CXL-4160
100/70 V Transformer Module

Installation Instructions

Important Safety Notes

It should be recognised that 100 V-line or 70 V-line speaker systems have the potential to deliver an electric shock. Install the CXL-4160 only in accordance with these instructions.

In all cases, the external wiring and associated speakers will need to comply with local electrical regulations for AC voltages up to 100 V_{rms} (141 V_{peak}).

Do not expose the transformer to rain or moisture.

The transformer module must be installed in a safe manner.

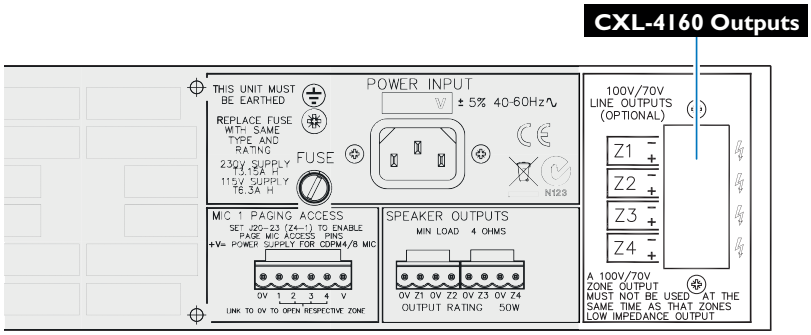
Cloud Electronics Ltd. accept no responsibility for hazardous installations.

INTRODUCTION

The CXL-4160 is an optional transformer module for the 46-50 Multi-Zone Mixing Amplifier. It permits the 46-50 to directly drive 100 V or 70 V-line loudspeaker systems. The module itself consists of four transformers (one for each Zone output) mounted on a PCB, and is supplied in kit form with all the necessary fixings and wiring. Any or all of the 46-50's outputs may be converted to 70/100 V-line operation as wished. Each transformer is rated at 40 W.

The CXL-4160 transformers are not of the "auto transformer" type, and hence provide a fully balanced output signal which is isolated from the amplifier.

The module is easily mounted within the 46-50's enclosure, using pre-drilled fixing holes. The outputs are then available on an 8-way parallel entry screw-terminal connector which occupies the hole (shown below) in the rear panel normally covered by a blanking plate.

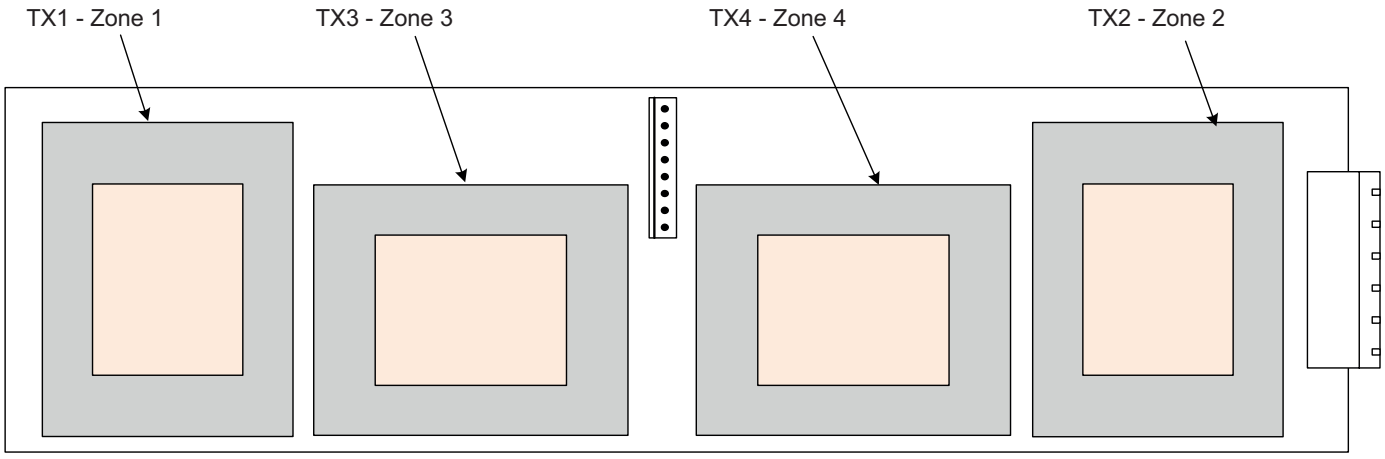


46-50 Rear Panel

FITTING THE CXL-4160 TRANSFORMER MODULE

The module kit comprises the following items:

- CXL-4160 transformer module PCB assembly
- 8qty M3 x 6 mm fixing screws (black)
- 2qty M3 x 6 mm fixing screws (bright)
- 2qty M3 x 10 mm hex pillars
- 8-pin to 4 x 2-pin cable assembly, with connectors
- 2qty cable ties



CXL-4160 transformer module PCB assembly

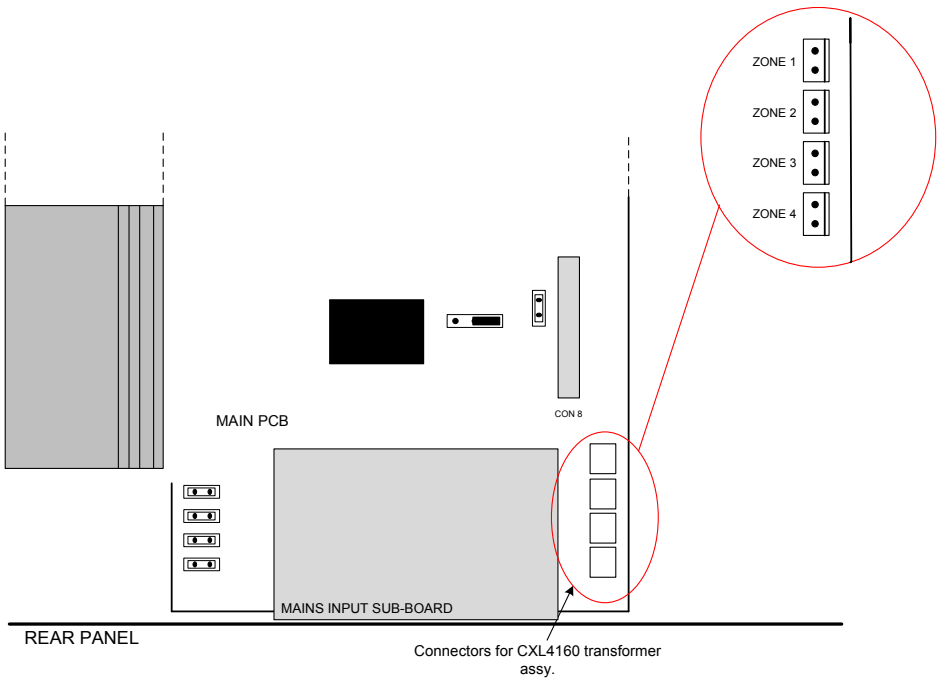
Proceed as follows:

> **IMPORTANT:** The CXL-4160 is preset at the factory for either 100 V-line or 70 V-line operation, according to territory. The relevant voltage is clearly indicated on the label on the outside of the box.
>
> If the alternative operating voltage is needed, refer first to the manual section "Changing the CXL-4160 between and 100 V-line and 70 V-line operation".

1. Disconnect the 46-50 from the mains. If it is fitted in a rack, disconnect all inputs and outputs and remove it from the rack. Orientate the unit with the rear nearest to you. Remove the top cover; retain the eight fixing screws.
2. Remove the blanking plate from the **100V/70V LINE OUTPUTS** connector location on the rear panel; retain the plate and screws, nuts and washers.
3. Identify the eight empty M3 holes on the right-hand side of the 46-50's enclosure (as viewed from the rear). The CXL-4160 module is fixed using these holes and the eight hex spacers fitted to the rear of the PCB. Align the spacers with the holes, and fix with the eight black M3 screws supplied. The output connector should protrude neatly through the punch-out vacated in Step 2.
4. Fit the supplied cable assembly: the 8-pin header on the CXL-4160 PCB is connected to the four 2-pin headers on the 46-50 main PCB, located immediately behind the **100V/70V OUTPUTS** connector location - see below. Note that the wire pairs are colour coded for clarity:

ZONE	PAIR COLOUR
ZONE 1	Mauve
ZONE 2	Grey
ZONE 3	Blue
ZONE 4	Black

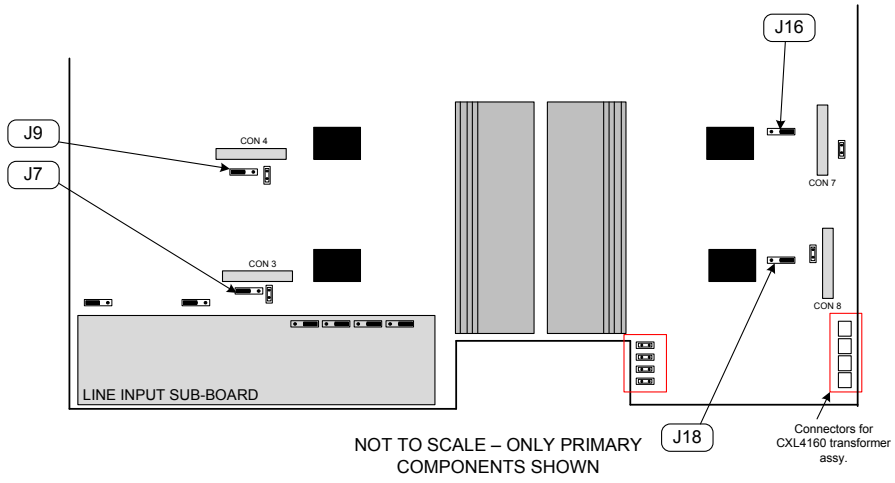
Note that any or all of the four channels may be converted as required.



5. On the 46-50's main PCB, enable the 65 Hz high-pass filters for the relevant channels. This is important, as low frequency signals at high level can saturate the transformer cores, causing unpleasant distortion and possibly activating the amplifier's limiter circuitry. The jumpers are as follows:

OUTPUT	JUMPER
ZONE 1	J7
ZONE 2	J9
ZONE 3	J16
ZONE 4	J18

The approximate locations of the jumpers are shown in the illustration below.



46-50 Jumper locations.

6. Fit the two hex spacers supplied in the kit into the holes vacated in Step 2, using the same screws, nuts and washers.
7. Replace the 46-50 top cover, and reinstall in the rack (If necessary); reconnect all inputs and outputs.
8. Connect the 70/100 V-line loudspeaker system to the rear connector (see section: "Output wiring") according to the table below:

	PANEL MARKING	CONNECT TO:
1	**Z1+**	Zone 1 output '+'
2	**Z1-**	Zone 1 output '-'
3	**Z2+**	Zone 2 output '+'
4	**Z2-**	Zone 2 output '-'
5	**Z3+**	Zone 3 output '+'
6	**Z3-**	Zone 3 output '-'
7	**Z4+**	Zone 4 output '+'
8	**Z4-**	Zone 4 output '-'

9. Fit the blanking plate from Step 2 onto the hex spacers (Step 6) over the connector using the bright M3 screws, with the printed warnings outwards.
10. The 46-50 may now be reconnected to the AC mains and re-powered.

OUTPUT WIRING

The cable used for the 70/100 V-line system must be 0.75mm² or more, double insulated and be capable of carrying at least 1 A_{rms}. When long distances are involved, it may be advantageous to use cable with a higher cross-section.

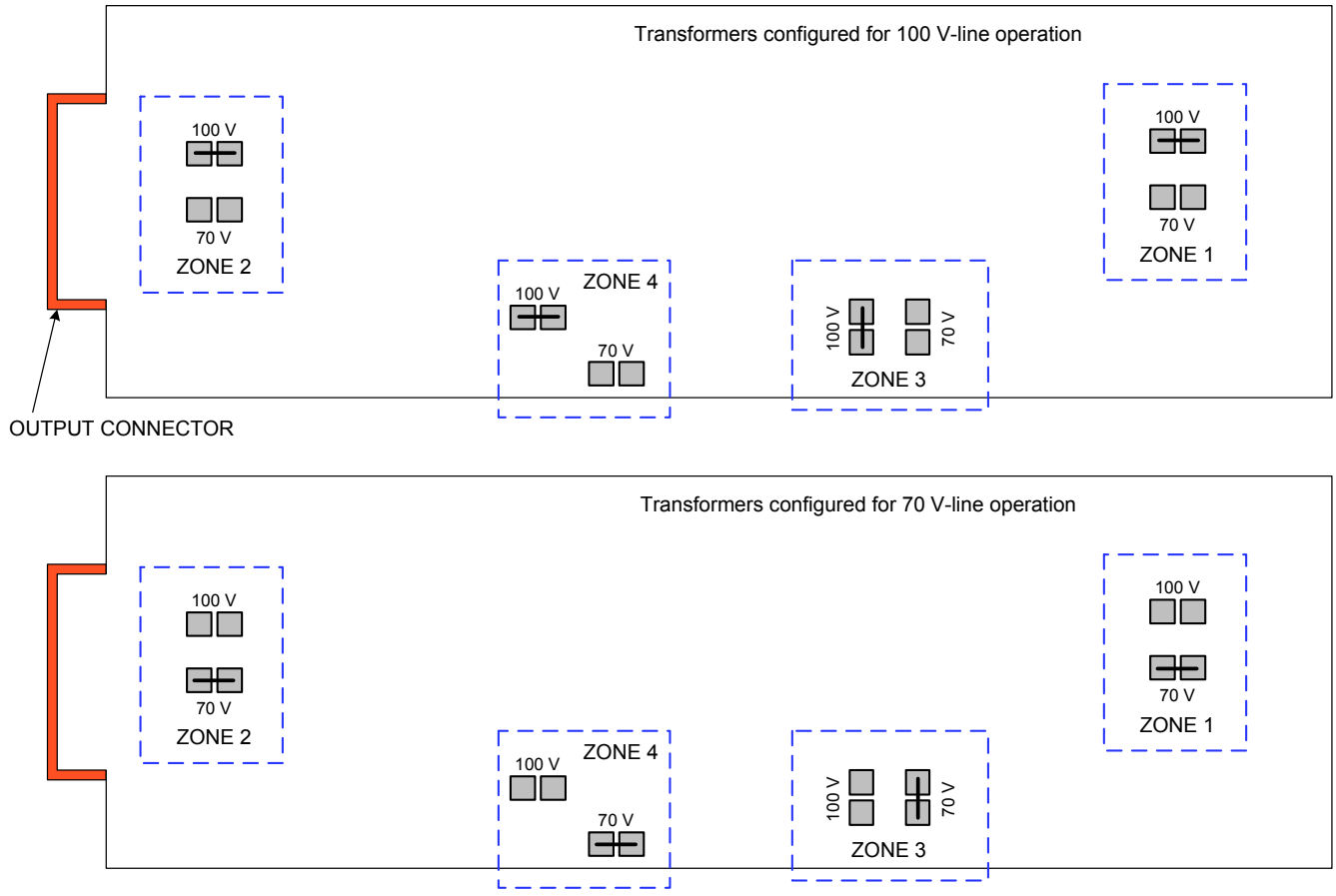
> The 46-50's low-impedance outputs remain active after the CXL-4160 has been installed, but should NOT have a load connected to them while the 70/100 V-line outputs are in use.

CHANGING THE CXL-4160 BETWEEN 100 V-LINE AND 70 V-LINE OPERATION

The secondary windings of the transformers used in the CXL-4160 module are tapped at 70 V and 100 V. The module will be supplied pre-configured for the voltage normally used in your territory. To use the 46-50 with the "alternative" line system voltage, the tapping must be changed. This is done by moving soldered wire links on the rear of the module PCB. There is one link for each transformer.

NOTE: This operation should only be performed by someone experienced in PCB soldering.

The diagram below indicates the location of the solder links for each transformer:



SOLDER SIDE OF PCB, SHOWING APPROX. LOCATIONS OF WIRE LINKS

Unsolder the links from their existing pairs of pads and re-solder them to the other pair. A desoldering tool may be helpful in removing excess solder. Take care not to make any accidental solder "bridges" between other pads.

SAFETY NOTES REGARDING INSTALLATION

The CXL-4160 is an accessory for the Cloud 46-50, and when installed in this product, conforms to the relevant European Electrical Safety and EMC Standards.

The CXL-4160 is specifically designed to be fitted internally in the 46-50. Should the CXL-4160 be mounted in any other enclosure, the enclosure must be electrically safe and meet the requirements of BS EN 60065.

THE INSTALLATION OF THE CXL-4160 IS BEYOND THE CONTROL OF CLOUD ELECTRONICS LTD., AND WE ACCEPT NO RESPONSIBILITY FOR HAZARDOUS INSTALLATIONS.

TECHNICAL SPECIFICATIONS

CXL-4160; EACH TRANSFORMER	
Maximum input voltage	16 Vrms
Input impedance	4 ohms (with 250 ohm secondary load)
Output power rating	40 W
Minimum load impedance	250 ohms
Distortion	<0.03% @1 kHz

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