

# Service/retrofit instructions

## Data Acquisition and logging unit



### CAUTION

These procedures involve the handling of components which are sensitive to static electrical discharge. All relevant personnel must be aware of static handling procedures.

## INTRODUCTION

These instructions show how to replace the battery, and how to replace and/or retrofit circuit boards.

## 1 BATTERY REPLACEMENT

- 1 Remove the unit from the DIN rail or wall.
- 2 Remove the supply power and Input/Output connectors (figure 1.1).
- 3 Release the cover by undoing the securing screw ('A' in figure 1.2). Retain the screw and shakeproof washer for use in re-assembly.
- 4 With the unit lying on its back, lift/rotate the cover to remove it (figure 1.3).
- 5 Slide the exhausted battery out of the battery holder, and dispose of the battery according to local environmental regulations for poly-carbonmonofluoride/lithium batteries.
- 6 Slide the replacement battery into the holder.
- 7 Reassemble the unit, refit the connectors and remount the unit on the wall or DIN rail.

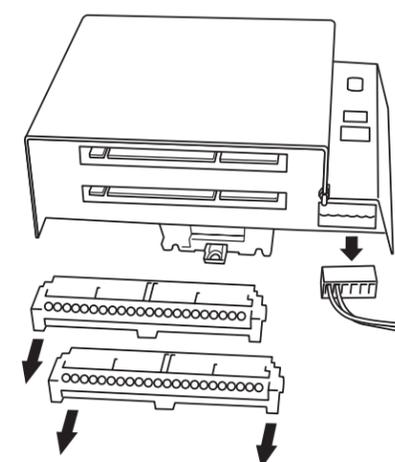


Figure 1.1  
Remove connectors

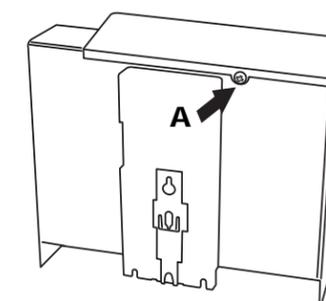


Figure 1.2  
Release cover

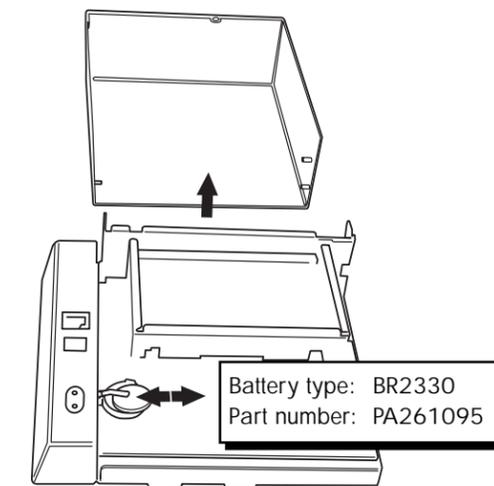


Figure 1.3  
Remove cover and replace battery



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## 2 MAIN BOARD REPLACEMENT

The main board contains circuitry for input channels 1 to 6, as well as the operating system software and hardware.

**Note:** These instructions assume that no option boards are fitted, and that the unit contains only input channels 1 to 6. If one or more option boards is fitted, then it is necessary to remove them, together with the support 'hardware' (i.e. card guide assembly) and EMC springs before the main board can be changed. If necessary, refer to the retrofit instructions below for details.

1. Remove all the connectors and the cover, as shown in section 1, above, to reveal the main board (figure 2.1).
2. At the rear of the unit, remove securing screw B (figure 2.2), and retain for use in re-assembly.

