

# Media Conversion Solutions

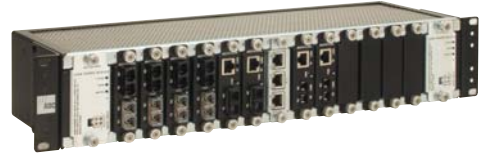


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### OptEnet™ Optical Extension Platform

The ADC KRONE OptEnet™ optical extension platform is a carrier-class, intelligent, scalable platform capable of handling any network's Ethernet or SONET/SDH media transitions. Bridging the gap between legacy copper infrastructures and fibre growth, the OptEnet platform provides the most economical evolution path. Integrated intelligence allows the user to remotely monitor system performance and transmit alarm conditions to upstream operational support systems. Leveraging ADC KRONE's leadership in connectivity solutions, the OptEnet platform provides the ideal solution for Ethernet extensions in support of transparent LAN services or switch router interconnect requirements.

A variety of solutions are supported ranging from 10Mbps Ethernet, OC-12 and Gigabit Ethernet.

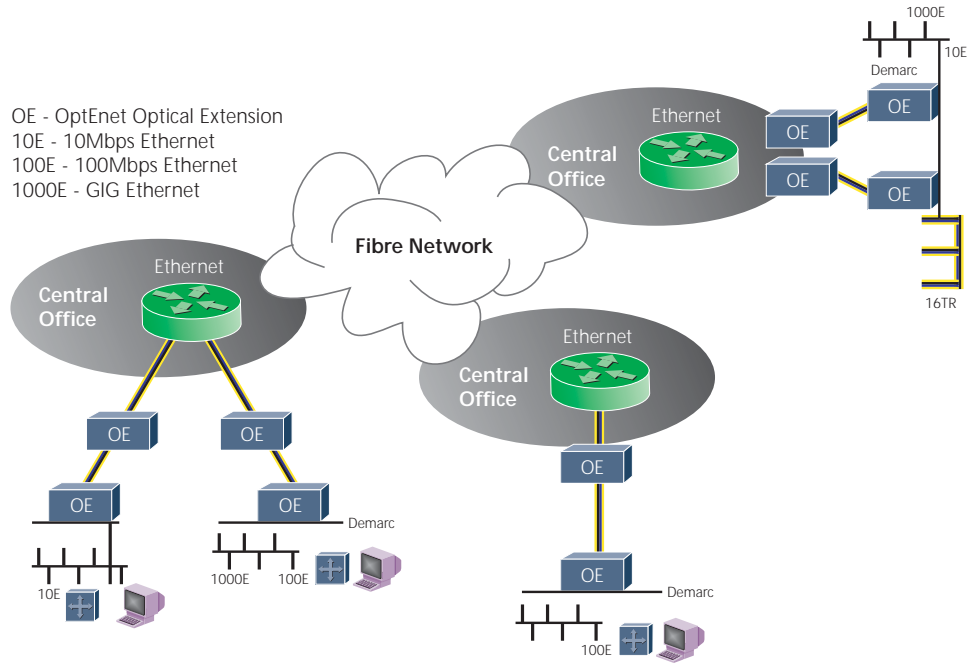


#### Features

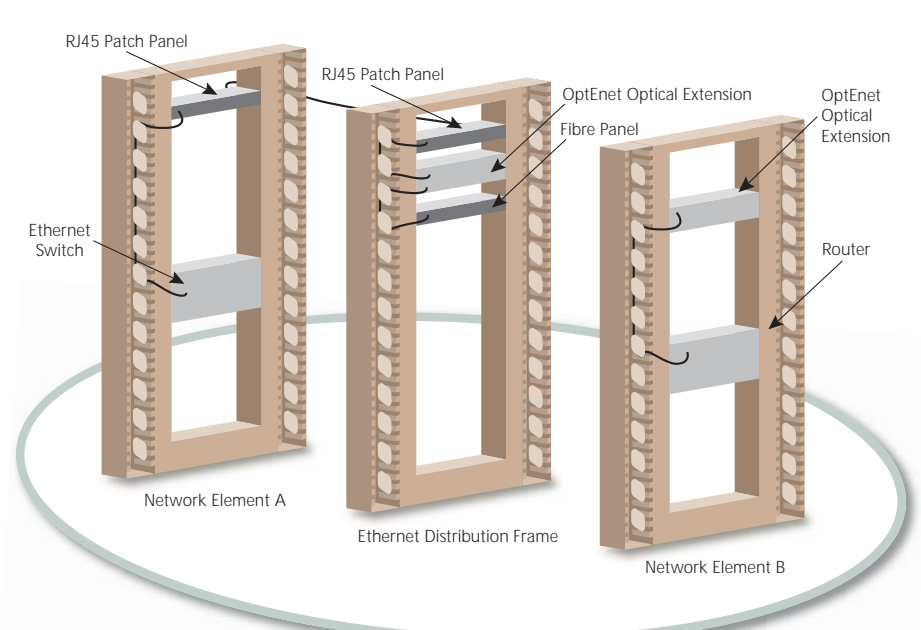
- Enables line card diversity within the same chassis through modular design
- Extends central office interconnect between network elements when distances are greater than 100 metres
- Delivers Ethernet solution from central office to customer premises
- Reduces capital expenses associated with expensive optical line cards in network elements
- Eliminates the need for upgrading of optical line cards in network elements.
- Provides optional redundant -48VDC and +24VDC power supplies
- Supports SNMP, TL1 and Telnet communication protocols
- Supports daisy-chain communication interfaces
- Supports 10BASE-T, 100BASE-TX and 1000BASE-T UTP conversion to fibre
- Enables multimode fibre to singlemode fibre conversions
- Eliminates network collisions through Medium Dependent Interface Cross-over (MDI-X)
- Complies with NEBS Level 3

