

DIODOS



SECURE ONE-WAY OT-TO-IT DATA MOVEMENT

INDUSTRIAL DATA DIODE & OT-TO-IT MIDDLEWARE

Move operational data out of protected OT environments without creating a return path back in. Diodos combines hardware-enforced one-way transfer with protocol conversion and controlled delivery to approved IT systems.



PROTECTED OT ENVIRONMENT

Safety. Reliability. Availability.



ENTERPRISE IT ENVIRONMENT

Insights. Decisions. Outcomes.



ISOLATE



COLLECT



CONVERT



TRANSFER



DELIVER

VISIBILITY GOES OUT. TRAFFIC CANNOT COME BACK IN.



SECURITY BENEFITS

Built for environments where inbound paths are unacceptable.

Firewalls remain essential, but they are software-defined and bidirectional by design. Didos adds a different kind of boundary: a transmit-only optical path between separate OT-side and IT-side computers.

The result is a security model that is easy for plant leadership, cybersecurity teams, and auditors to understand: operational data may leave OT, but network traffic has no physical route back in.



OPERATIONAL CONTROLS

- ✓ Approved source list
- ✓ Configured destination scope
- ✓ Protocol authentication
- ✓ TLS / certificate validation
- ✓ Least-privilege credentials
- ✓ Protected local storage / buffering

KEY SECURITY ADVANTAGES



No return path

Data can leave OT, but nothing can come back in.



No inbound sessions

No inbound connections, sessions, or listening services.



Reduced attack surface

Eliminates entire classes of network-based threats from IT into OT.



Outbound-only data movement

One-way optical path ensures enforced data directionality.



Easier audit explanation

Simple, easy-to-validate model that stands up to audits and reviews.



Aligned with segmented OT environments

Supports best practices for secure architecture and zoning.



Security built in. OT protected. Data moved safely.



WHAT DIODOS IS

A hardware-enforced data diode appliance powered by OTDataMule.



1 COLLECT

The South / OT Collector reads approved operational data from protected OT sources.



2 NORMALIZE

OTDataMule prepares, validates, and normalizes the data into a controlled internal flow.



3 TRANSFER

A transmit-only optical path moves the data one way, from OT toward IT, with no network return route.



4 DELIVER

The North / IT Forwarder converts and sends the data to approved enterprise systems.



TYPICAL OT SOURCES



OPC UA



OPC XML-DA



Modbus



MQTT



Files / CSV



Databases



TYPICAL IT DESTINATIONS



Database



Historian



MQTT



Web API



Files / CSV



Monitoring tools



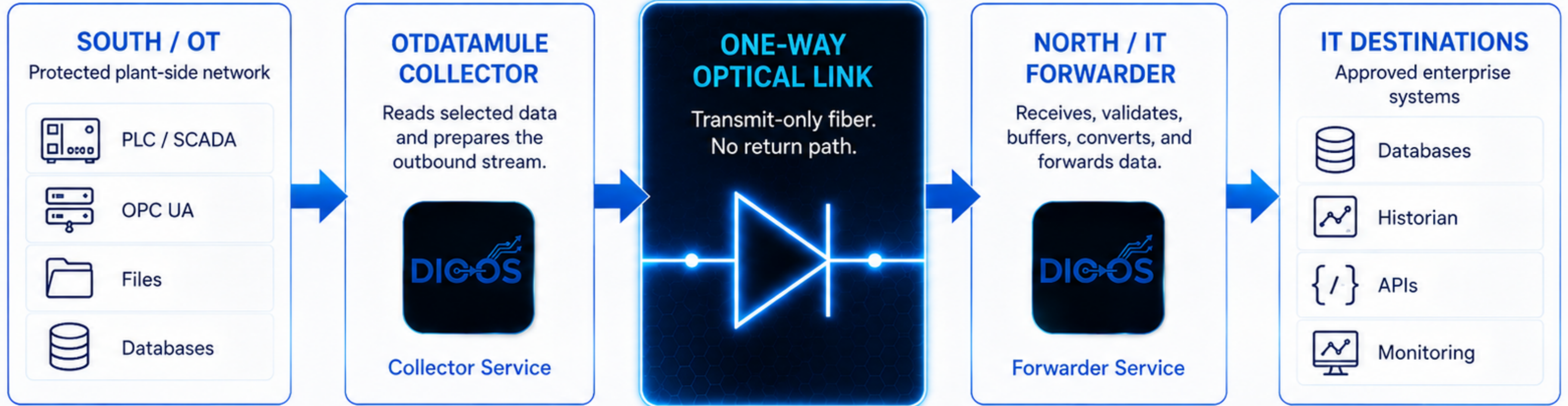
Diodos combines physical **one-way** isolation with **practical protocol middleware**.





