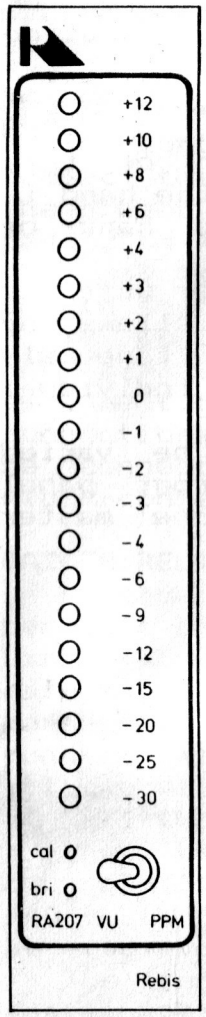
RA207 LED Meter

OPERATORS MANUAL



LEDS: 20 LEDS accurately indicate levels from -30dB to +12dB

CAL: Front panel calibration preset to vary the 0dB reference level. (-10dBm to +10dBm)

BRI: Front panel preset to vary the intensity of the LEDS.

VU PPM SWITCH: Selects the dynamic characteristics of the meter.

RA207 LED Meter

Provides a very compact, easy to read and accurate display with a dramatic change of colour above 0dB for instant indication of overload. LED metering requires a much lower level of concentration and consequently is less tiring. All these aspects of LED column metering make the monitoring of multitrack levels much easier.

The RA207 has a front panel multiturn preset which can vary the 0dB reference by plus or minus 10dB allowing matching to any operating level.

A toggle switch is provided at the bottom of the meter to select either VU or PPM characteristics. The sideways action of this switch means that a simple sweep of the hand is all that is needed to change over a bank of meters.

For remote VU/PPM changeover another unit is available, the RA207R. This module allows any number of meters to be switched simultaneously by a master switch whilst retaining individual overide capability.

The brightness of the displays can be varied either individually by use of the front panel presets or with simple linking, by one master control.

INSTALLATION

Pin Connections

1) Keyway Slot
2) Brightness control (0 to 40V)
3) Relay supply +40V (RA207R only)
4) Relay control point (RA207R only)
9) Main 0 Volts
10) Main +40 Volts
14) Unbalanced output (joined to Pin 16)
15) Balanced input (cold)
16) Balanced input (hot)

Pin 13 is connected to 0 volts on the module.

Screened cables should be used for signal connections, the screens being connected to 0 Volts at the edge connector only for the input and at the jackfield only for the output.

Earthing

When installing the module in a Rebis Rack Frame ensure that it is firmly screwed in and that the rack is earthed, as it is essential both for safety and screening that the front panel is ultimately connected to mains earth.

LED BRIGHTNESS CONTROL:

To control all units with one front panel preset the wire link on the board from Pin 2 to the preset, imediately behind the edge connector pads 2 to 4, should be cut on all units except the one to be used as the master. A wire buss should then be run to all Pin 2 connections.

To control the brightness of all units with an external master control break all the links as mentioned above and buss the Pin 2 connections. A 10Kohm potentiometer should then be connected from +40 volts to 0 volts and its wiper connected to the Pin 2 buss.

RA207R RELAY REQUIREMENTS:

A seperate power supply of 40 volts at 20mA per unit driven is required as the relay supply. Link the relay supply 0 volts to 0 volts of the main supply. The relay positive supply should be connected to a buss run to all the Pin 3 connections of the units. The switched control voltage line should be connected to a buss run to all the Pin 4's of the units.

The external master VU/PPM switch now controls the meter characteristics by applying +40 volts to the Pin 4 buss. When this buss is at +40 volts VU characteristics are selected.

The front panel switches now select VU left, Master central, and PPM right.

RA207 LED column meter set up instructions.

General:
Before proceeding with any set up instructions it is essential that the module has reached the temperature at which it will be working in its final position.
Allow at least an hour on power in the rack before unplugging the module and moving it to the test connector.

Equipment:
1. Sine wave oscillator.
2. Millivoltmeter calibrated in dBs.
3. Burst generator with variable mark/space.
4. Oscilloscope with 10Mohm input probe and 2Sec sweep speed.

