



BYTESCREEN

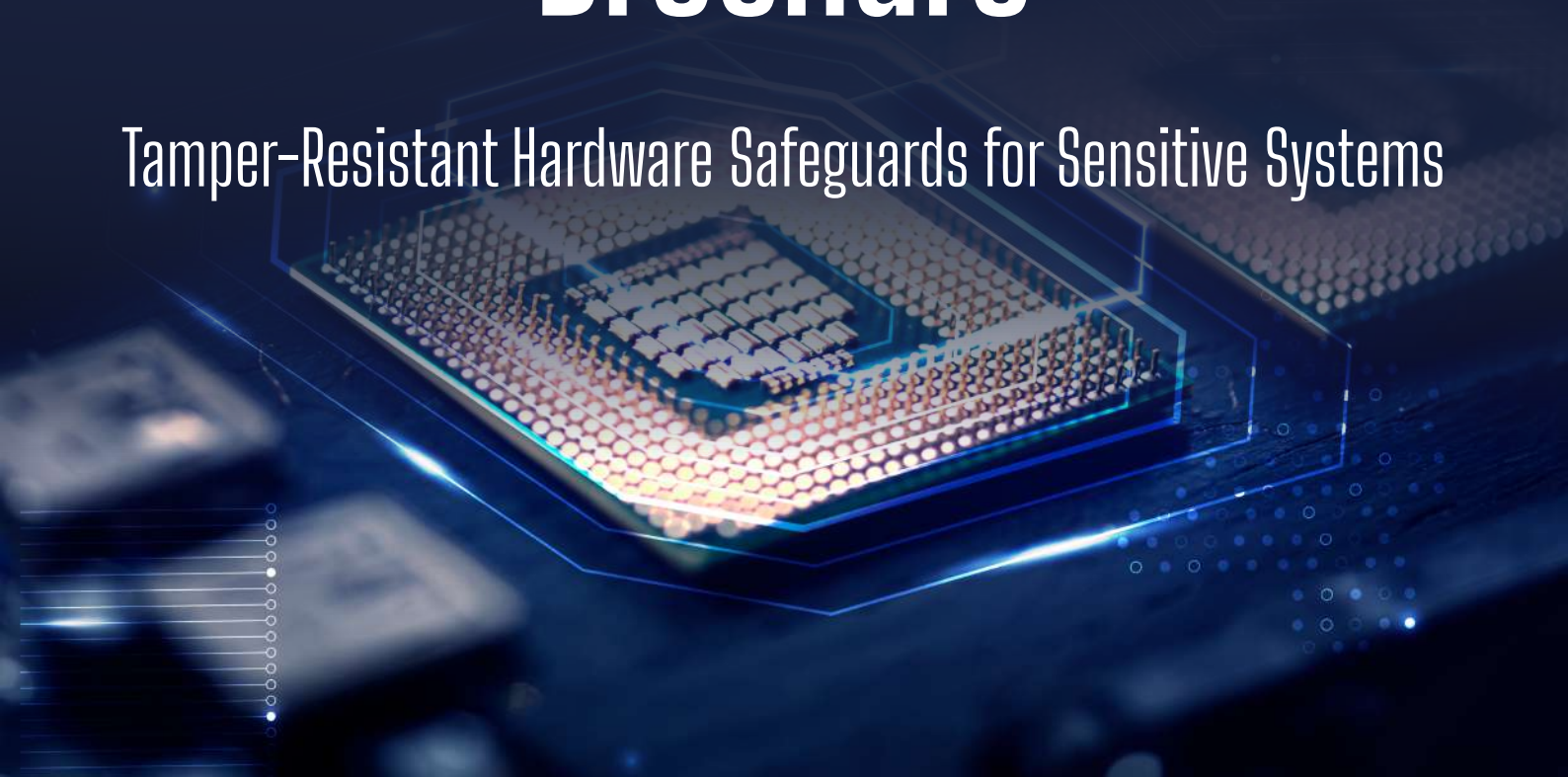
| **CONNECT • DETECT • PROTECT** |

BYTESCREEN DATA DIODE

ABSOLUTE UNIDIRECTIONAL NETWORK SECURITY

BT-UNIGATE Brochure

Tamper-Resistant Hardware Safeguards for Sensitive Systems



Current Challenges in Cybersecurity

OUR NETWORK PERIMETER IS UNDER CONSTANT ATTACK

In today's hyper-connected world, the lines between IT (Information Technology) and OT (Operational Technology) / critical infrastructure networks are blurring. While connectivity brings efficiency, it also exposes sensitive systems to unprecedented risks:



Cyber Espionage

Stealing sensitive intellectual property or classified information



Malware & Ransomware

Disrupting operations, holding data hostage.



Data Breaches

Leaking confidential customer, financial, or operational data.



Sabotage

Malicious attacks targeting critical infrastructure control systems.

Firewalls are necessary, but are they sufficient? Firewalls and other software-based security measures can be complicated, improperly set, or vulnerable. A more basic method is needed for networks that require the highest level of guaranteed separation.

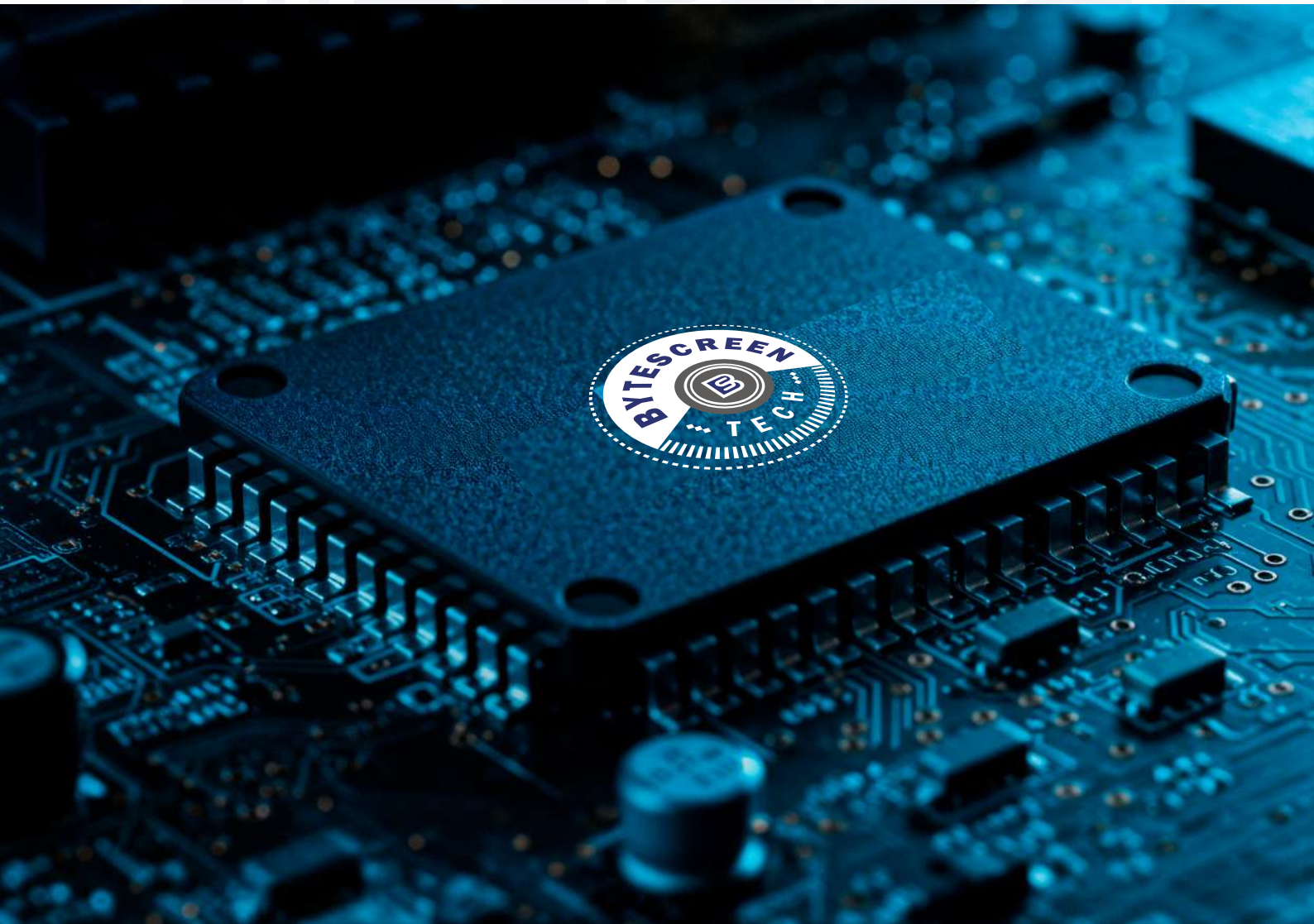
INTRODUCING THE BYTESCREEN DATA DIODE SOLUTION

