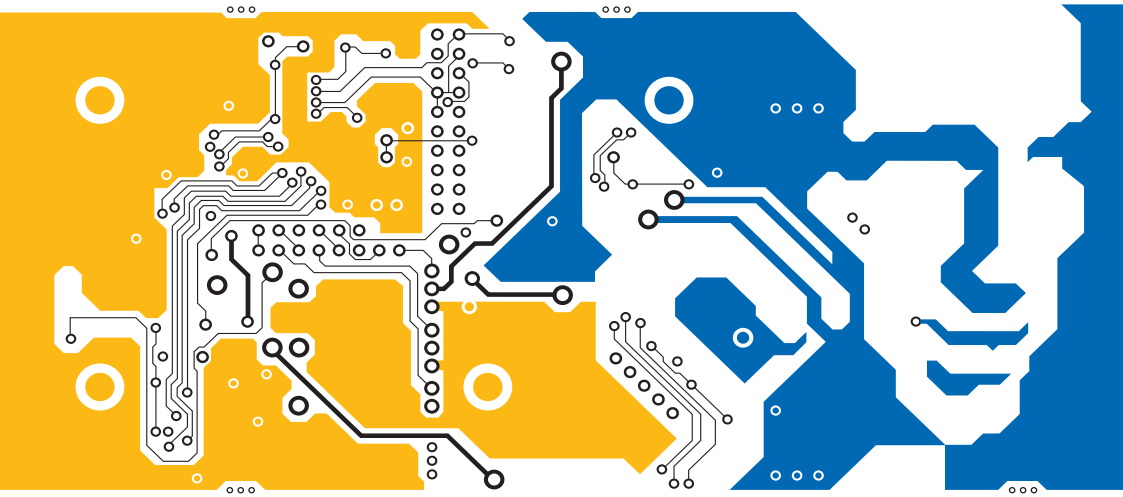
CODAN

Hand-held and Remote Controllers

6560/6570

SATELLITE COMMUNICATIONS



USER GUIDE

Codan part number 15-44021-EN Issue 2, July 2004

Table of contents

List of figures

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List of tables

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Introduction

This user guide shows you how to install and use the Hand-held Controller 6560 and the Remote Controller 6570. The controllers enable you to monitor and control the major operating parameters of BUCs in L-Band IF transceiver systems.

This guide assumes that you know how to operate an L-Band IF transceiver and its accessories.

This guide contains the following sections:

Section 1 Hand-held and remote controller compliance—compliance information and safety notices

Section 2 Overview—a general description of the controllers and the BUCs they control

Section 3 Installation and setup—how to install the controllers and ensure that they are operating correctly

Section 4 Using the controllers—how to monitor and control the major operating parameters of BUCs in L-Band IF transceiver systems

Section 5 Faults—faults that may be indicated by LEDs, and error messages that may be displayed on the LCD

Section 6 Drawings—the drawings referred to in this guide

Appendix A Definitions—the terms, abbreviations and units used in this guide

There is an index at the end of this guide.

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1 Hand-held and remote controller compliance

This section contains the following topics:

Introduction

This section describes how to ensure the Hand-held Controller 6560 and the Remote Controller 6570 comply with the European Electromagnetic Compatibility Directive 89/336/EEC and the European Low Voltage Directive 73/23/EEC as called up in the European Radio and Telecommunications Terminal Equipment Directive 1999/5/EC.

The CE Declarations of Conformity for these products are listed on page 66, *Associated documents*. These documents can be made available upon request to Codan or a Codan-authorised supplier.

European Radio and Telecommunications Terminal Equipment Directive

The Hand-held Controller 6560 and the Remote Controller 6570 have been tested and comply with the following standards (articles of the R&TTE Directive):

- Article 3.1b: ETSI EN 301 489-1
- Article 3.1b: ETSI EN 301 489-12

The Hand-held Controller 6560 and the Remote Controller 6570 have also been assessed against (articles of the R&TTE Directive):

- Article 3.1a: EN 60950
- Article 3.2: ETSI EN 301 428
- Article 3.2: ETSI EN 301 443

Compliance with these standards is sufficient to fulfil the requirements of the Radio and Telecommunications Terminal Equipment Directive 1999/5/EC, which encompasses the following directives:

- European EMC Directive, 89/336/EEC
- European Low Voltage Directive, 73/23/EEC with no lower voltage limit

Product marking and labelling

Equipment supplied by Codan that satisfies these requirements is identified by the CE0682 marking on the model label of the product.

Health requirements (human exposure to electromagnetic fields)

The Hand-held Controller 6560 and the Remote Controller 6570 have been assessed against the health requirements in article 3.1a of the R&TTE Directive (1999/5/EC) as non-transmitting accessories that do not cause any increased risk of human exposure to electromagnetic fields.

Further, the Hand-held Controller 6560 and the Remote Controller 6570 will only be connected to the Codan L-Band IF Transceiver 6700/6900 series of equipment, which complies with article 3.1a of the R&TTE Directive (1999/5/EC). The L-Band IF Transceiver 6700/6900 series of equipment has been assessed against VDE0848, ICNIRP and FCC health requirements.

Electromagnetic compatibility and safety notices

Electromagnetic compatibility

To ensure compliance with the EMC Directive is maintained, you must:

- ❑ Ensure the covers for the equipment are correctly fitted.

CAUTION If it is necessary to remove the covers at any stage, they must be refitted correctly before using the equipment.

To set up an L-Band IF transceiver system for CE-compliant operation you must:

- ❑ Set the **Tx default** item in the Auxiliary Menu to **Tx off**.

  This disables transmission on powerup.

- ❑ Set the **Tx state** item in the Control Menu to **Tx on** to activate the transceiver.

Electrical safety

All circuits within the Hand-held Controller 6560 and the Remote Controller 6570 are SELV.

Earth symbol

A protective earth connection point is provided on the Remote Controller 6570. The symbol shown in Table 1 is used to identify the protective earth on the equipment.

Table 1: Earth symbol

Symbol	Meaning
	Protective earth

2 Overview

This section contains the following topics:

About the controllers

The Hand-held Controller 6560 and Remote Controller 6570 enable you to monitor and control BUCs in L-Band IF transceiver systems.

The controllers feature a simple menu system that is easy to use: you do not need to know specific serial interface commands to operate them.

The hand-held controller is used to control a BUC directly via a short cable. The remote controller is for indoor use only and can be used in redundancy systems to communicate with two BUCs.

