

ProLabs

Compatibility Academy

Fact Sheet



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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, compatible networking products market.

Switching the Data Centre 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:

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channelsalesemea@prolabs.com

North America and Asia-Pacific
+1 952 852 0252
channelsales@prolabs.com

Visit 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 maximise your connectivity with minimal initial investment.



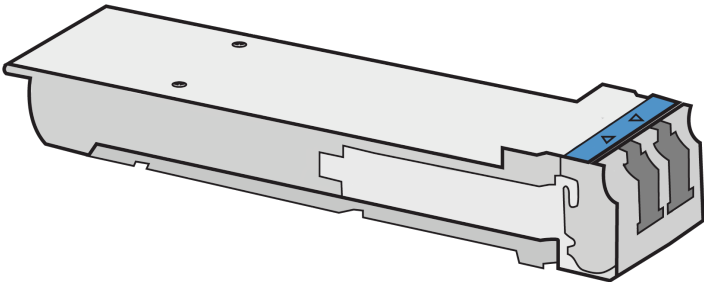
Transceivers

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

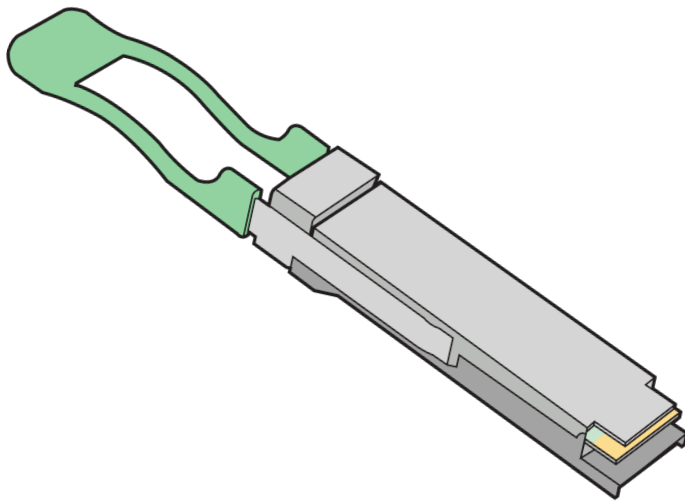
ProLabs offers an extensive range of optical and copper transceivers to fit your requirements. All transceivers are standards-based and comply with the MSA (Multi-Source Agreement). Transceivers range from 100BASE-FX to 100Gb and cover optical and copper transceivers.

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

Our transceivers are 100% compatible with over 90 Manufacturers, supporting over 10,000 SKUs. These include;



A10 Networks	Hirschmann
Accedian	HP Aruba
Adtran	HPE
Adva	HP 3Com
Aerohive	HP ProCurve
Alcatel Lucent	HP Comware
Allen-Bradley	HP Servers
Allied	Huawei "S" Family
Allnet	Huawei "CE" Family
Amer Networks	Infinera
Anue	Intel
Arista Networks	Juniper
Arris	Kemp
Asante	Maipu
Avaya	Marconi
Blackbox	Moxa
IBM	MRV
Brocade	Myriacom
Calix	Netapp
Checkpoint	Netgear
Chelsio	NetOptics
Cisco	Netscout
Cisco ONS	N-Tron
Citrix	Nokia
Linksys (Cisco Small Business)	Nutanix
Cyan	Packetfront
Dell	Palo Alto
Dell Force10	Planet
D-Link	Qlogic
ECI	Radware
Edgecore	Raptor
Emerson	Redback
EMC	Riverbed
	Riverstone



Broader
compatibility
giving you
greater reach.

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.



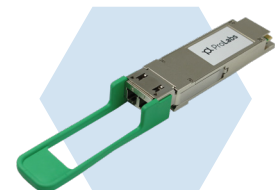
SFP+

Transceivers with capability of data rates from 8Gb/s to 10Gb/s, with range of a few metres 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 upto 100G. Range of passive DAC cables and AOC cables 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, fibre channel, data rate, wavelength, fixed or variable rate and bi-directional or uni-directional.

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.

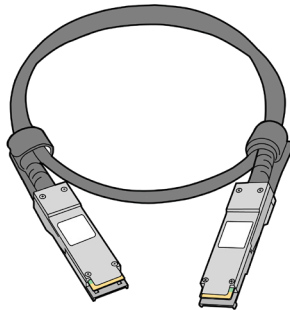
Fact: All ProLabs products are designed to comply with industry standard MSA (Multi-Source Agreements). Certain vendors require an element of serialisation to make the product compatible; when ordering a compatible part to the desired OEM equipment, ProLabs can offer a truly Plug and Play solution, ensuring 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 metres 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 centre 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, Fibre 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 breakout 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 fibre optic transceivers on a fibre cable for short reach connections between 10m and 100m. AOCs are a Plug and Play assembly, reducing the complexity of a standard fibre optic install. In addition, AOCs single 3.0mm cable diameter reduces the cable pile up in data centre cable trays over a standard duplex fibre 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.

Media Converters

When connecting copper or single mode fibre to multimode fibre 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

Mini Media Converters (MiMC's) 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 Fibre 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°C+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.

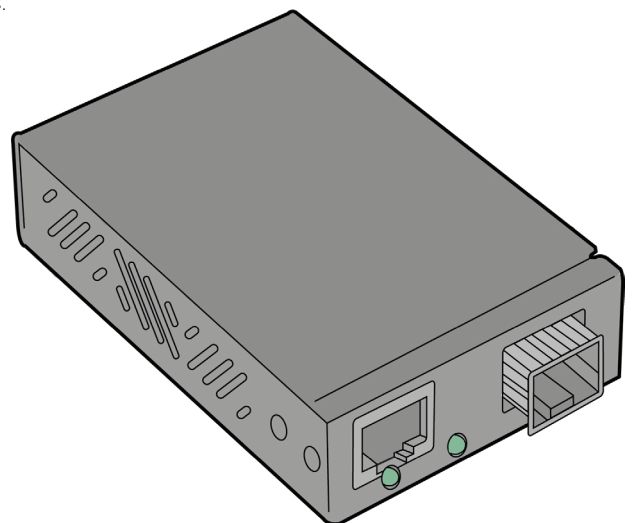
Standard Media Converters

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 fibre or single mode fibre to multimode fibre, 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.

Our media converters are powered by an AC to DC 5-12v input with a power rating less than 3w. A maximum of 4 standard converters can be installed into a 2U rack.

Reduce space,
to maximise
your connectivity.



ProLabs Multiplexers

Passive WDM

Networking

Applications

Multiplexing offers the customer a high density, scalable fibre solution. Rather than investing in more fibre, it allows an increase in the fibre bandwidth by carrying multiple signals down an individual fibre connection. Additionally, a single unit permits a combination of ethernet and fibre 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 (colours of light) down a lone fibre 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 colour 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 fibre 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 fibre 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 centre and telco usage.



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



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



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connectivity solutions.





A partnership that guarantees compatibility.