

Unlock your  
connectivity.

We are the leading global provider of OEM compatible network solutions, tailored to your connectivity needs.

The combination of our knowledge and optical networking technology enables ProLabs to be your single source for optical transport and connectivity solutions from 100MB to 100G and beyond. We are committed to providing innovative solutions that increase network efficiencies enhanced by our world class service, quality and value.

ProLabs provides connectivity solutions that are compatible with and enhances your switching and transport equipment.

#### A Higher Standard for Technology & Service

##### Making Upgrades Affordable

By reallocating resources from overpriced OEM products to ProLabs compatibles, companies can deploy resources more strategically to support critical upgrades.

##### Industry-Leading in Every Way

ProLabs has expanded its capabilities and reach to become the most innovative and influential independent player in the global, mid-tier network products market.

##### Switching the Data Center Mindset

It's time to break OEM dominance of the industry. ProLabs is a smarter choice and our customers are confident choosing us as a partner.

##### Innovating in R&D and Thought Leadership

With a substantial investment in emerging technology, ProLabs offers the best technology now and for the future.

##### Global Reach, Unparalleled Service

Through our extensive supplier network, we provide everything our customers need, when they need it.

#### Contact our global sales team:

**North America and Asia-Pacific**  
+1 952 852 0252  
[channelsales@prolabs.com](mailto:channelsales@prolabs.com)

**Europe, Middle East and Africa**  
+44 (0) 1285 719 600  
[channelsalesemea@prolabs.com](mailto:channelsalesemea@prolabs.com)

Visit [www.prolabs.com](http://www.prolabs.com) for more connectivity solutions.

## The ProLabs Promise



### Availability

With our global presence, regional operations and warehousing, we can offer same or next day delivery on most of our product range.



### Interoperability

Our products are designed to bridge multiple platforms, which gives you minimum stock, maximum flexibility and ease-of-use.



### Support

You can rely on our industry experts, in region customer service and trusted advisers to give you a swift and personal service.



### Quality

Our stringent product testing processes, together with coding verification under operating conditions, gives you compatibility assurance and peace of mind.



### Warranty

You can expect quality products and thorough testing, backed by a lifetime warranty on transceivers.



### Value

On balance, our range of innovative compatibility solutions enable you to maximize your connectivity with minimal initial investment.

# Transceivers

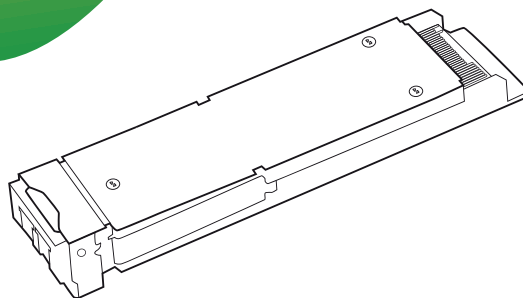
SFP, SFP+, XFP, QSFP+, QSFP28, CFP, XENPAK, X2 and GBIC

ProLabs offers an extensive range of optical and copper transceivers to fit your requirements. All transceivers are standards-based and comply with the MSA (Multi-Source Agreement). Transceivers range from 100BASE-FX to 100Gb and cover optical and copper transceivers.

ProLabs transceivers are manufactured utilizing the highest quality components available. Our commitment to quality means we produce a consistent, standardized product, purpose-built for compatibility with today's top Original Equipment Manufacturer (OEM) specifications.

**Our transceivers are 100% compatible with >60 Manufacturers, supporting over 10,000 SKUs. These include;**

3Com	IBM
Adtran	Infinera
Adva	Intel
Alcatel Lucent	Juniper
Allied Telesis	Linksys
Arista	Maipu
Asante	Marconi
Aruba Networks	Mellanox
Avaya	Milan
Blackbox	Moxa
Blade Network	NetApp
Brocade	Netgear
BTI	Netscout
Calix	Nokia
Ciena	Nortel
Cisco	Packetfront
Cisco Meraki	Palo Alto
Dell	Planet
Dlink	QLogic
EMC	Radware
Emulex	Raisecom
Enterasys	Redback
Ericsson	Riverstone
Extreme Networks	Ruijie
F5 Networks	SMC
Force 10	Tejas
Fortinet	Telco Systems
Foundry	TP-Link
Gigamon	Transmode
H3C	TrendNET
Hewlett-Packard	Vixel
Hirschmann	ZTE
Huawei	ZyXEL



## Selecting Your Transceiver

Choosing a transceiver form factor is a function of the target switch that the transceiver will be deployed. Each transceiver form factor has additional options to account for connections length, application, data rates and connectors.



### SFP+

Transceivers with capability of data rates from 8Gb/s to 10Gb/s, with range of a few meters up to 80km. DWDM and CWDM wavelengths/channel options. Full range of DAC/Twinax cables available.



### SFP

Small form factor pluggable transceivers, resulting in increased density, capable of data rates up to 6Gb/s, available in 850nm, 1310nm, and 1550nm, bi-directional option (1310nm/1490 or 1310nm/1550nm), and DWDM and CWDM wavelengths/channel options. Distances range up to 160km.



