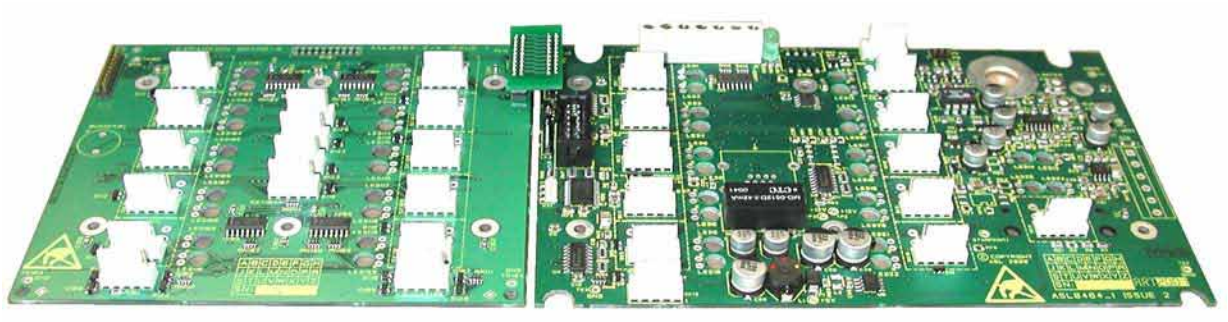
# Installation Guide

Custom Microphone Panel Interface Boards

Type Nos.
CMB10, MEB10

Product Description



MEB10 CMB10

The Custom Microphone Panel Interface Boards are supplied as open Printed Circuit Boards for inclusion into custom "paging" and "fire" microphone console designs, and are designed to work with the ASL range VA R Router/Systems Controllers.

The CMB10 provides connections for ten zone selection switches, each having a 'busy' LED and a 'Select' LED. Connection for a single 'Push-To-Talk' switch with an associated 'Speak-Now' LED is also provided along with auxiliary control outputs and key-switch inputs.

The MEB10, when used in conjunction with the above, provides a further ten zone selection switch/LED connections along with additional key-switch inputs and auxiliary outputs.

Two MEB10 boards may be "daisy-chained", providing a maximum configuration of thirty zone select switches with nine key-switches and six auxiliary outputs.

All panel connections are presented on simple crimp style plug and socket connectors with field connections via screw terminal blocks for ease of cabling.

A processor within the CMB10 interfaces all LEDs and switches to the DSP Router/System Controller by means of a serial interface. Microphone audio is provided as a balanced analogue signal.

The processor is also responsible for generating an outgoing low-frequency surveillance tone. Microphone capsule monitoring is performed by injection and monitoring of a signal through the microphone capsule such that either open or short circuit of the capsule or associated wiring will indicate a fault.

For further details please refer to the DSP Router/System Controller Handbook.

## CE Information.

This product is a classified as a component and, as such, cannot be individually CE marked. Its EMC performance depends on its installation. In particular, how it is cabled and enclosed.

The responsibility for EMC compliance therefore falls on the system integrator responsible for incorporating these products into the particular custom microphone console of their design.

ASL offers the following guidelines:

- Use an overall metal enclosure with good bonding between panels.
- Mount the PCB(s) to the enclosure using suitable metal pillars.
- Use foil screened cable for interconnection with other equipment.
- Terminate the cable screens as directly as possible to the metal enclosure on entry. Preferably clamped within the shell of a connector.

## Safety and Precautions

ELECTRICAL SAFETY

Always replace blown fuses with the correct type and rating. Ensure power supply cabling is adequately rated.

ENVIRONMENTAL PRECAUTIONS

The temperature and humidity ranges shown in the specifications for this product must not be exceeded. This equipment must not be installed in an area that is subject to a corrosive atmosphere, excessive moisture or may allow water or other liquids to come into contact with the unit or its external connections.

ESD PRECAUTIONS

This product contains static-sensitive devices. Observe ESD precautions when working on the equipment with the cover removed.