* **N.B.** If either items 3 or 4 above not available **DO NOT** touch presets RP4,5 or 6 which set the VU and PPM characteristics of the meter.

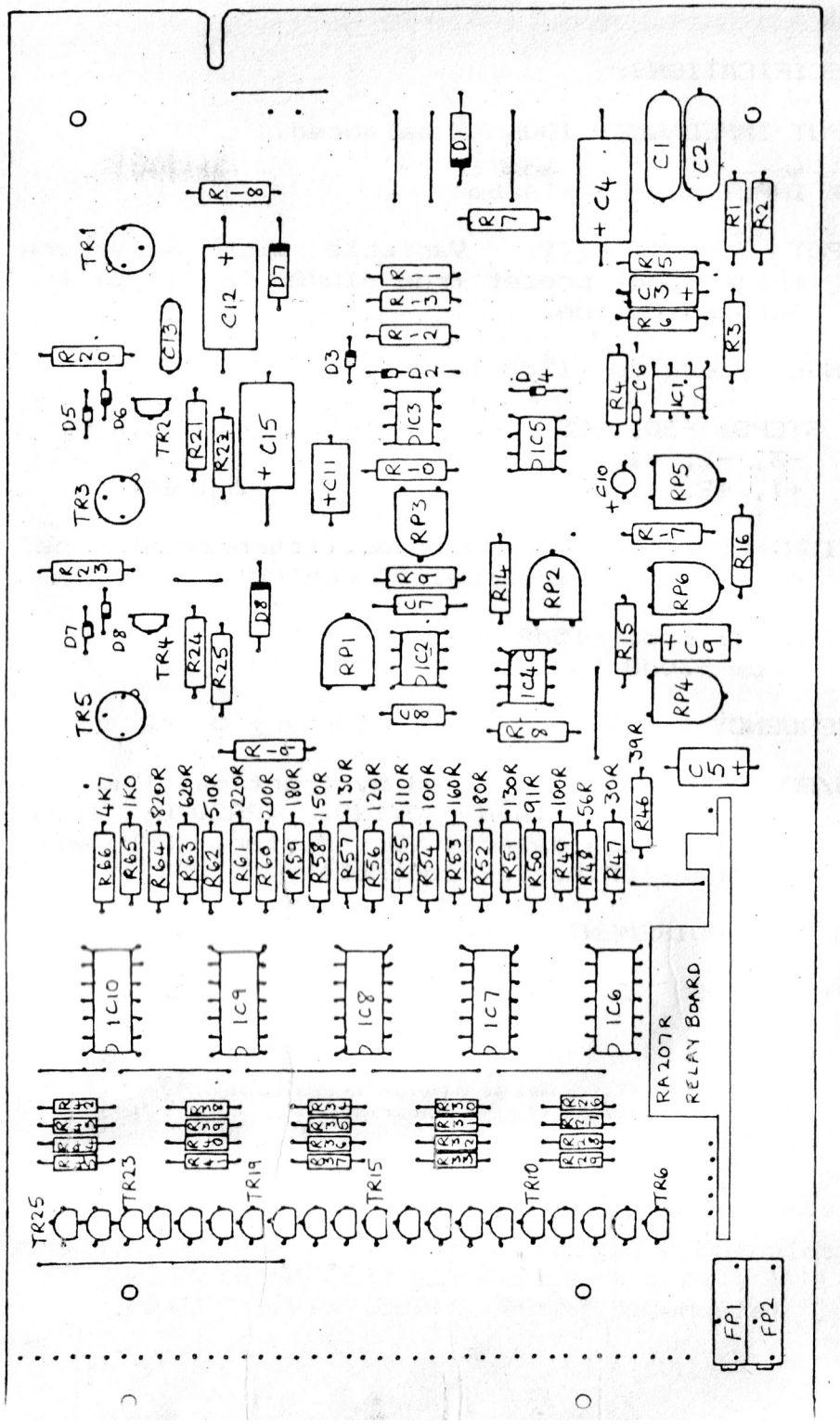
Preliminary:
All presets central. *
Switch to PPM.
Turn cal control fully anticlockwise. (20 turn)

Procedure:
1. Inject 1KHz @ 0dBm into pin 16 input. Adjust RP1 until the +10dB LED just comes on.
2. Turn cal control clockwise until 0dB LED just goes out and back off slightly so that it is just on.
3. Switch to VU and adjust RP2 so that 0dB LED is just on.
4. Turn down the input level to -30dBm and adjust RP3 until the -30dB LED is just on. Check this adjustment on both VU and PPM. It may be necessary to reach a compromise on these two settings.

