Model 3000-524
4(1x12) Coax Multiplexers
904001110

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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	EMC Directive and Low Voltage Directive
EN61010-1 (1993)	Electrical Safety
EN61326-1 (1997)	EMC – Emissions and Immunity
Manufacturer's Name:	**Manufacturer's Address**
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Type of Equipment:	**Model Series Number**
Switching Module	3000-524

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	Updated 3/10		
D	Updated 8/10		DT
E	Reformatted 3/12		RCW

Contents

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**

ASSY90401110	Top Assembly
PL90401110	Parts List for Top Assembly
ASSY85003790	PWA Assembly
PL85003790	Parts List for PWA Assembly
SCH85003790	Schematic of PWA Assembly

Functional Description

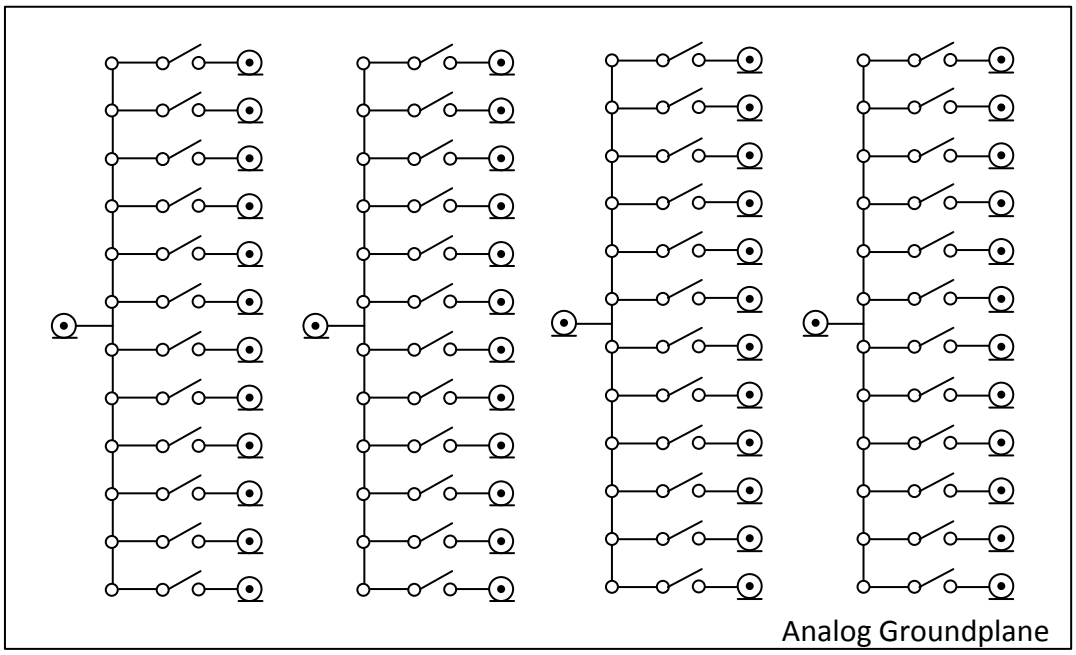
2.1 Introduction

This manual provides the necessary information for the operation and maintenance of the Model 3000-524, quad 1x12 coaxial switch tree VXI Module.

2.2 General Description

This module contains four very high frequency 1x12 coaxial relay trees. The shields to the 12 inputs are switched to allow isolation of the coaxial shield from the common shield plane of the switch tree. The 3000-524 is a register based VXI module. The register map is carefully laid out for easy software control. The interface and mechanical construction meets the specification of the VXIbus System Specification, rev. 1.2 and 1.3.

Chapter 3 **Block Diagram**

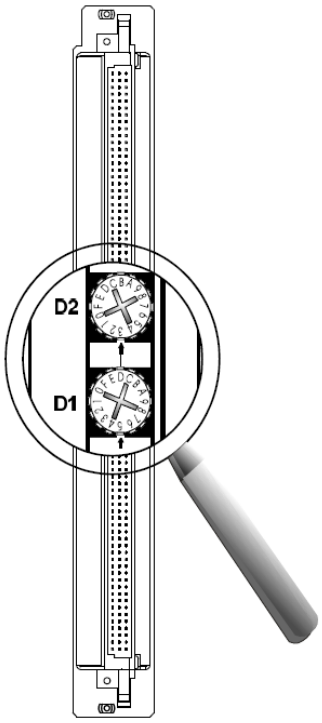


Controls and Indicators

The following controls and indicators are provided to select and display the functions of the ASCOR 3000-524 Module's operating environment.

3.1 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.



3.2 LEDs

The following LEDs are visible at the Module's front panel to indicate the

status of the module's operation:

3.2.1 "BUS" LED

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

3.2.2 "PWR" LED

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

Chapter 4 Internal Settings

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

4.1 Fuse

The ASCOR VXI 3000-524 uses a 10 Amp fuse in the +5 Volt line and is located on the Mother Board (MB) assembly.

4.2 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 5 **Specifications**

Electrical:

Number of relays	96 coaxially shielded relays
Max Switching Voltage:	200 V DC
Max Switching Current:	1 amp
Max Voltage	200 V DC
Bandwidth:	>100 MHz
Max Power:	10 watts
Path resistance:	</= 1ohm

Mechanical:

Thickness:	1.200 inches
Width:	10.317 inches
Length:	13.78 inches
Weight:	2 lbs.

Connectors:

Four Burndy type MSD26RM, 26 pin block
Contacts: Each block contains 13 coaxial contacts, Raychem type D-602-0279

Environmental Specifications

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

Chapter 7 Register Map

The following register map shows the signal name and register assignments for the Model 3000-524.

A16 Registers

Offset	Value
00h	7FB5h 7 = Register Based, A16/A24 Module FB5 = VXI Manufacturer ID, ASCOR
02h	7xxxh 7 = A24 space requirement xxx = Model Number for this module
04h	FFFCh Bit 0, reset, is supported. Toggling this bit will clear all relay registers.
06h	(assigned by Resource Manager)
Control 3Eh	Bit 0 Low true output enable to the relay 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

Programming

The Model 3000-524 is a VXI register based module. The switch paths are controlled via VXIMAX™ which is the 16/32 bit data controller. The Model 3000-524 can be programmed in 16 bit or 32 bit wide data. Through your VXI controller, write the data to the appropriate register as shown on the register map for the relay or relays in the register that is being closed. When the data bit is true, the relay chosen will be closed. The state of the relays in a register can be determined by reading the desired register. The data read back represents the value at the coil of the relay. This allows verification that the program register has correctly controlled the relay coil.

The following register maps are shown in two configurations: 16 bit mode and 32 bit mode. In each section,16 bit and 32 bit, the register map is organized to show the relay designation in each register. It is followed by the register's functionality and the path connections to the front panel.

For example:

To close relay K1 set the register bit 0 to a "1."

Register 8000h:

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

REGISTER DESCRIPTION

REGISTER: 8000h		MODE: 16/32 bit	
FUNCTION: Relays K1-12, 1x12 #1			
BIT	Description	notes	RELAY
0	J1 pin A, coax center, pole 1		K1
1	J1 pin A, coax shield, pole 1		K2
2	J1 pin B, coax center, pole 2		K3
3	J1 pin B, coax shield, pole 2		K4
4	J1 pin C, coax center, pole 3		K5
5	J1 pin C, coax shield, pole 3		K6
6	J1 pin D, coax center, pole 4		K7
7	J1 pin D, coax shield, pole 4		K8
8	J1 pin E, coax center, pole 5		K9
9	J1 pin E, coax shield, pole 5		K10
10	J1 pin F, coax center, pole 6		K11
11	J1 pin F, coax shield, pole 6		K12
12	-		
13	-		
14	-		
15	-		

note 1: K8 and K16 are not used in the 16x12 configuration

REGISTER: 8000h		MODE: 32 bit, BITS 16-31	
REGISTER: 8002h		MODE: 16 bit	
FUNCTION: Relays 13-24,1X12 #1			
BIT	Description		RELAY
0 (16)	J1 pin H, coax center, pole 7		K13
1 (17)	J1 pin H, coax shield, pole 7		K14
2 (18)	J1 pin J, coax center, pole 8		K15
3 (19)	J1 pin J, coax shield, pole 8		K16
4 (20)	J1 pin K, coax center, pole 9		K17
5 (21)	J1 pin K, coax shield, pole 9		K18
6 (22)	J1 pin L, coax center, pole 10		K19
7 (23)	J1 pin L, coax shield, pole 10		K20
8 (24)	J1 pin M, coax center, pole 11		K21
9 (25)	J1 pin M, coax shield, pole 11		K22
10 (26)	J1 pin N, coax center, pole 12		K23
11 (27)	J1 pin N, coax shield, pole 12		K24
12 (28)	-		
13 (29)	-		
14 (30)	-		
15 (31)	-		

