



Network Critical
The Window to your Network™

Data-diode™

End to End Visibility

DATA SHEET



Logical vs. Physical Data Diodes

In OT environments, both logical and physical data diodes provide secure, unidirectional traffic flow but differ in how enforcement is achieved and where they are most effective. Each approach addresses specific operational challenges while maintaining the highest standards of security and reliability.

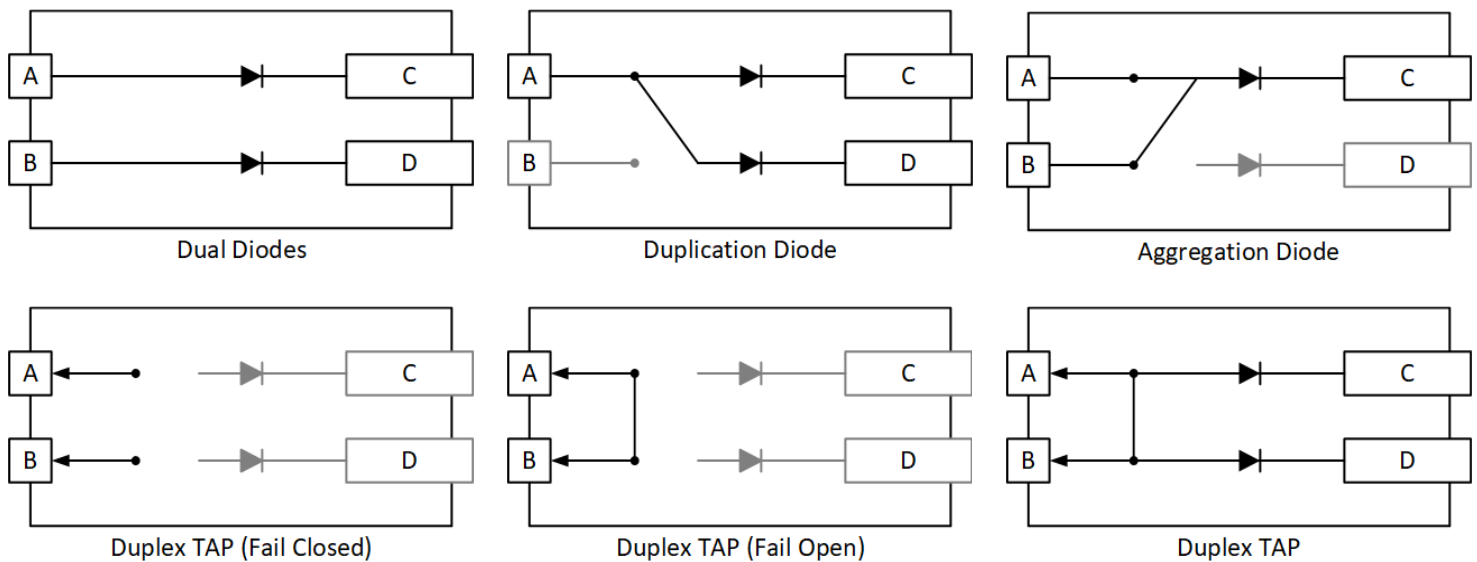
Logical Data Diodes (Copper)

Logical diodes enforce one-way flow through firmware or software logic within hybrid TAP modules. They are valued for their adaptability, allowing operators to enable, disable, or adjust one-way enforcement through configuration without replacing hardware. This flexibility makes them particularly effective in OT environments where network designs evolve or where monitoring requirements change frequently. By integrating with advanced visibility features such as filtering, aggregation, and load balancing, logical data diodes also support operational efficiency, ensuring tools receive only the data they need while maintaining secure one-way transfer.

Physical Data Diodes (Circuitry)

Physical diodes enforce unidirectional traffic at the hardware level, using immutable fibre design that guarantees information can only move in one direction. Unlike logical enforcement, which can be configured, physical data diodes cannot be bypassed by software errors, misconfiguration, or malicious activity. This absolute approach provides maximum assurance, making physical diodes well-suited to mission-critical OT environments where downtime, compromise, or data leakage is unacceptable. They establish a trusted barrier between secure operational networks and less secure domains, ensuring compliance and long-term protection of sensitive assets.

Data Diode/TAP Functional Configurations



The NCT-1000 Portable Ethernet Data-Diode

is a ruggedised, enclosed device designed for secure, hardware-enforced unidirectional monitoring of 10/100/1000Mb network environments, including legacy infrastructure. Its compact form factor allows it to be deployed in mobile, temporary, or industrial setups where permanent data-diode installation is not practical. With flexible mounting options such as DIN rail support, a 12-24V DC power input, and no reliance on batteries, the NCT-1000 is resilient in harsher conditions and ensures fail-safe operation that protects the live network link even during power loss.

By utilizing physical optical fiber links—where light travels exclusively from transmitter to receiver—a reverse data path is physically impossible. Unlike software-based firewalls that are vulnerable to misconfiguration or hacking, the NCT-1000 builds its security directly into the physical layer and hardware physics, maintaining a strict air-gap function that blocks malware infiltration, data leaks, and remote command attacks. Equipped with dual gigabit monitor output interfaces to replicate traffic to multiple analysis tools, it requires no configuration and provides instant, cost-effective deployment for rapid troubleshooting and secure visibility in mission-critical environments.



SELECTED PART NUMBERS (More Module types are available on request)

SNAC1-AC	SmartNA 1U Chassis, [4] TAP Module Slots, [1] Controller Module Slot, [2] AC PSU
SNAC0-AC	SmartNA Portable Chassis, (1) Module Bay, (2) AC External PSU
SNAE-RJ6v3	SmartNA Secure Controller Module, (RJ45)
SNAM-RJSF2-TX	Tap Module 10/100/1000 Breakout, Aggregation and Regeneration TAP 2 Copper RJ-45 & 2 SFP cages-TX only Ports C&D
NCT1010	SmartNA Data Diode, (2) 10/100/1000BASE-T, (2) SFP, DIN Rail Mount, 12-24VDC

For more information about our data-diodes, please visit www.networkcritical.com

For quotes and inquiries, please contact sales@networkcritical.com