

Model 3000-30 2(2x6) & 2(2x12) Coaxial Matrix 90400280-001



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Regulatory compliance information

This product complies with the essential requirements of the following applicable European Directives, and carries the CE mark accordingly.

89/336/EEC and 73/23/EEC

EN61010-1 (1993)

EN61326-1 (1997)

Manufacturer's Name:

Giga-tronics, Incorporated

EMC Directive and Low Voltage Directive

Electrical Safety

EMC – Emissions and Immunity

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Type of Equipment:

Switching Module

Model Series Number

3000-30

Declaration of Conformity on file. Contact Giga-tronics at the following;

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Record of Changes to This Manual

Use the table below to maintain a permanent record of changes to this document. Corrected replacement pages are issued as Technical Publication Change Instructions (TPCI). When you are issued a TPCI, do the following:

1. Insert the TPCI at the front of the manual binder.
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TPCI Number	TPCI Issue Date	Date Entered	Comments

Revision History			
Revision	Description of Change	Chg Order #	Approved By
A	Initial Release		
B	Updated		
C	Reformatted 3/12		RCW

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Chapter 1 Introduction

1.1 Safety and Manual Conventions

This manual contains conventions regarding safety and equipment usage as described below.

1.1.1 Product Reference

Throughout this manual, the term “Common Core Switching Platform, Series 8800” refers to all models of within the series, unless otherwise specified.

1.1.2 Personal Safety Alert



WARNING: Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

1.1.3 Equipment Safety Alert



CAUTION: Indicates a situation which can damage or adversely affect the product or associated equipment.

1.1.4 Notes

Notes are denoted and used as follows:

NOTE: Highlights or amplifies an essential operating or maintenance procedure, practice, condition or statement.

1.1.5 Electrical Safety Precautions

Any servicing instructions are for use by service-trained personnel only. To avoid personal injury, do not perform any service unless you are qualified to do so.

For continued protections against fire hazard, replace the AC line fuse only with a fuse of the same current rating and type. Do not use repaired fuses or short circuited fuse holders.

