EXPANDED BEAM PERFORMANCE

RUGGED FIBER OPTIC INTERCONNECTS

ODU®

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ODU Expanded Beam Performance

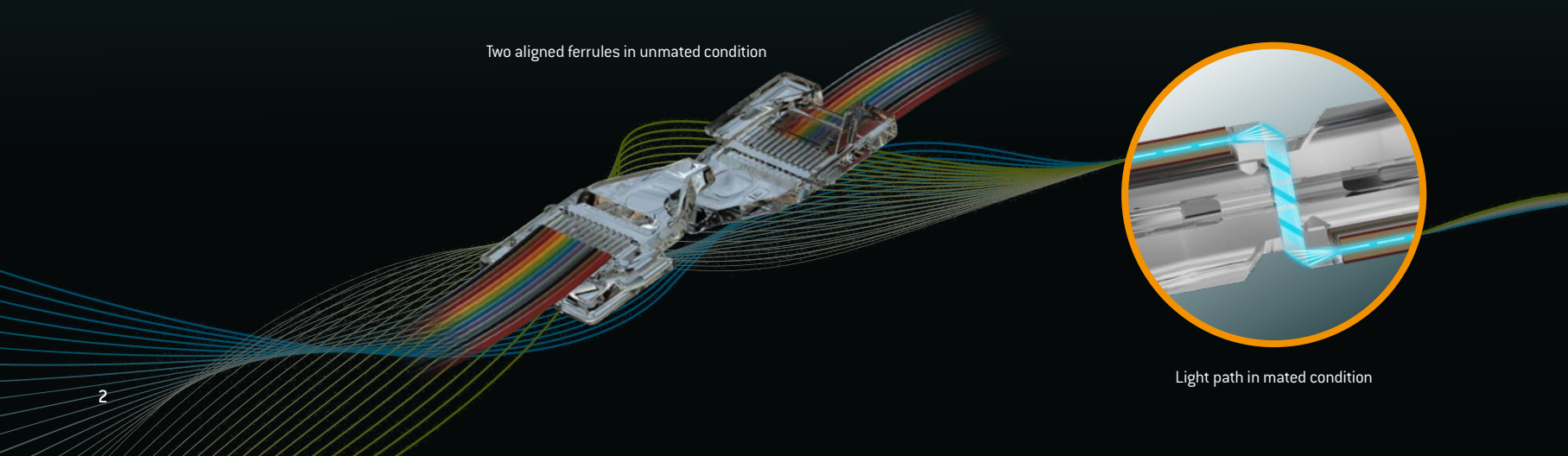
Advanced Fiber Optic Technology

The Expanded Beam Performance technology is an advanced fiber optic solution. It offers high-end transmission characteristics over many mating cycles. The excellent optical performance remains unchanged even under mechanical stress, environmental influences and harsh ambient conditions.

Since there is no physical contact between the contact ends, the connections are relatively insensitive to contamination. **No cleaning is required under normal conditions.**

- 50,000 mating cycles
- –65 °C to +105 °C
- Insertion loss*
  Multimode: < 0.15 dB (typical) / < 0.3 dB (max.)
  Singlemode: < 0.35 dB (typical) / < 0.7 dB (max.)
- Return loss*
  Multimode: > 45 dB (typical) / ≥ 35 dB (min.)
  Singlemode: > 60 dB (typical) / ≥ 55 dB (min.)

*Values are defined per contact side



Two aligned ferrules in unmated condition

Light path in mated condition

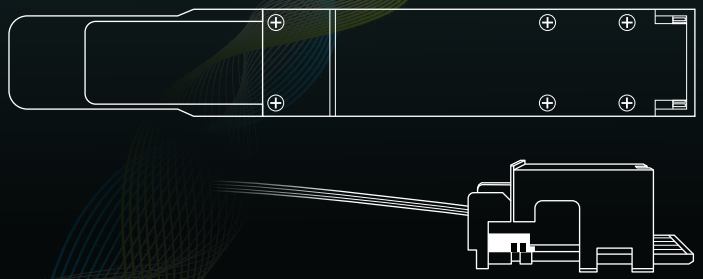
Compared to common standards, the Expanded Beam Performance delivers high-end transmission values, without the disadvantage of high maintenance effort and long system downtimes.

The long lifetime of the technology furthermore negates the need of swapping parts due to worn out contacs every few hundred mating cycles. This all adds up to a lower total cost of ownership by maintaining the highest signal integrity possible.

A compact design of the ferrules enables a higher fiber density compared to regular expanded beam lenses. 12 fibers each, multiple ferrules can be stacked and integrated into a single connector. Expanded Beam Performance is available in both, VITA-style backplane connectors and I/O connectors and can be easily integrated with multi- or singlemode-fibers.

- No cleaning, only if necessary
- Lens based fiber solution with excellent optical performance
- No maintenance during operation

Expanded Beam Performance solutions can be integrated into existing systems via conventionell EBO-Plug-in or On-Board Transceivers.