HOT PLUGGING

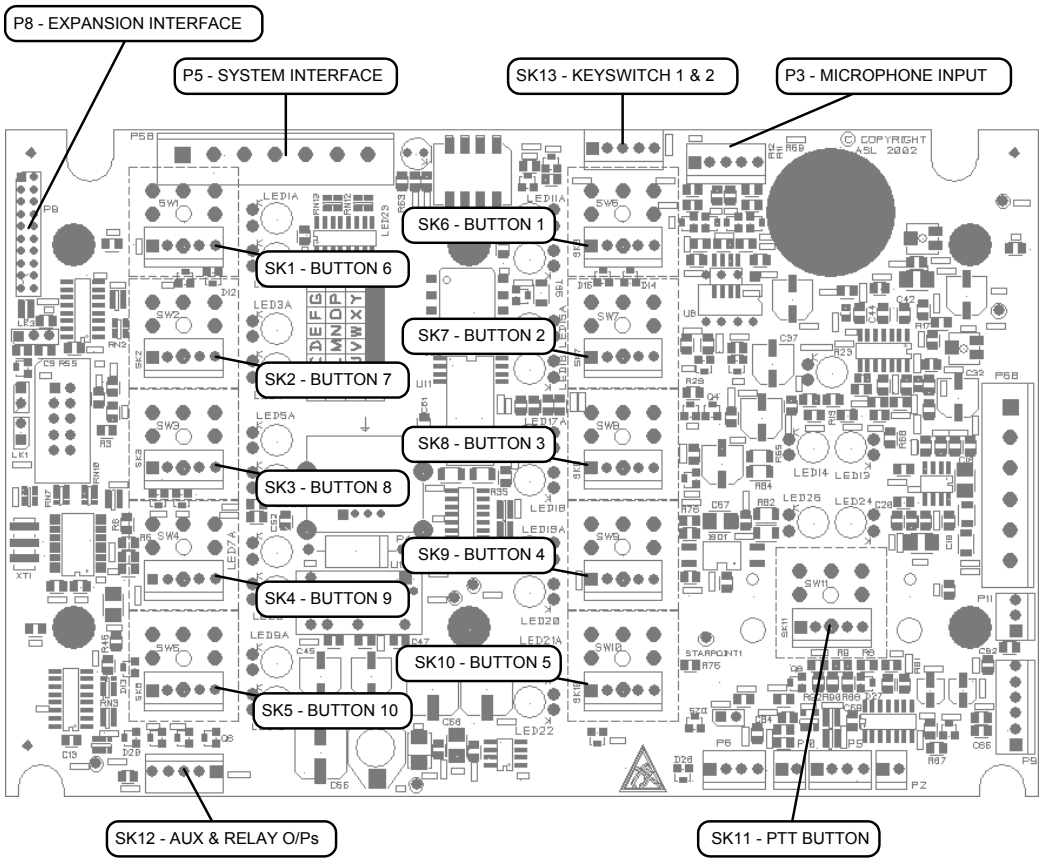
Only make/break connections to these products with all power removed. Failure to do so may damage the product.

## To install this product you will need;

- This CMB10 and/or MEB10 unit (and its plug-on interconnect board)
- A metal enclosure with suitable fixing points (see drilling plan).
- Suitable Switches and LEDs and Microphone.
- A pair of wire cutters/strippers and a suitable crimp tool for switch/LED and microphone cabling e.g. MOLEX part no. 69008-0956 or Farnell part nos: 285-511 or 143-520

## Connection Details

### Fig.1 – CMB10 Connections




**NOTE: Silkscreen annotation of buttons (SK1-11) does not relate directly to button numbers used when configuring the VAR DSP Router (BUTTON1-10 and PTT BUTTON). See diagram above.**

