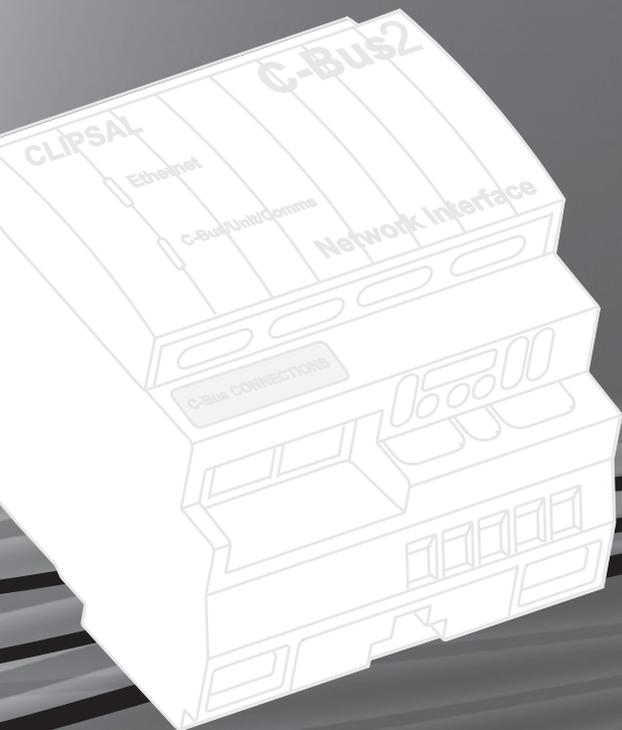


CLIPSAL[®]

by Schneider Electric



C-Bus[®]

**C-Bus Network
Interface Mk II**

5500CN2



Installation Instructions

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1.0 Introduction

The 5500CN2 C-Bus Network Interface Mark II (CNI Mk II) provides an isolated communication path between a C-Bus and an Ethernet network. The unit includes a power pack for the Ethernet circuits. When used in conjunction with an Ethernet connected PC, the C-Bus network (or multi-network installation) can:

- acquire an IP address using the IP Utility software
- be programmed with the C-Bus Toolkit software
- monitor and log data using the appropriate software
- provide C-Bus device control via automation software such as Schedule Plus or HomeGate.

The unit is programmed using C-Bus Toolkit software. Toolkit software runs on a PC connected to the LAN where the CNI MK II is connected. The Ethernet setup is done using IP Utility software from Clipsal. Software tools can be freely downloaded from the CIS web site at the following location: <http://www.clipsal.com/cis>. Go to the Technical section and select Downloads.

The CNI Mk II is DIN-rail mounted (4M wide) in a service enclosure or on a freestanding DIN rail mounting bracket. A power outlet is required for the power supply provided with the unit.

The C-Bus network is electrically isolated from the Ethernet LAN. The Ethernet side is powered by the supplied power pack and an active C-Bus network powers the C-Bus side.

Indicators show C-Bus network and Ethernet activity. All network connections are made using RJ45 connectors. The interface unit has a reset feature accessible from the Ethernet side.

2.0 Safety

Read and follow all safety information on the unit and in this instruction document. Make sure that the unit is securely installed and wired correctly, refer to the Wiring Instructions.

WARNING. Avoid electric shock

Do not connect the CNI Mk II directly to telephony equipment or building power. The unit is a Class 2 Safe Extra Low Voltage (SELV) device. Do not open the plastic housing. There are no user serviceable parts inside the housing.

- Use only the approved power supply. Never connect the interface unit's power terminals directly to building power.
- Both Ethernet and C-Bus connections are made via RJ45 sockets. Ensure you make each connection to the correct socket.
- The use of any software not provided by Clipsal Integrated Systems (CIS) in conjunction with the installation of this product may void any warranty applicable to the hardware.

3.0 Wiring Instructions

The 5500CN2 is powered by a 6-12V d.c. plug pack (supplied with the unit). Power connection is made via screw terminals. The C-Bus network and Ethernet LAN use RJ45 connectors.

Caution

The C-Bus network uses polarised and electrically isolated cables. Do not connect any other network to the C-Bus connections sockets. Damage to the equipment will occur.

3.1 Ethernet LAN Connection

Ethernet connections are made via RJ45 sockets. Ethernet may be connected to a network via a switch or hub, or directly to a PC (using a crossover cable or a standard network patch cable). Refer to Figure 1 and Figure 2.