Level settings are now complete.

If it found necessary to check the dynamic characteristics items 3 and 4 on the equipment list are required.
Before proceeding further please read the remaining instructions carefully and if you do not understand any of them or are not confident in your ability to follow them correctly **do not** proceed any further and refer alignment to the Rebis service department.

5. Connect the ground lead of an unearthed oscilloscope to the 15 volt rail on the module (positive end of C15). Connect the 10Mohm probe to the negative end of C9 (VU storage capacitor). Switch to VU on the front panel. With the scope switched to accept DC inputs inject alternate levels of +10dBm and -10dBm and adjust scope settings to obtain the maximum deviation on the screen consistant with the calibration marks.
6. Now set up a burst input with 500mS bursts of 1kHz @ +10dBm and 500mS spaces of -10dBm. Now adjust RP4 to give an attack time of 150mS for 87.5% or approx 100mS for 75% of full scale (fig 1).
7. Switch to PPM on the front panel and move the probe to the negative end of C10 (PPM storage capacitor). Change the burst generator to 100mS bursts @ +10dBm followed by 2Sec spaces @ -10dBm. The trace on the oscilloscope should still be sweeping to the same extremes, if not adjust the input level until it does.
8. Adjust RP6 to give an attack time of 10mS for 87.5% or 6mS for 75% of full scale (fig 2).
9. Invert the trigger polarity on the scope and adjust RP5 to give a release time of 1.5Secs for full 20dB release (fig 3).


RA207R
RELAY BOARD
FP1
FP2
TR25
TR23
TR19
TR15
TR10
TR6
TR1
TR2
TR3
TR4
TR5
IC10
IC9
IC8
IC7
IC6
IC5
IC4
IC2
IC1
RP1
RP2
RP3
RP4
RP5
RP6
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C15
D1
D2
D3
D4
D5
D6
D7
D8
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R20
R21
R23
R24
R25
R46
R47
R48
R49
R50
R51
R52
R54
R55
R56
R57
R58
R59
R60
R61
R62
R63
R64
R65
R66
4K7
1K0
820R
620R
510R
220R
200R
180R
150R
130R
120R
110R
100R
160R
180R
130R
91R
100R
56R
30R
39R

SPECIFICATIONS:

INPUT IMPEDANCE: 100Kohm balanced.

MAX INPUT LEVEL: +24dBm

INPUT SENSITIVITY: Variable with multiturn front panel preset from -10dBm to +10dBm for 0dB indication.

RANGE: -30dB to +12dB in 20 steps.

dB STEPS: -30, -25, -20, -15, -12, -9, -6, -4, -3, -2, -1, 0, (green).
+1, +2, +3, +4, +6, +8, +10, +12 (red)

BRIGHTNESS: Variable with multiturn front panel preset or by external DC control.

ACCURACY: From -15dB to +12dB ± 0.2dB.
From -30dB to -20dB ± 0.5dB.

FREQUENCY RESPONSE: 20Hz to 40kHz ± 0.5dB.

VU/PPM SWITCHING: Selected by front panel switch reading maintained ± 0.1dB. (RA207R; front panel switch selects VU, Master, PPM, with external DC master control)

POWER REQUIREMENTS: +40 Volts DC at 50mA.

DIMENSIONS: 5.25" x 1" x 7.9" behind front panel.

Rebis Audio Limited,Kinver Street,Stourbridge,
West Midlands,DY8 5AB,England.
Telephone: (0384) 71865.Telex: 335494.