SECTOR MICROWAVE INDUSTRIES, INC.



TABLE OF CONTENTS

History	3
Patents	4
Description of Facility/ Important Info	5
FAQ	6-7
Notice	8
Coaxial Switches	9-14
Sealed DPDT (SMA, BNC, OR TNC)	10
DPDT SMA to 22.5 GHz	11
DPDT Type "N"	12
Sealed DPDT Type "N"	13
Rectangular Base (SMA, BNC, OR TNC)	14
Waveguide Switches	
WR28 Standard Switch	16
WR34 Sealed Switch	
WR42 Standard Switch	
WR62 Sealed Switch	19
WR75 Standard Switch	20
WR137 Standard Switch	21
Dual Waveguide & Coaxial Switches	
WR34 W/ SMA-SEALED	23
WR62 W/ SMA	24
WR75 W/ SMA	
WR137 W/ SMA	
WR229 W/ SMA	27
Circuit Schematics	
Quality	

HISTORY

Since 1974, SMI has been privileged to serve the microwave and RF community by supplying high-quality microwave switches for communication, military, and satellite application. SMI proudly offers a complete line of electromechanical waveguide and coaxial switches in SPDT, DPDT, transfer configurations as well as relay switches, dual waveguide and coax switches, and switch assemblies. SMI is the respected leader for this critical application because of its high quality products and history of timely delivery. SMI's many innovated patents are incorporated in the product line and contribute strongly to the high reliability and superior performance.

SMI PATENTED DESIGNS

-Sector Motor

-Lightweight-miniature RF rotor

-Coaxial magnetic switching

OTHER DESIGNS

-Manual override and visual RF path indicator

-Field-removable indexable drive assembly

-Standard or custom designs

- All manufacturing done on premise
- Excellent RF performance
- Unsurpassed reliability
- Designed and built by electromechanical RF specialists
- Polite and friendly customer service
- Outstanding record of on-time delivery

To our world-wide customer base, your continuing and steadfast use of our product remains our best advertisement. Thank you for your support.

JPL states: "Sector Microwave has more hardware on Mars than any other company in the world"

PATENTS

THE "SECTOR" MOTOR

Benefits: Brushless DC motor,

one moving part



"FLAT" ROTOR

Benefits: One machined part, no brazing, smaller, lighter, shared power with housing



WHAT STARTED IT ALL!

MAGNETIC ACTUATED CONTACT BARS

Benefits: Sealed RF coaxial section, limits foreign object and debris



VERTICALLY INTEGRATED MANUFACTURING FACILITY

- ✓ 28,000 SQ. FT. building designed to accommodate our product line.
- ✓ Complete machine shop includes 11 CNC machines.
- ✓ Discrete 12,000 sq. ft. building established in 1996 to house our Hi Rel
 Division.
 - Assembly performed in IS07 (CLASS 10,000) clean room with IS05 (CLASS 100) Flow Bench.
- ✓ Test facilities include thermal chambers, thermal vacuum chamber,

network analyzers, RF test equipment with capabilities to 65 GHz.

IMPORTANT INFORMATION

CAGE CODE: 53263

ITAR REGISTERED

NIST800-171 REV 1 SELF CERTIFIED

ISO9001 REGISTERED IN JANUARY 2000

CURRENT QUALITY CERTIFICATION ISO9001-201



FREQUENTLY ASKED QUESTIONS (FAQ)

What requirements do I need to specify when I order a switch from SMI?

1.) Switch type (Waveguide or Coaxial) or both (Dual).

- 2.) Frequency range.
- 3.) Operating voltage.
- 4.) Waveguide flange type or coaxial connector type.
- 5.) Total quantity of indicator circuits and/or inhibit contacts.
- 6.) Outdoor or indoor use. (Sealed, Sheltered or Standard)
- 7.) Any special requirements or options.

How do I specify a RoHS compliant switch? Add (RoHS) to the end of the switch part number on the purchase order.

What is a Sealed Switch?

A sealed switch can be mounted outdoors without any gross protection from atmospheric conditions.

What is the difference between a Sealed switch and a Sheltered switch? A sealed switch can be mounted outdoors directly exposed to atmospheric conditions (rain, snow, etc). A sheltered switch is not suitable for unprotected outdoor use. A sheltered switch can be

mounted outdoors in a sheltered environment or hub, where the switch is not directly exposed to atmospheric conditions.