GUARANTEED ONE-WAY DATA FLOW. PERIOD.

The BYTESCREEN Data Diode is more than simply an additional layer of security; it physically prevents data from moving in the wrong way.

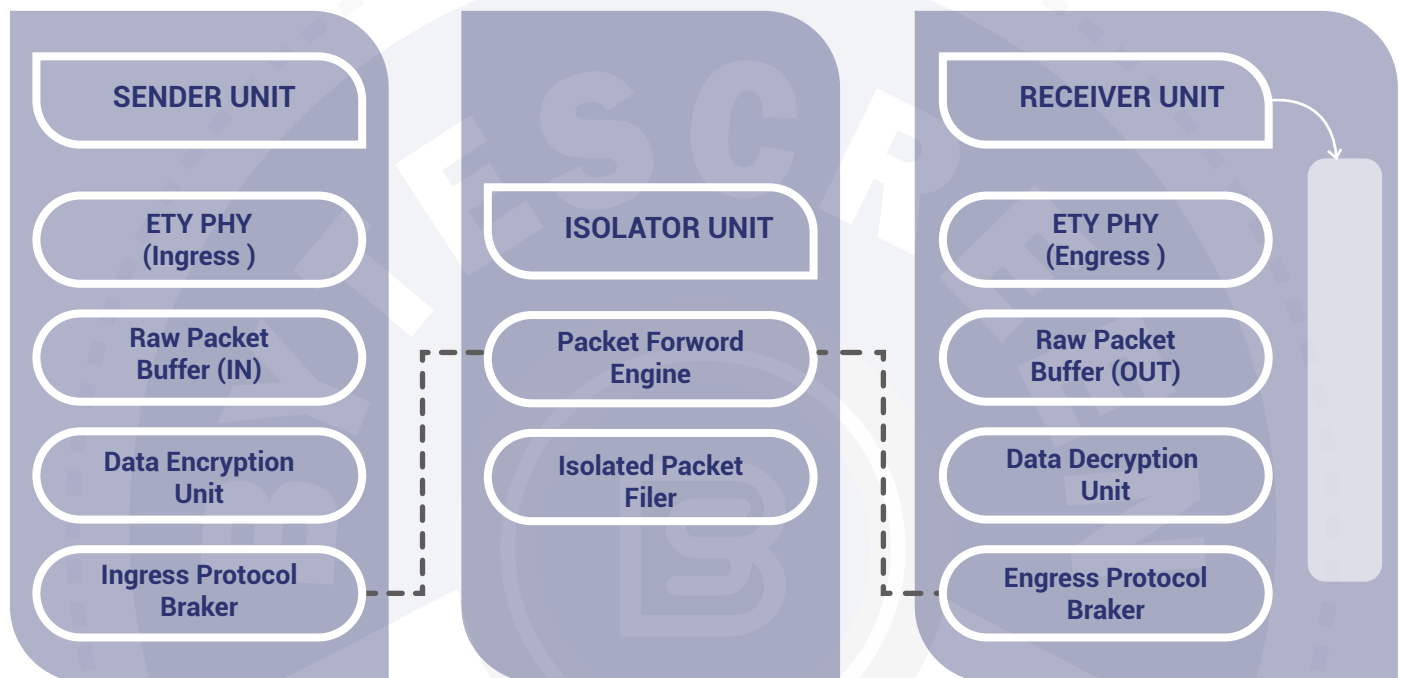
A Data Diode: What Is It?

