



LAN OVER ETHERNET INTERFACE

MANUAL

INNERANGE.COM

CONTENTS

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OVERVIEW

Bug Fixes:

The Concept LAN Over Ethernet interface (CLOE) provides a secure, isolated connection of physically separate RS485 LAN segments over an Ethernet network.

An interface consists of a Master and up to 3 or 4 Slaves depending on the system. The CLOE boards are Installer configurable to be a Master or a Slave and employ 128-bit AES encryption for secure Ethernet communications.

A Master must be connected directly to the Control module RS485 LAN Port, whilst up to 4 Slaves connect to the CLOE Master via Ethernet, each providing an isolated RS485 LAN segment. More Slaves can be supported by connecting additional Masters directly to the Control Module. See diagram above.

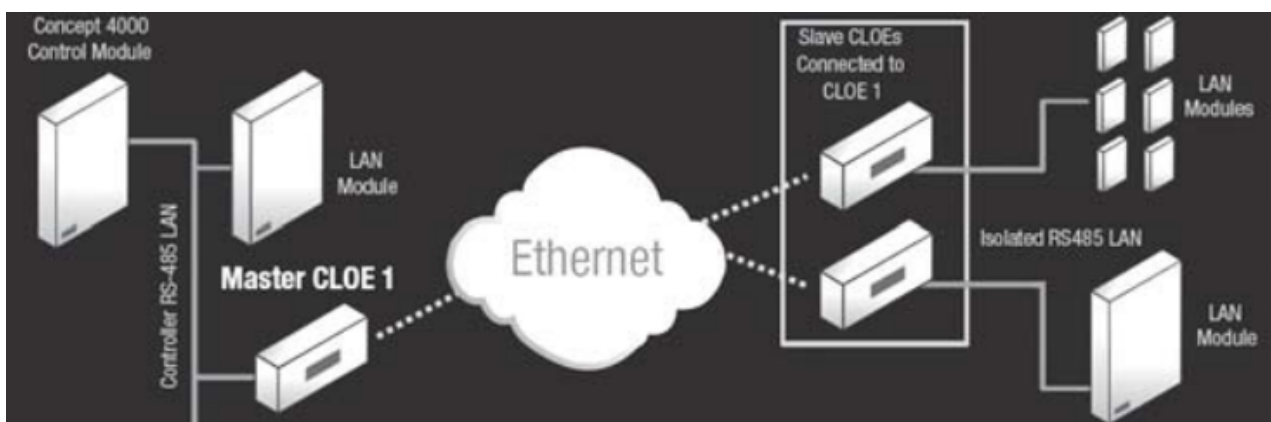
The Master typically draws power from the Control module LAN connection. Each Slave must be provided with external power from a Module with a battery-backed power supply within their own LAN segment, or a separate battery-backed power supply.

The Master must use a static (fixed) IP address, while the Slaves would typically use DHCP IP address allocation, but may optionally use a static (fixed) IP address. Each CLOE board has a unique factory set MAC address.

LED indicators are provided to show:

- Operational status (Run, Fault, Link status and Link speed).
- RS485 LAN Data flow.
- Ethernet Port data activity

In providing the facility for LAN communications over Ethernet, the CLOE also provides electrical isolation between the LAN segments thereby eliminating the potential for earth loops.



IMPORTANT NOTES

1) Minimum control module firmware version.

| | |
|--------------------|---|
| Integriti ISC/IAC: | V1.2.1 or later. V3.2.1 or later recommended. |
| Inception: | V1.0 or later. |
| C3000/4000: | V7.40 Beta Build 05 or later. |
| C5000: | V1.00 Build 02 or later. |

2) System architecture

a) A minimum of two LAN Over Ethernet interfaces are required for each installation. (A Master and a Slave)

b) The following rules must be noted:

i) If more than 1 Master is required to be connected to the Control Module, the Master CLOE PCBs must be Revision B or later. (Look for “995093_B” in the corner nearest the DIPswitch)

ii) If connecting more than 10 Concept Modules to a Slave causes the LAN A/B DC voltage to fall below 200mV, one or more additional Slave units will need to be installed.

c) A CLOE Slave RS485 LAN must not be connected to other CLOE Slave RS485 LANs, or to a Master CLOE RS485 LAN.

d) The number of Slaves connected to a Master may be limited by a number of factors such as Controller type, Module type and LAN traffic. Read Note 3 & “Ethernet LAN Design Considerations” on page 3.

3) Integriti modules. (Integriti, Inception & Infiniti Systems)

When connecting Integriti LAN Modules (ILAM, SLAM, 8-32 Zone LAN Expander, EliteX, PrismaX, RF Expander or Encrypted Expander) to a CLOE interface:

a) No more than 3 Slave devices are allowed per Master.

b) No more than 2 Slave devices are allowed per Master if one or more Modules connected to the Slave/s are ILAMs or another Module that will generate a high volume of LAN traffic.