What is the difference between a Latching switch and a Failsafe switch? A latching switch will maintain a chosen RF path whether or not voltage is continuously applied to the actuator after switching is accomplished. Latching is less expensive, allows for manual override and has a greater Mean Time Between Failure (MTBF). 98% of all commercial switches are latching switches.

A failsafe switch always returns the RF path to the de-energized position when there is no voltage applied to the actuator. Failsafe switches require continuously applied voltage to the actuator in order to maintain the RF path in the energized position. Failsafe is more expensive, does not allow for manual override and has a lower MTBF. SMI provides 2% of all switches to its customers as failsafe switches.

What are the benefits of a manual override?

The ability to change the switch positions (RF paths) even in the event of a power loss or actuator failure.

What is the difference between a 'T' circuit and a 'TA' circuit? The 'T' circuit has two separate TTL lines, one for each switch position. The 'TA' circuit is more common. It has one line with logic. Switch position 1 has logic of '1' and Switch position 2 has logic of '0'.

What are the differences between Plain, O-Ring, Choke, CPRF, and CPRG Flanges? CPRG flanges have a rectangular groove and a rectangular hole pattern.

CPRF flanges do not have a groove but have a rectangular hole pattern.

O-Ring flanges have a circular groove and a circular or square hole pattern.

Plain flanges do not have a groove but have a circular or square hole pattern.

Choke flanges has 2 grooves cut into it. The outer groove is for an "O" ring, as with a CPRG. The inner groove is the choke.

What is the frequency limit of a coaxial switch with type N connectors? The frequency limit of a coaxial switch with type N connectors is 8 GHz.

What are the typical operating and storage temperature ranges of your switches? Our switches have a typical operating temperature range of -35°C to +65°C and a typical storage temperature range of -50°C to +85°C. We can design switches that exceed these ranges, please contact SMI for details.

NOTICE

THIS CATALOG REPRESENTS OUR MOST POPULAR SWITCHES. SMI HAS A BROAD PRODUCT LINE WITH MANY VARIATIONS. CUSTOM SWITCHES CAN BE MADE UPON REQUEST. REQUESTS ARE ENCOURAGED IN ORDER TO CREATE UNIQUE SWITCHES THAT MEET OUR CUSTOMERS NEEDS.

COAXIAL SWITCHES





SEALED DPDT SMA, BNC, OR TNC

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com



DPDT SMA to 22.5 GHz

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com



DPDT TYPE "N"

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com

3.95^{+0.06}_{-0.03} (STD CKT) SM7N-x8xSx PORT MARKING, TYP .20 TYP-6-32 X .18 DP. -CONNECTOR **4 MTG HOLES** MS3112E-10-6P (M4 X 0.7 THD (STD CKT) FOR METRIC OPTION) 76 .656 2.12 SQ 1.312 2.00 SQ (DR HOUS) 2 PL Ø PART NO. SELECTION TYPE 'N' FEMALE VISIBLE RF PATH INDICATOR.-- 1.00 TYP -AMPS VOLTAGE CODE CONNECTORS (4) (REMOVE CAP FOR ACCESS TO +22 TO +32 0.9 A MANUAL OVERRIDE) В -22 TO -32 0.9 CODE FREQ RANGE (GHz) +10 TO +14 1.5 С 2 1 SPECIFICATIONS 8 0.0 - 8.5 POS 2, IND 1 F -10 TO -14 1.5 D O D FREQ RANGE (GHz) 0 - 11 - 2 2-6.5 6.5-8.5 +44 TO +54 **!! ELECTRICAL CIRCUIT** 0.5 Ε POS 2, VOLTS C VSWR 1.1 1.15 1.25 1.30 POS 1 -44 TO -54 0.5 F (IF OTHER THAN STD. INS. LOSS dB MAX 0.05 0.10 0.25 0.30 n Ω 117VAC 1.2 H SEE SCHEMATIC PAGE В COM ISOLATION dB MIN 80 70 60 60 3 235VAC 0.5 K RF POWER 100 WATTS. MAX MANUAL ** М POS 1, VOLTS A BREAK-BEFORE-MAKE CONTACTS. **RF CONTACTS** 2 D POS 1, IND 1 100,000 OPERATIONS. LIFE SM7N-8 S SWITCHING TIME 50 mSEC, NOM POS 2 E IND 1 COM * PATENTED DRIVE LATCHING, SECTOR MOTOR. b d METRIC THREAD PART NO. SM7N-M S SEALED STD. ELECTRICAL CKT. MARKING PORTS NUMBERED AS SHOWN ABOVE. 3 SERIES CODE !! OPTION CODE CODE ENVIRONMENTAL FINISH SATIN BLACK FINISH. Shown in Position 1 ONE FORM C PART NO. EX.: SM7N-A8MS2 **RF PATHS** NOTES: TYPE 'N' COAXIAL SW., +28 VDC, FREQ RANGE 0.0 1. ** MANUAL SWITCH DOES NOT INCLUDE RECEPTACLE. TO 8.5 GHz, METRIC THREADS, SEALED, CKT #2. 2. BLUE BOXES ARE REQUIRED FIELDS. !! IF OPTION IS NOT REQUIRED, LEAVE (GOLD BOX) BLANK. WEB SITE: www.sectormicrowave.com 3. TOLERANCES: DRAWN B REPLACED SEALED COVER WITH SEALED CAP. TN 1/16/19 A.C. 4/28/03 SE CTOR MICROWAVE IND., INC. TN 11/11/05 DECIMALS REV PER ECN 05-093. A CHECKED 2 PLACES: +/- .03 RELEASED. TN 4/29/03 TYPE N COAX SW. WIDE BAND SEALED SER. 3 PLACES: +/- .010 APVD ZONE LTR APV DESCRIPTION DATE R.R. 4/28/03 MFG 53263 SIZE FRACTIONS: +/-1/32 SM7N-x8xSx В APVD REVISIONS ANGLES: +/- 1/2 deg UNIT WT. SHEET 1 OF 1 REV. SCALE