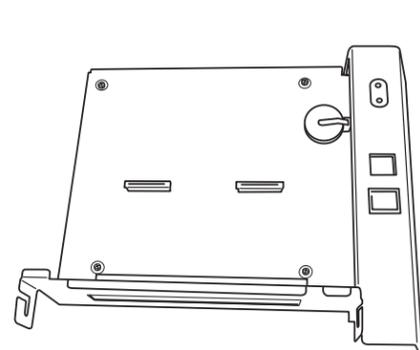


Figure 2.1 Main board

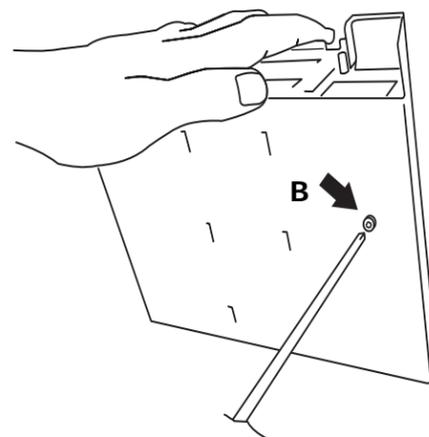


Figure 2.2 Remove securing screw

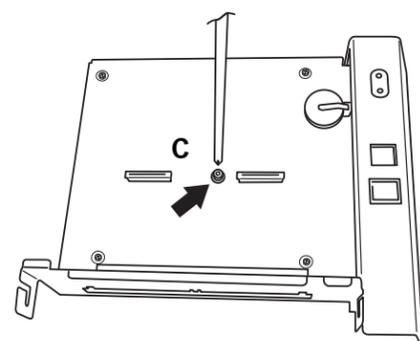


Figure 2.3 Remove securing screw

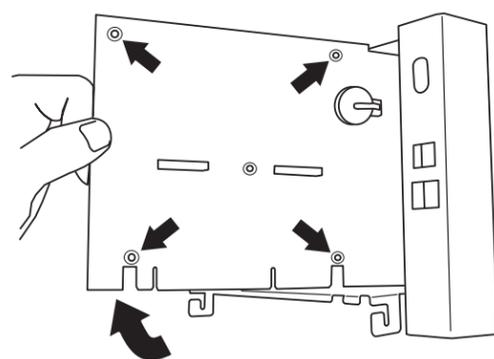


Figure 2.4 Release board from standoffs, then rotate and lift out of chassis

3. Remove securing screw C (figure 2.3) and shakeproof washer, and retain for use in re-assembly.
4. Gently prise the main board off its standoff pillars, then lift and rotate it out of the chassis (Figure 2.4).
5. Taking all necessary precaution relevant to static-sensitive devices, unwrap the replacement board and fit it into the chassis. Secure the new board by pressing it down onto the standoff pillars, and by re-fitting screws B and C, previously removed. Re-assemble the instrument.