4) Intelligent 4-door access module firmware

When connecting a Concept Intelligent 4-Door/2-Door Access Module (IFDAM / I2DAM) to a Concept LAN Over Ethernet (CLOE) interface:

- a) If the IFDAM Firmware (U3) is V3.60 or later, the CLOE Firmware must be V1.2 or later, and DIPswitch 1 (SET1) must be set to OFF.
- b) If the IFDAM Firmware (U3) is prior to V3.60, and the CLOE Firmware is V1.2 or later, DIPswitch 1 (SET1) must be set to ON. (If CLOE firmware is prior to V1.2, the DIPswitch has no function and is set to OFF)
- c) If multiple IFDAMs are connected to a CLOE Slave, all the IFDAMs must be either V3.60 or later, or pre V3.60. You cannot mix V3.60 or later and pre V3.60 IFDAMs on the same CLOE Slave.
- d) It is permissible to have V3.60 or later IFDAMs on one CLOE Slave, and pre V3.60 IFDAMs on another CLOE Slave in the same system.
- e) It is also permissible to have V3.60 or later, and pre V3.60 IFDAMs connected directly to the Control Module LAN.

NOTES:

- 1. IFDAM/I2DAM Modules in Integrity/Infiniti systems must be V5.00 or later. Note 4 a) above applies.
- 2. CLOE firmware can be upgraded in the field with the CLOE Firmware Downloader software. See p12.

5) LAN termination

The CLOE is not addressed or treated as a LAN Module by the Controller. However, since the CLOE connects to the RS485 LAN and possesses a LAN Termination Link, in a Concept system the LAN TERM Link must be configured correctly. (See pages 3 and 4 for details) Note that the "TERM" Link must be removed on any CLOE used in an Integrity, Inception or Infiniti system.

6) Programming

CLOE boards should be programmed prior to installation. Please consult with the IT administrator and provide a copy of this manual prior to programming & installation. Details of the default programming and the configuration options for all CLOE boards is found on pages 6 to 9.

7) PoE switches & routers

The CLOE Ethernet port must not be connected to a PoE (Power over Ethernet) port on the switch or router.

8) Concept systems

"Concept" Controllers & LAN Modules were available in AU, NZ, SE Asia & Europe and are now discontinued.

SPECIFICATIONS

| | |
|--------------------------|--|
| Supply Voltage | 11 to 14V DC. (LAN or External Power Supply) |
| Current Consumption | 70mA |
| Installation environment | 0° to 49° Celsius 15% to 85% Relative humidity (non-condensing) |
| CABLING | |
| Ethernet Port | As per standard 10/100MHz Ethernet cabling specifications. |
| RS485 LAN port | As per Controller LAN cabling specifications as appropriate. i.e. Integrati/Infiniti or Inception or Concept 3000/4000/5000 |
| Physical dimensions | PCB: 94 x 94 mm. Remember to allow for adequate space on the Ethernet connector side of the PCB for insertion/removal of the Ethernet cable when necessary. |
| Recommended Enclosures | Mount in an existing Control Module, LAN Expander, Access Module enclosure, etc. or a dedicated Inner Range enclosure: e.g. 995200XS Extra Small Enclosure. 995200 Small Low Profile enclosure. 995200PE Small Powered Low Profile enclosure. |

PARTS LIST

- Concept LAN Over Ethernet interface PCB assembly.
- 635093 LAN Over Ethernet interface Installation Guide (this document)
- Installation accessory kit consisting of:
 - 4 x M3 x 10mm Pan head screws.
 - 2 x 2 Way Plug on Screw Terminals.
 - 4 x M3 PCB Mounting Clip.
 - 1 x 0.1" Jumper link.

Note:

No Ethernet cables are supplied. Standard Ethernet cabling and connections are used.

REGULATORY INFORMATION

FCC Statement (North America)

This device complies with Part 15 of the FCC Rules and Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference; and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Class B Product

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Any changes or modifications not expressly approved by Inner Range Pty Ltd could void the user's authority to operate the equipment.

ISED (Canada)

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CAN ICES-3 (B) / NMB-3(B)

ETHERNET LAN DESIGN CONSIDERATIONS

The LAN Over Ethernet interfaces can be used in a number of different configurations. The flexible design allows:

- Multiple “Master” devices to be connected to the Control Module RS485 LAN port.

NOTE: If multiple Masters need to be used, Revision B or later CLOE boards must be used. (Look for “995093_B” in the corner nearest the DIPswitch)

- Multiple “Slave” devices to be connected to each “Master” device via Ethernet as follows:
 - Up to 4 Slave devices per Master on a Concept LAN.
 - Up to 3 Slave devices per Master on an Integrati or Inception LAN.
 - Up to 2 Slave devices per Master on an Integrati LAN if one or more Modules connected to the Slave/s are ILAMs or another Module that will generate a high volume of LAN traffic.

RS485 LAN connection.