### Applications

#### Point-to-Point Transparent LAN or Virtual LAN Services



#### Ethernet Intrafacility Connectivity



Electrical Ethernet distance limitation is 100 metres. The OptEnet™ platform can be deployed as an intra-office extension to link network elements. With copper switch technology a fraction of the cost of optical switch technology, media conversion provides an incremental approach to providing increased bandwidth without upgrading active electronics.

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# Media Conversion Solutions

## Modular Chassis

### Common Equipment

#### OptEnet™ Modular Chassis

The OptEnet chassis is a modular chassis, which enables multiple types of line cards to be deployed simultaneously within the same chassis.



OptEnet™ 12-port Modular Chassis



OptEnet 4-port Modular Chassis

#### Features

- Supports up to 12 or 14 OptEnet line cards in two rack units
- Supports up to 4 OptEnet line cards in one rack unit
- Accepts dual redundant power supplies
- 19 inches wide with 23-inch reverse mounting ears
- Optional SNMP, TL1 and/or alarm functionality

#### Ordering Information

Description	Product No.
OptEnet Modular Chassis: 14-port	ADCCE1400A
OptEnet Modular Chassis: 12-port	ADCCE1100A
OptEnet Modular Chassis: 4-port	ADCCE1000A

### Specifications

#### PHYSICAL: 14-PORT CHASSIS

**Dimensions (HxWxD):** 8.89 x 44.45 x 27.94cm (3.5 x 17.5 x 11 )  
**Weight (empty):** 4.1kg (9lbs)

#### PHYSICAL: 12-PORT CHASSIS

**Dimensions (HxWxD):** 8.89 x 44.45 x 12.0cm (3.5 x 17.5 x 5.75 )  
**Weight (empty):** 3.86kg (8.5lbs)

#### PHYSICAL: 4-PORT CHASSIS

**Dimensions (HxWxD):** 4.37 x 43.39 x 30.18cm (1.72 x 17.08 x 9.67 )  
**Weight (empty):** 2.6kg (5.7lbs)

#### ENVIRONMENTAL

**Operating Conditions:** 5°C to 40°C at 5% to 85% relative humidity  
**Short Term Conditions:** -5°C to 50°C at 5% to 90% relative humidity  
**Storage Conditions:** -40°C to 70°C at 10% to 95% relative humidity (no condensation)

### Common Equipment

#### Power Supply Modules

The OptEnet™ chassis accepts power from DC sources. Dual power supplies are deployed within the chassis to provide redundant power to all line cards along the back plane.



