SM3000
Display Module, Display Inverter and/or Display Backlight* Replacement

1 Introduction
This information sheet describes the procedure for replacing the SM3000 instrument’s Display, Display Inverter and/or Display Backlight*.

Note.
To maintain compatibility between the display module and the display inverter, both items must be replaced together.

The Display Backlight Replacement Pack, GR2000/3720, includes the following items:

<table>
<thead>
<tr>
<th>Description</th>
<th>Part No.</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backlight Unit</td>
<td>B12070</td>
<td>1</td>
</tr>
<tr>
<td>M3 x 5 Screw</td>
<td>B12142</td>
<td>4</td>
</tr>
<tr>
<td>M4 x 4 Screw</td>
<td>B12151</td>
<td>2</td>
</tr>
<tr>
<td>Snap Rivet</td>
<td>B11768</td>
<td>2</td>
</tr>
<tr>
<td>Inverter</td>
<td>B12022</td>
<td>1</td>
</tr>
<tr>
<td>Inverter Insulator</td>
<td>GR2000/3137</td>
<td>1</td>
</tr>
<tr>
<td>Inverter cable assembly</td>
<td>GR2000/3071</td>
<td>1</td>
</tr>
<tr>
<td>Cable tie base</td>
<td>B10194</td>
<td>2</td>
</tr>
<tr>
<td>Cable tie</td>
<td>B5634</td>
<td>2</td>
</tr>
<tr>
<td>Snap Rivet</td>
<td>B12077</td>
<td>2</td>
</tr>
</tbody>
</table>

Information Sheet – SM3000 Display, Display Inverter and/or Display Backlight Replacement

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<tr>
<td>Information Sheet – SM3000 Display, Display Inverter and/or Display Backlight Replacement</td>
<td>INFO3/74</td>
<td>1</td>
</tr>
</tbody>
</table>

*Backlight for display NEC NL8060 BC31-17 only.

2 Tools Required
- Medium flat-bladed screwdriver
- No.1 Pozidriv screwdriver
- No.2 Pozidriv screwdriver
- Small-bladed screwdriver or pointed instrument (for snap rivet removal)
- ø2mm miniature crosshead screwdriver (for backlight replacement).
1) Isolate the instrument from the power supply.
2) Remove the instrument from its case – see Fig. 3.1.
3) Remove the chassis from the display molding – see Fig. 3.2.

Fig. 3.2 Removing the Chassis from the Display Molding

Information
Refitting is the reverse of removal.
...3 Display Module and Display Inverter Replacement – Figs. 3.1 to 3.5

4) Remove the display module – see Fig. 3.3

1. Place chassis face down on protective surface, remove snap rivets from display interface board...

2. ...and unplug board from display

3. Disconnect display backlight connector from inverter

4. Support the display module and remove the securing screws (4 off)

5. Remove the display, passing the display backlight cable and connector through the slot in the chassis

Information.
Refitting is the reverse of removal.

Note. When fitting the display module:
- ensure the interface board connector mates correctly with the receptacle on the display module
- ensure the connector is fully engaged by pressing down firmly on the display interface board

Fig. 3.3 Removing the Display Module
5) Replace the display inverter – see Fig. 3.4.

1. Loosen inverter securing screws
2. Remove and discard inverter cover
3. Disconnect inverter
4. Remove and discard inverter securing screws and spacers and remove inverter
5. Disconnect inverter cable assembly from mainboard and discard. Fit new cable supplied.
6. Remove the screws and threaded spacers and discard.
7. Position inverter insulator behind new inverter with fixing holes aligned and inverter central to insulator.
8. Position inverter and insulator and secure using snap rivets
9. Connect inverter
10. Refit the Display Module.

Note.
Procedure 5) is applicable only to instruments fitted with early style of display inverter.

Fig. 3.4 Replacing Display Inverter (for Type 1 display)
...3 Display Module and Display Inverter Replacement – Figs. 3.1 to 3.5

Note.
Procedure 6) is applicable only to instruments fitted with later style of display inverter.

6) Replace the Display Inverter – see Fig. 3.5.

- Disconnect inverter. Connections may differ from those shown. If the cable assembly from the main board has two connectors at the inverter end, disconnect the cable and discard. Fit the new cable assembly supplied.
- Remove inverter and inverter insulator.
- When fitting the new inverter position it centrally over the inverter insulator. This may require rotation of the insulator from its original position.
- Fit cable tie bases and cable ties.

Information.
Refitting is the reverse of removal.

Fig. 3.5 Replacing Display Inverter (for Type 2 display)

7) Fit the new display module – see Fig. 3.3.
To ensure that cables cannot be trapped when refitting the instrument into the case, secure the cable assemblies from the inverter to the mainboard, and from the inverter to the display, to the front plate using the adhesive-backed cable tie bases and cable ties as shown.

8) Refit the chassis to the display molding – see Fig. 3.2.
9) Refit the instrument to the case – see Fig. 3.1.
10) Restore the power supply to the instrument.
4 Setting the Display Type
SM3000 instruments manufactured from March 2007 are fitted with a new style display whose brightness function is driven in the reverse sense compared to the earlier display, i.e. the darkest to brightest settings run from 100 to 0 instead of 0 to 100. A new parameter has been added to the instrument’s ‘Commissioning’ level and when replacing a display, if the unit is using Software 2001/11.011 or later, it is necessary to set this to the correct display type.

The display type can be readily identified by the style of display inverter installed on the rear of the display.

To set the ‘Display Type’ parameter:

1. Isolate the instrument from the power supply
2. Remove the instrument from its case – see Fig. 3.1
3. Identify the display inverter – see Figs. 3.4 and 3.5

![Type 1 Display](image1.png) ![Type 2 Display](image2.png)

Fig. 4.1 Identifying the Display Type

4. Refit the instrument to its case
5. Restore the power supply to the instrument
6. Access the instrument’s ‘Configuration’ level – refer to Section 4 in the User Guide (IM/SM3000)
7. From the ‘Common Configuration’ screen, highlight ‘Commissioning’ on the menu and press the ‘Enter’ button

8. Select the ‘…’ tab

![Configuration Screen](image3.png)

9. Select the ‘Display Type’ parameter and press the ‘Enter’ button to select either ‘Type 1’ or ‘Type 2’ depending on the inverter type identified at step 3 above

10. Exit the ‘Configuration’ level, saving the configuration as the current configuration – refer to Section 4 in the User Guide (IM/SM3000)
5 Display Backlight Replacement – Fig. 5.1

Note.
Only for NEC Display NL8060 BC31-17.

1) Isolate the instrument from the power supply.
2) Remove the instrument from its case – see Fig. 3.1.
3) Remove the display module – see Figs. 3.2. and 3.3.
4) Remove the display backlight – see Fig 5.1.

5) Fit the new display backlight – see Fig. 4.1.
6) Refit the display module – see Figs. 3.2. and 3.3.
7) Refit the instrument to the case – see Fig. 3.1.
8) Restore the power supply to the instrument.