

Data Diodes

A data diode is a one-way communication device. They are used to add security by allowing data to move freely out of a secure area, but not allowing any data to pass into the secure area.

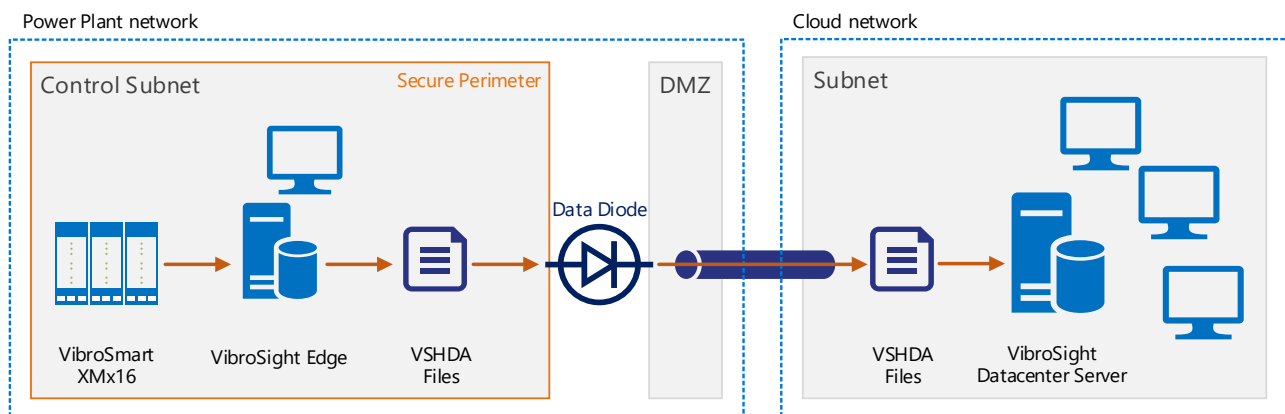
This may sound similar to a firewall or a gateway but there is an important difference. A data diode is developed in such a way that it can never be configured so that data can pass the other way, no matter how much time or resources a hacker may have.

This is typically achieved by using physical hardware on each side of the box. One side is only capable of transmitting and the other side is only capable of receiving. This is most often achieved by using fibre optics.

A data diode is very useful in very secure environments. Typically, highly secured environments are never exposed to the internet, because even firewalls and network hardware can potentially be hacked and reconfigured. However, a data diode is provably un-hackable. The only way it can be exploited is if the attacker walks right into the secure area and removes/replaces the data diode.

This product enables remote *monitoring*, without allowing remote access. It can still be considered as effectively an air gap, but still allowing communication in one direction. Malware cannot exploit their primary function, and the system does not require security oversight/management/regular patching. It just works, securely, forever.

Below is an illustration of how a data diode could be used in conjunction with a Meggitt solution for remote monitoring.



Meggitt have performed extensive testing in collaboration with two companies manufacturing data diodes to ensure compatibility with our hardware and software.

OWL

OPDS Series

Pictured below are their OPDS series in two form factors, rack and DIN rail.

The number (OPDS-100 vs OPDS-1000) indicates the maximum throughput the box can support in megabits per second. They limit the speed to 5 Mb/s, and as software upgrade can be purchased to increase up to the maximum. For Meggitt's use case, we typically have low bandwidth requirements, where 5 Mb/s should be sufficient.

The OPDS series are highly configurable, supporting all of the protocols listed in this document, and potentially others on request.



DiOTa

OWL also have a product called DiOTa (pictured below), which is a much simpler device. It supports a maximum speed of 5 Mb/s. In terms of protocols, it supports TCP, UDP, Syslog, Modbus and OWL's proprietary file transfer protocol.



Genua

Genua are a German security company who have a number of different security solutions, including their cyber diode product. This product works under a different principal than the optical fibre used by OWL. Instead, they have developed their own OS kernel, which segregates memory and controls the flow between memory segments.

It is easier to verify the one way functionality of a fibre diode compared with the Genua diode since the trusted elements of the system are much simpler with a fibre solution.

In terms of protocols, the cyber diode supports OPC-UA, FTP, SMTP, TCP, UDP and Syslog without any upgrade licencing required. The maximum bandwidth is 380 Mb/s, with no rate limiting based on software licencing.

The cyber-diode comes in a DIN rail format.

