Installation Instructions

Black and White Mk II Touch Screen

5000CT2 Series
5000CTL2 Series

C-Bus®

Installation Instructions
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January, 2012
1.0 Introduction

The C-Bus Black and White Mk II Touch Screen provides sophisticated control of an entire C-Bus system from one location. Using the appropriate software, you can:

- Configure the screens for convenience of use
- Control devices and scenes
- Use C-Bus interface to set up schedules and timer control for lighting
- HVAC, shutters and blinds and telephony
- The logic engine provides control for third-party devices.

The Black and White Mk II Touch Screens are wall-mount units, with or without a serial logic interface. Several colour options are available for Saturn, Neo and plastic surround units. Metal-finish fascias can also be ordered. Contact your local sales representative for more information.

<table>
<thead>
<tr>
<th>Catalogue Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5050CT2</td>
<td>Black and White Mk II Touch Screen, 4.7 inch LCD screen, non-logic engine model, Neo plastic fascia</td>
</tr>
<tr>
<td>5050CTL2</td>
<td>Black and White Mk II Touch Screen, 4.7 inch LCD screen, with logic engine, Neo plastic fascia</td>
</tr>
<tr>
<td>5080CT2</td>
<td>Black and White Mk II Touch Screen, 4.7 inch LCD screen, non-logic engine model, Saturn bevelled glass fascia</td>
</tr>
<tr>
<td>5080CTL2</td>
<td>Black and White Mk II Touch Screen, 4.7 inch LCD screen, with logic engine, Saturn bevelled glass fascia</td>
</tr>
<tr>
<td></td>
<td>Parts kit includes stylus, microfibre cleaning cloth, mounting screws, USB programming cable, ferrite filter (supplied with the touch screen)</td>
</tr>
</tbody>
</table>

**Accessories**

<table>
<thead>
<tr>
<th>Catalogue Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5035TX2</td>
<td>Infrared remote control (supplied with the touch screen)</td>
</tr>
<tr>
<td>5000CT2RS232</td>
<td>RS-232 cable (supplied with logic engine models)</td>
</tr>
<tr>
<td>5000CT2WB</td>
<td>Wall box (not supplied)</td>
</tr>
</tbody>
</table>

Table 1. Touch screen product range and accessories
1.1 Features and Capabilities

The Black and White Mk II Touch Screen has the following features:

- A touch-sensitive, 4.7 inch, active black and white LCD screen
- A real-time clock for your convenience
- Units with a logic engine use an RS-232 connection to interface with third party devices
- An inbuilt infrared (IR) receiver window for remote control interface using the included 5035TX2 C-Bus remote control
- The touch screen is powered by the C-Bus network and requires no connection to building power or any power pack
- By setting access levels and passwords, you can set up the touch screen to restrict access to touch screen functions.

1.2 Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>load</td>
<td>An electrical device (such as a light) connected to a C-Bus output unit (such as a dimmer).</td>
</tr>
<tr>
<td>scene</td>
<td>A series of actions across multiple outputs, triggered by a single button. For example, on arrival home you could use a scene to switch on lights in the hallway, kitchen and lounge, and switch on a heater.</td>
</tr>
<tr>
<td>schedule</td>
<td>A sequence of events set to occur at particular times in the future.</td>
</tr>
<tr>
<td>backlight</td>
<td>The light behind the LCD screen providing visibility in varying lighting conditions.</td>
</tr>
</tbody>
</table>

Table 2. Definitions
2.0 Safety and Product Handling

The Black & White Mk II Touch Screen is for C-Bus system use only. During installation, the unit is connected to a PC. Logic engine units use an RS232 connection to third party units.

**WARNING: Avoid Electrical Shock Hazards**

Never connect the touch screen to building power. The touch screen is a Safe Extra Low Voltage (SELV)/Class 2 device. The touch screen is designed for connection to a C-Bus network only. Logic engine models must be connected to third party equipment that has adequate isolation from line voltages.

Be aware of the following information for installation:

- The touch screen is for indoor use only
- The touch screen is never connected directly to building power and does not require building power for its operation
- Using other / alternative software with C-Bus hardware, without the written consent of Clipsal by Schneider Electric, may void any hardware warranties
- Changes or modifications not expressly approved by Clipsal by Schneider Electric, could void the user’s authority to operate the equipment
- To comply with EMC regulations the included ferrite filter must be fitted to the C-Bus cable connected to the unit
- Do not Megger test the touchscreen units or the C-Bus network cables.