Chapter 2 Configuration Table

Module

PL90400280-001
90400280-001

Schematics

PL85004050-004
85004050-004
SCH85004050-004

Chapter 3 Functional Description

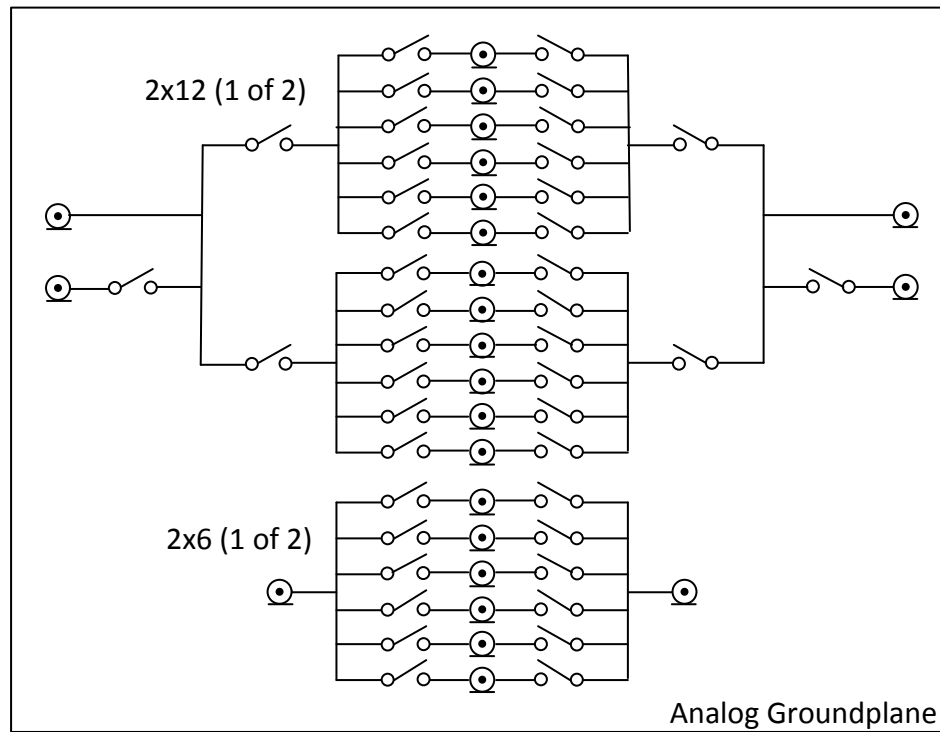
3.1 Introduction

This manual provides the necessary information for the maintenance of the Model 3000-30 High Frequency VXI Coaxial Switch Matrix.

3.2 General Description

This module contains a four very high bandwidth coaxial switch matrix. The coaxial matrices are organized as two each 12 x 2 matrices and two each 6 x 2 matrices. The switch matrices are special designs by ASCOR which is comprised of six 6 x 2 coaxial switch modules and a quad 1 x 3 coaxial switch module wired to the dual 12 x 2 and dual 6 x 2. These switch modules are true coaxial switches which are designed to match the impedance of the coaxial cable which produces superior performance over PC board stripline techniques. Each relay in the matrix is individually controlled. Any and all relays can be closed. The switch matrix are specially designed to support ATE testing. They are designed to support shielded measurements. This module is ideal for supporting high frequency general purpose switching, Multi-Channel stimulus or measurement switch matrices. Each switch is coaxially shielded to a common shield. The interface and mechanical constructions meets the specification of the VXIbus System Specification, Rev: 1.2 and 1.3.

Chapter 4 Block Diagram

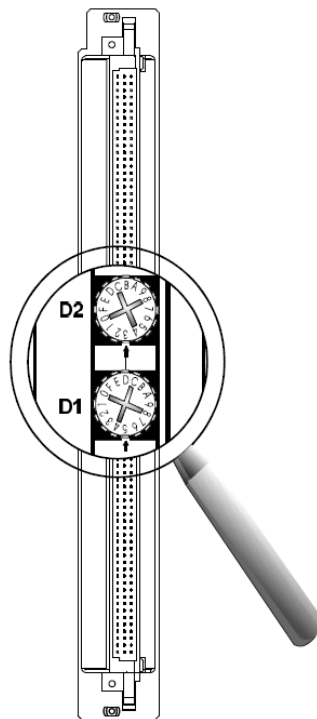


Chapter 5 Controls and Indicators

The following controls and indicators are provided to select and display the functions of the ASCOR 3000-30 Module's operating environment.

5.1 VXI Logical Address

The Logical Address Switch is dual circular switches, D1 and D2 which are located at the rear of the module. The address can be set to any value between 1 and 255 (decimal) or 1 and FF (hexadecimal), (address 0 is reserved for the resource manager). However, the Module fully supports Dynamic Configuration as defined in **Section F of the VXI specification**, address 255 (FF) should be selected only if the Resource Manager also supports Dynamic Configuration.



5.2 LEDs

The following LEDs are visible at the Module's front panel to indicate the status of the module's operation:

5.2.1 "BUS" LED

This green color LED is normally off and will flash on when the module is addressed by the system.

5.2.2 "PWR" LED

This red color LED is normally on when the Module is Powered up.

Chapter 6 Internal Settings

The following items are inside the module and can be reached by removing the side cover.

6.1 Fuse

The ASCOR VXI 3000-30 uses a 10 Amp fuse in the +5 Volt line and is located on the Mother Board (MB) assembly.

6.2 VXI_{bus} Interrupt Level Selection

The VXIbus interrupt level is set with three bits in the “3Eh” register.

See the section on “A16 ADDRESS SPACE REGISTER DESCRIPTION”.

The interrupt level is factory set to “no interrupt”.

Chapter 7 Specifications

Electrical:

Voltage (DC/Peak AC, Resistive)	250 Volts
Switching Current (DC/Peak AC, Resistive)	0.5 Amps
Carry Current (DC/Peak AC, Resistive)	2.0 Amps
Contact Power Rating (DC/Peak AC, Resistive)	10 Watts
Life Expectancy (Signal <1.0V, 0.010A)	10,000,000
Contact Resistance:	0.400 ohms
Bandwidth:	250MHz into 50 ohms
Crosstalk:	-50dB (at 100MHz)

Mechanical:

Thickness:	1.200 inches
Width:	10.317 inches
Length:	13.78 inches
Weight:	3 lbs.

Connectors:

Burndy type MSD14PM with Raychem
D602-0279 female coax contacts.
Mates with cable assembly 88101460

Environmental Specifications

Temperature:	
Operating:	0° to 55°C
Storage:	- 40° to 75°C
Relative Humidity:	
Operating:	0 to 90% non-condensing
Storage:	0 to 95% non-condensing

Chapter 9 Register Map

Features

The Model 3000-30 Single slot, VXIMAX™ 16/32, High performance Coaxial Switch Matrix provides up to eight simultaneous high frequency paths ideal for applications that require outputs to a high number of analog instruments.

- All relays are individually shielded in a coaxial, 50 Ohm environment, to minimize crosstalk and eliminate signal contamination.

Functional Description

The Model 3000-30 is a VXI compatible module which provides high quality, high frequency general purpose switching for selecting signal to be routed from a selected pin to any of two channels. This module is designed with special coaxial shielding for high quality signal switching and low noise. This module is ideal for high frequency scanners, stimulus and measurement switching applications where multiple inputs can be routed to any of two channels. Each switch is coaxially shielded. The connector block contains coaxial contacts.

Register Map -16 Bit Configuration

A16 Registers

Offset	Value
00h	CFB5 C = Register Based, A16 / A24 Module FB5 = VXI Manufacturer ID, ASCOR
02h	7F1Eh 7 = A24 space requirement F1E = Model Number for this Module
04h	FFFCh Bit 0, reset, is supported. Toggling this bit will clear all relay registers. Care should be taken to only modify bit "0"
06h	(assigned by Resource Manager)
Bits 3Eh0	Low true output enable to the coil driver IC's. 1 When low enables read back of relay coil state When high enables read back of data registers. 2 Reserved 3-15 Don't Care

Register Map 16 Bit

The following tables describe the signal name and register assignments for the switch matrices.

Register 8000h

Function: Control Matrix pins 1-6 of the first 12x2 matrix, Channels A and B

BIT	FUNCTION	COMMENTS
0	Chan A, Pin 1	J1-a, group 1A, relay K1
1	Chan A, Pin 2	J1-b, group 1A, relay K2
2	Chan A, Pin 3	J1-c, group 1A, relay K3
3	Chan A, Pin 4	J1-d, group 1A, relay K4
4	Chan A, Pin 5	J1-e, group 1A, relay K5
5	Chan A, Pin 6	J1-f, group 1A, relay K6
6	Chan A, group 1A	J1-p, used if any group 1A relay is selected, relay K7
7	not used	terminated with a resistor to +5V
8	Chan B, Pin 1	J1-a, group 1B, relay K9
9	Chan B, Pin 2	J1-b, group 1B, relay K10
10	Chan B, Pin 3	J1-c, group 1B, relay K11
11	Chan B, Pin 4	J1-d, group 1B, relay K12
12	Chan B, Pin 5	J1-e, group 1B, relay K13
13	Chan B, Pin 6	J1-f, group 1B, relay K14
14	Chan B, group 1B	J1-s, used if any group 1B relay is selected, relay K15
15	not used	terminated with a resistor to +5V

Register 8002h

Function: Control Matrix pins 7-12 of the first 12 X 2 matrix, Channels A and B, +, +

BIT	FUNCTION	COMMENTS
0	Chan A, Pin 7	J1-h, group 2A, relay K17
1	Chan A, Pin 8	J1-j, group 2A, relay K18
2	Chan A, Pin 9	J1-k, group 2A, relay K19
3	Chan A, Pin 10	J1-l, group 2A, relay K20
4	Chan A, Pin 11	J1-m, group 2A, relay K21
5	Chan A, Pin 12	J1-n, group 2A, relay K22
6	Chan A, group 2A	J1-p, used if any group 2A relay is selected, relay K23
7	not used	terminated with a resistor to +5V
8	Chan B, Pin 7	J1-h, group 2B, relay K25
9	Chan B, Pin 8	J1-j, group 2B, relay K26
10	Chan B, Pin 9	J1-k, group 2B, relay K27
11	Chan B, Pin 10	J1-l, group 2B, relay K28
12	Chan B, Pin 11	J1-m, group 2B, relay K29
13	Chan B, Pin 12	J1-n, group 2B, relay K30
14	Chan B, group 2B	J1-s, used if any group 2B relay is selected, relay K31
15	not used	terminated with a resistor to +5V

Register 8004h

Function: Control Matrix pins 1-6 of the first 6 X 2 matrix, Channels E and F

BIT	FUNCTION	COMMENTS
0	Chan E, Pin 1	J3, group 3A, relay K33
1	Chan E, Pin 2	J5, group 3A, relay K34
2	Chan E, Pin 3	J7, group 3A, relay K35
3	Chan E, Pin 4	J9, group 3A, relay K36
4	Chan E, Pin 5	J11, group 3A, relay K37
5	Chan E, Pin 6	J13, group 3A, relay K38
6	Chan A, Supplementary Switch	J1-P to J1-T relay K47
7	not used	terminated with a resistor to +5V
8	Chan F, Pin 1	J3, group 3B, relay K41
9	Chan F, Pin 2	J5, group 3B, relay K42
10	Chan F, Pin 3	J7, group 3B, relay K43
11	Chan F, Pin 4	J9, group 3B, relay K44
12	Chan F, Pin 5	J11, group 3B, relay K45
13	Chan F, Pin 6	J13, group 3B, relay K46
14	Chan B, Supplementary Switch	J1-S to J1-V relay K39
15	not used	terminated with a resistor to +5V

Register 8006h

Function: Control Matrix pins 1-6 of the second 12 X 2 matrix, Channels C and D

BIT	FUNCTION	COMMENTS
0	Chan C, Pin 1	J2-a, group 4A, relay K49
1	Chan C, Pin 2	J2-b, group 4A, relay K50
2	Chan C, Pin 3	J2-c, group 4A, relay K51
3	Chan C, Pin 4	J2-d, group 4A, relay K52
4	Chan C, Pin 5	J2-e, group 4A, relay K53
5	Chan C, Pin 6	J2-f, group 4A, relay K54
6	Chan C, group 4A	J2-p, used if any group 4A relay is selected, relay K55
7	not used	terminated with a resistor to +5V
8	Chan D, Pin 1	J2-a, group 4B, relay K57
9	Chan D, Pin 2	J2-b, group 4B, relay K58
10	Chan D, Pin 3	J2-c, group 4B, relay K59
11	Chan D, Pin 4	J2-d, group 4B, relay K60
12	Chan D, Pin 5	J2-e, group 4B, relay K61
13	Chan D, Pin 6	J2-f, group 4B, relay K62
14	Chan D, group 4B	J2-s, used if any group 4B relay is selected, relay K63
15	not used	terminated with a resistor to +5V

Register 8008h

Function: Control Matrix pins 7-12 of the second 12 X 2 matrix, Channels C and D

BIT	FUNCTION	COMMENTS
0	Chan C, Pin 7	J2-h, group 5A, relay K65
1	Chan C, Pin 8	J2-j, group 5A, relay K66
2	Chan C, Pin 9	J2-k, group 5A, relay K67
3	Chan C, Pin 10	J2-l, group 5A, relay K68
4	Chan C, Pin 11	J2-m, group 5A, relay K69
5	Chan C, Pin 12	J2-n, group 5A, relay K70
6	Chan C, group 5A	J2-p, used if any group 5A relay is selected, relay K71
7	not used	terminated with a resistor to +5V
8	Chan D, Pin 7	J2-h, group 5B, relay K73
9	Chan D, Pin 8	J2-j, group 5B, relay K74
10	Chan D, Pin 9	J2-k, group 5B, relay K75
11	Chan D, Pin 10	J2-l, group 5B, relay K76
12	Chan D, Pin 11	J2-m, group 5B, relay K77
13	Chan D, Pin 12	J2-n, group 5B, relay K78
14	Chan D, group 5B	J2-s, used if any group 5B relay is selected, relay K79
15	not used	terminated with a resistor to +5V

Register 800Ah

Function: Control Matrix pins 1-6 of the second 6 X 2 matrix, Channels G and H

BIT	FUNCTION	COMMENTS
0	Chan G, Pin 1	J4, group 6A, relay K81
1	Chan G, Pin 2	J6, group 6A, relay K82
2	Chan G, Pin 3	J8, group 6A, relay K83
3	Chan G, Pin 4	J10, group 6A, relay K84
4	Chan G, Pin 5	J12, group 6A, relay K85
5	Chan G, Pin 6	J14, group 6A, relay K86
6	Chan D, Supplementary Switch	J2-P, to J1-T relay K95
7	not used	terminated with a resistor to +5V
8	Chan H, Pin 1	J4, group 6B, relay K89
9	Chan H, Pin 2	J6, group 6B, relay K90
10	Chan H, Pin 3	J8, group 6B, relay K91
11	Chan H, Pin 4	J10, group 6B, relay K92
12	Chan H, Pin 5	J12, group 6B, relay K93
13	Chan H, Pin 6	J14, group 6B, relay K94
14	Chan C, Supplementary Switch	J2-S to J1-V relay K87
15	not used	terminated with a resistor to +5V

Register 8000h

Function: Control Matrix pins 1-12 of the first 12x2 matrix, Channels A and B

BIT	FUNCTION	COMMENTS
0	Chan A, Pin 1	J1-a, group 1A, relay K1
1	Chan A, Pin 2	J1-b, group 1A, relay K2
2	Chan A, Pin 3	J1-c, group 1A, relay K3
3	Chan A, Pin 4	J1-d, group 1A, relay K4
4	Chan A, Pin 5	J1-e, group 1A, relay K5
5	Chan A, Pin 6	J1-f, group 1A, relay K6
6	Chan A, group 1A	J1-p, used if any group 1A relay is selected, relay K7
7	not used	terminated with a resistor to +5V
8	Chan B, Pin 1	J1-a, group 1B, relay K9
9	Chan B, Pin 2	J1-b, group 1B, relay K10
10	Chan B, Pin 3	J1-c, group 1B, relay K11
11	Chan B, Pin 4	J1-d, group 1B, relay K12
12	Chan B, Pin 5	J1-e, group 1B, relay K13
13	Chan B, Pin 6	J1-f, group 1B, relay K14
14	Chan B, group 1B	J1-s, used if any group 1B relay is selected, relay K15
15	not used	terminated with a resistor to +5V
16	Chan A, Pin 7	J1-h, group 2A, relay K17
17	Chan A, Pin 8	J1-j, group 2A, relay K18
18	Chan A, Pin 9	J1-k, group 2A, relay K19
19	Chan A, Pin 10	J1-l, group 2A, relay K20
20	Chan A, Pin 11	J1-m, group 2A, relay K21
21	Chan A, Pin 12	J1-n, group 2A, relay K22
22	Chan A, group 2A	J1-p, used if any group 2A relay is selected, relay K23
23	not used	terminated with a resistor to +5V
24	Chan B, Pin 7	J1-h, group 2B, relay K25
25	Chan B, Pin 8	J1-j, group 2B, relay K26
26	Chan B, Pin 9	J1-k, group 2B, relay K27
27	Chan B, Pin 10	J1-l, group 2B, relay K28
28	Chan B, Pin 11	J1-m, group 2B, relay K29
29	Chan B, Pin 12	J1-n, group 2B, relay K30
30	Chan B, group 2B	J1-s, used if any group 2B relay is selected, relay K31
31	not used	terminated with a resistor to +5V