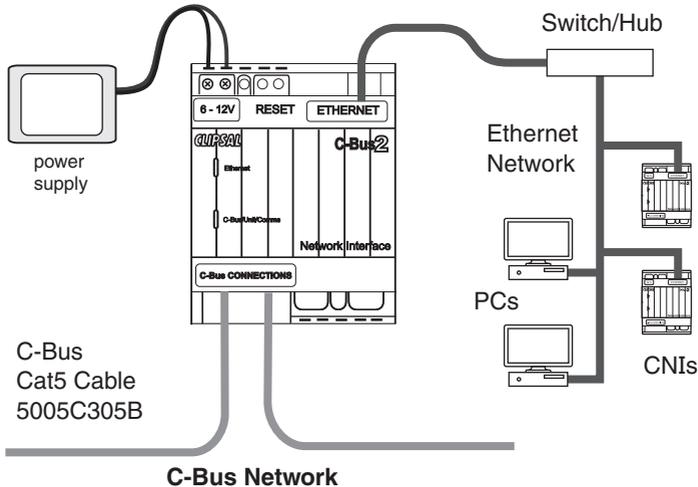


Figure 1. 5500CN2 used with an Ethernet network

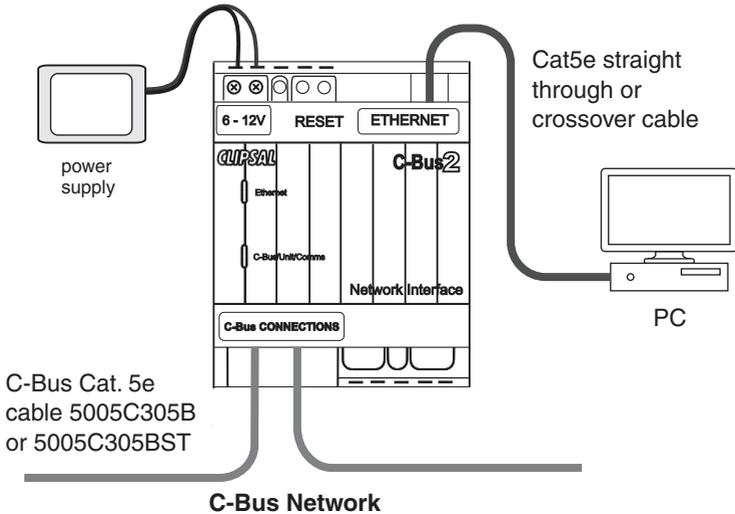


Figure 2. 5500CN2 connected directly to a PC

3.2 C-Bus Network Connection

Connection to the C-Bus network is made via one of the RJ45 sockets. The sockets are internally connected so that the unit can be placed anywhere on the network. Use Cat.5e unshielded twisted pair (UTP) C-Bus cable, and an appropriately wired RJ45 plug. Pinouts and cable conductor assignments are provided in Table 1. The Clipsal catalogue number for the C-Bus network cable is 5005C305B (solid) and 5005C305BST (stranded).

Pin	C-Bus Connection	Colour
1	Remote On	green & white
2	Remote On	green
3	C-Bus Negative (-)	orange & white
4	C-Bus Positive (+)	blue
5	C-Bus Negative (-)	blue & white
6	C-Bus Positive (+)	orange
7	Remote Off	brown & white
8	Remote Off	brown

Table 1

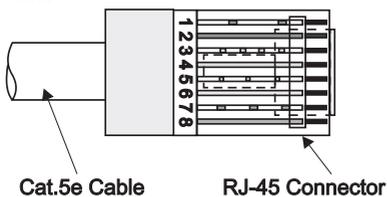


Figure 3. RJ45 pin assignments

A Clipsal patch cord is included with the unit for easy interconnection. A rubber plug is supplied to stop foreign material from entering the unused RJ45 socket. Always ensure the plug is installed.

3.3 Power Pack Connection

The power pack requires a power outlet. The power pack is provided with several plug adaptors to suit your location.