OptEnet™ DC Power Supply Module

#### Features

- -48VDC (50W and 100W) power supply versions
- +24VDC (100W) power supply
- Universal AC power supply
- Extended temperature versions available
- Power connection on the front panel
- Power and temperature status LEDs

#### Ordering Information

Description	Product No.
<b>OptEnet 14-port Chassis</b>	
OptEnet -48VDC Power Supply Module (100W)–standard temperature	ADCCE2440A
OptEnet -AC Power Supply	ADCCE2600A
<b>OptEnet 12-port Chassis</b>	
OptEnet +24VDC Power Supply Module	ADCCE2200A
OptEnet -48VDC Power Supply Module (100W)–extended temperature	ADCCE2400A
OptEnet -48VDC Power Supply Module (100W)–standard temperature	ADCCE2410A
<b>OptEnet 4-port Chassis</b>	
OptEnet -48VDC Power Supply Module (50W)–extended temperature	ADCCE2450A

### Specifications

**DC Input Voltage:** -48VDC, +24VDC  
**AC Input Voltage:** Universal AC (110-220VAC)

### Common Equipment

#### Communications Modules

If remote monitoring is required, a central processor unit (CPU) can be deployed within the OptEnet™ platform. An alarm card is available if only local alarm indications are required. The CPU and alarm card are optional. Only one of the two modules can be deployed in the chassis, so the network administrator must determine which alarm notification method is preferable.

##### CPU Features:

- Serial and Ethernet interface
- SNMP, TL1 and Telnet communications protocols
- Compatible with all SNMP management platforms
- Daisy-chain up to four units, via one IP address
- Firmware upgrade via TFTP or serial
- Five simultaneous Telnet sessions

##### Alarm Card Features:

- Normally open and normally closed alarm contacts



OptEnet™ CPU



OptEnet Alarm Module

#### Ordering Information

Description	Product No.
OptEnet Central Processor Unit	ADCCE3000A
OptEnet Alarm Module	ADCCE3100A

### Specifications

#### CPU Specifications

<b>Ethernet Interface:</b>	10BASE-T, RJ45 connector
<b>COM IN Interface:</b>	RS-232 DCE, RJ45 connector
<b>COM OUT Interface:</b>	RS-232 DTE, RJ45 connector
<b>Communications Protocol:</b>	SNMP, TL1 and ASCII

#### Alarm Module Specifications

<b>Power ON Indicator:</b>	Green
<b>Alarm Indicator:</b>	Red
<b>Contact Closures:</b>	Normally open and normally closed

### Optical Conversion Line Cards

#### Singlemode to Multimode Optical Conversion Line Card

The OptEnet™ singlemode to multimode optical conversion line card is one of a family of line cards that can be deployed in the OptEnet modular chassis. The card is designed to convert optical signals transported on a singlemode link to an optical signal that can be transported on a multimode link. The card supports any protocol and data rate between 10Mbps to 622Mbps (OC-12).

