PDD1 Passive Data Diode

Send OT data to IT. Nothing comes back.



PDD1 module, 100 x 80 x 10 mm, with its three 0.3 m fibre leads and LC/UPC connectors.

PDD1 is a single-channel fibre-optic data diode. It carries light from the OT network to the IT network, and an optical isolator blocks the reverse direction. The one-way path is a property of the hardware: there is nothing in it to configure, patch or switch off.

Inside the module there are only a 90/10 fibre splitter, a fusion splice and an optical isolator. No electronics, no power connection, no code.

Typical uses: historian and SCADA data to IT, syslog and alarms to the SOC, one-way file transfer, remote plant monitoring, temporary links for audits.

Software on both sides: the hardware fixes the direction; one-way software on the OT and IT hosts moves the data, for example historian replication, file transfer or syslog forwarding.

One way by construction, not by configuration.

No power	No electronics	No firmware	No battery
No configuration	No maintenance	No heat	No return path

Key benefits

One way by physics
The return direction is blocked by a Faraday optical isolator. No software decides it, so no software can undo it.

Fully passive
No power supply, no battery, no chips, no firmware. Zero watts, zero heat.

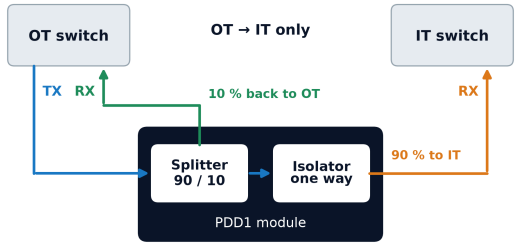
Install and forget
Nothing to update, license or patch. No fans, no electronics reaching end of life.

Fits your existing network
Standard 1310 nm single-mode SFP ports on switches, servers or one-way gateways. LC/UPC connectors.

Normal link on the OT side
10 % of the OT light goes straight back to the OT port. The OT switch shows link up, although nothing comes back from IT.

Check it yourself
Send light into the IT lead and measure the OT side with an optical power meter.

Inside the module



90 % of the OT light goes through the isolator to IT. 10 % returns to the OT port to keep its link up.

Installation

1. Connect the OT switch SFP: TX to lead A-TX, RX to lead A-RX.
2. Connect lead B-RX to the RX of the IT switch SFP.
3. Leave the IT switch TX unconnected and fit its dust cap.
4. Run one-way software on both hosts, for example UDP streams or one-way file transfer.

Technical specifications

Optical	
Channels	1 one-way channel, OT to IT
Wavelength	1270 to 1350 nm (tested at 1310 nm)
Fibre	Single-mode 9/125 µm (OS2)
Insertion loss OT → IT	0.78 dB typical
OT link indication	10 % of OT light returned to OT port
Data rate	Set by the SFP optics. No electronics in the path
Compatible optics	1310 nm SM SFP, e.g. 1000BASE-LX. 10GBASE-LR after link-budget check
Protocols	Any one-way protocol. There is no acknowledgement path
Fibre leads	
A-TX	OT in, from OT switch TX
A-RX	OT link indication, to OT switch RX
B-RX	IT out, to IT switch RX
Leads	0.3 m, 900 µm buffered fibre, LC/UPC
Physical	
Dimensions	100 x 80 x 10 mm (L x W x H)
Housing	ABS box, leads exit on the short edge
Mounting	4 notches Ø3.4 mm, pattern 74.6 x 70 mm
Rack versions	PDD6 and PDD12 in 19″ 1U
Environmental	
Power and heat	0 W, no power connection
Maintenance	None
Ordering information	
BMG-PDD1	PDD1, 1 channel, module
BMG-PDD6-1U	PDD6, 6 channels, 19″ 1U
BMG-PDD12-1U	PDD12, 12 channels, 19″ 1U