# CMB10 System Connections

| P5 – SYSTEM INTERFACE | | | |
|---|---|---|---|
| **Pin** | **Function** | **Destination (via rack terminations)** | **Notes** |
| 1 | Cable Screen | VAR INPUT Screen | |
| 2 | 0V Supply | VAR INPUT pin 3 | |
| 3 | +V Supply | VAR Input Connector Supply pin 7 | May use supply 7-40V DC. |
| 4 | DATA DXN | VAR Input pin 5 | |
| 5 | DATA DXP | VAR Input pin 9 | |
| 6 | AUDIO + | VAR Input pin 1 | |
| 7 | AUDIO - | VAR Input pin 2 | |

| P3 – Microphone Input | | | |
|---|---|---|---|
| **Pin** | **Function** | **Destination** | **Notes** |
| 1 | PTT- | Push-To-Talk switch | For Fist Microphones etc |
| 2 | Audio In - | Mic Balanced Audio | Low Impedance Balanced Microphone Only |
| 3 | 0V | Mic cable Screen | |
| 4 | Audio In + | Mic Balanced Audio | Low Impedance Balanced Microphone Only |
| 5 | PTT+ | Push-To-Talk switch | For Fist Microphones etc |

| SK1 to SK10 – Select Button and Busy/Select LED (Note: pinout different on MEB10) | | | |
|---|---|---|---|
| **Pin** | **Function** | **Destination** | **Notes** |
| 1 | Busy LED | Cathode of external LED | Use ‘low-current’ 2mA LED* |
| 2 | Select LED | Cathode of external LED | Use ‘low-current’ 2mA LED* |
| 3 | Zone Select Switch | To external switch | Must be momentary push button |
| 4 | Zone Select Switch | To external switch | Must be momentary push button |
| 5 | +5V | To Anodes of Busy and Select LEDs | * |
| * Suitable series resistors are built in. External resistor not needed. | | | |

| SK11 – PTT and Speak-Now LED | | | |
|---|---|---|---|
| **Pin** | **Function** | **Destination** | **Notes** |
| 1 | Speak Now LED | Cathode of external LED | Use ‘low-current’ 2mA LED* |
| 2 | Speak Now LED | Cathode of external LED | Use ‘low-current’ 2mA LED* |
| 3 | PTT Switch | To external PTT switch | Must be momentary push button |
| 4 | PTT Switch | To external PTT switch | Must be momentary push button |
| 5 | +5V | To Anodes of Busy and Select LEDs | * |
| * Suitable series resistors are built in. External resistor not needed. | | | |

| SK12 – Aux (Wait LED) and Relay Outputs | | | |
|---|---|---|---|
| **Pin** | **Function** | **Destination** | **Notes** |
| 1 | 0V | | |
| 2 | Relay Drive | To External Relay | Open collector 50mA Max.<br>Built in Catch Diode to +5V |
| 3 | +5V | Used to feed relay. | 50mA Max. |
| 4 | Aux Output | To Cathode of ‘Wait’ LED | Open collector 50mA Max.<br>Built in Catch Diode to +5V<br>If feeding an LED a suitable series resistor must be fitted dependent on supply voltage and operating current. |
| 5 | +5V | Can be used to feed Anode of wait LED. | 50mA Max<br>If feeding an LED a suitable series resistor must be fitted dependent on LED operating current. |