3.0 Installation

When installing the touch screen, be careful not to scratch or otherwise damage the plastic parts. Do not wipe the LCD screen with anything other than a clean soft cloth. Refer to the User's Guide for care instructions.

3.1 Location

It is important to select the right location to install the touch screen.

- The touch screen is designed for indoor use only
- Do not install the touch screen where it will be exposed to:
  - Dripping or splashing liquids
  - Direct sunlight or a source of heat
  - High humidity, condensation or heavy dust

Follow these guidelines when choosing a location for the unit:

- Provide easy access to the unit for switching lights and selecting scenes
- Provide a clear area in front of the touch screen for reception of infrared signals from a remote control
- Do not mount opposite windows or other sources of bright light, as the reflections make viewing difficult.
The screen has a typical viewing angle of 45° to the left and right, 50° up and 30° down. Take this into account when choosing the mounting height (see Figure 1).

Figure 1. Touch screen viewing angles

3.2 Multiple Units

Multiple touch screens can be installed on a C-Bus network. These units may be programmed to operate cooperatively or independently of each other. Take care not to mount units where a single IR remote control transmission can be received by multiple touch screens. Multiple units might trigger a scene, with unpredictable results.

Figure 2. Do not overlap IR transmission/reception zones
4.0 Mounting Instructions

The wall-mounted units can be installed in stud/plasterboard walls (such as timber frame internal walls) using the built-in mounting flaps. For solid walls (such as brick or stone) or stud walls, use a wall box. The desktop unit is placed on a solid flat surface and can be permanently attached to a shelf or counter.

4.1 Mounting in Stud Walls

**Caution**

To avoid damage to the mounting hardware and to the plasterboard, do not over tighten the mounting screws.

To install a wall-mounted unit in a stud/plasterboard wall:

1. Cut an appropriately sized hole using the provided template. Be sure to allow sufficient clearance from studs and other obstructions.

2. Remove the green screw-terminal connector and wire it to the C-Bus cable.

3. Plug the connectors into the unit (C-Bus and RS-232 if used) and place the touch screen in the wall.

4. Tighten the four mounting screws to rotate and tighten the mounting flaps.

![Diagram showing how to tighten the screws to rotate and tighten the mounting flaps](image)

Figure 3. Tighten the screws to rotate and tighten the mounting flaps
4.2 Wall Box

The Wall Box (catalogue number 5000CT2WB) for the touch screen lets you mount the unit within a solid wall construction, such as brick or stone. The wall box (see Figure 4.) may also be used to mount a unit in timber or metal-framed stud walls.

![Wall Box Diagram](image)

Figure 4. The wall box for use with solid or wall studs

To mount the touch screen using the wall box:

1. Prior to cladding or rendering the wall, attach the wall box to framing or masonry, using appropriate screws or anchors (not supplied).

2. Feed the cable(s) into the wall box.

3. Remove the green plastic connector from the touch screen and connect the twisted pairs from the C-Bus network Cat.5e cable (see Section 5.1).

4. After the wall surface is installed, cut an opening for the touch screen. Use care not to damage the cables inside the wall box.

5. Remove the four mounting flaps and fixing screws from the touch screen (these are not required).

6. Insert the screws provided in the parts pack, through the holes identified in Figure 5.

7. Hold the touch screen up to the wall box and plug the cables into the connectors (C-Bus and RS-232 if used).

8. Tighten the screws to fix the touch screen to the wall box.
4.3 Attaching the Fascia

It is highly recommended that you remove power from the touch screen before removing or attaching the fascia.

To attach the unit’s fascia:

1. Position the fascia over the touch screen, with the indicator window on the right hand side. Press the top of the fascia against the wall, just above the touch screen.

2. Slide the fascia down over the top of the touch screen, so it clips to the chassis.

3. Press the bottom of the fascia, on each side, so it snaps into place.

To remove the fascia, insert the head of a flat head screwdriver into each slot at the base of the fascia, and twist as shown in Figure 6.
5.0 Wiring Connections

The connectors are provided on the rear of the unit. These are the twisted pairs for C-Bus and a stereo jack for logic engine models (see Figure 7.). The USB programming connector is located on the front of the unit, behind the fascia.

5.1 C-Bus Network Connections

Connect the Cat.5e Unshielded Twisted Pair (UTP) C-Bus network cable to the 4-terminal connector. The paired connectors are internally connected in parallel, which allows placing the touch screen at any location on the network. C-Bus cable conductor assignments are shown in Figure 8. and Table 3. The Clipsal catalogue numbers for C-Bus Cat.5e UTP cable is 5005C305B (solid conductors) and 5005C305BST (stranded conductors).

