



Electronic Links International, Inc.

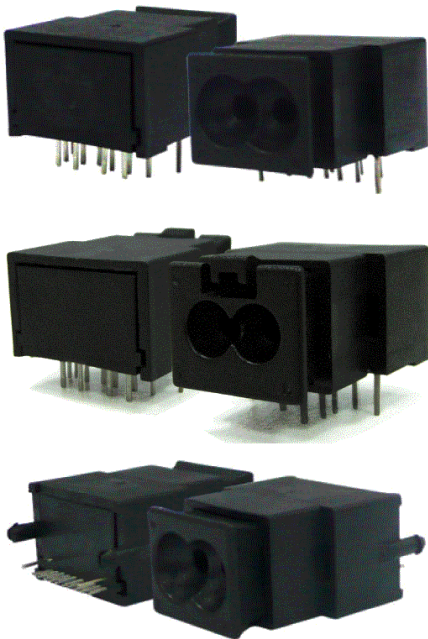
Interconnecting Components and Systems.

Data Sheet

ELII OPTOLOCK® POF Transceiver

Data Sheet

More cheaper, quicker and easier termination solution. Fully support IEEE 802.3u and 100Base-FX standard.



Overview

The ELII OLKDX is a plugless digital-to-optical transceiver module that is fully compatible for IEEE 802.3u Fast Ethernet data communication standard. OLKDX with smaller housing provides a novel termination solution for bare plastic optical fiber (POF). OLKDX owns cheaper, quicker and easier feature in POF network solutions.

OLKDX allows a bare POF cable that is cut into any expected length by ELII knife tools. The transmitter of OLKDX is combined with RCLED (Resonant Cavity Light Emitting Diode) and integrated CMOS IC that meets LVDS (Low Voltage Differential Signal) and CML (Current Mode Logic). The receiver of OLKDX is combined with PIN photo diode, integrated TIA (Trans Impedance Amplifier) and LA (Limiting Amplifier) IC that also meets LVDS and CML.

Therefore, OLKDX is able to use in Fast Ethernet Hub ports directly. Its applications involve in PCs, consumer electronic devices, digital home network and embedded car network.



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Key Features

1. Peak wavelength: 660 ± 10 nm
2. Spectral width: 23 nm.
3. Operating temperature: $-20\sim 70$ °C.
4. Transmission Length: 100 meters at 100Mbps @NA=0.5 POF.
5. Integrated optical lens.
6. Built in LVDS and CML compatible IC for TX and RX.

Application

- Switch(s) :



PSW-5 Series



PSW-8 Series



PSW-24 Series

- Local Area Network Adapter PCI Interface



FEPCI Series



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Local Area Network Adapter USB Interface



FEUSB Series

Local Area Network Media Converter



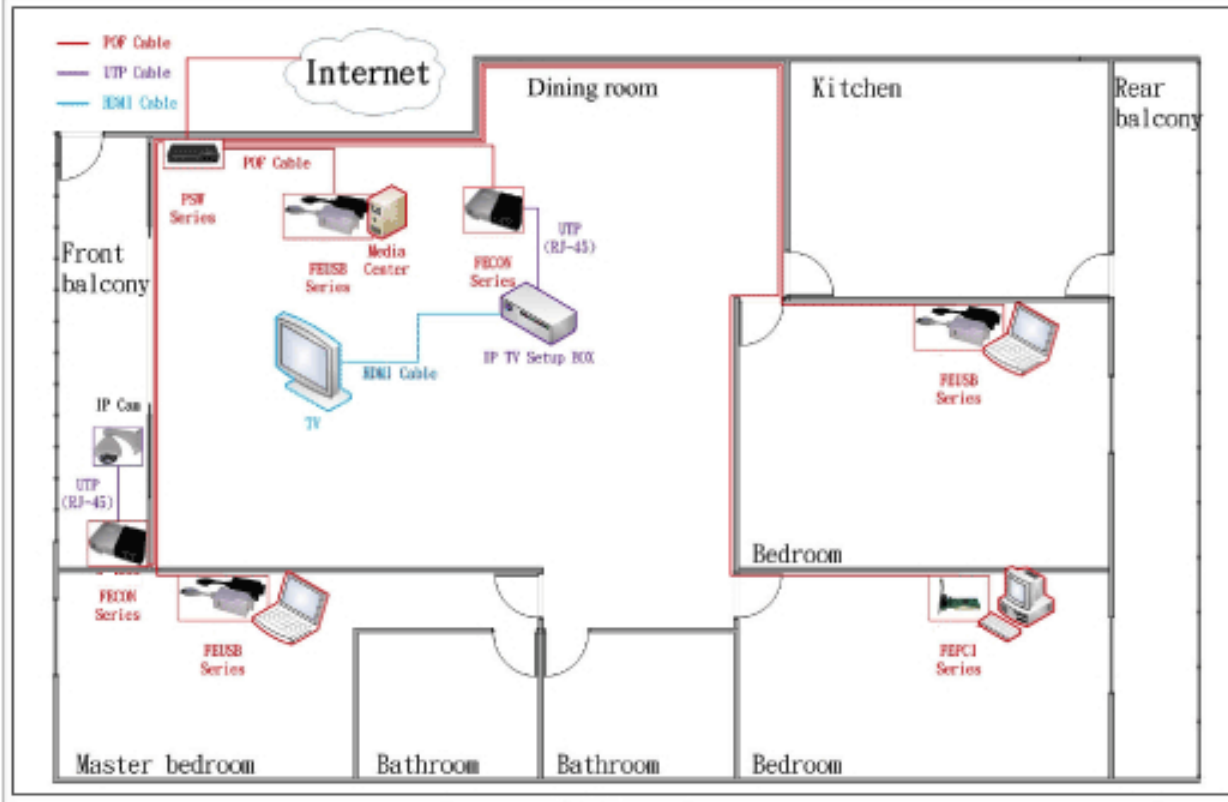
FECON Series



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POF Home Network Structure

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Test Condition
Storage Temperature	T_{stg}	-40	100	°C	
Operating Temperature	T_{op}	-20	70	°C	
Recommended Soldering Temperature	T_{skt}		260(1)	°C	2.2mm below seating plane
Supply Voltage	V_{cc}	-0.5	4.5	V	



Optical and Electrical Characteristics of ● Transmitter

Parameter	Symbol	Min.	Typ.	Max.	Unit
Peak Wavelength		640	660	670	nm
Spectral Width			23	30	nm
Mean Optical Power between -20~70 °C	P_0	-8.5		-2.0	dBm
Optical Rise Time (20%~80%) 250Mbps	t_r		1.5	2.0	ns
Optical Fall Time (80%~20%)	t_f		2.0	3.0	ns
Extinction Ratio	R_E	10.0			dB
Systematic Jitter 100Mbps				855	ps
Random Jitter 100Mbps				855	ps
Supply Voltage	V_{CC}	3.0	3.3	3.6	V
Supply Current	I_{CC}			55	mA
Baud Rate for 8B/10B			100		Mbps
Common Mode Input Voltage		GND+0.8		$V_{CC}-0.8$	V
Swing Input Voltage		100		1200	mV



Waking Input Voltage				100	mV
Delay time of Optical Power OFF		0.02		20	us
Delay time of Optical Power ON				5	us

Optical and Electrical Characteristics of Receiver

Parameter	Symbol	Min.	Typ.	Max.	Unit
Receivable Optical Power Sensitivity		-24	-26	-28	dBm
Rise and Fall Time				2.0	ns
Supply Voltage	V _{cc}	3.0	3.3	3.6	V
Supply Current	I _{cc}			45	mA
Offset Common Mode Voltage			1.2		V
Differential Output Voltage		500		600	mV
Differential Output Impedance			100		ohm
SD (Signal Detect) ON Output Voltage		2.4			V
SD (Signal Detect) OFF Output Voltage		0		0.4	V
SD Assert / Deassert Time		0.5	5	100	us

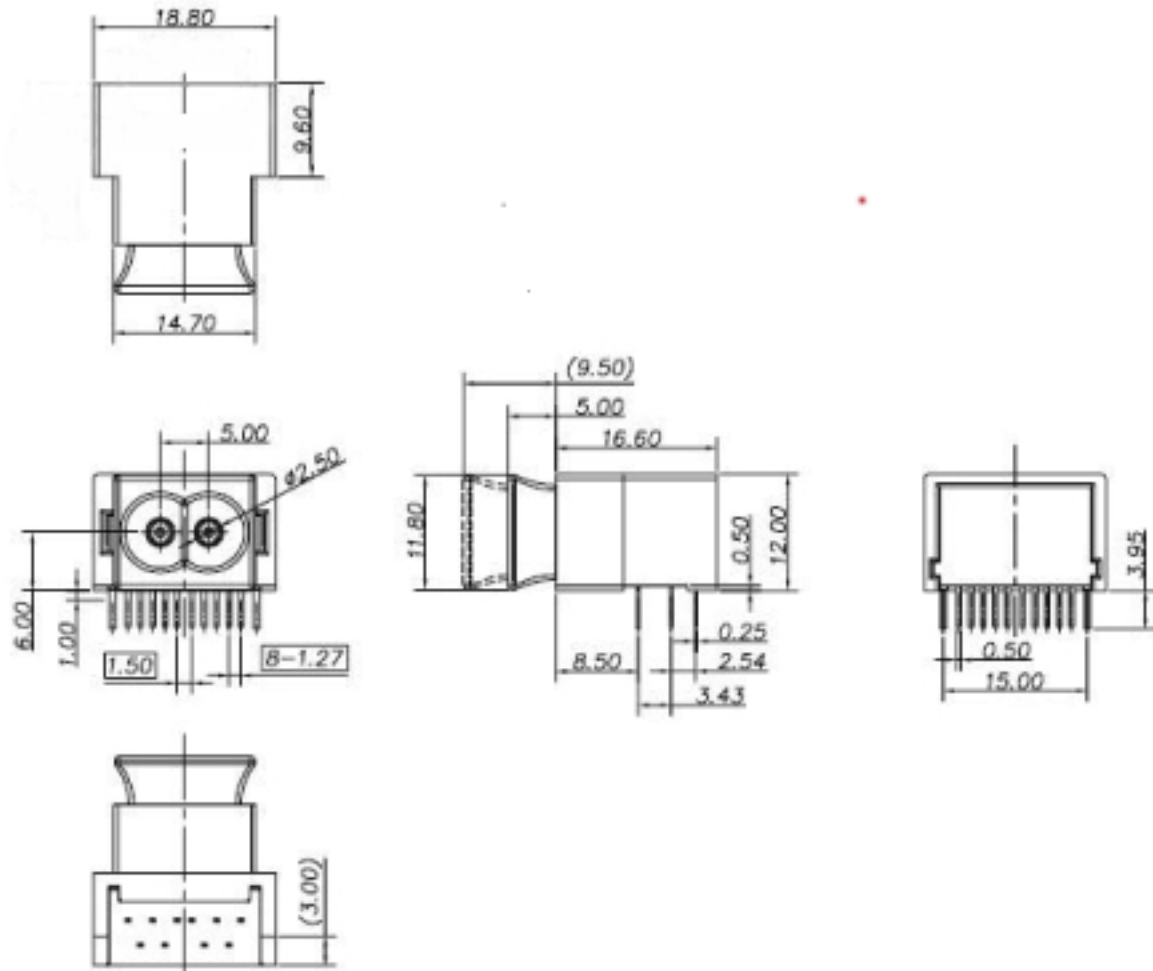


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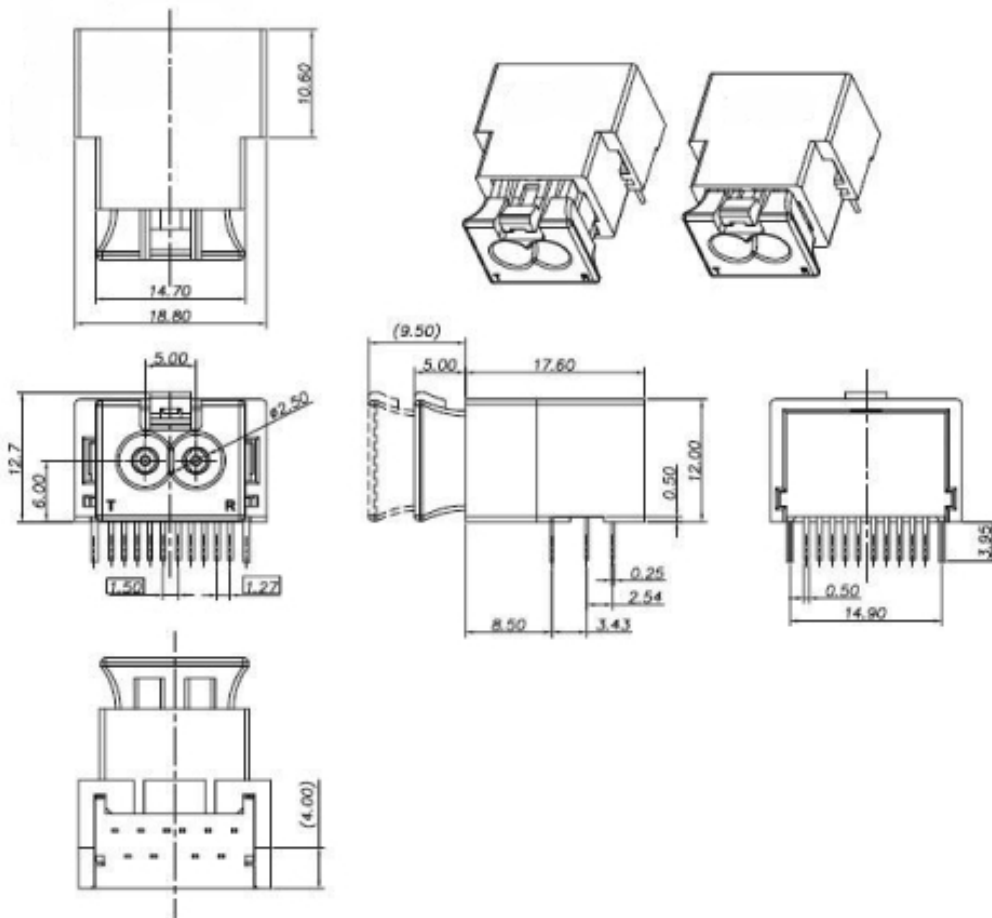
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Physical Dimension and PCB layout





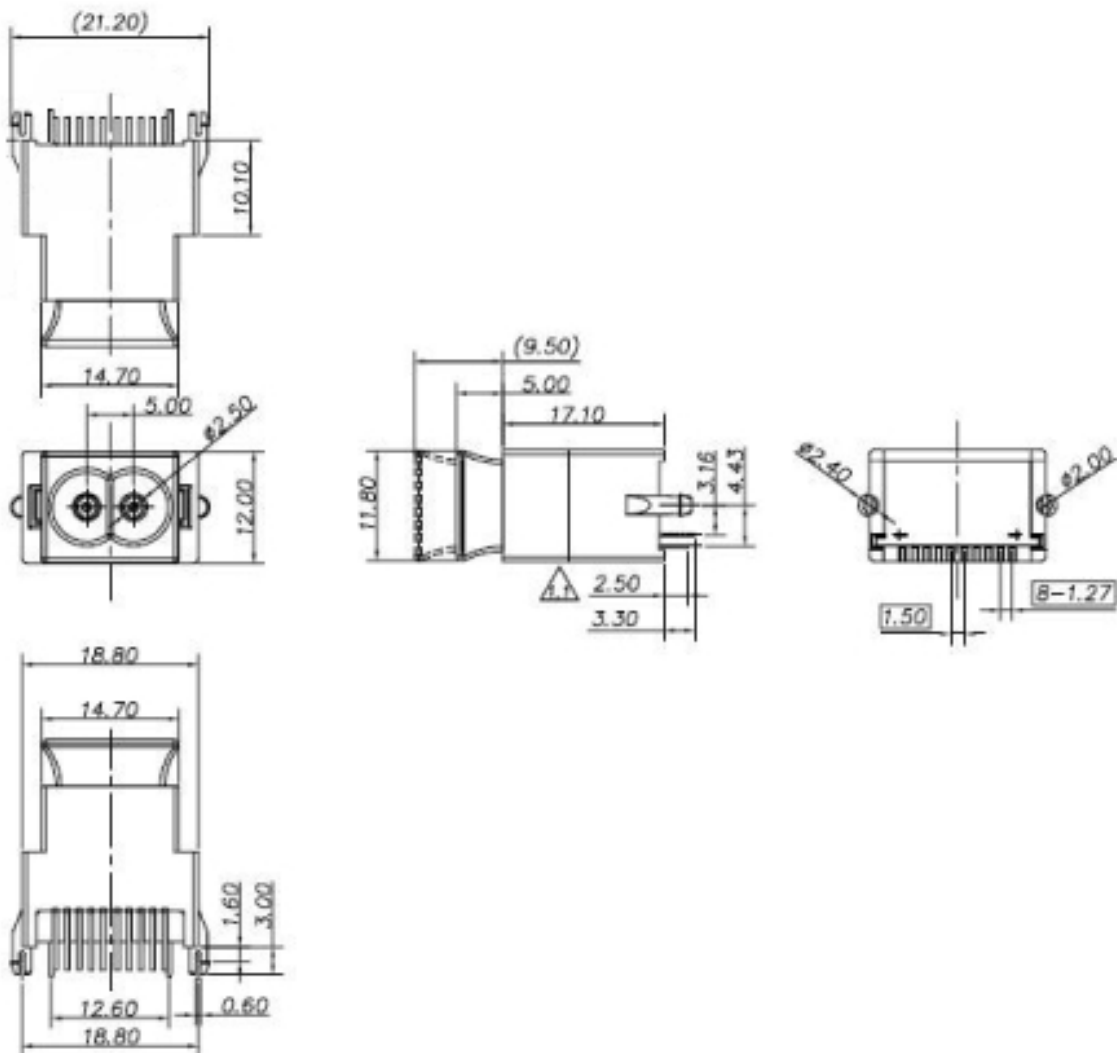
Physical Dimension and PCB layout (With Latch)





Physical Dimension and PCB layout

(Vertical)





Pin Function

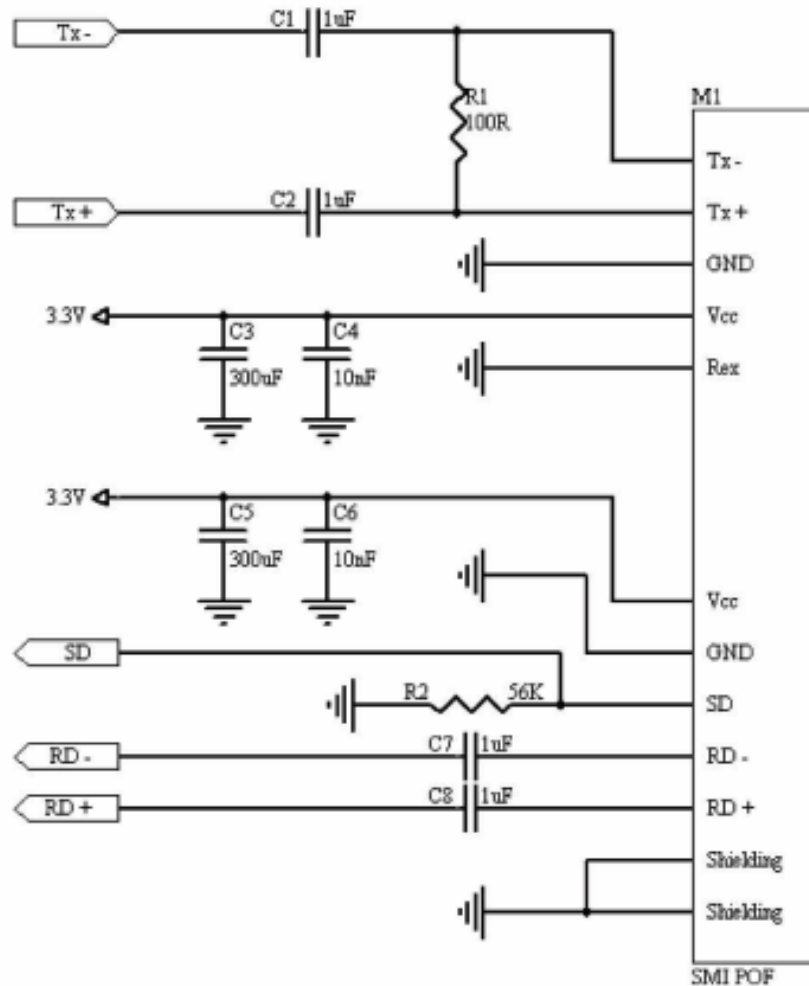
Pin No.	Symbol	Function
1	RD+	Data Output +
2	RD-	Data Output -
3	SD	Output Signal Detect
4	GND	Ground
5	Vcc	Input Voltage
6	Rex	-3dB Power Down (Input)
7	Vcc	Input Voltage
8	GND	Ground
9	TD+	Data Input +
10	TD-	Data Input -
11	Case	Metal Shielding
12	Case	Metal Shielding

Special Functions

1. The function of Rex is to allow the designer to adjust optical power of RCLED. Two settings are as follows:
 - i. Rex is tied to ground (set to low). This setting is default and recommended setting for normal operation.
 - ii. Rex is tied to 3.3V (set to high). The output power of RCLED is reduced by 3 dBm.
2. SD (Signal Detect) is a LVCMOS signal.



