



ETS



fiber optic systems

Über eks

Wir sind ein mittelständisches Unternehmen mit Sitz in Wenden, Südwestfalen. Als Ihr kompetenter und flexibler Partner entwickeln und produzieren wir Elektroniksysteme und Kommunikationsbausteine für die Datenübertragung mit Lichtwellenleitern. Kompetent und flexibel entwickeln unsere Systemintegratoren leistungsfähige Standardlösungen sowie produkt- und anwendungsspezifische Lösungen, die passgenau auf die Anforderungen unserer Kunden zugeschnitten sind. Erfahrung und Qualitätsbewusstsein sind nach DIN EN ISO 9001 zertifiziert.

Innovation, Qualität, Flexibilität und Preisbewusstsein sind die Grundsätze unseres Hauses. Wir verstehen uns als Partner unserer Kunden und handeln danach. Bei eks vereinen sich gutes Handwerk und intelligente Dienstleistung, hier hat Qualität Tradition und der Fortschritt ein freundliches Gesicht sowie ein offenes Ohr für die Bedürfnisse der Kunden.



About eks

eks is your competent and flexible partner in developing and producing electronic systems and communication devices for fiber optic transmission systems.

Our qualified system integrators flexibly create efficient standard solutions as well as product-specific and custom-designed solutions to fit every client's needs. The experience and quality awareness of our company has been rewarded with the DIN EN ISO 9001 certificate.

Innovation, quality, flexibility and cost-consciousness are our corporate principles.

We consider clients as partners and act upon it. At eks we offer excellent products along with intelligent service. Since many years we have been known for, both, quality and innovation as well as extraordinary customer care.



Das eks Produktportfolio umfasst LWL-Systeme für die Bereiche Feldbus-Schnittstellen, digitale und analoge Daten, Ethernet, Audio, Video und Telefon sowie Multimedia-Anwendungen. Dazu kommen konfektionierte Kabel, Patchfelder, Spleißboxen und Verteilerkästen.

Die Leistungsfähigkeit unserer Komponenten zeigt sich täglich bei den Projekten zahlreicher Kunden in verschiedensten Bereichen. So sind inzwischen weltweit Flughäfen, U-Bahnen, Bahnhöfe, Städte, Tunnel, Kasernen und Autobahnen sowie Kraftwerke und Häfen mit der LWL-Technik von eks ausgerüstet. Bei diesen Anwendungen beweisen die Systeme auch unter Extrembedingungen ihre Zuverlässigkeit.



Für Ihre Projekte bieten wir somit „LWL aus einer Hand“, von innovativen Standardkomponenten über konfektionierte Kabel bis zum kompakten Videokonverter. Unter www.eks-engel.de können Sie sich rund um die Uhr umfassend über unser Portfolio informieren. Oder Sie rufen uns an. Gerne helfen wir Ihnen weiter.



The product portfolio of eks includes fiber optic systems for fieldbus-interfaces, digital and analog data, ethernet, audio, video, phone and multimedia applications. Additionally we offer assembled cables, patch fields, splice boxes and distribution boxes.

The high performance of eks products is proven by many satisfied clients every day. Today eks provides fiber optic systems for airports, subways, train stations, cities, tunnels, military bases and highways as well as power plants and ports worldwide. In all of these applications our systems prove to be reliable even under extreme conditions.



Whether you need innovative standard components, assembled cable or compact video converters, we offer fiber optic components for all purposes. For further information about our portfolio please visit our website www.eks-engel.de or call us today. It is our pleasure to help you.

Produkte, Entwicklung und Projektierung

Für unsere Kunden entwickeln, produzieren und vertreiben wir Standard- sowie anwendungsspezifische LWL-Systeme und -Komponenten zur Anbindung herstellereigener Systeme.

Die kompetente Planungsunterstützung des eks-Fiber Optic Supports von Projektbeginn bis zur Realisierung rundet das Angebot „LWL aus einer Hand“ ab.

Individuelle Anpassungen

Gemeinsam mit Ihnen schaffen wir Lösungen für Sie. Kundenspezifische Applikationen umfassen:

- Erstellung eines Pflichtenheftes
- Mechanische Anpassungen
- Elektronische Neuentwicklung oder Modifikation
- Dokumentation

und werden termin- und leistungsgerecht ausgeführt.



Products, development and project planning

Besides the well-established standard systems and services, eks also offers customized special solutions for industrial partners. Our well-trained construction team offers expert support from the early planning up to the final installation of the systems. In this context, eks uses its longtime expertise and the multifaceted applications of the fiber optic components, which are developed and produced at the eks headquarter since 1987.

Customizing

Together we create solutions. Customized applications consist of:

- creation of functional specification
- mechanical adjustments
- electronic development or modification
- documentation

and are delivered according to performance and time schedule.



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	DL485-MBR	MODBUS Fiber Optic System redundant	20
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	DLCAN	CAN Fiber Optic System	
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	DL422	RS422 Fiber Optic System	28
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	DL232-MUX	4xRS232 Multiplexer Fiber Optic System	32
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Analog/Digital	IOL3000	4 x Analog + 8 x Digital Fiber Optic System	38
	IOL3100	4 x Digital Fiber Optic System	40
	IOL3200	12 x Digital Fiber Optic System	42
DragonLine	Media Converter	1x10/100 + 1x100FX / 1x10/100/1000 + 1x1000SX/LX	45
	Media Converter	1x10/100 + 1x100FX / 1x10/100/1000 + 1x1000SX/LX	46
	Switch	5x10/100TX / 8x10/100TX	47
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	19"-Switch	24x10/100TX or 24x100FX + 2x1000 Uplink, modular, managed	70
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FIMP	FIMP	up to 12 Fibers	80
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EL100-XS

Kompakter Medienkonverter unmanaged

Die Serie EL100-XS umfasst unmanaged Medienkonverter für 10/100MBit/s, die mit Kunststoff-, HCS-, Multimode- oder Singlemode-LWL funktionieren. Weitere Leistungsmerkmale sind Auto-Negotiation, MDX/MDIX und ein erweiterter Temperaturbereich.

Das flache Design des Edelstahlgehäuses bietet größtmögliche Flexibilität und Sicherheit bei allen Anwendungen im Innen- und Außenbereich. Die Montage kann sowohl auf der Hutschiene, als auch auf der Wand erfolgen. Im Lieferumfang ist der Clip bereits enthalten. Eingesetzt werden kann der EL100-XS überall dort, wo enge Platzverhältnisse herrschen, wie z.B. im Kleinverteilergehäuse.

In Verbindung mit den anderen Systemen der Baureihen e-light bzw. DragonLine lassen sich somit individuelle Applikationen realisieren.

Mini-Media Converter unmanaged

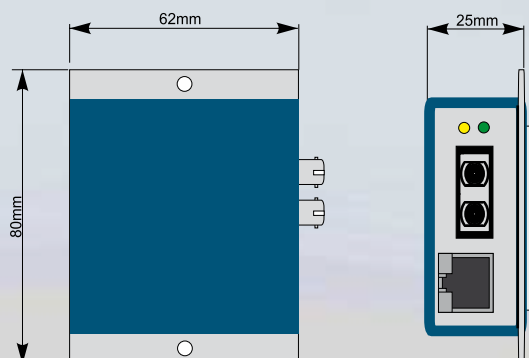
The series EL100-XS contains unmanaged media converters which operate with POF, HCS-, multimode or singlemode fiber optic. Additional features are autonegotiation, MDX/MDIX and extended temperature range.

The flat design of the stainless steel housing offers an extremely high degree of flexibility and safety for all kinds of indoor and outdoor applications. EL100-XS can either be mounted onto a DIN EN rail or fastened onto the wall. A clip is already included in the scope of delivery. EL100-XS is suitable wherever there is little space, e.g. in small distribution boxes.

In connection with other systems out of the e-light and DragonLine series respectively, individual applications can be realized.



Type	1TX-1FX- PO-ST	1TX-1FX- PO-SMA	1TX-1FX- MM-ST	1TX-1FX- MM-SC	1TX-1FX- MM-SC/ BIDIA(B)	1TX-1FX- SM-ST	1TX-1FX- SM-SC	1TX-1FX- SM-E2	1TX-1FX- SM-SC/ BIDIA(B)
Order no. EL100-XS/	0 42000 101E	0 42000 102E	0 42000 131E	0 42000 133E	0 42000 136E (BIDIA) 0 42000 137E (BIDIB)	0 42000 151E	0 42000 153E	0 42000 155E	0 42000 156E (BIDIA) 0 42000 157E (BIDIB)
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 μm	HCS 200/230 μm	Multimode 62,5 (50) /125 μm			Singlemode 9/125 μm			
Optical budget	12 dB		12 dB		15 dB	16 dB			
FO range	50 m (180 dB/km)	200 m (8 dB/km)	up to 5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm	850 nm	1300 nm		1300 nm 1510 nm	1300 nm			1300 nm 1510 nm
Status - LEDs	Link/Act per port								
Operating voltage	12-24 VDC / 2,5W								
Operating temperature	-30°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class A								
Weight	200 g								
Dimensions H x W x D	H: 25 mm W: 62 mm D: 80 mm								
Housing	Stainless steel, powder coated								



EL100-3U / EL100-3UP

Medienkonverter / PoE-Medienkonverter, unmanaged

Die Medienkonverter der Serie EL100-3U und EL100-3UP (mit PoE-Funktion) haben eine ultrakompakte Bauform mit den Abmaßen von 82 x 93 x 22,5 mm. Sie zeichnen sich durch einfache Funktionalität und Bedienfreundlichkeit wie Auto-Negotiation und Auto MDX/MDIX aus.

Das flache Design des Gehäuses bietet größtmögliche Flexibilität und Sicherheit bei allen Anwendungen im Innen- und Außenbereich. Eingesetzt werden kann der EL100-3U / EL100-3UP überall dort, wo enge Platzverhältnisse herrschen, wie z.B. in Kleinverteilergehäusen. In Verbindung mit den anderen Systemen der Baureihen e-light bzw. DragonLine lassen sich somit individuelle Applikationen realisieren.

In der Standardversion funktioniert der EL100-3U im Modus Converter Mode, wenn alle Ports auf 100MBit/s arbeiten, ansonsten arbeitet das System in einem Cut-Through-Modus. Auf Wunsch kann das System auch mit dem Modus Store & Forward angeboten werden. Für besonders geringe Latenzzeiten kann das Gerät im Pass-Through Modus geliefert werden.

Media Converter / PoE-Media Converter, unmanaged

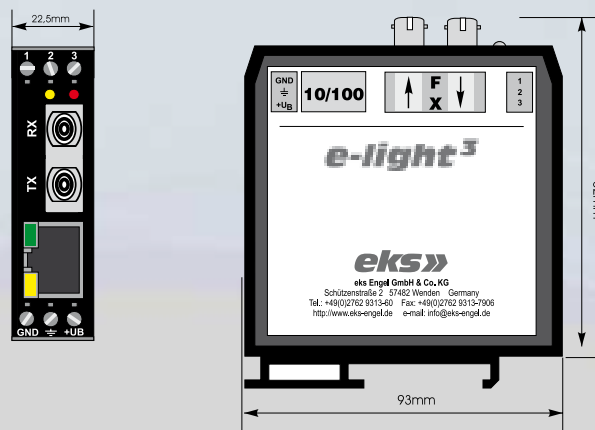
The EL100-3U and EL100-3UP (with PoE-function) media converters have an extra small housing with a dimension of 82 x 93 x 22,5 mm. Its features are Auto-Negotiation and Auto MDX/MDIX.

The flat design of the housing offers an extremely high degree of flexibility for all kinds of indoor and outdoor applications. EL100-3U / EL100-3UP is suitable wherever there is little space, e.g. in small distribution boxes. In connection with other systems out of the e-light and DragonLine series respectively, individual applications can be realized.

The EL100-3U / EL100-3UP standard mode is Converter Mode, if all ports work with 100MBit/s. Otherwise the mode is Cut-Trough. Optionally, the device is also available with Store & Forward mode or with Pass-Through mode if a small latency is needed.



Type	1TX-1FX- POF-ST	1TX-1FX- POF-SMA	1TX-1FX - MM-ST	1TX-1FX - MM-SC	1TX-1FX - MM-SC/ BIDIA(B)	1TX-1FX - SM-ST	1TX-1FX - SM-SC	1TX-1FX - SM-E2	1TX-1FX - SM-SC/ BIDIA(B)
Order no. EL100-3U/	0 45000 101E	0 45000 102E	0 45000 131E	0 45000 133E	0 45000 136E (BIDIA) 0 45000 137E (BIDIB)	0 45000 151E	0 45000 153E	0 45000 155E	0 45000 156E (BIDIA) 0 45000 157E (BIDIB)
Order no. EL100-3UP/	0 46000 101E	0 46000 102E	0 46000 131E	0 46000 133E	0 46000 136E (BIDIA) 0 46000 137E (BIDIB)	0 46000 151E	0 46000 153E	0 46000 155E	0 46000 156E (BIDIA) 0 46000 157E (BIDIB)
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 µm	HCS 200/230 µm	Multimode 62,5 (50) /125 µm			Singlemode 9/125 µm			
Optical budget	12 dB		12 dB		15 dB	16 dB			
FO range	40 m (180 dB/km)	200 m (8 dB/km)	up to 5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm	850 nm	1300 nm		1300 nm 1510 nm	1300 nm			1300 nm 1510 nm
Status - LEDs	TX data per port / PoE-Status (EL-100 U3P)								
Operating voltage	EL-100U3: 12 - 65 VDC EL-100U3P: PoE : 44 - 57 VDC PoE+ : 50 – 57 VDC								
Operating temperature	-10°C - +55°C								
PoE Power (Alternat. A)	PoE : 15,4W (IEEE 802.3af) PoE+ : up to 40 W (IEEE 802.3at)								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class A								
Weight	150 g								
Dimensions H x W x D	H: 82 mm W: 93 mm D: 22,5 mm								
Housing	Polyamide, black								



EL100-X

Unmanaged 4-Port Switch

Die Serie EL100-X umfasst unmanaged 4-Port-Switches für 10/100MBit/s mit wahlweise bis zu vier RJ45-Ethernet-Ports und bis zu zwei optischen Ports, die mit Kunststoff-, HCS-, Multimode- oder Single-mode-LWL funktionieren. Weitere Features sind Auto-Negotiation, MDX/MDIX, redundante Spannungsversorgung und ein erweiterter Temperaturbereich. LEDs und optional potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

In Verbindung mit den anderen Systemen der Baureihen e-light bzw. DragonLine lassen sich somit individuelle Applikationen realisieren.

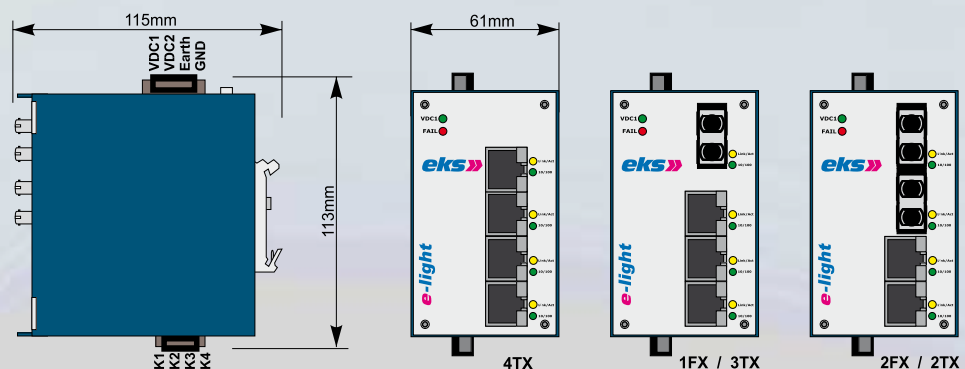
Unmanaged 4-Port Switch

The series EL100-X contains unmanaged 4-Port-switches for 10/100MBit/s with optionally up to four RJ45-Ethernet-Ports and up to two optical ports which operate with POF, HCS-, multimode or singlemode fiber optic. Additional features are autonegotiation, MDX/ MDIX, redundant power supply and extended temperature range. LEDs and potential-free contacts (optional) of a fault detector relay are able to signal defective states.

In connection with other systems out of the e-light and DragonLine series respectively, individual applications can be realized.



Type ST EL100-X/	4TX	3TX-1FX-MM-ST	2TX-2FX-MM-ST		3TX-1FX-SM-ST	2TX-2FX-SM-ST		
Order no.	0 670 300	0 670 301	0 670 302		0 670 351	0 670 352		
Type SC EL100 X/	3TX-1FX-MM-SC	2TX-2FX-MM-SC	2TX-2FX-MM-SC-BIDI	3TX-1FX-MM-SC-BIDI	3TX-1FX-SM-SC	2TX-2FX-SM-SC	3TX-1FX-SM-SC-BIDI	2TX-2FX-SM-SC-BIDI
Order no.	0 670 311	0 670 312	0 670 312 BIDI	0670311 BIDI	0 670 361	0 670 362	0670361 BIDI	0 670 362 BIDI
Type E2000 EL100 X/	3TX-1FX-MM-E2	2TX-2FX-MM-E2			3TX-1FX-SM-E2	2TX-2FX-SM-E2		
Order no.	0 670 331	0 670 332			0 670 381	0 670 382		
Fiber	Multimode 62,5 (50) /125µm				Singlemode 9/125µm			
Optical Budget	12 dB				16 dB			
FO range	up to 5 km (1 dB/km)				30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	1300 nm (BIDI: 1300 nm / 1550 nm)							
Status - LEDs	System fault (red) / Port LEDs (yellow/green) / Power supply (green)							
Operating voltage	12-30 VDC (other voltages on request)							
Power consumption	5 W, 200 mA (12V)							
Potential separation	500 V							
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)							
Storage temperature	-40°C - +85°C							
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B							
Failure relay (optional)	25VDC (1A) / 60VDC (0,3A)							
Weight	500 g							
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm							
Housing	Stainless steel, powder coated							



EL100-2U

Unmanaged 7/8-Port Switch

Die Serie EL100-2U umfasst unmanagede 7/8-Port-Switches für 10/100MBit/s mit wahlweise bis zu acht RJ45-Ethernet-Ports und bis zu drei optischen Ports, die mit Kunststoff-, HCS-, Multimode- oder Singlemode-LWL funktionieren. Weitere Features sind Auto-Negotiation, MDX/MDIX, redundante Spannungsversorgung und erweiterter Temperaturbereich. LEDs signalisieren fehlerhafte Zustände.

In Verbindung mit den anderen Systemen der Baureihen e-light bzw. DragonLine lassen sich somit individuelle Applikationen realisieren.

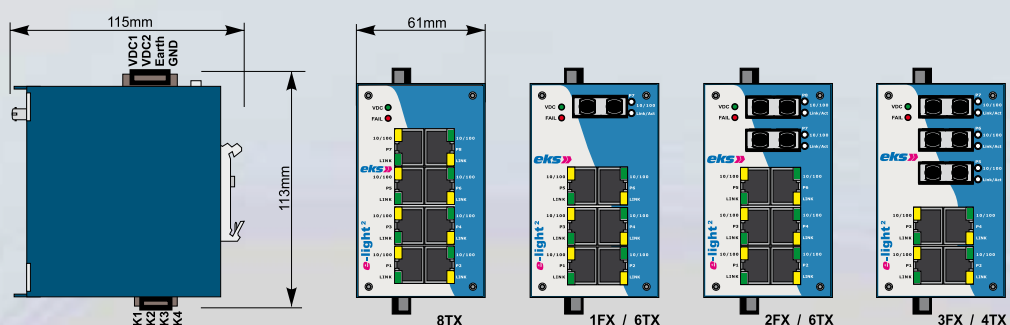
Unmanaged 7/8-Port Switch

The series EL100-2U contains unmanaged 7/8-Port-switches for 10/100MBit/s with optionally up to eight RJ45-Ethernet-Ports and up to three optical ports which operate with POF, HCS-, multimode or singlemode fiber optic. Additional features are autonegotiation, MDX/ MDIX, redundant power supply and extended temperature range. LEDs are able to signal defective states.

In connection with other systems out of the e-light and DragonLine series respectively, individual applications can be realized.



Type ST EL100 2U/	8TX	6TX-1FX- MM-ST	6TX-2FX- MM-ST	4TX-3FX- MM-ST	6TX-1FX- SM-ST	6TX-2FX- SM-ST	4TX-3FX- SM-ST		
Order no.	0 4000 01 0000 00	0 4000 01 0000 31	0 4000 01 00 1 31	0 4000 01 31 31 31	0 4000 01 00 00 51	0 4000 01 00 51 51	0 4000 01 51 51 51		
Type SC EL100 2U/		6TX-1FX- MM-SC	6TX-2FX- MM-SC	4TX-3FX- MM-SC	6TX-1FX- SM-SC	6TX-2FX- SM-SC	4TX-3FX- SM-SC		
Order no.		0 4000 01 00 00 33	0 4000 01 00 33 33	0 4000 01 33 33 33	0 4000 01 00 00 53	0 4000 01 00 53 53	0 4000 01 53 53 53		
Type E2000 EL100 2U/		6TX-1FX- MM-E2	6TX-2FX- MM-E2	4TX-3FX- MM-E2	6TX-1FX- SM-E2	6TX-2FX- SM-E2	4TX-3FX- SM-E2		
Order no.		0 4000 01 00 00 35	0 4000 01 00 35 35	0 4000 01 35 35 35	0 4000 01 00 00 55	0 4000 01 00 55 55	0 4000 01 55 55 55		
Fiber	Multimode 62,5 (50) /125µm				Singlemode 9/125µm				
Optical budget	12 dB				16 dB				
FO range	up to 5 km (1 dB/km)				30 km, others up to 100 km on request (0,3 dB/km)				
Wavelength	1300 nm								
Status - LEDs	System fault (red) / Port LEDs (yellow/green) / Power supply (green)								
Power consumption	5 W, 200 mA (12 VDC)								
Operating voltage	12-30 VDC redundant power supply, other voltages on request								
Potential separation	500 V								
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class A								
Failure relay (optional)	25VDC (1A) / 60VDC (0,3A)								
Weight	500 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								



EL100-2M

Managed 8-Port Switch mit bis zu 4 FX-Ports

Die gemanagten Switche der Serie EL100-2M verfügen über eine Ringfunktionalität auf Basis des Pathfinder Rings (P-Ring) mit einer schnellen Erholzeit von weniger als 300ms.

Über ein Web Management GUI lassen sich alle wichtigen Funktionen wie z.B. Port Mirroring, DHCP Client, IGMP, SNTP, SMTP, Port und Tagged basiertes VLAN, SNMP, RMON, Quality of Service oder Class of Service 802.1p kontrollieren. Zudem steht ein Alarm-Relaisausgang für Systemereignisse zur Verfügung.

EL100-2M ist mit bis zu 4 flexibel konfigurierbaren FX-Ports und bis zu 6 TX-Ports verfügbar. Die Fast Ethernet Switches im Industriedesign sind in einem weiten Temperaturbereich von -25°C bis +60°C einsetzbar und sowohl für die Hutschienen- als auch Wandmontage geeignet. Weitere Details sind Auto-Negotiation, MDX/MDIX und redundante Spannungsversorgung mit einem Eingangsspannungsbereich von 12VDC bis 70VDC. In Verbindung mit den anderen Systemen der Baureihen e-light bzw. DragonLine lassen sich somit individuelle Applikationen realisieren.