The touch screen does not have remote override functions (Remote ON/Remote OFF). However, if more than one C-Bus cable is connected to the unit, the remote override connections should be maintained across the cables to ensure correct operation of these services.
Table 3. C-Bus network cable wire colour assignments

<table>
<thead>
<tr>
<th>Terminal</th>
<th>C-Bus Connection</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-Bus</td>
<td>–</td>
<td>C-Bus Negative (–)</td>
</tr>
<tr>
<td></td>
<td>+</td>
<td>C-Bus Positive (+)</td>
</tr>
<tr>
<td></td>
<td>–</td>
<td>C-Bus Negative (–)</td>
</tr>
<tr>
<td></td>
<td>+</td>
<td>C-Bus Positive (+)</td>
</tr>
<tr>
<td>Not connected</td>
<td>Remote OFF</td>
<td>brown + brown and white</td>
</tr>
<tr>
<td></td>
<td>Remote ON</td>
<td>green + green and white</td>
</tr>
</tbody>
</table>

5.2 Ferrite Filter

Install a ferrite filter on the C-Bus network cable, between the touch screen and the nearest connection to the network, to apply an additional level of filtering for compliance with EMC regulations.

Figure 9. Loop the C-Bus network cable through the ferrite filter
5.3 RS-232 Connection

The RS-232 serial port connection is usable on logic engine models only. The connection point is a 3.5mm stereo jack with conductors for RxD, TxD and GND. A special RS-232 cable is supplied with logic engine models (Clipsal catalogue number 5000CT2RS232).

Wiring details are provided in Table 4. The RS-232 port allows you to connect external devices to the unit, such as security and control equipment.

**Note:**
If using the RS-232 port to connect to external devices, ensure that you use a suitable shielded data cable. Cable length should be limited to 15m for communication, at up to 19,200 bps, or 7.5m at 38,400 bps.

<table>
<thead>
<tr>
<th>Tip</th>
<th>Sleeve</th>
<th>Pin</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tip</td>
<td>TxD</td>
<td>Transmit Data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ring</td>
<td>RxD</td>
<td>Receive Data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sleeve</td>
<td>GND</td>
<td>Ground</td>
</tr>
</tbody>
</table>

Table 4. RS-232 pinouts for the logic engine connection

6.0 C-Bus Requirements

The C-Bus C-Touch Spectrum Colour Touch Screen must be programmed with a unique unit address. This is accomplished using C-Bus Toolkit software, available at the Clipsal Integrated Systems (CIS) web site, www.clipsal.com/cis. Go to the Technical section and select ‘Downloads.’

The touch screen must be configured with a software project customised for a particular C-Bus installation. The project is produced using the Programming Interface for C-Bus Embedded Devices (PICED) software. The PICED software is available from the ‘Downloads’ location cited previously.

After creating a project using the PICED software, connect the USB programming cable from the touch screen to your PC. Use the ‘Transfer Project to Unit’ option to upload the project to the touch screen. This option is located in the PICED software transfer menu.

The touch screen configuration files should be saved to disc and kept in an archive at your premises. It is also recommended to give a copy to the customer.

C-Bus Power

The touch screen draws its operating power from the C-Bus network. The unit does not supply power to the C-Bus network. The touch screen is never connected to building power.
Adequate C-Bus network power supply units must be installed to support connected devices. The Network window of a C-Bus Toolkit project provides a summary of a C-Bus network, according to the units added to the database. This can be helpful in determining the power supply requirements of a particular network.

C-Bus Clock

The touch screen incorporates a software selectable C-Bus system network clock. The clock is used to synchronise data communication over a C-Bus network. The touch screen's C-Bus system clock is enabled as default. Its state can be changed from the unit's 'Global' tab in C-Bus Toolkit.

7.0 Unit Reset

The wall-mount touch screen has a button that can be used to recover the unit if the firmware becomes corrupted. The Unit Reset button is located on the front of the unit, under the fascia, immediately above the USB connector. The button is pressed when the unit is powered, using a pin or paper clip to break the sticker through the white dot.

Do not use this button if the unit is operating normally. If you have questions regarding the use of the Unit Reset button, contact Technical Support.

