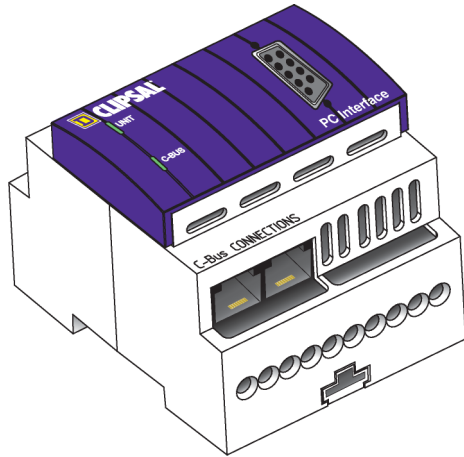


Installation Instructions Square D® Clipsal® PC Interface

SLC5500PC for Use with
Wired C-Bus™ Networks

Instruction Bulletin
Retain for future use.



HAZARD CATEGORIES AND SPECIAL SYMBOLS

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

Danger indicates an immediately hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Warning indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

CAUTION

Caution, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, can result in property damage or improper operation.

NOTE: Provides additional information to clarify or simplify a procedure.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. This document is not intended as an instruction manual for untrained persons. No responsibility is assumed by Square D for any consequences arising out of the use of this manual.

Class B FCC Statement

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.

INTRODUCTION

The Square D® Clipsal® PC Interface (PCI) is a C-Bus™ system support device designed to provide an isolated communications path between a personal computer/modem and a C-Bus network. The PCI is DIN rail mounted for ease of installation. The C-Bus network connection is conveniently achieved through the use of RJ45 connectors.

Capability

Through the PCI, the following functions can be achieved:

- Programming of C-Bus units.
- Issuing commands to the C-Bus network.
- Monitoring and data logging of activity on the C-Bus network.

The PCI may also generate the system clock for communications data synchronization on the C-Bus network, and provides a software selectable network burden (also see "Network Burden"). The unit isolates the personal computer or modem from the C-Bus Network.

Before You Begin

Before installing the PCI, inspect it carefully. Verify the catalog number on the box label.

Table 1: Contents of the Box

Part Number	Description	Quantity
SLC5500PC	C-Bus network PC Interface	1
	C-Bus network hardware burden	1
	Serial communications cable with DB9 plug and receptacle - 78 in. (1981mm)	1
	Rubber RJ45 terminal plugs	3
	C-bus network cable, 11.8 in. (300 mm)	1

SAFETY PRECAUTIONS

This section contains important safety precautions that must be followed before attempting to install or maintain electrical equipment. Carefully read and follow the safety precautions below.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- This equipment must be installed and serviced by qualified electrical personnel.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- Turn off all electrical power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

NETWORK CONSIDERATIONS

Network Considerations

The PCI can draw 32 mA from the C-Bus network. Determine the total network current load and verify that there will be enough C-Bus power to support all connected devices. Also verify that the amount of available power per C-Bus network is no more than 2A.

Network Burden

One network burden is required for proper C-Bus operation, network termination, and biasing.

CAUTION
HAZARD OF IMPROPER OR UNSTABLE OPERATION C-Bus networks require only one burden. Failure to follow this instruction can result in improper C-Bus network operation.

The C-Bus system clock must be enabled in order to apply the network burden.

Hardware Burden

The hardware burden can be used in one of two ways.

1. Install the hardware burden temporarily in order to enable the software burden, and then to remove the hardware burden.
2. Install the hardware burden and leave it installed as the network burden.

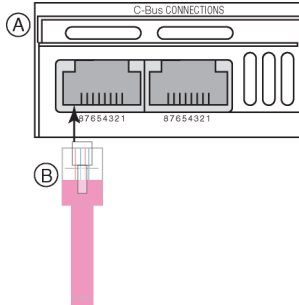
To install the hardware burden device, simply plug it into the C-Bus network RJ-45 receptacle.

NOTE: Plug the hardware burden device only into C-Bus receptacles.

Figure 1: Hardware Burden Connection on the Unit

KEY:

- A. RJ-45 C-Bus receptacle on the unit
- B. Hardware burden



Software Burden

The PCI incorporates a software-selectable network burden. To enable a software-selectable burden, first enable a hardware burden on the network and then enable the software burden using C-Bus Toolkit software. After the software burden is enabled, remove the hardware burden.

C-Bus System Clock

The PCI has a software-selectable C-Bus system clock with the capability to synchronize data communication on the C-Bus network. Typically the clock is disabled: Successful C-Bus network communications require only one active clock. A maximum of three C-Bus units per network can have the clock enabled. Refer to the C-Bus Toolkit software for additional information and to enable the PCI system clock.

INSTALLATION

Follow the procedures in this section to properly install PCI.

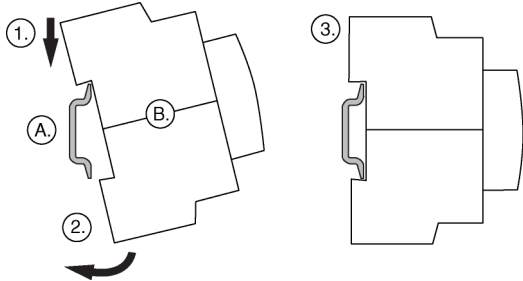
Mounting onto the DIN Rail

The DIN-rail units are designed to be installed onto a standard 1.38 in. (35 mm) DIN rail.

KEY:

- A. DIN rail
- B. DIN-rail unit

1. Hook the unit onto the top of the DIN rail
2. Swing the bottom of the unit down
3. Mounted unit

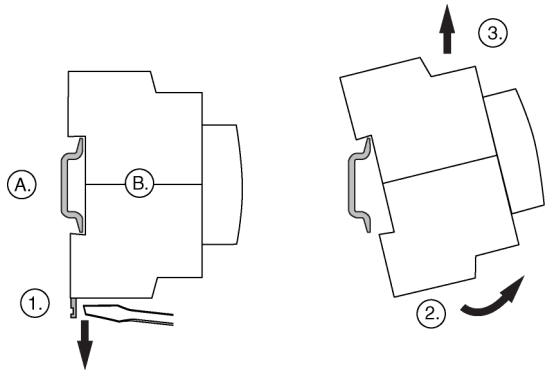


Removing from the DIN Rail

KEY:

- A. DIN rail
- B. Unit

1. Pull out the slide release
2. Pull the unit away from the DIN rail
3. Lift the unit away from the rail



Configuring, Labeling, and Recording the Locations of C-Bus Units

C-Bus units must be configured, at a minimum, with the unit address and part name before being physically installed on the network. Each unit is identified by a unique serial number found on the box label (see the figure “Example of a Box Label with Lift-and-Peel Section”). The serial number provides important information for recording a unit's location. An infrared barcode scanner may be used to read the box label's bar code for the serial number and unit information.

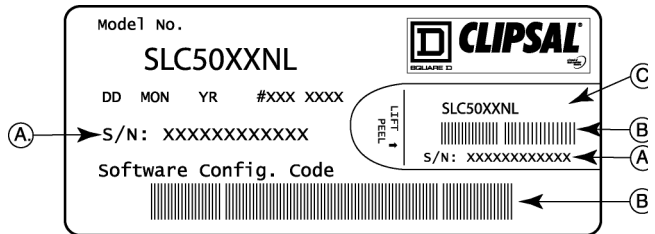
Use the C-Bus Toolkit to assign the unit a unique address, and then mark the unit address and part name directly onto the unit before physical installation. You can use the lift-and-peel label from the unit box, or write the unit address and part name directly on the unit.

After marking the unit, record each unit's physical location onto a site plan or panel schedule.

Figure 2: Example of a Box Label with Lift-and-Peel Section

KEY:

- A. Serial number
- B. Bar code
- C. Lift-and-peel section



CAUTION

HAZARD OF UNEXPECTED OR UNINTENDED OPERATION

- Properly configure, label, and record the location of each unit.
- Retain location records and provide them to the person(s) responsible for configuring and commissioning the network.

Failure to follow these instructions can result in unintended C-Bus network operation.

Wiring Guidelines

Follow the guidelines below when working with the PCI.

- Verify that the power supplying the system is turned OFF before handling electrical power conductors.
- Observe national and local electrical codes.
- Isolate the PCI from the Class 1 wiring. Consult your national and local electrical codes for requirements about isolating Class 1 wiring and Class 2 wiring terminals.
- Prevent wire cuttings and debris from entering the unit.

Megger® Testing Guidelines

Do not Megger® test C-Bus data cabling or terminals. Megger testing of data cabling or terminals can degrade the performance of the C-Bus network.

