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IRT 1 RU
10 x 1 Stereo Audio Switcher
Type AAS-1220

Designed and manufactured in Australia

IRT can be found on the Internet at:
http://www.irtelectronics.com

IRT 1 RU
10 x 1 Stereo Audio Switcher

Instruction Book

Table of Contents

This instruction book applies to units later than S/N 9800000.

General description

The AAS-1220 10 x 1 stereo audio switcher is a self-contained, mains powered unit occupying one unit of rack mounting space. It has the capability to switch any one of its ten stereo balanced inputs to its stereo balanced output. The output has two isolated feeds. Selection of the required input is made via a "D" type connector mounted on the rear panel, using a 4 or 5 bit code.

The switcher can be fitted with a CPS-1211 10 x 1 or a CPS-1221 dual 10 x 1 (20 x 1) Control Panel.

The switcher can be remotely controlled by using CPS-1050 10 x 1 or CPS-1052 20 x 1 remote control panels.

The switcher may be linked to provide 20 x 1 operation using either a CPS-1221 locally or CPS-1052 remotely.

The input circuits of this series of switcher are designed to bridge across a balanced 600 Ohm circuit. The output circuit will drive two 600 Ohm balanced circuits, from a low impedance (44 Ohm) source to a maximum level of +24 dBm.

The switchers are housed in an IRT one rack unit (44 mm high) 483 mm (19 inch) rack mounting metal chassis. The input and output circuit connections are by means of plug in terminals to sockets mounted on the edge of the printed circuit boards, accessible from the rear panel of the unit.

Control/tally connections to the switch data buss are made to a pair of 25 pin "D" connectors mounted on the rear panel.

An internal AC mains powered regulated power supply provides the operating voltages for the switcher circuitry. A selector on the rear panel allows matching to local mains supply voltages.

Accessories

CPS-1211	10 x 1 Local control panel.
CPS-1221	20 x 1 Local control panel.
CPS-1050	10 x 1 Remote control panel.
CPS-1052	20 x 1 Remote control panel.
CDC-3060	Serial control module for interfacing to RS-232 or computer control systems.
GDW-1050	10 way HE14 to D25 male adapter cable to connect remote panel to switcher.

Technical data

Audio inputs:

Number	10 x 2 (10 stereo).
Type	Tranformerless, bridging DC coupled.
Impedance	> 10 KΩ.
Connectors	Plugable screw block connectors.
Max. input level	+24 dBu.
Input CMR	> 40 dB @ 55 Hz.

Audio outputs:

Type	Transformerless, balanced DC coupled.
Number	2 x 2 (left and right).
Impedance	< 44 Ω.
Connectors	Plugable screw block connectors.
Max. output level	+24 dBu into 600 Ω.
DC on output	< ±20 mV.

Performance:

Switching	Within 25 ms. Timing may be synchronised to another switcher.
Gain	±3 dB (adjustable by internal pre-set).
Frequency response	±0.5 dB for 20 Hz to 20 KHz. (Referenced to 1 KHz)
Harmonic distortion	< 0.01% 20 Hz to 20 KHz at +16 dBu output.
Noise	-100 dB, Ref. +20 dBu 20 Hz to 20 KHz. (With input terminated by 600 Ohms.)
Crosstalk between inputs	< -85 dB at 20 KHz. (Input of measured channel terminated.)
Stereo separation between channels	< -90 dB at 20 KHz. (Input of measured channel terminated.)
Phase left/right	±0.2° to 20 KHz.

Control inputs/outputs:

Type	4/5 bit parallel TTL level signal compatible with IRT VA-400 video switcher tally output circuit and IRT 3000 series switchers.
Number	1 “input” & 1 “output”.
Connectors	25 pin 'D' - female.

Power requirements:

110, 130, 220 / 240 Vac 50 / 60 Hz 10 VA.

Fuse rating:	240 Vac	250 mA slow blow.
	110 Vac	500 mA slow blow.

Other:

Temperature range		0 - 50° C ambient
Mechanical		IRT 19" rack chassis with input, output and power connections on the rear panel.
Finish:	Front panel	Grey enamel, silk screened black lettering & red IRT logo
	Rear panel	Silk screened bright passivated steel, silk screened black lettering.
Dimensions		44 mm x 480 mm x 230 mm.
Supplied accessories		Matching connectors for audio and control inputs / outputs.
Optional accessories		Instruction manual CPS-1211 10 button local control panel kit. CPS-1221 20 button local control panel kit. CPS-1050 10 button remote control panel. CPS-1052 20 button remote control panel. GDW-1050 10 way HE14 to D25 male adapter cable to connect remote panel to switcher.

Technical description

See wiring diagram 804140.

The AAS-1220 comprises two printed circuit boards mounted in a 1 RU chassis.
Where local control switches are fitted, these are mounted on separate boards behind the front panel. A technical discussion of these control boards and the data protocol employed may be found in the CPS-1050 / CPS-1052 / CPS-1211 / CPS-1221 control panel manual.

AAS-1220:

Chassis wiring for the AAS-1220 is shown on Dwg 804140.
Board 1 provides one audio channel and supporting logic and power supply. (Dwg 803350)
Board 2 is mounted on top of the 803350 assembly. It provides the second audio channel and supporting logic. Its circuit is shown in Dwg 803341.

The input fuse is located inside the IEC power connector socket and should be as follows:

240 Vac 250 mA slow blow.
110 Vac 500 mA slow blow.

A voltage selector switch on the rear of the unit allows for 110, 130, 220 or 240 Vac operation by selecting a combination of primary windings on the power transformer.
Power on indication is via a neon indicator built into the power switch on the front panel. The brightness of this neon indicator will therefore vary according to the mains input voltage.

Board 1: (Refer to drawing 803350.)

The drawing shows 10 identical input buffer amplifiers each using one NE5532 op amp. The selection of the active input is done in one of three dual 4 input multiplexer IC's type 4052.
U 11 is a balance to unbalance converter. The common mode rejection capability of this converter can be optimised by adjustment of RV 2.
RV 1 is a pre-set gain control and is normally adjusted for unity voltage gain through the switcher.
U 12 and U 13 make up two balanced output drive amplifiers.

The power supply has a bridge rectifier (D 1-4) and two 3 terminal regulators providing regulated + and -12 V supply lines. IC's U 14, 15, 16 require + and -5 V supplies which are provided by U 18 and 19. U 17 also uses the +5 V supply.

U 17 is a programmable GAL that decodes the latched 4 bit selection. The form of this logic is a) a 2 bit code for selection of one of four chip inputs and b) the chip select lines to select the active chip.
Any code greater than 10 (hex A) selects an unused input on U 16.

For 20 x 1 operation LK 1 should be installed. (For normal operation it must not be installed.) While LK 1 is installed output 'E' of U 17, used by the upper board of stereo switchers, will be the inverse of PL 6 pin 11. That is, the bottom board will respond as inputs 1 to 10, and the top board as inputs 11 to 20. The outputs should be taken from the upper board.

Board 2: (Refer to drawing 803341.)

Board 2 is almost identical to Board 1.
The differences are -

- Board 2 gets its regulated ±12 Vdc from Board 1.
- The 'E' input to Board 2 U17 is fed from the 'E' output of U17 Board 1.
- Board 1 points X and Y are the output of the switching chips, but on Board 2 X and Y are the input to the over-ranged inputs of its switching chips. This facilitates an optional 20 x 1 operation mode.

Internal adjustments

The following adjustable resistors are factory set and should not be adjusted unless a component has been changed. They are not 'operational' controls. Before adjusting any of these controls allow time for the module to reach temperature stability.

The master gain of each channel is set for unity during factory alignment.
If the gain needs to be reset this can be done by adjustment of the pre-set potentiometers RV 1 on each switcher channel.

Configuration

Local control panel operation:

Local 10 x 1 control:
First, see section on fitting local control panels under *Installation*.
PL 4 on the control panel is then connected to PL4 on the rear of the switcher.
PL 5 on the control panel is then connected to the switcher PCB.

20 x 1 operation:

For 20 x 1 operation LK 1 should be installed. (For normal operation it must not be installed.) While LK 1 is installed output 'E' of U 17, used by the upper board of stereo switchers, will be the inverse of PL 6 pin 11. That is, the bottom board will respond as inputs 1 to 10, and the top board as inputs 11 to 20. The outputs should be taken from the upper board.

Local 20 x 1 control:
First, see section on fitting local control panels under *Installation*.
Control panels are looped by joining PL 5 (data out) on the 1 to 10 panel to PL 4 (data in) on the 11 to 20 panel.
Set link LK 2 OUT on the 1 to 10 panel and IN on the 11 to 20 panel.
PL 4 on the 1 to 10 panel is then connected to PL 4 on the rear of the switcher.
PL 5 on the 11 to 20 panel is then connected to the switcher PCB.

Wire per crosspoint remote control:

This option is made available by way of connections on the rear of the pushbutton control board and is therefore only available at the switcher if a local control set of buttons is fitted.
It is not necessary for the buttons to be functional.

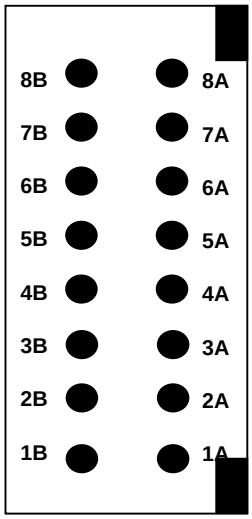
A connection is made from PL 3 - 16 pin HE14 type connector to pins on the PL 4 connector.

10 x 1 Operation:

PL 3 Wire per crosspoint control input:

(Recommended wiring to PL 4 on rear panel.)

PL 3 - HE14		PL 4 - 25 pin 'D'
1A	SW 1	1
1B	SW 2	2
2A	SW 3	3
2B	SW 4	4
3A	SW 5	5
3B	SW 6	6
4A	SW 7	7
4B	SW 8	8
5A	SW 9	9
5B	SW 10	10
6A	Switch common	11
6B	Ground	12
7A	No connection	
7B	“	
8A	“	
8B	“	



20 x 1 Operation:

Due to the number of connections required, it is not possible to operate the switcher in 20 x 1 wire per crosspoint mode and retain the standard BCD remote control.

For 20 x 1 operation it is necessary to wire connections from the back of each PL 3 connector, on the rear of the two halves of the control panel, to the PL 4 connector on the rear of the switcher.
Before doing this, the existing connections to PL 4 should be removed.

PL 3 Wire per crosspoint control input 1 - 10

(Recommended wiring to PL 4 on rear panel.)

Control panel buttons 1 to 10

PL 3 - HE14		PL 4 - 25 pin 'D'
1A	SW 1	1
1B	SW 2	2
2A	SW 3	3
2B	SW 4	4
3A	SW 5	5
3B	SW 6	6
4A	SW 7	7
4B	SW 8	8
5A	SW 9	9
5B	SW 10	10
6A	No connection	
6B	No connection	
7A	No connection	
7B	“	
8A	“	
8B	“	

Control panel buttons 11 to 20

PL 3 - HE14		PL 4 - 25 pin 'D'
1A	SW 1	11
1B	SW 2	12
2A	SW 3	13
2B	SW 4	14
3A	SW 5	15
3B	SW 6	16
4A	SW 7	17
4B	SW 8	18
5A	SW 9	19
5B	SW 10	20
6A	Switch common	21
6B	Ground	22
7A	No connection	
7B	“	
8A	“	
8B	“	

Individual tally outputs:

If a switch panel is not fitted, the 803089 tally decoder may be fitted externally to the switcher. Note that the 803089 tally decoder requires 12 Vdc to be supplied by the switcher. It can therefore only be connected to PL 4 on the switcher rear panel.

The individual tally output option is made available by way of logic on the pushbutton control board and is therefore only available at the switcher if a local control set of buttons is fitted.

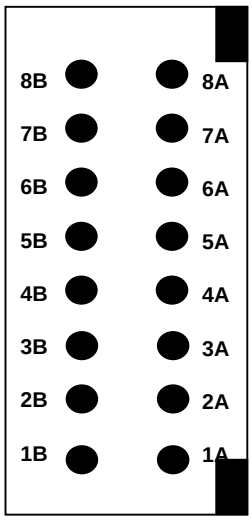
A connection is made from PL 7 - 16 pin HE14 type connector to pins on the PL 5 connector.

10 x 1 Operation:

PL 7 Individual tally outputs:

(Recommended wiring to PL 5 on rear panel.)

PL 3 - HE14		PL 5 - 25 pin 'D'
1A	SW 1	1
1B	SW 2	2
2A	SW 3	3
2B	SW 4	4
3A	SW 5	5
3B	SW 6	6
4A	SW 7	7
4B	SW 8	8
5A	SW 9	9
5B	SW 10	10
6A	+5 Vdc	11
6B	“	12
7A	No connection	
7B	“	
8A	“	
8B	“	



20 x 1 Operation:

Due to the number of connections required, it is not possible to operate the switcher in 20 x 1 wire per crosspoint mode and retain the standard BCD remote control.

For 20 x 1 operation it is necessary to wire connections from the back of each PL 7 connector, on the rear of the two halves of the control panel, to the PL 5 connector on the rear of the switcher.
Before doing this, the existing connections to PL 5 should be removed.

PL 7 Individual tally outputs:

(Recommended wiring to PL 5 on rear panel.)

Control panel buttons 1 to 10

PL 3 - HE14		PL 5 - 25 pin 'D'
1A	SW 1	1
1B	SW 2	2
2A	SW 3	3
2B	SW 4	4
3A	SW 5	5
3B	SW 6	6
4A	SW 7	7
4B	SW 8	8
5A	SW 9	9
5B	SW 10	10
6A	+5 Vdc	11
6B	“	12
7A	No connection	
7B	“	
8A	“	
8B	“	

Control panel buttons 11 to 20

PL 3 - HE14		PL 5 - 25 pin 'D'
1A	SW 1	11
1B	SW 2	12
2A	SW 3	13
2B	SW 4	14
3A	SW 5	15
3B	SW 6	16
4A	SW 7	17
4B	SW 8	18
5A	SW 9	19
5B	SW 10	20
6A	+5 Vdc	21
6B	“	22
7A	No connection	
7B	“	
8A	“	
8B	“	

Audio breakaway operation:

This option is available either by using:

two interconnected CPS-1050 10 button remote control panels,
one CPS-1052 20 button remote control panel or
one AVS-1210 10 x 1 video switcher fitted with a CPS-1220 20 button local control panel.

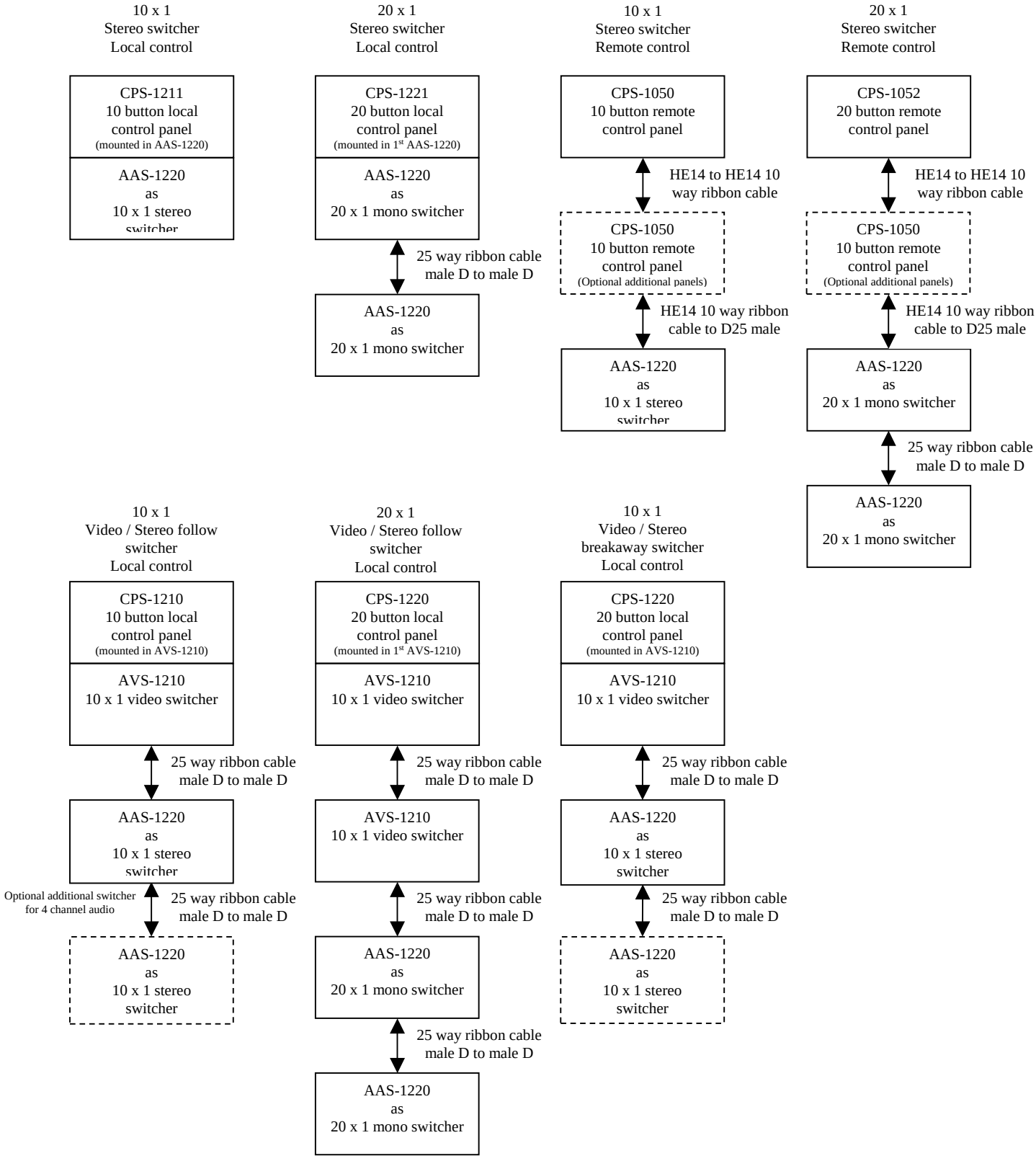
See Control panel and / or AVS-1210 manuals for details.

This option is not available when using the older VA-400 video switcher. The VA-410 video switcher may be used when controlled by a CPS-1052 control panel.

Examples of switcher configurations

The following examples are intended as an illustrative guide only. These are not the only permissible configurations. For further advice, please consult IRT or your local distributor.

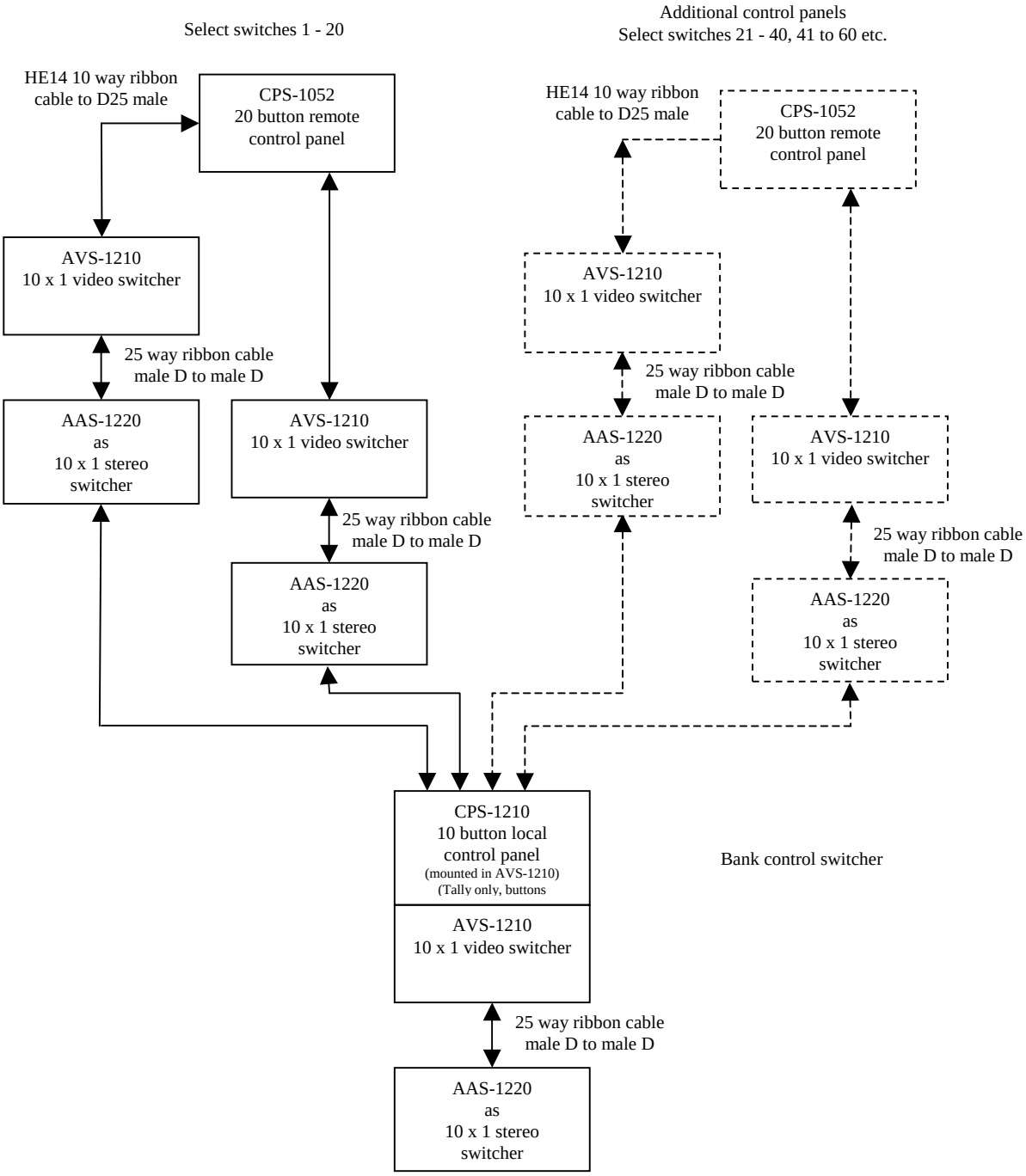
Note: The following diagrams only show the basic control connections.
Additional connections for signal wiring are required for video 20 x 1 switchers.
See also *Configuration* and *Installation* sections of AVS-1210, AAS-1220 and CPS-1050 / CPS-1052 manuals for details of required changes to link settings and cable connections.



Switcher configuration for up to 200 x 1

The data protocol used in the AVS-1210, AAS-1220 and their control panels includes signals which indicate to other connected members of the group that a particular control panel is active. This allows this panel to take control. By using this signal to control another control panel, via its wire per crosspoint input, the additional switcher may be used to switch between up to 20 control panels.
Thus, by connecting the video and audio outputs of the input switchers to a bank control switcher, a composite switcher can be formed with up to 200 inputs and a single output.
The quality of these switchers is sufficiently high that the additional switcher does not effect overall performance. As all signals follow an equal signal path, no timing errors are introduced between inputs.