SECURE ONE-WAY ARCHITECTURE

OT-to-IT movement with a hard physical boundary.



WHY THIS MATTERS



No inbound route into OT



Clear separation of responsibilities



Controlled policy-based data movement



Simple security story for assessors and auditors



Visibility may cross the diode. Network traffic **may not**.



PROTOCOL CONVERSION & CONTROLLED DELIVERY

Turn industrial protocols into IT-ready data flows.



Diodos is not only a physical data diode. Powered by OTDataMule, it also acts as protocol middleware that reads, normalizes, maps, and delivers data in the format required by approved IT systems.

FEATURED USE CASE



OPC UA → DATABASE

Collect selected values from an OPC UA source and deliver them securely into a structured enterprise database.

EXAMPLE CONVERSIONS

SOURCE	DIODOS ROLE	DESTINATION
 OPC UA	Read, normalize, deliver	 Database
 OPC UA	Read, normalize, publish	 MQTT
 OPC XML-DA	Read legacy OPC data	 Database / Historian
 Modbus	Read registers, normalize	 Database / MQTT
 Files / CSV	Parse, validate, route	 Database / API
 SQL Source	Read selected data	 CSV / Database



One-way transfer plus protocol conversion creates practical OT-to-IT interoperability.



THE CHALLENGE

Industrial teams need visibility without inbound exposure.

Plant operations generate valuable data in control systems, SCADA platforms, historians, PLC-connected machines, databases, and industrial applications.

At the same time, IT and cybersecurity teams need that data for reporting, monitoring, analytics, compliance, and decision-making.

THE GOAL IS DATA ACCESS – NOT OT EXPOSURE.

Teams need operational visibility, but they do not want inbound sessions, remote commands, or routable return paths into the plant network.



OT SOURCES



OPC UA



OPC XML-DA



Modbus



SCADA / PLCs



Files / CSV



Databases



WHY CONVENTIONAL INTEGRATION IS HARD

- Different protocols and data models
- Network segmentation and security requirements
- No direct IT-to-OT access desired
- Point-to-point integrations are hard to scale



IT & SECURITY NEEDS



Dashboards



Databases



Historian



SOC /
Monitoring



APIs /
Applications



CHOOSE THE RIGHT MODEL

Two clear options for focused or plant-wide one-way data movement.

DIODOS SMALL



100

tags / second

Ideal for edge deployments, proof-of-value projects, individual production cells, and focused source-to-destination workflows.

- ✓ Up to 100 tags/sec at OT ingress
- ✓ Same physical one-way protection
- ✓ Full protocol conversion
- ✓ A focused OT-to-IT flow

DIODOS PLANT



10,000

tags / second

For larger industrial sites that need continuous plant-wide middleware, broader operational visibility, historian replication, or higher-volume reporting flows.

- ✓ Up to 10,000 tags/sec at OT ingress
- ✓ Multiple mapped data paths
- ✓ Continuous plant-wide delivery
- ✓ Same physical one-way protection

WHICH ONE FITS?



POC / pilot



Single line or cell



Area-wide deployment



Plant-wide deployment

BETTER FIT FOR DIODOS SMALL

BETTER FIT FOR DIODOS PLANT



Capacity depends on signal rate, mapping complexity, and destination requirements.



START WITH A POC

Prove secure OT-to-IT value with one focused data flow.



FEATURED POC: OPC UA → DATABASE



Collect selected operational values from an OPC UA source and deliver them securely into an approved enterprise database without exposing a return path into OT.

WHAT A GOOD POC PROVES

- ✓ Secure connection established
- ✓ Selected data collected
- ✓ Data normalized internally
- ✓ One-way transfer demonstrated
- ✓ Destination receives correct data
- ✓ Firewall and routing assumptions documented
- ✓ Security teams understand the boundary
- ✓ A reusable OT-to-IT pattern is confirmed

START SMALL

1 SOURCE
Choose one OPC UA source to collect from.

1 DESTINATION
Deliver to one approved enterprise system.

1 HIGH-VALUE DATA FLOW
Focus on the data that delivers immediate value.

Powered by **OTDataMule** for collection, conversion, and controlled delivery.



PLAN YOUR DIODOS PROOF OF CONCEPT

Start with one source, one destination, and one high-value use case.