#### Features

- Single circuit line card
- Duplex transmission
- Link status and power LED indications
- Optical connections on front panel
- Protocol independent
- Supports data rates 10Mbps up to OC-12



OptEnet™ Singlemode to Multimode Optical Converter Module

#### Supported Data Rates

Signal Type/Protocol	Data Rate	Comments
Ethernet	10Mbps	10BASE-FL
Fast Ethernet	100Mbps	100BASE-FX
ATM/SONET/SDH	155Mbps	OC-3
	622Mbps	OC-12

### Optical Conversion Line Cards

#### Ordering Information

Description	Product No.
<b>OptEnet™ Singlemode to Multimode</b> 10-622 Mbps Line Card—standard temperature	ADCPE6000A
10-622 Mbps Line Card—extended temperature	ADCPE6001A

### Specifications

#### ELECTRICAL

**Input Power:** 2.7 Watts maximum; normal operation

#### MECHANICAL

**Chassis Compatibility:** OptEnet modular chassis

**Fibre Optic Connectors:** SC

**Dimensions (HxWxD):** 2.89 x 20.5 x 18.8 cm (1.14 x 8.07 x 7.4 )

**Weight:** 122 g (0.27 lbs)

#### OPTICAL

##### Singlemode

**Wavelength:** 1274 to 1356 nm range

**Output Optical Power (XMT):** -15dBm minimum, -8dBm maximum

**Input Optical Power (RCV):** -8dBm minimum, -32dBm maximum

##### Multimode

**Wavelength:** 1270 to 1380 nm range

**Output Optical Power (XMT)**

**62.5/125µm:** -20dBm minimum, -14dBm maximum

**50/125µm:** -24dBm minimum, -14dBm maximum

**Input Optical Power (RCV):** -26dBm minimum, -14 dBm maximum

### Optical Conversion Line Cards

#### OptEnet™ 10/100Mbps Optical Ethernet Conversion Line Card

The OptEnet 10/100Mbps optical Ethernet conversion line cards are designed to convert optical signals to electrical signals. The line cards have an auto negotiation feature allowing them to detect and synchronise with either a 10BASE-T or 100BASE-TX signal. The cards support 10BASE-T and 100BASE-T data rates over UTP and singlemode or multimode fibre.

#### Features

- Supports 10BASE-T, and 100BASE-TX
- Full and half duplex transmission (transmit and receive)
- Ethernet and fibre optic link indicators
- Auto-negotiation over fibre and copper (ANSI/TIA 785)
- MDI-X—Auto-detects and corrects cross-over



OptEnet 100BASE-LX Ethernet Line Card

#### Supported Protocols

Application	Data Rate	Media	Distance	Interface
10BASE-T	10Mbps	UTP Category 3, 4 or 5e (2-pair)	100m (328 feet)	RJ45
100BASE-TX	100Mbps	UTP Category 5e (2-pair)	100m (328 feet)	RJ45
100BASE-LX	10/100Mbps	1300nm singlemode fibre	15km (9.3 miles)	SC
100BASE-SX	10/100Mbps	850nm multimode fibre	300m (984 feet)	SC
100BASE-FX	10/100Mbps	1310nm multimode fibre	2km (2562 feet)	SC
100BASE-LH	10/100Mbps	1310nm singlemode fibre	40km (24.9 miles)	SC

### Optical Conversion Line Cards

#### Ordering Information

Description	Product No.
<b>OptEnet™ Optical Ethernet Conversion Line Cards</b>	
100BASE-SX (SC) Line Card	ADCPE4000A
100BASE-LX (SC) Line Card	ADCPE4200A
100BASE-FX (SC) Line Card	ADCPE4400A
100BASE-LH (SC) Line Card	ADCPE4240A

### Specifications

#### ELECTRICAL

**Input Power:** 1.75 Watts maximum; normal operation

#### MECHANICAL

**Chassis Compatibility:** OptEnet modular chassis  
**Fibre Optic Connectors:** SC  
**Dimensions (HxWxD):** 2.89 x 20.5 x 18.8cm (1.14 x 8.07 x 7.4 )  
**Weight:** 122g (0.27lbs)  
**Electrical Interface:** RJ45  
**Optical Interface:** SC