It will not harm the units if electrical power terminals only are Megger tested. But because units contain electronic components, the Megger readings will not be correct. To obtain valid readings, disconnect the power lines from the units.

CAUTION

HAZARD OF EQUIPMENT DAMAGE

Do not Megger® test C-Bus data cabling or terminals as it can degrade the performance of the C-Bus network.

Failure to follow this instruction will result in damage to the C-Bus network.

Connecting Serial Communications to the PCI

Make a serial communication connection to the PCI by using either a DB9 (9 pin) type serial connector or an RJ45 (8 pin) connector. Place rubber plugs in any unused RJ45 receptacles.

<h2>CAUTION</h2>
HAZARD OF UNSTABLE OPERATION OR EQUIPMENT DAMAGE
Make only one serial communication connection to the PC Interface at any given time. Use either the DB9 (9 pin) type serial connector or an RJ45 (8 pin) connector.
Failure to follow this instruction can cause instability to the serial interface or damage equipment.

Figure 3: Serial Communications Ports

KEY:

- A. PC Interface
- B. RJ45 (8 pin) receptacle
- C. DB9 (9 pin) receptacle
- D. RJ45 rubber plug (for unused ports)

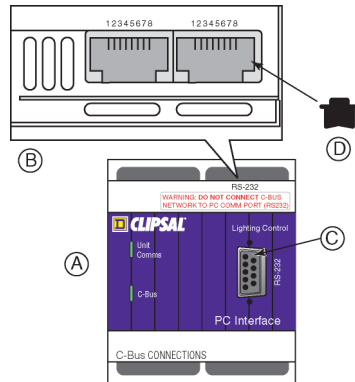
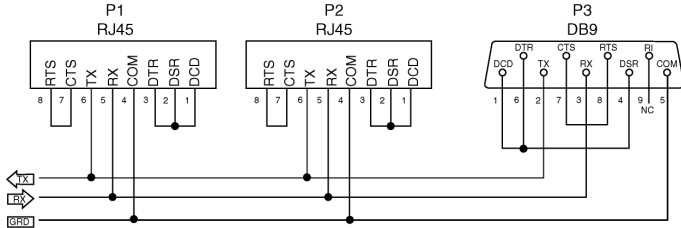


Figure 4: Internal Wiring Diagram of RS232 Terminals



A data cable with a DB9 receptacle at one end and a DB9 plug at the other is supplied with the PC Interface. If the PC only has a 25 pin serial socket available, an adaptor is required. 25 to 9 pin adaptors are readily available from most computer stores.

Table 2: DB9 (9 Pin) Terminals

PC Interface		Personal Computer	
Pin no.	Signal	Pin no.	Signal
1	Data carrier detect (DCD)-not required	1	Data carrier detect (DCD)
2	Transmit data (TX)	2	Receive data (RX)
3	Receive data (RX)	3	Transmit data (TX)
4	Data set ready (DSR)-not required	4	Data terminal ready (DTR)
5	Common	5	Common
6	Data terminal ready (DTR)-not required	6	Data set ready (DSR)
7	Clear to send (CTS)-not required	7	Request to send (RTS)
8	Request to send (RTS)-not required	8	Clear to send (CTS)
9	Ring indicator (RI)-not required	9	Ring indicator (RI)

Table 3: RJ45 (8 Pin) Terminals (2x), wired in parallel

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

CAUTION

HAZARD OF UNSTABLE OPERATION OR EQUIPMENT DAMAGE

- Do not connect C-Bus network to a PC communications port.
- Do not Megger® test C-Bus or RS232 data cabling or terminals.

Failure to follow these instructions can cause instability or damage to the C-Bus network or other equipment communicating with the C-Bus network.

Connection to the C-Bus Network

The C-Bus network is connected to the PCI through two polarity sensitive RJ45 inputs located on the PCI. Connect the unit to the C-Bus network with Category 5 unshielded twisted pair C-Bus network cable, and a wired RJ45 plug. Refer to the "Wiring Connections Key Diagram" figure, and the "RJ45 Pin Connections" table for wiring and pin connection information.

NOTE: To clearly distinguish C-Bus from other UTP Cat5 cables, it is recommended to use a different colored cable, or clearly label the C-Bus UTP Cat5 cable.

NOTE: The Category 5 unshielded twisted pair C-Bus network cable and the wired RJ45 plug are provided by the installer.