### QSFP+ and QSFP28

Quad small form factor pluggable transceivers, capable of data rates up to 10km. QSFPs can reach up to 30Km and some even 40Km. Limited to only 10Km. Their capacity of data rates up to 100G. Range of passive DAC cables and AOC cables available.

**Note: GBIC/X2/XENPAK and SFP28 are still available.**



We offer highly versatile solutions, to deliver exceptional connectivity.

## Additional Information

ProLabs provides four common distance ranges within each transceiver model:

**SX/SR** Short haul with a range up to 2km.

**LX/LR** Long haul with a range up to 10km. We are also able to provide long haul with enhanced lasers capable of 40km.

**EX/ER** Extended reach with range up to 40km with SFP 10Gb/s and 40Gb/s transceivers.

**ZX/ZR/EZX** Extended reach with range up to 160km with SFP and 80km with 10Gb/s transceivers.

In addition to the basic form factors, ranges and data rates of pluggable optical transceivers, there are certain applications to be identified in order to select the most appropriate optical transceiver, such as: Ethernet, SONET, DWDM, CWDM, fiber channel, data rate, wavelength, fixed or variable rate and bidirectional or unidirectional.

### Custom Solutions

ProLabs can provide technologies that are often not offered by the OEM platform. Custom solutions include:

2km SFP over Multimode.

150m QSFP+ and 220m SFP+ over multimode.

40km SFP over 1310nm Singlemode.

Bi-directional SFP and 10G/bs transceivers, 1490nm/1310nm, 60km.

Bi-directional SFP and 10G/bs transceivers, 1490nm/1310nm, 80km.

ProLabs can give you more tools in your network design toolbox.

### Challenging OEM Dominance

The rapid growth of open source is radically changing market dynamics. With open source, businesses are free to choose any software or product and are no longer "locked in" to OEM products. ProLabs transceivers are the high-quality, dependable, cost-effective alternative.

**Myth:** Only optical transceivers provided by the OEM will work with existing equipment.

**Fact:** All ProLabs products are designed to comply with industry standard MSA (Multi-Source Agreements). Certain vendors require an element of serialization to make the product compatible; when ordering a compatible part to the desired OEM equipment, ProLabs can offer a truly Plug and Play solution, ensuring complete compatibility. ProLabs' industry-leading lifetime warranty will not invalidate any vendor warranty on the host device.

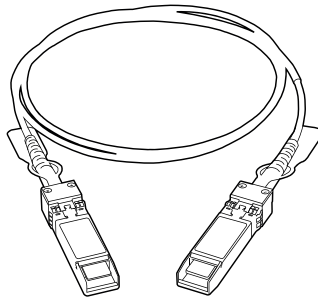


# ProLabs SFP+ Direct Attach Copper Cable (DAC) & Active Optical Cable (AOC)



**DAC - Direct Attach Cables - 10G, 25G, 40G & 100G**

Direct Attach Cables run a direct connector-to-connector electrical connection through a thick copper wire, in order to avoid EM interference. DAC cables typically connect network elements within one to five meters in a network rack or cabinet. DACs are available in both "active" and "passive" variants.



ProLabs range of Direct Attach Cables (DAC) and Active Optical Cables (AOC) are a cost-effective option for data center environments and beyond. DACs and AOCs are standard length cable assemblies with factory terminated transceivers on each end. DACs and AOCs are available in a variety of configurations to meet network requirements.

## ProLabs DACs and AOCs feature

- Plug and Play installation
- Low power consumption, <0.15w for SFP+ DACs
- Support for Ethernet, Fiber channel, InfiniBand and applications
- Compatibility with all leading OEMs and more

## Available DAC and AOC options include:

- Passive Copper DAC – up to 7m
- Active Copper DAC – up to 15m
- Active Optical AOC – up to 100m
- 10G (SFP+), 25G (SFP28), 40G (QSFP+), and 100G (QSFP28) data rates
- 40G to 4x10G or 100G to 4x25G break out cables
- Multicode – compatibility for OEMs on each cable end.



**AOC - Active Optical Cables - 10G, 25G, 40G & 100G**

Active Optical Cables offer a cost-effective solution consisting of fixed fiber optic transceivers on a fiber cable for short reach connections between 10m and 100m. AOCs are a Plug and Play assembly, reducing the complexity of a standard fiber optic install. In addition, AOCs single 3.0mm cable diameter reduces the cable pile up in data center cable trays over a standard duplex fiber cable deployment.

DAC and AOC offer many of the benefits of optical transceivers but with significant cost and power savings in short reach applications. The Plug and Play functionality of DAC and AOC reduce the complexity and time to turn up new connections.

Reduce space,  
to maximize  
your connectivity.

## Media Converters

When connecting copper or single mode fiber to multimode fiber networks, ProLabs offers complete solutions to seamlessly integrate these disparate networks.

ProLabs offers a low-cost solution with quality products, and support. Media converters come with a 5 year replacement warranty for faulty products which fail under normal working conditions.

