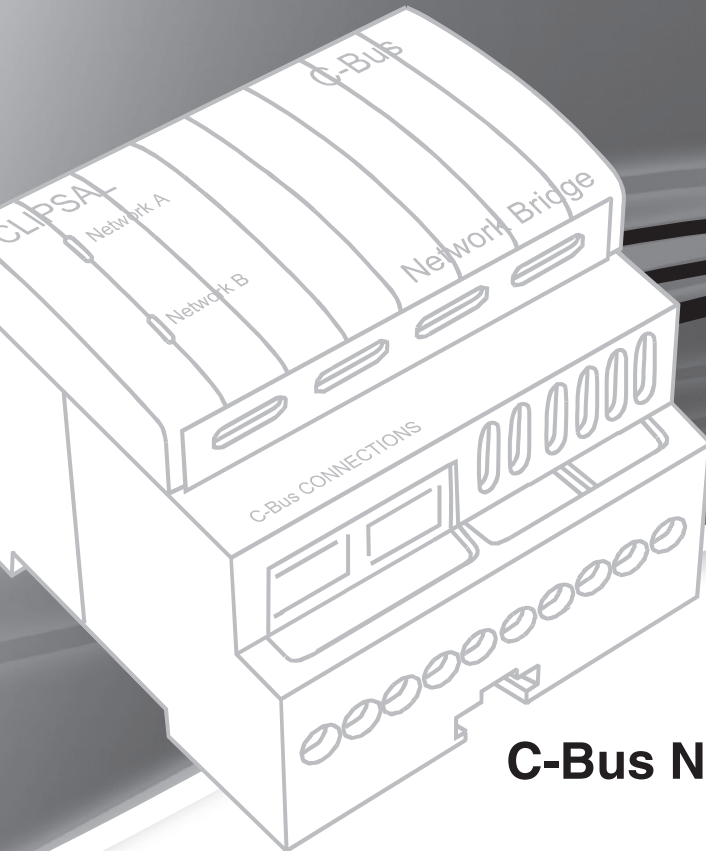


**CLIPSAL**<sup>®</sup>

by **Schneider Electric**



**C-Bus**<sup>®</sup>

**C-Bus Network Bridge**

**5500NB**

Series



Installation Instructions

REGISTERED DESIGN • REGISTERED PATENT

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## 1.0 Description

The 5500NB C-Bus network bridge is a DIN rail mounted system support module that provides electrical isolation between two C-Bus networks. A network bridge might be required to overcome electrical constraints on any single C-Bus network, such as when the maximum number of C-Bus devices is reached, or when the physical distances between devices are large. The network bridge can also be used as a convenient way to isolate networks. For example, different floors in a multi-storey building installation.

Catalogue Number	Description
5500NB	C-Bus Network Bridge, DIN rail mounted, provides isolation between two C-Bus networks

The DIN rail mounted unit is normally installed inside an enclosure. The unit takes up four metres of space on a DIN rail. The network bridge uses RJ45 sockets for C-Bus connectivity. The unit has two C-Bus status indicator LEDs labelled “Network A” and “Network B”.

The network bridge draws 18mA from each connected C-Bus network. The unit does not provide power to either connected C-Bus network and does not require mains power to operate.

### 1.1 Capabilities

#### The Network Expansion

As the number of units in any particular C-Bus network approaches the maximum limitation (approximately 100 standard units), increased network impedance begins to diminish network performance. C-Bus network bridges can be used to split installations into multiple networks, electrically isolating the networks and increasing the total number of units configurable in an installation.

#### Transmission Distance and Signal Propagation

As the total length of unshielded twisted pair (UTP) cable reaches 1,000 metres for a given network, the network’s performance can be degraded by increased propagation delays. A C-Bus network bridge can be used as a repeater station for data communications, effectively increasing the maximum transmission distances.

#### Network Segregation and Isolation

Irrespective of electrical limitations, a C-Bus network bridge may be used to physically isolate one network from another. For instance, a network bridge may be used to isolate floors in a multi-storey building installation.

## Network Burden and Clock Signal Generation

The network bridge features a software selectable C-Bus network burden and system clock for each connected network. The burden and clock may be used to ensure successful communications, eliminating the need for additional C-Bus system support modules.

Using Toolkit software, you can configure the network clock and burden. The network bridge does not support Learn Mode or Remote On and Remote Off functions. When configured using Toolkit configuration software, the bridge does not have a group address.