**Connection details (continued)**

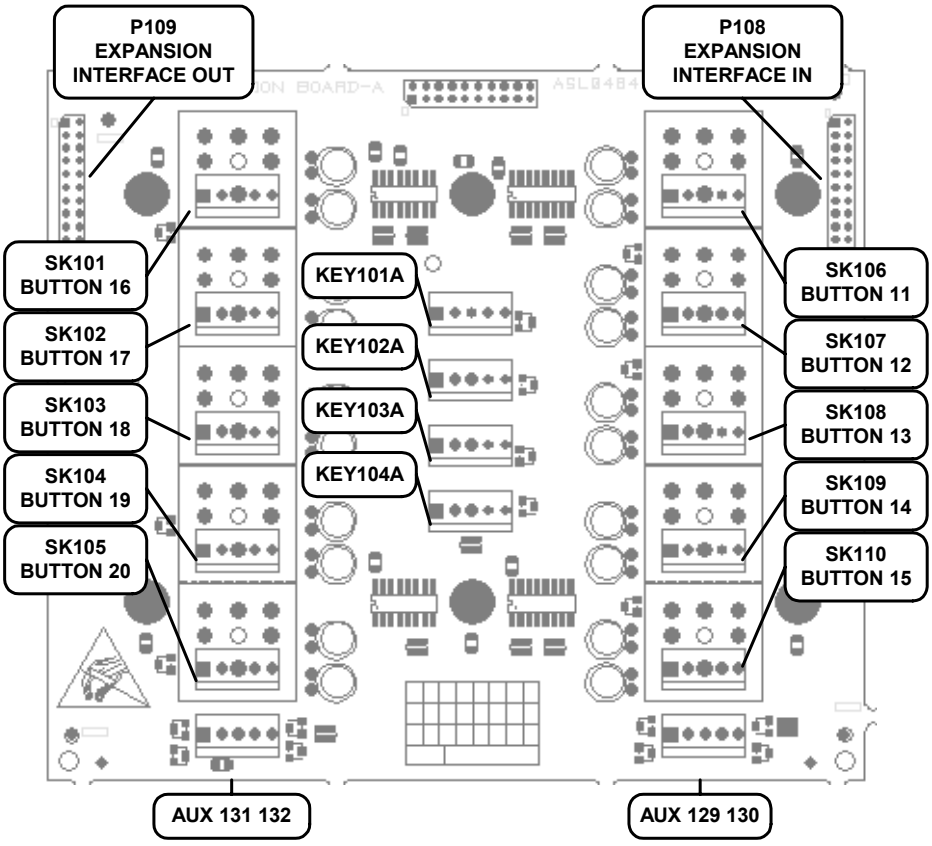
## CMB10 System Connections

| SK13 – Keyswitch 1 & 2 | | | |
|---|---|---|---|
| **Pin** | **Function** | **Destination** | **Notes** |
| 1 | Keyswitch-1 | Single Pole Keyswitch 1 | |
| 2 | Keyswitch-1 | Single Pole Keyswitch 1 | |
| 3 | Keyswitch-2 | Single Pole Keyswitch 2 | |
| 4 | Keyswitch-2 | Single Pole Keyswitch 2 | |
| 5 | +5V | | |

**Notes:**
**The functionality of all LEDs and switches described in the tables above is a function of the VAR series of Audio Routers. Refer to the VAR product manuals for implementation and operation.**

**Connection Details**

**Fig.2 – MEB10 Connections**




**NOTE: Silkscreen annotation of buttons (SK101-110) does not relate directly to button numbers used when configuring the VAR DSP Router (BUTTON11-20). See diagram above.**

## Connection details (continued)
## MEB10 System Connections:

Note that all connectors are prefixed '1' in Fig.2 and the following tables. i.e SK106 etc. ASL also provide a MEB10 board with connectors prefixed '2'. i.e SK206 etc. this board is identical in function. Any two MEB10 boards may be "daisy-chained", providing a maximum configuration of thirty zone select switches with nine key-switches and six auxiliary outputs. The numbering for switches/LEDs 21-30 will then follow the same ordering scheme as shown in Fig.2 for switches 11-20.

**SK101 to SK110 – Select Button and Busy/Select LED (Note: pinout different from CMB10)**

| Pin | Function | Destination | Notes |
|---|---|---|---|
| 1 | Select LED | Cathode of external LED | Use 'low-current' 2mA LED* |
| 2 | Busy LED | Cathode of external LED | Use 'low-current' 2mA LED* |
| 3 | Zone Select Switch | To external switch | Must be momentary push button |
| 4 | Zone Select Switch | To external switch | Must be momentary push button |
| 5 | +5V | To Anodes of Busy and Select LEDs | * |

* Suitable series resistors are built in. External resistor not needed.

**KEY101A to SK104A – Key Switches and Optional LEDs**

| Pin | Function | Destination | Notes |
|---|---|---|---|
| 1 | LED#1 | Cathode of external LED | Use 'low-current' 2mA LED* |
| 2 | LED#2 | Cathode of external LED | Use 'low-current' 2mA LED* |
| 3 | Key Switch | To single pole key switch | |
| 4 | Key Switch | To single pole key switch | |
| 5 | +5V | To Anodes of LEDs | * |

* Suitable series resistors are built in. External resistor not needed.

**AUX129 130 and AUX 131 312 – Auxiliary or Relay Outputs**

| Pin | Function | Destination | Notes |
|---|---|---|---|
| 1 | 0V | | |
| 2 | Aux Output | To External LED/Relay | Open collector 50mA Max. Built in Catch Diode to +5V. If feeding an LED a suitable series resistor must be fitted dependent on supply voltage and operating current. |
| 3 | +5V | Used to feed relay. | 50mA Max. |
| 4 | Aux Output | To External LED/Relay | Open collector 50mA Max. Built in Catch Diode to +5V. If feeding an LED a suitable series resistor must be fitted dependent on supply voltage and operating current. |
| 5 | +5V | Used to feed relay. | 50mA Max. Built in Catch Diode to +5V |

**Notes:**
**The functionality of all LEDs and switches described in the tables above is a function of the VAR series of Audio Routers. Refer to the VAR product manuals for implementation and operation.**

## Controls and Indicators

| | |
|---|---|
| **Zone Select button** | Selects which zone(s) will receive the paging announcement from this microphone unit.<br>If pressed a second time, the zone will be de-selected.<br>Zone Select buttons can be configured at the VAR DSP Router/System Control Unit to control a single zone, a group of zones or all the zones. |
| **Busy LED** | When lit, indicates the zone (or one or more of the group of zones controlled by this button) is already in use by another input. This microphone unit can only select the zone if the other input is of a lower priority.<br>If a higher priority input selects the zone during a paging announcement, the zone will be deselected and the Busy LED will be lit. Announcements will continue to other zones. |
| **Select LED** | When flashing, it indicates the zone is successfully selected and is ready for use by this microphone station. This LED will be steady once the PTT button is pressed (as long as a higher priority input has not selected the same zone).<br>If a higher priority input selects the zone during a paging announcement, the zone will be deselected and the Select LED will go out. Announcements will continue to other zones. |
| **Press To Talk button** | When pressed, it activates the zone selection, opens the microphone channel and triggers the pre-announcement chime (if selected at the VAR DSP Router/System Controller) ready for the paging announcement.<br>*This button is used in a Zoned Fire Mic application as a secondary PTT which may be used for non-emergency use without triggering a chime.*<br>*In this application the primary PTT button should be wired directly to the VAR DSP Router.*<br>*Refer to the VAR product manuals for connection details and operation.* |
| **Speak Now LED** | When the Press To Talk button is pressed, and the chime (if any) has finished, this LED is lit to indicate that the announcement can be made.<br>When released, the microphone channel is closed and the zone selections may be either cancelled or left selected as programmed at the VAR-4 DSP Router/System Controller.<br>*When used as a fire microphone the SPEAK-NOW indicator should be wired directly to the VAR DSP Router.*<br>*Refer to the VAR product manuals for connection details and operation* |
| **Wait LED** | Illuminates as soon as PTT pressed until Speak Now illuminates. i.e during chime. |
| **Diagnostic LED (internal)** | LED adjacent to P5 for diagnostic/install purposes - It flashes periodically to indicate OK status. Rapid flashing indicates that power is OK but there is a comms fault. |