OPTICAL	100BASE-LH (Singlemode)	100BASE-LX (Singlemode)	100BASE-SX (Multimode)	100BASE-FX (Multimode)
<b>Wavelength:</b>	1270 to 1380 nm range	1270 to 1380 nm range	830 to 870 nm range	1270 to 1380 nm range
<b>Output Optical Power (XMT) 9/125µm:</b>	-5dBm minimum -0dBm maximum	-15dBm minimum -8dBm maximum	-17dBm minimum -12dBm maximum	-19dBm minimum -14dBm maximum
<b>Input Optical Power (RCV):</b>	-34dBm minimum -7dBm maximum	-31dBm minimum -7dBm maximum	-26dBm minimum -12dBm maximum	-32dBm minimum -11dBm maximum

# Media Conversion Solutions

## Modular Chassis

### Optical Conversion Line Cards

#### OptEnet™ Gigabit Ethernet Line Card

The OptEnet 1000Mbps media converter line card is designed to convert optical signals to electrical signals. The card supports 1000BASE-T data rates over UTP and singlemode or multimode fibre.



OptEnet 1000BASE-LX Line Card

#### Features

- Supports Gigabit Ethernet
- Full duplex transmission (transmit and receive)
- Ethernet and fibre optic link indicators
- MDI-X—Auto-detects and corrects cross-over

#### Supported Protocols

Application	Data Rate	Media	Distance	Interface
1000BASE-T	1000Mbps	UTP Category 5e (4-pair)	100m (328 feet)	RJ45
1000BASE-LX	1000Mbps	1300nm singlemode fibre	10km (6.2 miles) (8/125µm)	SC
1000BASE-SX	1000Mbps	850nm multimode fibre	550m (1804 feet)	SC

### Optical Conversion Line Cards

#### Ordering Information

Description	Product No.
<b>OptEnet™ Optical Conversion</b>	
1000BASE-SX (SC) Line Card	ADCP E5000A
1000BASE-LX (SC) Line Card	ADCP E5100A

### Specifications

#### ELECTRICAL

**Input Power:** 2.2 Watts maximum; normal operation

#### MECHANICAL

**Chassis Compatibility:** OptEnet modular chassis  
**Fibre Optic Connectors:** SC  
**Dimensions (HxWxD):** 2.89 x 20.5 x 18.8cm (1.14 x 8.07 x 7.4 )  
**Weight:** 122g (0.27lbs)  
**Electrical Interface:** RJ45  
**Optical Interface:** SC

OPTICAL	1000BASE-LX	1000BASE-SX
<b>Wavelength:</b>	1270 to 1355nm range	830 to 870nm range
<b>Output Optical Power (XMT):</b>	-11dBm minimum -3dBm maximum	-9.5dBm minimum -4dBm maximum
<b>Input Optical Power (RCV):</b>	-22dBm minimum -20dBm maximum	-17dBm minimum -3dBm maximum

### Ordering Information

Ordering Information	
Description	Product No.
<b>OptEnet™ Common Equipment</b>	
<b>Modular Chassis</b> 14-port 12-port 4-port	ADCCE1400A ADCCE1100A ADCCE1000A
<b>Power Supply Modules</b> <i>For redundant power applications, the OptEnet system requires two power supply modules.</i>	
<b>OptEnet 14-port Chassis</b> -48VDC power supply module (100W)—standard temperature AC power supply	ADCCE2440A ADCCE2600A
<b>OptEnet 12-port Chassis</b> +24VDC power supply module -48VDC power supply module (100W)—extended temperature -48VDC power supply module (100W)—standard temperature	ADCCE2200A ADCCE2400A ADCCE2410A
<b>OptEnet 4-port Chassis</b> -48VDC power supply module (50W)—extended temperature	ADCCE2450A
<b>Communications Modules</b> <i>The communications modules are optional to the system.            Only <b>one</b> communications module (either the CPU or alarm module) can be deployed in the system.</i> Central processor unit Alarm module	ADCCE3000A ADCCE3100A
<b>OptEnet Line Cards</b>	
<b>Optical Conversion Line Card</b> Singlemode to multimode, 10-622Mbps Standard temperature Extended temperature	ADCPE6000A ADCPE6001A
<b>10/100 Mbps Optical Ethernet Conversion Line Card</b> 100BASE-SX (SC) 100BASE-LX (SC) 100BASE-FX (SC) 100BASE-LH(SC)	ADCPE4000A ADCPE4200A ADCPE4400A ADCPE4240A
<b>1000 Mbps Ethernet Conversion Line Cards</b> 1000BASE-SX (SC) 1000BASE-LX (SC)	ADCPE5000A ADCPE5100A

