

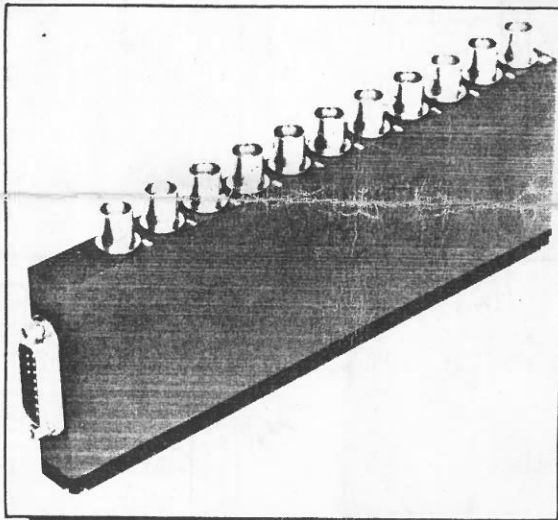
# MATRIX

SYSTEMS CORPORATION

5177 NORTH DOUGLAS FIR ROAD  
CALABASAS, CALIFORNIA 91302  
(818) 992-6776 • TWX 910-494-4975

## Coaxial Relay Module 7000 Series

- 7100 — Standard
- 7200 — Self-terminating
- 7300 — High isolation
- 7400 — Highest isolation
- 7500 — High power
- 7600 — Highest isolation self-terminating
- 7700 — Mercury wetted contacts
- 7800 — Twinax
- 7900 — Triax



### FEATURES:

- DC up to 800 MHz depending on number of throws
- Two to twenty-four throws
- Continuous shield continuity
- Rugged machined aluminum housing
- Crosstalk always lower than isolation
- Switchpoints individually field replaceable
- Extremely low EMI
- Low VSWR
- Matrix configuration easily assembled using 9000 series cross straps
- Signal circuits isolated from control circuitry

MATRIX 7000 Series Relay Modules are designed to maintain coaxial switching continuity over a wider range of critical and high environmental applications. The Relay housings are constructed of precision machined aluminum alloy for structural integrity and hard anodized for durability. All signal shield paths are silver plated with covers gasketed for maximum EMI protection. The basic reed switch elements are hermetically sealed in nitrogen filled gas envelopes and employ rhodium plated contacts to insure non-stick operation. Applications for MATRIX 7000 Series include:

- R.F. and I.F. switching where a low VSWR is required.
- CCTV, base band video and pulse switching where low phase distortion and high pulse fidelity are required.
- Applications requiring a high degree of shielding integrity and low contact and induced noise such as pre amp input switching or the switching of high impedance operational amplifier inputs.

Matrix and hybrid switching systems are easily constructed by using Series 9000 (no output), 9100 (one output) or 9200 (two output) push-on cross straps which mate with the BNC connectors on the switch modules. The cross strap output connectors are BNC female type UG 1094/U. The model number of the cross strap is assigned by replacing the two zeros of the series number with the number of inputs desired. For example, a Model 9108 has eight inputs and one output.

### MODEL NUMBER ASSIGNMENT

7 X XX — X

Series ————— |  
Number of throws (N) ——— |  
Options: ————— |

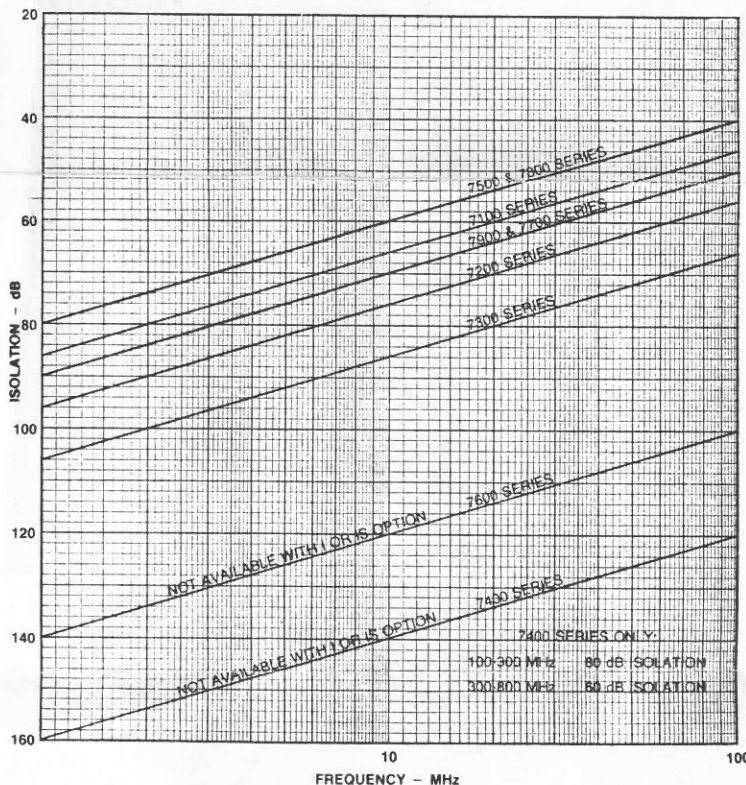
- Coil suppression diodes with: — D
- Coil common negative — DR
- Coil common positive — T
- TNC connectors — S
- SMA connectors — I
- Self-terminating — IS
- Insulated shield — E
- Insulated and switched shield — C
- Expander output —
- Chassis mount —
- Optional voltage — See Factory