The controllers enable you to:

- display parameters such as temperature, output power, serial numbers and build standards
- set parameters such as user gain, compensation frequency and transmit state
- configure serial interface parameters
- display the status of faults such as BUC temperature and transmit power
- reset faults and default values

The front panel

Figure 1: The front panel of the hand-held controller

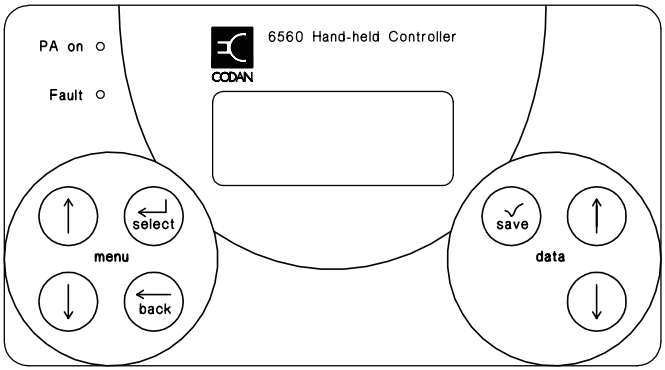
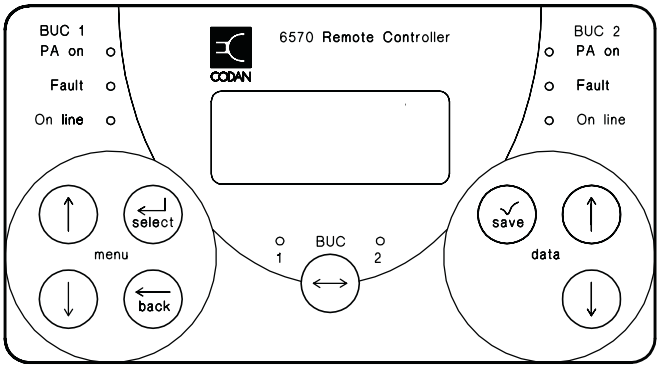


Figure 2: The front panel of the remote controller



The LCD

The LCD on the front panel of the controllers shows information about the BUC on two lines. The default screen, which is displayed after powerup, shows the current output power and BUC temperature (see Figure 3). When you press the **Up** or **Down Menu** buttons the names of the menus in the controller are displayed one at a time (see Figure 4).

Figure 3: The default screen

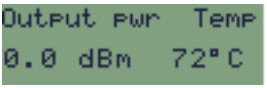


Figure 4: The Operational Menu

The buttons

The Menu and Data buttons

There are two sets of buttons on the front panel of the controllers: the **Menu** buttons and the **Data** buttons.

The **Menu** buttons enable you to navigate through the menus in the controllers. The **Data** buttons enable you to change and save values in editable menu items. Navigating through the menus is explained in detail on page 35, *Navigating through the menus*.

The BUC button on the remote controller

In addition to the **Menu** and **Data** buttons, the remote controller has a **BUC** button that enables you to switch between BUC 1 and BUC 2 in a redundancy system (see Figure 2 on page 11).

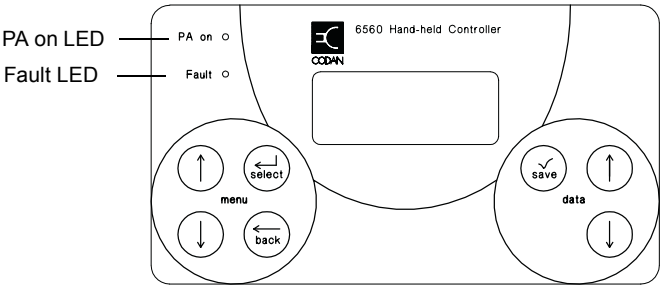
The LEDs above the button illuminate green to indicate the BUC that is currently being controlled. You can toggle between the menus for BUC 1 and BUC 2 at any time. Your position in each menu is retained when you toggle between the BUCs.

The LEDs

Hand-held controller

The front panel of the hand-held controller has a **PA on** and a **Fault** LED. The **PA on** LED illuminates yellow when the PA is on. The **Fault** LED illuminates red when there is a latched or active fault in the BUC.

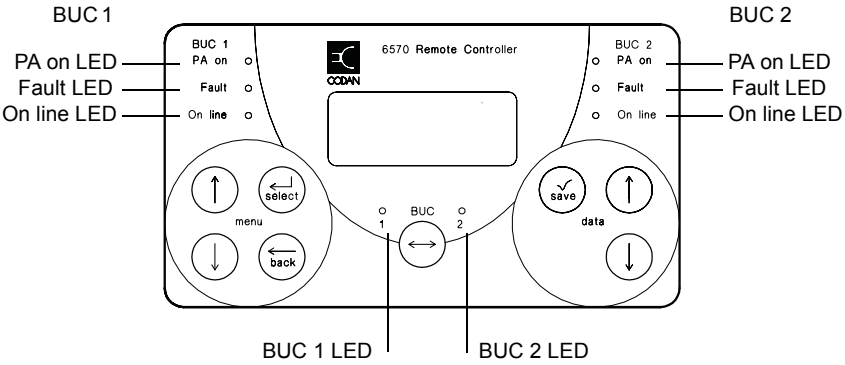
Figure 5: LEDs on the hand-held controller



Remote controller

The front panel of the remote controller has two sets of **PA on**, **Fault** and **On line** LEDs to indicate the current status of each BUC in a redundancy system. There are also **BUC 1** and **BUC 2** LEDs, which in a redundancy system, illuminate green to indicate the BUC that is currently being controlled. When a remote controller is used in a system without redundancy, the LEDs for the BUC position that is not in use are switched off.

Figure 6: LEDs on the remote controller



General specifications

Power

The controllers obtain power from the BUC and do not require their own power source. Power to a controller is always available when the controller is connected to a BUC and the BUC is switched on.

Supply voltage	8 to 12 V DC
Power consumption	1.5 W maximum at 10 V

Environmental

Operating temperature

Hand-held controller	–20 to +55°C
Remote controller	–5 to +55°C

Mechanical

Size

Hand-held controller	130 mm W × 40 mm D × 75 mm H
Remote controller	483 mm W × 45 mm D × 86 mm H (19" rack × 45 mm D × 2 RU)

Weight

Hand-held controller	0.36 kg
Remote controller	0.5 kg

Interface

Interface standard	
6560	RS232 serial interface
6570	RS485 serial interface
Interface protocol	Codan Packet
Data rate	9600 bps
Parity	None
Data bits	8
Stop bits	1

About the L-Band transceivers

The Codan L-Band IF Transceiver 6700/6900 series is a high performance transceiver for use in a satellite earth station. The transceiver is designed to be direct-mounted or boom-mounted on a wide range of earth station antennas.

The L-Band Transceiver 6700/6900 consists of:

- a BUC (C-Band 6700 series or Ku-Band 6900 series)
- an LNB
- a TRF

For more information on L-Band transceivers see the *L-Band IF Transceiver 6700/6900 series User Guide*.

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3 Installation and setup

This section contains the following topics:

Hand-held Controller 6560

Connecting the hand-held controller to the BUC

It is assumed that either the C-Band BUC 6700 series or Ku-Band BUC 6900 series has been correctly installed and is powered up.

NOTE You do not have to switch off power to the BUC before connecting the hand-held controller.

To connect the hand-held controller to the BUC:

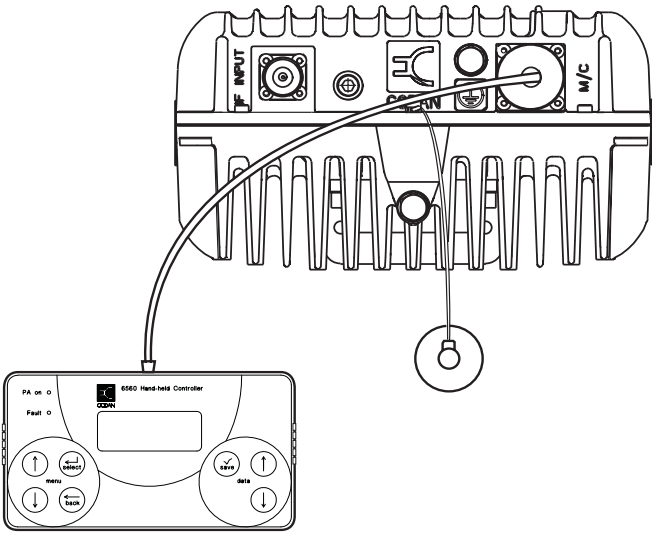
- ❑ Push the MS-style connector at the end of the hand-held controller cable into the **M/C** connector on the BUC (see Figure 7).