1. CLOE Master devices must be connected directly to the Control Module RS485 LAN Port.
2. CLOE Master devices must NOT be connected to:
 - The “LAN 2” or “LAN 3” Port of a LAN Isolator.
 - The RS485 Port at the end of a Fibre Modem Link.
 - The RS485 Port on a CLOE Slave device.
3. Connection of the Concept LAN Over Ethernet interface to the RS485 LAN is in accordance with the normal LAN Module wiring rules and techniques relevant to the particular Controller platform.

See page 6 and the relevant document from the following list for more details:

- Concept 3000/4000 Control Module Installation Manual. (P/N: 635001UNI)
- Concept 5000 Control Module Installation Manual. (P/N: 635003)
- Integrati ISC or IAC Controller Installation Manual. (P/N: 636001 or 636035)
- Inception Installation Manual. (P/N: 636300) Inception LAN Installation Guide.

Network availability

The network connection between CLOE devices appears to the Controller like another RS485 LAN connection. A break or loss of network communication has the same effect as breaking the RS485 cable connection and will appear as if all the LAN Modules in that segment were disconnected. This may result in multiple ‘LAN Comms fail’ alarms.

The network needs to have high availability and reliability, ideally with more than one path between the CLOE devices in the event of an ethernet network fault. Installing CLOE devices on the same network as high traffic devices like CCTV cameras is not recommended.

LAN Termination

(Concept System Only) A Jumper Link (LK1 TERM) is provided to enable the LAN Termination to be configured correctly for the Concept RS485 LAN segment that the CLOE is connected to.

When using Concept LAN Over Ethernet interfaces, each isolated segment of the RS485 LAN is treated as an independent RS485 LAN system for the purposes of determining where LAN termination is to be fitted. Link LK1 "TERM" should be fitted:

- When the CLOE interface is the first or last connection on a daisy-chained RS485 LAN segment.
- When the CLOE interface is one of the two devices that are furthest apart on a star-configured RS485 LAN segment. Link LK1 "TERM" must be removed on a CLOE device used in an Integriti/Infiniti or Inception system.

INSTALLING THE LAN OVER ETHERNET INTERFACE PCB

1. It is recommended that the CLOE boards are programmed prior to being installed on the site. See pages 6 to 8 for details.

2. The Concept LAN Over Ethernet interface is supplied as a PCB kit which can be mounted using the range of fasteners provided in the accessory kit, in:

- An existing Inner Range product enclosure. (Space permitting)
- One of the Inner Range general purpose ancillary enclosures listed on page 2.
- Another suitable Inner Range or 3rd party enclosure.

3. When choosing the location for mounting the PCB in an enclosure, ensure that adequate space is provided for insertion and removal of the Ethernet cable connector.

4. If cabinet tamper monitoring is required, a suitable tamper switch and end-of-line resistors must be fitted in the enclosure, then connected back to a spare zone input on a nearby RS485 LAN Module. (The "Tamper" input on the CLOE board is not supported in any current Inner Range product platform).

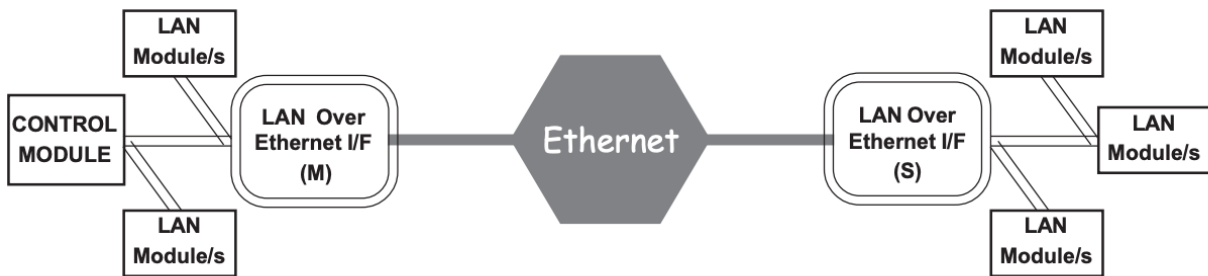
LAN Network examples.

Legend:

