

DATASHEET • DATA DIODE PLATFORM

Data Flow Solution

ConnexONE — secure, guaranteed, integral delivery of data from a restricted network to a more open and widely accessible zone.

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ConnexONE Data Flow Solution

Data becomes the most valuable corporate asset of modern times. Company values are measured by the amount of relevant data, while a leakage may corrupt your reputation in the blink of an eye — so all your investment in time, money and effort would be insignificant.

On the other hand, we are living in an era of communication. Very fast, reliable and integral communication is today's de facto standard, which separates winners from old-fashioned strugglers. We need to find an exquisite balance between data security and communication, so daily operations work without compromising corporate values, government, operational performance or military secrets.

Above all security measures, **ConnexOne** provides a secure, guaranteed and integral delivery of data from a restricted and well-protected network to a more open and widely accessible zone. With limited physical connection, a single directional flow is created for data transfer. All valuable data is encrypted, fingerprint cleared and, when possible, masked before sending on an optional non-Ethernet-based link.

ConnexOne's modular software architecture and licence model provide easy integration and do not enforce unnecessary functions to be bought on day one, while making hardware replacement possible in case of a higher performance requirement.

Connexite promises to deliver. Your requirements need custom solutions, and no one should have to adapt to a pre-defined set of functions — instead the solution adapts to your requirements. Different businesses implement only the functional modules they need, and are free to request new protocol deployments without additional development costs.

Flexible Deployment

ConnexOne comes as two sisters — Guardian and Postman — residing on different networks. Guardian collects data from within the restricted network, prepares it for secure delivery and sends it to its sister. Postman receives the data and shares it with the final destination, or stores it for relevant users to access and download. Optionally, multiple Postman units can be deployed to spread data to more than one destination, and different hardware pairs are available based on bandwidth, disk and volume requirements.

LAYERED SECURITY

Protocol-based security measures can be applied to different data flows. Role-based operations for users with different privileges within a hierarchical layered structure can be created. All users can define security protocols and apply data masking and metadata clearing; administrators or master users define which protocols and file types are open for transfer, and the maximum file sizes — all security measures applied separately.

WIDE PROTOCOL SUPPORT

There is no limit on data generation within restricted networks — documents, photos, video surveillance, management systems and even extra-sensitive data may need to fly outside restricted networks. ConnexOne currently supports File transfers (PDF, DOCX, JPEG etc.), Video, SQL, Syslog, SNMP, MODBUS, OPC, PROFINET, MQTT, and is open to implement any other data type to be proxied over Guardian to Postman.

FUNCTION-BASED LICENSING

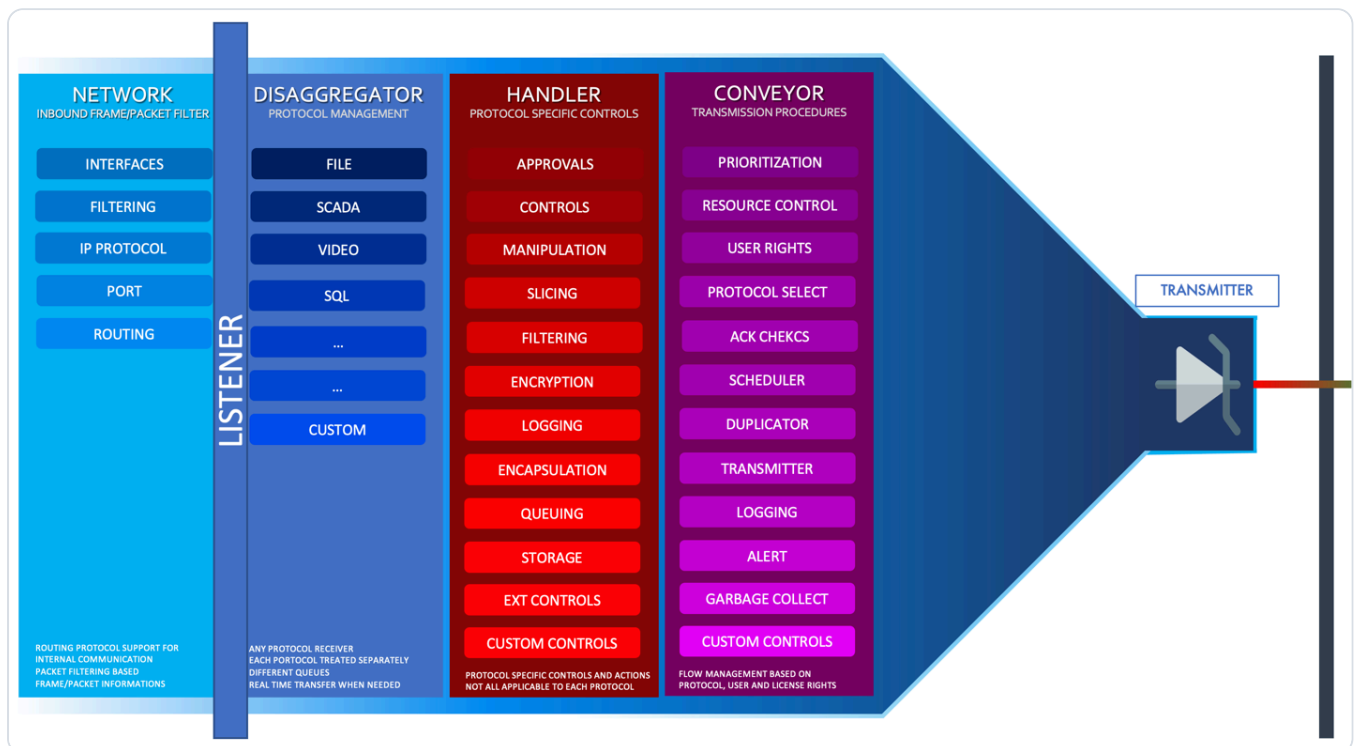
ConnexOne can provide multiple transfer options for different protocols, grouped under categories and performance metrics. Licensing is based on these categories with a layered approach — devices are capable of running all services simultaneously up to their resource limits, with flexible hardware replacement options available even without paying for extra hardware.