Für die Ausführung 2FX/6TX existiert eine DNV-Zulassung.

Managed 8-Port Switch with up to 4 FX-Ports

EL100-2M is an 8 port switch that features ring function based on the Pathfinder Ring (P-Ring) with a recovery time of less than 300ms.

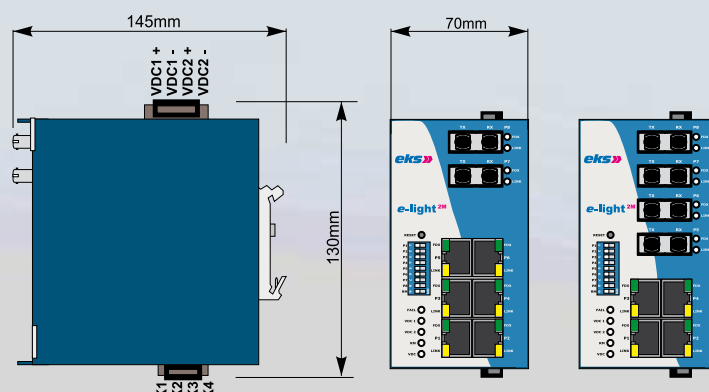
They are available with up to 4 flexibly configurable FX-ports and up to 6TX-ports. The Fast Ethernet switches with their industrial design are useable in a wide temperature range of -25°C to +60°C and are suitable for both DIN rail mounting and wall fastening.

The EL100-2M highlights are amongst others: Web Management GUI, Port Mirroring, DHCP Client, IGMP, SNTP, SMTP, port and tagged based VLAN, SNMP, RMON, quality of service as well as an alarm relay output for system events. Additional features are autonegotiation, MDX/ MDIX and redundant power supply with an input voltage range from 12VDC to 70VDC. In connection with other systems out of the e-light and DragonLine series respectively, individual applications can be realized.

Version 2FX/6TX is available with a DNV approval.



Type EL100-2M/	6TX-2FX- PO-ST	6TX-2FX- HC-ST	6TX-2FX- MM-ST	6TX-2FX- MM-SC	6TX-2FX- MM-SC- BIDI	6TX-2FX- SM-ST	6TX-2FX- SM-SC	6TX-2FX- SM-SC- BIDI	6TX-2FX- SM-E2
Order no.	04100010 00101E	04100010 01111E	04100010 03131E	04100010 03333E	04100010 03637E	04100010 05151E	041000100 5353E	041000100 5657E	041000100 5555E
Type EL100-2M/	4TX-4FX- PO-ST	4TX-4FX- HC-ST	4TX-4FX- MM-ST	4TX-4FX- MM-SC	4TX-4FX- MM-SC- BIDI	4TX-4FX- SM-ST	4TX-4FX- SM-SC	4TX-4FX- SM-SC- BIDI	4TX-4FX- SM-E2
Order no.	04100010 1010101E	04100011 1111111E	04100013 1313131E	04100013 3333333E	04100013 6373637E	04100015 1515151E	041000153 535353 E	041000156 575657E	041000155 555555 E
Fiber	POF 980/1000µm	HCS/ PCF 200/230µm	Multimode 62,5 (50) /125µm			Singlemode 9/125µm			
Optical budget	12 dB	12 dB	12 dB / BIDI 15 dB			16 dB			
FO range	40 m	200 m	up to 5 km			30 km, others on request			
Wavelength	650 nm	850 nm	1300 nm						
Status - LEDs	System fault (red) / Port LEDs (yellow / green) / Power supply (green)								
Power supply	12-70 VDC redundant power supply / 8W								
Potential separation	500 V								
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class A								
Weight	500 g								
Dimensions H x W x D	H: 145mm W: 70mm D: 130mm								
Housing	Stainless steel, powder coated								
IEEE	IEEE 802.3 10Base-T / IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet / IEEE802.3x Flow Control and Back-pressure / IEEE802.1d STP / IEEE802.1w RSTP / IEEE802.1p class of service / IEEE802.1Q VLAN Tag								
Management	SNMP management / Web interface management								
SNMP MIB	RFC 1213 MIBII / RFC 1493 Bridge MIB / RMON RFC 1757 / RFC 2674 VLAN MIB / RFC 1643 Ethernet like MIB / RFC 1215 Trap MIB / Private MIB for switch information, ring, port alarm, TFTP firmware upgrade, reset, port mirror, IP security management, IGMP management MIB								
Technology	Store and forward switching architecture								
MAC Address table	2K MAC address table								
Ring	Pathfinder-Ring (P-Ring) / 2 Ports for the ring guarantee a recovery time of less than 300 ms								
VLAN	VLAN / IEEE802.1Q Tag based VLAN								
Class of Service	IEEE802.1p Class of Service with 4 priority queues								
Spanning Tree	IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree								
IGMP	IGMP v1 and Query Modus, with up to 256 groups								
SNTP / SMTP	SNTP for time synchronisation / SMTP email alert with up to 4 email accounts								
IP Security	IP-address security to refuse access for unauthorized users								
Port Mirror	Only TX packets or TX and RX packets								
Firmware Update	TFTP firmware update, TFTP backup and restore								
Alarm contact	25VDC (1A) / 60VDC (0,3A)								
Bandwidth control	Ingress and egress with combination possibilities								
DHCP Client	Provides DHCP client function to obtain IP address of the DHCP server								



EL100-2MRP

Managed 6TX-2FX-Switch

Die gemanagten Switche der Serie EL100-2MRP verfügen über eine Ringfunktionalität auf Basis des MRP-Rings (Media Redundancy Protocol) mit einer schnellen Erholzeit von weniger als 200ms.

EL100-2MRP ist mit 2 flexibel konfigurierbaren FX-Ports und 6 TX-Ports verfügbar. Die Fast Ethernet Switches im Industriedesign sind in einem weiten Temperaturbereich von -25°C bis +60°C einsetzbar und sowohl für die Hutschienen- als auch Wandmontage geeignet. Weitere Details sind Auto-Negotiation, MDX/MDIX und redundante Spannungsversorgung mit einem Eingangsspannungsbereich von 12VDC bis 70VDC.

Über ein Web Management GUI lassen sich alle wichtigen Funktionen wie z.B. DHCP Client, Port basiertes VLAN, Quality of Service oder Fiber View kontrollieren. FiberView signalisiert ähnlich einer Ampel über LED. Steht die „Ampel“ auf „grün“ ist alles in Ordnung. Leuchtet das Signal „gelb“ so bewegt sich das Budget noch innerhalb der Dämpfungstoleranzen, unterschreitet jedoch eine definierte Systemreserve. Diese Vorwarnstufe wird zusätzlich zur LED per potentialfreien Kontakt signalisiert. Schaltet die „Ampel“ auf „rot“, liegt ein Fehler vor. Zudem steht ein Alarm-Relaisausgang für Systemereignisse zur Verfügung.

In Verbindung mit den anderen Systemen der Baureihen e-light bzw. DragonLine lassen sich somit individuelle Applikationen realisieren.

Managed 6TX-2FX-Switch

EL100-2MRP is an 8 port switch that features ring function based on the MRP-Ring (Media Redundancy Protocol) with a recovery time of less than 200ms.

They are available with 2 flexibly configurable FX-ports and 6TX-ports. The Fast Ethernet switches with their industrial design are useable in a wide temperature range of -25°C to +60°C and are suitable for both DIN rail mounting and wall fastening.

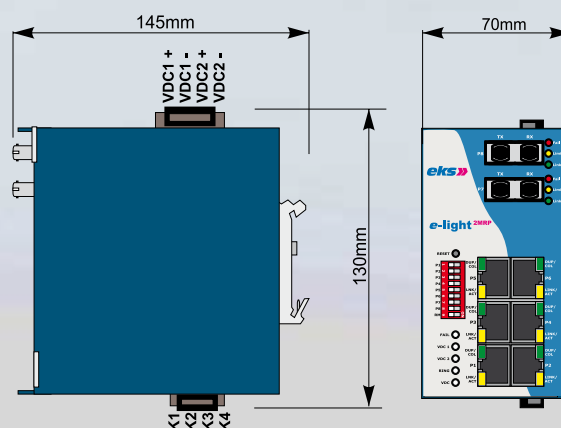
The EL100-2MRP highlights are amongst others: Web Management GUI, DHCP Client, port based VLAN, quality of service, FiberView as well as an alarm relay output for system events. FiberView works similarly to a traffic light. If the "traffic light" is green, everything is fine. If the yellow light LED lights, the budget is still tolerable, but already below a certain system reserve. Additionally to the LED, this pre-warning level is also signaled by a potential-free contact. If the "traffic light" turns red there is a serious error.

Additional features are autonegotiation, MDX/ MDIX and redundant power supply with an input voltage range from 12VDC to 70VDC.

In connection with other systems out of the e-light and DragonLine series respectively, individual applications can be realized.



Type	6TX-2FX-PO-ST	6TX-2FX-HC-ST	6TX-2FX-MM-ST	6TX-2FX-MM-SC	6TX-2FX-MM-SC-BIDI	6TX-2FX-SM-ST	6TX-2FX-SM-SC	6TX-2FX-SM-SC-BIDI	6TX-2FX-SM-E2
EL100-2MRP/									
Order no.	0440001000101E	0440001001111E	0440001003131E	0440001003333E	0440001003637E	0440001005151E	0440001005353E	0440001005657E	0440001005555E
Fiber	POF 980/1000µm	HCS/PCF 200/230µm	Multimode 62,5 (50) /125µm			Singlemode 9/125µm			
Optical budget	12 dB	12 dB	12 dB / BIDI 15 dB			16 dB			
FO range	40 m	200 m	up to 5 km			30 km, others on request			
Wavelength	650 nm	850 nm	1300 nm						
Status - LEDs	Power supply (green) / Failure (red) / Ring Manager (green) / FiberView (red, yellow, green)								
Power supply	12-70 VDC redundant power supply / 8W								
Potential separation	500 V								
Operating temperature	-25°C - +60°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class A								
Weight	500 g								
Dimensions H x W x D	H: 145mm W: 70mm D: 130mm								
Housing	Stainless steel, powder coated								
IEEE	IEEE 802.3 10Base-T / IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet / IEEE802.3x Flow Control								
Management	Web interface management								
Technology	Store and forward switching architecture								
MAC Address table	2K MAC address table								
Ring	MRP-Ring / 2 Ports for the ring guarantee a recovery time of less than 200 ms								
VLAN	Port based VLAN								
Firmware Update	TFTP firmware update, TFTP backup and restore								
Alarm contact	25VDC (1A) / 60VDC (0,3A)								
Bandwidth control	Ingress and egress with combination possibilities								
DHCP Client	DHCP client function gets the IP address of the DHCP server								



DL485 / DL485-4W

RS485-Fiber Optic System, protokolltransparent

Die LWL- Systeme DL485 vernetzen Feldbussysteme mit RS485-Schnittstellen über Lichtwellenleiter. Die optische Vernetzung bietet die sichere Datenübertragung und eignet sich z.B. für MODBUS, MODBUS-RTU, MODNET-1/SFB, BITBUS, SAIA-S-BUS und viele herstellerspezifische Systeme.

Die LWL- Systeme DL485-4W vernetzen Feldbussysteme mit Vierdraht-RS485-Schnittstellen über LWL.

Mit diesem innovativen System lassen sich optische Bus-, Stern- oder Baumstrukturen ebenso realisieren, wie elektrisch-optisch gemischte Strukturen.

LEDs und potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

FiberView signalisiert die Qualität der Verbindung ähnlich einer Ampel über LED. Steht die „Ampel“ auf „grün“ ist alles in Ordnung. Leuchtet das Signal „gelb“ so bewegt sich das Budget noch innerhalb der Dämpfungstoleranzen, unterschreitet jedoch eine definierte Systemreserve. Diese Vorwarnstufe wird zusätzlich zur LED per potentialfreiem Kontakt signalisiert. Schaltet die „Ampel“ auf „rot“, liegt ein Fehler vor.

RS485-Fiber Optic System, protocol transparent

The fiber optic systems DL485 connect field bus systems with RS485 interfaces. Optical linking allows safe data transfer and is suitable for MODBUS, MODNET-1/SFB, BIT-BUS, SAIA-S-BUS and several manufacturer-specific systems.

The fiber optic systems DL485-4W connect field bus systems with RS485 four-wire interfaces.

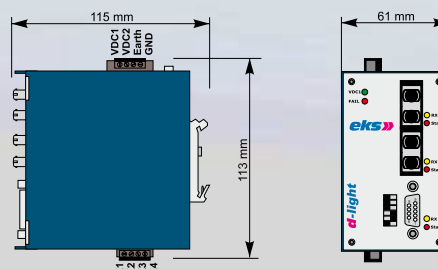
With the help of this innovative system optical bus, star, tree and mixed structures are possible.

LEDs and potential-free contacts of a fault detector relay are able to signal defective states.

FiberView works similarly to a traffic light. If the “traffic light” is green, everything is fine. If the yellow LED lights, the budget is still tolerable, but already below a certain system reserve. Additionally to the LED, this pre-warning level is also signaled by a potential-free contact. If the “traffic light” turns red there is a serious error.



Type	P-ST	P-SMA	MM-ST	MM-SC	MM-SC /BIDI	SM-ST	SM-SC	SM-E2	SM-SC /BIDI
Order no. DL485/	0 1000 6101	0 1000 6102	0 1000 6121	0 1000 6123	0 1000 6123 BIDIA 6123-BIDIB	0 1000 6131	0 1000 6133	0 1000 6135	0 1000 6133 BIDIA 6133-BIDIB
Order no. DL485-2x/	0 1000 6151	0 1000 6152	0 1000 6171	0 1000 6173	0 1000 6173 BIDI	0 1000 6181	0 1000 6183	0 1000 6185	0 1000 6183-BIDI
Data rate max.	1.200 Bit/s to 3 MBit/s								
Transmission type	Half-duplex								
Order no. DL485-4W/	0 1000 6601	0 1000 6602	0 1000 6621	0 1000 6623	0 1000 6623 BIDIA 6623-BIDIB	0 1000 6631	0 1000 6633	0 1000 6635	0 1000 6633 BIDIA 6633-BIDIB
Order no. DL485-4W-2x/	0 1000 6951	0 1000 6952	0 1000 6971	0 1000 6973	0 1000 6973 BIDI	0 1000 6981	0 1000 6983	0 1000 6985	0 1000 6983-BIDI
Data rate max.	1.200 Bit/s to 1,5 MBit/s								
Transmission type	Full-duplex								
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 µm	HCS 200/230 µm	Multimode 62,5 (50) /125 µm			Singlemode 9/125 µm			
Optical budget	12 dB	15 dB	12 dB			16 dB			
FO range	50 m (180dB/km)	120 m (10dB/km)	5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm		1310 nm		1310 nm 1550 nm	1310 nm			1310 nm 1550 nm
Data rate max.	1.200 Bit/s to 3 MBit/s								
Transmission type	Half-duplex								
Terminating resistor	Switchable: none or wave impedance (Rw + Rpd + Rpu)								
Cable length electr.	1.200 m (9,6 – 187,5 KBit/s), 400 m (500 KBit/s), 200 m (1.5 MBit/s)								
Connecting plug	9 pole Sub-D female and 6 pole terminal								
Status - LEDs	Power supply (green) / Failure (red) / Data receive (green) / Status (red) / FiberView (red, yellow, green)								
Operating voltage	12-30 VDC, other voltages on request								
Power consumption	5 Watts, 200 mA (24V)								
Potential separation	500 VDC (24 VDC → RS485)								
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Weight	500 g								
Dimensions H x W x D	H: 115 mm B: 61 mm T: 113 mm								
Housing	Stainless steel, powder coated								



DL485-MBR

MODBUS-Fiber Optic System Redundant

Die LWL- Systeme DL485-MBR sichern die optische Datenübertragung in MODBUS-Feldbusnetzwerken mit einer Datenrate von maximal 115,2KBit/s. Ein spezielles redundanzfähiges LWL-System ermöglicht den Aufbau von optischen Ringstrukturen.

Geeignet sind die Systeme der Serie vor allem für Anwendungen mit hohen sicherheitstechnischen Anforderungen wie z.B. Prozessindustrie, Tunnelbelüftungssysteme und in der Bahntechnik.

LEDs und potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

FiberView signalisiert die Qualität der Verbindung ähnlich einer Ampel über LED. Steht die „Ampel“ auf „grün“ ist alles in Ordnung. Leuchtet das Signal „gelb“ so bewegt sich das Budget noch innerhalb der Dämpfungstoleranzen, unterschreitet jedoch eine definierte Systemreserve. Diese Vorwarnstufe wird zusätzlich zur LED per potentialfreiem Kontakt signalisiert. Schaltet die „Ampel“ auf „rot“, liegt ein Fehler vor.

MODBUS-Fiber Optic System redundant

The fiber optic systems DL485-MBR secure the optical data transfer within MODBUS networks up to a data speed of 115,2KBit/s. Our special multifunctional fiber optic system allows the construction of optical ring structures.

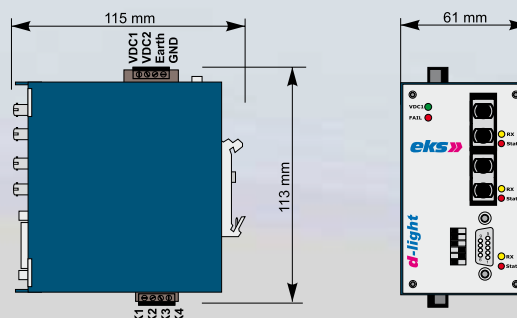
The system of this series is especially suitable for applications with strict safety-related requirements as for instance: process industry, tunnel ventilation systems and railway technology.

LEDs and potential-free contacts of a fault detector relay are able to signal defective states.

FiberView works similarly to a traffic light. If the "traffic light" is green, everything is fine. If the yellow LED lights, the budget is still tolerable, but already below a certain system reserve. Additionally to the LED, this pre-warning level is also signaled by a potential-free contact. If the "traffic light" turns red there is a serious error.



Type	P-ST	P-SMA	MM-ST	MM-SC	MM-SC /BIDI	SM-ST	SM-SC	SM-E2	SM-SC /BIDI
Order no. DL485-MBR/	0 1000 7951	0 1000 7952	0 1000 7971	0 1000 7973	0 1000 7973-BIDI	0 1000 7981	0 1000 7983	0 1000 7985	0 1000 7983-BIDI
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 μ m		Multimode 62,5 (50) /125 μ m			Singlemode 9/125 μ m			
Optical budget	12 dB		13 dB			17 dB			
FO range	50 m (180dB/km)		5 km (1 dB/km)			30 km, others up to 100 km on request (0,4 dB/km)			
Wavelength	650 nm		1310 nm		1310 nm 1550 nm	1310 nm			1310 nm 1550 nm
Data rate max.	115,2 KBit/s								
Transmission type	Half-duplex								
Terminating resistor	Switchable: none or wave impedance (Rw + Rpd + Rpu)								
Cable length electr.	1.200 m								
Connecting plug	9 pole Sub-D female and 6 pole terminal								
Status - LEDs	Power supply (green) / Failure (red) / Data receive (green) / Status (red) / FiberView (red, yellow, green)								
Operating voltage	12-30 VDC, other voltages on request								
Power consumption	5 Watts, 200 mA (24V)								
Potential separation	500 VDC (24 VDC \rightarrow RS485)								
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Failure relay	25VDC (1A) / 60VDC (0,3A)								
Weight	500 g								
Dimensions H x W x D	H: 115 mm B: 61 mm T: 113 mm								
Housing	Stainless steel, powder coated								



DL485-PB / DL485-PBR

PROFIBUS-Fiber Optic System

Die LWL- Systeme DL485-PB vernetzen Profibus-Feldbusnetzwerke über Lichtwellenleiter. Mit diesem innovativen System lassen sich optische Bus-, Stern- oder Baumstrukturen ebenso realisieren, wie elektrisch-optisch gemischte Strukturen.

Das redundanzfähige LWL- System DL485-PBR ermöglicht zudem den Aufbau von optischen Ringstrukturen.

LEDs und potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

FiberView signalisiert die Qualität der Verbindung ähnlich einer Ampel über LED. Steht die „Ampel“ auf „grün“ ist alles in Ordnung. Leuchtet das Signal „gelb“ so bewegt sich das Budget noch innerhalb der Dämpfungstoleranzen, unterschreitet jedoch eine definierte Systemreserve. Diese Vorwarnstufe wird zusätzlich zur LED per potentialfreiem Kontakt signalisiert. Schaltet die „Ampel“ auf „rot“, liegt ein Fehler vor.

PROFIBUS-Fiber Optic System

The systems DL485-PB connect Profibus-field bus networks by fiber optics. With the help of this innovative system, optical bus, star, tree and mixed structures are possible.

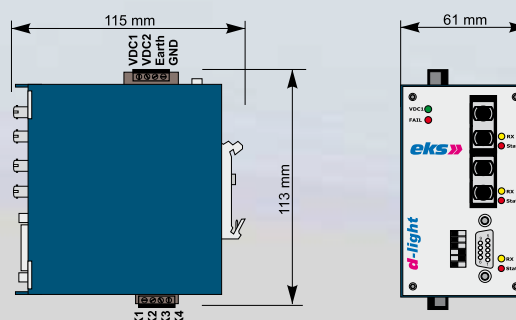
The special multifunctional fiber optic system DL485-PBR also allows the construction of optical ring structures. The system of this series is especially suitable for applications with strict safety-related requirements as for instance: process industry, tunnel ventilation systems and railway technology.

LEDs and potential-free contacts of a fault detector relay are able to signal defective states.

FiberView works similarly to a traffic light. If the "traffic light" is green, everything is fine. If the yellow LED lights, the budget is still tolerable, but already below a certain system reserve. Additionally to the LED, this pre-warning level is also signaled by a potential-free contact. If the "traffic light" turns red there is a serious error.