## 5.3 AUTOCONFIGURE

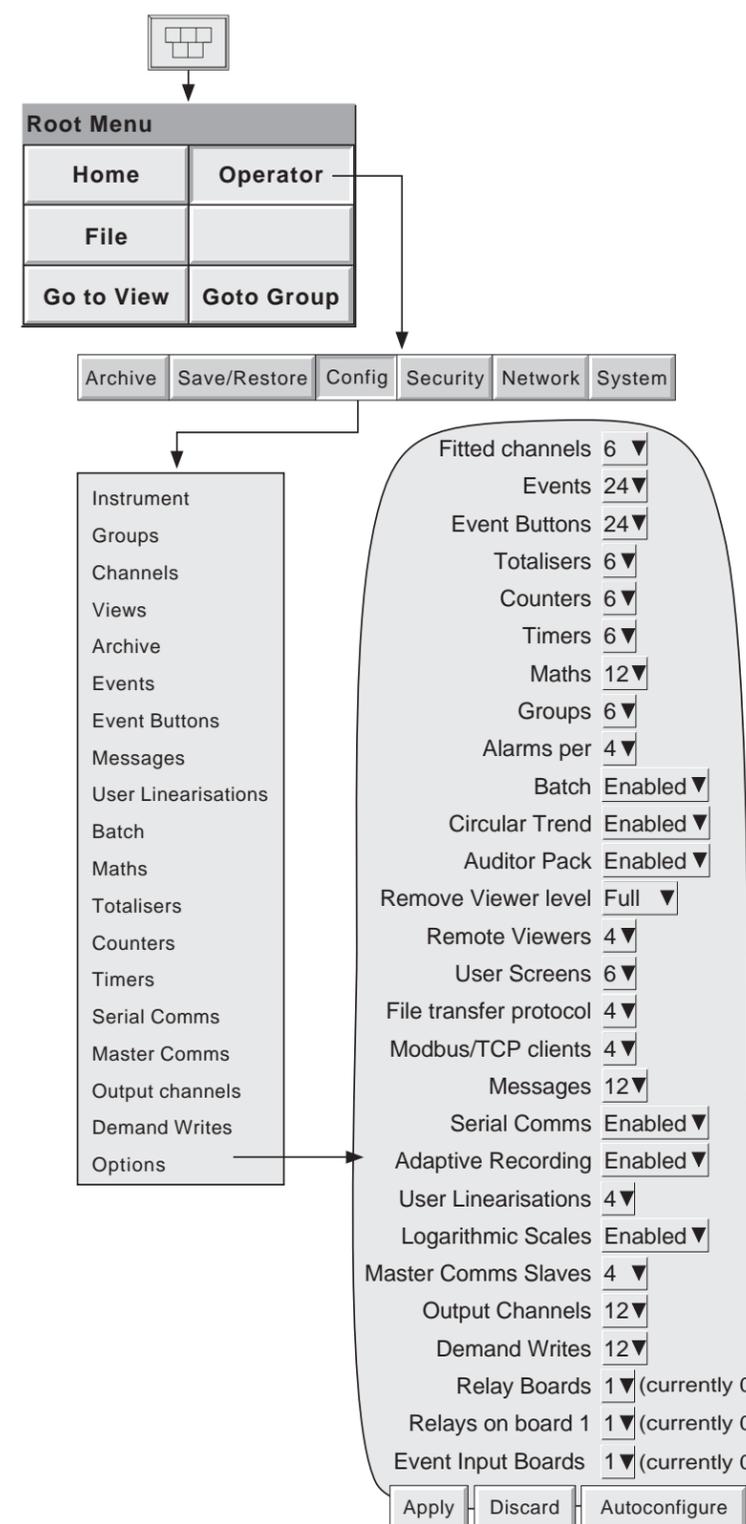


Figure 5.3 Autoconfigure access (typical display)

**Note:** The actual display depends on the options fitted

## 5.2 OPTION ENABLING

In order to enable software functions, a key code or file, obtained from the manufacturer, must be entered in the System/Key code page (Figure 5.2).

**Note:** The key code is related to the instrument number, as displayed on the key code page. Please ensure that this instrument number has been noted before applying for a code or file.

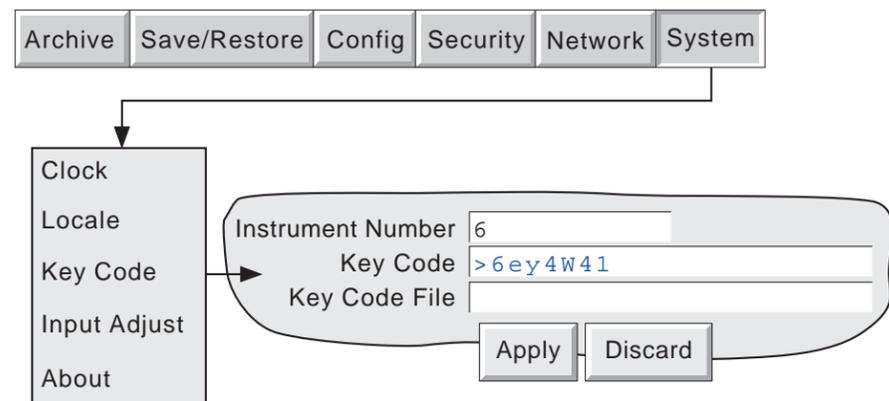


Figure 5.2 Option enable (key code) page

### 5.2.1 Instrument number

This number, unique to each recorder, is used to identify the unit should any need arise for the user to contact the manufacturer or distributor of the instrument (if, for example, the user needs to enable one or more software options.)

### 5.2.2 Key code

With Remote Viewer running with the unit, clicking on this field highlights it, allowing the user to use the PC's keyboard to enter the key code received from the manufacturer or distributor. This is an alternative to loading the Key Code File described below.

### 5.2.3 Key code file

The key code may be sent to the user by, for example, e-mail. The key code can then be transferred from the PC to the recorder. Alternatively, the code can be entered manually as described above.

## 3 INPUT BOARD RETROFIT

This procedure adds input channels 7 to 12. The second input board is mutually exclusive with option boards.

### Notes

1. For the sake of clarity, the main board is shown with its connector still in place. For anything but a new instrument, this would normally have been removed as described in section 1, above.
2. This procedure is applicable to units with status levels E2 or higher. To add channels 7 to 12 to a unit with a status level prior to this will render the unit non-CE compliant.

1. Remove all the connectors and the cover, as shown in section 1, but see the note above.
2. Remove the two blanking plates (figure 3.1), using a screwdriver to bend them backwards and forwards, until they snap.
3. Fit an EMC spring at each end of the connector, and secure with plastic rivets supplied with the kit, as shown in figure 3.2.
4. Fit the connector as shown in figure 3.3. Fix the relevant self-adhesive label to the connector.
5. Remove the self-adhesive protective film tab from the left-hand, on-board connector and fit the flexi-cable (figure 3.3), with the insulated side towards the latching bar of the connector.

