

...designed for perfect signals

Extended L-Band and Broadband EcoLine FiberLink

The EcoLine TX/RX2450EL and EcoLine TRX2450EL / TRX3000EL Modules represent a cost-effective RF over Fiber solution designed in a compact form allowing a handheld operation as well as population in a 1RU/19" chassis in a locally managed Environment.

EcoLine TX/RX2450EL modules allow a conventional unidirectional links, while EcoLine TRX2450EL / TRX3000EL Modules allow a bidirectional link within one module by utilizing different Wavelengths.

- ▶ Space saving handheld box with an external PSU
- ▶ Could be in EcoLine V8 Chassis populated
- ▶ 1310nm Wavelength as unidirectional variant or 1310nm with 1550nm Wavelength bidirectional variant
- ▶ Variable gain up to 36dB for unidirectional variant and 0dB fix gain for bidirectional transceiver
- ▶ 850 to 2450MHz or 50 to 3000MHz or up to 12GHz*

*under development



TECHNICAL SPECIFICATIONS

EcoLine V8 1RU/19" Chassis

Dimensions:	1RU/19" (260mm deep)
Power Supply:	85 – 265V, 50/60Hz, dual 1:1 redundancy on request
Power Consumption:	<10W (1RU/19")
Slots:	Eight front side slots for different modules
Operating Temperature:	0°C to 45°C
Storage Temperature:	-10°C to 70°C
Humidity:	90%, non-condensing
RoHS:	Compliant



Transmit Module TX2450EL

Frequency Range:	850 – 2450MHz
RF Input Connector:	SMA(f) 50Ohm, F-type(f) 75Ohm
Optical Output Connector:	SC/APC
Fiber Type:	Single mode 9/125
RF Input Power Level:	+10dBm max. (damage level)
Frequency Response:	±0,5dB typ., ±1,0dB max.
Return Loss:	14dB typ.
Maximum Variable Gain:	18dB
Noise Figure:	12dB, @ full gain
Laser Type:	DFB with Isolator, Class 1M, 1310nm or 1550nm
Optical Output Power:	+3dBm min.
Switchable LNB-Supply:	13/18V/22kHz, 390mA, 400mA max.
Status LED's:	Link Indicator, LNB DC Supply Indicator
Operating Temperature:	0°C to 45°C
Storage Temperature:	-10°C to 70°C
Humidity:	90%, non-condensing
RoHS:	Compliant

Receive Module RX2450EL

Frequency Range:	850 – 2450MHz
Optical Input Connector:	SC/APC
Fiber Type:	Single mode 9/125
RF Output Connector:	SMA(f) 50Ohm, F-type(f) 75Ohm
Optical Input Power Level:	-5dBm (min. optical sensitivity)
Frequency Response:	±0,5dB typ., ±1,0dB max.
Return Loss:	14dB typ.
Maximum Variable Gain:	18dB
Link OIP3:	+30dBm
Link SFDR:	< -102dB/Hz
Link Output P1dB:	+21dBm, @full gain
Operating Wavelength:	1290nm – 1560nm
RF Output Power:	+5dBm max.
Status LED's:	Link Indicator
Operating Temperature:	0°C to 45°C
Storage Temperature:	-10°C to 70°C
Humidity:	90%, non-condensing
RoHS:	Compliant



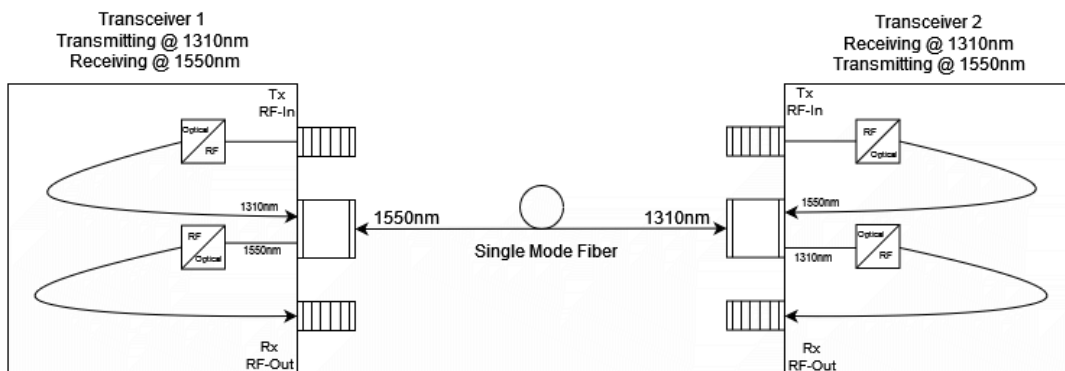
Transceiver Module TRX2450EL

Frequency Range:	850 – 2450MHz
RF-Input/Output Connectors:	SMA(f) 50Ohm
Optical Connector:	SC/APC
Transmit:	DFB with Isolator, Class 1M, 1310nm and 1550nm
Receive:	1290nm – 1560nm
Frequency Response:	±1.0dB typ. ±2.0dB max.
Insertion Loss:	0dB
Input RF Power:	-70dBm to 0dBm max.
Input Return Loss:	14dB
Output Return Loss:	14dB
Link Noise Figure:	24dB
TX/RX Isolation:	>40dB typ.
P1dB:	+1dBm
IMA3 @ -5dBm Output Level:	< -40dBc
SFDR:	< -70dBm
Status LED's:	Link Indicator