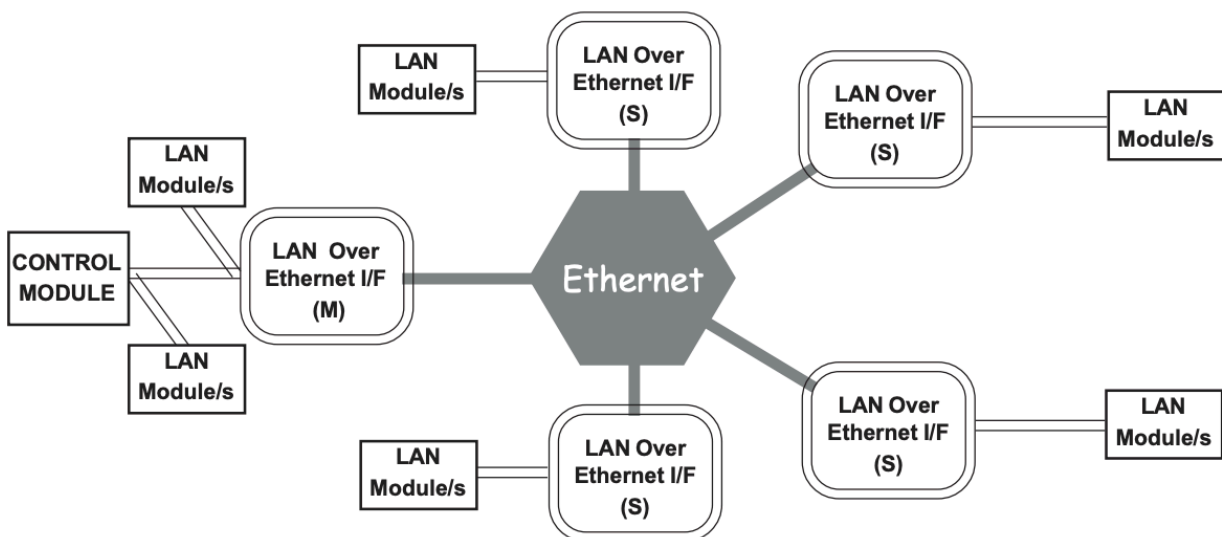
===== RS485 LAN.
 ===== Ethernet.

(M) = CLOE Master.
(S) = CLOE Slave.

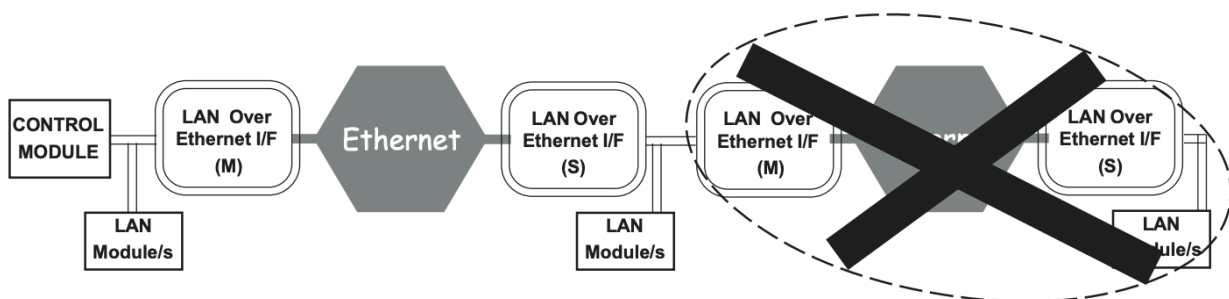
A basic connection uses 2 LAN Ethernet interface units to connect the Control Module RS485 LAN to one or more other Modules in a single remote location.



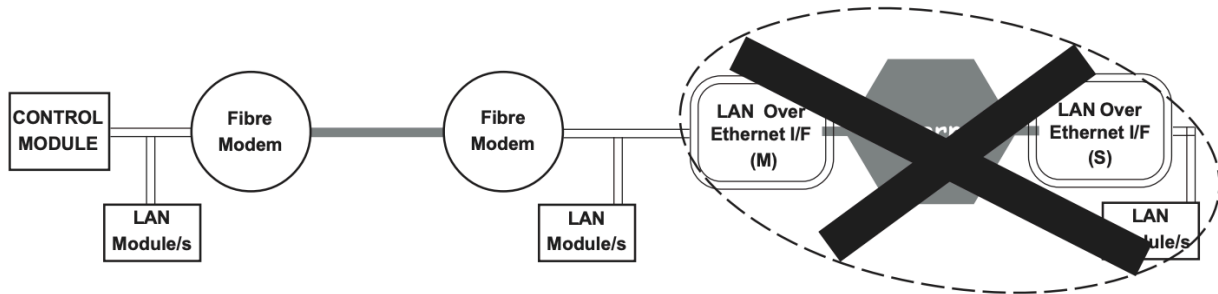
Up to 4 Slave units can be connected to the Ethernet network to connect the Control Module RS485 LAN to one or more other Modules in a number of remote locations.