Register 8004h

Function: Control Matrix pins 1-6 of the first 6 X 2 matrix, Channels E and F

BIT	FUNCTION	COMMENTS
0	Chan E, Pin 1	J3, group 3A, relay K33
1	Chan E, Pin 2	J5, group 3A, relay K34
2	Chan E, Pin 3	J7, group 3A, relay K35
3	Chan E, Pin 4	J9, group 3A, relay K36
4	Chan E, Pin 5	J11, group 3A, relay K37
5	Chan E, Pin 6	J13, group 3A, relay K38
6	Chan A, Supplementary Switch	J1-P to J1-T relay K47
7	not used	terminated with a resistor to +5V
8	Chan F, Pin 1	J3, group 3B, relay K41
9	Chan F, Pin 2	J5, group 3B, relay K42
10	Chan F, Pin 3	J7, group 3B, relay K43
11	Chan F, Pin 4	J9, group 3B, relay K44
12	Chan F, Pin 5	J11, group 3B, relay K45
13	Chan F, Pin 6	J13, group 3B, relay K46
14	Chan B, Supplementary Switch	J1-S to J1-V relay K39
15	not used	terminated with a resistor to +5V

Function: Control Matrix pins 1-6 of the second 12 X 2 matrix, Channels C and D

BIT	FUNCTION	COMMENTS
16	Chan C, Pin 1	J2-a, group 4A, relay K49
17	Chan C, Pin 2	J2-b, group 4A, relay K50
18	Chan C, Pin 3	J2-c, group 4A, relay K51
19	Chan C, Pin 4	J2-d, group 4A, relay K52
20	Chan C, Pin 5	J2-e, group 4A, relay K53
21	Chan C, Pin 6	J2-f, group 4A, relay K54
22	Chan C, group 4A	J2-p, used if any group 4A relay is selected, relay K55
23	not used	terminated with a resistor to +5V
24	Chan D, Pin 1	J2-a, group 4B, relay K57
25	Chan D, Pin 2	J2-b, group 4B, relay K58
26	Chan D, Pin 3	J2-c, group 4B, relay K59
27	Chan D, Pin 4	J2-d, group 4B, relay K60
28	Chan D, Pin 5	J2-e, group 4B, relay K61
29	Chan D, Pin 6	J2-f, group 4B, relay K62
30	Chan D, group 4B	J2-s, used if any group 4B relay is selected, relay K63
31	not used	terminated with a resistor to +5V

Register 8008h

Function: Control Matrix pins 7-12 of the second 12 X 2 matrix, Channels C and D

BIT	FUNCTION	COMMENTS
0	Chan C, Pin 7	J2-h, group 5A, relay K65
1	Chan C, Pin 8	J2-j, group 5A, relay K66
2	Chan C, Pin 9	J2-k, group 5A, relay K67
3	Chan C, Pin 10	J2-l, group 5A, relay K68
4	Chan C, Pin 11	J2-m, group 5A, relay K69
5	Chan C, Pin 12	J2-n, group 5A, relay K70
6	Chan C, group 5A	J2-p, used if any group 5A relay is selected, relay K71
7	not used	terminated with a resistor to +5V
8	Chan D, Pin 7	J2-h, group 5B, relay K73
9	Chan D, Pin 8	J2-j, group 5B, relay K74
10	Chan D, Pin 9	J2-k, group 5B, relay K75
11	Chan D, Pin 10	J2-l, group 5B, relay K76
12	Chan D, Pin 11	J2-m, group 5B, relay K77
13	Chan D, Pin 12	J2-n, group 5B, relay K78
14	Chan D, group 5B	J2-s, used if any group 5B relay is selected, relay K79
15	not used	terminated with a resistor to +5V