# Media Conversion Solutions

## Work Station Media Converters

### OptEnet™ Work Station Media Converters

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Front view of media converter shows convenient front location of indicators for UTP and optical link integrity.



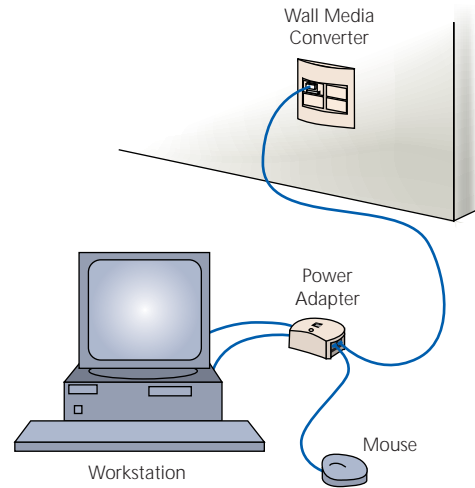
Power adaptor mounts behind PC or on the desk and provides power to media converter through the mouse port.



Media converter shown with modular jacks in faceplate.

#### Features

- Reduces work area clutter by placing media conversion circuitry behind the faceplate
- Eliminates external power adaptor and fibre jumper in workstation applications
- Improves protection of circuits by securing circuitry behind the faceplate
- Streamlines installation and troubleshooting with built-in intelligence for optical link integrity and UTP link integrity indicators at work area
- Supports 10BASE-T and 100BASE-TX UTP and 10BASE-FL, 100BASE-SX, and 100BASE-FX multimode fibre with auto-negotiation



# Media Conversion Solutions

## Work Station Media Converters

### OptEnet™ Work Station Media Converters

#### Ordering Information

Description	Product No.
<b>Work Area Media Converter Kits</b> Mouse port power option 850nm 1300nm <i>Kit includes media converter, power adaptor, 0.9m (3') PS/2 jumper, and 0.9m (3') blue RJ45 patch cord.</i>	ADC6S1SXSTMM1XX* ADC6S1FXSTMM1XX*
<b>Wall Outlet Power Option</b> 850nm 1300nm <i>Kit includes media converter, power adaptor, AC/DC wall outlet power adaptor, and 0.9m (3') blue RJ45 patch cord.</i>	ADC6S1SXSTMM2XX* ADC6S1FXSTMM2XX*
<b>USB Port Power Option</b> 850nm 1300nm <i>Kit includes media converter and USB patch cord.</i>	ADC6S1SXSTMM3XXYY** ADC6S1FXSTMM3XXYY**
<b>Accessories</b> RJ45 patch cord, Category 5e with boots Work area—for optional station cable Rack mount—for connecting to power supply White Grey Blue	ADCPC-RRC6B-WTZZ*** ADCPC-RRC6B-GYZZ*** ADCPC-RRC6B-BLZZ***

All work area media converters have ST optical connectors

#### Ordering notes:

- \* Replace XX in catalogue number with choice of colour for media converter below:  
 00 = Electrical Ivory  
 01 = Office White  
 02 = Black
- \*\* To order USB port power cable, replace YY in catalogue number with desired length in metres:  
 02, 05, 07, or 10. Replace XX in catalogue number with choice of colour for media converter.
- \*\*\* To order optional RJ45 station cable, replace ZZ in catalogue number with the desired length in feet:  
 03, 05, 07, 10, 15, 20, 25, or 50. Custom colours and lengths available.

