SM1000, SM2000 and SM3000
Paperless recorders
I/O module board installation

1 Introduction

This publication describes the procedure for installing the following I/O module boards in SM1000, SM2000 and SM3000 recorders.

- GR2000/0703 3-relay module board service pack
- GR2000/0704 6-relay module board service pack
- GR2000/0705 Hybrid module board service pack
- GR2000/0706 Transmitter PSU module board service pack
- GR2000/0708 6-channel, analog input module board service pack
- GR2000/0714 High-specification, 6-channel analog input module board service pack

In addition to the I/O module board, each pack contains the following:

<table>
<thead>
<tr>
<th>Description</th>
<th>Part No.</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-way I/O connector – except GR2000/0714</td>
<td>B10750</td>
<td>1</td>
</tr>
<tr>
<td>20-way I/O connector – GR2000/0714 only</td>
<td>GR2000/0162</td>
<td>1</td>
</tr>
<tr>
<td>20-way terminal adaptor</td>
<td>GR2000/0113</td>
<td>1</td>
</tr>
<tr>
<td>Terminal block label</td>
<td>GR2000/0186</td>
<td>1</td>
</tr>
<tr>
<td>PCB terminal block guide</td>
<td>PR250/0107</td>
<td>2</td>
</tr>
<tr>
<td>M3 x 4 screw</td>
<td>B12076</td>
<td>2</td>
</tr>
<tr>
<td>M3 x 10 screw</td>
<td>J/0227/383</td>
<td>2</td>
</tr>
<tr>
<td>M3 nut</td>
<td>B5719</td>
<td>2</td>
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<tr>
<td>This publication – SM1000, SM2000 and SM3000 I/O module board installation</td>
<td>INF01/49</td>
<td>1</td>
</tr>
</tbody>
</table>

2 Tools required

- Medium, flat-bladed screwdriver
- No. 1 Pozidriv screwdriver
- Small pair of pliers (for early models SM2000 only)
- 3 mm dia. flat-bladed, parallel tip screwdriver

Notes.

- The 6-channel analog input module board packs GR2000/0708 and GR2000/0714 each include 6 resistor assemblies (part no. GR2000/0073).
- The 20-way connector included in pack GR2000/0708 has a thermistor and cover fitted – see Notes in Figure 5 on page 4 and Figure 9 on page 7.
- The 20-way connector included in pack GR2000/0714 has a thermometer and cover fitted – see Notes in Figure 5 on page 4 and Figure 9 on page 7.
3 I/O module board installation (SM1000 and SM2000)

CAUTION
The recorder is vulnerable to electrostatic damage. Wear an anti-static strap or dismantle the unit on an anti-static workbench.

1 Isolate the recorder from the power supply.
2 Referring to Figure 1, remove the recorder from its case.

Note.
Refitting is the reverse of removal.

![Figure 1](image1.png)
Removing the recorder from its case

3 Referring to Figure 2, remove the chassis top cover and PCB locking bar.

![Figure 2](image2.png)
Removing the chassis top cover and pcb locking bar
4 Referring to Figure 3, remove the existing I/O module board (if fitted) and fit the new I/O module board.

**CAUTION**

For the recorder to function correctly, it is important to ensure that the I/O module boards are fitted in the correct positions.

1. If replacing an existing I/O module board, note its position and withdraw it from the chassis (Analog I/O module board in position A shown).

2. Determine the correct position for the new I/O module board. Replacement boards must be fitted in the same position as the original.

3. When fitting a new or existing module board, ensure that the lugs locate correctly into the slots on the motherboard.

4. Repeat the removal/refitting process for additional module boards as required.

Figure 3  Fitting additional or replacement I/O module boards

5 Referring to Figure 4, remove the recorder case blanking plate (if fitted).

1. Using a small pair of pliers, lever up the two plastic retaining rivets at each new board position required.

2. Remove blanking plate and discard.

Figure 4  Removing the recorder case blanking plate (if fitted)
...3  I/O module board installation (SM1000 and SM2000)

6  Referring to Figure 1 on page 2, unscrew the 3 captive screws securing the terminal cover and remove the cover (if fitted).