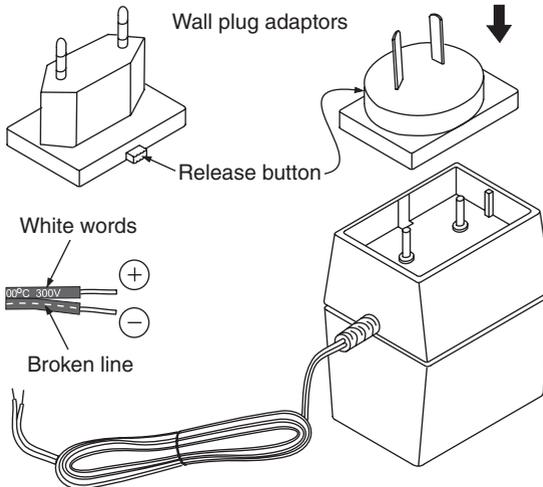


Figure 4. Power pack and plug adaptors

4.0 Indicators and Reset Button

The indicators are located on the top cover. Note that the Ethernet indicator operates only when the power pack is plugged into a power outlet. The C-Bus indicators operate only when an active C-Bus network is connected to the unit.

4.1 Ethernet Indicator

The Ethernet indicator shows the status of the Ethernet interface. The indicator is orange when the communication link is good (flashing green with active data transfer), and red with a problematic or non-existent link. Refer to Table 2.

Indicator Status	Meaning
Orange	Communication link is good
Orange/Green flash	Link is good with active data transfer
Red	Non-existent or problematic link

Table 2. The Ethernet indicator

4.2 C-Bus/Unit/Comms Indicator

The C-Bus/Unit/Comms indicator shows the status of the C-Bus network at the unit. It also flashes on active communication between the C-Bus and Ethernet networks. Orange is good, green indicates active communication and red indicates problems. Refer to Table 3.

Indicator Status	Meaning
Orange	C-Bus clock signal is present, voltage is good
Orange/Green flash	C-Bus good, active communication between C-Bus and Ethernet
Red	No C-Bus connection
Red flash	No C-Bus connection, attempted communication from Ethernet to C-Bus
Red/Orange flash	C-Bus clock is present, voltage is marginal

Table 3. The C-Bus/Unit/Comms indicator

Further debugging of possible network problems can be achieved using the Clipsal C-Bus Network Analyser tool (5100NA).

4.3 Reset Button

The reset button is on the circuit board inside the plastic housing. A short press and release will produce green LED flashes and will reset the password. A long press (five seconds) and release will produce red LED flashes and reset the Ethernet settings to factory values.

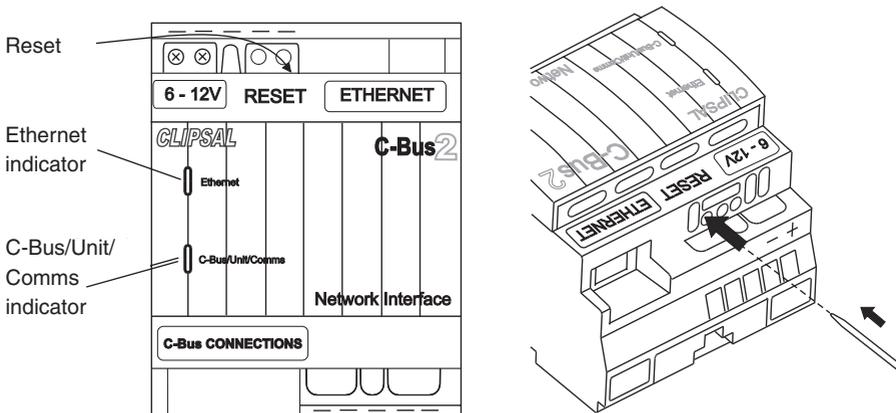


Figure 5. Location of indicators and reset

Pressing the reset button does not affect the C-Bus unit address or other programmed C-Bus parameters.

5.0 C-Bus Requirements

The 5500CN2 C-Bus Network Interface (CNI2) must be programmed with a unique identification address (Unit Address). This is accomplished using the C-Bus Toolkit software, available from the Downloads section of the Clipsal Integrated Systems (CIS) web site (<http://www.clipsal.com/cis>). C-Bus Toolkit is also used to enable the C-Bus system clock and burden, if required.

The 5500CN2 uses 18mA of power from an active C-Bus network operating within the range of 15-36V d.c. The network interface does not provide power for the network.

The unit incorporates circuitry to provide protection from C-Bus network transients. External power surge protection devices should be used to enhance system immunity to building power surges. It is strongly recommended that over-voltage equipment, such as the Clipsal 970, be installed at the switchboard.