Function: Control Matrix pins 1-6 of the second 6 X 2 matrix, Channels G and H

BIT	FUNCTION	COMMENTS
16	Chan G, Pin 1	J4, group 6A, relay K81
17	Chan G, Pin 2	J6, group 6A, relay K82
18	Chan G, Pin 3	J8, group 6A, relay K83
19	Chan G, Pin 4	J10, group 6A, relay K84
20	Chan G, Pin 5	J12, group 6A, relay K85
21	Chan G, Pin 6	J14, group 6A, relay K86
22	Chan D, Supplementary Switch	J2-P, to J1-T relay K95
23	not used	terminated with a resistor to +5V
24	Chan H, Pin 1	J4, group 6B, relay K89
25	Chan H, Pin 2	J6, group 6B, relay K90
26	Chan H, Pin 3	J8, group 6B, relay K91
27	Chan H, Pin 4	J10, group 6B, relay K92
28	Chan H, Pin 5	J12, group 6B, relay K93
29	Chan H, Pin 6	J14, group 6B, relay K94
30	Chan C, Supplementary Switch	J2-S to J1-V relay K87
31	not used	terminated with a resistor to +5V

Chapter 10 Front Panel Connectors

12 x 2 MATRIX - J1

J1 PINS	DESCRIPTION
A	MATRIX INPUT
B	MATRIX INPUT
C	MATRIX INPUT
D	MATRIX INPUT
E	MATRIX INPUT
F	MATRIX INPUT
H	MATRIX INPUT
J	MATRIX INPUT
K	MATRIX INPUT
L	MATRIX INPUT
M	MATRIX INPUT
N	MATRIX INPUT
P	CH A OUTPUT
R	n/a
S	CH B OUTPUT
T	CH A OUTPUT (K39)
U	n/a
V	CH B OUTPUT (K47)
W	n/a
X	n/a

12 x 2 MATRIX - J2

J2 PINS	DESCRIPTION
A	MATRIX INPUT
B	MATRIX INPUT
C	MATRIX INPUT
D	MATRIX INPUT
E	MATRIX INPUT
F	MATRIX INPUT
H	MATRIX INPUT
J	MATRIX INPUT
K	MATRIX INPUT
L	MATRIX INPUT
M	MATRIX INPUT
N	MATRIX INPUT
P	CH A OUTPUT
R	n/a
S	CH B OUTPUT
T	CH A OUTPUT (K87)
U	n/a
V	CH B OUTPUT (K95)
W	n/a
X	n/a

FRONT PANEL SMB CONNECTORS

6 x 2 MATRIX - LEFT SMB

FRONT PANEL	SCHEMATIC REFERENCE	DESCRIPTION
1 LEFT	J3	MATRIX INPUT
2 LEFT	J5	MATRIX INPUT
3 LEFT	J7	MATRIX INPUT
4 LEFT	J9	MATRIX INPUT
5 LEFT	J11	MATRIX INPUT
6 LEFT	J13	MATRIX INPUT
E	J15	CH A OUTPUT
F	J17	CH B OUTPUT

6 x 2 MATRIX - RIGHT SMB

PINS	SCHEMATIC REFERENCE	DESCRIPTION
1 RIGHT	J4	MATRIX INPUT
2 RIGHT	J6	MATRIX INPUT
3 RIGHT	J8	MATRIX INPUT
4 RIGHT	J10	MATRIX INPUT
5 RIGHT	J12	MATRIX INPUT
6 RIGHT	J14	MATRIX INPUT
G	J16	CH A OUTPUT
H	J18	CH B OUTPUT