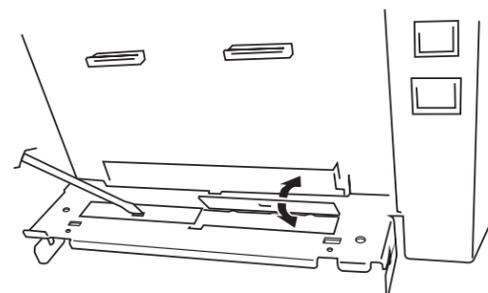


Figure 3.1 Remove blanking plates

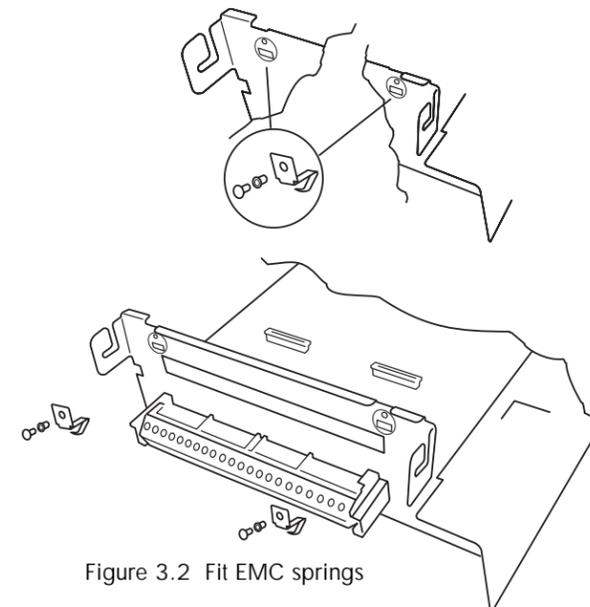


Figure 3.2 Fit EMC springs

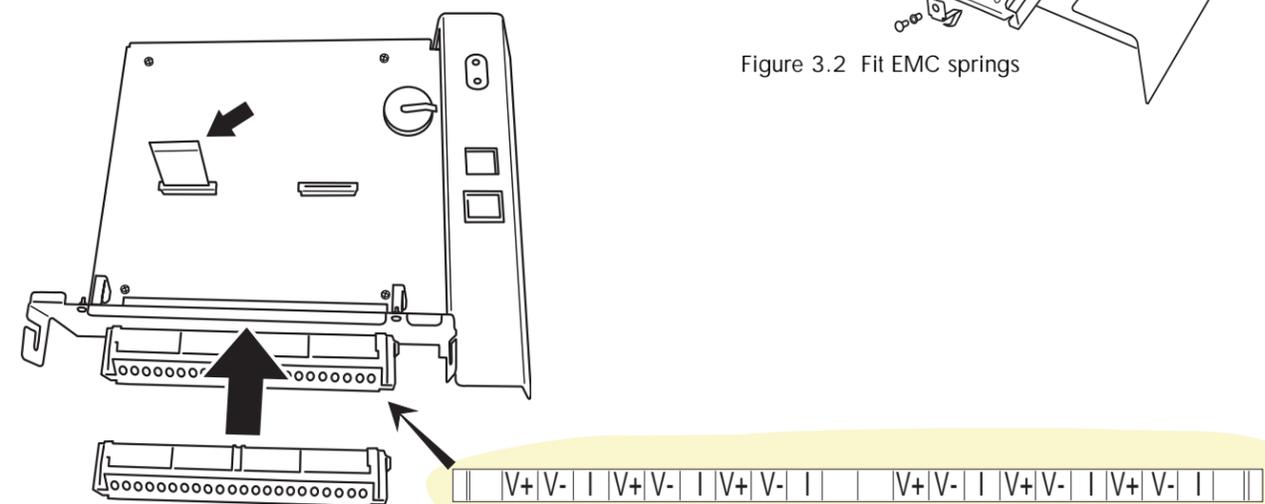


Figure 3.3 Fit connector and label (if not already fitted)

### 3 RETROFITTING AN INPUT BOARD (Cont.)

6. Taking all necessary precautions relevant to static-sensitive devices, unwrap the new board. If necessary set the board link as shown in figure 3.4. The link must be set as shown, otherwise channels 7 to 12 will not be recognised.

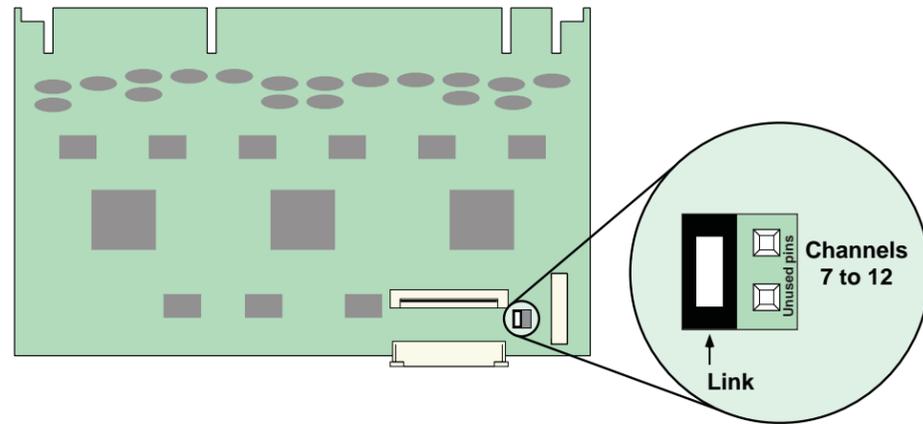


Figure 3.4 Input board link

7. Insert the new board into its connector. Connect the flexi cable into the horizontal connector on the board as shown in figure 3.5.
8. As shown in figure 3.6, fit the board support bracket, ensuring that the board is retained by the card guide slots in the sides of the bracket. Secure the bracket using the two screws 'D' provided in the kit.
9. Reassemble the instrument.
10. Continue at section 5 (Finishing off).