  The connectors are polarised with small locating lugs.

- ❑ Tighten the locking ring by turning it clockwise.

  The locking ring will click into position.

Figure 7: Connecting the hand-held controller to the BUC

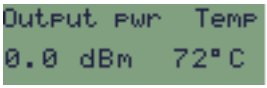


- ❑ If the BUC is not on, switch it on.

  The LCD on the hand-held controller displays Codan's logo for a few seconds followed by the following information for the controller:

  - model number (that is, 6560)
  - firmware part number
  - firmware version
  - hardware build standard

  The default screen is then displayed, which shows the current output power and the temperature of the BUC.

  The controller is now ready for use.

NOTE

If the controller displays **6560 fault No comms** during powerup, this indicates that it cannot establish communication with the BUC. See Table 7 on page 56 for possible solutions.

Disconnecting the hand-held controller

To disconnect the hand-held controller from the BUC:

- ❑ Undo the locking ring by turning it counterclockwise.
- ❑ Remove the connector from the **M/C** connector on the BUC.

NOTE

Place the supplied dust cap over the **M/C** connector if it is no longer required for use.

Remote Controller 6570

Mounting

The remote controller comes pre-assembled into a standard 19" rack × 2 RU panel. Bolt the panel into the user-supplied 19" rack before connecting it to the BUC.

Earthing

Connect the protective earth stud on the rear panel of the remote controller (see Figure 8 on page 25) to an appropriate earth point.

Lightning protection

If lightning strikes are likely in the area where the BUC is installed you must take precautions to prevent dangerous voltage potentials between the outdoor and indoor equipment.

Huge ground currents occur for several hundred metres around a strike area causing large voltage potentials between separate earth points. For this reason, some lightning engineers recommend the use of large copper earth straps (or braid) to connect the earth systems of the indoor and outdoor equipment.

It is highly recommended that the metal structures of the outdoor equipment be well grounded with earth stakes or, in the case or rooftop sites, be connected to the lightning grid and earth system of the building. This practice will also reduce the likelihood of the mains supply or RF interfering with the serial interface signals.

For critical installations in lightning-prone areas we strongly advise you to seek expert advice on lightning protection.

Setting up the BUC

Before you connect the remote controller to the BUC, you must set the serial interface items in the Auxiliary Menu to the values shown in Table 2. These parameters may be set using a hand-held controller or PC connected to the BUC. You cannot set these values using the remote controller.

Table 2: BUC settings

Menu items in the Auxiliary Menu	**Values for a system without redundancy**	**Values for a redundancy system**	
		BUC 1	**BUC 2**
Serial data rate	9600	9600	9600
Serial data bits	8	8	8
Serial parity	None	None	None
Serial stop bits	1	1	1
RS485 termination	Terminated	Terminated	Unterminated
Serial protocol	Codan	Codan	Codan
Serial address	1	1	2

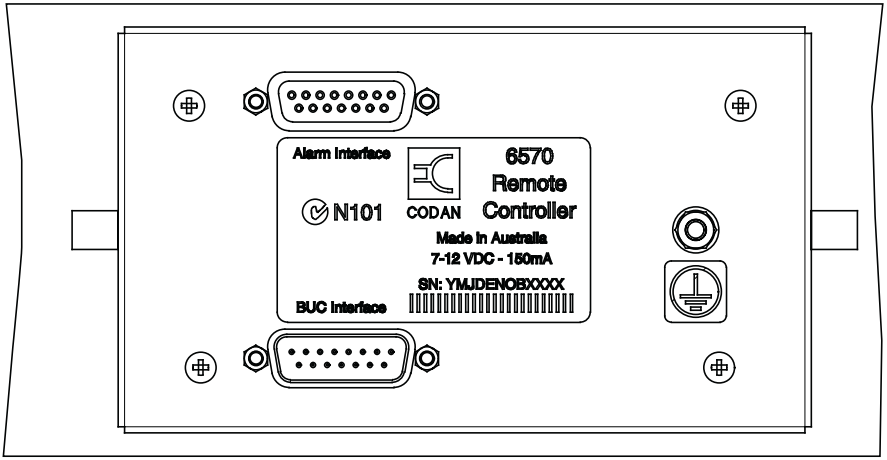
Cables

Standard length cables are available to connect the remote controller to the BUC. If you do not know the length required and you need to make the cable on site, or you need to fit the cable connectors on site, see the cable wiring diagrams on page 59, *Drawings*.

Connectors

There are two connectors on the rear panel of the remote controller: **BUC Interface** and **Alarm Interface**. The pin assignments for the connectors are shown in Table 3 on page 26 and Table 4 on page 27 respectively.

Figure 8: The rear panel of the remote controller



BUC Interface connector

The **BUC Interface** connector on the remote controller is a 15-way D-type male connector. It is used to connect the remote controller to the **M/C** connector on the BUC via the BUC–controller cable (Codan part number 08-06182-xxx).

Table 3: Pin assignments for the BUC Interface connector on the remote controller

Pin	Assignment
1	Ground
2	DC power input
3	Transmit/receive data ‘A’ for RS485
4	Transmit/receive data ‘B’ for RS485
5	Alarm relay common
6	BUC1 alarm relay (open on alarm)
7	BUC2 alarm relay (open on alarm)
8	Redundancy Controller alarm relay (open on alarm)
9	Reserved, do not use
10	Reserved, do not use
11	Reserved, do not use
12	Ground
13–15	Not connected

Alarm Interface connector

The **Alarm Interface** connector is a 15-way D-type female connector. It enables the user to remotely monitor the system status via relay contact closures.

Table 4: Pin assignments for the Alarm Interface connector on the remote controller

Pin	Assignment
1	Alarm relay common
2	BUC1 alarm relay (open on alarm)
3	BUC2 alarm relay (open on alarm)
4	Redundancy Controller alarm relay (open on alarm)
5	On-line relay common
6	On-line relay contact closed when stream 1 active
7	On-line relay contact closed when stream 2 active
8–15	Not connected

Connecting the remote controller to the BUC

It is assumed that:

- the C-Band BUC 6700 series or the Ku-Band BUC 6900 series has been correctly installed and is powered up
- the serial interface parameters in the BUC have been set with the values shown in Table 2 on page 24.

NOTE You do not have to switch off power to the BUC before connecting the remote controller.

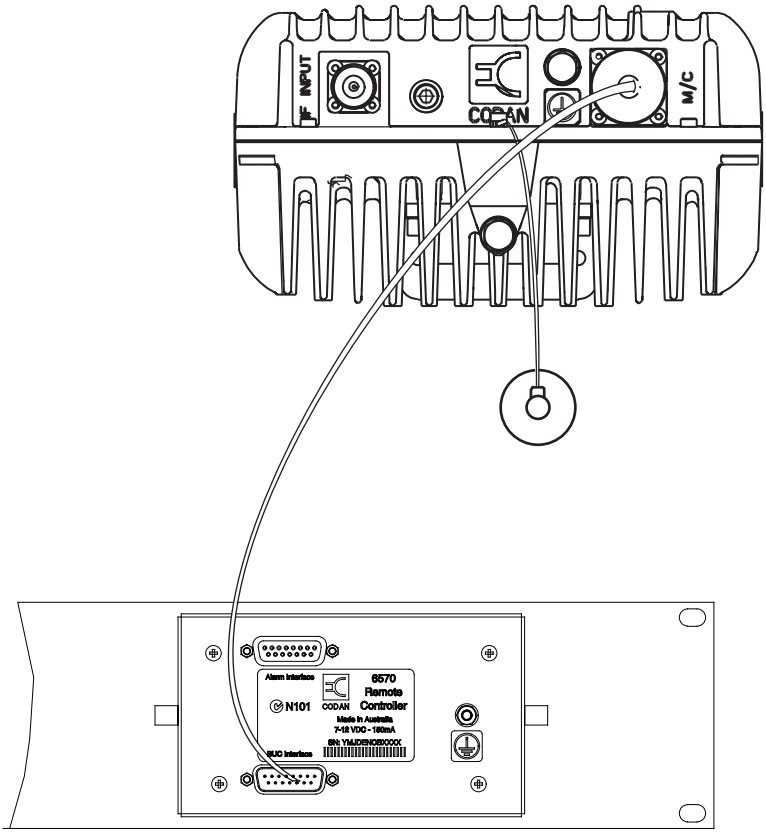
To connect the remote controller to the BUC:

- ❑ Push the 15-way D-type connector on the BUC–6570 cable (Codan part number 08-06182-xxx) into the **BUC Interface** connector on the rear panel of the remote controller (see Figure 9).
- ❑ Tighten the locking screws on the connector.
- ❑ Push the MS-style connector at the other end of the BUC–6570 cable (Codan part number 08-06182-xxx) into the **M/C** connector on the BUC.

  The connectors are polarised with small locating lugs.
- ❑ When the connector is in position, tighten the locking collar by turning it clockwise.

  The locking collar with click into position.
- ❑ Make sure that the BUC connector is appropriately sealed as described in the connector sealing section of the *Satellite Communication Equipment Installation Handbook*.

Figure 9: Connecting the remote controller to the BUC

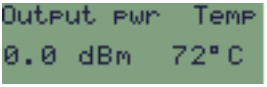


- ❑ If the BUC is not on, switch it on.

  The LCD on the remote controller displays Codan's logo for a few seconds followed by the following information for the controller:

  - model number (that is, 6570)
  - firmware part number
  - firmware version
  - hardware build standard

The default screen is then displayed, which shows the current output power and the temperature of the BUC.



The controller is now ready for use.

NOTE

If the controller displays **6570 fault No comms** during powerup, this indicates that it cannot establish communication with the BUC. See Table 7 on page 56 for possible solutions.

Connecting the remote controller to external equipment

If required, the remote controller can be connected to user-supplied external equipment via the **Alarm Interface** connector on the rear panel. The alarm interface output provides isolated relay contacts (see Table 4 on page 27).

The alarm interface gives an indication of:

- BUC alarms
- redundancy controller alarm
- the active stream

NOTE

If power or the connection from the BUC to the remote controller is lost, the alarm output will be in the alarm state.

Alternative configurations

You may also connect a remote controller into an L-Band IF transceiver system via an interface unit or a redundancy controller using the cables shown below:

Unit	Codan part number
L-Band IF Interface Unit 6550 (via COM2)	08-06183-xxx
L-Band IF Transceiver Redundancy Controller 6586	08-06098-xxx

For more information on these configurations, see the documentation supplied with the interface unit or redundancy controller.

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4 Using the controllers

This section contains the following topics:

Menus in the controllers

There are seven menus in the hand-held controller and eight menus in the remote controller:

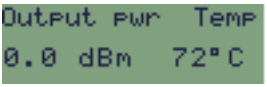
- Auxiliary
- Connection (remote controller only)
- Control
- Faults
- Identity
- Main
- Operational
- Reset

The items in each menu are explained in Table 5 on page 36.

Navigating through the menus

To navigate through the menus in a controller:

- ❑ From the default screen press the **Up** or **Down Menu** button.

  If the controller has just been switched on the Operational Menu is displayed, otherwise the last menu accessed is displayed.

- ❑ To scroll to other menus, press the **Up** or **Down Menu** buttons.
- ❑ To display the items in a menu, scroll to the menu then press the **Select** button.
- ❑ To scroll through the items in a menu, press the **Up** or **Down Menu** buttons.
- ❑ To change the value in an editable menu item, press the **Up** or **Down Data** buttons until the value you want is displayed. Table 5 on page 36 explains each item.
- ❑ To save the new value, press the **Save** button. The value flashes until it has been saved.

  To exit without saving the new value and return to the original value, press the **Back Menu** button.
- ❑ To scroll to other items in the menu, use the **Up** or **Down Menu** buttons.
- ❑ To return to the default screen at any time, press the **Back** button repeatedly.

NOTE

If you do not press a button for 10 minutes the default screen for the on-line BUC is automatically displayed. If you changed a value but had not saved it, the change is discarded.

Description of menu items

The menus in Table 5 are arranged alphabetically. The items in each menu are arranged by the order in which they are listed in the controllers. When you re-enter a menu, the item that was last accessed is displayed.

Table 5: Menus and menu items

Menu	**Menu item shown on the LCD**	**Full name of menu item and description**
Auxiliary	LO	Local oscillator This item is for use with C-Band BUCs only and enables you to set the local oscillator frequency. You can select 7300, 7375, 7600 or 7675 MHz. NOTE When you change this frequency, the RF and IF compensation frequencies are reset to **Disabled** (see page 47, *Main*).
Auxiliary	Tx default	Transmit default This item enables you to set the transmit state of the BUC after powerup. If you want the BUC to return to the transmit state to which it was set before powerdown, select **Previous**. If you want to prevent the BUC from transmitting signals at powerup (CE-compliant operation), select **Tx off**. NOTE If you have set the transmit default to **Tx off** and want to begin transmitting signals, go to the **Tx state** item in the Control Menu then select **Tx on**.

Table 5: Menus and menu items (cont.)

Menu	**Menu item shown on the LCD**	**Full name of menu item and description**
Auxiliary	Redundancy mode	Redundancy mode This item determines the redundancy mode used by the BUC. In a redundancy system, select **Warm standby** or **Hot standby**. In a system without redundancy, select **Non-redundant**.
Auxiliary	Serial data rate (hand-held controller only)	Serial data rate This item applies to the RS485 and FSK serial interfaces only. You can set the data rate to **1200**, **2400**, **4800**, **9600** or **19200** bps.
Auxiliary	Serial data bits (hand-held controller only)	Serial data bits This item applies to the RS485 and FSK serial interfaces only. You can set the number of data bits to **7** or **8** bits.
Auxiliary	Serial parity (hand-held controller only)	Serial parity This item applies to the RS485 and FSK serial interfaces only. You can set the parity to **Odd**, **Even** or **None**.
Auxiliary	Serial stop bits (hand-held controller only)	Serial stop bits This item applies to the RS485 and FSK serial interfaces only. You can set the number of stop bits to **1** or **2**.

Table 5: Menus and menu items (cont.)

Menu	**Menu item shown on the LCD**	**Full name of menu item and description**
Auxiliary	RS485 terminate (hand-held controller only)	RS485 termination This item applies to the RS485 serial interface on the BUC only. It enables you to terminate the RS485 interface.
Auxiliary	Serial protocol (hand-held controller only)	Serial protocol This item applies to the RS485 and FSK serial interfaces only. You can set the packet protocol to **ASCII**, **Codan**, **SAbus**, **Comstream** or **NDSatcom**.
Auxiliary	Serial address (hand-held controller only)	Serial packet address This item sets the address of the serial packet protocol selected in the **Serial protocol** item in the Auxiliary Menu. The allowed address range depends on the serial protocol selected.
Auxiliary	Serial echo (hand-held controller only)	Serial echo This item applies to the RS232 interface only. It enables you to echo characters back to the terminal on the RS232 serial interface.
Connection (remote controller only)	Comms to BUC1	Communication to BUC 1 This item applies to remote controllers only and enables you to enable or disable communication to BUC 1.

Table 5: Menus and menu items (cont.)

Menu	**Menu item shown on the LCD**	**Full name of menu item and description**
Connection (remote controller only)	Comms to BUC2	Communication to BUC 2 This item applies to remote controllers only and enables you to enable or disable communication to BUC 2.
Connection (remote controller only)	Terminate bus	Terminate bus This item applies to the RS485 serial interface on the remote controller. It enables you to terminate the RS485 bus.

Table 5: Menus and menu items (cont.)

Menu	Menu item shown on the LCD	Full name of menu item and description
Control	Tx state	Transmit state To enable the BUC to transmit signals select **Tx on**. To prevent the BUC from transmitting signals select **Tx off**. As a safety feature, transmit can only be switched on by the same interface that switched it off. This prevents the PA from being switched on accidentally when, for example, maintenance is being conducted. If transmit does not switch on, it may be because: • there is a fault (local oscillator, temperature or PA) • transmit may have been switched off by another interface CAUTION If you are sure that switching transmit on will not endanger personnel you can switch the PA on by using the **Rst to default** item in the Reset Menu. If you use this item you will need to re-enter all of the BUC settings affected by the reset. These are listed on page 50, *Rst to defaults*.

Table 5: Menus and menu items (cont.)

Menu	**Menu item shown on the LCD**	**Full name of menu item and description**
Control	Online state	Online state This item is for use in redundancy systems only. It enables you to place a BUC on line or take it off line. NOTE: You can only change the **Online state** item if the **Redundancy mode** item in the Auxiliary Menu is set to **Warm standby** or **Hot standby**.
Faults	PA fault	PA fault This item displays the fault status of the PA, that is, **No fault**, **Active** or **Latched**. NOTE: Once an active fault has been cleared the fault status may show **Latched**. To clear all latched faults, go to the Reset Menu then select the **Rst faults** item.
Faults	Fan fault	Fan fault This item displays the fault status of the fan, that is, **No fault**, **Active** or **Latched**. If the BUC is not fitted with a fan, this fault status is always shown as **No fault**. NOTE: Once an active fault has been cleared the fault status may show **Latched**. To clear all latched faults, go to the Reset Menu then select the **Rst faults** item.

Table 5: Menus and menu items (cont.)

Menu	Menu item shown on the LCD	Full name of menu item and description
Faults	Tx pwr fault	Transmit power fault This item displays the status of the RF output power alarm, that is, **No fault**, **Active** or **Latched**. This fault is caused when the RF output power drops below the threshold set in the **Tx pwr thresh** item in the Main Menu. NOTE — Once an active fault has been cleared the fault status may show **Latched**. To clear all latched faults, go to the Reset Menu then select the **Rst faults** item.
Faults	BUC temp fault	BUC temperature fault This item displays the status of the BUC's temperature, that is, **No fault**, **Active** or **Latched**. This fault is caused when the temperature is too high for the BUC to operate. NOTE — Once an active fault has been cleared the fault status may show **Latched**. To clear all latched faults, go to the Reset Menu then select the **Rst faults** item.

Table 5: Menus and menu items (cont.)

Menu	**Menu item shown on the LCD**	**Full name of menu item and description**
Faults	LO lock fault	Local oscillator lock fault This item displays the fault status of the local oscillator, that is, **No fault**, **Active** or **Latched**. NOTE: Once an active fault has been cleared the fault status may show **Latched**. To clear all latched faults, go to the Reset Menu then select the **Rst faults** item.
Faults	Internal fault	Internal fault This item displays the internal fault status, that is, **No fault**, **Active** or **Latched**. An internal fault may be caused by an NV memory fault, or an internal hardware or firmware configuration error of the BUC. NOTE: Once an active fault has been cleared the fault status may show **Latched**. To clear all latched faults, go to the Reset Menu then select the **Rst faults** item.

Table 5: Menus and menu items (cont.)

Menu	Menu item shown on the LCD	Full name of menu item and description
Faults	LNB fault	LNB fault This type of fault will only be reported in a redundancy system. This item displays the fault status of the LNB, that is, **No fault**, **Active** or **Latched**. NOTE: Once an active fault has been cleared the fault status may show **Latched**. To clear all latched faults, go to the Reset Menu then select the **Rst faults** item.
Faults	Redundancy fault	Redundancy controller fault If a redundancy controller is used, this item displays the fault status of the redundancy controller, that is, **No fault**, **Active** or **Latched**. NOTE: Once an active fault has been cleared the fault status may show **Latched**. To clear all latched faults, go to the Reset Menu then select the **Rst faults** item.
Identity	BUC model #	BUC model number This item displays the model number of the BUC.
Identity	BUC serial #	BUC serial number This item displays the serial number of the BUC.

Table 5: Menus and menu items (cont.)

Menu	**Menu item shown on the LCD**	**Full name of menu item and description**
Identity	BUC firmware ver	BUC firmware version This item displays the firmware version of the BUC.
Identity	BUC firmware p/n	BUC firmware part number This item displays Codan part number of the firmware in the BUC.
Identity	M&C PCB build	Monitor and Control PCB hardware and firmware build standards This item displays the build standards of the Monitor and Control PCB hardware and firmware.
Identity	RF PCB build	RF PCB hardware and firmware build standards This item displays the build standards of the RF PCB hardware and firmware.
Identity	LO PCB build	Local Oscillator PCB hardware and firmware build standards This item displays the build standards of the Local Oscillator PCB hardware and firmware.
Identity	Pwr supply build	Power supply hardware build standards This item displays the build standard of the Power Supply PCB hardware.
Main	Tx attenuation	Transmit attenuation This item enables you to set the transmit attenuation to **0**, **4**, **8** or **12 dB**.

Table 5: Menus and menu items (cont.)

Menu	**Menu item shown on the LCD**	**Full name of menu item and description**
Main	Tx pwr thresh	Transmit power threshold This item enables you to set an output power threshold so that an alarm is generated when the output power falls below the threshold. The threshold level that you may set depends upon the model of the BUC. To disable the alarm select **Disabled**.
Main	Bst pwr thresh	Burst power threshold This item enables you to set the threshold level above which transmitted TDMA bursts or similar signals are recorded. The threshold level that you may set depends upon the model of the BUC. To disable the burst detection option select **Disabled**.

Table 5: Menus and menu items (cont.)

Menu	**Menu item shown on the LCD**	**Full name of menu item and description**
Main	RF comp freq	RF compensation frequency This item enables you to select the RF compensation frequency in MHz. The range of frequencies from which you may select depends on the model of the BUC and the LO setting. NOTE: If you have set an IF compensation frequency you do not need to set an RF compensation frequency as the BUC automatically calculates it. The BUC uses the RF compensation frequency for internal temperature compensation and other calibrations. It does not affect the carrier frequency. If the carrier frequency is unknown, select **Disabled**. If multiple carriers are being transmitted and the frequency is limited to a narrow band (for example, over one transponder), set the RF compensation frequency to the nominal centre frequency of the operating band.

Table 5: Menus and menu items (cont.)