Different Hardware Flavors

Hardware is here only to provide the required medium for data flow. If one needs more function, appropriate hardware scaling is performed — from a small embedded server to a large multi-CPU server, all using the same operating system, configuration and management functions.

Protocol Support

ConnexOne's modular architecture allows any protocol data to be transferred in a secure, fast and reliable way, with no limitation on protocol support — making ConnexOne the world's first any-protocol-supported data diode. ConnexOne uses layered packet processing that allows different protocols to be implemented without affecting any other functionality, making any new protocol addition possible.



Network (inbound frame/packet filter) → Disaggregator (protocol management) → Handler (protocol-specific controls) → Conveyor (transmission procedures) → transmitter

All processes defined in different layers run separately, and adding new functions and features is possible thanks to Connexite-engineered software. This is not only limited to transferring a packet for a specific protocol — ConnexOne can also limit, filter, manipulate or block any data based on application and payload. Each protocol flow is handled with a different set of controls: an SQL schema delivery is subject to schema controls and any unwanted query can be denied and dropped, while a file transfer is subject to user approvals before sending out from the protected zone.

File Transfer

The basics of any data diode product is transferring simple files — any data diode, even unmanaged ones, can pass file transfer. ConnexOne adds many extra features beside simply switching single-way protocol packets.

An easy **web user interface** provides the simplest and most user-friendly option: users can access the ConnexOne web interface with practically any browser and upload files into the Guardian unit. If no control is defined, CX-Guardian securely transfers the file to CX-Postman. Optionally, **file controls** such as size, extension and type can be applied, and since file metadata could potentially contain sensitive information, there is an option to **clear all metadata** before transferring.

ConnexOne's **data masking** feature reads unencrypted files and replaces an administrator-defined pattern with another string or removes it completely. Transfer operations can also be integrated with other security tools through the **ICAP protocol** for further inspection — depending on the response, transfer may be aborted or alarms raised.

In mission-critical environments, files can require **manager/master/superior approval** before being accepted as transferable, with one or more approvers depending on the hierarchical structure. Unless all approvers accept the file within a configurable time period, it is denied for transfer.

VIDEO STREAM

With the ever-increasing use of surveillance solutions, video streams are now a significant part of total network traffic. ConnexOne relays camera traffic to remote destinations for view-only purposes, preventing any external commands from being sent back into the surveillance network. Video traffic is always encrypted on the fibre delivery and allows **10 simultaneous video streams**; different camera images can be transferred to distinct receivers, with this decision only applied from the CX-Guardian user interface — preventing any unauthorised user from changing the video destination.

Operational Technologies / OT Protocols

Data diodes play a critical role in protecting OT networks against cyber threats, acting as a secure bridge between OT and IT systems and controlling the flow of sensitive data. ConnexOne supports all widely used protocols in modern OT networks — **MODBUS, PROFINET, OPC and MQTT** are the most popular for information exchange, and ConnexOne supports all OT protocols, allowing data to be transferred between OT and IT and delivered to any destination on the IT side, regardless of the delivery protocol supported there.

ConnexOne natively supports all these protocols as a server — acting as a Modbus Slave, Profinet server, OPC-UA server, and MQTT broker and publisher. All are easily configurable, with secure communication options already in place for each.

SQL Schema Transfer and Replication

Today's databases work not only as raw data storage tables but act as a global repository for any kind of information — requiring the database structure to be kept safer and transactions to be more reliable. ConnexOne knows SQL schema structure and can deliver it over its secure connection, filtering unauthorised queries to protect SQL structure from unauthorised actions.

ConnexONE provides a web-based schema control interface to select which query types are allowed globally, per table, or even per field. Database replication is also possible using two pairs of ConnexONE, one for each direction, preventing any access from master to slave network even in case of compromise.

Packet Captures

Deep-dive analysis of distinct packets is sometimes required for full network control — and there may also be legal requirements that traffic flows be forwarded to government agencies for security operations. ConnexONE allows packet flows to be captured and forwarded to remote receivers, using everyday filtering patterns from tcpdump or Wireshark to select which packets are captured, and defining a remote destination for packet delivery.