**Mini Media Converters** – Can reduce space due to their compact size. If used in a cabinet, 12 MiMC's can be used in a 1U rack space. The MiMC converters come with SFP or fixed connectors. DIP switch on the back lets the user change between 100base and 1G, as well as LFP functions.

**Managed Media Converters** – Managed media converters are great additions to our product range. They can be installed in a 2U 16 slot chassis, and with this set up, can provide the user with information such as Port status and Ethernet statistics on both TP and Fiber interface. This is achieved through SNMP and Event traps. QoS can be applied to differentiate traffic flows.

OAM / Loop Back Test are available for fault /maintenance diagnostics. They are powered the same way as the standard converters, and a maximum of 16 slot cards can be inserted into a 2U chassis. The managed converters come with SFP connections.

**PoE Media Converters** - Power over Ethernet has become a main component for much lower power equipment, such as VoIP phones, CCTV cameras and wireless access points.

We currently offer 1G with POE 15.4w, POE+ 25.5w and POE+ Industrial temp products. The PoE converters are offered with SFP connections.

**Industrial Media Converters** - Our industrial media converters are a great solution for harsh environments. The converters are rated to IP40, and with a working temperature between -40~+85°C are perfect for hot or cold countries. We can provide industrial converters in both our standard form factor for basic conversion and also on some of our PoE range. These are mounted on DIN rails when installed. The industrial range of converters comes with SFP connections.

**Standard Media Converters** - ProLabs unmanaged media converters with Plug and Play ability, and easy installation in a cabinet or remotely installed, are a great solution when media conversion, copper to fiber or single mode fiber to multimode fiber, is required.

The range covers both Multimode 850nm up to 550m, and Single mode 1310nm up to a range of 40km. The converters are equipped with functions such as Auto MDI/MDI-X, and support low-time lag transmission.



# ProLabs Multiplexers Passive WDM Networking

## Applications

Multiplexing offers the customer a high density, scalable fiber solution. Rather than investing in more fiber, it allows an increase in the fiber bandwidth by carrying multiple signals down an individual fiber connection. Additionally, a single unit permits a combination of Ethernet and fiber channel traffic, ranging from 100Mb to 10Gb, to be sent in unison with no latency. Installing a ProLabs xWDM solution typically shows a return on investment in as little as 3 months.

## CWDM - Coarse Wave Division Multiplexing

CWDM passive solutions carry up to 16 different wavelengths (colors of light) down a lone fiber connection. The primary 8 channels operate in the 1500nm range and the secondary 8 channels operate in the 1300nm range. CWDM channel spacing is 20nm. Specific, industry standard color coding is used resulting in a simplified set up.

## DWDM - Dense Wave Division Multiplexing

DWDM passive solutions carry up to 88 different wavelengths down an individual fiber connection. The channel spacing is typically 100GHz (0.8nm) and reside in the 1530 to 1560nm band. The upshot is that a DWDM unit can carry more signals over a greater distance.

## Pay as you Populate

As your network grows your ProLabs multiplexers are scalable allowing you to expand on a pay as you populate basis via module, chassis and transceiver options.

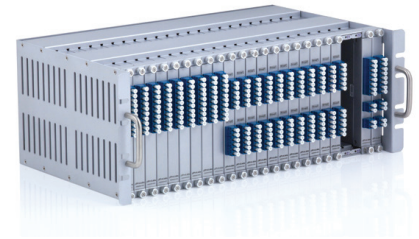
ProLabs can offer the full range of wavelength specific optical transceivers to populate both CWDM and DWDM multiplexer solutions, as well as fiber patch cables, custom and multicore solutions.

## Chassis Options

In comparison to other industry options ProLabs offer market leading high density xWDM solutions, ideal for Data center and Telco usage.



1U 4 slot offers up to 32 CWDM/  
DWDM channels

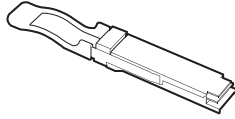


4U 24 slot offers up to 192 CWDM/  
DWDM channels

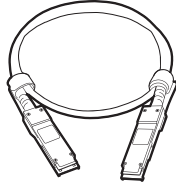




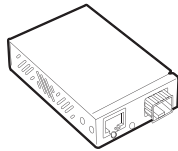
### Transceivers



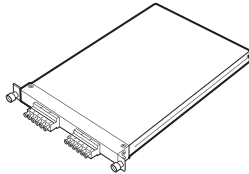
### DAC & AOC Cables



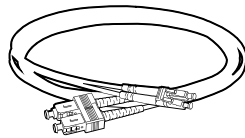
### Media Converters



### Multiplexers



### Fiber Patch Cables



Everything you need, when you need it.

ProLabs offers an extensive range of high-quality products including optical and copper transceivers and media converters. With an unrelenting commitment to quality, service and support, ProLabs is the only mid-tier provider offering customization, lifetime warranties on Transceivers and DAC's & AOC's and fast, flexible shipping options.

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Visit [www.prolabs.com](http://www.prolabs.com) for more connectivity solutions.

