

1 DRAFT ONLY
2
3 Switch and Gain Settings
4
5 Read in conjunction with "Switch Settings.png"
6
7 Earth Links
8 =====
9 The ground of the main circuit can be connected to the -ve of the power supply.
LK 0V (14) and R 0V (22) both provide a way provide this join. If R 0V, a 0R
resistor,
10 is fitted then LK 0V does nothing. If R 0V is not fitted then LK 0V can be used
to join -ve and ground together.
11
12 Headset
13 =====
14 The volume to the headsets is controlled by the two knobs on the front panel
(25 and 26). The other levels are set internally as follows.
15
16 AUX IN
17 =====
18 Aux in is a 3.5mm stereo socket when additional audio can be injected. The
volume is set by the control on the front panel but can also
19 be limited by adjusting RV2 (12).
20
21 AUX OUT (Logger)
22 =====
23 Aux out is an RCA connector. This has audio from the headsets, radio and
telephones mixed together. The master output level is controlled by RV3 (13).
24
25
26 Headsets
27 =====
28 The ability to connect two headsets is provided. The audio level from the radio
and the aux input are controlled from the front panel. The gain
29 from the microphones can be individually adjusted. See notes below regarding
setting the gains.
30
31 Headset 1 microphone gain is controlled by HS1RX SW (4) and HS1RX TP (3).
32 Headset 2 microphone gain is controlled by HS2RX SW (10) and HS1RX TP (7).
33
34 Radio
35 =====
36 The radio has transmit and receive gain settings as well as M (PTT) and E (COS)
settings.
37 The transmit and receive signals can also be muted with the M and E signals
respectively.
38
39 The radio transmit level is controlled by a single trim pot RADIO TX (1).
40 The radio receive level is controlled by a single trim pot RADIO RX (24).
41
42 M (PTT)
43 -----
44 The M signal is a relay contact which appears on the radio connector. It is
controlled by the PTT button on the front panel, the PTT button
45 on either of the headsets or the PTT footswitch. The M signal can set by M-TYPE
(21) to be either be PASSIVE, which is just the relay contact, or ACTIVE,
46 where the relay contact is connected in series with 1K of resistance with the
power supply, nominally providing 12mA. Each leg has a 560R so can tolerate
some abuse!
47 The relay can be also set by M-POL (11) for NORMAL (normally open) or reverse
(normally close) operation. When PTT is active, the PTT button

48 on the front panel will be illuminated.
49 The M signal can also optionally mute the radio tx audio when inactive. If TX
MUTE (5) is set to OPEN, radio tx audio is always active. If it
50 is set to MUTE, radio tx audio is only present when PTT is active.
51
52 E (COS)
53 -----
54 The E signal is an opto coupler input which appears on the radio connector.
This signal can be optionally used to mute the radio rx audio.
55 The E-TYPE (6) selects if the signal is ACTIVE or PASSIVE. If ACTIVE, the E
signal is a relay or opto contact closure. If PASSIVE, the E signal
56 expects a voltage to be applied. In PASSIVE, the input is a 1K resistor in
series with an AC diode pair. A voltage from 5 to 50 volts, polarity
insensitive, can be applied to assert E.
57 In ACTIVE mode, The LED is connected in series with 2K resistance to the power
supply. A relay closure will operate the COS signal.
58 The polarity of the E signal can be selected by E-POL (2). When set to NORMAL,
the E signal expects a normally open signal while REVERSE expects a normally
closed
59 signal in PASSIVE mode. In active mode, the switch works the same way.
60 The E signal can also mute the radio rx audio. When RX MUTE (23) is set to
OPEN, the radio rx audio is always active. If it is set to MUTE, the radio rx
audio
61 is only present when E is active.
62
63
64 Telephone
65 =====
66
67 There are two connectors for telephones. The transmit and receive level for
each phone can be individually controlled.
68 See notes below regarding setting the gains and attenuators.
69
70 Tel 1 microphone gain is controlled by TEL1RX SW (9) and TEL1RX TP (8).
71 Tel 2 microphone gain is controlled by TEL2RX SW (20) and TEL2RX TP (17).
72
73 Tel 1 earpiece gain is controlled by TEL1TX SW (15) and TEL1TX TP (19).
74 Tel 2 earpiece gain is controlled by TEL2TX SW (16) and TEL2TX TP (18).
75
76
77 Notes on gain setting.
78 The gain has a course setting and a fine setting. The course setting has 0, +20
and +40 db positions while the fine setting has 20dB of range.
79 Start by setting the fine to maximum level and the course to 0. Apply the test
signal and increase the course gain until the signal is too high.
80 Then use the fine setting to reduce the signal to the desired level.
81
82 Notes on attenuator settings.
83 The attenuator has a course and a fine setting. The course settings are 0, -20
and -40 DB. Start with the fine setting to maximum and the course setting to
-40.
84 Increase the course setting until the signal is too high, then reduce the level
as required using the fine setting.
85
86