6.0 Ethernet LAN Setup

Use the IP Utility software from Clipsal to acquire an IP address for the 5500CN2. If you are using multiple units on the same Ethernet LAN, the software allows you to view and set up the units individually.

Connect the Ethernet ports of your PC and CNI (either directly or via a network switch or hub). A crossover network cable is not required when using a direct PC connection. If you are using a network/Internet firewall, you may need to disable it temporarily.

7.0 Megger Testing

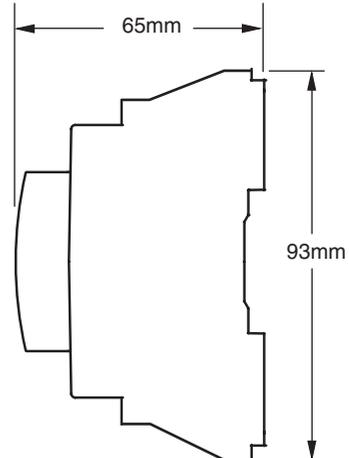
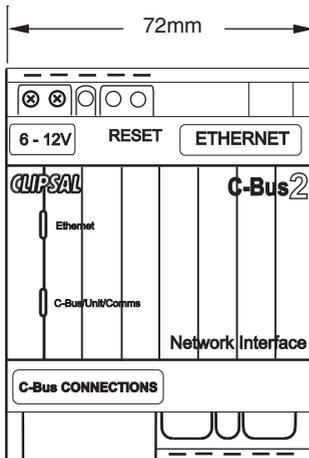
Caution

Megger testing the network cables can cause damage to the C-Bus units. Damage to the components may not be immediately detected and could cause improper or unstable network performance.

Do not megger test the C-Bus network cables or terminals. Damage to the equipment could occur.

8.0 Specifications

Parameter	Description
Supply voltage (Ethernet side)	6–12V d.c. @ 100mA, Class 2/SELV
C-Bus input voltage	15 to 36 V d.c., Class 2/SELV.
C-Bus power requirement	18mA. Does not provide power for the network.
C-Bus AC input impedance	100kΩ @ 1kHz
Ethernet characteristics	100Base-TX / 10Base-T
Default IP Adress	192.168.0.100
Warm up time	5 seconds (approximately)
C-Bus system clock	Software selectable
Network burden	Software selectable
Operating temperature range	0 to 50°C (32 to 122 °F)
Operating humidity range	10 to 90% RH, non-condensing
Dimensions (W×H×D)	72 × 93 × 65 mm
Weight	152g
C-Bus Connections	2 × RJ45 sockets (in parallel)
Ethernet Connection	1 × RJ45 socket



9.0 Standards Complied

Declarations Of Conformity

5500CN2 product complies with the following:

Australian/New Zealand EMC & Electrical Safety Frameworks and Standards



Regulations	Standard	Title
EMC	AS/NZS CISPR 22	IT Equipment - Radio Disturbance Characteristics

European Directives and Standards



European Council Directive	Standard	Title
EMC Directive 2004/108/EC	EN 55022	IT Equipment - Radio Disturbance Characteristics
	EN 55024	IT Equipment - Immunity Characteristics
	EN 61000-3-2	Limits for Harmonic Current Emissions
	EN 61000-3-3	Limitation of Voltage Changes, Voltage Fluctuations and Flicker

Other International Directives and Standards

Regulations	Standard	Title
EMC	CISPR 22	IT Equipment – Radio Disturbance Characteristics
	CISPR 24	IT Equipment - Immunity Characteristics

Underwriters Laboratories



UL916	Energy Management Equipment
CSA 22.2 No. 205	Signal Equipment

FCC



Part 15, Subpart B	Class B digital device
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Supplemental Information

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

Class B Product

NOTE:

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 into 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 Schneider Electric (Australia) Pty Ltd could void the user's authority to operate this equipment.

10.0 Two Year Warranty

The 5500CN2 C-Bus Network Interface carries a two-year warranty against manufacturing defects.

For all warranty enquiries, contact your local Clipsal by Schneider Electric or Schneider Electric Sales Representative.

11.0 Technical Support and Troubleshooting

For further assistance in using this product, consult your nearest Clipsal or Schneider Electric Sales Representative or Technical Support Officer.

Technical Support email: cis.support@clipsal.com.au

In the US, contact call 1-888-778-2733 or email lightingcontrol.support@us.schneider-electric.com

Schneider Electric (Australia) Pty Ltd

Contact us: clipsal.com/feedback

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