

Arbit Data Diode 10GbE

Secure One-Way Data Transfer protecting mission critical systems

The Arbit Data Diode is a high-assurance unidirectional receiver module designed to provide hardware-enforced one-way communication in sensitive and classified environments. With no physical transmit capability and certified to Common Criteria EAL7+, the diode ensures absolute data isolation and leakage prevention. Deployed in national defense, intelligence, SCADA, and secure enterprise networks, the Arbit Data Diode provides guaranteed optical receive-only enforcement using a Receiver Optical Sub-Assembly (ROSA*) without any Transmitter (TOSA**).

* ROSA (Receiver Optical Sub-Assembly): Hardware component that receives incoming optical signals and converts them into electrical signals.
** TOSA (Transmitter Optical Sub-Assembly): Not present in this module – ensures strict one-way behavior by eliminating transmission.



Product overview

Product Name: Arbit Data Diode 10GbE

Product Type: Unidirectional SFP+ Receiver Module (RX Only)

Manufacturer: Made in Denmark by Arbit Cyber Defence Systems ApS

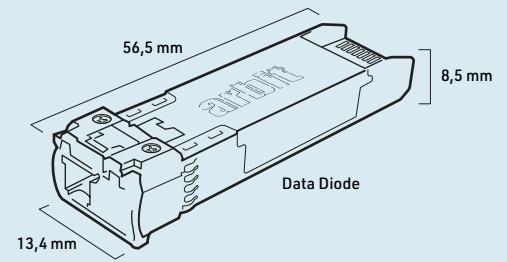
Function: Hardware-enforced optical receiving for unidirectional (data diode) environments. Incorporates a ROSA for secure data intake without any physical means of signal transmission.

Security and Compliance

- ▶ EAL7+ Certified – Common Criteria Certification by BSI Germany (evaluated by TÜV iT)
- ▶ NATO COSMIC TOP SECRET & EU TOP SECRET accredited
- ▶ Hardware-Enforced Isolation – No TOSA or outbound data path
- ▶ Firmware-Free Design – No software attack surface or update risk
- ▶ Compliance: CE marked
- ▶ Mechanical Standard Conformance: SFF-8431 Rev. 4.1

Technical Specifications

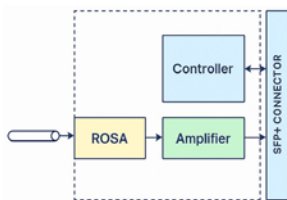
Data Rate	10GbE (1GbE optional)
Wavelength	1310 nm
Connector Type	LC (single)
Transmission Distance	Source dependent
Dimensions (L×W×H)	56.5 × 13.4 × 8.5 mm – compliant with SFF-8431 specification
Power Supply Voltage	3.3V
Power Konsumption	Max. 0.3W
Operating Temperature	-20°C to 85°C (Extended support down to -40°C possible with preheating in ruggedized configuration)
Storage Temperature	-40°C til 85°C



Operational Integrity

- ▶ No physical transmission capability – TOSA absent
- ▶ Unidirectional enforced at hardware level
- ▶ No runtime logic, control surface, or software
- ▶ Immune to remote control or signal injection
- ▶ Compliant with formal assurance and high-secrecy domain requirements

Hardware Architecture and Security Model



The Arbit Data Diode enforces strict one-way data reception by physically eliminating any optical or electrical transmit path. The module integrates a Receiver Optical Sub-Assembly (ROSA) only – with no transmitter (TOSA) present – making outbound communication physically impossible. Additionally, the data path from the optical interface is isolated from system control logic, ensuring passive, deterministic behavior.

This design ensures:

- ▶ **No physical transmit capability** – The module contains no TOSA or circuitry capable of generating optical signals.
- ▶ **Immutable receive-only logic** – The ROSA signal is passed through a static, analog electrical path without runtime control or modulation.
- ▶ **Resilience against host compromise** – Even if the host system or interface is compromised, no mechanism exists to generate or send data outward.
- ▶ **Support for high-assurance deployments** – The diode's architecture aligns with EAL7+ requirements and formal verification models used in classified environments.

Ordering Information

Product Code

AR-201

Description

Arbit Data Diode 10 GbE SFP EAL7+ (ROSA)

Support and information



support.arbitcds.com