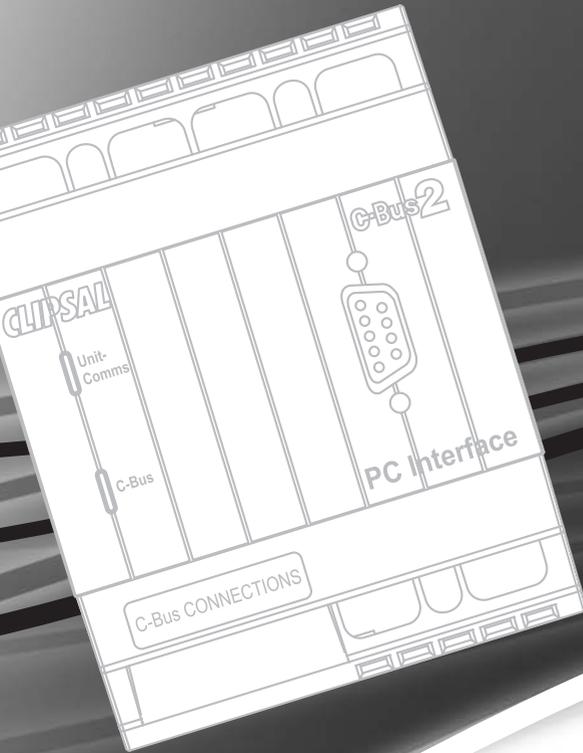


# **CLIPSAL**<sup>®</sup>

by **Schneider** Electric



## **C-Bus PC Interface 5500PC**



Installation Instructions

# Contents

<b>1.0</b>	<b>Product Range .....</b>	<b>3</b>
<b>2.0</b>	<b>Description .....</b>	<b>3</b>
<b>3.0</b>	<b>Capabilities .....</b>	<b>3</b>
<b>4.0</b>	<b>Indicators .....</b>	<b>3</b>
	4.1 Unit/Comms Indicator .....	3
	4.2 C-Bus Indicator.....	3
<b>5.0</b>	<b>C-Bus Power Requirements.....</b>	<b>4</b>
<b>6.0</b>	<b>Clock Signal Generation .....</b>	<b>4</b>
<b>7.0</b>	<b>Network Burden .....</b>	<b>4</b>
<b>8.0</b>	<b>Connection to the C-Bus Network .....</b>	<b>5</b>
<b>9.0</b>	<b>Connection to a Personal Computer .....</b>	<b>6</b>
	9.1 Internal Wiring of RS232 at 5500PC Terminals .....	7
<b>10.0</b>	<b>Communications Protocol .....</b>	<b>7</b>
<b>11.0</b>	<b>Communications Data Format.....</b>	<b>7</b>
<b>12.0</b>	<b>Programming Requirements .....</b>	<b>8</b>
<b>13.0</b>	<b>Power Surges .....</b>	<b>8</b>
<b>14.0</b>	<b>Megger Testing.....</b>	<b>8</b>
<b>15.0</b>	<b>Important Warning .....</b>	<b>8</b>
<b>16.0</b>	<b>Standards Complied.....</b>	<b>9</b>
<b>17.0</b>	<b>Product Specifications.....</b>	<b>9</b>
<b>18.0</b>	<b>Mechanical Specifications .....</b>	<b>10</b>
<b>19.0</b>	<b>Warranty .....</b>	<b>11</b>
<b>20.0</b>	<b>Technical Support .....</b>	<b>12</b>

## 1.0 Product Range

5500PC C-Bus PC Interface

## 2.0 Description

The PC Interface is a C-Bus system support device designed to provide an isolated communications path between a personal computer/modem and a C-Bus network. For ease of installation the unit is DIN rail mounted, measuring 4m wide (1m = 17.5 + 0.5/0.0mm).

## 3.0 Capabilities

The PC Interface provides the gateway between the PC and the C-Bus network. Through this interface, the following functions can be achieved:

1. Programming of C-Bus units
2. Issuing commands to the C-Bus network, including scheduled activities
3. Monitoring and data logging of activity on the C-Bus network.

