# VCL-2142 Enigmatron Xcöde

## Endpoint Voice and Data Encryption

### Introduction:

VCL-2142 Enigmatron Xcöde is low data rate endpoint encryption equipment with advanced features that may be installed to secure voice and data communication in critical infrastructure such as defense, financial institutions, electric sub-stations, smart grid distribution systems, oil and gas infrastructure and railway signaling networks from being compromised or accessed by hostile elements.

The VCL-2142 Enigmatron Xcöde may also be installed in point-to-point, as well as in point-to-multi-point applications in centrally managed networks consisting of multiple edge locations to provide secure communications between multiple RTU Terminals and their corresponding IEC 60870-5-104, MODBUS-TCP and DNP central server(s) located in Load Dispatch Centre(s) / SCADA Management Centre(s) and Rail Traffic Control Room(s).

Additionally, the VCL-2142 Enigmatron Xcöde also protects the RTU data against hostile MitM (Man-In-the-Middle) attacks.

Access to the VCL-2142 Enigmatron Xcöde is password protected with advanced firewall capabilities that meet and exceed NERC as well as CEA's mandatory requirements of password protection and control. VCL-2142 Enigmatron Xcöde can optionally be managed centrally from a RADIUS Server to provide enhanced levels of access security and centralized password management and control.

### Interfaces - Terminal:

- Total Number of Ethernet Interfaces : 5
  - Four 10/100 RJ45 equipment interfaces in the local (trusted) LAN interfaces
  - One 10/100/1000 RJ45 network interface to the WAN (untrusted) network interface
- Integrated four-port Ethernet switch
- Auto MDI/X (straight or crossover Ethernet cable correction)
- USB serial port for local access and configuration.


### Applications:

- Defense
- Financial Institutions
- Utilities: Electric generation, transmission and distribution
- Smart Grid and SCADA networks
- Oil & Gas production, pipelines
- Railway Signalling Infrastructure: Rail Traffic Control Room(s)
- All distributed data networks consisting of a central server and multiple edge locations.

### Versions and Technology Deployment:

**VCL-2142 Enigmatron Xcöde (Remote Unit)**

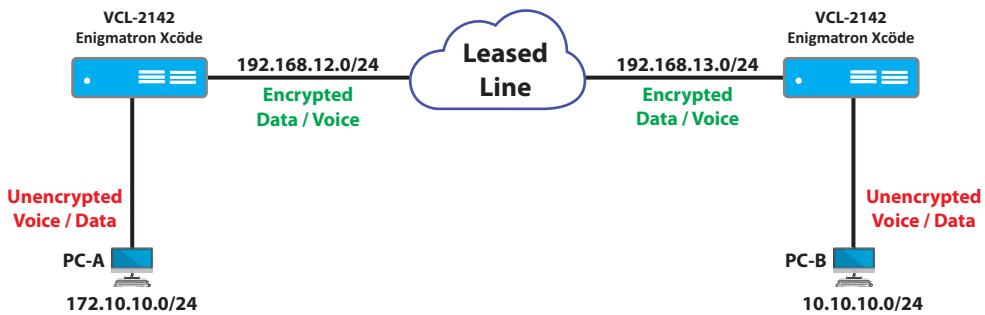
- High-Security Data Encryption Equipment
- Encrypting RTU data between RTUs and SCADA Server.
- Point-to-Point -104 and DNP RTU Data Encryptor.

The VCL-2142 Enigmatron Xcöde can be used in "Point-to-Point" applications. The VCL-2142 Enigmatron Xcöde may also be used with VCL-5040 Enigmatron Equipment in "Point-to-Multi-Point" applications.

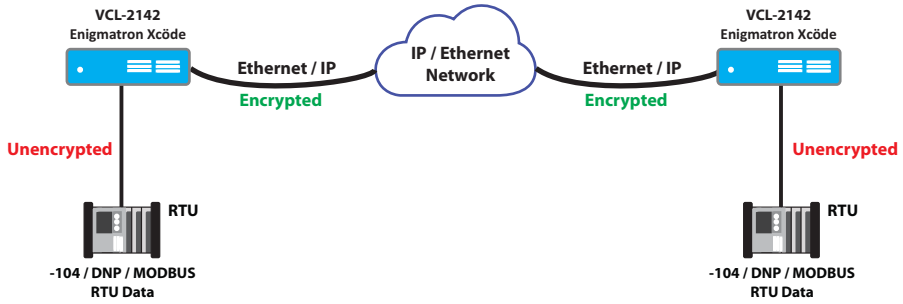
**VCL-5040 (Central Unit)**

- High-Security Data Encryption Equipment with integrated Firewall
- Designed to work in high data throughput, point-to-multi-point applications
- Supports a maximum of up to 500 x Enigmatron Xcöde (remote) units with a maximum combined data throughput of up to 1Gbps
- Encrypting data between multiple RTU Terminals and the IEC 60870-5-104, MODBUS-TCP and DNP server(s) located in Load Dispatch Centres / SCADA Management Centres and Rail Traffic Control.