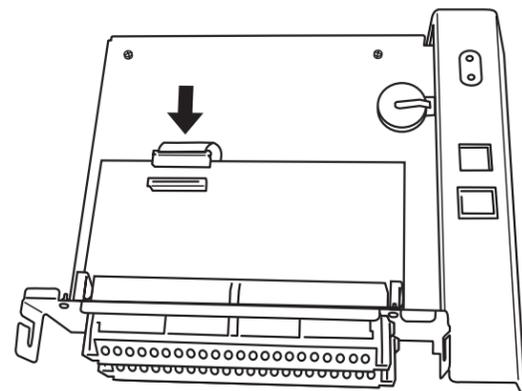


Figure 3.5 Make the flexi cable connection

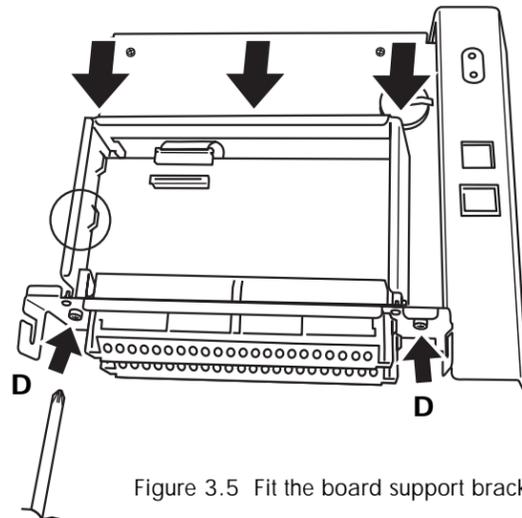


Figure 3.5 Fit the board support bracket

### 5 FINISHING OFF

Before the instrument's new channels or options can be used, the following need to be carried out:

1. Wire the new inputs/outputs - see section 5.1.
2. If Serial communications has been added, a new key code must be entered - see section 5.2
3. An auto configuration must be carried out, to tell the instrument's software that new features have been added - see section 5.3.