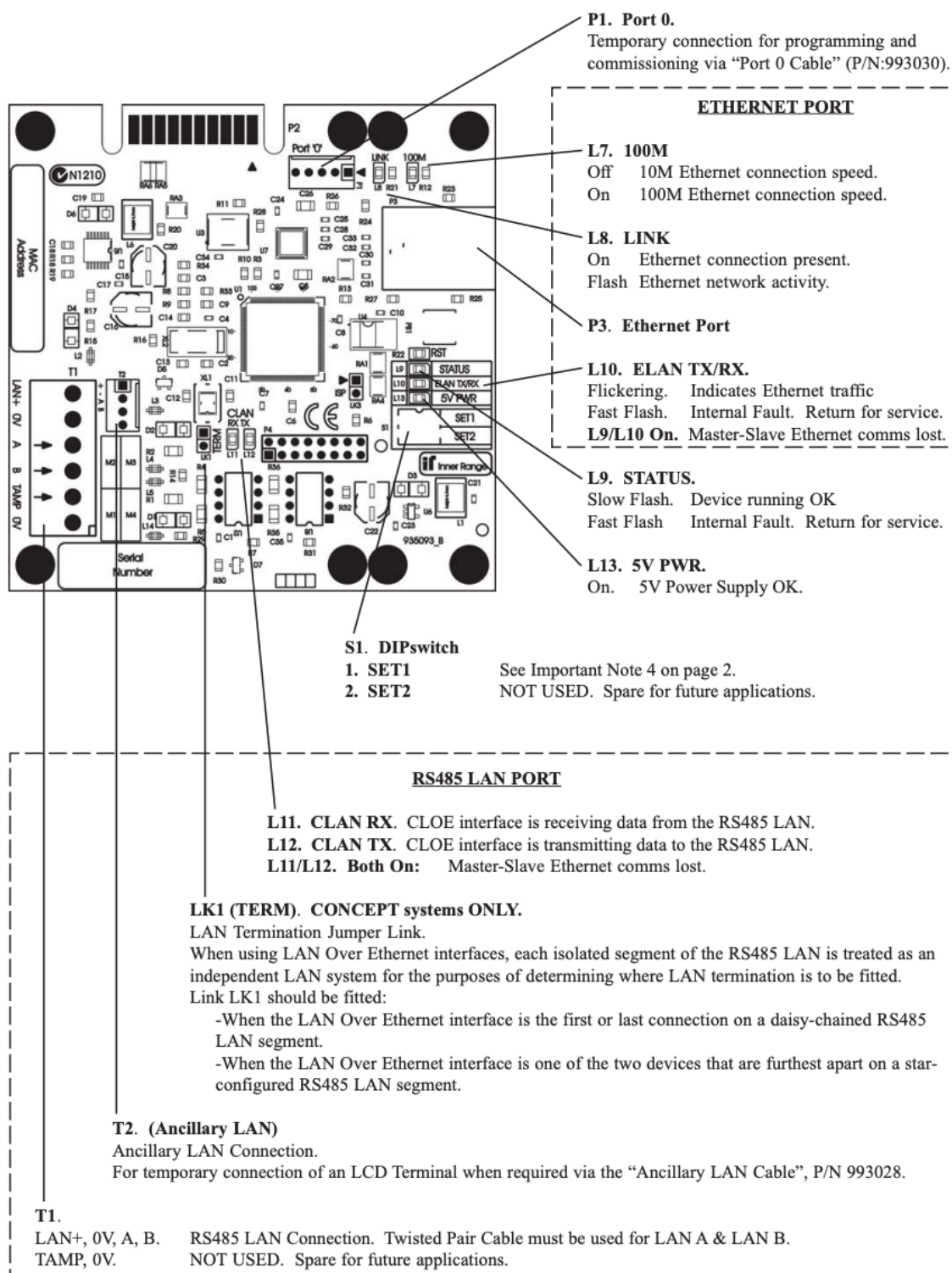
LAN Over Ethernet interfaces cannot be used in a “daisy-chain” configuration



LAN Over Ethernet interfaces cannot be used after a LAN Isolator or Fibre Modem link.