Type	P-ST	P-SMA	MM-ST	MM-SC	MM-SC /BIDI	SM-ST	SM-SC	SM-E2	SM-SC /BIDI
Order no. DL485-PB/	0 1000 6201	0 1000 6202	0 1000 6221	0 1000 6223	0 1000 6223-BIDIA 6223-BIDIB	0 1000 6231	0 1000 6233	0 1000 6235	0 1000 6233-BIDI
Order no. DL485-PB-2x/	0 1000 6251	0 1000 6252	0 1000 6271	0 1000 6273	0 1000 6273-BIDI	0 1000 6281	0 1000 6283	0 1000 6285	0 1000 6283-BIDI
Order no. DL485-PBR/	0 1000 6351	0 1000 6352	0 1000 6371	0 1000 6373	0 1000 6373-BIDI	0 1000 6381	0 1000 6383	0 1000 6385	0 1000 6383-BIDI
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 µm	HCS 200/230 µm	Multimode 62,5 (50) /125 µm			Singlemode 9/125 µm			
Optical budget	12 dB	15 dB	12 dB			16 dB			
FO range	50 m (180 dB/km)	120 m (10 dB/km)	5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm		1310 nm		1310 nm 1550 nm	1310 nm			1310 nm 1550 nm
Data rate max.	12MBit/s								
Transmission type	Half-duplex								
Signal delay	RS485 ↔ Fiber Optic : < 3 TBit / Tx ↔ Rx : 11 TBit								
Terminating resistor	Switchable: none or wave impedance (Rw + Rpd + Rpu)								
Cable length electr.	1.200m (9,6 – 187,5KBit/s), 400m (500KBit/s), 200m (1.5MBit/s), 100m (3MBit/s - 12MBit/s)								
Connecting plug	9 pole Sub-D female and 6 pole terminal								
Status - LEDs	Power supply (green) / Failure (red) / Data receive (green) / Status (red) / FiberView (red, yellow, green)								
Operating voltage	12-30 VDC, other voltages on request								
Power consumption	5 Watts, 200 mA (24V)								
Potential separation	500 VDC (24 VDC → Profibus RS485)								
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Failure relay	25VDC (1A) / 60VDC (0,3A)								
Weight	500 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								



DL485-MBP / DL485-MBPR

MODBUS-PLUS-Fiber Optic System

Die LWL- Systeme DL485-MBP vernetzten Feldbusnetzwerke mit Modbus-Plus-Schnittstelle über Lichtwellenleiter. Mit diesem innovativen System lassen sich optische Bus-, Stern- oder Baumstrukturen ebenso realisieren, wie elektrisch-optisch gemischte Strukturen.

Das redundanzfähige LWL- System DL485-MBPR ermöglicht zudem den Aufbau von optischen Ringstrukturen.

LEDs und potenzialfreie Kontakte eines Fehlerrelais (optional für DL485-MBP) signalisieren fehlerhafte Zustände.

MODBUS-PLUS-Fiber Optic System

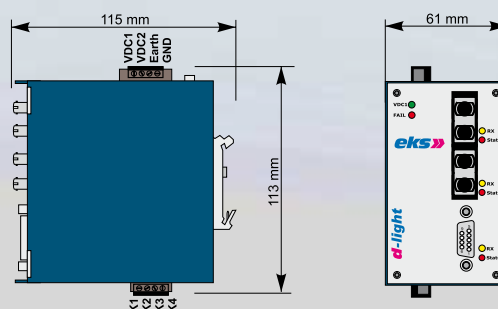
The fiber optic systems DL485-MBP connect a Modbus-Plus interface to optical field bus networks. With the help of this innovative system optical bus, star, tree and mixed structures are possible.

The special multifunctional fiber optic system DL485-MBPR also allows the construction of optical ring structures.

LEDs and potential-free contacts (optional for DL485-MBP) of a fault detector relay are able to signal defective states.



Type	P-ST	P-SMA	MM-ST	MM-SC	MM-SC /BIDI	SM-ST	SM-SC	SM-E2	SM-SC /BIDI
Order no. DL485-MBP/	0 1000 6401	0 1000 6402	0 1000 6421	0 1000 6423	0 1000 6423 BIDIA 6423-BIDIB	0 1000 6431	0 1000 6433	0 1000 6435	0 1000 6433-BIDIA 6433-BIDIB
Order no. DL485-MBP-2x/	0 1000 6451	0 1000 6452	0 1000 6471	0 1000 6473	0 1000 6473-BIDI	0 1000 6481	0 1000 6483	0 1000 6485	0 1000 6483-BIDI
Order no. DL485-MBPR/	0 1000 8551	0 1000 8552	0 1000 8571	0 1000 8573	0 1000 8573-BIDI	0 1000 8581	0 1000 8583	0 1000 8585	0 1000 8583-BIDI
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 µm	HCS 200/230 µm	Multimode 62,5 (50) /125 µm			Singlemode 9/125 µm			
Optical budget	12 dB	15 dB	12 dB			16 dB			
FO range	50 m (180 dB/km)	120 m (10 dB/km)	5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm		1310 nm		1310 nm 1550 nm	1310 nm			1310 nm 1550 nm
Data rate max.	1 MBit/s								
Transmission type	Half-duplex								
Signal delay	Modbus Plus Interface ↔ Fiber Optic: < 400ns / Tx ↔ Rx : 500ns MBPR : MODBUS Plus Interface ↔ Fiber Optic : < 1µs								
Terminating resistor	According to MODBUS Plus specifications: no terminating resistors in device								
Cable length electr.	50 m								
Connecting plug	9 pole Sub-D female and 6 pole terminal								
Status - LEDs	Power supply (green) / Data (yellow) / Status (red)								
Operating voltage	12-30 VDC, other voltages on request								
Power consumption	5 Watts, 200 mA (24V)								
Potential separation	500 VDC (24 VDC → Modbus Plus Interface)								
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
Storage temperature	-40°C - +85°C								
Failure relay	25VDC (1A) / 60VDC (0,3A)								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Weight	500 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								



DL CAN / DL CAN-R

CAN-Fiber Optic System, protokolltransparent

Die LWL-Systeme DL CAN vernetzen CAN-Feldbusnetzwerke (z. B. Offenes CAN, CANopen, DeviceNet) über Lichtwellenleiter. Mit diesem innovativen System lassen sich optische Bus-, Stern- oder Baumstrukturen ebenso realisieren, wie elektrisch-optisch gemischte Strukturen.

Das redundanzfähige LWL- System DL CAN-R ermöglicht zudem den Aufbau von optischen Ringstrukturen.

LEDs und potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

FiberView signalisiert die Qualität der Verbindung ähnlich einer Ampel über LED. Steht die „Ampel“ auf „grün“ ist alles in Ordnung. Leuchtet das Signal „gelb“ so bewegt sich das Budget noch innerhalb der Dämpfungstoleranzen, unterschreitet jedoch eine definierte Systemreserve. Diese Vorwarnstufe wird zusätzlich zur LED per potentialfreiem Kontakt signalisiert. Schaltet die „Ampel“ auf „rot“, liegt ein Fehler vor.

CAN-Fiber Optic System

The systems DL CAN connect CAN field bus networks (e.g. CAN, CANopen, DeviceNet) via fiber optics. With the help of this innovative system, optical bus, star, tree and mixed structures are possible.

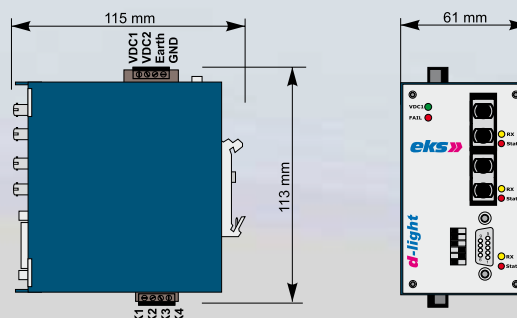
The special multifunctional fiber optic system DL CAN-R also allows the construction of optical ring structures.

LEDs and potential-free contacts of a fault detector relay are able to signal defective states.

FiberView works similarly to a traffic light. If the "traffic light" is green, everything is fine. If the yellow LED lights, the budget is still tolerable, but already below a certain system reserve. Additionally to the LED, this pre-warning level is also signaled by a potential-free contact. If the "traffic light" turns red there is a serious error.



Type	P-ST	P-SMA	MM-ST	MM-SC	MM-SC /BIDI	SM-ST	SM-SC	SM-E2	SM-SC /BIDI
Order no. DLCAN/	0 1000 7401	0 1000 7402	0 1000 7421	0 1000 7423	0 1000 7423-BIDI	0 1000 7431	0 1000 7433	0 1000 7435	0 1000 7433-BIDI
Order no. DLCAN-2x/	0 1000 7451	0 1000 7452	0 1000 7471	0 1000 7473	0 1000 7473-BIDI	0 1000 7481	0 1000 7483	0 1000 7485	0 1000 7483-BIDI
Order no. DLCAN-R/	0 1000 7551	0 1000 7552	0 1000 7571	0 1000 7573	0 1000 7573 BIDI	0 1000 7581	0 1000 7583	0 1000 7585	0 1000 7583-BIDI
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 μm		Multimode 62,5 (50) /125 μm			Singlemode 9/125 μm			
Optical budget	12dB		12dB			16dB			
FO range	50 m (180dB/km)		5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm		1310 nm			1310 nm			
Data rate max.	1000, 800, 500, 250, 125, 100, 50, 22,2, 20 and 10 Kbaud switchable by DIP-switch								
Identifier in Network	11 Bit Identifier, 29 Bit Identifier or both								
Transmission type	Half-duplex								
Terminating resistor	Switchable: none or wave impedance (Rw)								
Cable length electr.	According to CAN-specifications								
Connecting plug	9 pole Sub-D female and 6 pole terminal								
Status - LEDs	Power supply (green) / Failure (red) / Data receive (green) / Status (red) / FiberView (red, yellow, green)								
Operating voltage	12-30 VDC, other voltages on request								
Power consumption	5 Watts, 200 mA (24V)								
Potential separation	500 VDC (24 VDC → CAN Interface)								
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Failure relay	25VDC (1A) / 60VDC (0,3A)								
Weight	500 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								



DL422

RS422-Fiber Optic System

Die LWL- Systeme DL-422 vernetzten Applikationen mit RS422-Schnittstelle über Lichtwellenleiter.

Mit diesem innovativen System lassen sich optische Bus-, Stern- oder Baumstrukturen ebenso realisieren, wie elektrisch-optisch gemischte Strukturen.

LEDs und optional potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

RS422-Fiber Optic System

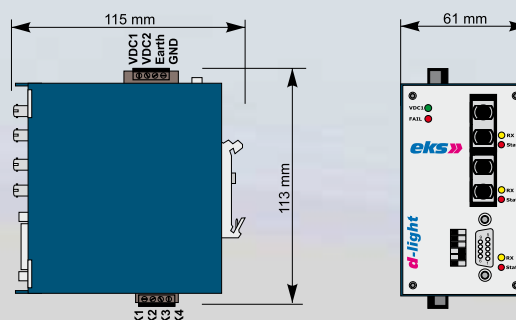
The fiber optic systems DL422 connect applications with a RS422 interface via fiber optics.

With the help of this innovative system optical bus, star, tree and mixed structures are possible.

LEDs and potential-free contacts (optional) of a fault detector relay are able to signal defective states.



Type	P-ST	P-SMA	MM-ST	MM-SC	MM-SC /BIDI	SM-ST	SM-SC	SM-E2	SM-SC /BIDI
Order no. DL422/	0 1000 2101	0 1000 2102	0 1000 2121	0 1000 2123	0 1000 2123-BIDIA 2123 BIDIB	0 1000 2131	0 1000 2133	0 1000 2135	0 1000 2133 BIDIA 2133 BIDIB
Order no. DL422-2x/	0 1000 2151	0 1000 2152	0 1000 2171	0 1000 2173	0 1000 2173-BIDI	0 1000 2181	0 1000 2183	0 1000 2185	0 1000 2183-BIDI
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 μm		Multimode 62,5 (50) /125 μm			Singlemode 9/125 μm			
Optical budget	12dB		12dB			16dB			
FO range	50 m (180dB/km)		5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm		1310 nm		1310nm 1550nm	1310 nm			1310nm 1550nm
Data rate max.	1,5MBit/s (divided by number of connectors)								
Transmission type	Duplex, half-duplex with DL-422/2x								
Terminating resistor	switchable: none or pull-up resistor (Rp) or wave impedance (Rw)								
Cable length electr.	50 m								
Connecting plug	9 pole Sub-D female and 6 pole terminal								
Status - LEDs	Power supply (green) / Data (yellow) / Status (red)								
Operating voltage	12-30 VDC, other voltages on request								
Power consumption	5 Watts, 200 mA (24V)								
Potential separation	500 VDC (24 VDC → RS422)								
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Weight	500 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								



DL232 / DL232-R

RS232-Fiber Optic System

Die LWL- Systeme DL232 verbinden Systeme mit RS232-Schnittstelle über Lichtwellenleiter, die über Software-handshake (Xon/Xoff) miteinander kommunizieren. Mit diesem innovativen System lassen sich optische Punkt-zu-Punkt und Bus-Strukturen realisieren.

Das redundanzfähige LWL- System DL232-R ermöglicht zudem den Aufbau von optischen Ringstrukturen.

LEDs und potenzialfreie Kontakte eines Fehlerrelais (optional für DL232) signalisieren fehlerhafte Zustände.

RS232-Fiber Optic System

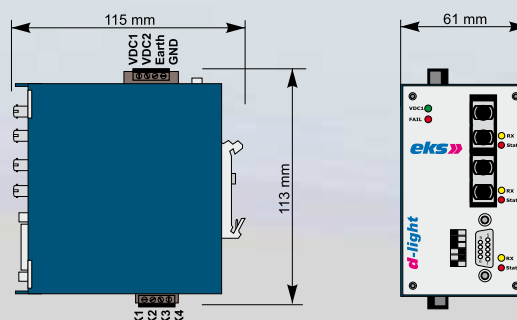
The fiber optic systems DL232 connect systems with a RS232-interface via fiber optics. The DL232 allows communication via software-handshake (Xon/ Xoff). With the help of this innovative system optical bus, star, tree and mixed structures are possible.

The special multifunctional fiber optic system DL232-R also allows the construction of optical ring structures.

LEDs and potential-free contacts (optional for DL232) of a fault detector relay are able to signal defective states.



Type	P-ST	P-SMA	MM-ST	MM-SC	MM-SC /BIDI	SM-ST	SM-SC	SM-E2	SM-SC /BIDI
Order no. DL232/	0 1000 1101	0 1000 1102	0 1000 1121	0 1000 1123	0 1000 1123-BIDIA 1123-BIDIB	0 1000 1131	0 1000 1133	0 1000 1135	0 1000 1133-BIDIA 1133-BIDIB
Order no. DL232-2x/	0 1000 1151	0 1000 1152	0 1000 1171	0 1000 1173	0 1000 1173-BIDI	0 1000 1181	0 1000 1183	0 1000 1185	0 1000 1183-BIDI
Order no. DL232-R/	0 1000 1351	0 1000 1352	0 1000 1371	0 1000 1373	0 1000 1373-BIDI	0 1000 1381	0 1000 1383	0 1000 1385	0 1000 1383-BIDI
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 μm		Multimode 62,5 (50) /125 μm			Singlemode 9/125 μm			
Optical budget	12 dB		12 dB			16 dB			
FO range	50 m (180dB/km)		5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm		1310 nm		1310nm 1550nm	1310 nm			1310nm 1550nm
Data rate max.	115,2 KBit/s								
Transmission type	duplex, half-duplex with DL-232/2x and DL-232R								
Operation type	DTE or DCE switchable with DIP-switch								
Cable length electr.	15 m								
Connecting plug	9 pole Sub-D female and 6 pole terminal								
Status - LEDs	Power supply (green) / Data (yellow) / Status (red)								
Operating voltage	12-30 VDC, other voltages on request								
Power consumption	5 Watts, 200 mA (24V)								
Potential separation	500 VDC (24 VDC → RS232)								
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Failure relay	25VDC (1A) /60VDC (0,3A)								
Weight	500 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								



DL232-MUX

RS232-Multiplexer-Fiber Optic System

Das Übertragungssystem DL232-MUX ist ein Multiplexer für 4xRS232-Signale bidirektional über LWL. Somit können neben dem RxD- und TxD Signal auch noch bis zu drei Hardware-Handshake-Signale wie RTS, CTS, DCD, DSR und DTR übertragen werden.

Die RS232-Multiplexer haben eine Pinbelegung wie Modems. Zwei Multiplexer, die über LWL verbunden sind, kreuzen die Leitungen und wirken daher wie ein Nullmodem-Kabel. Für die Verbindung von zwei DTE-Endgeräten (mit PC-Pinbelegung) benötigen Sie daher zwei 1:1-Kabel, um die Endgeräte an die Multiplexer anzuschließen. Endgeräte mit einer DCE-Pinbelegung (Modem-Pinbelegung) müssen über ein Nullmodem-Kabel an den Multiplexer angeschlossen werden.

LEDs und optional potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

RS232-Multiplexer-Fiber Optic System

The system DL232-MUX is a multiplexer for 4xRS232 signals, working bidirectionally via fiber optics. Thus, in addition to the RxD and TxD signals, hardware-handshake signals as RTS, CTS, DCD, DSR and DTR can be transferred, too.

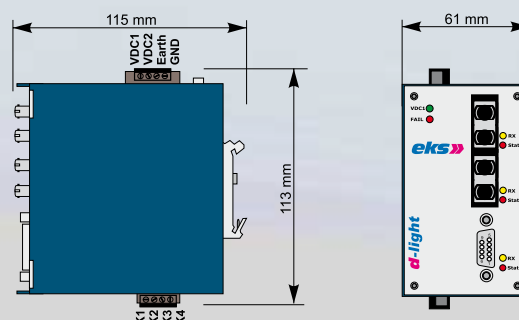
RS232-multiplexers have a similar pin assignment as modems. Two multiplexers, connected by fiber optics, cross the wires and operate like a null modem cable.

Hence, connecting two data processing terminals (with PC pin assignment) requires two 1:1 cables to be able to link the terminals to the multiplexers. Terminals with a DCE- pin assignment have to be connected to the multiplexer via a null modem cable.

LEDs and potential-free contacts (optional) of a fault detector relay are able to signal defective states.



Type	P-ST	P-SMA	MM-ST	MM-SC	MM-SC /BIDI	SM-ST	SM-SC	SM-E2	SM-SC /BIDI
Order no. DL232-MUX/	0 1000 1201	0 1000 1202	0 1000 1221	0 1000 1223	0 1000 1223 BIDIA 1223-BIDIB	0 1000 1231	0 1000 1233	0 1000 1235	0 1000 1233-BIDIA 1233-BIDIB
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 µm		Multimode 62,5 (50) /125 µm			Singlemode 9/125 µm			
Optical budget	12dB		12dB			16dB			
FO range	50 m (180dB/km)		5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm		1310 nm		1310nm 1550nm	1310 nm			1310nm 1550nm
Data rate max.	115,2KBit/s								
Transmission type	duplex								
Operation type	up to 4 signals of RS232 bidirectional								
Cable length electr.	15 m								
Connecting plug	9 pole Sub-D female								
Status - LEDs	Power supply (green) / Data (yellow) / Status (red)								
Operating voltage	12-30 VDC, other voltages on request								
Power consumption	5 Watts, 200 mA (24V)								
Potential separation	500 VDC (24 VDC → RS232)								
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Weight	500 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								



DL TTY

TTY-Fiber Optic System

Das DL TTY Übertragungssystem bildet eine asynchrone TTY Schnittstelle (20mA aktiv, halbaktiv oder passiv), die halbduplex oder vollduplex betrieben werden kann (siehe untenstehende Anschlussbilder).

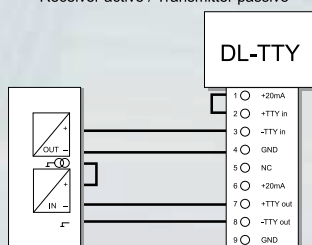
LEDs und optional potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

TTY-Fiber Optic System

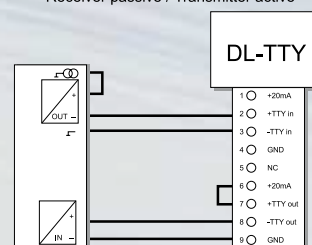
The system DL TTY forms an asynchronous TTY- interface (20mA active, half-active or passive) which can be operated in two ways: either half-duplex or full-duplex (please note the schematics below).

LEDs and potential-free contacts (optional) of a fault detector relay are able to signal defective states.

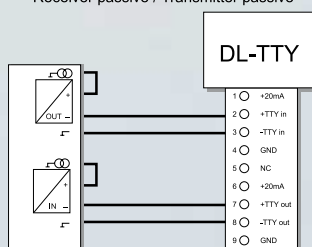
Empfänger aktiv / Sender passiv
Receiver active / Transmitter passive



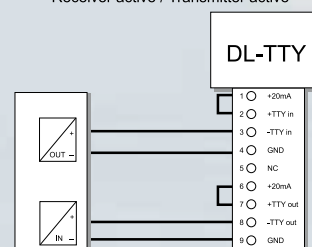
Empfänger passiv / Sender aktiv
Receiver passive / Transmitter active



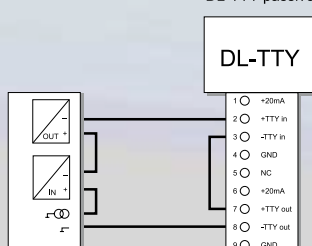
Empfänger passiv / Sender passiv
Receiver passive / Transmitter passive



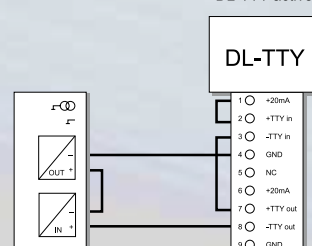
Empfänger aktiv / Sender aktiv
Receiver active / Transmitter active



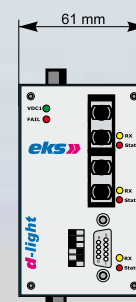
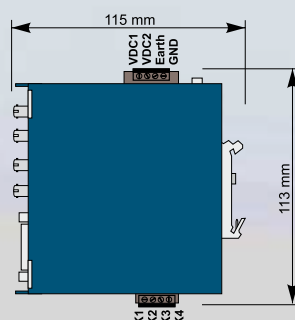
DL-TTY passive



DL-TTY active



Type	P-ST	P-SMA	MM-ST	MM-SC	MM-SC /BIDI	SM-ST	SM-SC	SM-E2	SM-SC /BIDI
Order no. DLTTY/	0 1000 4101	0 1000 4102	0 1000 4121	0 1000 4123	0 1000 4123 BIDIA 4123-BIDIB	0 1000 4131	0 1000 4133	0 1000 4135	0 1000 4133-BIDIA 4133-BIDIB
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 µm		Multimode 62,5 (50) /125 µm			Singlemode 9/125 µm			
Optical budget	12dB		12dB			16dB			
FO range	50 m (180dB/km)		5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm		1310 nm		1310nm 1550nm	1310 nm			1310nm 1550nm
Data rate max.	19,2 KBit/s								
Loop current	2 x 20 mA								
Load	< 100 Ohm								
Operation type	duplex: active, half-active or passive / Half-duplex: active or passive								
Connecting plug	9 pole Sub-D female and 6 pole terminal								
Status - LEDs	Power supply (green) / Data (yellow) / Status (red)								
Operating voltage	12-30 VDC, other voltages on request								
Power consumption	5 Watts, 200 mA (24V)								
Potential separation	500 VDC (24 VDC → TTY)								
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Weight	500 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								



DL LWV

Medienkonverter und optische Verstärker

Das LWL-System DL LWV dient der aktiven Kopplung, Verstärkung oder Medienkonvertierung unterschiedlicher LWL-Übertragungsstrecken.

Nicht ausreichende Einkoppelleistungen erfordern eine Zwischenverstärkung, unterschiedliche Faserarten in einer Applikation eine Medienkonvertierung. Das System DL LWV erlaubt die unterschiedlichsten Möglichkeiten.