One cybersecurity tool that ensures unidirectional data transit between networks is a data diode. In order to create an impenetrable air gap for data going in the opposite way, it uses a physically secure design, which frequently involves fiber optics with separate transmit and receive gear.



FUNCTIONALITY

Flow of Traffic It's crucial to provide direction and stop any undesired traffic flow. In order to guarantee unidirectional traffic flow, the following functional components are essential. Hardware security was used to implement this unidirectional flow in the BYTESCREEN UNIGATE system. It is not possible to reverse the direction of communication since there are no logical pathways for data to move backward via. Furthermore, reverse packets sent from egress ports are rejected both inside the isolate unit and at egress ports.



HOW IT WORKS: IMAGINE TWO SEPARATE CIRCUITS

1. The source network's Transmit-Only circuit.
2. The destination network's Receive-Only circuit.

Data does not physically return to the source from the destination. Data can only move inside to a monitored network or outward from a protected network, never both ways on the same connection, thanks to this hardware enforcement.

The Benefit of BYTESCREEN: Our hardware-neutral data diodes are designed for dependability, efficiency, and smooth integration, offering strong security that is customized to meet your unique requirements

KEY BENEFITS OF BYTESCREEN DATA DIODE

UNCOMPROMISING SECURITY AND RELIABILITY



Absolute Unidirectional Security

Hardware guarantee prevents any data flow against the configured direction. Eliminates threats associated with bidirectional communication vulnerabilities.



Prevents Data Leakage

Ensures sensitive or classified data cannot leave the secure network enclave accidentally or maliciously.



Blocks Malware Infiltration

Prevents viruses, ransomware, and other malicious code from entering & compromising protected networks from less secure sources.



Ensures Network Segmentation Integrity

Creates deterministic, hardware-enforced separation between networks of different trust levels (e.g., IT and OT).



Supports Regulatory Compliance

Helps meet stringent security requirements in industries like Defense, Energy, Finance, and Healthcare (e.g., NERC CIP, GDPR, specific government mandates).



High Reliability & Low Complexity

Hardware-based solution means no complex software, patches, or configurations that could introduce vulnerabilities. "Set and forget" security.



Real-time Monitoring

Allows safe, one-way transfer of logs, sensor data, and alerts from secure networks to monitoring centers without risk.

INDUSTRY USE CASES: SECURING CRITICAL OPERATIONS

PROTECTING DIVERSE SECTORS WITH BYTESCREEN DATA DIODES

Data Diodes are essential wherever absolute network separation is paramount

1. Critical Infrastructure Protection

Example: Power grids, water treatment facilities, oil & gas operations.

Why: To transmit data (e.g., sensor logs) from critical OT (Operational Technology) systems to IT/monitoring systems without exposing the OT systems to external threats.

2. Military & Defense

Example: Classified networks pushing situational data to lower classification zones.

Why: Prevents leaks or attacks from less secure systems while allowing information dissemination.

3. Industrial Control Systems (ICS)

Example: SCADA systems in manufacturing.

Why: To log or monitor production without risking remote access to control systems.

4. Financial Institutions

Example: High-security transaction processing zones.

Why: Push reports to data lakes or compliance systems while isolating the core transaction systems.

5. Air-Gapped Systems

Example: Secure environments with no internet access.

Why: Allow one-way data export (e.g., logs, updates) without compromising the isolation.

6. Healthcare:

Example: Protecting sensitive Patient Health Information (PHI) databases.

Why: Securely transferring data from medical devices or research labs without risk of infiltration.