Menu	**Menu item shown on the LCD**	**Full name of menu item and description**
Main	IF comp freq	IF compensation frequency This item enables you to select the IF compensation frequency in MHz. The range of frequencies from which you can select depends on the model of the BUC and the LO setting. NOTE: If you have set an RF compensation frequency you do not need to set an IF compensation frequency as the BUC automatically calculates it. The BUC uses the IF compensation frequency to calculate the RF compensation frequency, which is used for internal temperature compensation and other calibrations. It does not affect the carrier frequency. If the carrier frequency is unknown, select **Disabled**. If multiple carriers are being transmitted and the frequency is limited to a narrow band (for example, over one transponder), set the IF compensation frequency to the nominal centre frequency of the operating band.
Operational	Output pwr	Output power This item displays the current measured RF output power of the BUC in dBm.
Operational	Bst pwr	Burst power This item displays the current burst output power of the BUC in dBm.

Table 5: Menus and menu items (cont.)

Menu	**Menu item shown on the LCD**	**Full name of menu item and description**
Operational	Bst pwr min/max	Burst power minimum/maximum This item displays the minimum and maximum detected burst output powers of the BUC in dBm since the last reading.
Operational	BUC temp	BUC temperature This item displays the temperature of the BUC case in degrees Celsius.
Operational	BUC temp min/max	BUC temperature minimum/maximum This item displays the minimum and maximum case temperatures (in degrees Celsius) ever recorded by the BUC.
Reset	Rst BUC	Reset BUC This item resets the BUC as though power has been switched off then on.
Reset	Rst faults	Reset latched faults This item resets all latched faults in the BUC.

Table 5: Menus and menu items (cont.)

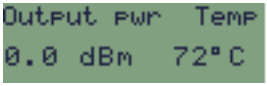
Menu	Menu item shown on the LCD	Full name of menu item and description
Reset	Rst to defaults	Reset BUC to default values This item resets all parameters in the BUC to factory defaults, that is: • transmit is on (for RS232, RS485 and FSK) • RF compensation frequency is **Disabled** • IF compensation frequency is **Disabled** • transmit attenuation is **12 dB** • output power threshold is **0 dBm** (off) • burst mode power threshold is **0 dBm** (off) • LO frequency for C-Band is **7300 MHz**, for Ku-Band is **15450 MHz** • transmit default is **Previous** (i.e. PA returns to transmit state prior to powerdown) • redundancy mode is **Non-redundant** If this command is used from a hand-held controller, the following parameters are also reset: • serial interface is **9600** baud, **8** bits, no parity, **1** stop bit, **Unterminated** RS485 bus • packet protocol is **Codan** • packet address is **1** for Codan, **49** for SAbus, **1** for Comstream, **1** for NDSatcom • echo is **Off**

Adjusting the LCD contrast

To adjust the contrast of the LCD:

- ❑ Make sure the default screen is displayed.

  NOTE — Press the **Back** Button until you see the default screen.



- ❑ Press the **Up** or **Down Data** button to display the LCD contrast item.

- ❑ Press the **Up** or **Down Data** button to increase or decrease the contrast of the display.

  The display adjusts to the level you set.

- ❑ Press the **Save** or **Back** button to return to the default screen.

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5 Faults

This section contains the following topics:

If technical assistance is required...

If the fault finding procedures do not locate the faulty module or cable, or if further technical assistance is required for any other reason, please contact the Customer Service Engineering staff. For the most rapid response, please call the Codan office that is currently in office hours (see Table 6).

Outside of normal office hours, Codan has Customer Service Engineers on call to provide emergency technical assistance. They will either answer your call immediately or return your call as soon as possible. The contact phone numbers for after hours emergency technical assistance are listed in Table 6.

Table 6: Customer service contact numbers and email addresses

Region	Office hours contact number	After hours contact number	Email address
Asia/Pacific	+61 8 8305 0311	+61 8 8305 0427	asiatech.support@codan.com.au
Europe, Middle East & Africa	+44 1252 717 272	+44 1252 741 300	uktech.support@codan.com.au
The Americas	+1 703 361 2721	+1 703 366 3690	ustech.support@codan.com.au

If you are connected to a voice mail system when you call, please follow the instructions carefully, that is, leave a brief, clear description of your problem and your name and contact phone number including the country code.

Faults indicated by LEDs

Powerup

During powerup of the hand-held and remote controller, the **PA on** and **Fault** LEDs are switched on briefly to indicate that they are working correctly. On the remote controller the **BUC 1** and **BUC 2** LEDs are then switched on briefly to indicate that they are working correctly.

If there is a fault with any of the LEDs contact your Codan representative.

Fault LED on

The **Fault** LED is switched on when there is an active or latched fault in the BUC. The LED is only switched off when you have corrected the active fault and/or have reset the latched fault. For more information about resetting latched faults see page 49, *Rst faults*.

PA on and Fault LED flash

When the **PA on** and **Fault** LEDs flash, the controller cannot establish communication with the BUC. See page 56, *6560 fault No comms* or *6570 fault No comms BUC1*.

On line LEDs flash

The **On line** LEDs will flash alternately if both BUCs are off line.

BUC LEDs flash

The **BUC** LEDs will flash alternately if neither of the BUCs are connected.

Faults indicated by screen messages

Table 7: Screen messages

Message	Meaning	Action
6560 fault No comms	The hand-held controller cannot establish communication with the BUC.	Check that the cable is connected to the BUC correctly. Check for a faulty cable. If possible, change the hand-held controller, then the BUC, to establish which component has caused the fault.
6570 fault No comms BUC1 or 6570 fault No comms BUC2	The remote controller cannot establish communication with the BUC.	Check that the cable is connected to the BUC and controller correctly. Check for a faulty cable. Reset the BUC(s). Using the hand-held controller, check that the serial interface settings in the BUC have been set according to Table 2 on page 24. Using the remote controller, check that the BUC states in the Connection Menu have been set correctly. If possible, change the remote controller, then the BUC, to establish which component has caused the fault.

Table 7: Screen messages

Message	Meaning	Action
6560 fault NV memory or 6570 fault NV memory	The non-volatile memory in the hand-held or remote controller is corrupted.	When this fault occurs the BUC will continue to operate normally. This fault only affects values that are stored in the controller's non-volatile memory. In the hand-held controller this is the screen contrast. In the remote controller this is the screen contrast, RS485 termination, and BUC 1 and BUC 2 connection states. If the fault occurs during powerup the controller will use default settings (screen contrast is 75%, RS485 termination is on, Comms to BUC1 is enabled, and Comms to BUC2 is enabled). If a non-volatile memory fault persists, contact your Codan representative.