REGISTER: 8004h		MODE: 16/32 bit	
FUNCTION: Relays 25-36,1X12 #2			
BIT	Description	notes	RELAY
0	J2 pin A, coax center, pole 1		K25
1	J2 pin A, coax shield, pole 1		K26
2	J2 pin B, coax center, pole 2		K27
3	J2 pin B, coax shield, pole 2		K28
4	J2 pin C, coax center, pole 3		K29
5	J2 pin C, coax shield, pole 3		K30
6	J2 pin D, coax center, pole 4		K31
7	J2 pin D, coax shield, pole 4		K32
8	J2 pin E, coax center, pole 5		K33
9	J2 pin E, coax shield, pole 5		K34
10	J2 pin F, coax center, pole 6		K35
11	J2 pin F, coax shield, pole 6		K36
12	-		
13	-		
14	-		
15	-		

REGISTER: 8004h		MODE: 32 bit, BITS 16-31	
REGISTER: 8006h		MODE: 16 bit	
FUNCTION: Relays 37-48,1X12 #2			
BIT	Description		RELAY
0 (16)	J2 pin H, coax center, pole 7		K37
1 (17)	J2 pin H, coax shield, pole 7		K38
2 (18)	J2 pin J, coax center, pole 8		K39
3 (19)	J2 pin J, coax shield, pole 8		K40
4 (20)	J2 pin K, coax center, pole 9		K41
5 (21)	J2 pin K, coax shield, pole 9		K42
6 (22)	J2 pin L, coax center, pole 10		K43
7 (23)	J2 pin L, coax shield, pole 10		K44
8 (24)	J2 pin M, coax center, pole 11		K45
9 (25)	J2 pin M, coax shield, pole 11		K46
10 (26)	J2 pin N, coax center, pole 12		K47
11 (27)	J2 pin N, coax shield, pole 12		K48
12 (28)	-		
13 (29)	-		
14 (30)	-		
15 (31)	-		

REGISTER: 8008h		MODE: 16/32 bit	
FUNCTION: Relays 49-60,1X12 #3			
BIT	Description	notes	RELAY
0	J3 pin A, coax center, pole 1		K49
1	J3 pin A, coax shield, pole 1		K50
2	J3 pin B, coax center, pole 2		K51
3	J3 pin B, coax shield, pole 2		K52
4	J3 pin C, coax center, pole 3		K53
5	J3 pin C, coax shield, pole 3		K54
6	J3 pin D, coax center, pole 4		K55
7	J3 pin D, coax shield, pole 4		K56
8	J3 pin E, coax center, pole 5		K57
9	J3 pin E, coax shield, pole 5		K58
10	J3 pin F, coax center, pole 6		K59
11	J3 pin F, coax shield, pole 6		K60
12	-		
13	-		
14	-		
15	-		

REGISTER: 8008h		MODE: 32 bit, BITS 16-31	
REGISTER: 800Ah		MODE: 16 bit	
FUNCTION: Relays 61-72,1X12 #3			
BIT	Description		RELAY
0 (16)	J3 pin H, coax center, pole 7		K61
1 (17)	J3 pin H, coax shield, pole 7		K62
2 (18)	J3 pin J, coax center, pole 8		K63
3 (19)	J3 pin J, coax shield, pole 8		K64
4 (20)	J3 pin K, coax center, pole 9		K65
5 (21)	J3 pin K, coax shield, pole 9		K66
6 (22)	J3 pin L, coax center, pole 10		K67
7 (23)	J3 pin L, coax shield, pole 10		K68
8 (24)	J3 pin M, coax center, pole 11		K69
9 (25)	J3 pin M, coax shield, pole 11		K70
10 (26)	J3 pin N, coax center, pole 12		K71
11 (27)	J3 pin N, coax shield, pole 12		K72
12 (28)	-		
13 (29)	-		
14 (30)	-		
15 (31)	-		