<table>
<thead>
<tr>
<th>Caution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressing the Unit Reset button will erase ALL firmware and project data in the unit and reset it.</td>
</tr>
</tbody>
</table>

After pressing the Unit Reset, the touch screen ceases operation and displays a blank (black) screen. The blue power LED remains on. Firmware can then be reloaded using the ‘Recover C-Bus 2’ option from the Transfer menu in PICED.
## 8.0 Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display type</td>
<td>4.7 inch (119mm), active black and white LCD</td>
</tr>
<tr>
<td>Display resolution</td>
<td>320 x 240 pixels</td>
</tr>
<tr>
<td>Display luminance</td>
<td>120cd/m²</td>
</tr>
<tr>
<td>Viewing angle</td>
<td>Left, right: 45°; up: 50°, down 30°</td>
</tr>
<tr>
<td>Backlight type</td>
<td>White LED</td>
</tr>
<tr>
<td>Touch surface durability</td>
<td>1 million presses (typical)</td>
</tr>
<tr>
<td>C-Bus supply requirement</td>
<td>15V to 36V d.c. @ 65mA required for normal operation. Does not provide current for the C-Bus network.</td>
</tr>
<tr>
<td>A.C. impedance</td>
<td>13kΩ @ 1kHz</td>
</tr>
<tr>
<td>C-Bus connections</td>
<td>4-wire terminal block</td>
</tr>
<tr>
<td>Maximum number of controlled loads</td>
<td>255 group addresses on each of 10 applications</td>
</tr>
<tr>
<td>C-Bus network clock</td>
<td>Software selectable</td>
</tr>
<tr>
<td>C-Bus network burden</td>
<td>Software selectable</td>
</tr>
<tr>
<td>Programming port</td>
<td>USB type B (front of unit, behind fascia)</td>
</tr>
<tr>
<td>Third party interface</td>
<td>RS-232 port (logic engine models only) using 3mm stereo socket</td>
</tr>
<tr>
<td>Warm-up time</td>
<td>&lt;10 seconds</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>0°C to 45°C (32°F to 113°F)</td>
</tr>
<tr>
<td>Operating humidity range</td>
<td>10% to 95% RH (non-condensing)</td>
</tr>
<tr>
<td>Weight</td>
<td>370g (without fascia)</td>
</tr>
</tbody>
</table>
9.0 Dimensions

Figure 10. Unit shown is the 5080CT2 with Saturn fascia attached
10.0 Standards Complied

Declarations of Conformity

Australian/New Zealand EMC & Electrical Safety Frameworks and Standards

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Standard</th>
<th>Title</th>
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<tbody>
<tr>
<td>EMC</td>
<td>AS/NZS</td>
<td>Information Technology Equipment Radio Disturbance Characteristics Limits and Methods of Measurement</td>
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<tr>
<td></td>
<td>CISPR22</td>
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European Directives and Standards

<table>
<thead>
<tr>
<th>Directive</th>
<th>Standard</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
<td>EN 55024</td>
<td>Information Technology Equipment Immunity Characteristics Limits and Methods of Measurement</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Directive</th>
<th>Standard</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>RoHS Directive</td>
<td></td>
<td>Reduction of Hazardous Substances</td>
</tr>
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</table>

Other International Directives and Standards

<table>
<thead>
<tr>
<th>Standard</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CISPR 22</td>
<td>Information Technology Equipment Radio Disturbance Characteristics Limits and Methods of Measurement</td>
</tr>
<tr>
<td>CISPR 24</td>
<td>Information Technology Equipment Immunity Characteristics Limits and Methods of Measurement</td>
</tr>
</tbody>
</table>
## 11.0 Two Year Warranty

The C-Bus Black and White Mk II Touch Screen 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 Clipsal by Schneider Electric product, that the consumer has in the location where the product is sold.

The warrantor is Schneider Electric (Australia) Pty Ltd, a member of Schneider Electric Industries SAS, with offices worldwide.

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

Schneider Electric (Australia) Pty Ltd 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 by 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 (Australia) Pty LTD might void the warranty.

Schneider Electric (Australia) Pty Ltd 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 Clipsal by Schneider Electric product to the nearest Clipsal by 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 the load and circumstances of the malfunction.

For all warranty enquiries, contact your local Clipsal by Schneider Electric sales office.

The address and contact number of your nearest sales office can be found at the website www.clipsal.com/locations or by telephoning 1300 722 247, the CIS Technical Support Hotline (Australia only).
12.0 Technical Support and Troubleshooting

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

Australia Technical Support Hotline: 1300 722 247
New Zealand Technical Support Hotline: 0800 888 219
United States Customer Information Centre: 1 888 778 2733
lightingcontrol.support@us.schneider-electric.com
CIS Technical Support email: cis.support@clipsal.com.au