Die Systeme enthalten LWL-Empfänger- und LWL-Sendebausteine. Das ankommende Signal wird elektrisch aufbereitet und durch den Sender wieder in den Lichtwellenleiter eingekoppelt. Mit Hilfe dieses Zwischenverstärkers ist theoretisch eine unbegrenzte Leitungslänge mit unterschiedlichen Faserarten wie Kunststofffaser-, HCS, Multimode- oder Singlemode-Lichtwellenleitern möglich. LED's und optional potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

Bitte beachten Sie, dass die nebenstehende Tabelle nur einen Auszug aus dem Lieferprogramm darstellt. Grundsätzlich ist jegliche Kombination aus Faserart, Wellenlänge und Bandbreite möglich. Die entsprechenden Spalten sind mit F1 bis F16 gekennzeichnet.

Media Converter and Optical Amplifier

The fiber optic system DL LWV works as amplifier and media converter for several fiber optic transmission networks.

Less optical power requires amplification. Different fiber types within one application need conversion. The system DL LWV offers various possibilities, corresponding to these requirements.

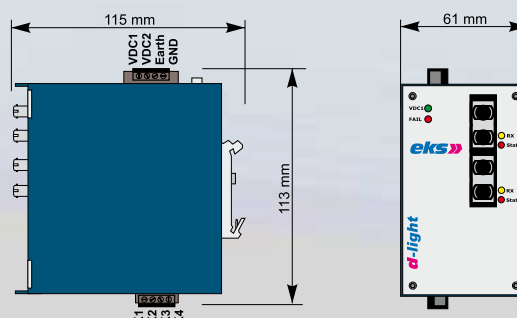
The system contains fiber optic receiver and transmitter components. The incoming signal is electrically processed and then coupled back into the fiber optic cable via the transmitter. With the aid of this intermediate amplifier the line length is unlimited using various fiber types as for instance: POF, HCS, multimode or singlemode fiber optic cable.

LEDs and potential-free contacts (optional) of a fault detector relay are able to signal defective states.

Please note that the adjoining chart just covers a small selection of our product range. In general, any combination of fiber type, wavelength and bandwidth is available. The columns are marked with F1 up to F16 for the types of fiber.



FO interface	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16
FO connector	HP VL	HP VL	ST	SMA	ST	SMA	ST	SC	ST	SC	SC BIDI	E-2000	ST	SC	SC BIDI	E-2000
Fiber	POF 980/1000µm				POF 980/1000µm			Multimode 62,5 (50) /125µm				Singlemode 9/125µm				
Optical budget	29 dB	12 dB	12 dB	12 dB	12 dB		8 (4,2) dB		12 dB			16 dB				
Data rate max.	57,6 KBits	10 MBits	5 MBit/s		100 MBit/s		5 MBit/s		100 MBit/s			100 MBit/s				
FO range	150m	40 m			40 m		2,6 (1,4) km		5 km			30 km, others up to 100 km on request				
Fiber attenuation	180 dB/km						3 dB/km		1 dB/km			0,3 dB/km				
Wavelength	650 nm						820 nm		1310 nm			1310 nm				
Status - LEDs	Power supply (green) / Data (yellow) / Status (red)															
Operating voltage	12-30 VDC, other voltages on request															
Power consumption	5 Watts, 200 mA (24V)															
Potential separation	500 VDC															
Operating temperature	-40°C - +70°C (Multimode and Singlemode with ST or SC) -20°C - +55°C (all others)															
Storage temperature	-40°C - +85°C															
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B															
Weight	500 g															
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm															
Housing	Stainless steel, powder coated															



IOL3000

Analog- und Schaltsignal Fiber Optic System

Mit dem LWL-System IOL3000 werden Schalt-, Steuer- und Analogsignale über Lichtwellenleiter übertragen.

Bis zu 8 digitale Schaltsignale (12 - 24VDC) und/oder 4 analoge Signale (0-10V oder 0-20mA, die über einen A/D-Wandler mit einer Auflösung von 10 Bit digitalisiert werden), können über einen LWL in einer Punkt-zu-Punkt-Struktur oder Linienstruktur übertragen werden. Am Empfänger werden die digitalisierten Daten dann wieder als Schaltsignal und/oder als Analogdaten ausgegeben.

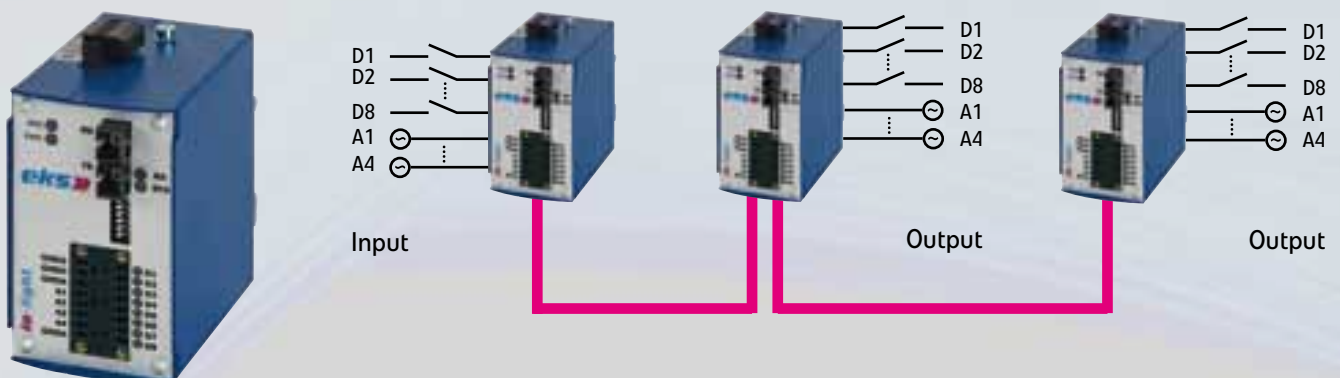
LEDs und potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

Analog- and Digital-Signal Fiber Optic System

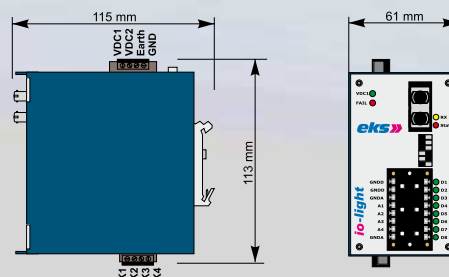
The fiber optic system IOL3000 transmits digital signals (e.g., contact closures, control-signals) and analog signals via fiber optics.

The fiber optic system is able to transmit up to 8 digital signals (12-24VDC) and/or 4 analog signals (0-10V or 0-20mA, digitalized via A/D converter with a resolution of 10 Bit) within a point-to-point structure or line-structure.

LEDs and potential-free contacts of a fault detector relay are able to signal defective states.



Type Transmitter IOL3000/	P-ST	P-SMA	MM-ST	MM-SC	MM-SC /BIDI	SM-ST	SM-SC	SM-E2	SM-SC /BIDI
Order no. 4 x Analogue 0-10V	0 3000 1101	0 3000 1102	0 3000 1121	0 3000 1123	0 3000 1123 BIDIA	0 3000 1131	0 3000 1133	0 3000 1135	0 3000 1133-BIDIA
Order no. 4 x Analogue 0-10 V 8 x Digital 12 – 24 VDC	0 3000 1201	0 3000 1202	0 3000 1221	0 3000 1223	0 3000 1223 BIDIA	0 3000 1231	0 3000 1233	0 3000 1235	0 3000 1233-BIDIA
Order no. 8 x Digital 12 – 24 VDC	0 3000 1301	0 3000 1302	0 3000 1321	0 3000 1323	0 3000 1323 BIDIA	0 3000 1331	0 3000 1333	0 3000 1335	0 3000 1333-BIDIA
Order no. 4 x Analogue 0-20 mA 8 x Digital 12 – 24 VDC	0 3000 1401	0 3000 1402	0 3000 1421	0 3000 1423	0 3000 1423 BIDIA	0 3000 1431	0 3000 1433	0 3000 1435	0 3000 1433-BIDIA
Order no. 4 x Analogue 0-20 mA	0 3000 1501	0 3000 1502	0 3000 1521	0 3000 1523	0 3000 1523-BIDIA	0 3000 1531	0 3000 1533	0 3000 1535	0 3000 1533-BIDIA
Type Receiver IOL3000/	P-ST	P-SMA	MM-ST	MM-SC	MM-SC /BIDI	SM-ST	SM-SC	SM-E2	SM-SC /BIDI
Order no. 4 x Analogue 0-10V (0,2%)	0 3000 2101	0 3000 2102	0 3000 2121	0 3000 2123	0 3000 2123 BIDIA	0 3000 2131	0 3000 2133	0 3000 2135	0 3000 2133-BIDIA
Order no. 4 x Analogue 0-10 V 8 x Digital 12-24 VDC	0 3000 2201 (IR)	0 3000 2202 (IR)	0 3000 2221 (IR)	0 3000 2223 (IR)	0 3000 2223BiDi (IR)	0 3000 2231 (IR)	0 3000 2233 (IR)	0 3000 2235 (IR)	0 3000 2233BiDi (IR)
Order no. 8 x Digital 12-24 VDC	0 3000 2301 (IR)	0 3000 2302 (IR)	0 3000 2321 (IR)	0 3000 2323 (IR)	0 3000 2323BiDi (IR)	0 3000 2331 (IR)	0 3000 2333 (IR)	0 3000 2335 (IR)	0 3000 2333BiDi (IR)
Order no. 4 x Analogue 0-20 mA (0,2%) 8 x Digital 24 VDC / -IR	0 3000 2401	0 3000 2402	0 3000 2421	0 3000 2423	0 3000 2423 BIDIA	0 3000 2431	0 3000 2433	0 3000 2435	0 3000 2433-BIDIA
Order no. 4 x Analogue 0-20 mA (0,2%)	0 3000 2501	0 3000 2502	0 3000 2521	0 3000 2523	0 3000 2523-BIDIA	0 3000 2531	0 3000 2533	0 3000 2535	0 3000 2533-BIDIA
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 µm		Multimode 62,5 (50) /125 µm			Singlemode 9/125 µm			
Optical budget	12dB		12dB			16dB			
FO range	50 m (180dB/km)		5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm		1310 nm			1310 nm			
Status - LEDs	Power supply (green) / Data-receive (yellow) / Status (red) / Input / Output (green)								
Operating voltage	24 VDC (10 VDC ... 30 VDC), other voltages on request								
Cable length electr.	1 m								
Power consumption	200 mA								
Potential separation	500 VDC								
Operating temperature	-10°C - +55°C								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Failure relay	25VDC (1A) / 60VDC (0,3A)								
Weight	500 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								



IOL3100

Schaltsignal Fiber Optic System, bidirektional

Mit dem LWL-System IOL3100 werden Schalt- oder Steuersignale bidirektional über Lichtwellenleiter übertragen.

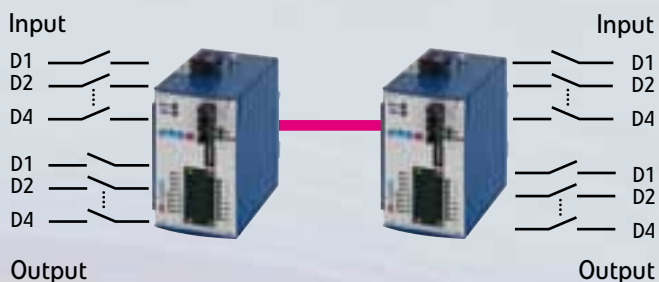
Bis zu 4 digitale Schaltsignale (12 - 24VDC) können über einen LWL in einer Punkt-zu-Punkt-Struktur bidirektional übertragen werden. Am Empfänger werden die digitalisierten Daten dann wieder als Schaltsignal ausgegeben.

LEDs und potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

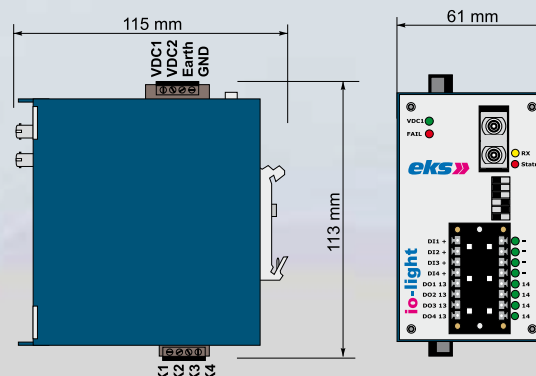
Digital-Signal Fiber Optic System, bi-directional

The fiber optic system IOL3100 transmits digital signals (e.g., contact closures, control-signals 12-24VDC) bi-directional via fiber optics.

LEDs and potential-free contacts of a fault detector relay are able to signal defective states.



Type	TRX-4D-P-ST	TRX-4D-P-SM	TRX-4D-MM-ST	TRX-4D-MM-SC	TRX-4D-MM-SC /BIDI	TRX-4D-SM-ST	TRX-4D-SM-SC	TRX-4D-SM-E2	TRX-4D-SM-SC /BIDI
Order no. IOL3100/	0 3100 2301	0 3100 2302	0 3100 2321	0 3100 2323	0 3100 2323-BIDIA 2323-BIDIB	0 3100 2331	0 3100 2333	0 3100 2335	0 3100 2333-BIDIA 2333-BIDIB
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 μm		Multimode 62,5 (50) /125 μm			Singlemode 9/125 μm			
Optical budget	12 dB		12 dB			16 dB			
FO range	50 m (180 dB/km)		5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm		1310 nm		1310 nm 1550 nm	1310 nm			1310 nm 1550 nm
Signal Input	12 – 24 VDC / 5 mA								
Signal Output	30VDC (1A) / 60VDC (0,2A)								
Cable length electr.	1 m								
Connecting plug	16 pole terminal								
Status - LEDs	Power supply (green) / Data (yellow) / Status (red)								
Operating voltage	12-30 VDC, other voltages on request								
Power consumption	200 mA								
Potential separation	500 VDC								
Operating temperature	-10°C - +55°C								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Failure relay	25VDC (1A) / 60VDC (0,3A)								
Weight	500 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								



IOL3200

Schaltsignal Fiber-Optic-System

Mit dem LWL-System IOL3200 werden Schalt- oder Steuersignale über Lichtwellenleiter übertragen.

Bis zu 12 digitale Schaltsignale (12 - 24VDC) können über einen LWL in einer Punkt-zu-Punkt-Struktur übertragen werden. Am Empfänger werden die digitalisierten Daten dann wieder als Schaltsignal ausgegeben.

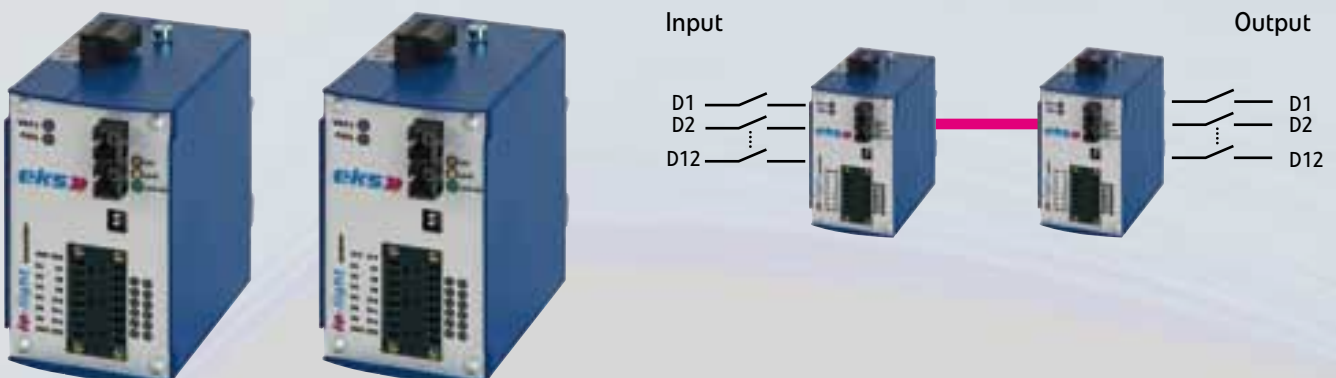
LEDs und potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

Digital-Signal Fiber Optic System

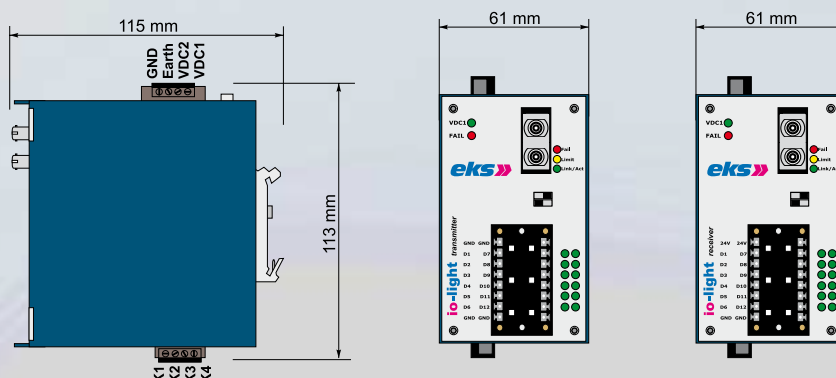
The fiber optic system IOL3200 transmits digital signals (e.g., contact closures, control-signals) via fiber optics.

Using adressed subscribers, the fiber optic system is able to transmit up to 12 digital signals (12-24VDC) within a point-to-point structure.

LEDs and potential-free contacts of a fault detector relay are able to signal defective states.



Type	TX-12D-P-ST	TX-12D-P-SM	TX-12D-MM-ST	TX-12D-MM-SC	TX-12D-MM-SC /BIDI	TX-12D-SM-ST	TX-12D-SM-SC	TX-12D-SM-E2	TX-12D-SM-SC /BIDI
Order no. IOL3200/	0 3200 1301	0 3200 1302	0 3200 1321	0 3200 1323	0 3200 1323-BIDIA 1323-BIDIB	0 3200 1331	0 3200 1333	0 3200 1335	0 3200 1333-BIDIA 1333-BIDIB
Type	RX-12D-P-ST	RX-12D-P-SM	RX-12D-MM-ST	RX-12D-MM-SC	RX-12D-MM-SC /BIDI	RX-12D-SM-ST	RX-12D-SM-SC	RX-12D-SM-E2	RX-12D-SM-SC /BIDI
Order no. IOL3200/	0 3200 2301	0 3200 2302	0 3200 2321	0 3200 2323	0 3200 2323-BIDIA 2323-BIDIB	0 3200 2331	0 3200 2333	0 3200 2335	0 3200 2333-BIDIA 1333-BIDIB
FO connector	ST	SMA	ST	SC	SC	ST	SC	E-2000	SC
Fiber	POF 980/1000 μm		Multimode 62,5 (50) /125 μm			Singlemode 9/125 μm			
Optical budget	12 dB		12 dB			16 dB			
FO range	50 m (180 dB/km)		5 km (1 dB/km)			30 km, others up to 100 km on request (0,3 dB/km)			
Wavelength	650 nm		1310 nm		1310 nm 1550 nm	1310 nm			1310 nm 1550 nm
Signal Input	12 – 24 VDC / 5 mA								
Signal Output	24 VDC (12-28 VDC) / 100mA								
Cable length electr.	1 m								
Connecting plug	16 pole terminal								
Status - LEDs	Power supply (green) / Failure (red) / FiberView (red, yellow, green)								
Operating voltage	12-30 VDC, other voltages on request								
Power consumption	200 mA								
Potential separation	500 VDC								
Operating temperature	-25°C - +70°C								
Storage temperature	-40°C - +85°C								
EMC	EN61000-6-2 / EN55022 +A1 + A2 Class B								
Failure relay	25VDC (1A) / 60VDC (0,3A)								
Weight	500 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								



DragonLine

Ethernet Systeme Serie DragonLine



DragonLine ist ein eigenständiges Produktportfolio, das unser Spektrum als Anbieter von Systemlösungen abrundet. Das Portfolio besteht aus unmanaged und managed Switchen für Fast-Ethernet oder Gigabit-Ethernet im industriellen Umfeld oder für SOHO-Anwendungen, wahlweise mit PoE (Power over Ethernet). Die Montage kann auf der Wand, auf Hutschienen oder im Rack erfolgen.

Als wichtige Leistungsmerkmale der Übertragung mit Multimode- oder Singlemode-Lichtwellenleitern gelten die Unempfindlichkeit gegenüber elektrischen und magnetischen Störungen, die Potenzialtrennung von Sender und Empfänger sowie Reichweiten bis zu 100 km zwischen zwei LWL- Systemen. LED's und potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

Weitere Details sind Auto-Negotiation, MDX/MDIX und redundante Spannungsversorgung mit einem weiten Eingangsspannungsbereich.

Zudem zeichnen sich die Systeme durch hohe Temperaturbereiche und schnelle Rekonfigurationszeiten des redundanten Rings aus.

Ethernet Systems Series DragonLine

DragonLine is a separate product range. It consists of unmanaged and managed Switches for Fast-Ethernet or Gigabit-Ethernet in industrial areas or at SOHO applications, additional with PoE (Power over Ethernet). The systems can be mounted on DIN RAIL's, racks or chassis as well as on walls.

Important performance features of the transfer with multimode or singlemode fiber optic are the electromagnetic ruggedness, the potential separation of transmitter and receiver, as well as ranges up to 100 km between two fiber optic systems. LED's and potential-free contacts of a fault detector relay are able to signal defective states.

Additional features are autonegotiation, MDX/ MDIX and redundant power supply with a wide input voltage range.

Furthermore the system is characterized by high temperature ranges and fast reconfiguration times of the redundant ring.