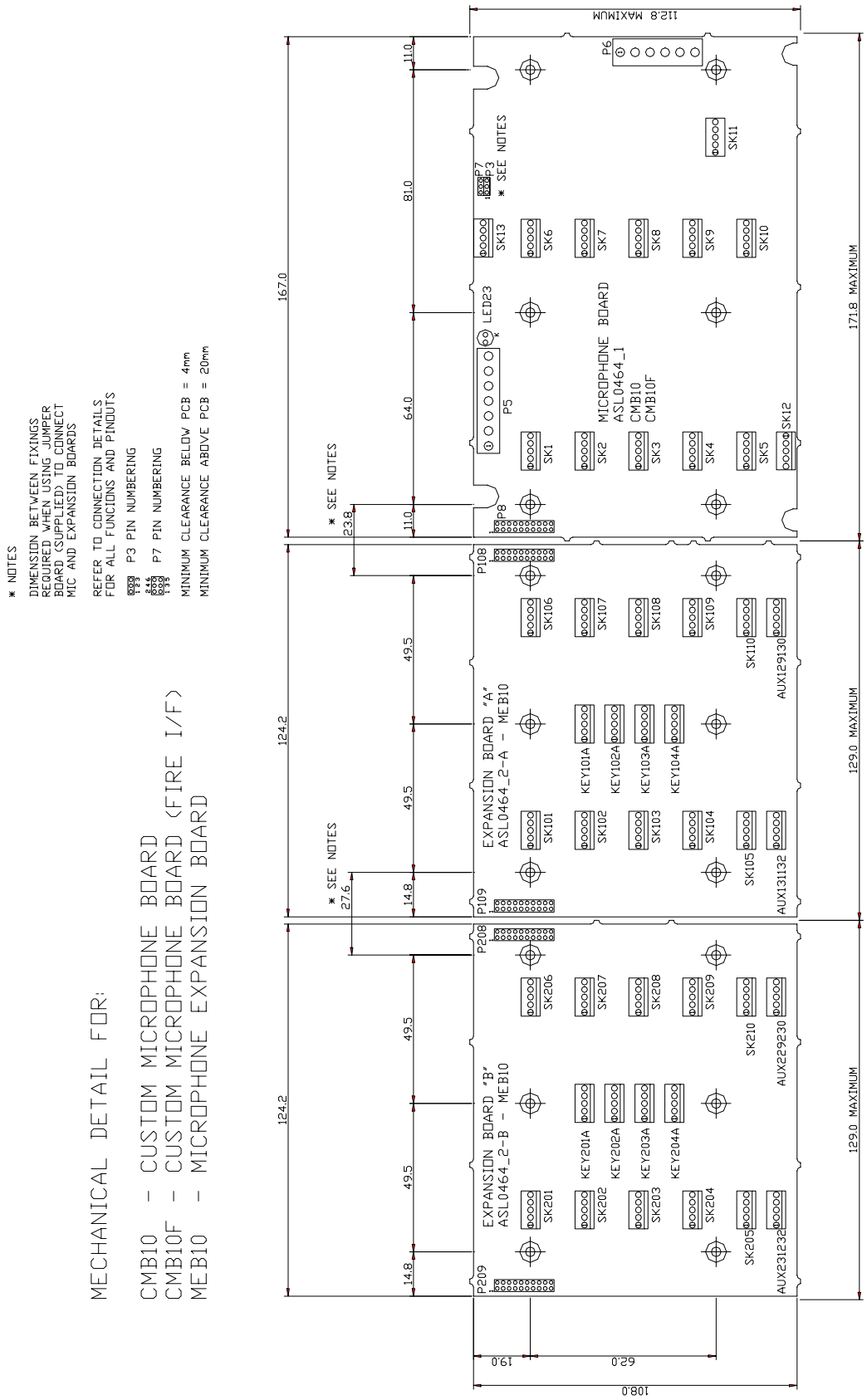



**Fig.3. Mechanical Details**

## Specifications

| | |
|---|---|
| Current consumption (max, all LEDs on) | 300mA @ 24V DC supply |
| Dimensions (H x W x D) | See Fig.3 |
| Weight | 200g |
| Temperature Range (storage and operating) | -5°C to +50°C |
| Humidity Range | 0% to 93% Non Condensing |

## Manufacturer

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QUALITY ASSURED FIRM
CERTIFICATE NUMBER 96-LON-AO-041

This equipment is designed and manufactured in the UK by Application Solutions Ltd to a quality system certified to the internationally recognised quality standard: BS EN ISO 9001: 1994

Certificate number: 96-LON-AQ-041