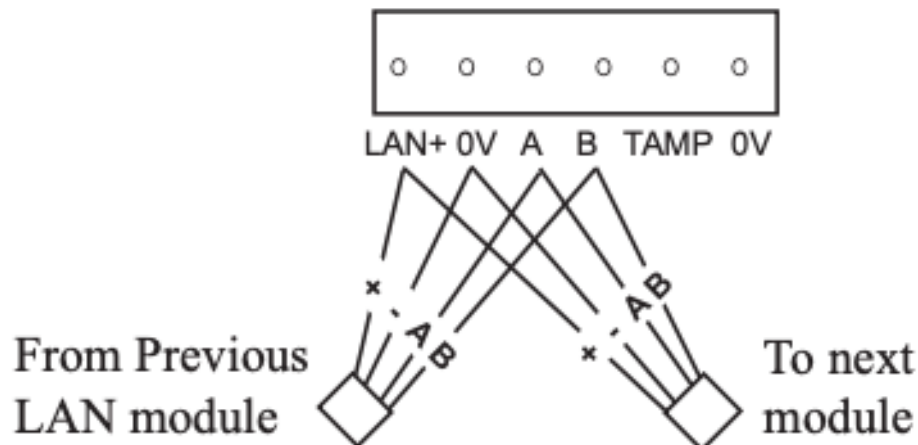


THE LAN OVER ETHERNET INTERFACE PCB

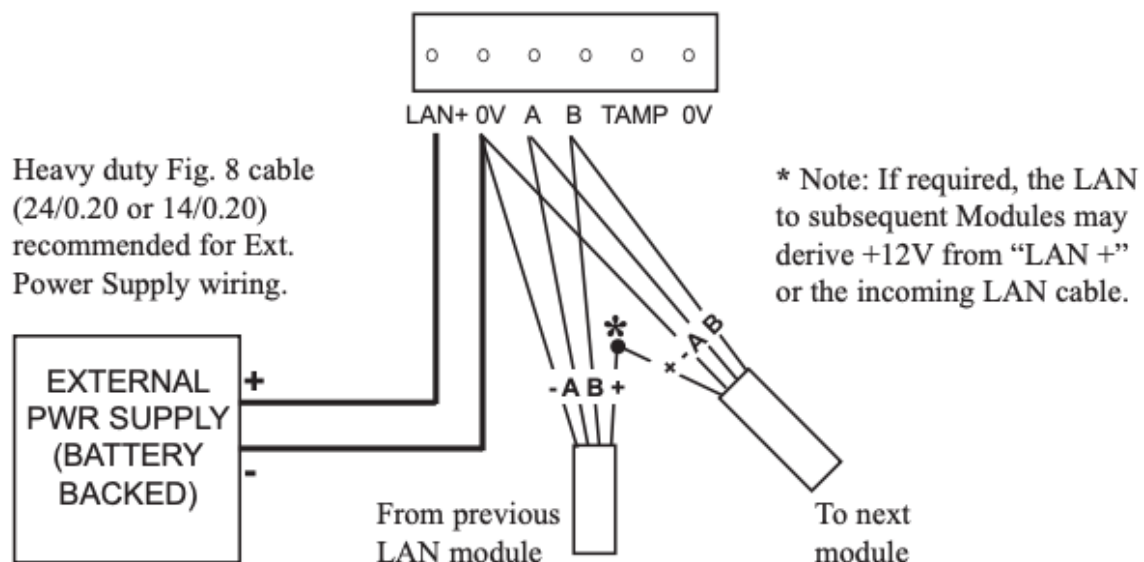


POWER & LAN WIRING

LAN over ethernet interface powered from the LAN



LAN over ethernet interface powered from external supply



PROGRAMMING & COMMISSIONING

The Concept LAN Over Ethernet interface has an Installer console for configuration of each board.

This is accessed through a Terminal program on a Computer or Laptop, which is temporarily connected using a Port 0 cable (P/N 993030) to connector P1 (Port '0') on the CLOE board. The Computer Terminal program (e.g. Hyperterminal, Tera Term, etc.) must be configured to:

- Baud Rate: 115200.
- 8 data bits and 1 Stop bit.
- No parity. - Flow Control: None.

Ethernet network information. (Please ensure that the IT administrator is given this information)

The factory default programming for all CLOE boards is:

- Slave mode, using DHCP
- Default Master address of 192.168.100.10
- Subnet Mask of 255.255.255.0
- Gateway of 192.168.100.1

NOTE:

If Port forwarding is required the IT administrator will need to know that the CLOE Slave connects via TCP to the Master on two IP ports, 9320 and 9321.

RECOMMENDED PROGRAMMING SEQUENCE

| | |
|------------------------------|--|
| Configure a Master | a. Set the Static (fixed) IP Address, Subnet Mask and Gateway assigned to this Master. b. Set the CLOE interface to be a Master. c. If the default encryption key value is to be changed, set a new encryption key. d. Perform a "Reset", then check the "Settings". |
| Configure one or more Slaves | a. Set each device to be a Slave using the nominated Master's Static (fixed) IP address. b. If a new encryption key was programmed for the Master, set the encryption key to the same value as set in the Master for all Slaves that will communicate with that Master. c. Perform a "Reset", then check the "Settings". |

See the configuration examples on the following pages

Console commands for configuring the CLOE interface Master and Slave, and diagnosing connection problems:

| Command / Syntax | Used for | | Description |
|---|--|-------|--|
| | Master | Slave | |
| fixedip n.n.n.n fixedip n.n.n.n s.s.s.s fixedip n.n.n.n s.s.s.s g.g.g.g | Y | O | Sets the IP address for the CLOE device to n.n.n.n. This is used for setting Master IP addresses and static Slave IP address. Optionally, the subnet mask s.s.s.s and gateway g.g.g.g may be set. |
| master | Y | | Set a CLOE device to be a Master. |
| slave n.n.n.n | | Y | Set a CLOE device to be a Slave, which connects to Master with IP address n.n.n.n. |
| dhcp | | Y | Enables DHCP operation (Slave mode only) |
| device n | O | O | Sets a unique device ID number for the CLOE device. Optional setting. Not required when used with current Concept 3000/4000/5000 platform. |
| key n,n,n ... | O | O | Sets the encryption key. Sixteen hexadecimal numbers must be entered, each separated by a comma. Numbers in the range 0 to FF are allowed. e.g. key 4a,3e,9,c7,2,b6,48,39,e2,d,62,fa,5,7b,82,1f <ENTER> |
| reset | Y | Y | Reset CLOE board. This reads and applies configuration settings and must be performed after any settings are changed, except for the "key" setting. Alternatively, the board may be powered down & powered up again. |
| Diagnostic commands | | | |
| settings | Y | Y | Display the current configuration and IP Connections for a CLOE device. |
| myip | Y | Y | Current IP state. Displays additional IP information that may be useful to the IT administrator for troubleshooting Ethernet connection issues. |
| ping n.n.n.n | Y | Y | Ethernet connectivity test. |
| Notes: | Y = Yes. O = Optional | | |
| | All IP addresses are entered in the form n.n.n.n, where 'n' is a decimal number from 0 to 255. | | |

