



1RU Model



2RU Model

Application

The MS-series is a switch solution populated with individual switches to allow the user to control multiple coaxial switches easily through software.

It gives the user the flexibility to add as many switches as needed (limited to the size of the enclosure) on the rear panel or inside the box starting with a 19" 1RU chassis up to 4RU (and larger enclosures for custom designs).

- Switches can be mixed & matched
- Terminated and non-terminated switches
- Normally Open & Latching switches
- Built-in firmware to add, remove and address switches for trouble free switch replacement
- Application configuration available through "configuration file" - transferred via HTTP, USB or COM ports.
- Keeps track of the life of each switch
- Field upgradable firmware via boot loader (1)

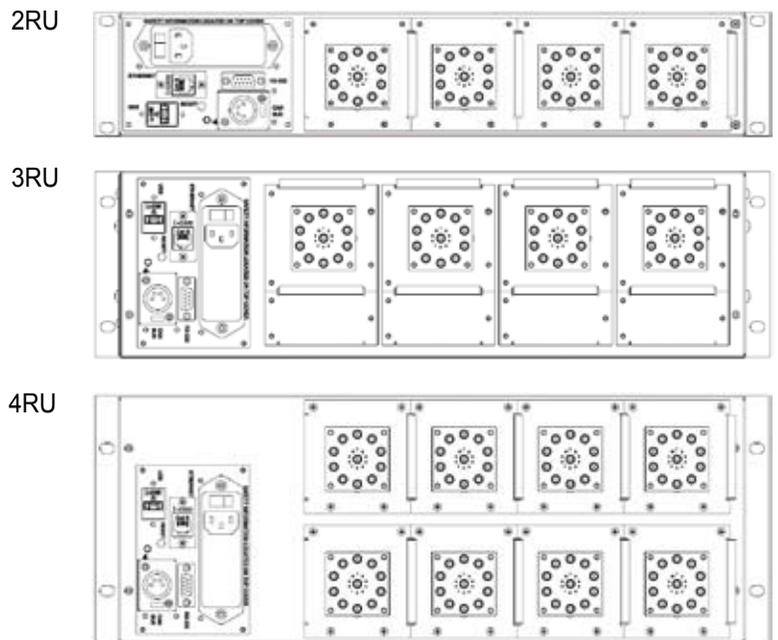
Specifications

Relay Type	Coaxial
I/O Connector Type	SMA Female or N Female
Switching Time	50 ms (incl. control delay)
Operating Life (min)	1,000,000 (cold)
MTBF	30,000-50,000 Hours
Operating Temperature	0 °C to +50 °C
Storage Temperature	-20 °C to +70 °C
Operating Humidity	10-80% non-condensing
Dimensions (max)	19" Wide rack mount 15.25" (1U-2U) & 18.5" (3U-4U) Depth (w/o handles) 1U to 4U Height (1.75" to 7.00")
Weight	Varies per part number

Features

Configuration	Multiple Switches (bidirectional): SPDT ⁽³⁾ , DPDT, SP3T, SP4T SP6T, SP8T, SP10T, SP12T
Operating Frequency	DC-18 GHz, DC-26.5 GHz or DC-40 GHz
Manual Control	LCD with Keypad (1RU) Touch Screen LCD (2RU-4RU)
Remote Control	ENET: Ethernet, Built-In Website, RS-232 and USB port. GPIB: IEEE-488, RS-232 and USB port.
Impedance	50-Ohm

Rear View with SP10T Switches



(1) Check Availability

Manual Control	LCD/Keypad or Touch Screen LCD
Remote Control Ethernet or GPIB Option	
ENET Option	Ethernet (TCP/IP), 10/100 BASE-T, built-in website, manual or DHCP IP address assignment
RS-232	DB9 (f), Baud Rate 1200 - 115200 bps
USB Port	Operates as a virtual RS-232
GPIB Option	GPIB (IEEE-488), RS-232 and USB
Commands/Syntax	Dow-Key SCPI commands
Fuse	Accessible/replaceable on the rear
AC Power Supply	110-240 VAC, 50-60 Hz
Cooling / Venting	Fans as required with 2U-4U models

RF Specifications

(P/N 411L-420832N)

DC-18 GHz, Latching, Non-Terminated				SPDT ⁽³⁾ / DPDT Switch
Frequency [GHz]	VSWR Max.	Isolation Min. [dB]	Insertion Loss Max. [dB]	CW Power Max. [W]
DC-1	1.10	85	0.10	200
1-4	1.20	80	0.20	100
4-8	1.30	70	0.30	50
8-12	1.40	65	0.40	35
12-18	1.50	60	0.50	25

⁽³⁾ ADD A TERMINATION TO ONE PORT OF THE DPDT SWITCH TO GET A SPDT SWITCH

(P/N 5x5-5208-3)

DC-18 GHz, Normally Open, Non-Terminated				SP3T - SP6T Switch
Frequency [GHz]	VSWR Max.	Isolation Min. [dB]	Insertion Loss Max. [dB]	CW Power Max. [W]
DC-3	1.2	80	0.20	125
3-8	1.3	70	0.30	90
8-12.4	1.4	60	0.40	75
12.4-18	1.5	60	0.50	60

(P/N 4x1KL-420822N, 4x1KL-420823N)

DC-26.5 GHz, Latching, Non-Terminated/Terminated				SP3T - SP6T Switch
Frequency [GHz]	VSWR Max.	Isolation Min. [dB]	Insertion Loss Max. [dB]	CW Power Max. [W]
DC-4	1.2	80	0.20	100
4-8	1.3	75	0.30	50
8-12.4	1.4	70	0.40	35
12.4-18	1.5	60	0.50	25
18-26.5	1.8	50	0.80	10

Part Number Selector

MS - 1U 18 S - 4 / 6 - ENET						
Chassis Height	Frequency	Connector	Quantity ⁽²⁾	Switch Type	Terminated	Remote Control
1U = 1.75"	12 = DC-12.5 GHz	N = N female	1 = 1 Switch	2 = SPDT ⁽³⁾	T = 2W Termination	ENET = Ethernet
2U = 3.50"	18 = DC-18 GHz	S = SMA female	2 = 2 Switches	X = DPDT Transfer	(otherwise leave it blank)	GPIB = GPIB
3U = 5.25"	26 = DC-26.5 GHz ⁽¹⁾	K = 2.9 mm	3 = 3 Switches	3 = SP3T		
4U = 7.00"	40 = DC-40 GHz ⁽¹⁾		...	4 = SP4T		
			8 = 8 Switches	6 = SP6T		
				8 = SP8T		
				10 = SP10T		
				12 = SP12T		

⁽¹⁾ Not available with all switch types.

⁽²⁾ For 9 and more switches, we can mount inside the chassis. See Appendix A for details.

RF Specifications (cont.)

(P/N 581-520802N)

DC-18 GHz, Normally Open, Non-Terminated				SP8T Switch
Frequency [GHz]	VSWR Max.	Isolation Min. [dB]	Insertion Loss Max. [dB]	CW Power Max. [W]
DC-4	1.25	70	0.20	100
4-8	1.35	65	0.30	70
8-12.4	1.40	60	0.40	60
12.4-16	1.50	60	0.60	50
16-18	1.80	55	0.80	45

(P/N 581-420853N, 581K-420853N)

DC-18 GHz, DC-26.5 GHz, Latching, Terminated				SP8T Switch
Frequency [GHz]	VSWR Max.	Isolation Min. [dB]	Insertion Loss Max. [dB]	CW Power Max. [W]
DC-4	1.20	80	0.20	100
4-8	1.30	75	0.30	90
8-12.4	1.40	70	0.40	75
12.4-18	1.50	60	0.50	60
18-26.5	1.80	55	0.80	45

(P/N 5A1-520802N)

DC-18 GHz, Normally Open, Non-Terminated				SP10T Switch
Frequency [GHz]	VSWR Max.	Isolation Min. [dB]	Insertion Loss Max. [dB]	CW Power Max. [W]
DC-4	1.20	70	0.20	100
4-8	1.30	65	0.30	70
8-12.4	1.40	60	0.40	60
12.4-18	1.60	55	0.60	50

(P/N 5C1-520802N, 5C1-420853N)

DC-18 GHz, Normally Open Non-Term. / Latching Term.				SP12T Switch
Frequency [GHz]	VSWR Max.	Isolation Min. [dB]	Insertion Loss Max. [dB]	CW Power Max. [W]
DC-4	1.20	70	0.20	100
4-8	1.40	65	0.40	50
8-12.4	1.50	60	0.60	35
12.4-18	1.80	60	0.80	25

SEE APPENDIX C FOR SWITCH SCHEMATICS

FOR SWITCHES MOUNTED INSIDE A CHASSIS,
CONTACT DOW-KEY MICROWAVE FOR RF SPECIFICATIONS.

We reserve the right to alter, amend or replace any specifications at our sole discretion and without prior notice.

The Tables are to guide on how to determine the enclosure height for the MS-Series.

Depending on switch type, number of input & output ports and connector type, the number of switches that can be mounted on the rear panel or inside an enclosure varies.

SMA, NON-TERMINATED (NT), TERMINATED (T), MOUNTED ON THE REAR PANEL, 1-8 SWITCHES

	SPDT ⁽¹⁾ /DPDT	SP3T	SP4T	SP6T	SP8T	SP10T	SP12T
1RU	5NT, 5T ⁽¹⁾	5NT	5NT	5NT	-	-	-
2RU	4NT, 4T ⁽¹⁾	4NT, 4T	4NT, 4T	4NT, 4T	4NT, 4T	4NT	4NT,4T
3RU	4NT, 4T ⁽¹⁾	-	-	-	-	-	-
4RU	8NT, 8T ⁽¹⁾	8NT, 8T	8NT, 8T	8NT, 8T	8NT, 8T	8NT	8NT, 8T

⁽¹⁾ For SPDT one port on the DPDT switch is externally terminated to 2W 50-ohm load.

SMA, NON-TERMINATED (NT), TERMINATED (T), MOUNTED INSIDE THE MATRIX, 9-35 SWITCHES

	DPDT	SP3T	SP4T	SP6T	SP8T	SP10T	SP12T
1RU	-	-	-	-	-	-	-
2RU	15NT	15NT, 15T	14NT, 14T	10NT, 10T	-	-	-
3RU	18NT	27NT, 27T	21NT, 21T	15NT, 15T	12NT,12T	9NT	-
4RU	24NT	35NT, 35T	28NT, 28T	20NT, 20T	16NT,16T	13NT	11NT, 11T

N, NON-TERMINATED (NT), TERMINATED (T), MOUNTED INSIDE THE MATRIX, 2-16 SWITCHES

	DPDT	SP3T	SP4T	SP6T	SP8T	SP10T	SP12T
1RU	-	-	-	-	-	-	-
2RU	8NT	-	-	3NT	2NT,2T	2NT	-
3RU	12NT	-	-	5NT, 5T	4NT, 4T	3NT	2NT, 2T
4RU	16NT	-	-	6NT, 6T	5NT, 5T	4NT	3NT, 3T

For TNC and BNC connectors contact Dow-Key.

We reserve the right to alter, amend or replace any specifications at our sole discretion and without prior notice.