# Media Conversion Solutions

## Single-Mount Solution

### OptEnet™ Single-Mount Solution

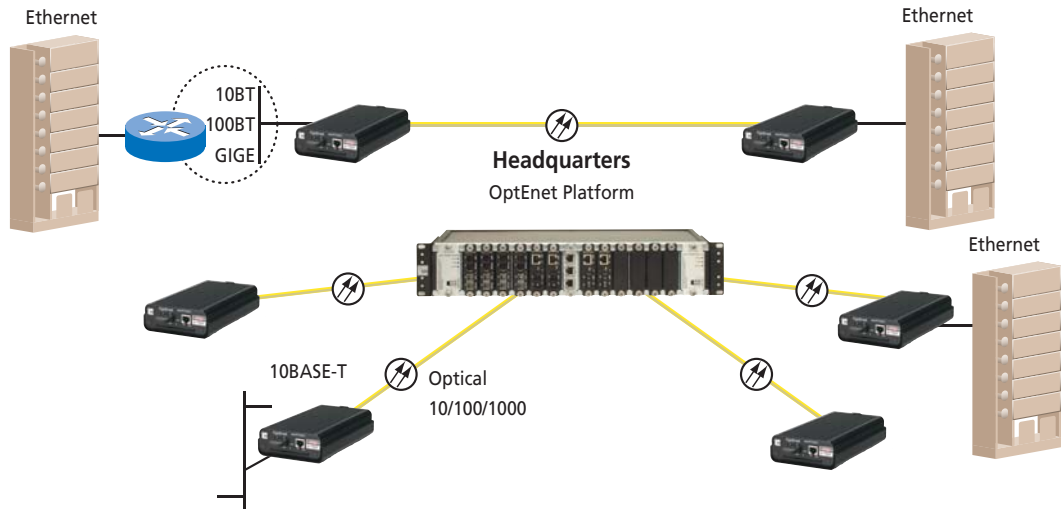
The OptEnet Optical Extension platform has expanded to include a single-mount solution, which can be positioned on a desktop or wall. The unit can be deployed as the remote termination device linked to the OptEnet modular platform or in a single-circuit, point-to-point configuration. The device converts standards-based electrical Ethernet signals to fibre, enabling cost-effective, flexible Ethernet extensions across a wide area or local area network (WAN or LAN).

#### Features

- Extends Ethernet signal beyond the 100 metre limitation of Unshielded Twisted Pair (UTP)
- Provides cost-effective Ethernet point-to-point solutions
- Reduces capital expense of optical network element line cards in low-density applications
- Supports 10BASE-T, 100BASE-TX and 1000BASE-T conversions to fibre
- Enables multimode to singlemode conversions for data rates 10Mbps to 622Mbps
- Features UTP and fibre optic link status indicators on front panels
- Supports desktop or wall mount deployment
- Includes AC or -48VDC power options



### Applications



The Optenet™ single-mount solution supports point-to-point Ethernet service. The unit compliments the Optenet modular platform but can also connect to any standards-based Ethernet fibre or copper element.

### Optical Extensions

The Optenet single-mount solution incorporates the same functional line cards as those deployed in the Optenet modular platform. The line card ships enclosed in the single position housing to minimise installation time and provide a plug-and-play solution.

### Ethernet Extensions

Data Rate	Electrical Interface	Distance	Optical Interface	Distance	Product No.
10/100Mbps	UTP Category 5e	100m (328 feet)	850nm multimode fibre	300m (984 feet)	ADCST4000A-XX
10/100Mbps	UTP Category 5e	100m (328 feet)	1310nm singlemode fibre	15km (9.3 miles)	ADCST4200A-XX
10/100Mbps	UTP Category 5e	100m (328 feet)	1310nm singlemode fibre	40km (24.9 miles)	ADCST4240A-XX
10/100Mbps	UTP Category 5e	100m (328 feet)	1310nm multimode fibre	2000m (6562 feet)	ADCST4400A-XX
1000Mbps	UTP Category 5e	100m (328 feet)	850nm multimode fibre	550m (1804 feet)	ADCST5000A-XX
1000Mbps	UTP Category 5e	100m (328 feet)	1310nm singlemode fibre	10km (6.2 miles)	ADCST5100A-XX

"XX"—indicates the powering option selected: "AC" = AC power; "48" = -48VDC.