7  Referring to Figure 5, fit the 20-way connector.

Note. Refer to the User Guide (IM/SM1000 or IM/SM2000) for connection details for all I/O module boards.

Note. To remove a 20-way connector, depress the tabs at each end using a small, flat-bladed screwdriver and withdraw.

Note. The 20-way connector included in analog input module board pack GR2000/0708 has a thermistor and cover fitted. This connector is used with standard analog input module boards only, which must be fitted in positions A or B only.

Note. The 20-way connector included in high-specification analog input module board pack GR2000/0714 has a thermometer and cover fitted, and can be identified by having 2 black, blanking plugs in terminal screw positions 10 and 11. This connector must be used with high-specification analog input module boards only, which must be fitted in positions A or B only.

Figure 5  Fitting the 20-way connector
8 Referring to Figure 1 on page 2, refit the terminal cover (if fitted).

9 Referring to Figure 6, refit the PCB locking bar and chassis top cover.

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**CAUTION**

When positioning the chassis top cover, take care not to damage the EMC contacts.

1 Refit PCB locking bar ensuring that the slots in the bar locate correctly on the boards and chassis

2 Position top cover as shown

3 Slide forward

4 Lower rear

5 Refit screws (one each side)

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Figure 6 Refitting the PCB locking bar and chassis top cover

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4 I/O module board installation (SM3000)

**CAUTION**

The recorder is vulnerable to electrostatic damage. Wear an anti-static strap or dismantle the unit on an anti-static workbench.

1 Isolate the recorder from the power supply.

2 Referring to Figure 7, remove the recorder from its case.

**Note.**
Refitting is the reverse of removal.

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Figure 7 Removing the recorder from its case
3 Referring to Figure 8, remove the existing I/O module board (if fitted) and fit the new I/O module board.

**CAUTION**

For the recorder to function correctly, it is important to ensure that the I/O module boards are fitted in the correct positions.

1. Remove PCB locking bar securing screws (one each side)...

2. ...and remove PCB locking bar

3. If replacing an existing I/O module board, note its position and withdraw it from chassis (analog I/O module boards in positions A and F, relay module board in position G and transmitter PSU in position H shown)

4. When fitting a new or existing module board, ensure that the lugs locate correctly into the slots on the motherboard

5. Determine the correct position for the new I/O module board. Replacement boards must be fitted in the same position as the original

6. Repeat the removal/refitting process for additional module boards, as required.

7. Reverse steps 1 and 2 above and refit PCB locking bar

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**Figure 8** Fitting additional or replacement I/O module boards
4 Referring to Figure 7 on page 5, loosen the 3 screws securing the terminal cover and remove the cover (if fitted).

5 Referring to Figure 9, remove the recorder case blanking plate (if fitted) and fit the 20-way connector.

**Note.**
Refer to the User Guide (IM/SM3000) for connection details for all I/O module boards.

6 Referring to Figure 7 on page 5, refit the terminal cover (if fitted) and refit the recorder to its case.

7 Restore the power supply to the recorder.

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**Figure 9  Fitting the 20-way connector**

1. Remove self-adhesive blanking plate from appropriate slot in instrument case.

2. Affix the appropriate label to the 20-way connector.

3. Ensure PCB guides are fitted correctly...

4. ...and insert 20-way connector into appropriate slot.

**Note.**
The 20-way connector included in high-specification analog input module board pack GR2000/0714 has a thermometer and cover fitted, and can be identified by having 2 black, blanking plugs in terminal screw positions 10 and 11. This connector must be used with high-specification analog input module boards only, which must be fitted in positions A or B only.

**Note.**
To remove a 20-way connector, depress the tabs at each end using a small, flat-bladed screwdriver and withdraw.