#### 5.1 WIRING

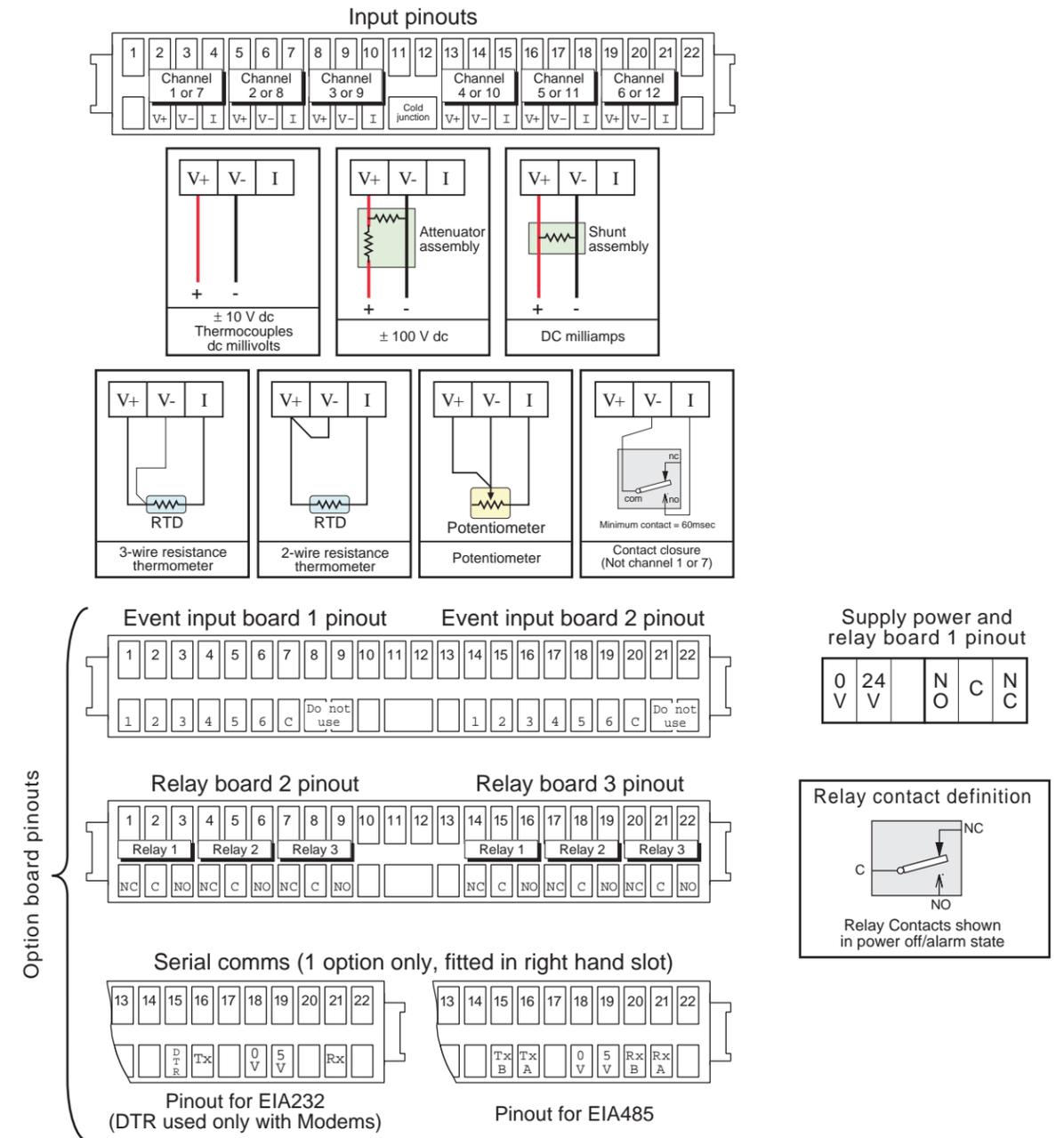


Figure 5.1 Pinout and wiring details

#### 4 OPTION BOARD RETROFIT (Cont.)

8. Insert the flexi cable(s) into the option board horizontal connector(s) (figure 4.9).
9. As shown in figure 4.10, fit the board support bracket, ensuring that the boards are retained by the card guide slots in the sides of the bracket. Secure the bracket using the two screws 'D' provided in the kit.
10. Reassemble the instrument.
11. Continue at section 5 (Finishing off).

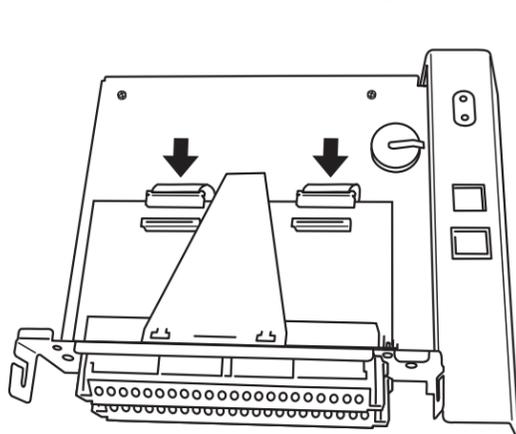


Figure 4.9 Make the flexi cable connections

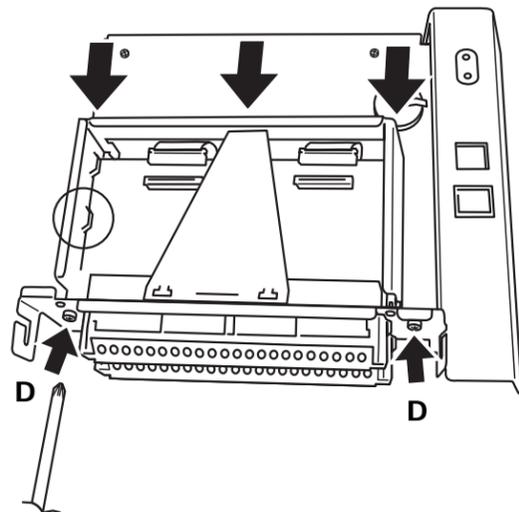
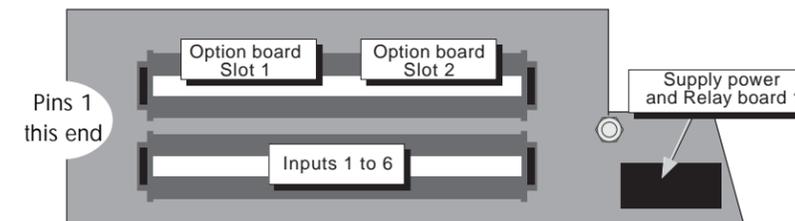


Figure 4.10 Fit the board support bracket

#### 4 OPTION BOARD RETROFIT

Option boards can be located in option board slot 1 (not Serial Comms.) or option board slot 2, as defined in figure 4.1, below.