⚠ WARNING
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH
Do not connect line voltage to any C-Bus terminal.
Failure to follow this instruction can result in personal injury or equipment or property damage.

Figure 5: Wiring Connections Key Diagram

KEY:

- A. C-Bus positive (+): blue + orange
- B. C-Bus negative (-): blue/white + orange/white
- C. Remote OFF: brown + brown/white*
- D. Remote ON: green + green/white*

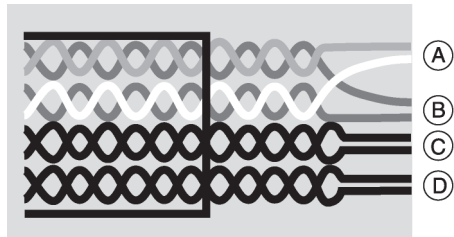
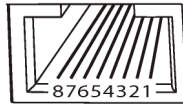


Table 4: RJ45 Pin Connections

RJ Pin	C-Bus Connection	Color
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



*Not internally connected.

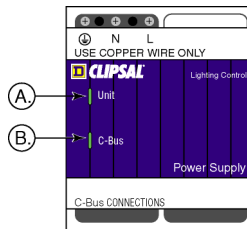
STATUS INDICATORS

The PCI has 2 status indicator lights. The figure and tables in this section show the location of the indicators and explain the meaning of each indicator's LED activity status.

Figure 6: Status Indicators

KEY:

- A. Unit/Comms Status Indicator
- B. C-Bus Network Status Indicator



C-Bus Status Indicators

This indicator shows the status of the C-Bus network at the unit. The table explains the meaning of each type of LED activity.

Table 5: Meaning of C-Bus Indicator Status

LED Activity	Meaning
On (continuous light)	Power on and C-Bus network functional and C-Bus network clock on network
Flashing	Insufficient power to support network
Off	No C-Bus network connection or no C-Bus network clock on the network

Unit/Comms Status Indicator

This indicator shows the status of the individual unit and its communication during data transfer. The table explains the meaning of each type of LED activity.

Table 6: Meaning of Unit Indicator Status

LED Activity	Meaning
On (continuous light)	Normal operation; C-Bus power is present
Irregular flash	Data transfer in progress
Off	No C-Bus power is connected

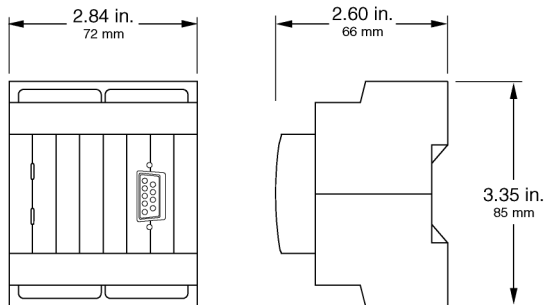
SPECIFICATIONS

Table 7: Electrical Specifications

Catalog number		SLC5500PC
C-bus input voltage		15-36Vdc
Current drawn		32mA
Electrical isolation rating		500Vrms continuous C-Bus/RS232
Communications:	PC/PC Interface	RS232
Ambient conditions:	Operating temperature	32-113°F (0-45°C)
	Operating humidity range	95% RH; non-condensing
Terminals:	C-Bus	RJ45 connectors (Qty: 2)
	PC	DB9 socket connector + RJ45 connectors (QTY: 2)
Dimensions:	L x W x D	2.84 in. x 3.35 in. x 2.60 in. (72mm x 85mm x 66mm)
Weight:	(Approximate)	0.23 lbs (104g)

Dimensions




Figure 7: Dimensions



STANDARDS

The PCI complies with the following Standards:

Table 8: U.S. and Canadian Product Safety Standards and U.S. FCC Regulations

Standards/Regulations	Title
 CSA C22.2 No. 205	Signal Equipment
 UL916	Energy Management Equipment
 FCC Part 15	Class B Digital Device for Home or Office Use

SUPPORT AND SERVICE


Contact the Square D Customer Information Center for technical support by phone at 1-888-Square D (1-888-778-2733) or e-mail at lightingcontrol.support@us.schneider-electric.com.

Contact your local Square D service representative or Square D® Clipsal® certified installer for repairs or service to your network.

You may also find helpful information on our web site at www.squaredlightingcontrol.com.

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