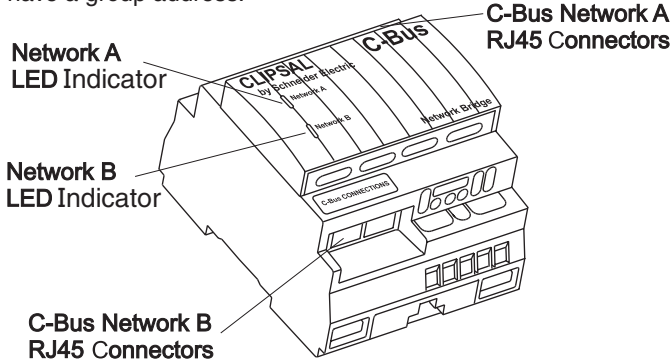


Figure 1. C-Bus network bridge product features

### 1.2 Status Indicators

The two network indicators, “Network A” and “Network B”, show the status of the networks that are connected and active. When C-Bus is connected, the appropriate indicator illuminates as a solid orange light. The LED flashes when there is activity on the connected C-Bus network.

Indicator Mode	Meaning
Off	Not connected to C-Bus or there is insufficient power available
Orange	Power is on and active
Flashing	C-Bus communications in progress

Table 1. Status indicator meanings

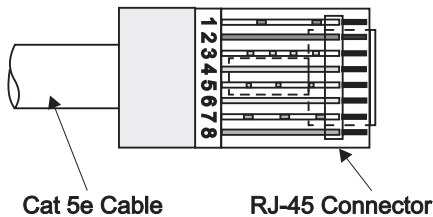
## 2.0 C-Bus Network Connections

Two RJ45 connectors are provided for upstream and downstream network attachment. The C-Bus network uses pink Cat 5e, polarised 15-36 Volt, twisted pair cable, catalogue number 5005C305B.

Never connect the C-Bus interface to Ethernet or telephone equipment networks; damage to equipment could result.

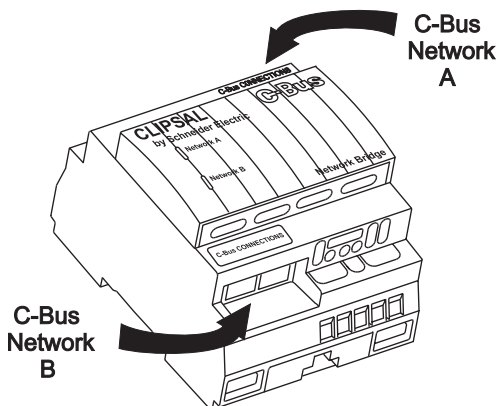
RJ45 Pin	Signal Name	Wire Colour
1	Remote ON	Green and White
2	Remote ON	Green
3	C-Bus negative ( - )	Orange and White
4	C-Bus positive ( + )	Blue
5	C-Bus negative ( - )	Blue and White
6	C-Bus positive ( + )	Orange
7	Remote OFF	Brown and White
8	Remote OFF	Brown

Table 2. C-Bus network wiring colour codes



- |   |                  |
|---|------------------|
| 1 | Green and White  |
| 2 | Green            |
| 3 | Orange and White |
| 4 | Blue             |
| 5 | Blue and White   |
| 6 | Orange           |
| 7 | Brown and White  |
| 8 | Brown            |

Figure 2. C-Bus network cable pin assignments



The 5500NB does not support Remote Override On/Off functions. The override signals are internally connected and looped through the network bridge at the “Network A” and “Network B” connections. The network bridge does not connect the override signals from the two networks.

Rubber plugs are supplied to cover unused RJ45 connectors. The plugs stop dust and debris from entering the unit.

Figure 3. C-Bus network connection points

### 3.0 C-Bus Programming Requirements

Use C-Bus Toolkit software to configure the network bridge. The unit does not utilise C-Bus Learn Mode features. Using software not provided or approved by Clipsal could void the hardware warranty. The latest version of Toolkit software can be downloaded free of charge from <http://www.clipsal.com/trade/support>, and then select Downloads.

### 4.0 Megger Testing

Megger testing must never be performed on C-Bus data cabling or terminals as it may degrade the performance of the network.

Megger testing of the mains wiring, of an electrical installation that has C-Bus units connected, will not cause damage to the C-Bus units. C-Bus units contain electronic components and the installer should interpret megger readings with due regard to the nature of the circuit connection.

### 5.0 Power Surges and Short Circuits

The C-Bus network bridge is not directly connected to mains. However, the mains voltage that is used to supply power to the C-Bus network must be limited to the range specified. Each unit incorporates transient protection circuitry. Additional external power surge protection devices should be used to enhance system immunity to power surges. It is strongly recommended that over voltage equipment such as the Clipsal 970 be installed at the switchboard.