### Endpoint Encryption Application



## SCADA Application




## Supported Security Protocol:

- IPSec, OpenVPN

## Supported Data Encryption Algorithms:

- AES128, AES192, AES256

## Form Factor and Maximum Encrypted data throughput per VCL-2142 Enigmatron Xcöde terminal:

- Compact, DIN-Rail Remote Data Encryption Terminal
- Maximum Encrypted Data Rate = 10Mbps with AES256 data encryption

## Network Support:

- IPv4 Routing
- Ethernet
- VLAN tag preservation
- IPv4

## Monitoring and Access Control:

- Password Strength Monitor
- Device Management and Alarm Monitoring
- Command Line Interface – Telnet, SSH with clear text disable option (default)
- SNMPv2 Alarm Monitoring
- Alarm condition detection and reporting (traps and SNMP alarm table)

## Power:

- 15V DC ~ 60V DC (DIN Rail Mounting Version)
- 85V DC ~ 250V DC (External Adapter Option).
- 100~240V AC, 50/60Hz, (External Adapter Option).
- Power Consumption: 9W at maximum load (DC)
- Power Consumption: 15W at maximum load (AC, with external AC to DC adapters)

## Firewall - Features and Capabilities:

- Deep Packet Inspection
- Per-frame/packet authentication
- Firewall
  - Port (Soft) - based
  - MAC - based
  - IP Address - based
  - IP Domain - based
- White List and Black List options
  - White List Exception allowed and blocks all other traffic by default (system default mode)
  - Black List Exception blocked and allows all other traffic by default
- Seamless scalability
- Infrastructure neutral
- Transparent to network and applications
- Easy installation and management

## MTBF:

- **Compact DIN Rail Terminal:** MTBF = 215,000 hours @ 24C ambient with single 48V DC power supply

## Physical:

- Compact DIN Rail Terminal
- Height x Depth x Width: 42 mm x 175 mm x 168 mm
- Weight: 0.6 Kgs

## CE Compliance:

- Low Voltage Directive 2014/35/EU
- Electromagnetic Compatibility 2014/30/EU

## Other Regulatory Compliances:

- RoHS
- CE Marking
- Complies with FCC Part 68 and EMC FCC Part 15

## EMI, EMC, Surge Withstand and other Compliances:

| | | |
|---|---|---|
| EN 50081-2 | EN 50082-2 | IEC 60068-2-29 |
| IEC 61000-4-6 (Conducted Immunity) | IEC 60068-2-6 | |
| IEC 60068-2-78 | IEC 60068-2-1 | IEC 60068-2-14 |
| CISPR 32 / EN55032 Class A (Conducted Emission and Radiated Emission) | | |
| IS 9000 (Part II Sec. 1-4, Part III Sec. 1-5, Part IV, Part 14 Sec. 1-3) | | |
| IEC 60870-2-1 | IEC 61000-4-5 | |
| IEC 61000-4-3 (Radiated Immunity) | IEC 61000-4-8 | |
| IEC 61000-4-2 | IEC 61000-4-4 | |

## Firewall and Security:

- Secure Boot
- Firewall Security:
  - Inclusion Policy – Access Control based upon White List IP addresses, MAC address and IP Domain
  - Exclusion Policy – Access Control based on Black List
- Resistance to Denial of Service (DoS) Attack
- Continuous monitoring of the TLS connection to nullify MitM attacks
- Encrypted Firmware Updates
- Non-volatile Access Log with capability to "fingerprint" all successful and failed log-in attempts and keep a log of the IP and MAC addresses of all successful and failed logins/login attempts
- SNMP trap generation, along with LED and external alarm indication
- Password Protection with password strength monitor
- RADIUS Password Authentication
- SSH (Secure Access Control) with encrypted Password Protection

### Environmental (Operational):

- Operating Temperature: -20C to +60C (-4F to 140F) – Terminal
- Cold Start Temperature: -10C (14F) - Terminal
- Operating Temperature: 0C to +50C (32F to 122F) – Server
- Cold Start Temperature: 10C (50F) – Server
- Maximum Operational Humidity 95% R.H. (Non-condensing)

### Ordering Information:

| Part # | Description |
|---|---|
| VCL-2142-X-DIN-DC015060 | VCL-2142 Enigmatron Xcöde<br>Endpoint Voice and Data Encryption Equipment<br>IEC 60870-5-104 and DNP Protocol RTU Data Encryptor<br>Suitable to work in Point-to-Point applications<br>IEC 60870-5-104 and DNP Protocol Encryptor<br>Compact DIN-Rail Terminal<br>1 x 15~60V DC Power Supply Input |
| VCL-5040 | VCL-5040 (Central Unit)<br>High-Security Data Encryption Equipment<br>Suitable to work in Point-to-Multi-Point applications<br>19-Inch, 2U Rack-Mount Terminal<br>2 x 18-60V DC Power Supply Inputs<br>Or 2 x 90VAC~240VAC, 50/60Hz AC Power Supply Inputs (Optional) |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