DragonLine Switch Media Converter

1x10/100TX to 100FX und 1x10/100/1000TX to 1000SX/LX



	10/100 TX to 100FX	10/100/1000TX to 1000FX
IEEE Standard	IEEE802.3 10BASE-T IEEE802.3x Flow Control and Back pressure IEEE802.3u 100BASE-TX/100BASE-FX	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX IEEE 802.3ab 1000BaseT, IEEE 802.3z 1000BaseSX/LX standards IEEE802.3x Flow Control and Back pressure
Connector	Fiber: Duplex SC RJ-45 Socket: CAT-3/5 (10/100Mbps or 10/100/1000Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Support	
Switch architecture	Store and Forward	
Fiber parameters	Fiber Core: MM (62.5/125µm, 50/125µm) SM (9/125µm) Wavelength: 1310nm(Multimode) 1310nm(Singlemode) Fiber Distance: 2km Multimode 30km Singlemode	Fiber Core: MM(62.5/125µm, 50/125µm) SM (9/125µm) Wavelength: 850nm(Multimode) 1310nm(Singlemode) Fiber Distance: 550m (Multimode) 10km (Singlemode)
Transparent packet size	64 to 1536 Bytes	
Link Loss Forward	TX→Fiber: If TX port link down, then converter will force fiber to link down Fiber →TX: If Fiber port link down, the media converter will force TX port to link down	
DIP Switch	DIP Switch 1: UTP Auto-Negotiation/100Mbps Full Duplex mode DIP Switch 2: Fiber Full/Half Duplex DIP Switch 3: LLF (Link Lose Forwarding) & LFP (Link Fault Pass-Through) Disable/Enable DIP Switch 4: Switch Converter/Pure Converter mode	
LED	Module: Power, TX (100Mbps, LK/ACT, FDX/COL) Fiber (LK/ACT, FDX/COL)	
Power	Stand-alone (External Adapter): DC9V/0.7A Chassis Cabinet: AC 100~240 V, 50/60 HZ, 90W*2	
Operation Temp.	0°C to 45°C	
Operation Humidity	10% to 90% (Non-condensing)	
Storage Temp.	-10°C to +70°C	
Dimensions	Metal case. IP-30, Metal housing 25mm (W) x 95mm (D) x 130mm (H)	
EMI	FCC Class A, CE	
Safety	UL, cUL	

Part Number	Description
26000421	10/100Base TX to 100 Base FX (MM/SC/2KM)
26000451	10/100Base TX to 100 Base FX (SM/SC/30KM)

Part Number	Description
261000421	10/100/1000 Base-TX to 1000Base-SX (MM/SC/550m)
261000451	10/100/1000 Base-TX to 1000Base-LX (SM/SC/10km)

DragonLine Media Converter

1x10/100TX to 100FX und 1x10/100/1000TX to 1000SX/LX



	10/100 TX to 100FX	10/100/1000TX to 1000FX
IEEE Standard	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX/100BASE-FX IEEE802.3x Flow Control and Back pressure	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX/100BASE-FX IEEE802.3ab 1000Base-T IEEE802.3x Flow Control and Back pressure IEEE802.3z 1000BaseSX/LX standards
Switch Architecture	Store and Forward	
Fiber parameters	Fiber Core: MM (62.5/125µm, 50/125µm) SM (9/125µm) Wavelength: 1310nm(Multimode) 1310nm(Singlemode) Fiber Distance: 2km Multimode 30km Singlemode	Fiber Core: MM(62.5/125µm, 50/125µm) SM (9/125µm) Wavelength: 850nm(Multimode) 1310nm(Singlemode) Fiber Distance: 550m (Multimode) 10km (Singlemode)
Link Lose Forward	TX →Fiber: If TX port link down, the media converter will force Fiber port to link down Fiber →TX: If Fiber port link down, the media converter will force TX port to link down	
Connector	Fiber: SC (Multimode, 2km), SC (Singlemode, 30km) RJ-45 Socket: CAT-3/5 (10/100Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Support	
LED	Per unit: Power 1 (Green), Power 2 (Green), Fault(Red) TX: Link/Active (Green), 100M(Yellow) Fiber: Link/Active (Green), Full duplex/Collision (Yellow)	
Power Supply	DC 12~48V / Redundant power with polarity reverse protect and removable terminal block	
Power Consumption	2.74 Watt	5,19 Watt
Operating Humidity	5%~95% (Non-condensing)	
Operating Temperature	Standard: -10°C~60°C Wide Operating Temperature -40°C~75°C	
Storage Temperature	-40°C~85°C	
Case Dimension	Metal case. IP-30, 30mm (W) x 95mm (D) x 140mm (H)	
Installation	DIN Rail and Wall Mount Design	
EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-4-11, CE EN61000-4-12, CE EN61000-6-2, CE EN61000-6-4	
Safety	UL, cUL, CE/EN60950-1	
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)	

Order Number	Description
26170201	10/100TX to 100FX (SC/MM/2km)
26170251	10/100TX to 100FX (SC/SM/30km)
26170201E	10/100TX to 100FX (SC/MM/2km) -40°C~75°C
26170251E	10/100TX to 100FX (SC/SM/30km) -40°C~75°C

Part Number	Description
261170201E	10/100/1000T to 1000SX (SC/MM/550m) -40°C~75°C
261170251E	10/100/1000T to 1000LX (SC/SM/10km) -40°C~75°C

DragonLine Switch Unmanaged

5x10/100TX und 8x10/100TX



IEEE Standard	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX
Switch Architecture	Back-plane (Switching Fabric): 1Gbps (full-duplex): 1.49Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port
Packet Buffer	1Mbits
Mac Address	2K MAC address table
Connector	10/100TX: RJ-45 with auto MDI/MDI-X function
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5/ 5E cable EIA/TIA-568 100-Ohm (100m)
Protocol	CSMA/CD
LED	Per unit: Power 1 (Green), Power 2 (Green), Fault (Red) 5 port 10/100: Link/Activity (Green), Full duplex/Collision (Yellow)
Protection	Power Reverse Protection Present Overload Current Re-settable Fuse Present
Power Supply	DC 10 ~48V or 18~30 VAC, Redundant power with polarity reverse protect function and removable terminal block
Power Consumption	2.78 Watt / 4,71 Watt
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	0°C to 60°C / Wide Operating Temperature (-40°C~75°C)
Storage Temperature	-40°C to 85°C
Case Dimension	5TX: Metal case. IP-30, Metal housing 25mm (W) x 95mm (D) x 130mm (H) 8TX: Metal case. IP-30, Metal housing 30mm (W) x 95mm (D) x 140mm (H)
Installation	DIN rail and wall mount ear
EMI	FCC Class A, CE EN61000-4-2, CE EN61000-4-3, CE EN-61000-4-4, CE EN61000-4-5, CE EN61000-4-6, CE EN61000-4-8, CE EN61000-4-11
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Part Number	Description
26670100A2	5x10/100TX
26670100A2E	5x10/100TX -40°C~+75°C
26870200	8x10/100TX
26870200E	8x10/100TX -40°C~+75°C

DragonLine Switch Unmanaged

4x10/100TX + 1x100FX und 4x10/100TX + 2x100FX



IEEE Standard	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet IEEE802.3x Flow Control and Back Pressure
Switch Architecture	Back-plane (Switching Fabric): 1Gbps Packet throughput ability (Full-Duplex): 1.49Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port / 148,800pps for Fast Ethernet port
Memory Buffer	448Kbits
MAC Address	2K MAC address table
Connector	10/100TX: 4 x RJ-45 with auto MDI/MDI-X function 100M fiber: SC type connector for Singlemode or Multimode type fiber cable
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable / EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable / EIA/TIA-568 100-Ohm (100m)
Optical Cable	Multimode: 50/125µm~62.5/125µm Singlemode: 9/125µm Available distance: 2km (Multimode)/30km (Singlemode) Wavelength: 1310nm (Multimode/Singlemode)
Protocol	CSMA/CD
LED	Per unit: Power 1 (Green), Power 2 (Green), Fault(Red) Per port: Link/Activity (Green), Full duplex/Collision (Yellow)
Power Supply	12~48 VDC or 18~30 VAC Redundant power with polarity reverse protect function and removable terminal block
Power Consumption	4.44 Watt / 6,41 Watt
Operating Humidity	5%~95% (Non-condensing)
Operating Temperature	Standard -10°C~60°C / Wide Operating Temperature -40°C~75°C
Storage Temperature	-40°C~85°C
Case Dimension	Metal case. IP-30, 30mm (W) x 95mm (D) x 140mm (H)
Installation	DIN Rail and Wall Mount Design
EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-4-11, CE EN61000-4-12, CE EN61000-6-2, CE EN61000-6-4
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Part Number	Description
26470201	4x10/100 TX + 1FX (SC/MM/2km)
26470201E	4x10/100 TX + 1FX (SC/MM/2km) -40°C~+75°C
26470251	4x10/100 TX + 1FX (SC/SM/30km)
26470251E	4x10/100 TX + 1FX (SC/SM/30km) -40°C~+75°C
26470202	4x10/100TX + 2x100FX (SC/MM/2km)
26470202E	4x10/100TX + 2x100FX (SC/MM/2km) -40°C~+75°C
26470252	4x10/100TX + 2x100FX (SC/SM/30km)
26470252E	4x10/100TX + 2x100FX (SC/SM/30km) -40°C~+75°C

DragonLine Switch Unmanaged

5x10/100/1000TX und 8x10/100/1000TX



IEEE Standard	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3ab 1000Base-T IEEE802.3x Flow Control and Back Pressure
Switch Architecture	Back-plane (Switching Fabric): 10Gbps Packet throughput ability (Full-Duplex): 14.88Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber Ethernet port
Memory Buffer	136Kbits
MAC Address	8K MAC address table
Jumbo Frame	9Kbytes
Connector	10/100/1000T: 5 x RJ-45/8xRJ-45
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-Ohm (100m)
Protocol	CSMA/CD
LED	Per unit: Power 1 (Green), Power 2 (Green), Fault(Red) Per port: Link/Activity (Green), Speed (1000Mbps Green)
Power Supply	DC 12~48V Redundant power with polarity reverse protect function and removable terminal block
Power Consumption	4.6 Watt / 7,79 Watt
Operating Humidity	5%~95% (Non-condensing)
Operating Temperature	Standard -10°C~60°C Wide Operating Temperature -40°C~75°C
Storage Temperature	-40°C~85°C
Case Dimension	Metal case. IP-30, 30mm (W) x 95mm (D) x 140mm (H)
Installation	DIN Rail and Wall Mount Design
EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-4-11, CE EN61000-4-12, CE EN61000-6-2, CE EN61000-6-4
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Part Number	Description
261670100	5x10/100/1000T
261670100E	5x10/100/1000TX -40°C~+75°C
261870200	8x10/100/1000TX
261870200E	8x10/100/1000TX -40°C~+75°C

DragonLine Switch Unmanaged

4x10/100/1000TX + 1xSFP



IEEE Standard	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet IEEE 802.3ab 1000Base-T IEEE802.3x Flow Control and Back Pressure
Switch Architecture	Back-plane (Switching Fabric): 10Gbps Packet throughput ability (Full-Duplex): 14.88Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber Ethernet port
Memory Buffer	136Kbits
MAC Address	8K MAC address table
Jumbo Frame	9Kbytes
Connector	10/100/1000T: 4 x RJ-45 Mini-GBIC: 1 x SFP socket
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable / EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable / EIA/TIA-568 100-Ohm (100m)
Optical Cable	Multimode: 50/125µm~62.5/125µm Singlemode: 9/125µm Available distance: 2km (Multimode) / 30km (Singlemode) Wavelength: 850nm/1310nm (Multimode/Singlemode)
Protocol	CSMA/CD
LED	Per unit: Power 1 (Green), Power 2 (Green), Fault(Red) Per port: Link/Activity (Green), Speed (1000Mbps Green) SFP: Link/Activity (Green)
Power Supply	DC 12~48V Redundant power with polarity reverse protect function and removable terminal block
Power Consumption	5.50 Watt
Operating Humidity	5%~95% (Non-condensing)
Operating Temperature	Standard -10°C~60°C Wide Operating Temperature -40°C~75°C
Storage Temperature	-40°C~85°C
Case Dimension	Metal case. IP-30, 30mm (W) x 95mm (D) x 140mm (H)
Installation	DIN Rail and Wall Mount Design
EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-4-11, CE EN61000-4-12, CE EN61000-6-2, CE EN61000-6-4
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Part Number	Description
261470200	4x10/100/1000T + 1xSFP
261470200E	4x10/100/1000T + 1xSFP -40°C~75°C

DragonLine Switch Unmanaged

16x10/100TX + 2xCOMBO: 2x10/100/1000T + 2x100/1000SFP



IEEE Standard	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX IEEE802.3ab 1000Base-T IEEE802.3z Gigabit fiber IEEE802.3x Flow Control and Back Pressure
Switch Architecture	Back-plane (Switching Fabric): 7.2Gbps Packet throughput ability(Full-Duplex): 10.7Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber Ethernet port
Packet Buffer	1Mbits
Mac Address	8K MAC address table
Connector	10/100TX: 16 x RJ-45 10/100/1000T/ Mini-GBIC Combo: 2 x RJ-45 + 2 x 100/1000 SFP sockets
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5/ 5E cable EIA/TIA-568 100-Ohm (100m)
Optical Cable	Multimode: 50/125µm~62.5/125µm Singlemode: 9/125µm
Protocol	CSMA/CD
LED	Per unit: Power 1 (Green), Power 2 (Green), Fault (Red) 16 10/100TX : Link/Activity (Green), Full duplex/Collision (Yellow) Giga Copper: Link/Activity (Green), speed (1000M Green) SFP: Link/Activity (Green)
Power Supply	DC 12~48V Redundant power with polarity reverse protect function and removable terminal block
Power Consumption	9 Watt
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	-10°C ~ 60°C
Storage Temperature	-40°C ~ 85°C
Case Dimension	Metal case. IP-30, 72mm (W) x 105mm (D) x 152mm (H)
Installation	DIN Rail and Wall Mount Design
EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-4-11, CE EN61000-4-12, CE EN61000-6-2, CE EN61000-6-4
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Part Number	Description
26950300	16x10/100TX + 2x10/100/1000T

DragonLine Switch Managed

6x10/100TX + 2x100FX and 8x10/100TX + 2x100FX



IEEE Standard	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet IEEE802.3x Flow Control and Back Pressure IEEE802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree IEEE802.1p Class of Service IEEE802.1Q VLAN Tag
Switch Architecture	Back-plane (Switching Fabric): 1.6Gbps Packet throughput ability (Full-Duplex): 1.19Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port
Memory Buffer	1Mbits
MAC Address	2K MAC address table
Flash ROM	512Kbytes
DRAM	8Mbytes
Connector	10/100TX: RJ-45 with auto MDI/MDI-X function 100M fiber: 2 x SC type connector for Singlemode or Multimode type fiber cable
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-Ohm (100m)
Optical Cable	SC (Multimode): 50/125μm~62.5/125μm SC (Singlemode): 9/125μm Available distance: 2km (Multimode) / 30km (Singlemode) Wavelength: 850nm/1310nm (Multimode/Singlemode)
Protocol	CSMA/CD
LED	Per port: Link/Activity (Green), Full duplex/Collision (Yellow) Per unit: Power (Green), Power 1 (Green), Power 2 (Green), Fault (Yellow), Master (Green)
Power Supply	DC 12 ~48V Redundant power with polarity reverse protect function and connective removable terminal block for master and slave power
Power Consumption	6 Watt / 7,15 Watt
Operating Humidity	5%~95% (Non-condensing)
Operating Temperature	Standard 0°C ~ 60°C Wide Operating Temperature -40°C~+75°C
Storage Temperature	-40°C~85°C
Case Dimension	IP-30 Case protection, 54 mm (W) x 105mm (D) x 135 mm (H)
Installation	Provide DIN rail kit and wall mount ear for wall mount or DIN-type cabinet install
EMI	FCC Class A, CE EN6100-4-2, CE EN6100-4-3, CE EN-6100-4-4, CE EN6100-4-5, CE EN6100-4-6
Safety	UL, cUL, CE/EN60950
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Management	SNMP v1 v2c, Web interface management
SNMP MIB	RFC 1213 MIBII, RFC 1493 Bridge MIB, RMON RFC 1757, RFC 2674 VLAN MIB, RFC 1643 Ethernet like MIB, RFC1215 Trap MIB, IGMP MIB Private MIB for switch information, ring, port alarm, TFTP firmware upgrade, reset, port mirror, IP security
VLAN	Support Port based VLAN and IEEE802.1Q Tag VLAN Both of port based and Tag based VLAN group up to 64 VLANs
Spanning Tree	Support IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree
Ring	Support Ring, Dual Homing, and Couple Ring Provide redundant backup feature and the recovery time below 300ms
Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service
Class of Service	Support IEEE802.1p class of service, per port provides 4 priority queues
Port Mirror	Support TX packets only or both of TX and RX packets
IGMP	Support IGMP v1 and Query mode. Up to 256 groups
IP Security	Support 10 IP addresses that have permission to access the switch management
Bandwidth Control	Support ingress packet filter and egress packet limit The egress rate control supports all of packet type and the limit rates are 128Kbps, 256Kbps, 512Kbps, 1Mbps, 2Mbps, 4Mbps, and 8Mbps Ingress filter packet type combination rules are Broadcast/Multicast/Unknown Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all of packet. The packet filter rate can be set follow as:1Mbps, 2Mbps, 4Mbps, 8Mbps, 16Mbps, 32Mbps, 64Mbps
Flow Control	Support Flow Control for Full-duplex and Back Pressure for Half-duplex
System Log	Support System log record and remote system log server
SMTP	Support SMTP Server and 4 e-mail accounts for receiving event alert
Relay Alarm	Provides one relay output for port breakdown, power fail and provide DIP switch to mask link down port Alarm Relay current carry ability: 1A @ DC24V
SNMP Trap	Supports up to 3 trap receivers Supported traps: Cold start, Port link up, Port link down, Authentication Failure, Private Trap for power status, Port Alarm configuration, Fault alarm, Ring topology change
DHCP	Provide DHCP client function to obtain IP address from DHCP server
SNTP	Support SNTP to synchronize system clock in Internet
Firmware Update	Support TFTP firmware update, TFTP backup and restore

Part Number	Description
26670302	6x10/100TX+2xFX /MM
26670302E	6x10/100TX+2xFX /MM -40°C~+75°C
26670352	6x10/100TX+2xFX /SM
26670352E	6x10/100TX+2xFX /SM -40°C~+75°C
26870302	8x10/100TX + 2x100FX /MM
26870302E	8x10/100TX + 2x100FX /MM -40°C~75°C
26870352	8x10/100TX + 2x100FX /SM
26870352E	8x10/100TX + 2x100FX /SM -40°C~75°C

DragonLine Switch Managed

8x10/100TX + 2x1000SX (LX)



IEEE Standard	IEEE 802.3 10Base-T Ethernet / IEEE 802.3u 100Base-TX / IEEE802.3z Gigabit fiber IEEE802.3x Flow Control and Back Pressure / , IEEE802.3ad Port trunk with LACP IEEE802.1d Spanning Tree / IEEE802.1w Rapid Spanning Tree IEEE802.1p Class of Service / IEEE802.1Q VLAN Tag IEEE 802.1x User Authentication (Radius) / IEEE802.1ab LLDP**
Switch Architecture	Back-plane (Switching Fabric): 5.6Gbps Packet throughput ability(Full-Duplex): 8.3Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber Ethernet port
Packet Buffer	1Mbits
Mac Address	8K MAC address table
Flash ROM	4Mbytes
DRAM	32Mbytes
Connector	10/100TX: 8 x RJ-45 with auto MDI/MDI-X function 100M fiber: 2 x SC type connector for singlemode or multimode type fiber cable RS-232 connector: RJ-45 type
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable / EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5/ 5E cable / EIA/TIA-568 100-Ohm (100m)
Optical Cable	Multimode: 50/125µm~62.5/125µm Singlemode: 9/125µm Available distance: 550m (Multimode) / 10km (Singlemode) Wavelength: 850nm/1310nm (Multimode/Singlemode)
Protocol	CSMA/CD
LED	Per unit: Power (Green), Power 1 (Green), Power 2 (Green), Fault (Orange), Master (Green) 8 10/100: Link/Activity (Green), Full duplex/Collision (Orange) Giga port: Link/Activity
Power Supply	DC 24 ~48V Redundant power with polarity reverse protect function and removable terminal block. Input Power Isolation design for Telcom application, Pass Hi-Pot test~1.5KV
Power Consumption	7.15Watt
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	Standard 0°C to 60°C Wide Operating Temperature (-40°C~75°C) *
Storage Temperature	-40°C to 85°C
Case Dimension	IP-30, 72mm (W) x 105mm (D) x 152mm (H)
Installation	DIN rail and wall mount ear
EMI	FCC Class A, CE EN61000-4-2, CE EN61000-4-3, CE EN-61000-4-4, CE EN61000-4-5, CE EN61000-4-6, CE EN61000-4-8, CE EN61000-4-11, CE EN61000-4-12
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Management	SNMP v1 v2c, v3/ Web/Telnet/CLI/Menu Driven** Management
SNMP MIB	RFC 1215 Trap, RFC1213 MIBII, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643 , RFC 1757, RSTP MIB, Private MIB
VLAN	Port Based VLAN IEEE 802.1Q Tag VLAN (256 entries)/ VLAN ID (Up to 4K, VLAN ID can be assigned from 1 to 4096.) GVRP (256 Groups) Double Tag VLAN (Q in Q)* Private VLAN**
Port Trunk with LACP	LACP Port Trunk: 4 Trunk groups/Maximum 4 trunk members
LLDP**	Support LLDP to allow switch to advise its identification and capability on the LAN
Spanning Tree	Support IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree
Ring	Support Ring, Dual Homing, and Couple Ring Provide redundant backup feature and the recovery time below 300ms
Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4/IPv6 Different Service
Class of Service	Support IEEE802.1p class of service, per port provides 4 priority queues
Port Security	Support 100 entries of MAC address for static MAC and another 100 for MAC filter
Port Mirror	Support 3 mirroring types: "RX, TX and Both packet".
IGMP	Support IGMP snooping v1,v2 256 multicast groups and IGMP query
IP Security	Support 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.
Login Security	Support IEEE802.1X Authentication/RADIUS
Bandwidth Control	Support ingress packet filter and egress packet limit The egress rate control supports all of packet type and the limit rates are 100K~250Mbps Ingress filter packet type combination rules are Broadcast/Multicast/Unknown Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all of packet. The packet filter rate can be set from 100k to 250Mbps
Flow Control	Support Flow Control for Full-duplex and Back Pressure for Half-duplex
System Log	Support System log record and remote system log server
SMTP	Support SMTP Server and 6 e-mail accounts for receiving event alert
Relay Alarm	Provides one relay output for port breakdown, power fail Alarm Relay current carry ability: 1A @ DC24V
SNMP Trap	Supports up to 3 trap receivers Supported traps: Cold start, Port link up, Port link down, Authentication Failure, Private Trap for power status, Port Alarm configuration, Fault alarm, Ring topology change
DHCP	Provide DHCP Client/ DHCP Server/ IP Relay functions
DNS	Provide DNS client feature and support Primary and Secondary DNS server.
SNTP	Support SNTP to synchronize system clock in Internet
Firmware Update	Support TFTP firmware update, TFTP backup and restore.
Configuration upload and download	Support binary configuration file for system quick installation

* Future release

** Optional

Part Number	Description
261870302	8x10/100TX + 2x1000SX /SC/MM/550m
261870352	8x10/100TX + 2x1000SX /SC/SM/10km
261870302E	8x10/100TX + 2x1000SX /SC/MM/550m -40°C~75°C
261870352E	8x10/100TX + 2x1000SX /SC/SM/10km -40°C~75°C