Note: The following diagram only shows the basic control connections in order to illustrate the concept.
Additional connections for video and audio signal wiring between the input switchers and the bank control switcher are required.
Please consult IRT for details of connections before proceeding.
See also *Configuration* and *Installation* sections of AVS-1210, AAS-1220 and CPS-1050 / CPS-1052 manuals for details of required changes to link settings and cable connections.



Installation

Operational Safety:

WARNING

Operation of electronic equipment involves the use of voltages and currents that may be dangerous to human life. Note that under certain conditions dangerous potentials may exist in some circuits when power controls are in the **OFF** position. Maintenance personnel should observe all safety regulations.

Do not make any adjustments inside equipment with power **ON** unless proper precautions are observed. All internal adjustments should only be made by suitably qualified personnel. All operational adjustments are available externally without the need for removing covers or use of extender cards.

Pre-installation:

Handling:

This equipment may contain or be connected to static sensitive devices and proper static free handling precautions should be observed.

Where individual circuit cards are stored, they should be placed in antistatic bags. Proper antistatic procedures should be followed when inserting or removing cards from these bags.

Power:

AC mains supply: Ensure that operating voltage of unit and local supply voltage match and that correct rating fuse is installed for local supply.

DC supply: Ensure that the correct polarity is observed and that DC supply voltage is maintained within the operating range specified.

Earthing:

The earth path is dependent on the type of frame selected. In every case particular care should be taken to ensure that the frame is connected to earth for safety reasons. See frame manual for details.

Signal earth: For safety reasons a connection is made between signal earth and chassis earth. No attempt should be made to break this connection.

Local control:

The AAS-1220 is manufactured as a slave format switcher with no local control panel.
Two local control panels are available; the CPS-1211 and the CPS-1221 with 10 and 20 buttons respectively. A switcher fitted with the CPS-1211 may be upgraded to 20 buttons by conversion kit CPS-1215.

CPS-1211 fitting: (10 buttons)

1. Disconnect IEC power input plug from chassis and remove chassis from rack.

2. Remove 6 screws holding top cover (1 each side and 4 in top). Remove top cover.
   Remove 6 screws holding front escutcheon to front chassis and remove escutcheon.

3. Separate the switch PCB from the switch logic PCB and mount the switch PCB in the chassis cutout using the 6 screws and stand-offs provided. The PCB should be mounted so that the LED's in the switches are at the top.
   Re-fit the switch logic PCB to the switch PCB by locating PL 1 & PL 2 over the two sets of connector pins and pressing firmly and evenly into place.

4. PL 4 on the control panel is then connected to PL4 on the rear of the switcher.
   PL 5 on the control panel is then connected to PL4 on the switcher PCB using the 150 mm cable provided (GDW-3010).
   The connection from PL 5 on the switcher PCB to PL 5 on the rear of the switcher is left untouched.

5. Check the position of links LK 2 & LK 3 on the switch logic PCB.
   For switches to operate 1 - 10 LK 2 should be OUT.
   For switch panel to operate as tally only LK 3 should be in position A.
   For front panel switches to be operative LK 3 should be in position B.

6. Fit new front escutcheon using the original 6 screws.
   Re-fit chassis top cover using the original 6 screws. The two countersunk head screws are used at the front top of the cover. Note that the top cover sits on top of the chassis at the rear, but under the fold at the front.

7. The switcher is now ready to re-install in the rack.

CPS-1221 fitting: (20 buttons)

The procedure is the same as for the CPS-1210 except that two sets of switch PCB's are fitted.

Normal 20 x 1 operation.

1. As per CPS-1211.
2. As per CPS-1211.
3. As per CPS-1211. Repeat for the second PCB.
4. PL 4 on the 11 - 20 switch control panel is then connected to PL 4 on the rear of the switcher.
   PL 5 on the 11 - 20 switch control panel is then connected to PL 4 on the 1 - 10 switch control panel using the 300 mm cable provided (GDW-3011).
   PL 5 on the 1 - 10 switcher control panel is then connected to PL 4 on the switcher PCB using the 150 mm cable provided (GDW-3010).
   The connection from PL 5 on the switcher PCB to PL 5 on the rear of the switcher is left untouched.
5. Check the position of links LK 2 & LK 3 on the switch logic PCB's.
   For the 1 - 10 switch PCB LK 2 should be OUT.
   For the 11 - 20 switch PCB LK 2 should be IN.
   For switch panel to operate as tally only LK 3 should be in position A on both PCB's.
   For front panel switches to be operative LK 3 should be in position B on both PCB's.
6. As per CPS-1211.
7. As per CPS-1211.

See also 20 x 1 operation section below for changes to main PCB link settings.

Breakaway operation.
Normally this is only configured with a video and audio switcher combination. The following information is included in case 2 + 2 audio breakaway operation is desired.

1. As per CPS-1221 normal operation.
2. As per CPS-1221 normal operation.
3. As per CPS-1221 normal operation.
4. PL 4 on the 1 - 20 switch control panel is then connected to PL 4 on the rear of the switcher.
   PL 4 on the 11 - 20 switch control panel is then connected to PL 6 on the 1 - 10 switch control panel using the 300 mm cable provided (GDW-3011).
   PL 5 on the 1 - 10 switcher control panel is then connected to PL4 on the switcher PCB using the 150 mm cable provided (GDW-3010).
   Disconnect PL 5 on the switcher PCB and connect PL 5 on the rear of the switcher to PL 5 on the 11 - 20 switch PCB.
5. Check the position of links LK 2 & LK 3 on the switch logic PCB's.
   For the 1 - 10 switch PCB LK 2 should be OUT.
   For the 11 - 20 switch PCB LK 2 should be OUT.
   For switch panel to operate as tally only LK 3 should be in position A on both PCB's.
   For front panel switches to be operative LK 3 should be in position B on both PCB's.
6. As per CPS-1211.
7. As per CPS-1211.

Connections:

Audio:

Signal connections are by means of compression screw terminal strips, which plug into sockets mounted on the rear of the printed circuit board and protruding through the rear panel of the chassis.

For mono operation, it is usual to connect the input audio cable to the Left input pins. For stereo, connect the Left input cable to the Left input and the Right input audio cable to the Right input.

If input termination is required then termination resistors should be fitted to the input sockets.

Connect inputs as required. There is no need to make any connection to unused inputs and it is not necessary to connect inputs in sequential order without gaps.
Remember for stereo operation to observe the polarity markings on the rear assembly.
The input and output connection sets consist of groups of three terminals vis. Active +; Active-; Ground. Input 1 is to the left of the chassis looking at the rear.
For unbalanced operation, connect only the Active + and Gnd connections. Do not connect the Active -.

Two outputs are provided for each channel. These are identical, but are passively isolated so that loading on one does not significantly effect the other. Normally, one output will be used for the signal destination and one for local monitoring.

Control:

Control tally connections are made to PL 4 & PL 5, a pair of 25 pin "D" sockets on the rear panel.

The connections to PL 4 & PL 5 are:

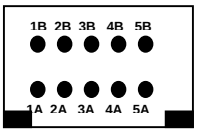
1	14	+12 Vdc for remote control panel. (PL 4 only)
2	15	Gnd
3	16	*Switch pulse*
4	17	
5	18	D - Data 3
6	19	C - Data 2
7	20	B - Data 1
8	21	A - Data 0
9	22	E - Data 4
10	23	
11	24	*Busy*
12	25	*Unlatch*
13		

Pins 1 to 13 are reserved for user options. See *Configuration* section of this manual for details.

Connections for remote control panel to AAS-1220:

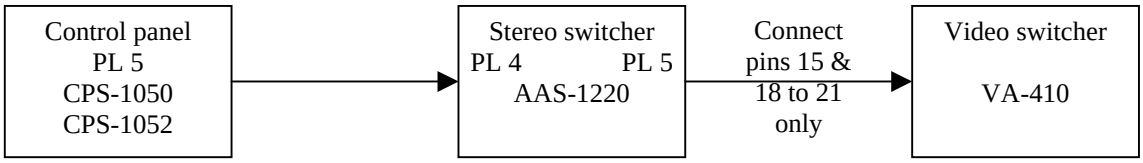
To connect a CPS-1050 or CPS-1052 remote control panel to the AAS-1220 switcher the following cable is required.

CPS-1050			AAS-1220
10 Pin HE14	to		25 Pin "D"(male)
PL 5	to		PL 4
Pin	to	Pin	
1A	to	14	+12 Vdc for remote control
1B	to	15	Gnd
4B	to	25	*Switch pulse*
2B	to	18	D - Data 3
3A	to	19	C - Data 2
3B	to	20	B - Data 1
4A	to	21	A - Data 0
2A	to	22	E - Data 4
5A		16	*Busy*
5B		24	*Unlatch*



Where connection is from a remote control panel to both video and audio switchers the above wiring should be used between the control panel and either the AAS-1220 or AVS-1210. The two switchers are then linked with a 25 way cable wired pin to pin.

If the video switcher is a VA-410 then the following order should be observed.



The AAS-1220 may be fitted with the local control panel, type CPS-1210 or CPS-1220, if local and remote control are both required. A VA-400 may not be used.

Connections for linking two AAS-1220 switchers:

To connect two AAS-1220 switchers the following cable is required.

AAS-1220			AAS-1220
25 Pin "D"(male)	to		25 Pin "D"(male)
PL 5	to		PL 4
Pins 1 - 25	to	Pins 1 - 25	

Wiring is pin to pin.
Pins 15 - 25 only are required unless special options are in use. For convenience a 25 way ribbon cable may be used with all pins connected.

Connections for AAS-1220 switcher as audio follow:

To connect a VA-400 video switcher or AA-293 stereo switcher to the AAS-1220 switcher the following cable is required.

1st switcher			AAS-1220
25 Pin "D"(male)	to		25 Pin "D"(male)
to		PL 4	
Pin	to	Pin	
Pin 15	to	Pin 15	
Pin 18	to	Pin 18	
Pin 19	to	Pin 19	
Pin 20	to	Pin 20	
Pin 21	to	Pin 21	

The above connections only are required and connection of other pins may cause incorrect operation.

20 x 1 operation:

For 20 x 1 operation L K1 should be installed. (For normal operation it must not be installed.)
While LK 1 is installed output 'E' of U17, used by the upper board of stereo switchers, will be the inverse of PL 6 pin 11. That is, the bottom board will respond as inputs 1 to 10, and the top board as inputs 11 to 20. The outputs should be taken from the upper board.

For stereo 20 x 1 operation two AAS-1220's are configured for 20 x 1 operation as in the preceding paragraph and connected using a 25 way ribbon cable wired pin to pin.

The remote control cable from a CPS-1052 to an AAS-1220 is the same as that for a CPS-1050 described previously.

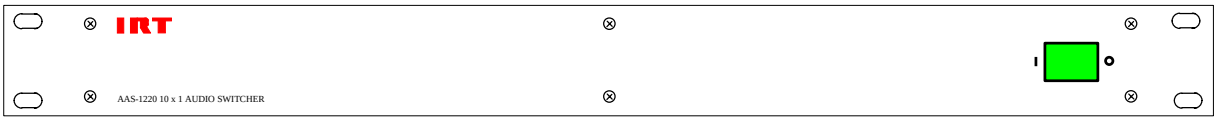
A CPS-1221, 20 button, local control panel may be fitted to either AAS-1220 in addition to or in place of the CPS-1052 remote control panel.

See remote control panel manual for configuration options including audio breakaway and multiple remote control wiring.

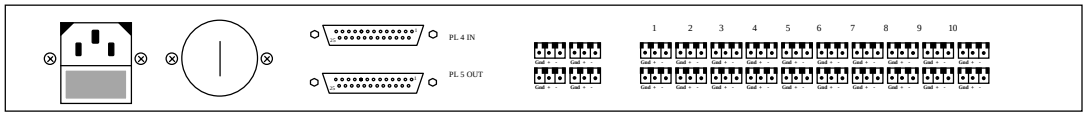
Front & rear panel connector diagrams

The following front panel and rear assembly drawings are not to scale and are intended to show relative positions of connectors, indicators and controls only.

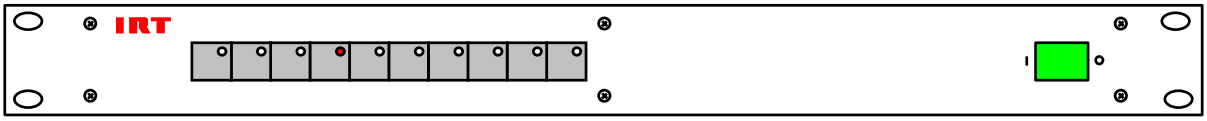
AAS-1220 - front view



AAS-1220 - rear view

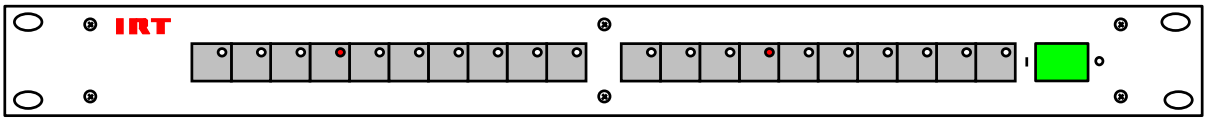


AAS-1220 fitted with CPS-1211 - front view

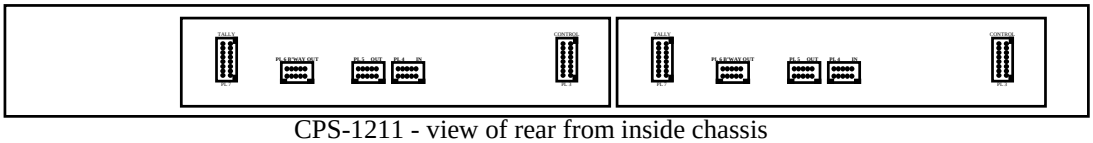


CPS-1210 - view of rear from inside chassis

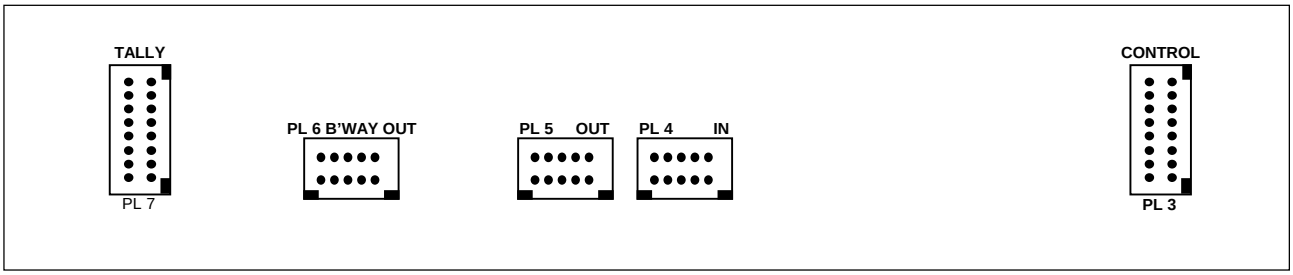
AAS-1220 fitted with CPS-1221 - front view



CPS-1221 - view of rear from inside chassis



CPS-1211 - view of rear from inside chassis
(connector positions)



Maintenance & Storage

Maintenance:

No regular maintenance is required.

Care however should be taken to ensure that all connectors are kept clean and free from contamination of any kind. This is especially important in fibre optic equipment where cleanliness of optical connections is critical to performance.

Storage:

If the equipment is not to be used for an extended period, it is recommended the whole unit be placed in a sealed plastic bag to prevent dust contamination. In areas of high humidity a suitably sized bag of silica gel should be included to deter corrosion.

Where individual circuit cards are stored, they should be placed in antistatic bags. Proper antistatic procedures should be followed when inserting or removing cards from these bags.

Warranty & Service

Equipment is covered by a limited warranty period of three years from date of first delivery unless contrary conditions apply under a particular contract of supply. For situations when "**No Fault Found**" for repairs, a minimum charge of 1 hour's labour, at IRT's current labour charge rate, will apply, whether the equipment is within the warranty period or not.

Equipment warranty is limited to faults attributable to defects in original design or manufacture. Warranty on components shall be extended by IRT only to the extent obtainable from the component supplier.

Equipment return:

Before arranging service, ensure that the fault is in the unit to be serviced and not in associated equipment. If possible, confirm this by substitution.

Before returning equipment contact should be made with IRT or your local agent to determine whether the equipment can be serviced in the field or should be returned for repair.

The equipment should be properly packed for return observing antistatic procedures.

The following information should accompany the unit to be returned:

1. A fault report should be included indicating the nature of the fault
2. The operating conditions under which the fault initially occurred.
3. Any additional information, which may be of assistance in fault location and remedy.
4. A contact name and telephone and fax numbers.
5. Details of payment method for items not covered by warranty.
6. Full return address.
7. For situations when "**No Fault Found**" for repairs, a minimum charge of 1 hour's labour will apply, whether the equipment is within the warranty period or not. Contact IRT for current hourly rate.

Please note that all freight charges are the responsibility of the customer.

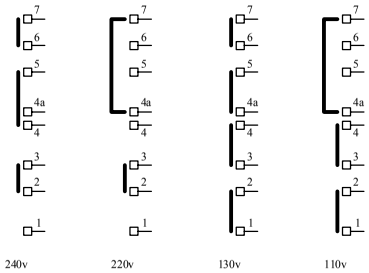
The equipment should be returned **to the agent who originally supplied the equipment** or, where this is not possible, to IRT direct as follows.

Equipment Service
IRT Electronics Pty Ltd
26 Hotham Parade
ARTARMON
N.S.W. 2064
AUSTRALIA

Phone: 61 2 9439 3744 Fax: 61 2 9439 7439
Email: service@irtelectronics.com

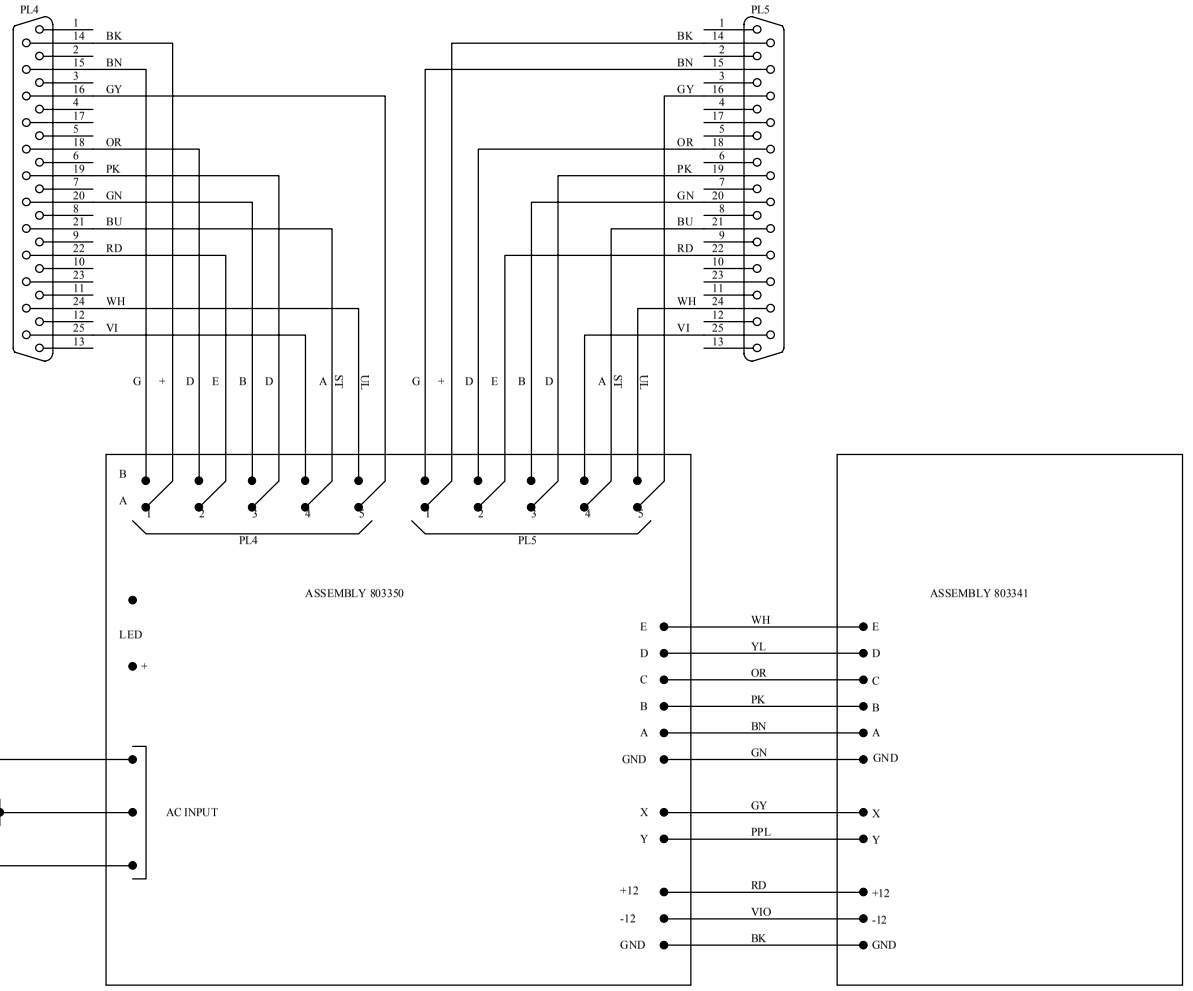
Drawing index

Drawing #	Sheet #	Description
804140		AAS-1220 wiring diagram.
803350	1	10 x 1 audio switcher Board 1.
803350	2	10 x 1 audio switcher Board 1.
803341	1	10 x 1 audio switcher Board 2.
803341	2	10 x 1 audio switcher Board 2.



SW2 INTERNAL CONNECTIONS

POSITIONS 150 & 260 ARE INOPERATIVE



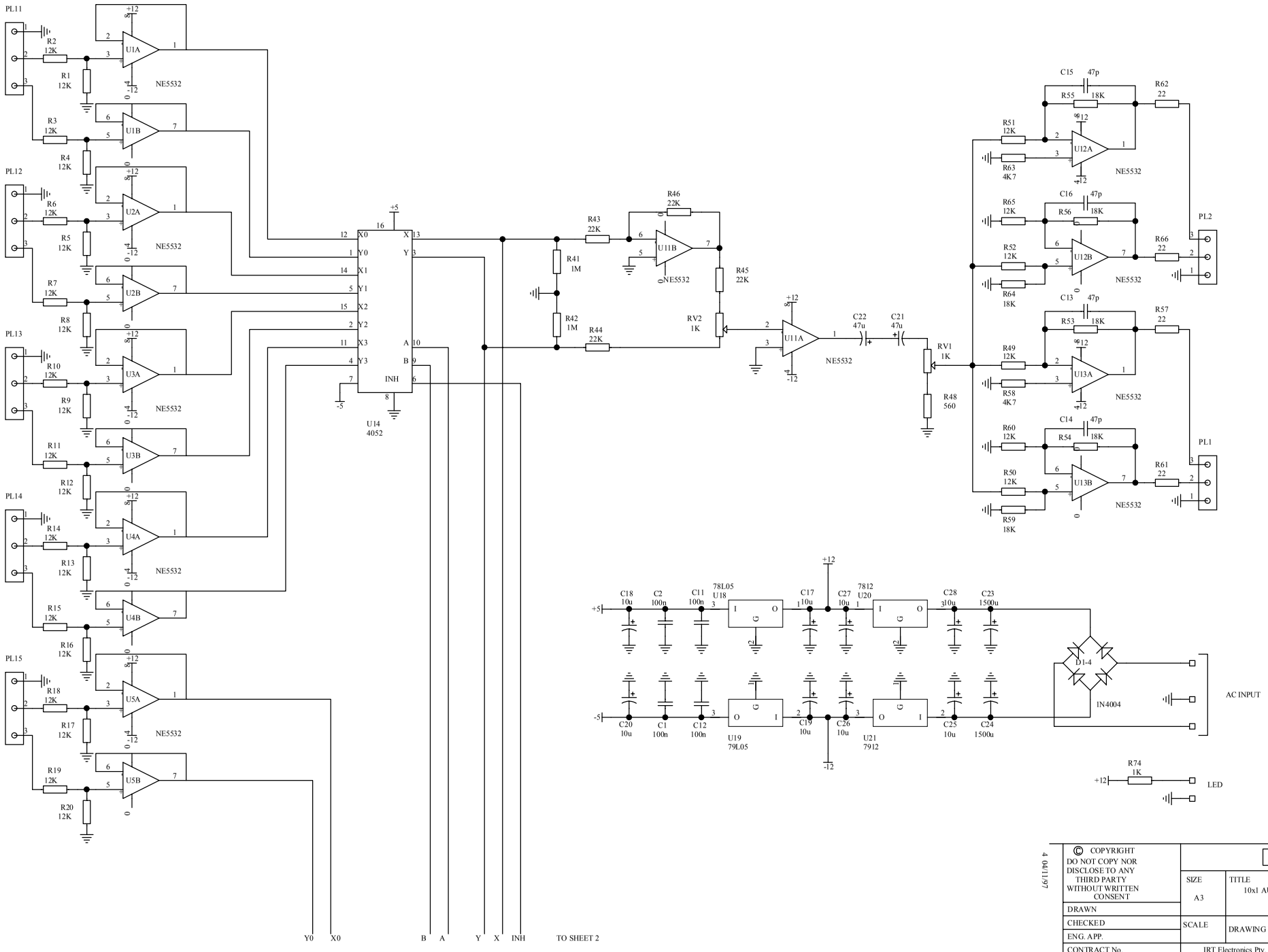
FUSE RATING

240 & 220V = 250mA SLO BLO

130 & 110v = 500mA SLO BLO

1 10/11/97
2 10/03/99 ECR980

DRAWN RBB	SIZE	TITLE AAS-1220 STEREO 10x1 AUD SWITCHER A.F.V.
CHECKED	SCALE	DRAWING No. 804140
ENG. APP.		SHEET 1 OF 1
CONTRACT No.	IRT Electronics Pty. Ltd. ARTARMON NSW AUSTRALIA 2064	



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CHECKED

ENG. APP.

CONTRACT No.

4/04/1997

IRT

SIZE A3

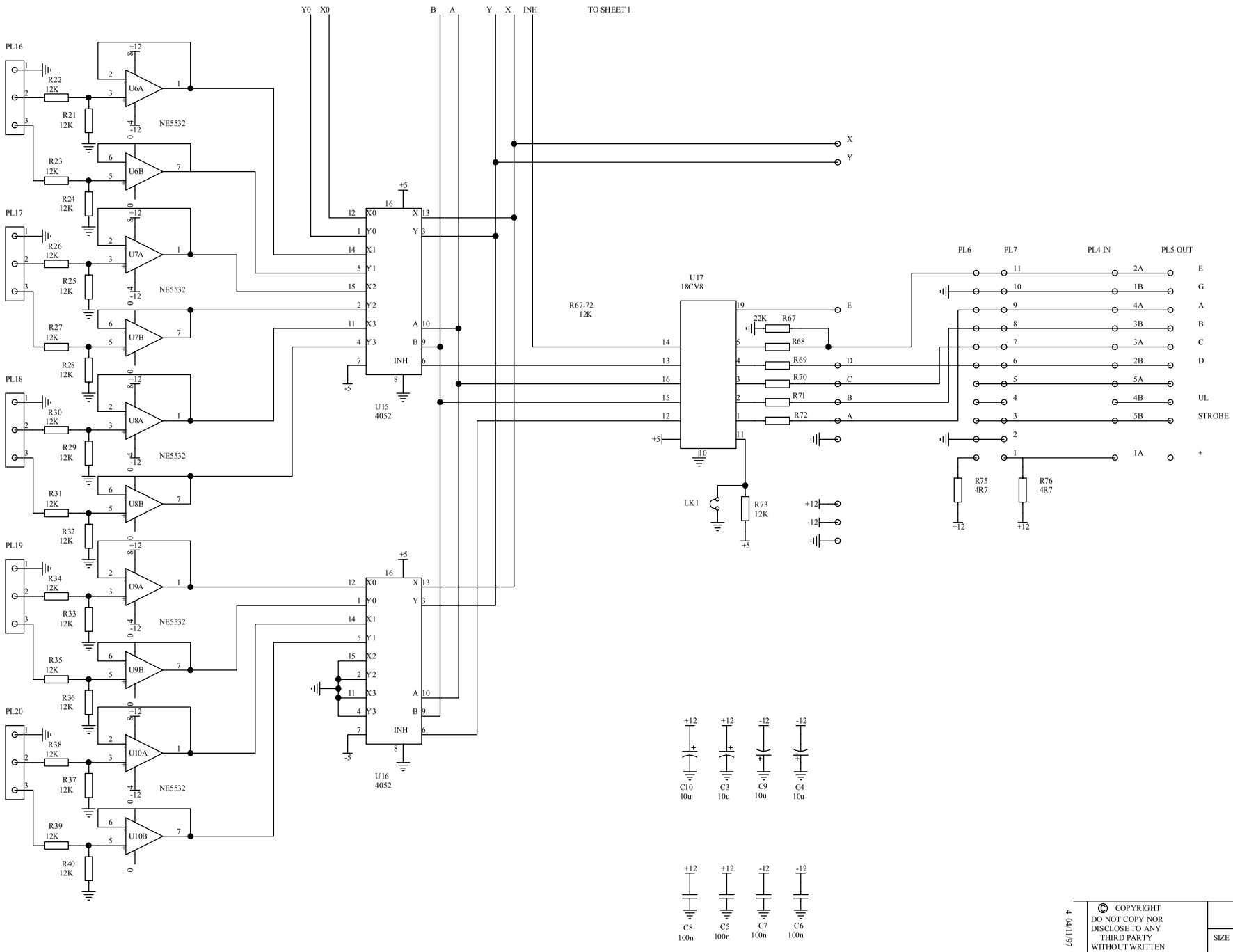
TITLE 10x1 AUDIO SWITCHERS BOARD 1

SCALE

DRAWING No. 803350

SHEET 1 OF 2

IRT Electronics Pty. Ltd.
ARTARMON NSW AUSTRALIA 2064



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ENG. APP.

CONTRACT No.

IRT

SIZE A3

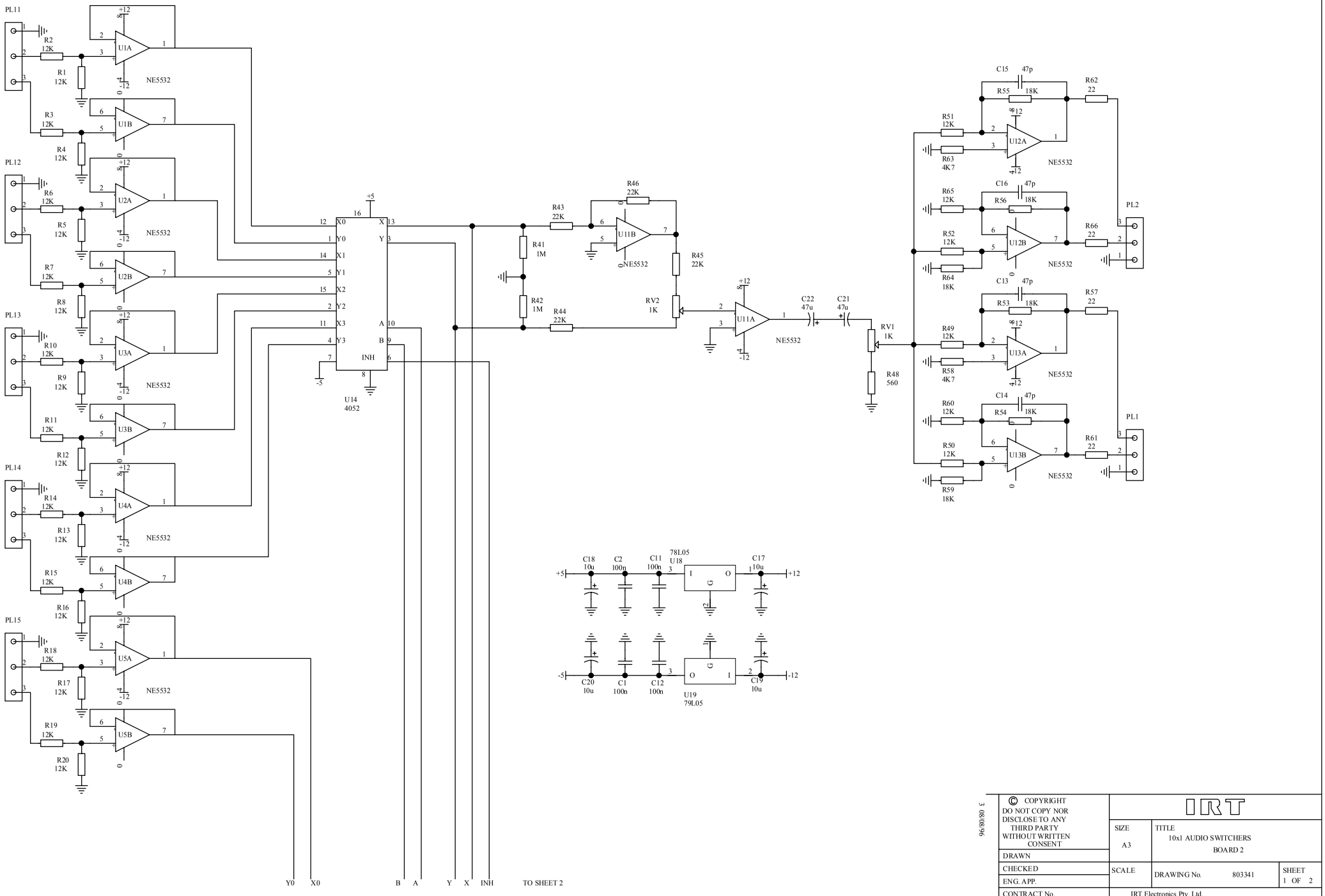
TITLE 10x1 AUDIO SWITCHERS BOARD 1

SCALE

DRAWING No. 803350

SHEET 2 OF 2

IRT Electronics Pty. Ltd.
ARTARMON NSW AUSTRALIA 2064



3/08/96

DRAWN

CHECKED

ENG. APP.

CONTRACT No.

IRT

SIZE A3

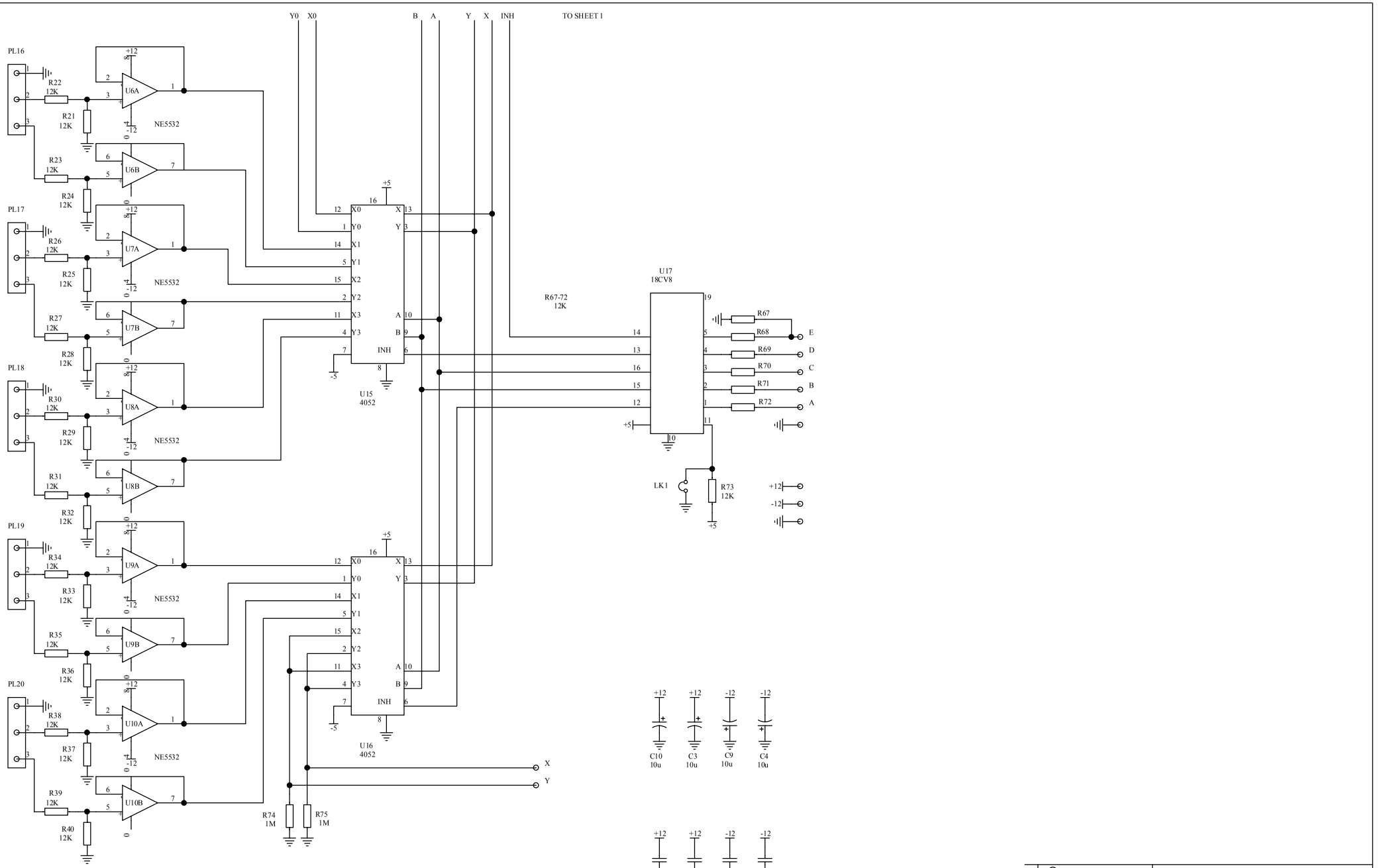
TITLE
10x1 AUDIO SWITCHERS
BOARD 2

SCALE

DRAWING No. 803341

SHEET 1 OF 2

IRT Electronics Pty. Ltd.
ARTARMON NSW AUSTRALIA 2064



DRAWN

CHECKED

ENG. APP.

CONTRACT No.

IRT

SIZE A3

TITLE 10x1 AUDIO SWITCHERS BOARD 2

SCALE

DRAWING No. 803341

SHEET 2 OF 2

IRT Electronics Pty. Ltd.
ARTARMON NSW AUSTRALIA 2064

3 08/08/96