### EXAMPLE

7305-T-DR-IS-C

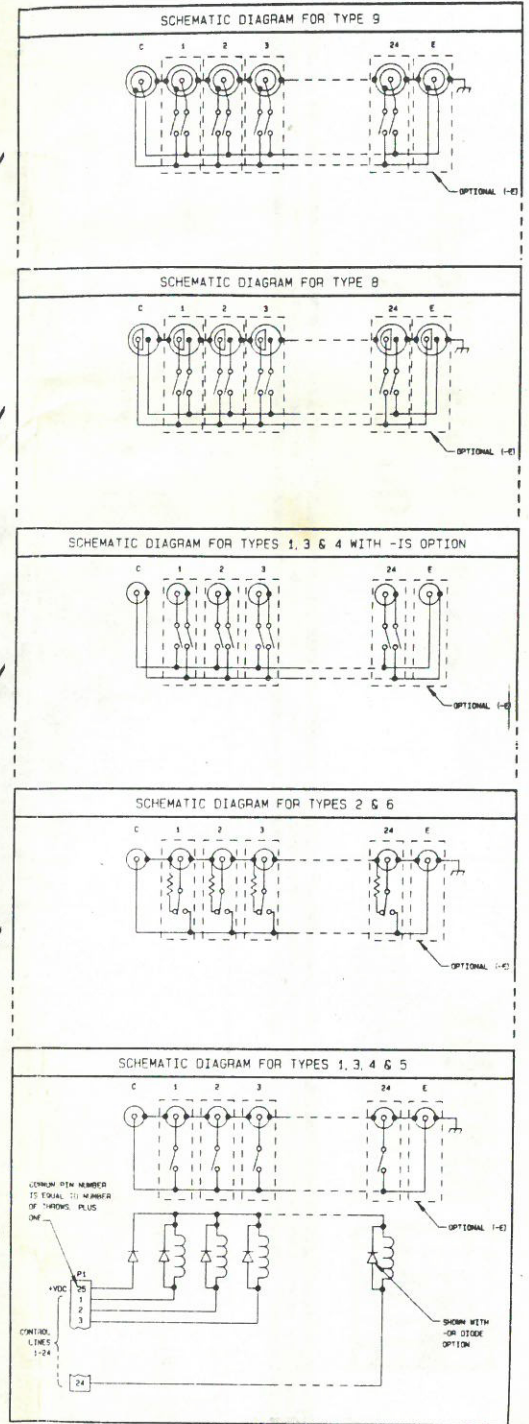
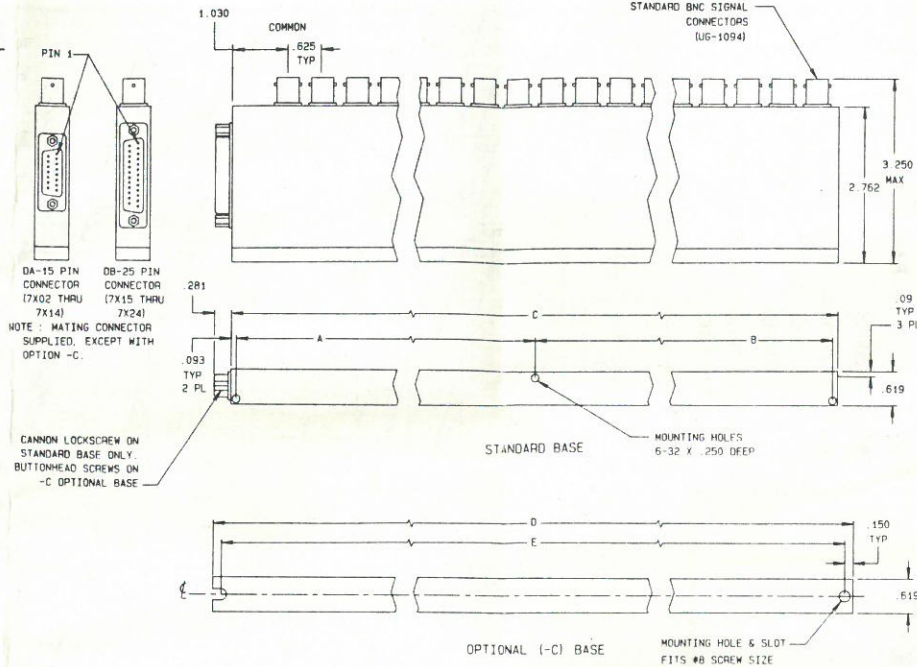
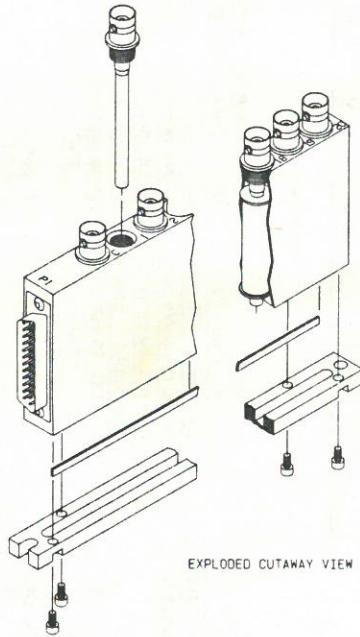
### SPECIFICATIONS