Management Protocols

As IT-based operational processes increase, corporate IT administration requires more visibility — not just to monitor but to analyse and map IT services with business flows. ConnexONE can forward any management protocol flow to any receiver, even remote tools over wide-area connections, enabling greater visibility without compromising security, and even adding more precautions for older, less secure protocols' data delivery.

Product Ordering

SKU	DESCRIPTION
CNX-ONE-BASE	Base license, 4x1G Copper Interface, 1x1G Fiber Interconnect Interface, 50Mbps throughput, Basic File Transfer
CNX-ONE-RED	Redundancy hardware pair, to be used with high end ConnexOne devices
CNX-ONE-NET-100	100Mbps throughput license
CNX-ONE-NET-200	200Mbps throughput license
CNX-ONE-NET-500	500Mbps throughput license
CNX-ONE-NET-10G	10G Optical Interface License for ConnexOne pair
CNX-ONE-DDA-200	Additional 200GB Disk
CNX-ONE-DDA-500	Additional 500GB Disk
CNX-ONE-DDA-1TB	Additional 1TB Disk
CNX-ONE-DDA-2TB	Additional 2TB Disk

Feature Licenses

SKU	FEATURE
CNX-ONE-NET-100	100Mbps throughput license
CNX-ONE-NET-200	200Mbps throughput license
CNX-ONE-NET-500	500Mbps throughput license
CNX-ONE-NET-10G	10G Optical Interface License for ConnexOne pair
CNX-ONE-LIC-FILE	Advanced File Transfer license
CNX-ONE-LIC-OT	OT protocol license
CNX-ONE-LIC-VID	Video stream transfer license
CNX-ONE-LIC-SQL	SQL transfer license
CNX-ONE-LIC-MGN	Management Protocols License
CNX-ONE-MAN-API	API License
CNX-ONE-MAN-3RD	3rd Party Application Support
CNX-ONE-MAN-USR	User Management License

Software Specification

MODULE	DESCRIPTION
Operating System	Debian based Connexite OS
Protocol Support	Web File Transfer, Samba, Syslog, SNMP, Scada, Web API, Modbus, OPC, Profinet, SQL, MQTT
Security features	PKI Encryption Fingerprint cleaning, data masking, quarantine repository
User Management	Prioritization, user hierarchy, manager/staff binding, user-based feature access, directory services integration, file type, protocol type, quota management
Logging	Transfer audit, user violation, SIEM integration, alert management, external logging via custom API
Application support	ICAP based Antimalware, DLP
Management	Web interface, RestAPI, Mobile App
Customization	Protocol support, logging, tailored solutions

Hardware Specifications

MODEL	CPU FAMILY	CORE	ETHERNET	SFP	EXPANSION
CNX-ONE-1100	Intel Rangeley	2	4x1Gbps	—	—
CNX-ONE-1200	ARM Cortex	4	1xGbps	1x1Gbps	—
CNX-ONE-1400	ARM Cortex	4	4xGbps	2x2.5Gbps	—
CNX-ONE-2000	Intel Celeron	4	6x1Gbps	—	—
CNX-ONE-3200	Intel Denverton	2	6x1Gbps	2x10Gbps	1
CNX-ONE-3400	Intel Denverton	4	6x1Gbps	2x10Gbps	1
CNX-ONE-3800	Intel Denverton	8	6x1Gbps	2x10Gbps	1
CNX-ONE-4600	Intel Denverton	16	6x1Gbps	4x10Gbps	2
CNX-ONE-10800	Intel Xeon	8	4x1Gbps	4x10/40Gbps	2
CNX-ONE-11600	Intel Xeon	16	4x1Gbps	4x10/40Gbps	2
CNX-ONE-13200	Intel Xeon	32	4x10Gbps	2x40/100Gbps	2

Operation Information

MODEL	OPERATING TEMP (°C)	STORAGE TEMP (°C)	INPUT VOLTAGE	MAX POWER	MAX HEAT DISSIPATION
CNX-ONE-1100	0-50	-20-70	12V	20W	68 BTU/h
CNX-ONE-1200	0-50	-20-70	12V	20W	68 BTU/h
CNX-ONE-1400	0-50	-20-70	12V	30W	102 BTU/h
CNX-ONE-2000	0-40	-20-70	12V	44W	150 BTU/h
CNX-ONE-3200	0-40	-20-70	12V	60W	204 BTU/h
CNX-ONE-3400	0-40	-20-70	12V	60W	204 BTU/h
CNX-ONE-3800	0-40	-20-70	12V	60W	204 BTU/h
CNX-ONE-4600	0-40	-20-70	12V	90W	305 BTU/h
CNX-ONE-10XXX	0-40	-20-70	220V	410W	1400 BTU/h

Connexite Networks builds products that comply with industry standards, operate from day one, are physically and technologically sound, and are ready to help your organisation. The ConnexOne product portfolio consists of high-tech and innovative products at global standards that meet the real needs of its customers, enabling them to direct their limited resources to the right solutions.

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