COMMISSIONING

When the CLOE boards are programmed and installed in the system, the system may be powered up and tested as follows

1) Check the CLOE interface status LEDs. “5V PWR”, “Status” and “ELAN TX/RX” LEDs are On. When P3 is connected to a switch/router/hub: “LINK” is On or flickering, “Status” is slow flashing and “ELAN TX/RX” is flickering.

When T1 is connected to the Concept RS485 LAN: “CLAN RX & TX” flash occasionally.

2) Perform a “LAN Secure” operation. Refer to the relevant Controller installation manuals.

3) Check Review Event Log. All RS485 LAN Modules that are installed in the system and are currently operational should have a “Module Found” event logged to Review immediately following the “LAN Secured” event.

Any “Module Found” or “Module Recovered” Review event for Modules that are connected via Ethernet will be preceded by an additional Review event that identifies the associated CLOE Master-Slave pair. i.e. CLOE Module: MAC = mmmm-ssss Where: mmmm is the last 4 digits of the CLOE Master’s MAC address. ssss is the last 4 digits of the CLOE Slave’s MAC address.

The status of individual Modules can also be checked from an LCD Terminal in the Module Programming Menu.

Refer to the relevant Controller installation manuals

For Concept Controllers:

Select the Module Type to inspect (MENU, 7, 2, x), then press the ON key. The current status of the Module is displayed.

- If the symbol after the “Present” status message is an arrow (→) or a carriage return (↵), the Module is communicating via Ethernet.

- If the symbol is a dash (-), the Module is connected directly to the Control Module LAN. The status of other Modules of the same type can be viewed by using the DOWN and UP arrow keys.

See page 11 for a troubleshooting guide and more information on these operations.

CONFIGURATION EXAMPLES

The CLOE interface console will display a command prompt: >. User input at the Console in the examples is shown in *italics*.

Master

Concept LAN over Ethernet Serial Console Firmware V1.10

>

0000000050 Removing All Modules

0000000051 Ethernet Encryption Enabled

>*fixedip 192.168.1.97 255.255.255.0 192.168.1.0*

IP address changed to 192.167.1.97 Sub-net mask set to 255.255.255.0 Gateway set to 192.168.1.0

>*master*

MASTER/LOCAL mode enabled. Fixed IP address 192.167.1.97 will be used.

>*reset*

Concept LAN over Ethernet Serial Console Firmware V1.10 > 0000000050 Removing All Modules

0000000051 Ethernet Encryption Enabled

>*settings*

CLOE Status and Configuration. Unit is a Master, device number 6. IP assignment is fixed (192.167.1.97). Ethernet is not yet available. Slave connections:

Slave – using DHCP

Concept LAN over Ethernet Serial Console Firmware V1.10

>

0000000050 Removing All Modules

0000000051 Ethernet Encryption Enabled

>*slave 192.168.1.97*

SLAVE/REMOTE mode enabled. Master is at IP address 192.168.1.97

>*dhcp*

Slave DHCP mode enabled.

>*reset*

Concept LAN over Ethernet Serial Console Firmware V1.10

>

0000000050 Removing All Modules

0000000051 Ethernet Encryption Enabled

>settings

CLOE Status and Configuration.
Unit is a Slave, device number 11.
IP assignment is by DHCP. Ethernet is not yet available.
Master address is 192.168.1.97

Slave – using fixed (static) IP address

Concept LAN over Ethernet Serial Console Firmware V1.10

>
0000000050 Removing All Modules
0000000051 Ethernet Encryption Enabled

>slave 192.168.1.97
SLAVE/REMOTE mode enabled.
Master is at IP address 192.168.1.97

>fixedip 192.168.1.90 255.255.255.0 192.168.1.0
IP address changed to 192.168.1.90
Sub-net mask set to 255.255.255.0
Gateway set to 192.168.1.0

>reset
Concept LAN over Ethernet Serial Console Firmware V1.10

>
0000000050 Removing All Modules
0000000051 Ethernet Encryption Enabled

>settings

CLOE Status and Configuration.
Unit is a Slave, device number 11.
IP assignment is fixed (192.168.1.90).
Ethernet is not yet available. Master address is 192.168.1.97

TROUBLESHOOTING & DIAGNOSTICS

The Terminal program “settings”, “myip” and “help” commands can be used on a CLOE interface board while it is operating to obtain status, diagnostic and help information. The “settings” and “help” commands can be used at any time. The “myip” command is used when network communications is established.