Recommend Circuit

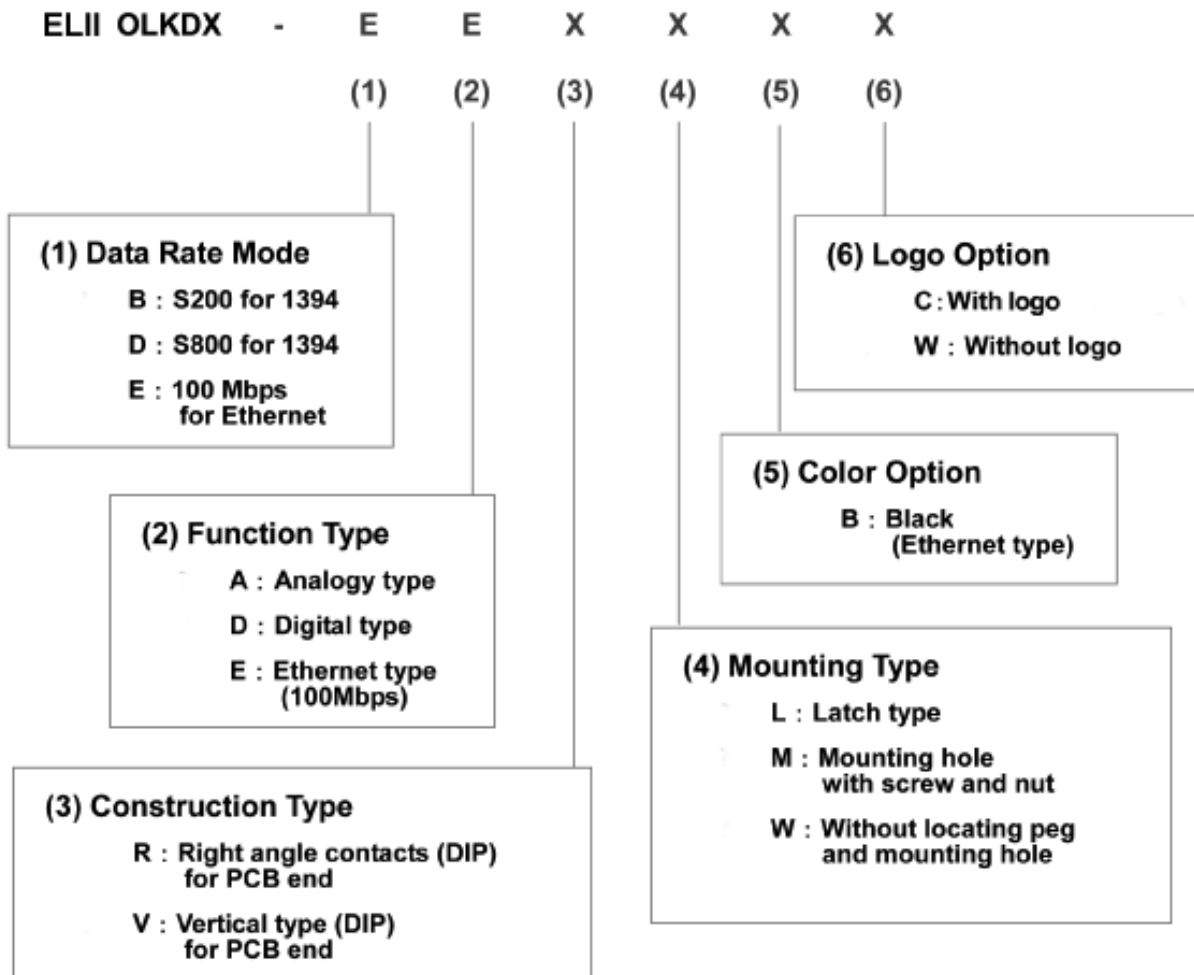


Notes:

1. The capacitors at power line should be placed as close to transceiver possible.
2. The PCB layout of differential pairs must comply with impedance matching and.
3. High - speed standard.



Order Information



P.S. OPTOLOCK® is a registered trademark of FIRECOMMS Ltd.