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6 Drawings

Table 8: List of drawings

Drawing No.	Description
08-06182	Cable Assembly, BUC–6570
08-06183	Cable Assembly, 6550 (COM2)–6570
08-06098	Cable Assembly, AUX I/O–6570

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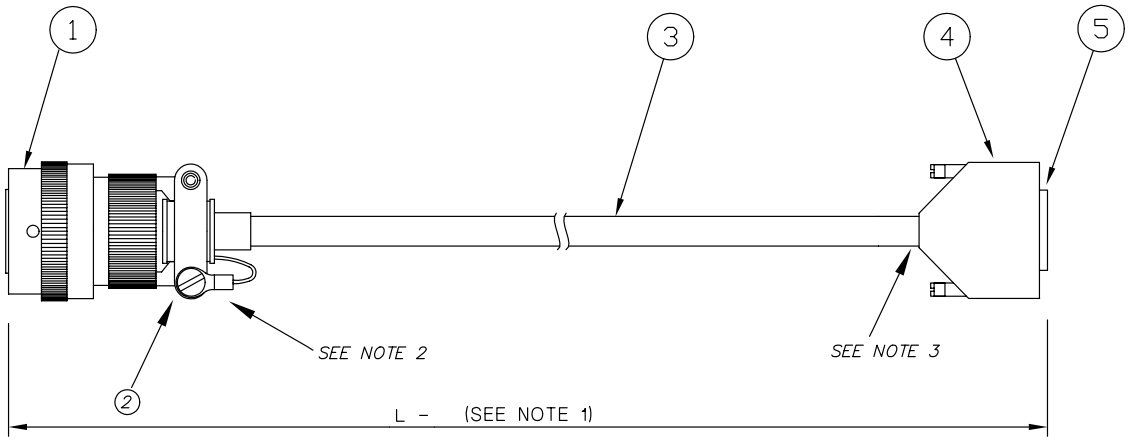
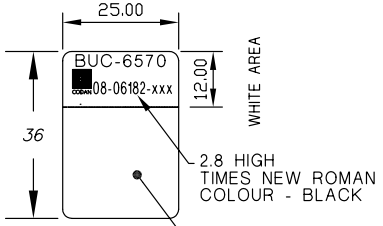
DO NOT SCALE



P1 (BUC)			
PIN	DESCRIPTION	COLOUR	PAIR
B	TXB/RXB	WHITE	1
F	TXA/RXA	BLACK	1
H	GROUND	BLACK	2
J	ALARM COMMON	BLACK	3
K	BUC1 ALARM NO	WHITE	3
M	POWER	WHITE	2
SHELL	CABLE SCREEN		



ITEM 6
LABEL DETAILS

J1 (6570)			
PIN	DESCRIPTION	COLOUR	PAIR
1	GROUND	BLACK	2
2	POWER	WHITE	2
3	TXA/RXA	BLACK	1
4	TXB/RXB	WHITE	1
5	ALARM COMMON	BLACK	3
6	BUC1 ALARM NO	WHITE	3
SHELL	CABLE SCREEN		

NOTES:

1. 08-06182-XYZ WHERE L = XYZ x 1.0m (TOLERANCE ±50.0mm)
2. CONNECT CABLE SCREEN TO P1 (ITEM 1) USING CRIMP LUG (ITEM 2).
3. CONNECT CABLE SCREEN TO J1 BACKSHELL (ITEM 5) WITH 360° TERMINATION

ITEM	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY.
6	LABEL	JABAC	THT-9	1
5	SOCKET, 15 WAY D	AJF	DA-15SG	1
4	BACKSHELL, 15 WAY D, SCREW LOCK, SCREENED	AJF	DDD-DB15HM	1
3	CABLE, 4 PAIR, OVERALL SCREEN	HARTLAND	HCP604	A/R
2	CRIMP LUG	UTILUX	-	1
1	CIRCULAR MIL CONNECTOR	AMPHENOL	62IN-16F-12-14P	1

DIMENSIONS IN mm

MATERIAL

FINISH

SCALE N.T.S.

DRN	BT	DATE 05-03-04
CHKD	NP	22-03-04
APPD		

TOLERANCES
UNLESS OTHERWISE SPECIFIED
LINEAR ±2
ANGULAR
FLATNESS
ROUGHNESS (umRa)

CODAN

A3

TITLE
CABLE ASSEMBLY
BUC - 6570

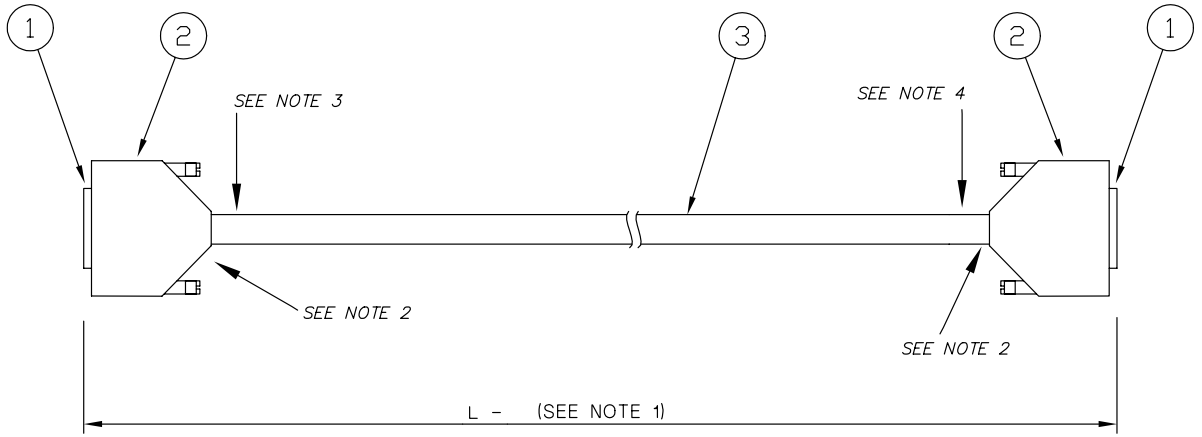
ISS A

DRAWING/DOC NO. 08-06182

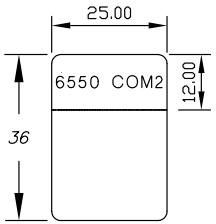
SHT. 1 OF 1

FILE Name
08\06182_A.DWG

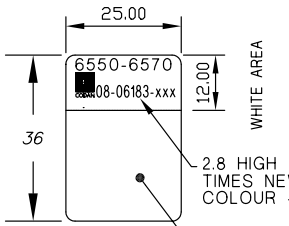
DO NOT SCALE



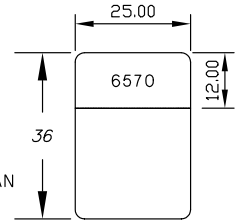
J2 (6550)			
PIN	DESCRIPTION	COLOUR	PAIR
1	TXB/RXB	WHITE	1
2	TXA/RXA	BLACK	1
3	GROUND	BLACK	2
8	POWER	WHITE	2
10	AUX ALARM NO	WHITE	3
12	ALARM COMMON	BLACK	3
SHELL	CABLE SCREEN		



ITEM 5
LABEL DETAILS



ITEM 4
LABEL DETAILS



ITEM 6
LABEL DETAILS

J1 (6570)			
PIN	DESCRIPTION	COLOUR	PAIR
1	GROUND	BLACK	2
2	POWER	WHITE	2
3	TXA/RXA	BLACK	1
4	TXB/RXB	WHITE	1
5	ALARM COMMON	BLACK	3
6	AUX ALARM NO	WHITE	3
SHELL	CABLE SCREEN		

NOTES:

1. 08-06183-XYZ WHERE L = XYZ x 1.0m (TOLERANCE ±50.0mm)
2. CONNECT CABLE SCREEN INTERNALLY TO J1 AND J2 BACKSHELLS (ITEM 2) WITH 360° TERMINATION.
3. APPLY ITEM 5 THIS END.
4. APPLY ITEM 6 THIS END.

ITEM	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY.
6	LABEL	JABAC	THT-9	1
5	LABEL	JABAC	THT-9	1
4	LABEL	JABAC	THT-9	1
3	CABLE, 4 PAIR, OVERALL SCREEN	HARTLAND	HCP604	A/R
2	BACKSHELL, 15 WAY D, SCREW LOCK,SCREENED	AJF	DDD-DB15HM	1
1	SOCKET, 15 WAY D	AJF	DA-15SG	1

DIMENSIONS IN mm

MATERIAL

FINISH

SCALE N.T.S.