The PC Interface may also generate the system clock for communications data synchronisation on the C-Bus network, and provides a software selectable Network Burden. The unit isolates the personal computer or modem from the C-Bus network.

The PC Interface consumes 32mA of current and therefore should be counted as two units when considering the number of units connected to a power supply on the network.

## 4.0 Indicators

### 4.1 Unit/Comms Indicator

If the unit is powered and functional, the unit/comms indicator will be illuminated and steady. During data transfer on the RS232 port the unit/comms indicator will flash.

Indicator Status	Meaning
On	Power on and functional
Flashing	Data exchange in progress

### 4.2 C-Bus Indicator

This indicator shows the status of the C-Bus network at this unit. If sufficient network voltage and a valid C-Bus clock signal is present then the "OK" signal will be displayed (a steady on). If a network is connected, which has more current load than the power supplies can support, this indicator will flash to show a marginal network voltage. If there is no C-Bus network clock present this indicator will not light.

Indicator Status	Meaning
On	C-Bus network operational
Flashing	Insufficient power to support network
Off	No C-Bus clock present, insufficient power to support network or C-Bus not connected (check terminations)

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

## 5.0 C-Bus Power Requirements

The PC Interface draws 32mA from the C-Bus network. It is recommended that the C-Bus calculator (C-Bus design verification software) be used to verify the design before proceeding with the hardware installation.

## 6.0 Clock Signal Generation

The PC Interface incorporates a software selectable C-Bus system clock, used for synchronising data communication waveforms on the C-Bus network. Selecting this option on the 'Global Tab' of the graphical user interface (GUI) will enable this to generate a C-Bus system clock signal on the network, if one is not detected.

## 7.0 Network Burden

The software selectable Network Burden can only be enabled on a unit with a unit address of 001. The Burden can be enabled from the 'Global Tab' within the GUI for the PC Interface.

**CAUTION:** The GUI software is designed to prevent the Burden from accidental selection.

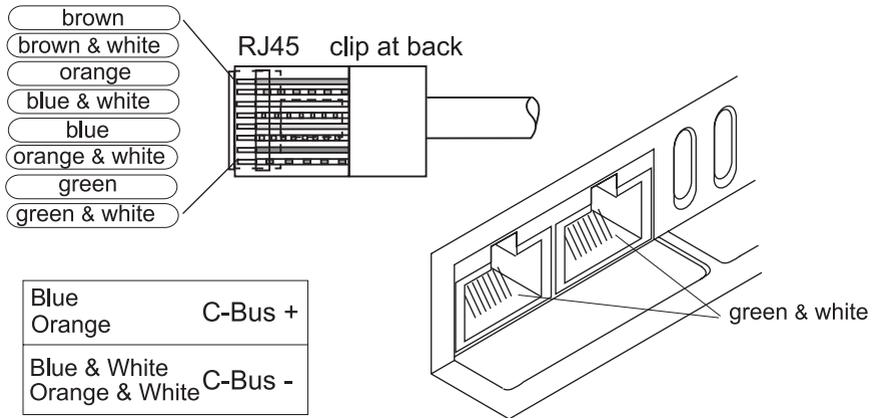
## 8.0 Connection to the C-Bus Network

Installation of the C-Bus PC Interface on the C-Bus network requires connection to the unshielded twisted pair C-Bus network cable. The following illustration shows the recommended cable termination technique for giving the best electrical performance.

It is recommended that Category 5 data cable is used (Clipsal catalogue number 5005C305B).

RJ Pin	C-Bus Connection	Colour
1	Remote ON*	Green/White
2	Remote ON*	Green
3	C-Bus Neg (-)	Orange/White
4	C-Bus Pos (+)	Blue
5	C-Bus Neg (-)	Blue/White
6	C-Bus Pos (+)	Orange
7	Remote OFF*	Brown/White
8	Remote OFF*	Brown

\* The PC Interface does not have remote override (on/off) functions, however correct connections must be maintained for these services across the C-Bus network; they are looped between the two C-Bus connections on this unit.