## 6.0 Specifications

Parameter	Value
C-Bus input voltage	15-36V d.c.
Current drawn	18mA from each connected network
C-Bus a.c. input impedance	100kΩ at 1kHz
Electrical isolation	3.75kV RMS for 1 minute between networks
Maximum number of units on a single C-Bus network	100 units
Connections	2 – RJ45 connectors per network
Mounting type	DIN rail
Propagation delay	250ms (minimum delay for messages between two adjacent C-Bus networks)
Interconnect capacity	Topology width: 100 networks (100 parallel bridges) Topology depth: 7 networks (6 bridges in series)
Communications capacity	1 network per each half of the network bridge 2 applications per bridge; the unit allows for communication with 1 or 2 or no Application filtering 2 remote networks per network bridge; the unit allows for communication with the adjacent network and 1 other remote network
C-Bus unit type	BRIDGE2N – near side BRIDGE2F – far side
System clock and burden	Software selectable
Operating temperature	0°C to 45°C
Humidity	10 to 95%, non condensing
Weight	95 grams

### Dimensions

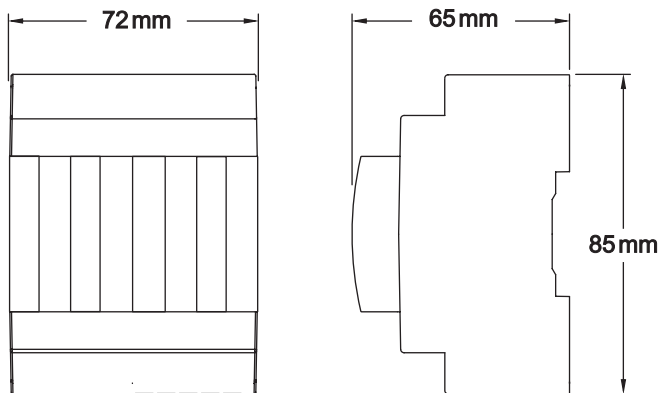


Figure 4. 5500NB C-Bus network bridge



## 7.0 Standards Complied

### Declarations of Conformity

The 5500NB C-Bus network bridge meets the following standards:

#### Australian/New Zealand EMC & Electrical Safety Frameworks and Standards



Regulation	Standard	Title
EMC	AS/NZS CISPR 22	Information Technology Equipment – Radio disturbance characteristics (EMC)

#### European Directives and Standards



European Council Directive	Standard	Title
EMC Directive 2004/108/EC	EN 55022	Information Technology Equipment – Radio Disturbance Characteristics
	EN 55024	Information Technology Equipment – Immunity Characteristics
	EN 61000	Electromagnetic Compatibility (EMC)
RoHS 2002/95/EC		Reduction of Hazardous Substances

#### Other International Directives and Standards

Regulation	Standard	Title
EMC	IECCISPR 22	Information Technology Equipment – Radio Disturbance Characteristics
Immunity	IECCISPR 24	Information Technology Equipment – Immunity Characteristics



## 8.0 Two-Year Warranty

The 5500NB C-Bus network bridge carries a two-year warranty against manufacturing defects.

### Warranty Statement

The benefits conferred herein are in addition to, and in no way shall be deemed to derogate; either expressly or by implication, any or all other rights and remedies in respect to the Schneider Electric product, which the consumer has in the location where the product is sold.

The warrantor is Schneider Electric with offices worldwide.

This Schneider Electric product is guaranteed against faulty workmanship and materials for a period of two (2) years from the date of installation.

Schneider Electric reserves the right, at its discretion, to either repair free of parts and labour charges, replace or offer refund in respect to any article found to be faulty due to materials, parts or workmanship.

This warranty is expressly subject to the Schneider Electric product being installed, wired, tested, operated and used in accordance with the manufacturer's instructions. Any alterations or modifications made to the product without permission of Schneider Electric might void the warranty.

Schneider Electric shall meet all costs of a claim. However, should the product that is the subject of the claim be found to be in good working order, all such costs shall be met by the claimant.

When making a claim, the consumer shall forward the Schneider Electric product to the nearest Schneider Electric office provide adequate particulars of the defect within 28 days of the fault occurring. The product should be returned securely packed, complete with details of the date and place of purchase, description of load, and circumstances of malfunction.

For all warranty enquiries, contact your local Clipsal Sales Representative. The address and contact number of your nearest sales office can be found at <http://www.clipsal.com/locations> or by telephoning Technical Support on 1300 722 247 (CIS Technical Support Hotline).

## 9.0 Technical Support

For further assistance in using this product, consult your nearest Clipsal Integrated Systems (CIS) Sales Representative or Technical Support Officer.

<b>Technical Support Contact Numbers</b>	
Australia	1300 722 247 (CIS Technical Support Hotline)
New Zealand	0800 888 219 (CIS Technical Support Hotline)
Northern Asia	+852 2484 4157 (Clipsal Hong Kong)
South Africa	011 314 5200 (C-Bus Technical Support)
Southern Asia	+603 7665 3555 Ext. 236 or 242 (CIS Malaysia)
United Kingdom	0870 608 8 608 (Schneider Electric Support)

Technical Support email: [cis.support@clipsal.com.au](mailto:cis.support@clipsal.com.au)

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Contact us: [clipsal.com/feedback](http://clipsal.com/feedback)

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