8

## Jacks, outlets and patch panels



**ELine 250° ML dual outlet insert**

86 x 86 mm (WxH)



**ELine 250° ML dual outlet insert**

80 x 80 mm (WxH)

### Product description:

For a maximum of

- 2 x RJ45 ELine™ MLS (9ZK00023) or  
2 x RJ45 ELine™ MLU (9ZK00002)
- or mixed media
- Pearl white, RAL 9016

2 models: 45° – Article number: 9ZK00006

Pcs. in packing unit: 12

90° – Article number: 9ZK00007

Pcs. in packing unit: 12

### Product description:

For a maximum of

- 2 x RJ45 ELine™ MLS (9ZK00023) or  
2 x RJ45 ELine™ MLU (9ZK00002)
- or mixed media
- Pure white, RAL 9010

2 models: 45° – Article number: 9ZK00004

Pcs. in packing unit: 12

90° – Article number: 9ZK00005

Pcs. in packing unit: 30



**ELine 250° ML single outlet insert**

45 x 45 mm (WxH)



**ELine 250° ML single module for outlet insert**

22.5 x 45 mm (WxH)

### Product description:

For a maximum of

- 1 x RJ45 ELine™ MLS (9ZK00023) or  
1 x RJ45 ELine™ MLU (9ZK00002)
- Pure white, RAL 9010

Model: 90° – Article number: 9ZK00011

Pcs. in packing unit: 12

### Product description:

ELine™ single outlet insert for dual outlet

- 1 x RJ45 ELine™ MLS (9ZK00023) or  
1 x RJ45 ELine™ MLU (9ZK00002)
- Pure white, RAL 9010

Model: 90° – Article number: 9ZK00010

Pcs. in packing unit: 24



## Jacks, outlets and patch panels



ELine 600® GG45 Cat. 7 patch cord/work area cord



ELine 600® GG45 assembly tool

### Product description:

- 4P (ML F6-90 S/F flex, 7KS70014
- A end equipped with 4-pair GG45 plug
- B end equipped with 4-pair GG45 plug
- Assignment: 1/1
- Colour of bending protection sleeve GG45/GG45: black
- Application: Cat. 7 services

Article number: 9KN01010 – 1.0 m

9KN01020 – 2.0 m

9KN01030 – 3.0 m

9KN01050 – 5.0 m

Pcs. per packing unit: 1

### Product description:

- Assembly tool or simple, safe moulding of the ELine 600® GG45 jack

Article number: 9ZKE20006

Pcs. per packing unit: 1



ELine 250® ML assembly tool

### Product description:

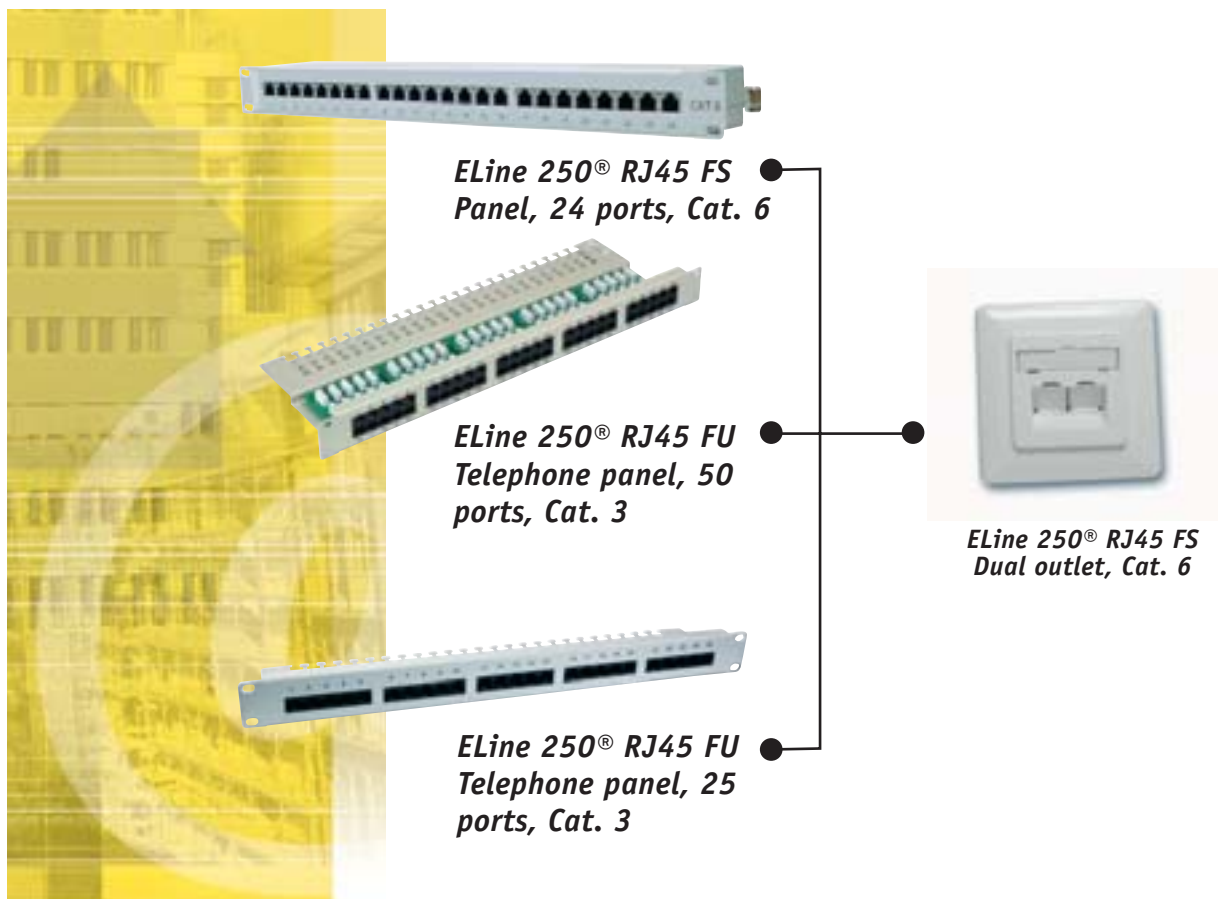
- For simple, safe connection of the jacks ELine 250® RJ45 MLS/MLU