DragonLine Switch Managed

7x10/100TX + COMBO: 3x10/100/1000T + 3x100/1000 SFP



IEEE Standard	IEEE 802.3 10Base-T Ethernet / IEEE 802.3u 100Base-TX / IEEE802.1ab LLDP IEEE802.3ab 1000Base-T / IEEE802.3z Gigabit fiber / IEEE802.1p Class of Service IEEE802.3x Flow Control and Back Pressure / IEEE802.3ad Port trunk with LACP IEEE802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree / IEEE802.1Q VLAN Tag IEEE 802.1x User Authentication (Radius)
Switch Architecture	Back-plane (Switching Fabric): 7.4Gbps Packet throughput ability(Full-Duplex): 11Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber Ethernet port
Packet Buffer	1Mbits
Mac Address	8K MAC address table
Connector	10/100TX: 7 x RJ-45 10/100/1000T/ Mini-GBIC Combo: 3 x RJ-45 + 3 x 100/1000 SFP sockets RS-232 connector: RJ-45 type
DI/DO	2 Digital Input (DI) : Level 0 : -30~2V Level 1 : 10~30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable / EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5/5E cable / EIA/TIA-568 100-Ohm (100m) 1000Base-TX: 2-pair UTP/STP Cat. 5e or 6 cable / EIA/TIA-568 100-Ohm (100m)
Optical Fiber	Multimode: 50/125μm~62.5/125μm Singlemode: 9/125μm Available distance: 2km (Multimode) / 30km (Singlemode) Wavelength: 850nm/1310nm (Multimode/Singlemode)
Protocol	CSMA/CD
LED	Per unit: Power (Green), Power 1 (Green), Power 2 (Green), Fault (Red), Master (Green) 10/100TX : Link/Activity (Green), Full duplex/Collision (Yellow) Giga Copper: Link/Activity (Green), Speed (1000Mbps Green) SFP: Link/Activity (Green)
Power Supply	12~48 VDC Redundant power with polarity reverse protect function and removable terminal block
Power Consumption	10.2 Watt (Open issue)
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	Standard -10°C~60°C / Wide Operating Temperature -40°C~75°C
Storage Temperature	-40°C to 85°C
Case Dimension	Metal case. IP-30, 72mm (W) x 105mm (D) x 152mm (H)
Installation	DIN Rail and Wall Mount Design
EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-6-2, CE EN61000-6-4
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Management	SNMP v1 v2c, v3/ Web/Telnet/CLI/NS-View Management
SNMP MIB	RFC 1215 Trap, RFC1213 MIBII, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643 , RFC 1757, RSTP MIB, Private MIB
VLAN	Port Based VLAN IEEE 802.1Q Tag VLAN (256 entries)/ VLAN ID (Up to 4K, VLAN ID can be assigned from 1 to 4096.) GVRP (256 Groups)
Port Trunk with LACP	LACP Port Trunk: 4 Trunk groups/Maximum 4 trunk members
LLDP	Support LLDP to allow switch to advise its identification and capability on the LAN
Spanning Tree	Support IEEE802.1w Rapid Spanning Tree
Ring	Support Ring, Dual Homing, Couple Ring and Dual Ring Topology Provide redundant backup feature and the recovery time below 20ms.
Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4/IPv6 Different Service,
Class of Service	Support IEEE802.1p class of service, per port provides 4 priority queues
Port Security	Support 100 entries of MAC address for static MAC and another 100 for MAC filter
Port Mirror	Support 3 mirroring types: "RX, TX and Both packet".
IGMP	Support IGMP snooping v1,v2 256 multicast groups and IGMP query Support multicast filter
IP Security	Support 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.
Login Security	Support IEEE802.1X Authentication/RADIUS
Bandwidth Control	Support ingress packet filter and egress packet limit The egress rate control supports all of packet type and the limit rates are 100K~250Mbps Ingress filter packet type combination rules are Broadcast/Multicast/Unknown Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all of packet. The packet filter rate can be set from 100k to 250Mbps,
Flow Control	Support Flow Control for Full-duplex and Back Pressure for Half-duplex
System Log	Support System log record and remote system log server
SMTP	Support SMTP Server and 6 e-mail accounts for receiving event alert
Relay Alarm	Provides one relay output for port breakdown, power fail Alarm Relay current carry ability: 1A @ DC24V
DIDO	DO: When disconnection of the specific port was detected, DO will activate the signal LED to alarm. DI: Integrate critical sensors: 2 groups of digital inputs. DI can integrate the sensors into the auto alarm system and transfer the alarm information to IP network with email and SNMP.
SNMP Trap	Supports up to 3 trap receivers Supported traps: Cold start, Port link up, Port link down, Authentication Failure, Private Trap for power status, Port Alarm configuration, Fault alarm, Ring topology change
DHCP	Provide DHCP Client, DHCP Server and IP Relay
DNS	Provide DNS client feature and support Primary and Secondary DNS server
SNTP	Support SNTP to synchronize system clock in Internet
Firmware Update, configuration backup and restore	Support TFTP firmware update, System configure backup and restore.
ifAlias	Each port allows importing 128bit of alphabetic string of word on SNMP and CLI interface.

** Optional

Part Number	Description
261770300E	Industrial Ethernet Switch (Managed / Ring) -40°C~75°C

DragonLine Switch Managed

16x10/100TX + COMBO: 2x10/100/1000T + 2x100/1000 SFP



IEEE Standard	IEEE 802.3 10Base-T Ethernet / IEEE 802.3u 100Base-TX / IEEE802.3ab 1000Base-T IEEE802.3z Gigabit fiber / IEEE802.3x Flow Control and Back Pressure IEEE802.3ad Port trunk with LACP / IEEE 802.1x User Authentication (Radius) IEEE802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree / IEEE802.1Q VLAN Tag IEEE802.1p Class of Service / IEEE802.1ab LLDP
Switch Architecture	Back-plane (Switching Fabric): 7.2Gbps Packet throughput ability(Full-Duplex): 10.7Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber Ethernet port
Packet Buffer	1Mbits
Mac Address	8K MAC address table
Flash ROM	4Mbytes
DRAM	32Mbytes
Connector	10/100TX: 16 x RJ-45 10/100/1000T/ Mini-GBIC Combo: 2 x RJ-45 + 2 x 100/1000 SFP sockets RS-232 connector: RJ-45 type
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable / EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5/5E cable / EIA/TIA-568 100-Ohm (100m)
Optical Cable	Multimode: 50/125µm~62.5/125µm Singlemode: 9/125µm Available distance: 2km (Multimode) / 30km (Singlemode) Wavelength: 850nm/1310nm (Multimode/Singlemode)
Protocol	CSMA/CD
LED	Per unit: Power (Green), Power 1 (Green), Power 2 (Green), Fault (Red), Master (Green) 16 10/100TX : Link/Activity (Green), Full duplex/Collision (Yellow) Giga Copper: Link/Activity (Green), Speed (1000Mbps Green) SFP: Link/Activity (Green)
Power Supply	DC 12~48V Redundant power with polarity reverse protect function and removable terminal block
Power Consumption	11.5Watt max.
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	-10°C~60°C, wide Operating Temperature -40°C~75°C*
Storage Temperature	-40°C to 85°C
Case Dimension	Metal case. IP-30, 72mm (W) x 105mm (D) x 152mm (H)
Installation	DIN Rail and Wall Mount Design
EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-4-11, CE EN61000-4-12, CE EN61000-6-2, CE EN61000-6-4
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Management	SNMP v1 v2c, v3/ Web/Telnet/CLI/NS-View Management
SNMP MIB	RFC 1215 Trap, RFC1213 MIBII, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643 , RFC 1757, RSTP MIB, Private MIB
VLAN	Port Based VLAN IEEE 802.1Q Tag VLAN (256 entries)/ VLAN ID (Up to 4K, VLAN ID can be assigned from 1 to 4096.)GVRP (256 Groups)
Port Trunk with LACP	LACP Port Trunk: 4 Trunk groups/Maximum 4 trunk members
LLDP	Support LLDP to allow switch to advise its identification and capability on the LAN
Spanning Tree	Support IEEE802.1w Rapid Spanning Tree
Ring	Support Ring, Dual Homing, Couple Ring and Central Ring Topology. Provide redundant backup feature and the recovery time below 20ms. Central Ring can handle up to 4 rings by configuring a single switch only as the Ring Master switch.
Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4/IPv6 Different Service
Class of Service	Support IEEE802.1p class of service, per port provides 4 priority queues
Port Security	Support 100 entries of MAC address for static MAC and another 100 for MAC filter
Port Mirror	Support 3 mirroring types: "RX, TX and Both packet".
IGMP	Support IGMP snooping v1,v2 256 multicast groups and IGMP query Support multicast filter
IP Security	Support 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.
Login Security	Support IEEE802.1X Authentication/RADIUS
Bandwidth Control	Support ingress packet filter and egress packet limit The egress rate control supports all of packet type and the limit rates are 100K~250Mbps Ingress filter packet type combination rules are Broadcast/Multicast/Unknown Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all of packet. The packet filter rate can be set from 100k to 250Mbps
Flow Control	Support Flow Control for Full-duplex and Back Pressure for Half-duplex
System Log	Support System log record and remote system log server
SMTP	Support SMTP Server and 6 e-mail accounts for receiving event alert
Relay Alarm	Provides one relay output for port breakdown, power fail Alarm Relay current carry ability: 1A @ DC24V
SNMP Trap	Up to 3 Trap stations Cold start, Port link up, Port link down, Authentication Failure, Private Trap for power status, Port Alarm configuration, Fault alarm, Ring topology change
DHCP	Provide DHCP Client/ DHCP Server functions
DNS	Provide DNS client feature and support Primary and Secondary DNS server
SNTP	Support SNTP to synchronize system clock in Internet
Firmware Update	Support TFTP firmware update, TFTP backup and restore.
Configuration upload and download	Support binary configuration file for system quick installation
ifAlias	Each port allows importing 128bit of alphabetic string of word on SNMP and CLI interface.

* Future release

** Optional

Part Number	Description
26970300	16x10/100TX + 2x10/100/1000T/ Mini-GBIC Combo
26970300E	16x10/100TX + 2x10/100/1000T/ Mini-GBIC Combo -40°C~75°C

DragonLine Switch Managed

6x10/100/1000TX + COMBO: 2x10/100/1000T + 2x1000 SFP



IEEE Standard	IEEE 802.3 10Base-T Ethernet / IEEE 802.3u 100Base-TX / IEEE802.3ab 1000Base-T IEEE802.3z Gigabit fiber / IEEE802.3x Flow Control and Back Pressure IEEE802.3ad Port trunk with LACP / IEEE 802.1x User Authentication (Radius IEEE802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree / IEEE802.1Q VLAN Tag IEEE802.1p Class of Service / IEEE802.1ab LLDP
RFC Standard	RFC2030 SNMP, RFC 2821 SMTP, RFC 1215 Trap, RFC2233 MIBII, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 2665 Ethernet like MIB, RFC 2819 RMON MIB, Private MIB
Switch Architecture	Back-plane (Switching Fabric): 16Gbps Packet throughput ability (Full-Duplex): 23.8Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber Ethernet port
Packet Buffer	1Mbits
Mac Address	8K MAC address table
Connector	10/100/1000TX: 6 ports RJ-45 with Auto MDI/MDI-X function Gigabit fiber: 2 x Mini-GBIC socket. RS-232 connector: RJ-45 type
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable / EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 / 5E cable / EIA/TIA-568 100-Ohm (100m) 1000Base-TX: 2-pair UTP/STP Cat. 5e or 6 cable / EIA/TIA-568 100-Ohm (100m)
Optical Cable	Multimode: 50/125µm~62.5/125µm Singlemode: 9/125µm Available distance: 2km (Multimode) / 30km (Singlemode) Wavelength: 850nm/1310nm (Multimode/ Singlemode)
Protocol	CSMA/CD
LED	Per unit: Power (Green), Power 1 (Green), Power 2 (Green), Fault (Yellow), Master (Green) Per port: Link/Activity (Green), speed (1000 Green) Mini GBIC: Link/Activity (Green)
Power Supply	DC 24 ~48V Redundant power with polarity reverse protect function and connective removable terminal block for master and slave power Input Power Isolation design for Telecom application, Pass Hi-Pot test~1.5KV
Power Consumption	18 Watts
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	Standard 0°C to 60°C / Wide Operating Temperature -40°C~75°C
Storage Temperature	-40°C to 85°C
Case Dimension	IP-31, 72mm (W) x 105mm (D) x 152mm (H)
Installation	Provide DIN rail kit and wall mount ear for wall mount or DIN-type cabinet install
EMI	FCC Class A, CE EN6100-4-2, CE EN6100-4-3, CE EN-6100-4-4, CE EN6100-4-5, CE EN6100-4-6, EN6100-4-8, EN6100-4-11
Safety	UL, cUL, CE/EN60950-1

Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)
Management	SNMP v1 v2c, v3/ Web/Telnet/CLI/Menu Driven Management
VLAN	Port Based VLAN IEEE 802.1Q Tag VLAN (256 entries)/ VLAN ID (Up to 4K, VLAN ID can be assigned from 1 to 4096.) GVRP (256 Groups) Double Tag VLAN Private VLAN
Port Trunk with LACP	LACP Port Trunk: 4 Trunk groups/Maximum 4 trunk members
LLDP	Support LLDP to allow switch to advise its identification and capability on the LAN
Spanning Tree	Support IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree
Ring	Support Ring, Dual Homing, and Couple Ring Provide redundant backup feature and the recovery time below 300ms
Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4/ IPv6 Different Service
Class of Service	Support IEEE802.1p class of service, per port provides 4 priority queues
Port Security	Support 100 entries of MAC address for static MAC and another 100 for MAC filter
Port Mirror	Support 3 mirroring types: "RX, TX and Both packet".
IGMP	Support IGMP snooping v1,v2 256 multicast groups and IGMP query
IP Security	Support 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.
Bandwidth Control	Support ingress packet filter and egress packet limit The egress rate control supports all of packet type and the limit rates are 100K~250Mbps Ingress filter packet type combination rules are Broadcast/Multicast/Unknown Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all of packet. The packet filter rate can be set from 100k to 250Mbps
Flow Control	Support Flow Control for Full-duplex and Back Pressure for Half-duplex
System Log	Support System log record and remote system log server
SMTP	Support SMTP Server and 6 e-mail accounts for receiving event alert
Relay Alarm	Provides one relay output for port breakdown, power fail and alarm Alarm Relay current carry ability: 1A @ DC24V
SNMP Trap	Supports up to 3 trap receivers Supported traps: Cold start, Port link up, Port link down, Authentication Failure, Private Trap for power status, Port Alarm configuration, Fault alarm, Ring topology change
DHCP	Provide DHCP Client/ DHCP Server/ IP Relay functions
DNS	Provide DNS client feature and support Primary and Secondary DNS server.
SNTP	Support SNTP to synchronize system clock in Internet
Firmware Update	Support TFTP firmware update, TFTP backup and restore.
Configuration upload and download	Support text format configuration file for system quick installation

Part Number	Description
261670300	6x10/100/1000TX + 2x10/100/1000/Mini-GBIC

DragonLine IP67 Switch Managed

8x10/100TX oder 8x10/100TX + 2x100FX



IEEE Standard	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet IEEE802.3x Flow Control and Back Pressure IEEE802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree IEEE802.1p Class of Service IEEE802.1Q VLAN Tag
Switch Architecture	Back-plane (Switching Fabric): 2 Gbps Packet throughput ability (Full-Duplex): 3.9Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port
Memory Buffer	1Mbits
MAC Address	8K MAC address table
Flash ROM	4 MBytes
DRAM	32MBytes
Connector	10/100TX: 8 x M12, 4-pole D-coded, Female with auto MDI/MDI-X function Fiber: 2 x LC type connector for single-mode or multi-mode type fiber cable Power connector: 1 x M12, 5-pole A-coded, Male P-Fail connector: 1 x M12, 3-pole A-coded, Female RS-232 connector: 1 x M12, 8-pole A-coded, Female
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-Ohm (100m)
Optical Cable	Multimode : 50/125µm~62.5/125µm Singlemode : 9/125µm Available distance : 2km (Multimode) / 15km (Singlemode) Wavelength : 850nm/1310nm (Multimode/Singlemode)
Protocol	CSMA/CD
LED	Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), R-Master (Green) Ethernet port: Link/Activity (Green); Fiber port: Link/Activity (Green)
Power Supply	DC 12~48V, redundant power inputs via an M12 5-pole A-coded connector with polarity reverse protection
Power Consumption	3,84 Watt (48VDC)
Operating Humidity	5%~95% (Non-condensing)
Operating Temperature	Wide Operating Temperature -40°C~+75°C
Storage Temperature	-40°C~85°C
Case Dimension	IP-30 Case protection, 193 mm (W) x 176mm (D) x 62,5 mm (H)
Installation	Wall mount design
EMI	FCC Class A, CE EN61000-6-2, CE EN61000-6-4, CE EN61000-4-2 (ESD), CE EN61000-4-3(RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8 (Magnetic Field)
Safety	UL, cUL 508 Class1 / Division 2
Stability Testing	IEC60068-2-32 (Free fall), IEC61373 (Shock), IEC61373 (Vibration)

Management	SNMP v1 v2c, v3/ Web/Telnet/CLI/N-Key/IPv6 Management
SNMP MIB	RFC 1215 Trap, RFC1213 MIBII, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC1643 , RFC 1757, RSTP MIB, LLDP MIB, Private MIB
VLAN	Port-based VLAN, up to 256 groups / 802.1Q Tag VLAN and Double Tag VLAN (Q-in-Q) / Static VLAN groups up to 256, VLAN ID from 1 to 4094 / GVRP, up to 256 Groups
Spanning Tree	Support IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree
Ring	Support Ring, Dual Homing, and Couple Ring Provide redundant backup feature and the recovery time below 300ms
Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service
Class of Service	Support IEEE802.1p class of service, per port provides 4 priority queues
Port Mirror	Support TX packet only or both of TX and RX packet
IGMP	Support IGMP v1 and Query mode. Up to 256 groups
IP Security	Support 10 IP addresses that have permission to access the switch management
Bandwidth Control	Support ingress packet filter and egress packet limit The egress rate control supports all of packet type and the limit rates are 128Kbps, 256Kbps, 512Kbps, 1Mbps, 2Mbps, 4Mbps, and 8Mbps Ingress filter packet type combination rules are Broadcast/Multicast/Unknown Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all of packet. The packet filter rate can be set follow as:1Mbps, 2Mbps, 4Mbps, 8Mbps, 16Mbps, 32Mbps, 64Mbps
Flow Control	Support Flow Control for Full-duplex and Back Pressure for Half-duplex
System Log	Support System log record and remote system log server
SMTP	Support SMTP Server and 6 e-mail accounts for receiving event alert
Relay Alarm	Provides one relay output for port breakdown, power fail Alarm Relay current carry ability: 1A @ DC24V
SNMP Trap	Supports up to 3 trap receivers Supported traps: Cold start, Port link up, Port link down, Authentication Failure, Private Trap for power status, Port Alarm configuration, Fault alarm, Ring topology change
DHCP	Provide DHCP client function
SNTP	Support SNTP to synchronize system clock in Internet
Firmware Update	Support TFTP firmware update, TFTP backup and restore
Configuration upload and download	Support binary configuration file for system quick installation

Part Number	Description
26870600E	8x10/100TX
26870602E	8x10/100TX+2xFX /MM
26870652E	8x10/100TX+2xFX /SM

DragonLine POE Switch Unmanaged

4x10/100TX POE + 1x10/100TX



IEEE Standard	IEEE 802.3 10Base-T Ethernet / IEEE 802.3u 100Base-TX Fast Ethernet IEEE802.3x Flow Control and Back Pressure / IEEE802.3af Power over Ethernet
Switch Architecture	Back-plane (Switching Fabric): 1.0Gbps Packet throughput ability (Full-Duplex): 1.488Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port
Memory Buffer	448Kbits
MAC Address	2K
Connector	10/100TX: 5 x RJ-45 with auto MDI/MDI-X function; Support 4 PoE injector function
PoE pin assignment	RJ-45 port # 1~# 4 support IEEE 802.3af End-point, Alternative A mode. Positive (VCC+): RJ-45 pin 1, 2. Negative (VCC-): RJ-45 pin 3, 6. Data (1,2,3,6)
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable / EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable / EIA/TIA-568 100-Ohm (100m)
Protocol	CSMA/CD
LED	Per unit: Power 1 (Green), Power 2 (Green), Fault(Red) Per port: Link/Activity (Green), Full duplex/Collision (Yellow) PoE: Feeding Power (Green)
Power Supply	DC 48V Redundant Power
Power Consumption	3.4Watts (without PoE); 57Watts (Full load with PoE)
Operating Humidity	5%~95% (Non-condensing)
Operating Temperature	Standard: -10°C~60°C, Wide Operating Temperature: -40°C~75°C
Storage Temperature	-40°C~85°C
Case Dimension	Metal case. IP-30, 30mm (W) x 95mm (D) x 140mm (H)
Installation	DIN Rail and Wall Mount Design
EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-4-11, CE EN61000-6-2, CE EN61000-6-4
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Part Number	Description
26P670100E	4x10/100TX w/ 4 PoE Injector + 1x10/100TX -40°C~75°C

DragonLine POE Switch Unmanaged

4x10/100TX + 1x100FX



IEEE Standard	IEEE 802.3 10Base-T Ethernet / IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet IEEE802.3x Flow Control and Back Pressure / IEEE802.3af Power over Ethernet
Switch Architecture	Back-plane (Switching Fabric): 1.0Gbps / Packet throughput ability (Full-Duplex): 1.488Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port
MAC Address	1K MAC address table
Connector	10/100TX: 4 x RJ-45 with auto MDI/MDI-X function; Support PoE injector function 100M fiber: 1 x SC type connector for Singlemode or Multimode type fiber cable
PoE pin assignment	RJ-45 port # 1~# 4 support IEEE 802.3af End-point, Alternative B mode. Positive (VCC+): RJ-45 pin 1, 2. Negative (VCC-): RJ-45 pin 3, 6. Data (1,2,3,6)
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable / EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable / EIA/TIA-568 100-Ohm (100m)
Optical Fiber	Multimode: 50/125μm~62.5/125μm Singlemode: 9/125μm Available distance: 2km (Multimode) / 30km (Singlemode) Wavelength: 850nm/1310nm (Multimode/Singlemode)
Protocol	CSMA/CD
LED	Per unit: Power 1 (Green), Power 2 (Green), Fault(Red) Fiber: Link/Active(Green) TX: Link/Active(Green), Full duplex/Collision (Yellow) PoE: Feeding Power (Green)
Power Supply	DC 48V Redundant Power
Power Consumption	4.6Watt (without PoE); 58Watt (Full load with PoE)
Operating Humidity	5%~95% (Non-condensing)
Operating Temperature	-10°C ~ 60°C wide temp- range: -40°C~75°C
Storage Temperature	-40°C ~ 85°C
Case Dimension	Metal case. IP-30, 30mm (W) x 95mm (D) x 140mm (H)
Installation	DIN Rail and Wall Mount Design
EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-4-11, CE EN61000-6-2, CE EN61000-6-4
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Part Number	Description
26P470201	4x10/100TX + 1x100FX SC/MM/2km
26P470201E	4x10/100TX + 1x100FX /SC/MM/2km -40°C~75°C
26P470251	4x10/100TX + 1x100FX /SC/SM/10km
26P470251E	4x10/100TX + 1x100FX /SC/SM/10km -40°C~75°C