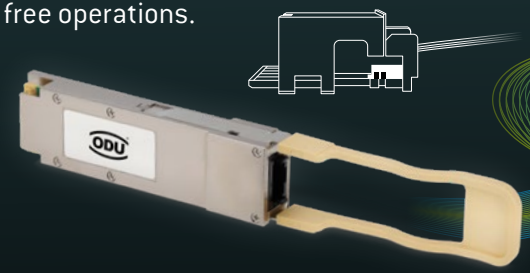
System-level interconnect solutions

The ODU Expanded Beam Performance portfolio offers complete system solutions for fast data transmission. The lens based fiber optic connectors are the ideal interconnect solution for demanding applications.

With up to 96 fibers in one single **weight saving** connector, the advanced expanded beam technology provides data at the speed of light, while keeping maintenance at a minimum.

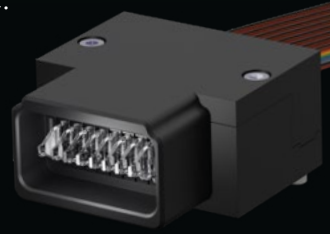
TRANSCEIVER

ODU provides the complete end-to-end solution including lens based optical transceiver to ensure maintenance free operations.



ODU BACKPLANE

The backplane solution connects the modules to the mission computer and allows them to be quickly replaced. Thanks to its insensitivity to dust and pollution, it allows for a quick and easy maintenance. The connectors are available in three different dimensions, as defined in upcoming VITA 96 Type A, 96 Type B and 96 Type C.



ODU AMC® Series T

The ODU AMC® Series T is an advanced circular connector qualified based on MIL-DTL 38999 standards. The I/O connector is available with push-pull or thread mechanism and provides perfect data integrity with a smaller outer diameter and higher fiber density than traditional solutions.

ODU TACTICS

Combining the proven design of the 38999, Series III connectors with the highly innovative Expanded Beam Performance technology, the VITA 95 interconnect system takes fiber optic transmission in aircraft to a new level.

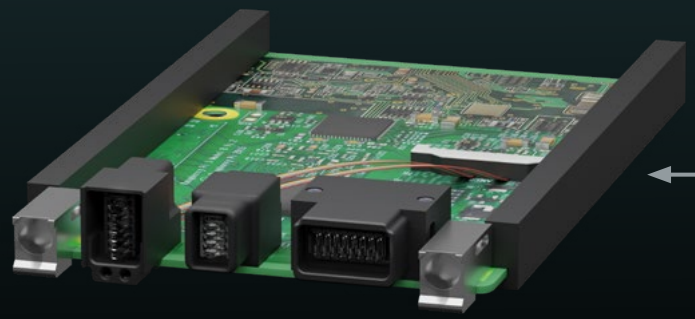
ODU BACKPLANE

VITA 96

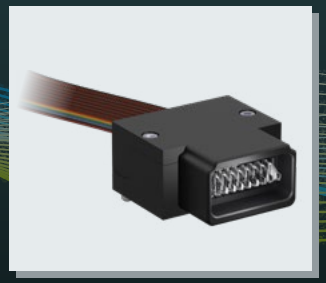
ODU BACKPLANE meets the stringent requirements of upcoming VITA 96, designed for demanding defense and aerospace systems.

Key features and benefits of ODU BACKPLANE

- **Durability and reliability**
  ODU BACKPLANE connectors are durable and deliver excellent transmission performance even after many mating cycles without cleaning.
- **Compatibility and modularity**
  Featuring standardized cut-out dimensions, ODU BACKPLANE can be easily integrated into existing and new systems. Integrators can choose from three versions with up to 96 fibers.
- **Ease of maintenance and longevity**
  Designed for low maintenance and durability, ODU BACKPLANE connectors reduce operation costs.
  – > 10,000 mating cycles
  – No cleaning necessary