Article number: 9ZK00009

Pcs. per packing unit: 1



## The ELine™ FIXUM system



## ELine 250® RJ45 FS Cat. 6 LSA solution

ELine 250® RJ45 FS offers good performance with reserves exceeding the Cat. 6 specification in the channel and in the permanent link. In addition, the components are manufactured according to the well-known LSA method, making them extremely easy to mount.

## LSA products

**ELine 250° RJ45 FIXUM panel, 24 ports, shielded**

19", 1 U 483 x 44 x 98 mm (WxHxD)

**Product description:**

- 24-port RJ45 panel, shielded, Cat. 6
- Rear connection via 8-pole LSA punch-down connection strips
- Suitable for solid conductors AWG 22-26
- Short assembly time
- Suitable for mounting in 19" cabinets
- Colour: pure white, RAL 7035

Article number: 9ZE70001

Pcs. per packing unit: 1

**ELine 250° RJ45 FIXUM dual outlet, shielded**

80 x 80 mm

**Product description:**

- Outlet for cable duct, surface, concealed and floor-box mounting
- Two RJ45 slots, Cat. 6
- Rear LSA punch-down connections suitable for solid conductors AWG 22-26
- Colour coding according to EIA / TIA 568 A + B
- Short assembly time

Cable guide right/left

Cable guide right/left

Article number: 9ZE70002 (RAL 9010) Article number: 9ZE70005 (RAL 1013)

Pcs. per packing unit: 1

Pcs. per packing unit: 1

Cable guide top/bottom

Cable guide top/bottom

Article number: 9ZE70006 (RAL 9010) Article number: 9ZE70007 (RAL 1013)

Pcs. per packing unit: 1

Pcs. per packing unit: 1

**ELine™ FIXUM telephone patch panel, 50 ports**

19", 1 U 483 x 44 x 92 mm (WxHxD)

**Product description:**

- Suitable for ISDN applications
- Connections: front: 50 x RJ45 jacks, unshielded
- Rear: 4 x 50 LSA punch-down connections
- Connection method: punch-down connections suitable for solid conductors up to AWG 22
- Assignment: pin 3, 4, 5, 6
- Colour: light grey, RAL 7035

Article number: 9ZE70004

Pcs. per packing unit: 1

**ELine™ FIXUM telephone patch panel, 25 ports**

19", 1 U 483 x 44 x 92 mm (WxHxD)

**Product description:**

- Suitable for ISDN applications
- Connections: front: 25 x RJ45 jacks, unshielded
- Rear: 4 x 25 LSA punch-down connections
- Connection method: punch-down connections suitable for solid conductors up to AWG 22
- Assignment: pin 3, 4, 5, 6
- Colour: light grey, RAL 7035

Article number: 9ZE70003

Pcs. per packing unit: 1

## Acceptance tests for ELine™ cabling systems

The acceptance tests for ELine™ cabling systems are carried out according to the requirements of ISO/IEC 11801 / EN 50173, 2<sup>nd</sup> Edition, for channels and permanent links.