DragonLine POE Switch Managed

8x10/100TX + COMBO: 2x10/100/1000T + 2x1000SFP



IEEE Standard	IEEE 802.3 10Base-T Ethernet / IEEE 802.3u 100Base-TX / IEEE802.3ab 1000Base-T IEEE802.3z Gigabit fiber / IEEE802.3x Flow Control and Back Pressure IEEE802.3ad Port trunk with LACP / IEEE802.3af Power over Ethernet IEEE802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree / IEEE802.1ab LLDP IEEE802.1p Class of Service / IEEE 802.1x User Authentication (Radius) IEEE802.1Q VLAN Tag
Switch Architecture	Back-plane (Switching Fabric): 5.6Gbps Packet throughput ability(Full-Duplex): 8.3Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber Ethernet port
Packet Buffer	1Mbits
Mac Address	8K MAC address table
Connector	10/100TX: 8 x ports RJ-45 with Auto MDI/MDI-X function Gigabit fiber: 2 x Mini-GBIC socket. RS-232 connector: RJ-45 type
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5/ 5E cable / EIA/TIA-568 100-Ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5/ 5E cable / EIA/TIA-568 100-Ohm (100m) 1000Base-TX: 2-pair UTP/STP Cat. 5/ 5E cable / EIA/TIA-568 100-Ohm (100m)
Optical Cable	Multimode: 50/125µm~62.5/125µm Singlemode: 9/125µm Available distance: 2km (Multimode) / 30KM (Singlemode) Wavelength: 850nm/1310nm (Multimode/ Singlemode)
PoE pin assignment	RJ-45 port # 1~# 8 support IEEE 802.3af End-point, Alternative B mode. Per port provides 15.4W ability / Positive (VCC+): RJ-45 pin 4,5. / Negative (VCC-): RJ-45 pin 7,8.
Protocol	CSMA/CD
LED	Per unit: Power (Green), Power 1 (Green), Power 2 (Green), Fault (Yellow), Master (Green) 8 port 10/100: Link/Activity (Green), Full duplex/Collision (Yellow) Giga port: Link/Activity
Power Supply	External Power Supply: DC 48V Redundant power DC 48V Connective removable terminal block for master and slave power
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	Standard -10°C to 60°C Wide Operating Temperature -40°C~75°C
Storage Temperature	-40°C to 70°C
Case Dimension	IP-30, 72mm (W) x 105mm (D) x 152mm (H)
Installation	Provide DIN rail kit and wall mount ear for wall mount or DIN-type cabinet install
EMI	FCC Class A, CE EN61000-4-2, CE EN61000-4-3, CE EN-61000-4-4, CE EN61000-4-5, CE EN61000-4-6, CE EN61000-4-8, CE EN61000-4-11
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

Management	SNMP v1 v2c, v3/ Web/Telnet/CLI/Menu Driven**
SNMP MIB	RFC 1215 Trap, RFC1213 MIBII, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643 , RFC 1757, RSTP MIB, Private MIB
VLAN	Port Based VLAN IEEE 802.1Q Tag VLAN (256 entries)/ VLAN ID (Up to 4K, VLAN ID can be assigned from 1 to 4096.) GVRP (256 Groups) Double Tag VLAN (Q in Q)* Private VLAN**
Port Trunk with LACP	LACP Port Trunk: 4 Trunk groups/Maximum 4 trunk members
LLDP**	Support LLDP to allow switch to advise its identification and capability on the LAN
Spanning Tree	Support IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree
Ring	Support Ring, Dual Homing, and Couple Ring Provide redundant backup feature and the recovery time below 300ms
Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4/IPv6 Different Service
Class of Service	Support IEEE802.1p class of service, per port provides 4 priority queues
Port Security	Support 100 entries of MAC address for static MAC and another 100 for MAC filter
Port Mirror	Support 3 mirroring types: "RX, TX and Both packet".
IGMP	Support IGMP snooping v1,v2 256 multicast groups and IGMP query
IP Security	Support 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.
Login Security	Support IEEE802.1X Authentication/RADIUS
Bandwidth Control	Support ingress packet filter and egress packet limit The egress rate control supports all of packet type and the limit rates are 100K~250Mbps Ingress filter packet type combination rules are Broadcast/Multicast/Unknown Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all of packet. The packet filter rate can be set from 100k to 250Mbps
Flow Control	Support Flow Control for Full-duplex and Back Pressure for Half-duplex
System Log	Support System log record and remote system log server
SMTP	Support SMTP Server and 6 e-mail accounts for receiving event alert
Relay Alarm	Provides one relay output for port breakdown, power fail and alarm. Alarm Relay current carry ability: 1A @ DC24V
SNMP Trap	Supports up to 3 trap receivers Supported traps: Cold start, Port link up, Port link down, Authentication Failure, Private Trap for power status, Port Alarm configuration, Fault alarm, Ring topology change
DHCP	Provide DHCP Client/ DHCP Server/ IP Relay functions
DNS	Provide DNS client feature and support Primary and Secondary DNS server.
SNTP	Support SNTP to synchronize system clock in Internet
Firmware Update	Support TFTP firmware update, TFTP backup and restore.
Configuration upload and download	Support text format configuration file for system quick installation

* Future Release

** Optional

Part Number	Description
26P1870300	8x10/100TX + 2x10/100/1000FX

DragonLine POE 19"-Switch Managed

24x10/100TX + COMBO: 2x10/100/1000T + 2x1000SFP



IEEE Standard	IEEE802.3 10BASE-T / IEEE802.3u 100BASE-TX/100BASE-FX IEEE802.3z Gigabit SX/LX / IEEE802.3ab Gigabit 1000T IEEE802.3x Flow Control and Back pressure / IEEE802.3ad Port trunk with LACP IEEE802.1d Spanning tree protocol / IEEE802.1w Rapid spanning tree protocol IEEE802.1p Class of service / IEEE802.1Q VLAN Tagging IEEE 802.1x user authentication / IEEE802.3af Power over Ethernet
Connector	10/100TX: 24 x RJ-45 Gigabit Copper: 2 x RJ-45 2 MINI GBIC for MINI GBIC transceiver
Switch architecture	Store and forward switch architecture. Back-plane up to 8.8Gbps
MAC address	8K MAC address table with Auto learning function
Memory	3Mbits for packet buffer
Flash ROM	512Kbytes x 2
System memory	8Mbytes x 1
LED	System Power 10/100TX RJ-45 Port: Link/Active (Green: 1000Mbps/ Yellow: 10/100Mbps), Full-duplex/collision MINI GBIC/ Copper: Link/Activity, Full duplex/collision, 1000Mbps, 100Mbps
Connector	24-port RJ-45 for 10/100TX RJ-45 Pin assignment and polarity: 1/2:RX signal and -48V DC; 3/6:TX signal and +48V DC
RS-232 connector	One RS-232 DB-9 female connector for switch management and 2 RS-232 DB-9 male connectors on rear side for DC power supply and UPS management.
Remote power feeding	End-point insert type and compatible with IEEE802.3af Per port feeding power: 15.4Watt (maximum)
Power	Embedded AC power supply: AC 100~240V, 50/60Hz, 200W Extra power input: DC48V
Power consumption	20W (maximum /without PD)
Ventilation	2 DC Fans with detect function
Operating environment	0°C~40°C, 10%~95%RH
Storage environment	-40°C~70°C, 95% RH
Dimension	440mm(W) x 280mm(D) x 44mm(H)
EMI	FCC Class A, CE
Safety	UL, cUL, CE/EN60950
Management	SNMP management, Telnet management, web management, RS-232 terminal console for command line interface management
SNMP MIB	RFC 1157 SNMP, RFC 1213 MIB II, RFC 1643 Ethernet like, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, private MIB, RFC 1628 UPS MIB, RFC3621 Power Ethernet MIB
RFC standard	RFC 2030 SNTP, RFC 2821 SMTP (option), RFC 1492 TACACS+ (option), RFC 1215 Trap, RFC 1757 RMON 1

Type of Trap	Cold start, warm start, link down, link up, authorization fail, Trap station up to 3. Private trap for power supply device.
Software Upgrade	TFTP and console firmware upgradeable.
Port Trunk	Support IEEE802.3ad with LACP function. Up to 7 trunk groups and group member up to 4. The trunk port within 24-port 10/100TX and extension module.
Spanning Tree	IEEE802.1d spanning tree, IEEE802.1w rapid spanning tree.
VLAN	Port based VLAN / IEEE802.1Q Tag VLAN / IEEE802.1v Protocol VLAN (IP, IPX,..) The static VLAN groups up to 256 and dynamic VLAN groups up to 2048, the VLAN ID can be assigned from 1 to 4094.
Class of Service	Per system supports high and low queues. The priority service rule: first come first service, all High before Low, WRR for High or low weight.
Port-based Priority	Support 3 settings: "Disable, Low or High priority". When set to "Disable", the income packet will follow QOS policy; Otherwise, the packet will follow port priority setting to "High/Low" queue.
IGMP	It supports IGMP snooping for multimedia application and supports 256 groups
Port Security	It supports ingress and egress MAC address filter and static source MAC address lock.
Port Mirror	Global system supports 3 mirroring types: "RX, TX and Both packet". The maximum of port mirror entries is up to 25.
Bandwidth Control	Per port supports bandwidth control. Per level 100Kbps.
802.1x Authentication	Support IEEE802.1x User-Authentication and can report to RADIUS server. <ul style="list-style-type: none"> ➤ Reject ➤ Accept ➤ Authorize ➤ Disable
DHCP	DHCP client
Packet filter	Broadcast storm filter
System setup and control	System calibrate, AC power line frequency rejection, IEEE 802.3af resistor range adjust
Port configuration control	Port Disable / Enable. PD detect control (enable/disable), Classification detect control (enable/disable), DC disconnect detect control
Fault status detect	Null: no PD present Overload: current support over 475mA @ DC 48V and over 50 milliseconds DR fail: PD discovery resistor is not in the limited range
Mode status	System detects status, it will show I-sample, V-sample and R-detect.
Parametric information	It will show current PD parameters, it include Discover-resistor detected value, current, voltage, power consumption, classification current and determined class
SNTP	Supports RFC 2030 Simple Network Time Protocol
SMTP	Supports RFC2821 Simple Mail Transfer protocol (option)
System log	System Log record up to 1000 entries.
Power monitor	Support power supply monitoring function for AC power, DC power, fan status 3 types of power supply can be installed with POE switch and POE-UPWM.
Power testing	Support test function to testing power supply.

Part Number	Description
26P000700	24x10/100TX (Managed)
26P000701	1 DC 48V/400W output with UPS power supply

DragonLine 19"-Switch Managed

24x10/100TX oder 24x100FX + COMBO: 2x10/100/1000T + 2xSFP



IEEE Standard	IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3z Gigabit SX/LX / IEEE 802.3ab Gigabit 1000T IEEE 802.3x Flow Control and Back pressure / IEEE 802.1p Class of service IEEE 802.3ad Port trunk with LACP / IEEE 802.1q VLAN Tagging IEEE 802.1w Rapid Spanning tree protocol / IEEE 802.1ab LLDP IEEE 802.1x User authentication
Connector	RS-232 console: Female DB-9 8 port 10/100TX module: RJ-45 8 port 100FX (Multi/Single Mode) module: SC 8 port 100 WDM module 8 port 100 SFP MINI GBIC module 8 port Gigabit Copper/Mini-GBIC
Switch architecture	Back-plane (Switching Fabric): 8.8Gbps
Packet buffer	4Mbits
MAC address	8K MAC address table with Auto learning function
Flash ROM	4Mbytes
DRAM	16Mbytes
Jumbo frame	9022bytes (only for Gigabit ports)
Expansion module	8 port 10/100TX module with RJ-45 connector 8 port 100Mbps multi mode fiber module with SC connector 8 port 100Mbps single mode fiber module with SC connector 8 port 100Mbps WDM fiber module 8 port 100Mbps module with SFP (MINI GBIC) connector
LED	System Power(Green) 8 10/100TX module: Link/Activity (Green), Full duplex/collision(Amber) 8 100Base-FX module: Link (Green)/Activity (Blink) 8 100Base-TX module: Link (Green)/Activity (Blink) Gigabit Copper: Link/Activity (Green), 1000Mbps (Green), 100Mbps (Green), Full duplex/collision (Amber) MINI GBIC: Link/Activity(Green), 1000Mbps (Green)
Power input	100~240VAC, 50 /60Hz, 0.8A (maximum) Redundant Power Support (DC 24 ~ 48V).
Power consumption	50Watts (maximum)
Ventilation	2 x DC cooling fan with fail detection
Operating environment	0°C~45°C, 5%~95% RH
Storage environment	-40°C~70°C, 5%~95% RH
Environment monitor	Fan fail detection (for two fans), Power detection
Dimension	440mm(W) x 280mm(D) x 44mm(H)
EMI & safety	FCC Class A, CE
Safety	UL, cUL, CE/EN60950-1

Management	SNMP v1 v2c, v3/ Web/Telnet/CLI/RMON1 Management
MIB	RFC 3418 SNMP MIB, RFC 1213 MIBII, RFC 2011 MIB SNMP v2 RFC 1493 Bridge MIB, RFC 2674 VLAN, RFC 1215 Trap MIB, RSTP MIB RFC 1643 Ethernet like, RFC 1757 RMON1, LLDP MIB, Private MIB
SNMP Trap	Cold start trap, Link down/Link up trap, Authentication fail trap, Power event trap
Firmware Upgrade	TFTP and Console firmware upgradeable
Configuration upload and download	System quick installation and backup by TFTP
Port Trunk	Support IEEE802.3ad with LACP function. Up to 13 trunk groups, trunk member up to 4 ports and include 2 uplink ports
Spanning Tree	IEEE802.1w Rapid Spanning tree protocol
VLAN	Port based VLAN IEEE 802.1Q Tag VLAN Static VLAN groups up to 256, Dynamic VLAN group up to 2048, VLAN ID from 1 to 4094. GVRP up to 256 groups
Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4 Different Service
Class of Service	Support IEEE802.1p class of service, per port provides 4 priority queues
IGMP	Supports IGMP V1 and V2 snooping. IGMP Snooping for Multi-Media application, IGMP group supports 256 groups and IGMP query Support multicast filter up to 256 entries
Port Security	Support 50 entries of MAC address for static MAC and another 50 for MAC filter
Port Mirror	Support 3 mirroring types: RX, TX and Both packet
Bandwidth Control	Per port support ingress rate limiting and egress rate shaping control. The rate limiting and rate shaping can be setting from 0~100Mbps
Access Control List	Support up to 255 policy control lists
IP Security	Support IP address security to prevent unauthorized intruder.
802.1x Authentication	Support IEEE 802.1x User-Authentication and can report to RADIUS server. Reject, Accept, Authorize and Disable
DHCP	DHCP Client/Server
DNS	Provide DNS client feature and support Primary and Secondary DNS server
System Log	Provide remote storage ability and also can view the log by Web/Telnet/SNMP interface. Maximum entry support 1000 records
SNTP	Support SNTP to synchronize system clock by Internet
SMTP	System supports 6 mail accounts and 1 Mail server
LLDP	Support IEEE 802.1ab Link Layer Discovery Protocol

Part Number	Description
26000501	3-Slot Int. Chassis Switch
261000640	SFP SX LC Gigabit MM/550m/SFP for MIC
0400268E	SFP SX LC Gigabit MM/2km/SFP for MIC
261000660	SFP LX LC Gigabit SM/10km/SFP for MIC
26000520	MIC 8x100TX
26000600	MIC 8x100FX SC/MM/2km
26000620	MIC 8x100FX SC/SM/30km

DragonLine 19"-Gigabit Switch Managed

24x10/100/1000TX oder 24x1000SX (LX)



IEEE Standard	IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX / IEEE 802.3z Gigabit fiber IEEE 802.3ab 1000Base-T / IEEE 802.1ab LLDP IEEE 802.3ad Port trunk with LACP / IEEE 802.1w Rapid spanning tree IEEE 802.1p Class of service / IEEE 802.1q VLAN Tagging IEEE 802.1x User authentication / IEEE 802.3x Flow control and Back pressure
Switch Architecture	Back-plane (Switching Fabric):48Gbps
Connector	RS-232 console: 1 x DB-9 Female Gigabit copper module: 8 x RJ-45 MINI GBIC module: 8 x MINI GBIC (SFP) socket Gigabit Fiber module: 8 x SC for Gigabit SX or LX Gigabit copper + MINI GBIC module: 4 x RJ-45 + 4 x MINI GBIC
Packet Buffer	6Mbits
Mac Address	16K MAC address table
Flash ROM	8Mbytes
System memory	32Mbytes
Jumbo Frame	10 KB
Switch architecture	Store and forward
Protocol	CSMA/CD
LED	System Power Gigabit copper module: Link/Activity, Full duplex/collision Gigabit Fiber module: Link/Activity MINI GBIC module: Link/Activity Gigabit copper + MINI GBIC module: RJ-45 (Link/Activity, Full duplex/ collision), MINI GBIC (Link/Activity)
Power Supply	AC 100~240V 50/60Hz, Redundant Power: DC (12V~48V)
Power Consumption	35 Watt / 51 Watt
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	0°C to 60°C
Storage Humidity	5% to 95% (Non-condensing)
Storage Temperature	-40°C to 70°C
Case Dimension	440mm(W) x 280mm(D) x 44mm(H)
Ventilation	2 FAN with fail detection
EMI	FCC Class A, CE
Safety	UL, cUL, CE/EN60950-1
Management	SNMP v1/v2c, Telnet, RMON1, CLI and Web management.
SNMP MIB	RFC 2863 Interface Group MIB / RFC 1213 MIBII, / RFC 1493 Bridge MIB RFC 2674 VLAN MIB / RFC 1643 Ethernet Like MIB / RFC 1215 Trap MIB RFC 1757 RMON MIB / Private MIB
SNMP Trap	Cold start/Warm start trap, Link down/Link up trap, Authentication fail trap,

Flow Control	IEEE802.3x Flow control: Flow control for 10/100/1000 full duplex, Back pressure for 10/100 half duplex
VLAN	Port based VLAN, up to 24 groups IEEE802.1Q Tag VLAN Static VLAN groups up to 4K entries and dynamic VLAN groups up to 2048, the VLAN ID can be assigned from 1 to 4094. GVRP
Port Trunk with LACP	IEEE802.3ad with LACP function. Up to 7 trunk groups with failover feature and the member up to 8 ports.
Spanning Tree	Support IEEE802.1w Rapid Spanning Tree
Class of Service	Per port 8 priority queues and support strict and WRR priority rule. Weight round ratio (WRR): 1:2:3:4:5:6:7:8 Weight round ratio (WRR):1:1:2:2:3:3:4:4 Weight round ratio (WRR):1:1:2:2:4:4:8:8
Quality of Service	Port based, Tag based, IPv4 Type of service, IPv4 Different service.
IGMP	IGMP snooping v1,v2 256 multicast groups and IGMP query
Port Security	128 entries of MAC address for static MAC and another 128 for MAC filter
Port Mirror	3 mirroring types: "RX, TX and Both packet".
Bandwidth Control	Per port support ingress rate limiting and egress rate shaping control. The rate limiting and rate shaping can be setting 64kbps by each level.(64kbps, 128kbps,256kbps...etc).
IP Security	IP address security to prevent unauthorized intruder.
Login Security	Support IEEE802.1x User-Authentication and can report to RADIUS server. ➤ Reject ➤ Accept ➤ Authorize ➤ Disable
Access Control List	The system provides control list on Source IP & Destination IP
DHCP	DHCP client and DHCP Server.
DNS	Provide DNS client feature and support Primary and Secondary DNS server.
System log	1000 records (Maximum) Provide remote storage ability and also can view the log by Web/Telnet/SNMP interface.
SNTP	Support RFC 2030 SNTP client.
SMTP	System supports 5 mail accounts and 2 Mail servers for Primary and Secondary. The SMTP will auto send event message to supervisor whom is pre-defined in the SMTP system through the pre-defined mail server.
LLDP	Support IEEE 802.1ab Link Layer Discovery Protocol

Order Number	Description
261000501	Managed 3 Slots Modular Gigabit Chassis Switch 19" 1U

Order Number	Description
261000510	MIC 8x10/100/1000T
261000511	MIC 8x1000SX SC/MM/550m
261000512	MIC 8x1000LX SC/SM/10km
261000513	MIC 8xMini-GBIC
261000514	MIC 4x10/100/1000T + 4 Mini-GBIC module

DragonLine 19"-Gigabit Switch Managed

24x10/100/1000TX + 4x1000 SFP Shared



IEEE Standard	IEEE802.3 10Base-T Ethernet / IEEE802.3u 100Base-TX / IEEE802.3ab 1000Base-T IEEE802.3z Gigabit fiber / IEEE802.3x Flow Control and Back Pressure IEEE802.3ad Port trunk with LACP / IEEE802.1x User Authentication (Radius IEEE802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree / IEEE802.1Q VLAN Tag) IEEE802.1p Class of Service
Switch Architecture	Back-plane (Switching Fabric): 48Gbps Packet throughput ability (Full-Duplex): 71.42Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber Ethernet port
Packet Buffer	500Kbytes
Jumbo packet	9600bytes
Mac Address	8K
Flash ROM	512Kbytes x 2
SRAM	128Kbytes
Connector	1000Base-T: 24xRJ-45 with auto MDI/MDI-X. Gigabit fiber: 4 x MINI-GBIC socket ; shared with last 4-port RJ-45
Protocol	CSMA/CD
LED	System Power (Green) Gigabit copper port: 100/1000Mbps (Green), Link/Activity (Green), Mini GBIC: Link/Activity (Green).
Power Supply	AC100 ~240V, 50/60Hz, 1A(Max)
Power Consumption	17.9 Watt (open issue)
Operating Humidity	10% to 90% (Non-condensing)
Operating Temperature	0°C to 45°C
Storage Temperature	-40°C to 70°C
Case Dimension	440mm (W) x 161mm (D) x 44mm (H)
Fan Number	1
Installation	19 "EIA /TIA Rack design,
EMI	FCC Class A, CE
Safety	UL, cUL, CE/EN60950-1

Management	SNMP v1/ Web/Telnet/CLI Management
SNMP MIB	RFC1213 MIBII, RFC 1493 Bridge MIB,
VLAN	Port Based VLAN IEEE802.1Q Tag VLAN (256 entries)/ VLAN ID (VLAN ID can be assigned from 1 to 4094.)
Port Trunk with LACP	LACP Port Trunk: 8 Trunk groups/Maximum 12 trunk members
Spanning Tree	Support IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree
Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4 Different Service
Class of Service	Support IEEE802.1p class of service, per port provides 4 priority queues
Port Mirror	Support mirroring types: RX packet
IGMP	Support IGMP snooping v1,v2, 255 multicast groups
IP Security	Support 1 IP address that has permission to access the switch management and to prevent unauthorized intruder.
Login Security	Support IEEE802.1X Authentication/RADIUS
Storm Control	The traffic storm control prevents LAN ports from being disrupted by a broadcast, multicast, or unicast traffic storm on physical interfaces.
Bandwidth Control	The rate control supports all of packet type and the limit rates are 128K~3968Kbps
Flow Control	Support Flow Control for Full-duplex and Back Pressure for Half-duplex
SNMP Trap	Up to 1 Trap stations Cold start, Port link up, Port link down
DHCP	Provide DHCP Client functions