**Note:** When configuring the unit, Relay board 1 is the single-relay fitted as standard to all instruments. Relay board 2 (if fitted) is the board located in option board slot 1, and relay board 3 (if fitted) is located in option board slot 2.



- Notes:
1. If channels 7 to 12 are fitted, they occupy option board slots 1 and 2.
  2. Relay board 1 is fitted as standard.
  3. Relay boards 2 and 3 (if fitted) occupy option slots 1 and 2, respectively.
  4. If both relay and event input option boards are fitted, the relay board must occupy slot 1, and the event input board must be located in slot 2.

Figure 4.1 Option slot locations

#### RELAY / EVENT INPUT BOARD SWITCH SETTINGS

Before fitting relay or event input boards, the two elements of the switch located near the front edge of the board must be set to define board number. The figure below, and its accompanying tables give details. (The figure shows a relay board - the event input board is similar).

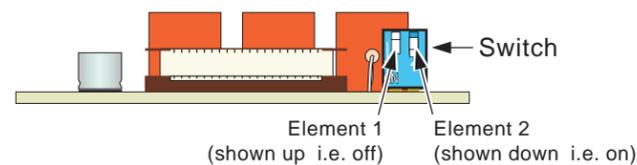


Figure 4.2 Relay/Event input board switch location

Option slot No.	Switch element 1	Switch element 2	Relay board No.
1	Up	Up	2
2	Down	Up	3

Table 4.2a Relay board switch settings

Option slot No.	Switch element 1	Switch element 2	Event i/p board No.
1	Up	Up	1
2	Down	Up	2

Table 4.2b Event input board switch settings

#### SERIAL COMMUNICATIONS BOARD SETTINGS

Before fitting a serial communications board (slot 2 only), it is necessary to set it to the appropriate transmission standard - i.e. EIA232 or EIA485. This selection is made by positioning three links as shown below.

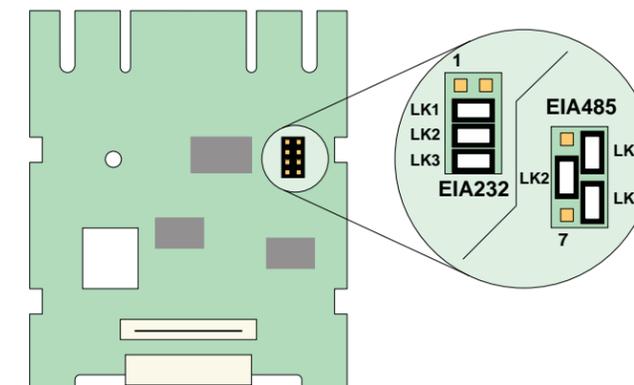


Figure 4.3 Serial communications board: selection of transmission standard

#### 4 OPTION BOARD RETROFIT (Cont.)

##### POLARISING PLUGS

In order to avoid accidental insertion of an incorrect board type, it is recommended that a polarising plug be inserted into the board side of the connector in the locations indicated in the table. Failure to do so may damage the unit. As shown in the figure, the plug is inserted into the connector and the 'handle' is then snapped off.

Note: Input boards do not require polarising plugs.

Insert polarising plug, then snap off 'handle'

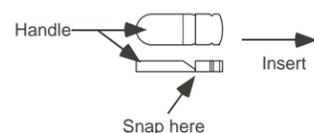


Figure 4.4 Polarising plug insertion technique

Option board type	Insert plug between contacts:	
	Slot 1	Slot 2
Event input	5 & 6	18 & 19
Relay	6 & 7	19 & 20
Serial comms	N/A	20 & 21

Contacts are counted from the left end of the connector, when viewed from the underside of the instrument, as shown in figure 4.1

Table 4.4 Polarising plug locations

##### CONNECTOR LABELS

A set of self-adhesive labels is supplied with each kit. Once the connector has been fitted, the relevant label is peeled off the backing paper, and attached to the connector. Figure 4.5 shows the option labels.

**WARNING!**

Ensure that the correct label for the output relay board is fitted, according to the option slot in which it is fitted. A potentially hazardous situation may arise if the incorrect label is fitted.

**CAUTION**

Ensure that the correct label for the output relay board is fitted, according to the option slot in which it is fitted. Failure to ensure this will result in an apparent malfunctioning of the relays, which could result in, for example, essential alarm actions, not being taken.