Transceiver Module TRX3000EL

Frequency Range:	50 – 3000MHz
RF-Input/Output Connectors:	SMA(f) 50Ohm
Optical Connector:	SC/APC
Transmit:	DFB with Isolator, Class 1M, 1310nm and 1550nm
Receive:	1290nm – 1560nm
Frequency Response:	±2.0dB typ. ±3.0dB max.
Insertion Loss:	0dB
Input RF Power:	-70dBm to 0dBm max.
Input Return Loss:	12dB min.
Output Return Loss:	12dB min.
Link Noise Figure:	24dB
TX/RX Isolation:	>40dB typ.
P1dB:	+1dBm
IMA3 @ -5dBm Output Level:	< -40dBc
SFDR:	< -70dBm
Status LED's:	Link Indicator

Transceiver Diagram



Transmit Module TX12GHzEL * Specification in Evaluation *** Preliminary**

Frequency Range:	2GHz – 12GHz, optionally 10MHz – 12GHz on request
RF Input Connector:	Frontside
Optical Output Connector:	SC/APC
Fiber Type:	Single mode 9/125
RF Input Power Level:	+20dBm max. (damage level)
Frequency Response:	±2dB typ., ±2,5dB max.
Return Loss:	12dB typ.
Input 1dB Compression:	18dBm
Input 3rd Order Intercept	28dBm
SFDR:	< -107dB/Hz
Noise Figure:	24dB
Laser Type:	Cooled DFB Laser with Isolator, Class 1M, 1310nm
Optical Output Power:	3mW
Status LED's:	OK, Fail, Stand-By
Operating Temperature:	0°C to 45°C
Storage Temperature:	-10°C to 70°C
Humidity:	90%, non-condensing
RoHS:	Compliant

Receive Module RX12GHzEL * Specification in Evaluation *** Preliminary**

Frequency Range:	2GHz – 12GHz, optionally 10MHz – 12GHz on request
Optical Input Connector:	SC/APC
Fiber Type:	Single mode 9/125
RF Output Connector:	50Ohm SMA
Optical Input Power Level:	-5dBm (min. optical sensitivity)
Frequency Response:	±1,5dB typ., ±2,0dB max.
Return Loss:	14dB typ.
IMA3:	-75dBc
Operating Wavelength:	1290nm – 1560nm
RF Output Power:	+5dBm max.
Status LED's:	OK, Fail, Stand-By
Operating Temperature:	0°C to 45°C
Storage Temperature:	-10°C to 70°C
Humidity:	90%, non-condensing
RoHS:	Compliant



Type	Type-No.:	Short Description	Optical I/O Connector	Frequency Range
TX2450EL-1310	9001357	Optical Transmitter Module 850 – 2450MHz, 1310nm	SC/APC	850 – 2450MHz
TX2450EL-1550	9001359	Optical Transmitter Module 850 – 2450MHz, 1550nm	SC/APC	850 – 2450MHz
RX2450EL	9000917	Optical Receiver Module 1310-1560nm	SC/APC	850 – 2450MHz
TRX2450EL-1310	9001361	Ext.-L-Band Optical Transceiver Module TX 1310nm, RX 1290-1560nm, 2x50Ohm SMA(f), SC/APC	SC/APC	850 – 2450MHz
TRX2450EL-1550	9001362	Ext.-L-Band Optical Transceiver Module TX 1550nm, RX 1290-1560nm, 2x50Ohm SMA(f), SC/APC	SC/APC	850 – 2450MHz
TRX3000EL-1310	9001363	Ext.-L-Band Optical Transceiver Module TX 1310nm, RX 1290-1560nm, 2x50Ohm SMA(f), SC/APC	SC/APC	50 – 3000MHz
TRX3000EL-1550	9001364	Ext.-L-Band Optical Transceiver Module TX 1550nm, RX 1290-1560nm, 2x50Ohm SMA(f), SC/APC	SC/APC	50 – 3000MHz
TX12GHzEL-1310	9001365	2 -12GHz Optical Transmitter Module 1310nm, SMA(f), SC/APC *** Specification in Evaluation ***	SC/APC	2 – 12GHz
RX12GHzEL	9001366	2 - 12GHz Optical Receiver Module 1290-1560nm, 50Ohm SMA(f), SC/APC *** Specification in Evaluation ***	SC/APC	2 – 12GHz
EcoLine V8 Chassis	9001358	Eight Slot Chassis for EcoLine Modules, Red. PSU		