<b>FREQUENCY RANGE:</b>	(-1dB) 1310 ÷ (N - 13) MHz where N = Number of Throws
<b>FREQUENCY RANGE:</b>	(-3dB) 1760 ÷ (N + 2) MHz where N = Number of Throws
<b>CHARACTERISTIC IMPEDANCE:</b>	50 ohms - 75 ohm optional
<b>SWITCHING CONFIGURATION:</b>	Single or double pole, two thru twenty-four throws
<b>SWITCHING SPEED:</b>	One mS dry contact, three mS mercury wetted
<b>ISOLATION:</b>	See graph See factory for -I or -IS option
<b>CONTROL - CONNECTOR:</b>	28 VDC, 30 mA- D type-male supplied
<b>SIGNAL CONNECTOR:</b>	BNC, Twinax, Triax, TNC, SMA or F type optional
<b>OPERATING TEMPERATURE AND HUMIDITY RANGE:</b>	-30°F to +150°F, 0 to 98 percent R.H.
<b>OPERATING SHOCK AND VIBRATION:</b>	50 G's - 1 mS, 2 G's p-p 20-2000 Hz
<b>DIMENSIONS:</b>	.625" W × 3.25" H × 1.44" + (.625" × number of throws)
<b>MOUNTING:</b>	Three 6-32 tapped holes in base or option - C



# CONFIGURATION & SCHEMATIC

## 7000 SERIES SWITCHES



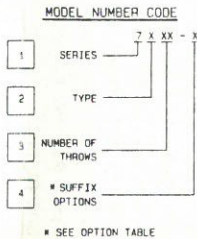
1 7000 SERIES COAXIAL SWITCHING MODULE IS A HIGH FREQUENCY REED RELAY SWITCH. THE 7000 SERIES MODULE IS BI-DIRECTIONAL FOR SPECIAL OR CUSTOM CONFIGURATIONS. CONSULT THE FACTORY.

2

TYPE #	DESCRIPTION
1	STANDARD ISOLATION
2	STANDARD ISOLATION WITH SELF-TERMINATION
3	HIGH ISOLATION
4	HIGHEST ISOLATION
5	HIGH POWER
6	HIGHEST ISOLATION WITH SELF-TERMINATION
7	MERCURY WETTED
8	BALANCED TWINAXIAL
9	TRIAxIAL

3 DETERMINES THE NUMBER OF THROWS OR POSITIONS OF THE SWITCH. ALL SIZES AVAILABLE FROM 2 THRU 24. USABLE FREQUENCY RANGE IS DEPENDENT UPON THE NUMBER OF POSITIONS SPECIFIED. CONSULT FACTORY FOR DETAILED SPECIFICATIONS.