### NOTES:

- The mutual twist of solid and dotted conductors, of opposing coloured conductors, ensures a good electrical termination with favourable common mode noise characteristics.
- Three rubber bungs are supplied for unused RJ45 connectors, to stop foreign bodies from entering the unit.

## 9.0 Connection to a Personal Computer

The connection to a personal computer (PC) is via either a 9-pin D-Type serial connector or an 8-pin RJ45 connector.

This connection needs to be made to the 9-pin serial port of the PC. If the PC only has a 25-pin serial socket available, an adaptor will be required. 25 to 9-pin adaptors are readily available from most computer stores.

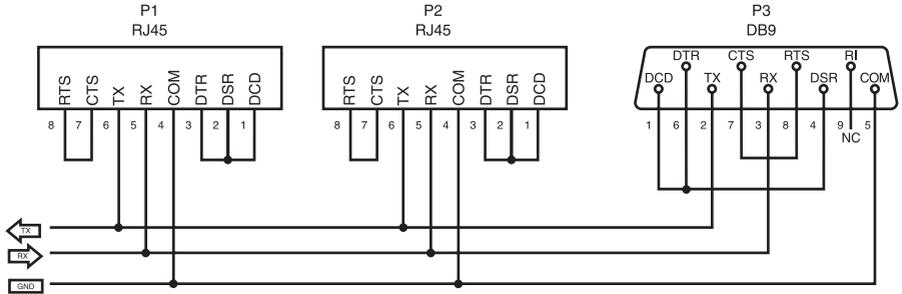
A data cable with a DB9 socket at one end and a DB9 plug at the other is supplied with the PC Interface.

**NOTE:** The data cable is wired straight through (no twists).

9-Pin D-Type			
C-Bus PC Interface		Personal Computer	
Pin No.	Signal	Pin No.	Signal
1	Data Carrier Detect (DCD) - not required	1	Data Carrier Detect
2	Transmit Data (TX)	2	Receive Data
3	Receive Data (RX)	3	Transmit Data
4	Data Set Ready (DSR) - not required	4	Data Terminal Ready
5	Common	5	Common
6	Data Terminal Ready (DTR) - not required	6	Data Set Ready
7	Clear to Send (CTS) - not required	7	Request to Send
8	Request to Send (RTS) - not required	8	Clear to Send
9	Ring Indicator (RI) - not required	9	Ring Indicator

8-Pin RJ45 (2 connectors wired in parallel)	
C-Bus PC Interface	
Pin No.	Signal
1	Data Carrier Detect (DCD) - not required
2	Data Set Ready (DSR) - not required
3	Data Terminal Ready (DTR) - not required
4	Common
5	Receive Data (RX)
6	Transmit Data (TX)
7	Clear to Send (CTS) - not required
8	Request to Send (RTS) - not required

## 9.1 Internal Wiring of RS232 at 5500PC Terminals



**WARNING:** Only one PC should be connected to the PC Interface at any given time. Connecting more than one PC will cause instability on the serial interface.

**NOTE:** Three rubber bungs are supplied for unused RJ45 connectors, to stop foreign bodies from entering the connectors.

## 10.0 Communications Protocol

A C-Bus network is connected to a PC for system configuration and programming (refer to Section 12). The PC Interface uses a proprietary protocol, based on RS232 serial communications. Clipsal offers a PCI Development Kit (5000DK) that enables third party developers to integrate their systems with C-Bus. Please contact your nearest Clipsal Sales Representative for further details.

## 11.0 Communications Data Format

Start Bits: One

Data Bits: Eight

Stop Bit: One

Parity: None

Baud Rates: 9600

## 12.0 Programming Requirements

The PC Interface must be programmed to set a unique identification (unit address) and mode of operation on the C-Bus network. C-Bus Toolkit Software can be used to configure all operational parameters.

## 13.0 Power Surges

The PC Interface is not connected to the mains. The PC Interface effectively isolates safety low voltage and mains voltage from the PC. However, external power surge protection devices should be used to enhance system immunity from power surges.

