

IRT

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VA-291

10x1 SWITCH PANEL

802164

01/15/1988

DESIGNED AND MANUFACTURED
IN AUSTRALIA

VA-291
10x1 SWITCH PANEL
INSTRUCTION BOOK

Section	Contents	Page
1.	General Description	3.
2.	Technical Data	3.
3.	Circuit Description	4.
4.	Installation	5.
5.	Circuit Diagrams	
6.	Parts Lists	

W A R N I N G

OPERATION OF ELECTRONIC EQUIPMENT INVOLVES THE USE OF VOLTAGES AND CURRENTS WHICH MAY BE DANGEROUS TO HUMAN LIFE. OPERATING PERSONNEL SHOULD OBSERVE ALL SAFETY REGULATIONS. DO NOT CHANGE COMPONENTS OR MAKE ADJUSTMENTS INSIDE THE EQUIPMENT WITH POWER ON UNLESS PROPER PRECAUTIONS ARE OBSERVED. NOTE THAT UNDER CERTAIN CONDITIONS DANGEROUS POTENTIALS MAY EXIST IN SOME CIRCUITS EVEN THOUGH POWER CONTROLS ARE IN THE OFF POSITION.

GENERAL DESCRIPTION

The VA-291 Control Panel is a 10x1 Switch Panel with its own Encoder and Tally circuitry. The VA-291 is used to remotely control the switching action of an IRT VA-410 Video Switcher or AA-289 Audio Switcher. The data output from the VA-291 is a latched 4 bit BCD [TTL level] signal which is used by the video or audio switcher to switch the selected input. By using active circuitry on the VA-291 the number of wires to the video or audio switcher is reduced from 22 to 7.

Circuitry is included on the VA-291 to deselect a companion control panel when two panels are used together to implement a 20x1 control panel.

Power to operate the circuitry of the VA-291 comes from the video or audio switcher, this ensures that if the remote control panel is detached from the switcher operation ceases.

TECHNICAL DATA

Input Control	10 Momentary contact pushbuttons with white inserts for switch identification
Tally Indication	Led lamps in the switches
Output	4 bit BCD [TTL level] active high
Power Requirements	+9 to 15 volts at 25mA
Mechanical	19 inch racking system panel one unit 44mm high
Dimensions	44mm x 480mm x 130mm

CIRCUIT DESCRIPTION

The VA-291 circuitry consists of ten switches connected to a ten input priority encoder, the data from the encoder is stored in a 4 bit TTL latch. This data is sent to the video or audio switcher to control the input selection and is decoded on the switch panel to light a TALLY led on the pushbutton of the selected input.

On the switch panel U1 and part of U2 are wired as a 10 input priority encoder circuit with the data bits A,B,C and D appearing at U2/3 U1/7 U1/6 and U2/4 respectively. The Data on these four lines is then applied to the data latch U4 via the OR gates of U3. Actuation of any one of the input switches produces a key STROBE signal at U2/11 which is then applied to the enable input of the LATCH U4 via one part of U2. RC networks consisting of 22K ohm resistors and 150pF capacitors on the data input circuits of U4 hold the data there for a short time after the strobe pulse enables the latch to ensure that the correct data is latched. The data thus stored in U4 is wired to the video or audio switcher to be controlled, to actuate the input selection circuitry of the switcher. The 4 bit data is also decoded on the switch panel by U5 to light a TALLY led mounted in the switch as a visual indication of the selected input.

U3 is used to allow the strobe signal from another control panel to latch a 1111 signal into U4. The strobe signal high is applied to all inputs of the latch by the OR action of U3 and enables the latches of U4 to store the 1111 signal in the latch. A 1111 signal applied to the tally decoder over-ranges its circuitry and no led will be lit. Similarly the VA-410 and AA-289 contain decoder circuits which will be over-ranged deselecting the input switching circuitry. In this way two VA-291 control panels can be wired together to implement a 20x1 control panel. The selection of an input on one panel of the pair deselecting the other panel.

Power to operate the VA-291 switch control panel is derived from the positive supply line of the video or audio switcher and regulated to +5v by U6.

