Connecting an LM-1 to two facility ports on a Z4II or Z8II
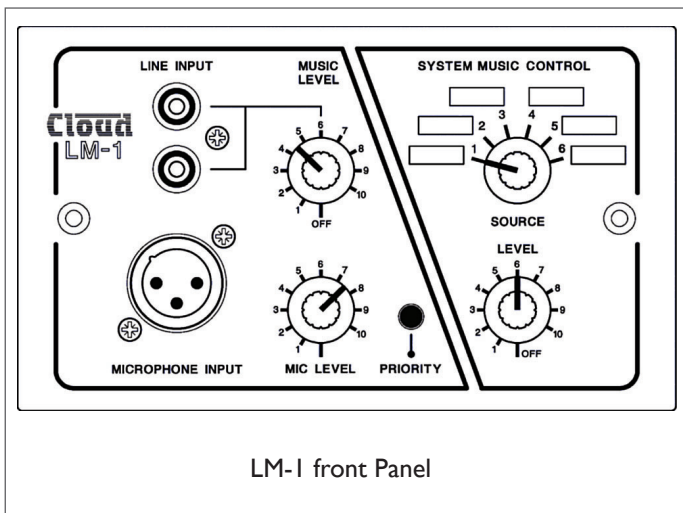
Preamble:

This Technical Note describes the modifications which need to be made to an LM-1 remote mic/line input plate to enable it to be connected to two separate zones on a Z4II or Z8II Venue Mixer. The system wiring details associated with this modification are included.

The LM-1 is a remote input plate accessory for use with Cloud zoners fitted with a 9-pin Facility Port. It allows one mic and/or one line level input to be connected into the audio system from a remote location, and these inputs to be routed to a particular zone – normally the zone in which the plate is installed. The connection to the host mixer is via the zone's Facility Port, which normally only supports a single LM-1. (The standard connection details may be found in the Z4II/Z8II Installation Guide.)

In some installations, it may be desirable for the signals connected at an LM-1 to be made available to two separate zones. For this to be implemented, some modifications must be made to the LM-1, and a specific wiring procedure must be followed to connect it to the two Facility Ports. This modification also extends the operation of the LM-1's Source select switch across the two zones. If this feature is not required, please consult Technical Note TN-013 for further information regarding using external audio inputs with multiple zones.

Applicable products:

LM-1 Remote Active Module, used in conjunction with a zoner fitted with a 9-pin Facility Port. Current compatible products are the Z4II and Z8II Venue Mixers, and the 46/50 (but see note in Limitations).

LM-1 front Panel

*The LM-1a is a mechanically different variant which fits USA-size electrical boxes. All details of this Technical Note are also applicable to this version

Limitations:

1. This modification as described only applies to two zones. There are restrictions on using an LM-1 across three or more zones; please consult Technical Note TN-013 for further information.
2. Only Zone 1 on the 46/50 has a Facility Port, but the modification can be applied to this port across two separate units.

Parts required:

Six ¼-watt (min.) 1% resistors; see Table 1 below (values in Ohms). Screened 10-core cable, 2 x 9-pin male Dsub connectors with covers, H12 silicone sleeves.

	CHANGE RESISTORS:	
	FROM	**TO**
R1	5k6	2k7
R2	3k9	2k
R3	2k7	1k3
R4	2k2	1k1
R5	1k8	910
R11	15k	7k5

Table 1

Tools required: Soldering iron (max. 25W), de-soldering tool, small wire-cutters, small pliers, 11 mm spanner (preferably box type), small screwdriver, small vice (optional).

Required Skill Level: Medium.
(Not recommended for those inexperienced in removing/replacing soldered PCB components.)

Procedure - modification:

1. If the LM-1 plate is already installed, power the system off and remove and disconnect it from its back box. If it is a new one, unpack it. Note there are two PCBs fitted to the rear of the faceplate; it is the upper PCB that requires modification.

2. Remove the hex screw securing the twin phono sockets to the faceplate. Remove the MUSIC LEVEL and SOURCE SELECT knobs by levering them gently off their shafts with a small screwdriver. Use a piece of scrap paper to protect the faceplate while doing this. Undo the two nuts on the shafts with an 11 mm spanner. A box-type spanner is recommended as it is less likely to mark the faceplate. Separate the PCB from the faceplate; it will remain connected to the lower PCB by the two ribbon cables, so take care not to flex these too much to prevent them breaking off at their soldered connections.

3. Remove resistors R1 to R5 and R11. Use a de-soldering tool on the track side of the PCB to remove all the solder from the pads. Apply only as much heat as necessary to melt the solder, to avoid lifting the track. When the holes at both ends of a resistor are clear, turn the board over and remove the resistor with a small pair of pliers.

4. Clear any remaining solder in the holes with the de-soldering tool. Referring to Table 1, fit and solder the new resistors in the correct positions. Take care not to create solder bridges between pads.

5. Refit the PCB to the plate by reversing Step 2. The modified plate is now ready for connection.

Resistors to be changed
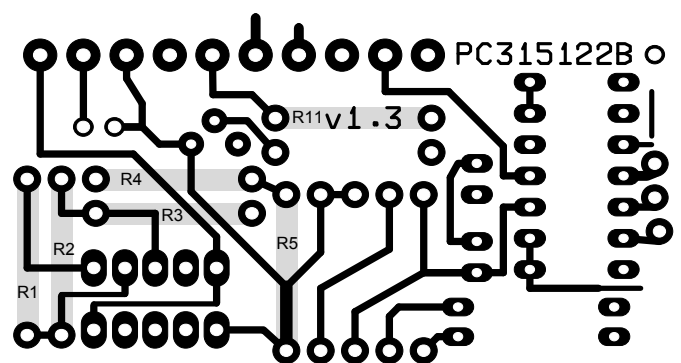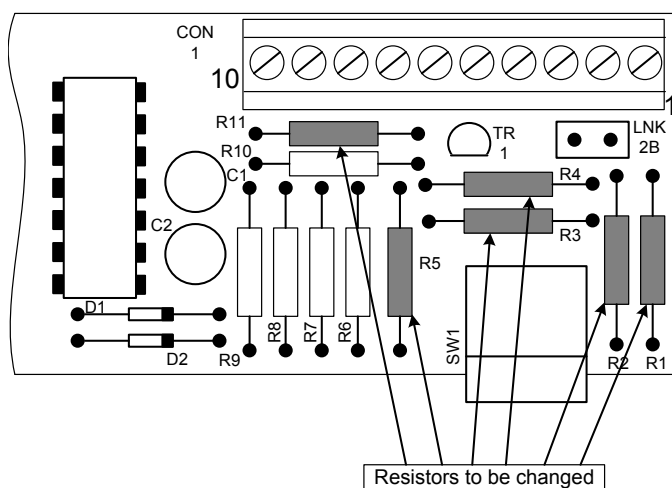
System wiring and setup:

The Facility Port connectors on the rear of the Z4II/Z8II Venue Mixers are 9-pin female Dsubs. The pinout is given in Table 2 below.

PIN	FUNCTION
1	Remote source select
2	Remote level control
3	Balanced audio input hot (+)
4	Balanced audio input cold (-)
5	Noise Gate control
6	-15 Vdc
7	+15 Vdc
8	0 Vdc
9	VCA control voltage

Table 2

Table 3 summarises the pin connections:

From:	To:	
LM-1	Dsub #1	Dsub #2
1	1	1
2	2	2
3	Shield	Shield
4	5	5
5	9	9
6	4	4
7	3	3
8	8	
9	6	
10	7	

Table 3

Use multicore cable with at least 9 cores and an overall screen to connect one Facility Port to the LM-1. Use a short length of the same type of cable to connect that Port to the second. On the Dsub connector for the first Port, six of the pins need to be connected to cores of both cables; twist the wires together and tin the ends first. The use of H12-size silicone sleeves and lubricant is recommended; put the sleeves on the wire ends before soldering, then slide them down to fully cover the pin.

MULTICORE CABLE

FACILITY PORT #1

FACILITY PORT #2

MULTICORE CABLE

10 9 8 7 6 5 4 3 2 1

LM-1 UPPER PCB