4 AVAILABLE OPTIONS ARE SHOWN IN THE OPTION TABLE. WHEN ORDERING, SPECIFY MODEL NUMBER IN THE FOLLOWING MANNER: 7612-50-T-1-E-C



AVAILABLE OPTIONS	TYPE #								
	1	2	3	4	5	6	7	8	9
T	X	X	X	X	X	X	X	X	X
F	X	X	X	X	X	X	X	X	X
S	X	X	X	X	X	X	X	X	X
J	X	X	X	X	X	X	X	X	X
1S	X	X	X	X	X	X	X	X	X
C	X	X	X	X	X	X	X	X	X
E	X	X	X	X	X	X	X	X	X
D	X	X	X	X	X	X	X	X	X
OR	X	X	X	X	X	X	X	X	X
24V	X	X	X	X	X	X	X	X	X
20V	X	X	X	X	X	X	X	X	X
18V	X	X	X	X	X	X	X	X	X
15V	X	X	X	X	X	X	X	X	X
12V	X	X	X	X	X	X	X	X	X
5V	X	X	X	X	X	X	X	X	X

OPTION TABLE	
SUFFIX DESIGNATION	DESCRIPTION
- (IMPED)	SWITCH CHARACTERISTIC IMPEDANCE 50 OHM IS STD. OR 75 OHM ALSO SPECIFIES TERMINATION RESISTANCE IF TYPE 2 OR 6
-T	TMC TYPE SIGNAL CONNECTORS
-F	F-TYPE SIGNAL CONNECTORS
-S	SMA TYPE SIGNAL CONNECTORS
-I	INSULATED SIGNAL CONNECTORS (CONNECTORS ISOLATED FROM GND)
-C	OPTIONAL MOUNTING BASE (USED TO MOUNT MODULE IN CHASSIS)
-E	EXPANDER CONNECTOR (THRUPUT)
-IS	INSULATED SIGNAL CONNECTORS AND SHIELD OF COAX SWITCHED
-D	COIL SUPPRESSION DIODES COIL COMMON NEGATIVE
-DR	COIL SUPPRESSION DIODES COIL COMMON POSITIVE (SHOWN IN DIAGRAMS)
-V	RELAY OPERATIONAL VOLTAGE 28 VOLT IS STANDARD (NO SUFFIX REQUIRED) OPTIONAL VOLTAGES -24V, -20V, -18V, -15V, -12V & -5V

DIMENSION TABLE FOR ALL 7000 SERIES SWITCHES					
MODEL	A	B	C	D	E
7X02	1.250	1.250	2.686	3.286	2.986
7X03	1.563	1.562	3.311	3.911	3.611
7X04	1.875	1.875	3.936	4.536	4.236
7X05	2.188	2.187	4.561	5.161	4.861
7X06	2.500	2.500	5.186	5.786	5.486
7X07	2.813	2.812	5.811	6.411	6.111
7X08	3.125	3.125	6.436	7.036	6.736
7X09	3.438	3.437	7.061	7.661	7.361
7X10	3.750	3.750	7.686	8.286	7.986
7X11	4.063	4.062	8.311	8.911	8.611
7X12	4.375	4.375	8.936	9.536	9.236
7X13	4.688	4.687	9.561	10.161	9.861
7X14	5.000	5.000	10.186	10.786	10.486
7X15	5.313	5.312	10.811	11.411	11.111
7X16	5.625	5.625	11.436	12.036	11.736
7X17	5.938	5.937	12.061	12.661	12.361
7X18	6.250	6.250	12.686	13.286	12.986
7X19	6.563	6.562	13.311	13.911	13.611
7X20	6.875	6.875	13.936	14.536	14.236
7X21	7.188	7.187	14.561	15.161	14.861
7X22	7.500	7.500	15.186	15.786	15.486
7X23	7.813	7.812	15.811	16.411	16.111
7X24	8.125	8.125	16.436	17.036	16.736
* EXPANDER	312	312	625	625	625

\* ADD TO COLUMNS A THRU E WHEN EXPANDER (-E) IS USED

	7100	7200	7300	7400	7500	7600	7700	7800	7900
CONTACT RATING:	100 vdc .250 amp 10 W	28 vdc 250 amp 3 W	100 vdc 250 amp 10 W	28vdc 250 amp 3 W	400 vdc 1 amp 15 W	28 vdc 250 amp 3 W	500 vdc 2.0 amp 50 W	100 vdc 250 amp 10 W	100 vdc 250 amp 10 W
CONTACT RESISTANCE:	150 ohm	300 ohm	300 ohm	300 ohm	060 ohm	300 ohm	100 ohm	300 ohm	300 ohm

NOTE: COIL ASSEMBLIES TYPICAL OF PARTIAL SCHEMATICS \*