SPECIFICATIONS

SUPPORTED FEATURES

Device Family	BYTESCREEN UNI GATEWAY DGX86
Product Name	BT-UniGate
Software Version	DGSVR_v1.0.ddmmyyyhhmm
Port type and quantity	2 x 1GbE/2x10Gb/2x100Gb
Power Supply	VAC 110-240V, 50-60Hz
USB Support	USB 3.0
Console Port	RJ45 Serial Port
Operating Voltage	110/230 VAC
Power consumption	75W
Switching	Flow Control (802.3X),Jumbo Frames, IP assignment, AES128/256 Bit Encryption,per packet key rotation, dual stage packet filter,
Redundancy Management	Multiple inline device SSHv2, HTTPS, SNMP v1/v2/v3
Diagnostics	MAC Notification, Device Status Indication, TCP Dump, LEDs, Syslog, Email Notification, Link Flap Detection, Overload Detection,
	Duplex Mismatch Detection,Link Speed and Duplex Monitoring, System Information, Self-Tests on Cold Start, Copper Cable Test, SFP Management.
Operating temperature	0 to 60 °C
Storage/transport temperature	-40 to 85 °C
Relative humidity (non-condensing)	below 95 %
Installation Type	19" Standard ETSI Rack installation

Ordering Information

BT-UG100	Bytescreen BT-UG100, 2 x 100Mbps/2x10Gb/2x100Gb, USB 3.0, RJ45 Serial Port, Power 75W
BT-UG1000	Bytescreen BT-UG1000, 2 x 1Gbps/2x10Gb/2x100Gb, USB 3.0, RJ45 Serial Port, Power 75W
BT-UG1000 plus	Bytescreen BT-UG1000 plus, 2 x 10Gbps/2x10Gb/2x100Gb, USB 3.0, RJ45 Serial Port, Power 75W

Need Help? Get BYTESCREEN Expert Support

Bytescreen offers direct OEM assistance through experienced professionals for product configuration and support. TAS advises customers on security best practices to enhance network reliability and prevent hacking attempts.

For Technical Assist: support@bytescreentech.com

WHY CHOOSE BYTESCREEN TECHNOLOGIES?

Bytescreen Tech is a next-generation technology company specializing in advanced network security and management solutions. With a strong focus on innovation, scalability, and enterprise-grade performance, Bytescreen delivers a comprehensive ecosystem that includes Next-Generation Firewalls, SD-WAN, Network Management Systems (NMS), Authentication & Access Solutions (AAA), and Network as a Service (NaaS).

Our mission is to simplify network complexity while enhancing visibility, control, and security across organizations of all sizes. Whether securing digital perimeters or streamlining operations, Bytescreen Tech empowers businesses with future-ready infrastructure—secure, efficient, and always connected.

Bytescreen – Where Networks Meet Intelligence & Trust.

BYTESCREEN DATA DIODE SOLUTIONS OFFER:

One-Way Communication: Prevents cyber threats from reaching critical assets.

Compliance Ready: Meets regulatory standards for high-security environments.

No Backchannel Risk: Hardware-enforced security; not dependent on software.

Ideal For: Defense, Critical Infrastructure, Energy, ICS/SCADA, and Government networks.

Secure One-Way Data Flow – Absolute Protection for Critical Systems

Bytescreen's Data Diode Solution provides unidirectional network security, enabling data to flow only in one direction—from secure internal systems to less secure external networks—ensuring air-gapped level protection without sacrificing operational efficiency.

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www.bytescreentech.com

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BYTESCREEN Tech Pvt Ltd stands firm in our mission to redefine the landscape of networking solutions through innovation, reliability, and customer-centricity. We are committed to pushing the boundaries of technology to deliver products and services that not only meet but exceed the evolving needs of our clients. As we continue to evolve & grow, our dedication to excellence remains unwavering. We invite you to explore our comprehensive range of networking solutions, tailored to empower businesses of all sizes and industries to thrive in the digital era. Whether you're seeking robust security measures, seamless connectivity, or advanced management tools, BYTESCREEN Tech is here to support your journey towards success.

Contact Details:

For inquiries, collaboration opportunities, or to learn more about how BYTESCREEN Tech can elevate your network infrastructure, please don't hesitate to reach out to us.

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www.bytescreentech.com