### Optical Conversions

Data Rate	Multimode Optical Interface	Distance	Singlemode Optical Interface	Distance	Product No.
10/622Mbps	1310nm	500m (1620 feet)	1310nm	15km (9.3 miles)	ADCST6000A-XX/ADCST6001A-XX

### Ordering Information

Description	Power	Product No.
<b>Singlemode to Multimode, 10-622Mbps</b> Standard temperature  Extended temperature	AC power DC power  AC power DC power	ADCST6000A-AC ADCST6000A-48 ADCST6001A-AC ADCST6001A-48
<b>10/100Mbps Optical Ethernet Conversion</b> 100BASE-SX (SC)  100BASE-LX (SC)  100BASE-FX (SC)  100BASE-LH (SC)	AC power DC power  AC power DC power  AC power DC power  AC power DC power	ADCST4000A-AC ADCST4000A-48 ADCST4200A-AC ADCST4200A-48 ADCST4400A-AC ADCST4400A-48 ADCST4240A-AC ADCST4240A-48
<b>1000Mbps Optical Ethernet Conversion</b> 1000BASE-SX (SC)  1000BASE-LX (SC)	AC power DC power  AC power DC power	ADCST5000A-AC ADCST5000A-48 ADCST5100A-AC ADCST5100A-48
<b>Accessories</b> Wall mount bracket		ADCSTBK01A

### Specifications

#### MECHANICAL

<b>Fibre Optic Connectors:</b>	SC
<b>Electrical (UTP) Connector:</b>	RJ45
<b>Dimensions (HxWxD):</b>	4.1 x 10.9 x 19.8cm (1.6 x 4.3 x 7.8 )

#### POWER

<b>DC Power:</b>	-48VDC (Input power module specific, ranging from 1.75 to 2.7 Watts)
<b>AC Power:</b>	Universal AC Inputs

OPTICAL CONVERSION LINE CARD	Singlemode	Multimode
<b>Wavelength:</b>	1274 to 1256nm	1270 to 1380nm
<b>Output Optical Power (XMT):</b>	-15dBm minimum -8dBm maximum	-20dBm minimum -14dBm maximum
<b>Input Optical Power (RCV):</b>	-26dBm minimum -8dBm maximum	-32dBm minimum -14dBm maximum

10/100Mbps OPTICAL ETHERNET CONVERSION	100BASE-LX Singlemode	100BASE-SX Multimode	100BASE-FX Multimode	100BASE-LH Singlemode
<b>Fibre:</b>	Singlemode	Multimode	Multimode	Singlemode
<b>Wavelength:</b>	1270 to 1380nm	830 to 870nm	1270 to 1380nm	1270 to 1380nm
<b>Output Optical Power (XMT):</b>	-15dBm minimum -8dBm maximum	-17dBm minimum -12dBm maximum	-19dBm minimum -14dBm maximum	-5dBm minimum 0dBm maximum
<b>Input Optical Power (RCV):</b>	-32dBm minimum -8dBm maximum	-26dBm minimum -12dBm maximum	-32dBm minimum -11dBm maximum	-34dBm minimum -7dBm maximum

1000Mbps OPTICAL ETHERNET CONVERSION	1000BASE-LX Singlemode	1000BASE-SX Multimode
<b>Fibre:</b>	Singlemode	Multimode
<b>Wavelength:</b>	1270 to 1355nm	830 to 870nm
<b>Output Optical Power (XMT):</b>	-11dBm minimum -3dBm maximum	-9.5dBm minimum -4dBm maximum
<b>Input Optical Power (RCV):</b>	-20dBm minimum -3dBm maximum	-17dBm minimum -3dBm maximum

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