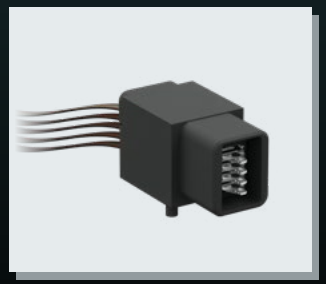


BOARD



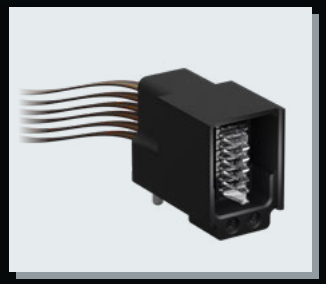
VITA 96 Type A
Up to 96 fibers

- Drop-in replacement for VITA 66.1



VITA 96 Type B
Up to 48 fibers

- Drop-in replacement for VITA 66.4



VITA 96 Type C
Up to 72 fibers

- Drop-in replacement for VITA 66.5

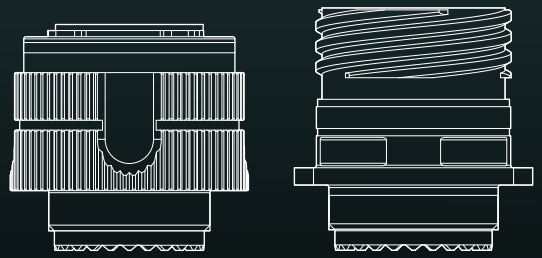
ODU TACTICS

VITA 95

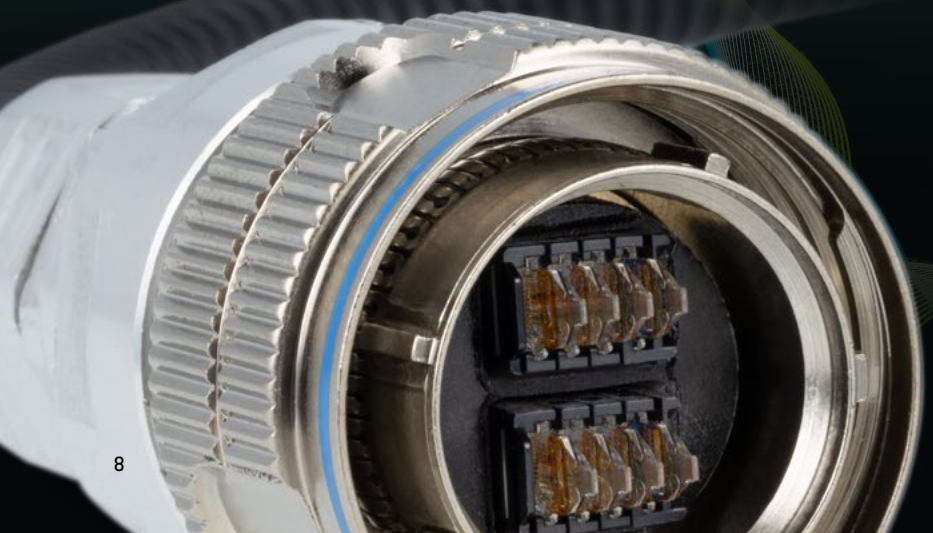
The ODU TACTICS solutions combine trusted 38999, Series III housings with innovative fiber optic technology. Fulfilling the harshest environments, this interface will be standardized in upcoming VITA 95.

With a selfsecuring locking mechanism and robust plating, the connection and data transfer remain in place, even under strong environmental stress.

Proven in military and aerospace applications for many years, the MIL-DTL-38999, Series III connectors meet all the requirements to perfectly fit the needs in the field. The lensbased Expanded Beam Performance takes this proven technology to the next level.



Plug Receptacle



VITA 95			
Shell size 11	Shell size 13	Shell size 15	Shell size 17
up to 24 fibers	up to 48 fibers	up to 72 fibers	up to 96 fibers
∅ 25.0 mm*	∅ 29.4 mm*	∅ 32.5 mm*	∅ 35.7 mm*

* Diameter is plug outer diameter

Features and benefits

- Light-weight aluminum MIL-38999, Series III connector
- Highly reliable connection due to trusted technology

Learn more about the VITA portfolio

ODU AMC® Series T connectors combine space saving, easy handling and no need for cleaning. Qualified based on MIL-STD 38999, the versatile circular is a highly robust connectivity solution, tailored to the demands of modern aircraft. Lighter, stronger and smaller than common 38999-connectors, the Series T provides the best connections possible.

- Waterproof in accordance with MIL standard 810
- Operating temperature range from –65 °C / +105 °C
- 5,000 mating cycles
- High flexibility thanks to push-pull or thread-lock technology
- RoHS compliant design

VPX Mission Computer

ODU AMC® Series T

Versatile I/O connector

As the ultimate connectivity solution for applications in the defense and aerospace field, this extremly robust connector provides a highly secure connection. The available screw-lock and push-pull locking mechanism negate the danger of losening due to vibration. Furthermore, the series provides mechanical and color coding, as well as a full mate indicator and haptical feedback. Thanks to its light aluminum housing, plated with tin-nickel, the connector fits perfectly into the weightsaving principle of state of the art aircrafts. Series T receptacles are available as square flange solution, following MIL-38999 cut-out dimensions, as well as Jam-Nut with an even smaller footprint.

Shell size* 9

∅ 18.4 mm**
up to 24 fibers

Shell size* 12

∅ 24.9 mm**
up to 48 fibers

Shell size* 14

∅ 27.9 mm**
up to 72 fibers

Shell size* 16

∅ 30.9 mm**
up to 96 fibers

* Shell size applies to ODU AMC® Series T, ** Diameter is plug outer diameter

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All dimensions are in mm.
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