Part Number	Description
261000900	24x10/100/1000TX + 4x1000(SX/LX) SFP

DragonLine 19"-Gigabit Switch Unmanaged

48x10/100TX + COMBO: 2x10/100/1000T + 2x1000SFP



IEEE Standard	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX IEEE802.3ab 1000Base-T IEEE802.3z Gigabit fiber IEEE802.3x Flow control and Back pressure
Connector	100Base-T: 48 x RJ-45 Gigabit copper: 2 x RJ-45 MINI GBIC: 2 x MINI GBIC socket
Switch architecture	Store and forward switch architecture. Back-plane up to 20Gbps
MAC address	8K MAC address table with auto learning function
Packet buffer	7Mbits for packet buffer
LED	System power (Green) 10/100TX Port: Link/Activity (Green), Collision (Yellow) Gigabit copper port: Link/Activity (Green), Speed (Yellow) MINI GBIC: Link/Activity (Green)
Power	AC 100~240V, 50/60Hz
Power consumption	25 Watt @ AC 110V
Ventilation	Fan: 1 unit
Operating environment	0~45°C, 5%~95%RH
Storage environment	-40°C~70C, 95% RH
Dimension	440mm(W) x 225mm(D) x 44mm(H)
EMI	FCC Class A, CE
Safety	UL, cUL, CE/EN60950

Part Number	Description
261000800	48x10/100TX + 4xGigabit Uplink

DragonLine VDSL Extender

Ethernet - VDSL2 Extender (RJ45 or COAX)



IEEE Standard	IEEE802.3 / IEEE 802.3u
IUT Standard	G.993.1 (VDSL) / G.997.1 compatible
Performance	Full VDSL2 bandwidth up to: (Down Stream / Up Stream) - 200m -> 88 / 49Mbps - 400m -> 63 / 29Mbps - 600m -> 46 / 18Mbps - 800m -> 30 / 5.7Mbps - 1000m -> 22 / 5.3Mbps - 1500m -> 18 / 0.8Mbps - 2000m -> 9 / 0.5Mbps
Connector	10/100TX: RJ-45 x 1 26V000100E: VDSL Twisted Pair RJ-45 x 1 with female Phone Jack 26V000200E VDSL Coaxial Port 1x BNC
DIP Switch	DIP 1: Master, Slave Switch DIP 2: Impulse noise Protection DIP 3: Rate Limit control DIP 4: General Protection
LED	Per unit: Power1(Green) Power2(Green) Power-Fail(Red) 10/100TX: LNK/ACT(Green) VDSL: LNK/ACT(Green)
Power Supply	AC 24V DC 12~48V, Redundant power with polarity reverse protect and removable terminal block
Relay Alarm	1A @ DC24V
Operating Humidity	5%~95% (Non-condensing)
Operating Temperature	-40°C~75°C
Storage Temperature	-40°C~85°C
Case Dimension	Metal case. IP-30, 30 x 140 x 95 mm
Installation	DIN Rail and Wall Mount Design
EMC	CE, FCC Class A EN61000-6-4../ EN61000-6-2 / EN61000-4-2 (ESD) / EN61000-4-3 (Radiated RFI) EN61000-4-4 (Burst) / EN61000-4-5 (Surge) / EN61000-4-6 (Induced RFI) EN61000-4-8 (Magnetic Field) / EN61000-4-11 (Voltage Dip) EN61000-3-2 (Harmonics Current) / EN61000-3-3 (Voltage Fluctuation & Flickers)
Safety	UL508, Class 1/ Division 2
Shock	IEC60068-2-27
Freefall	IEC60068-2-32
Vibration	IEC60068-2-6

Part Number	Description
26V000100E	1x10/100TX / 1xVDSL RJ45 / Industrial Ethernet to VDSL2 Extender -40°C~75°C
26V000200E	1x10/100TX / 1xVDSL COAX / Industrial Ethernet to VDSL2 Extender -40°C~75°C

Audio / Video

Audio-, Video- und Telefon-Fiber-Optic-Systeme

eks bietet ein breites Portfolio von LWL-Systemen zur Übertragung von Audio, Video und Telefon Signalen über Lichtwellenleiter an. So können stöempfindliche Wege mit Hilfe von Lichtwellenleitern überbrückt werden. Am Zielort werden die Lichtinformationen wieder als elektronisches Signal bereitgestellt

Die Systeme bieten unterschiedliche Dienste für die Übertragung von Audio-, Video-, Schaltkontakt- und Schnittstellendaten (RS232, RS422, RS485) an.

Telefondaten (ISDN oder Analog) sowie E1- und E3-Schnittstellen runden das Produktportfolio ab.

Neben der klassischen Punkt-zu-Punkt-Übertragung der vorgenannten Daten stehen zudem Multiplexer oder Systeme für optische Busse oder Ringe zur Verfügung.

Als wichtige Leistungsmerkmale der Übertragung mit Multimode- oder Singlemode-Lichtwellenleitern gelten die Unempfindlichkeit gegenüber elektrischen und magnetischen Störungen, die Potenzialtrennung von Sender und Empfänger sowie Reichweiten bis zu 100km zwischen zwei LWL- Systemen. LEDs und optional potenzialfreie Kontakte eines Fehlerrelais signalisieren fehlerhafte Zustände.

Audio-, Video- and Telephone-Fiber-Optic-Systems

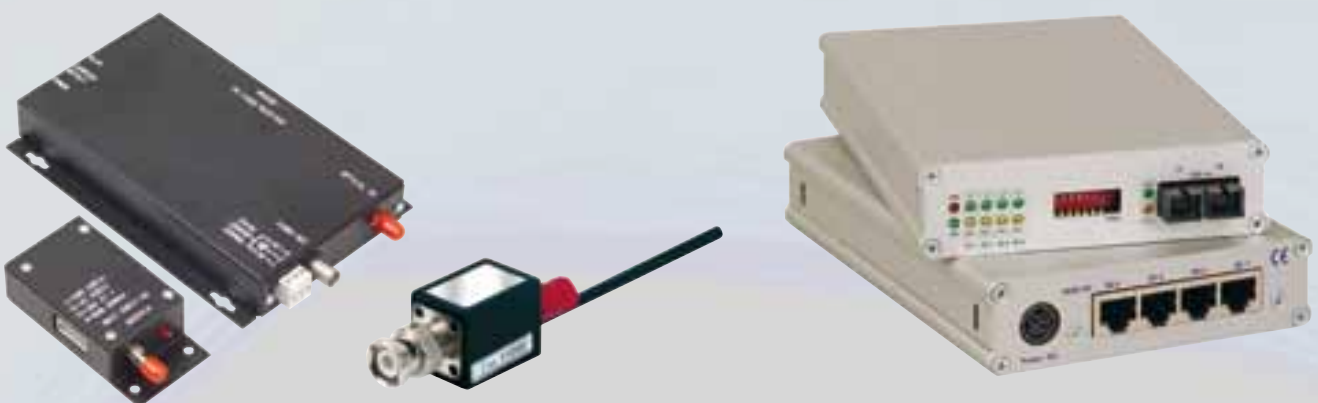
eks offers a wide range of fiber optic systems for transmitting audio, video and telephone signals.

The systems offer different services for transmitting audio-, video-, CC- and data (RS232-, RS422- and RS485-interfaces).

Telephone interfaces like ISDN or analog telephone as well as E1- and E3 are also available.

Besides the classic point-to-point transmission of the above mentioned data, there are multiplexers or systems for optical bus or ring structures.

Important performance features of the transfer with multimode or singlemode fiber optic are the electromagnetic ruggedness, the potential separation of transmitter and receiver, as well as ranges up to 100km between two fiber optic systems. LEDs and potential-free contacts (optional) of a fault detector relay are able to signal defective states.



	Signals	Fiber	Number of Fibers	
Audio	2A / D / CC	Multimode Singlemode	1 x MM / 2 x MM 1 x SM / 2 x SM	
Video	V	Multimode Singlemode	1 x MM 1 x SM	
	V / D	Multimode Singlemode	2 x MM 2 x SM	
	V / CC	Multimode Singlemode	2 x MM 2 x SM	
	V / D / CC	Multimode Singlemode	1 x MM / 2 x MM 1 x SM / 2 x SM	
	V / 2A / 2D / 2CC	Multimode Singlemode	1 x MM 1 x SM	
	4xV	Multimode Singlemode	1 x MM 1 x SM	
	4xV / D	Multimode Singlemode	1 x MM 1 x SM	
	4V / 2A / 5D / 2CC	Multimode Singlemode	1 x MM 1 x SM	
	8V	Multimode Singlemode	1 x MM 1 x SM	
	8V / 2A / 4D / 2CC	Multimode Singlemode	1 x MM 1 x SM	
16-128 V	Singlemode	1 x SM		
16-128 V / 2A / 4D / 2CC	Singlemode	1 x SM		
Telephone, E1, E3	Analog	Singlemode	1 x SM WDM	
	ISDN 1xSo	Multimode Singlemode	2 x MM 2 x SM	
	ISDN 4xSo	Multimode Singlemode	2 x MM 2 x SM	
	E1	Multimode Singlemode	2 x MM 2 x SM	
	E3	Multimode Singlemode	2 x MM 2 x SM	

FIMP

Industrielle Kompakt-Spleißbox

Mit 115mm x 61mm x 113mm baut die Industrie-Spleißbox FIMP wesentlich kompakter als vergleichbare 19"-Lösungen. Auch die „inneren Werte“ überzeugen im Hinblick auf eine zeitsparende, einfache Installation. FIMP ist spleißfertig bestückt und integriert Spleißkamm, Spleißablage, Kupplungen, Pigtails sowie die Kabelverschraubung.

Als Kupplungsvarianten stehen SMA, ST, SC, LC, FC-PC, SC-RJ, E-2000 und E-2000 COMPACT zur Verfügung. Zum Spleißen lässt sich sowohl die Frontplatte als auch die Spleißkassette vollständig herausnehmen, wobei sich die magnetisierbare Spleißkassette problemlos an einem Spleißgerät fixieren lässt. Für Spleißgeräte mit Dorn ist ein passendes Loch in der Kassette vorgesehen.

Das pulverbeschichtete Edelstahlgehäuse ist ebenfalls magnetisierbar, sodass man den Spleißverteiler an einen Schaltschrank oder ein Gehäuse befestigen kann, falls keine Ablagemöglichkeit vorhanden ist. Darüber hinaus verfügt FIMP über einen Clip zur Montage auf eine 35mm-Hutschiene. Auch ein Kit für die Wandmontage ist erhältlich. Somit ergeben sich für den Anwender bei der Montage der platzsparenden Industrie-Lösung hochgradig flexible Befestigungsmöglichkeiten und Vorteile.

Industrial Compact Splice Box

With 115mm x 61mm x 113mm, our industrial splice box is by far smaller than comparable 19" solutions.

Its inner values are really convincing as well so that the installation is quite simple and done very fast. FIMP is ready for splicing and contains splice tray, couplings, pigtails and cable gland. Regarding different couplings, you can choose from SMA, ST, SC, LC, FC-PC, SC-RJ, E-2000 and E-2000 COMPACT. The front panel and the splice cassette can be removed for splicing and since the cassette is magnetizable, it can easily be fixed onto a splice unit. The cassette has got a hole for splice units with a bolt.

The powder coated stainless steel housing is also magnetizable so that the splice box can easily be affixed to another housing or to a switch cabinet in case of no different tray. Furthermore, FIMP has got a clip for DIN rail mounting (35mm) and optional a kit for wall fastening. Thus, there are space-saving and flexible solutions for mounting our FIMP.



Type MM	6xST Duplex 62MM	6xSC Duplex 62MM	3xLC Quattro 62MM	6xE2000 Duplex 62MM	6xST Duplex 50MM	6xSC Duplex 50MM	3xLC Quattro 50MM	6xE2000 Duplex 50MM	
Order-no.	06000 24196-00	06000 24396-00	06000 24493-00	06000 24596-00	06000 12196-00	06000 12396-00	06000 12493-00	06000 12596-00	
Type SM	6xST Duplex	6xSC Duplex	6xSC 8° APC Duplex	3xLC Quattro	6xE2000 Duplex	6xE2000 8° APC Duplex			
Order-no.	06000 36196-00	06000 36396-00	06000 38396-00	06000 36493-00	06000 36596-00	06000 38596-00			
Weight	450 g								
Dimensions H x W x D	H: 115mm W: 61mm D: 113mm								
Housing	Stainless steel, powder coated								
Accessories	Order-No.	Description							
	0600E90001	Cable gland M20							
	0600E90002	Locknut M20							
	0600E90003	Strain relief							
	0600E90004	Dummy panel SC duplex							
	0600E90005	Dummy panel Smarthole							
	0600E90006	Dummy panel SC-RJ							
	0600E90007	Splice holder							
	0600E90008	Splice protection							
	0600E90009	Cable tie							
	0600E90010	Labelling strip							
	0600E90011	Screws							
	0600E90012	Clamping plate DIN rail							
	0600E90013	Dual Mount Kit							
	0600E90014	Tapping screw (metal)							
	0600E90015	Protecting cap							
	0600E90016	Mounting angle for protecting cap							

0600 0 0 23 0 0 00

Front panel	Type	Fiber type	Coupling / Grinding	Assembly	Number	Colour
0600 SC	0-Standard	0-none	20 50/62,5µm ST/ST - Polymer	0- without, only housing	1 to 6	00 - magenta
0601 E2000 Compact	1-Special	1- MM 50µm	21 50/62,5µm ST/SC - Polymer	1- cable gland etc.		01 - blue
0602 Snap-In		2- MM 62,5µm	23 50/62,5µm SC/SC - Polymer	2- only couplings		
0603 1x Smart-Hole		3- SM 9µm	24 50/62,5µm LC-Quattro	9- complete, couplings+pigtails		
0604 2x Smart-Hole		4- POF	25 50/62,5µm E2000/LowProfile			
		5- HCS	28 50/62,5µm E2000/LAN/LowProfile			
		6- MM 50µm OM3	29 50/62,5µm E2000/LAN/Compact			
			30 50/62,5µm E2000/Compact			
			60 9µm/0° ST/ST/0°			
			61 9µm/0° ST/SC/0°			
			62 9µm/0° ST/SC/0° Metal			
			63 9µm/0° SC/SC/0° - Metal			
			64 9µm/0° LC-Quattro 0°			
			65 9µm/0° E2000/0°/LowProfile			
			70 9µm/0° SC/SC/0° - Polymer (blue)			
			80 9µm/8° ST/ST/8°			
			81 9µm/8° ST/SC/8°			
			83 9µm/8° SC/SC/8° - Metal			
			84 9µm/8° LC-Quattro 8° APC			
			85 9µm/8° E2000/8°/LowProfile			

others on request

FIMP-XL

Industrielle Kompakt-Spleißbox

Die „inneren Werte“ des FIMP-XL überzeugen im Hinblick auf eine zeitsparende, einfache Installation. FIMP-XL ist spleißfertig bestückt und integriert Spleißkamm, Spleißablage, Kupplungen, Pigtails sowie die Kabelverschraubung.

Als Kupplungsvarianten stehen SMA, ST, SC, LC, FC-PC, SC-RJ, E-2000 und E-2000 COMPACT zur Verfügung. Zum Spleißen lässt sich sowohl die Frontplatte als auch die Spleißkassette vollständig herausnehmen, wobei sich die magnetisierbare Spleißkassette problemlos an einem Spleißgerät fixieren lässt. Für Spleißgeräte mit Dorn ist ein passendes Loch in der Kassette vorgesehen.

Das pulverbeschichtete Edelstahlgehäuse ist ebenfalls magnetisierbar, sodass man den Spleißverteiler an einen Schaltschrank oder ein Gehäuse befestigen kann, falls keine Ablagemöglichkeit vorhanden ist. Darüber hinaus verfügt FIMP-XL über einen Clip zur Montage auf eine 35mm-Hutschiene. Auch ein Kit für die Wandmontage ist erhältlich. Somit ergeben sich für den Anwender bei der Montage der platzsparenden Industrie-Lösung hochgradig flexible Befestigungsmöglichkeiten und Vorteile.

Zusätzlich können mit FIMPO auch MPO-Verbindungskabel adaptiert werden. Und mit der optionalen aufsteckbaren Schutzhaube werden die Steckverbindungen geschützt.

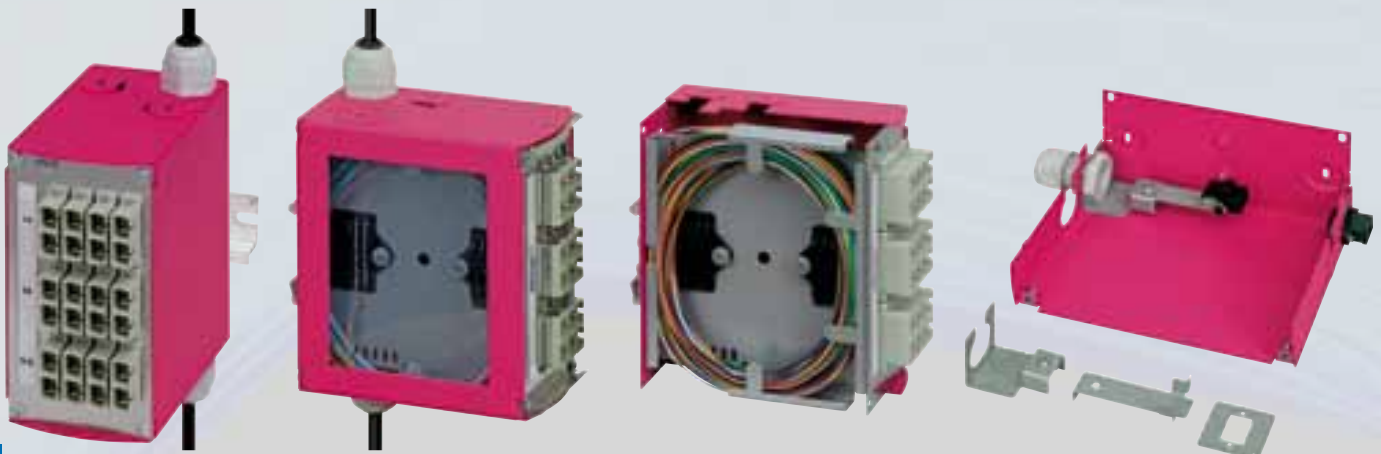
Industrial Compact Splice Box

The inner values of the FIMP-XL are really convincing and the installation is quite simple and done very fast. FIMPXL is ready for splicing and it already contains splice tray, couplings, pigtails and cable gland. Regarding different couplings, you can choose from SMA, ST, SC, LC, FC-PC, SC-RJ, E-2000 and E-2000 COMPACT. The front panel and the splice cassette can be removed for splicing and since the cassette is magnetizable, it can easily be fixed onto a splice unit. The cassette has got a hole for splice units with a bolt.

The powder coated stainless steel housing is also magnetizable so that the splice box can easily be affixed to another housing or to a switch cabinet in case of no different tray. Furthermore, FIMP-XL has got a clip for DIN rail mounting (35mm) and a kit for wall fastening. Thus, there are space-saving and flexible solutions for mounting our FIMP-XL.

Additionally fiber optic cables with MPO can be adapted by using FIMPO. And the optional cap protects your fiber and connectors.

The systems are built up modular. Customizing is possible by different assemblies, colors of the housing or logos.



Type MM	12xST Duplex 62MM	12xSC Duplex 62MM	6xLC Quattro 62MM	12xST Duplex 50MM	12xSC Duplex 50MM	6xLC Quattro 50MM			
Order-no.	06100 2406 24069-00	06100 2436 24369-00	06100 2443 24439-00	06100 1216 12169-00	06100 1236 12369-00	06100 1246 00009-00			
Type SM	12xST Duplex SM	12xSC Duplex SM	12xSC 8° APC Duplex SM	12xLC Quattro SM					
Order-no.	06100 3606 36069-00	06100 3616 3619-00	06100 3836 38369-00	06100 3646 36469-00					
Weight	860 g								
Dimensions H x W x D	H: 138mm W: 72mm D: 128mm								
Housing	Stainless steel, powder coated								
Accessories	Order-No.	Description							
	0600E90001	Cable gland M20							
	0600E90002	Locknut M20							
	0600E90003	Strain relief							
	0600E90004	Dummy panel SC duplex							
	0600E90005	Dummy panel Smarthole							
	0600E90006	Dummy panel SC-RJ							
	0600E90007	Splice holder							
	0600E90008	Splice protection							
	0600E90009	Cable tie							
	0600E90010	Labelling strip							
	0600E90011	Screws							
	0600E90012	Clamping plate DIN rail							
	0600E90013	Dual Mount Kit							
	0600E90014	Tapping screw (metal)							
	0600E90015	Protecting cap							
	0600E90016	Mounting angle for protecting cap							

0610 0 0 23 0 0 23 0 0 00

Front panel	Type	Fiber type	Couplings / Grinding	Number	Fiber type	Couplings / Grinding	Number	Assembly	Colour
0610 SC	0-Standard	0-none	20 50/62,5µm ST/ST - Polymer	1 to 6	0-none	20 50/62,5µm ST/ST - Polymer	1 to 6	0- without, only housing	00 - magenta
0611 E2000 Compact	1-Special	1- MM 50µm	21 50/62,5µm ST/SC - Polymer		1- MM 50µm	21 50/62,5µm ST/SC - Polymer		1- with cable gland etc.	01 - blue
0612 Snap-In		2- MM 62,5µm	23 50/62,5µm SC/SC - Polymer		2- MM 62,5µm	23 50/62,5µm SC/SC - Polymer		2- only couplings	
0613 1x Smart-Hole		3- SM 9µm	24 50/62,5µm LC-Quattro		3- SM 9µm	24 50/62,5µm LC-Quattro		9- complete, couplings+ptigtails	
0614 2x Smart-Hole		4- POF	25 50/62,5µm E2000/LowProfile		4- POF	25 50/62,5µm E2000/LowProfile			
		5- HCS	28 50/62,5µm E2000/LAN/LowProfile		5- HCS	28 50/62,5µm E2000/LAN/LowProfile			
		6- MM 50µm OM3	29 50/62,5µm E2000/LAN/Compact		6- MM 50µm OM3	29 50/62,5µm E2000/LAN/Compact			
			30 50/62,5µm E2000/Compact			30 50/62,5µm E2000/Compact			
			60 9µm/0° ST/ST/0°			60 9µm/0° ST/ST/0°			
			61 9µm/0° ST/SC/0°			61 9µm/0° ST/SC/0°			
			62 9µm/0° ST/SC/0° Metal			62 9µm/0° ST/SC/0° Metal			
			63 9µm/0° SC/SC/0° - Metal			63 9µm/0° SC/SC/0° - Metal			
			64 9µm/0° LC-Quattro 0°			64 9µm/0° LC-Quattro 0°			
			65 9µm/0° E2000/0°/LowProfile			65 9µm/0° E2000/0°/LowProfile			
			70 9µm/0° SC/SC/0° - Polymer (blue)			70 9µm/0° SC/SC/0° - Polymer (blue)			
			80 9µm/8° ST/ST/8°			80 9µm/8° ST/ST/8°			
			81 9µm/8° ST/SC/8°			81 9µm/8° ST/SC/8°			
			83 9µm/8° SC/SC/8° - Metal			83 9µm/8° SC/SC/8° - Metal			
			84 9µm/8° LC-Quattro 8° APC			84 9µm/8° LC-Quattro 8° APC			
			85 9µm/8° E2000/8°/LowProfile			85 9µm/8° E2000/8°/LowProfile			
			Couplings left side (MM with MIX-Systems)			Couplings right side (SM with MIX-Systems)			

others on request



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D i s t r i b u t o r