## 14.0 Megger Testing

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

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

## 15.0 Important Warning

The use of any non C-Bus software in conjunction with the hardware installation, without the written consent of Clipsal, may void any warranties applicable to the hardware.

## 16.0 Standards Complied

The units have been designed to meet Australian and European standards for EMC Compliance.

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

	Standard	Title
	AS/NZS CISPR22	Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement

### European Standards

	EN 55022	Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement
	EN 55024	Information technology equipment – Immunity characteristics – Limits and methods of measurement

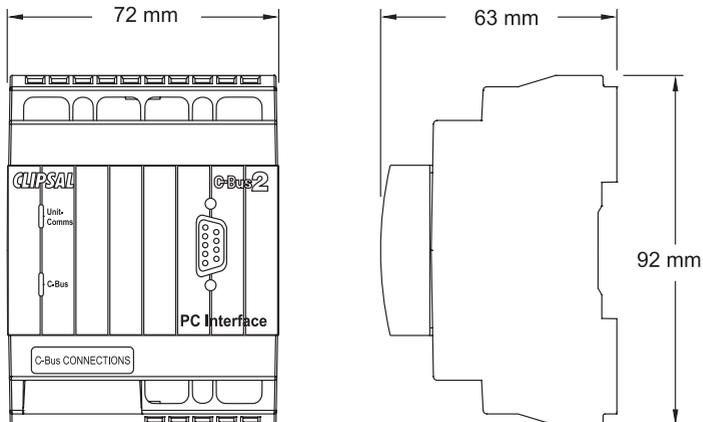
### Other International Standards

	CISPR 22	Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement
	CISPR 24	Information technology equipment – Immunity characteristics – Limits and methods of measurement

## 17.0 Product Specifications

<b>Catalogue Number</b>	<b>5500PC</b>
C-Bus Input Voltage	15 - 36V d.c.
Current Drawn	32mA
Electrical Isolation Rating	500V RMS continuous C-Bus/RS232
<b>Communications Protocol</b>	
PC/PC Interface	RS232
<b>Ambient Conditions</b>	
Operating Temperature	0 – 45°C
Operating Humidity Range	10 – 95% RH
<b>Terminals</b>	
C-Bus Side	RJ45 Connectors (2)
PC Side	DB9 Socket Connector + RJ45 Connectors (2)
<b>Size</b>	
Dimensions	72 x 85 x 65mm (LxWxD)
Weight	104g

## 18.0 Mechanical Specifications



### NOTES:

- All dimensions are in millimetres.
- No user serviceable parts inside.

## 19.0 Warranty

The C-Bus PC Interface Unit carries a two year warranty against manufacturing defects.

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 the Clipsal product, that the consumer has under the laws in the location where the product is sold.

The warrantor is Clipsal Australia Pty Ltd, a member of Schneider Electric, with offices worldwide.

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

Clipsal 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 Clipsal product's having been installed, wired, tested, operated and used in accordance with the manufacturer's instructions.

Clipsal 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, the claimant shall meet all such costs.

When making a claim, the consumer shall forward the Clipsal product to the nearest office of Clipsal Australia Pty Ltd or Schneider Electric with 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 or Schneider Electric sales representative. The address and contact number of your nearest office can be found at <http://www.clipsal.com/> locations or by telephoning Technical Support 1300 722 247 (CIS Technical Support Hotline).

## 20.0 Technical Support

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

Technical Support Contact Numbers	
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)

---

### Clipsal Australia Pty Ltd

A member of Schneider Electric

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

**National Customer Care Enquiries:**

**Tel 1300 2025 25**

**Fax 1300 2025 56**

**clipsal.com**

Clipsal Australia Pty Ltd reserves the right to change specifications, modify designs and discontinue items without incurring obligation and whilst every effort is made to ensure that descriptions, specifications and other information in this catalogue are correct, no warranty is given in respect thereof and the company shall not be liable for any error therein.

© Clipsal Australia Pty Ltd. The identified trademarks and copyrights are the property of Clipsal Australia Pty Ltd unless otherwise noted.