INSTALLATION

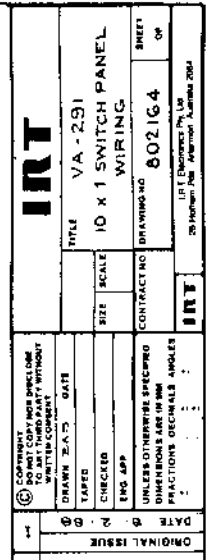
The VA-291 is a 483mm (19 INCH) rack mounting panel one rack unit (44mm) high.

Control output and power input connections are via a 15 pin "D" type connector J1 mounted on the back panel.

To connect a VA-291 remote control panel to a VA-410 Video switcher or a AA-289A Audio switcher for REMOTE operation the following cable is required.

The Connections are:

[RCP 15 Pin "D"]						[Swth 25 P "D"]	
Pin	15	Bit	A	BCD Output	[TTL level]	Pin	21
"	14	"	B	"	"	"	20
"	13	"	C	"	"	"	19
"	12	"	D	"	"	"	18
"	11	SIGNAL GROUND				"	17
"	10	POWER GROUND				"	15
"	9	+ VOLTS IN				"	14



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Replacement Parts List VA-291 10x1 SWITCH PANEL 802164 Page 1 of 1

Part No.	Description.	Qty:	Cct Ref.	Sup:
: 802536	: PCB SUB-ASSEMBLY	: 1 :		: 1 :
: DN15PZ	: PLUG 15 PIN "D"	: 1 : J1		: 61 :
: TB25	: THREADED BLOCK	: 1pr: J1		: 35 :
: 802170	: FRONT PANEL VA-291	: 1 :		: 1 :
: 802168	: CHASSIS, CONTROL PANEL	: 1 :		: 1 :
: SNU/0520/17/4	: "U" NUTS 6BA	: 12:		: 70:
: 802169	: COVER CHASSIS	: 2 :		: 1 :

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Page 1 of 1

Replacement Parts List VA-291 SUB-ASSEMBLY 802536

Part No.	Description	Qty:	Cct Ref.	Sup:
: RMF255-100R	: RESISTOR METAL FILM .25W 5%	: 1 : R20		: 92:
: RMF255-470R	: RESISTOR METAL FILM .25w 5%	: 1 : R19		: 92:
: RMF255-4K7	: RESISTOR METAL FILM .25w 5%	: 3 : R10,11,13		: 92:
: RMF255-22K	: RESISTOR METAL FILM .25w 5%	: 2 : R12,18		: 92:
: 109-4K7	: RESISTOR NETWORK 9 x 4K7	: 1 : R1-9		: 29:
: 804-22K	: RESISTOR NETWORK 4 x 22K	: 1 : R14-17		: 29:
: CC1N	: CAPACITOR CERAMIC 1nF	: 4 : C11-14		: 43:
: CC10N	: CAPACITOR CERAMIC 10nF	: 10: C1-10		: 43:
: CC100N	: CAPACITOR CERAMIC 100nF	: 4 : C18-21		: 43:
: TT10/25	: CAPACITOR TAG TANT 10uF 25V	: 3 : C15-17		: 69:
: 1N4148	: DIODE 75V 100mA	: 2 : D1,2		: 97:
: 2N3904	: NPN TRANSISTOR TO-92	: 1 : Q1		: 81:
: 4071	: IC QUAD 2 I/P OR	: 2 : U2,3		: 97:
: 4532	: IC 8 I/P ENCODER	: 1 : U1		: 97:
: 74HC75	: IC QUAD LATCH	: 1 : U4		: 97:
: 74LS145	: IC 1/10 DECODER	: 1 : U5		: 97:
: 78L05	: IC REGULATOR 5V 100mA	: 1 : U6		: 97:
: W3114T	: IC SOCKET 14 PIN	: 2 : U2,3		: 99:
: W3116T	: IC SOCKET 16 PIN	: 3 : U1,4,5		: 99:
: 6432-0011	: SWITCH PCB c/w LED RED	: 10: SW1-10		: 49:
: 237-000-141	: SWITCH INSERT WHITE	: 10: SW1-10		: 49:
: PC802165	: PCB VA-291	: 1 :		: 68: