



F160 Series
(front view)

Active Products

RF & L-Band Switch Matrix Solutions:

General Features & Benefits:

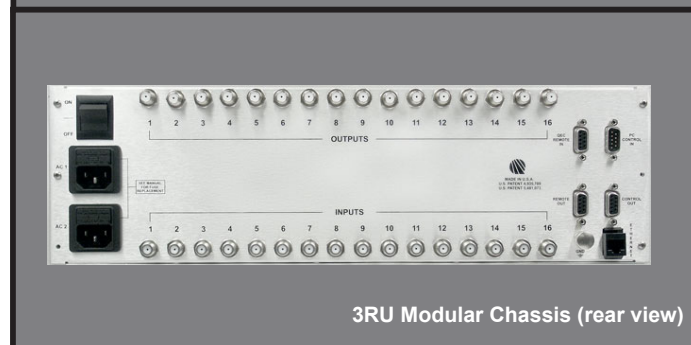
- ▶ Expandable (modular) or fixed, unidirectional (fan-out or fan-in) programmable RF & L-Band matrix routing switches
- ▶ Patented stack & tier technology offers a reliable, high performance & compact switch matrix solution
- ▶ Ideal solutions for applications that require dynamic signal routing such as L-Band signal routing from LNBS to satellite receivers, upstream traffic optimization into the CMTS or replacement of legacy patch panels
- ▶ Easily remote monitored & controlled via rear panel communications interfaces (RS-232, RS-422, RS-485, SNMP, Telnet, or TCP/IP via customer supplied PC)
- ▶ Local control is facilitated via a front panel interface on integrated or standalone 1RU universal controller module (UCM)

RF & L-Band Expandable Fan-In & Fan-Out Switch Matrices:

- ▶ Expandable from 16x16 up to 256x256 by adding additional input distribution & output switch modules
- ▶ Main switch matrix is 16x16
- ▶ Fan-out (splitting) switch matrices allow for routing of a given input to any number of outputs
- ▶ Fan-in (combining) switch matrices allow for routing of any numbers of inputs to a given output
- ▶ Standalone or integrated universal controller module for switch control & external communications
- ▶ Offered in 950-2150 MHz, 5-1000 MHz, & 5-200 MHz versions in order to achieve optimum performance



3RU Modular Chassis (front view)



3RU Modular Chassis (rear view)

RF & L-Band Switching Solutions

RF & L-Band Switch Matrix Solutions:

RF & L-Band Expandable Fan-In & Fan-Out Switch Matrices (cont'd):

RF Expandable Switch Matrices Specifications

SPECIFICATIONS	L-BAND		RF		IF	
OPERATING FREQUENCY	950-2150 MHz	950-2150 MHz	5-1000 MHz	5-1000 MHz	5-200 MHz	5-200 MHz
SWITCH TYPE	Fan-in	Fan-out	Fan-in	Fan-out	Fan-in	Fan-out
MAX. INPUT POWER	-20 dBm	- 20 dBm	48 dBmV	48 dBmV	38 dBmV	38 dBmV
INSERTION LOSS	0 +/- 2 dB	0 +/- 2 dB	0 +/- 2 dB	0 +/- 2 dB	+/- 1.5 dB	+/- 1.5 dB
FREQUENCY RESPONSE	+/- 3 dB	+/- 3 dB	+/- 3 dB	+/- 3 dB	+/- 0.5 dB	+/- 0.5 dB
RETURN LOSS	> 10 dB	> 10 dB	> 10 dB	> 10 dB	> 14 dB	> 14 dB
IMPEDANCE	75 ohm	75 ohm	75 ohm	75 ohm	75 ohm	75 ohm
ISOLATION (Input to Input)	≥ 45 dB	≥ 45 dB	≥ 45 dB	≥ 45 dB	≥ 60 dB	≥ 60 dB
ISOLATION (Output to Output)	≥ 45 dB	≥ 45 dB	≥ 50 dB	≥ 50 dB	≥ 60 dB	≥ 60 dB
ISOLATION (Input to Output)	≥ 40 dB	≥ 40 dB	≥ 50 dB	≥ 50 dB	≥ 65 dB	≥ 65 dB
INPUT POWER	Redundant, Dual Input 100/240 VAC, 50/60 Hz					
MONITOR/CONTROL	Via Integrated Universal Controller Module or from Standalone UCM					
LOCAL CONTROL ⁽¹⁾	Front Panel Keypad and LCD Screen					
REMOTE CONTROL ⁽¹⁾	RS-232, RS-422, RS- 485, SNMP, Telnet or TCP/IP via Customer Supplied PC					
INTER-MODULE CONTROL DATA ⁽²⁾	Synchronous Serial					
SOFTWARE	Basic PC-compatible Operating Software and System Protocol Included with System					
SIZE	16x16 Switch Module 3RU; Input & Output Distribution Modules: 3RU / 5RU / 9RU ⁽³⁾					
NOTES:						
Switch Matrix modules are equipped with integrated UCMS upon request.						
(1) Available on standalone universal controller module (UCM) or integrated into switch matrix unit.						
(2) Necessary for switch matrix expansion beyond 16x16. Facilitates control of input distribution modules & output distribution modules.						
(3) Input & Output Distribution modules must be 5RU for matrices larger than 64x64 & 9 RU for matrices larger than 128x128.						

RF Expandable Switch Matrices Configuration Tables

Inputs x Outputs	Input Distribution	Switch Modules	Output Distribution	Controller Module
16 x 16	0	1 + controller	0	0
16 x 32	1	2	0	1
16 x 48	1	3	0	1
16 x 64	1	4	0	1
32 x 16	0	2	1	1
32 x 32	2	4	2	1
32 x 48	2	6	3	1
32 x 64	2	8	4	1
48 x 16	0	3	1	1
48 x 32	3	6	2	1

Inputs x Outputs	Input Distribution	Switch Modules	Output Distribution	Controller Module
48 x 48	3	9	3	1
48 x 64	3	12	4	1
64 x 16	0	4	1	1
64 x 32	4	8	2	1
64 x 48	4	12	3	1
64 x 64	4	16	4	1
80 x 80	5	25	5	1
96 x 96	6	36	6	1
112 x 112	7	49	7	1
128 x 128	8	64	8	1

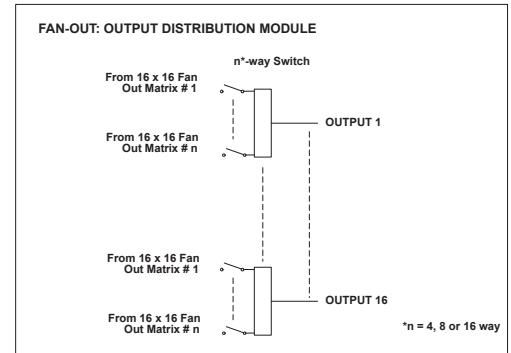
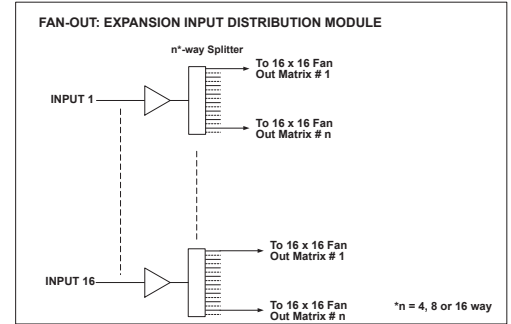
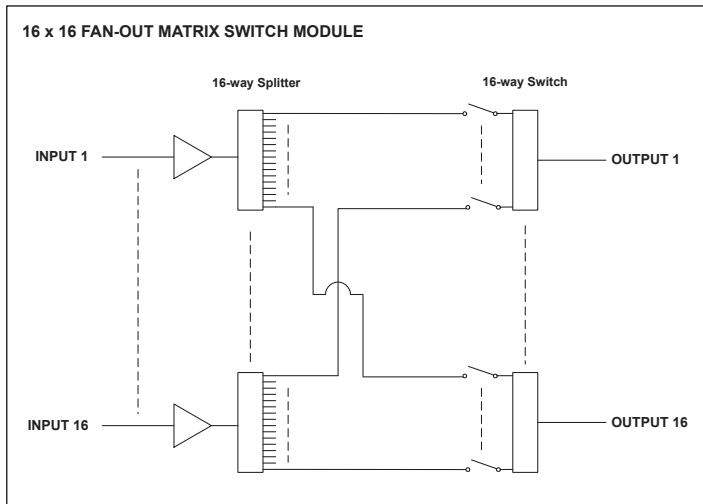
Ordering Information

Series	Description
Expandable	Please Call Factory for Part Numbers & Pricing on Specific FLEXNET Expandable Switch Matrix Configurations.

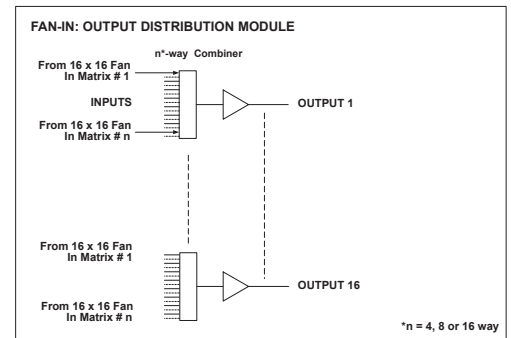
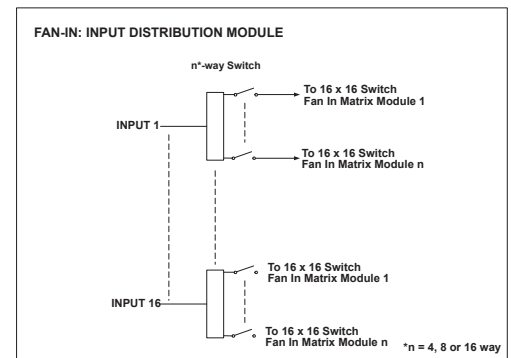
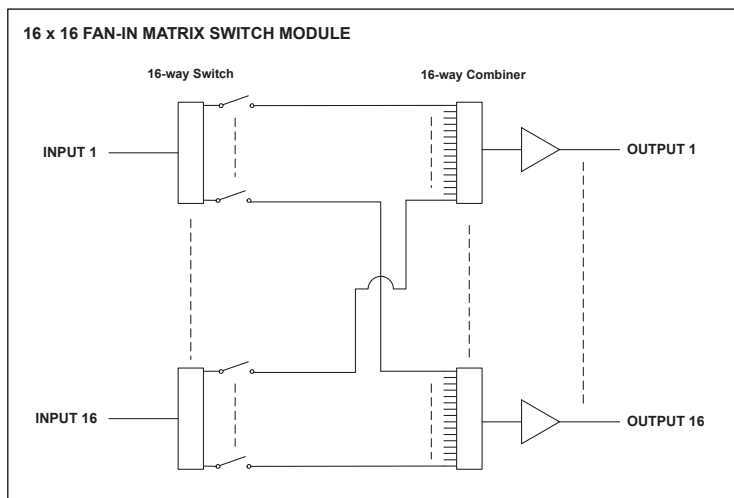
RF & L-Band Switch Matrix Solutions:

RF & L-Band Expandable Fan-In & Fan-Out Switch Matrices (cont'd):

Fan-Out Functional Schematics



Fan-In Functional Schematics



RF & L-Band Switching Solutions

RF & L-Band Switch Matrix Solutions:

RF & L-Band Fixed (Non-Expandable) Switch Matrices:

- ▶ Fan-in or Fan-out, non-blocking, fixed matrix switches
- ▶ Enables routing of 2, 4, 8 or 12 inputs to any of 2 or 4 outputs
- ▶ Integrated controller unit provides local (front panel) & remote (RS-232, RS-422, RS-485, SNMP, Telnet, or TCP/IP via customer supplied PC) monitor & control
- ▶ Offered in 950-2150 MHz, 5-1000 MHz, & 5-200 MHz versions in order to achieve optimum performance

RF Fixed Switch Matrices Specifications

SPECIFICATIONS	L-BAND	RF	IF
OPERATING FREQUENCY	950-2150 MHz	5-1000 MHz	5-200 MHz
SWITCH TYPE	Fan-in / Fan-out	Fan-in / Fan-out	Fan-in / Fan-out
INPUTS / OUTPUTS	2,4,8 or 12x2 or 4	2,4,8 or 12x2 or 4	2,4,8 or 12x2 or 4
MAX. INPUT POWER	-20 dBm	48 dBmV	38 dBmV
GAIN	0 +/- 2 dB	0 +/- 2 dB	0 +/- 1.5 dB
FREQUENCY RESPONSE	+/- 3 dB	+/- 2 dB	+/- 0.5 dB
RETURN LOSS	> 12 dB	> 10 dB	> 20 dB
IMPEDANCE	75 ohm	75 ohm	75 ohm
ISOLATION (Input to Input)	≥ 45 dB	≥ 50 dB	≥ 60 dB
ISOLATION (Output to Output)	≥ 45 dB	≥ 50 dB	≥ 60 dB
ISOLATION (Input to Output)	≥ 40 dB	≥ 45 dB	≥ 60 dB
INPUT POWER	100/240 VAC, 50/60 Hz		
LOCAL CONTROL	Front Panel Keypad and LCD Screen		
REMOTE CONTROL	RS-232, RS-422, RS-485, SNMP, Telnet or TCP/IP		
SOFTWARE	Basic PC-compatible Operating Software & System Protocol		
SIZE	1 or 2RU (depending on configuration)		

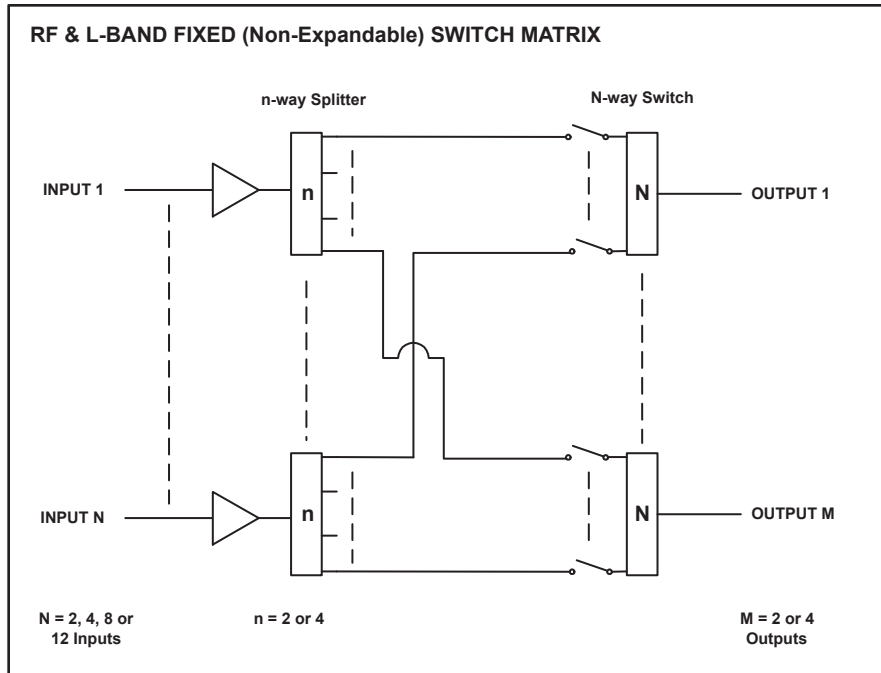
Ordering Information

Series	Description
Fixed	Please Call Factory for Part Numbers & Pricing on Specific FLEXNET Fixed Switch Matrix Configurations.

RF & L-Band Switch Matrix Solutions:

RF & L-Band Fixed (Non-Expandable) Switch Matrices (cont'd):

Functional Schematic

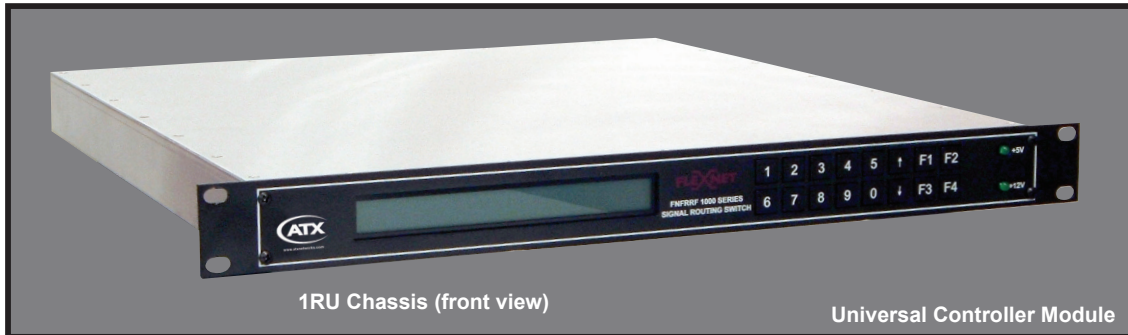


RF & L-Band Switching Solutions

RF & L-Band Switch Matrix Solutions:

Universal Controller Module:

- ▶ 1RU standalone universal controller module enable communications to & control of all switching products
- ▶ Provides a variety of user interfaces enabling local (front panel interface) & remote control (RS-232, RS-422, RS-485, SNMP, Telnet, or TCP/IP via customer supplied PC)
- ▶ Software is provided for switch monitor & control



Specifications subject to change without notice.