		DATE
DRN	BT	05-03-04
CHKD	NP	22-03-04
APPD		

TOLERANCES
UNLESS OTHERWISE SPECIFIED
LINEAR ±2
ANGULAR
FLATNESS
ROUGHNESS (umRa)

CODAN

A3

TITLE
CABLE ASSEMBLY
6550 COM2 - 6570

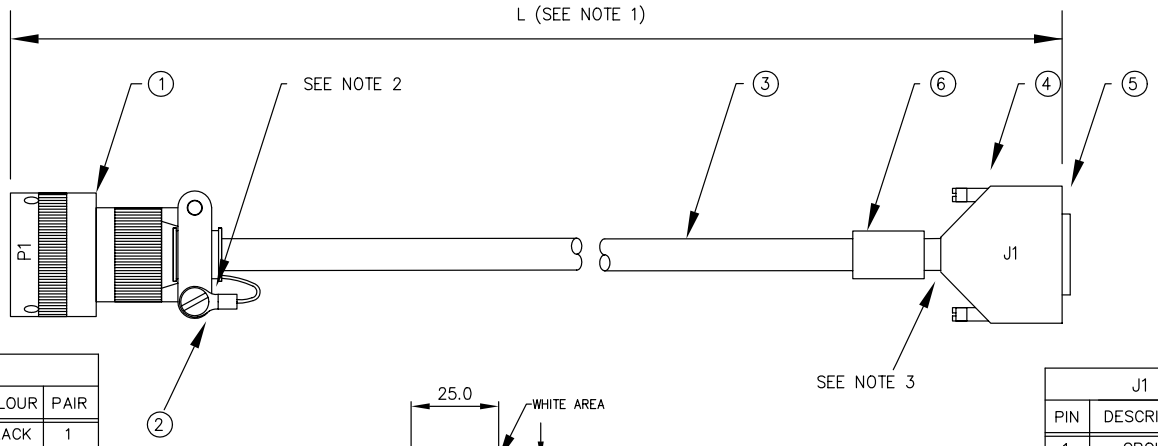
ISS A

DRAWING/DOC NO.
08-06183

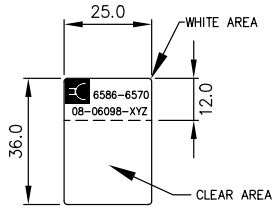
SHT. 1 OF 1

FILE Name
08\06183_A.DWG

DO NOT SCALE



P1 (6586)			
PIN	DESCRIPTION	COLOUR	PAIR
A	TXA/RXA	BLACK	1
D	GROUND	BLACK	2
L	ALARM COMMON	BLACK	3
M	AUX ALARM NO	WHITE	3
P	TXB/RXB	WHITE	1
S	BUC1 ALARM NO	BLACK	4
T	BUC2 ALARM NO	WHITE	4
U	POWER	WHITE	2
SHELL	CABLE SCREEN		



ITEM 6
LABEL DETAILS

J1 (6570)			
PIN	DESCRIPTION	COLOUR	PAIR
1	GROUND	BLACK	2
2	POWER	WHITE	2
3	TXA/RXA	BLACK	1
4	TXB/RXB	WHITE	1
5	ALARM COMMON	BLACK	3
6	BUC1 ALARM NO	BLACK	4
7	BUC2 ALARM NO	WHITE	4
8	AUX ALARM NO	WHITE	3
SHELL	CABLE SCREEN		

NOTES:

1. 08-06098-XYZ WHERE L = XYZ x 1.0m (TOLERANCE ±50.0mm)
2. CONNECT CABLE SCREEN TO P1 (ITEM 1) USING CRIMP LUG (ITEM 2).
3. CONNECT CABLE SCREEN INTERNALLY TO J1 BACKSHELL (ITEM 4) WITH 360° TERMINATION.

ITEM	DESCRIPTION	MANUFACTURER	MANUF. P/N	CODAN P/N	QTY.
6	LABEL	JABAC	THT-9	-	1
5	SOCKET, 15 WAY D	AJF	DA-15SG	-	1
4	BACKSHELL, 15 WAY D, SCREW LOCK,SCREENED	AJF	DDD-DB15HM	-	1
3	CABLE, 4 PAIR, OVERALL SCREEN	HARTLAND	HCP604	-	A/R
2	CRIMP LUG	UTILUX	-	-	1
1	CIRCULAR MIL CONNECTOR	AMPHENOL	62IN-16F-14-19P	-	1

ASSEMBLY: 08-06098-XYZ

FILE Name
08\06098_A.DWG

0.2 x 45° R0.2 max

MATERIAL

FINISH

SCALE D.N.S

DRN	BT	DATE 05-03-04
CHKD	NP	28-04-04
APPD		

TOLERANCES
UNLESS OTHERWISE SPECIFIED
LINEAR ±0.25
ANGULAR ±2°
FLATNESS ±0.2
ROUGHNESS 1.6

CODAN

A3

TITLE
CABLE ASSEMBLY
AUX. I/O-6570

ISS A

DRAWING/DOC NO.
08-06098

SHT. 1
OF 1

Appendix A—Definitions

This section contains the following topics:

Standards and icons

The following standards and icons are used in this guide:

This typeface	Means...
BOLD/Bold	a button, LED, text from a screen display, or connector
Italic	a cross-reference or text requiring emphasis

This icon	Means...
❑	a step within a task
NOTE	the text provided next to this icon may be of interest to you
CAUTION	proceed with caution as your actions may lead to loss of data, privacy or signal quality

Acronyms and abbreviations

This term...	Means...
ASCII	American standard code for information interchange
BUC	block up converter
DC	direct current
EMC	electromagnetic compatibility
FSK	frequency shift keying
IF	intermediate frequency
LNB	low noise block converter
LCD	liquid crystal display
LED	light emitting diode
LO	local oscillator
M&C M/C	monitor and control
MS	military standard
NV	non-volatile
PA	power amplifier
PC	personal computer
PCB	printed circuit board
RF	radio frequency
R&TTE	radio and telecommunications terminal equipment
SELV	safety extra low voltage
TDMA	time division multiple access

This term...	Means...
TRF	transmit reject filter
Tx	transmit

Units

Measurement	Unit	Abbreviation
Attenuation	decibel	dB
Data rate	bits per second	bps
Frequency	hertz	Hz
Power	decibels relative to 1 mW	dBm
Power	watt	W
Temperature	degrees Celsius	°C
Voltage	volt	V
Weight	gram	g

Unit multipliers

NOTE

Units are expressed in accordance with ISO 1000:1992 ‘SI units and recommendations for the use of their multiples and of certain other units’.

Unit	Name	Multiplier
M	mega	1000000
k	kilo	1000
m	milli	0.001

About this issue

This is the second issue of the Hand-held and Remote Controllers 6560/6570 User Guide. It provides compliance information and safety notices for the equipment.

Associated documents

This guide is one of a series of documents associated with the controllers. The other documents are:

- L-Band IF Transceiver 6700/6900 series User Guide (Codan part number 15-44017-EN)
- Satellite Communication Equipment Installation Handbook (Codan part number 15-44016-EN)
- L-Band IF Interface Unit 6550 User Guide (Codan part number 15-44020-EN)
- L-Band IF Transceiver Redundancy Controller 6586 Reference Manual (Codan part number 15-44022-EN)
- Declaration of Conformity for the 6560 Hand-held Controller (Codan part number 19-40102)
- Declaration of Conformity for the 6570 Remote Controller (Codan part number 19-40103)

Index

L

M

O

P

R

S

T

W

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