Note: The Port 0 connection is for a temporary connection only. Ensure that the Port 0 cable is disconnected when not in use.

Typical “settings” information from a Master unit

CLOE Status and Configuration.
Unit is a Master, device number 32.
IP assignment is fixed (192.168.1.34).

IP address is 192.168.1.34. Ethernet is OK.
Slave connections:
IP 192.168.1.103, Data and Command OK.

Typical “settings” information from a Slave unit

CLOE Status and Configuration.
Unit is a Slave, device number 33.
IP assignment is by DHCP.

IP address is 192.168.1.103. Ethernet is OK.
Master address is 192.168.1.34
Connected to IP 192.168.1.34, Data and Command OK.

Typical “myip” information.

| Master unit | Slave unit |
|---|---|
| >myip Interface 'en0': MAC address: 00:11:B9:04:00:20 IP address 192.168.1.34 Sub-net mask 255.255.255.0 Gateway 192.168.1.0 Link is UP. I/F is UP. Fixed-IP mode. Unit is a Master. | >myip Interface 'en0': MAC address: 00:11:B9:04:00:21 IP address 192.168.1.103 Sub-net mask 255.255.255.0 Gateway 192.168.1.1 Link is UP. I/F is UP. DHCP mode. Unit is a Slave. Master address is 192.168.1.34 |

The “help” information from a CLOE unit.

>help

Concept LAN Ethernet Bridge

RS232 Configuration Console

Available commands (not case sensitive):

DEVICE number : Assigns a device number to this unit. Must be unique.

DHCP : Enables DHCP mode (slave mode only).

FIXEDIP ip_addr [subnet [gateway]]: Enables fixed IP mode and sets IP address.

MASTER : Sets this unit to be a Master (on controller LAN).

MYIP : Displays current IP state of this unit.

PING ip_addr : Ethernet IP connectivity test.

RESET : Reboot this device. Reboot device after changing any settings.

SETTINGS : Displays a summary of all current configuration and status.

SLAVE ip_add : Sets this unit to be Slave, to Master at 'ip_address'.

KEY n1,n2...n16 : Sets ethernet encryption key. 16 byte values in hex format.

All IP addresses are entered in the form n.n.n.n, where n is decimal 0-255.

If problems are encountered, perform the following checks.

| Check | Result | Description/Action |
|--------------------------------|------------|---|
| “5V PWR” LED is On | Yes | OK |
| | No | Check for correct power supply voltage and wiring. |
| "STATUS" LED | Fast Flash | Internal Fault. Return for service. |
| | On | Unit OK, but no Ethernet activity |
| | Slow Flash | Ok |
| ELAN LED | Fast Flash | Internal Fault. Return for service. |
| | On | Slave and Master are unable to connect. Check for valid setting for Master's IP address, DHCP mode and link status – use 'settings' &/or 'myip' commands. Contact your IT administrator for setting Slave subnet mask and gateway for your network if required. |
| | Flickering | Ok |
| “Link” LED is On or Flickering | Yes | Ethernet connection OK |
| | No | Check Ethernet connections to hub/router/switch. |

If the Slave connects to its Master but Modules do not address, check:

- Control module firmware is a version that supports CLOE devices. See Important Note 1 on page 1.
- Encryption keys on the Master and it's associated Slaves are the same.
- If a Concept system, check for correct LAN termination on all Concept RS485 LAN segments.

The status of individual Modules can be checked via an LCD Terminal. Refer to the relevant Controller installation manuals.

For Concept systems:

Select the Module Type to inspect (MENU, 7, 2, x), then press the ON key. The current status of the Module is displayed.

E.g.

R01 Present-000 or R01 Absent
and secure

The status may be; "Absent", "Present but not secure", or "Present and secure", depending on the LAN security status. If Present and the symbol after the "Present" message is an arrow (→) or a carriage return (↵), the Module is communicating via Ethernet. If the symbol is a dash (-), the Module is connected to the Control Module LAN. The 3-digit number in the message indicates the number of times the module has failed to acknowledge a poll from the Control Module since the last LAN Init. or LAN Secure operation and provides an indication of LAN reliability

Error messages

During programming of a CLOE unit, the Serial Console may also provide error messages to alert the programmer to any programming problems.

e.g.

```
>fixedip 192.168.1.34  
IP address changed to 192.168.1.34  
ERROR: IP and Gateway are on different subnets!
```

FIRMWARE UPGRADES

The CLOE interface unit's firmware is field upgradeable using the CLOE Downloader utility software. The utility software and upgrade firmware files are available from the Inner Range Technical Support Website. <http://www.innerrange.com/Restricted/Support/Supphome.cfm>

Disclaimer:

While every effort has been made to ensure the accuracy of this manual, the manufacturer assumes no responsibility or liability for any errors or omissions. Due to ongoing development, this manual is subject to change without notice.

Designed & manufactured in Australia.



Global Headquarters

Inner Range **Australia**

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April 2025

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