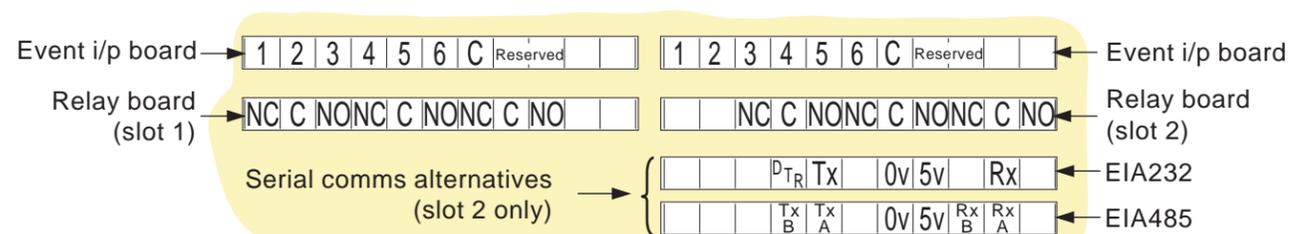


Figure 4.5 Option label set

#### 4 OPTION BOARD RETROFIT (Cont.)

Notes:

- 1 For the sake of clarity, the main board is shown with its connector still in place. For anything but a new instrument, this would normally have been removed as described in section 1, above.
- 2 For convenience, this procedure shows how to install two option boards. If only one board is being installed and it is a relay board, it must be positioned in slot 1. If a serial communications board is being fitted, it may be fitted only in slot 2.

1. Remove all the connectors and the cover, as shown in section 1, but see note 1 above.
2. Remove the two blanking plates (figure 4.6), using a screwdriver to bend them backwards and forwards, until they snap.
3. Insert two square nuts ('E' in figure 4.7) into the board guide extrusion, then secure the extrusion with the screws provided ('F' in the figure).
4. Fit an EMC spring if required (not needed for relay boards) and secure with a plastic rivet, as shown in figure 4.7.

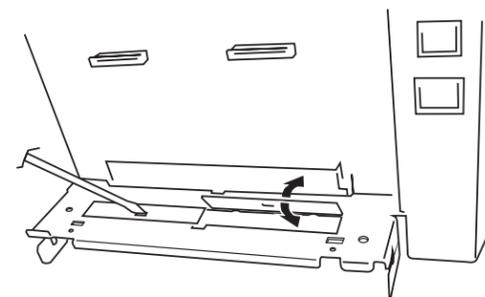


Figure 4.6 Remove cover plates

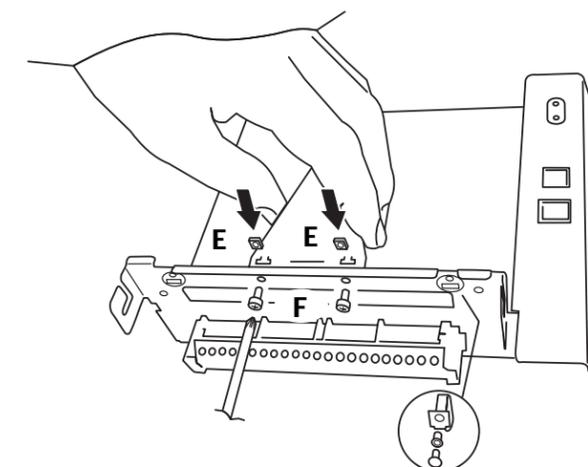


Figure 4.7 Fit the board guide extrusion and EMC spring (if required)

5. Insert a polarising plug into the connector (see page 6), then fit the connector as shown as action 1 in figure 4.8. Fix the relevant self-adhesive label to the connector (see page 6).
6. Remove the self-adhesive protective film tab from one or both on-board connectors (depending on how many option boards are being fitted, and in which slot). Fit flexi-cables, with the insulated side towards the latching bars of the connectors (action 2 in figure 4.8).
7. Slide the option board(s) into the connector (action 3 in figure 4.8), ensuring that the boards are retained by the extrusion.

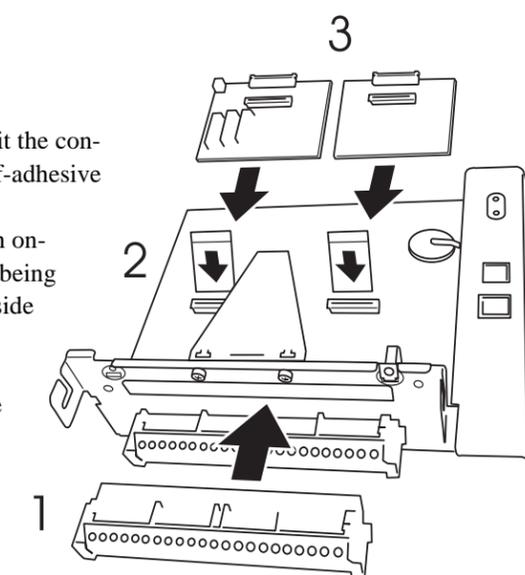


Figure 4.8 Fit connector, flexi cable(s) and option board(s)