Further standards related to acceptance tests (execution of tests): DIN EN 50346 and DIN EN 61935

### Channel Class F

Frequency/MHZ	1	16	100	250	600
Attenuation/dB	4.0	8.1	20.8	33.8	54.6
Near-end cross-talk attenuation/dB	65.0	65.0	62.9	56.9	51.2
PS NEXT/dB	62.0	62.0	59.9	53.9	48.2
ACR/dB	61.0	56.9	42.1	23.1	-3.4
PS ACR/dB	58.0	53.9	39.1	20.1	-6.4
ELFEXT/dB	65.0	57.5	44.4	37.8	31.3
PS ELFEXT/dB	62.0	54.5	41.4	34.8	28.3
Reflection attenuation/dB	19.0	18.0	12.0	8.0	8.0
Asymmetry attenuation/dB	-	-	-	-	-
Time delay/μs	0.580	0.553	0.548	0.564	0.545
Time delay difference/μs	0.030	0.030	0.030	0.030	0.030

Max. loop resistance 25 ohm  
Max. loop resistance asymmetry 0.75 ohm

### Channel Class E

Frequency/MHZ	1	16	100	250	600
Attenuation/dB	4.0	8.3	21.7	35.9	-
Near-end cross-talk attenuation/dB	65.0	53.2	39.9	33.1	-
PS NEXT/dB	62.0	50.6	37.1	30.2	-
ACR/dB	61.0	44.9	18.2	-2.8	-
PS ACR/dB	58.0	42.3	15.4	-5.8	-
ELFEXT/dB	63.3	39.2	23.3	15.3	-
PS ELFEXT/dB	60.3	26.2	20.3	12.3	-
Reflection attenuation/dB	19.0	18.0	12.0	8.0	-
Asymmetry attenuation/dB	-	-	-	-	-
Time delay/μs	0.580	0.553	0.548	0.546	-
Time delay difference/μs	0.050	0.050	0.050	0.050	-

Max. loop resistance 25 ohm  
Max. loop resistance asymmetry 0.75 ohm

## In situ measurement according to Class F

In order to guarantee customer satisfaction, in-situ measurement is becoming more and more important for the approval of a system after installation. Customers who have installed a high-quality Class F system are increasingly demanding proof that the promised specifications are complied with over the entire frequency range of Class F up to 600 MHz as an expression of the high quality of their systems. With the two systems ELine 1200® and EC7 and ELine 600® GG45, KERPEN offers not one but two cabling platforms suitable for Class F. State-of-the-art in-situ measurement techniques are used for approval measurements and certifications according to Class F. In the field of Class F in-situ measuring, KERPEN works with the manufacturers Ideal and Fluke in order to measure the performance in

the permanent link and in the channel. Measuring instruments from both manufacturers can also be used with their RJ45 adapters for measuring according to Draft Class E<sub>A</sub>.

Standard Class F acceptance testing according to ISO/IEC 11801 and EN 50173 up to 600 MHz:

Recommended measuring instruments and adapters:

- IDEAL LANTEK 7G  
(ELine 1200® EC7 Fluke and ELine 600® GG45 adapters available from IDEAL Ind.)
- Fluke DTX1,800  
(ELine 1200® EC7 adapter available from KERPEN, Article number 9ZE30038)

IDEAL



Ideal Industries LANTEK 7G

Fluke



Fluke DTX1,800

### Measuring adapter for the ELine 1200® EC7 cabling system:



### Measuring adapter for the ELine 600® GG45 cabling system:



In the acceptance testing of a GG45 cabling system according to Class F, separate Class E testing of the RJ45 contacts is no longer necessary as full testing of the jacks is carried out by the manufacturer.





**Acceptance testing ELine 250®**  
 RJ45 S  
 RJ45 U  
 MLS  
 MLU  
 MLU  
 FIXUM

#### Standard acceptance testing up to 250 MHz

- Acceptance testing according to Class E – 250 MHz permanent link
- Recommended measuring instruments (as of May 2004):  
 – Fluke: OMNIscanner2, OMNIscanner, DSP 4300, DSP 4100 or DSP 4000, DIX 1,800  
 IDEAL: LANTEK 7, LANTEK 6  
 (Information on other recommended measuring instrument on request)

For user information please go to:

[www.idealindustries.de](http://www.idealindustries.de)

[www.fluke.com](http://www.fluke.com)

#### A selection of measuring instruments (examples):



Fluke DSP 4300



Fluke OMNIscanner2



IDEAL Industries LANTEK 7