REGISTER: 800Ch		MODE: 16/32 bit	
FUNCTION: Relays 73-84,1X12 #4			
BIT	Description	notes	RELAY
0	J4 pin A, coax center, pole 1		K73
1	J4 pin A, coax shield, pole 1		K74
2	J4 pin B, coax center, pole 2		K75
3	J4 pin B, coax shield, pole 2		K76
4	J4 pin C, coax center, pole 3		K77
5	J4 pin C, coax shield, pole 3		K78
6	J4 pin D, coax center, pole 4		K79
7	J4 pin D, coax shield, pole 4		K80
8	J4 pin E, coax center, pole 5		K81
9	J4 pin E, coax shield, pole 5		K82
10	J4 pin F, coax center, pole 6		K83
11	J4 pin F, coax shield, pole 6		K84
12	-		
13	-		
14	-		
15	-		

REGISTER: 800Ch		MODE: 32 bit, BITS 16-31	
REGISTER: 800Eh		MODE: 16 bit	
FUNCTION: Relays 85-96,1X12 #4			
BIT	Description		RELAY
0 (16)	J4 pin H, coax center, pole 7		K85
1 (17)	J4 pin H, coax shield, pole 7		K86
2 (18)	J4 pin J, coax center, pole 8		K87
3 (19)	J4 pin J, coax shield, pole 8		K88
4 (20)	J4 pin K, coax center, pole 9		K89
5 (21)	J4 pin K, coax shield, pole 9		K90
6 (22)	J4 pin L, coax center, pole 10		K91
7 (23)	J4 pin L, coax shield, pole 10		K92
8 (24)	J4 pin M, coax center, pole 11		K93
9 (25)	J4 pin M, coax shield, pole 11		K94
10 (26)	J4 pin N, coax center, pole 12		K95
11 (27)	J4 pin N, coax shield, pole 12		K96
12 (28)	-		
13 (29)	-		
14 (30)	-		
15 (31)	-		

Chapter 8 **Coaxial Interconnection List:**

Wire List : 3000-524
1x12 Tree #1
J1 pin A to PCB J1
J1 pin B to PCB-J2
J1 pin C to PCB-J3
J1 pin D to PCB-J4
J1 pin E to PCB-J5
J1 pin F to PCB-J6
J1 pin H to PCB-J7
J1 pin J to PCB-J8
J1 pin K to PCB-J9
J1 pin L to PCB-J10
J1 pin M to PCB-J11
J1 pin N to PCB-J12
J1 pin P to PCB-J13
J1 pin CC to EPAD5 (22 GA wire)
J1 pin DD to EPAD6 (22 GA wire)

1x12 Tree #2
J2 pin A to PCB J14
J2 pin B to PCB-J15
J2 pin C to PCB-J16
J2 pin D to PCB-J17
J2 pin E to PCB-J18
J2 pin F to PCB-J19
J2 pin H to PCB-J20
J2 pin J to PCB-J21
J2 pin K to PCB-J22
J2 pin L to PCB-J23
J2 pin M to PCB-J24
J2 pin N to PCB-J25
J2 pin P to PCB-J26
J2 pin CC to EPAD7 (22 GA wire)
J2 pinDD to EPAD8 (22 GA wire)

1x12 Tree #3
J3 pin A to PCB J27
J3 pin B to PCB-J28
J3 pin C to PCB-J29
J3 pin D to PCB-J30
J3 pin E to PCB-J31
J3 pin F to PCB-J32
J3 pin H to PCB-J33
J3 pin J to PCB-J34
J3 pin K to PCB-J35
J3 pin L to PCB-J36
J3 pin M to PCB-J37
J3 pin N to PCB-J38
J3 pin P to PCB-J39
J3 pin CC to EPAD9 (22 GA wire)
J3 pinDD to EPAD10 (22 GA wire)

1x12 Tree #4
J4 pin A to PCB J40
J4 pin B to PCB-J41
J4 pin C to PCB-J42
J4 pin D to PCB-J43
J4 pin E to PCB-J44
J4 pin F to PCB-J45
J4 pin H to PCB-J46
J4 pin J to PCB-J47
J4 pin K to PCB-J48
J4 pin L to PCB-J49
J4 pin M to PCB-J50
J4 pin N to PCB-J51
J4 pin P to PCB-J52
J4 pin CC to PCB-EPAD11
J4 pin DD to PCB-EPAD12