SEALED DPDT TYPE "N"

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com



RECTANGULAR BASE COAXIAL SWITCH SMA, BNC, OR TNC

999 Grand Blvd, Deer Park, NY 11729-5707 USA

<u>www.sectormicrowave.com</u> P: 631.242.2300 | F: 631.242.8158

WAVEGUIDE SWITCHES





WR28 STANDARD

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com



WR34 SEALED

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com



WR42 STANDARD

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com



WR62 SEALED SWITCH

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com



WR75 SEALED SWITCH

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com



WR137 STANDARD SWITCH

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com P: 631.242.2300 | F: 631.242.8158

DUAL WAVEGUIDE & COAX SWITCHES

PRIMARY USED FOR REDUNDANT BLOCK CONVERT/AMPLIFIER SYSTEMS; ENABLING BOTH INPUT AND OUTPUT TO BE SWITCHED CONCURRENTLY





DUAL: WR34 W/ SMA-SEALED

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com P: 631.242.2300 | F: 631.242.8158



DUAL: WR62 W/ SMA

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com



DUAL: WR75 W/ SMA

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com



DUAL: WR137 W/ SMA

999 Grand Blvd, Deer Park, NY 11729-5707 USA

<u>www.sectormicrowave.com</u> P: 631.242.2300 | F: 631.242.8158

2Sxxx SERIES



DUAL: WR229 W/ SMA

999 Grand Blvd, Deer Park, NY 11729-5707 USA

www.sectormicrowave.com



999 Grand Blvd, Deer Park, NY 11729-5707 USA www.sectormicrowave.com



QUALITY

SECTOR MICROWAVE INDUSTRIES, INC. IS 3RD PARTY CERTIFIED TO IS09001-2015.

QUALITY POLICY

Sector Microwave Industries Incorporated is committed to supply high quality products to our customers worldwide and have been successfully accomplishing this objective for over 45 years.

We make use of all the necessary resources to deliver products and services that meet or exceed customer requirements and expectations.

We have accentuated continuous improvement techniques, as a method to improve quality and performance, with our goal being *CUSTOMER SATISFACTION*.

In our efforts to optimize our performance, we are actively using the principles of ISO9001, which is a globally recognized Quality Management System that emphasizes *CONTINUOUS IMPROVEMENT.*

In this new millennium we at Sector Microwave remain dedicated to providing our customers with *reliable* high quality products, *delivered on time* and at a reasonable price.

Vic Nelson, President

Sector Microwave Industries Incorporated

QP-1 Rev. A 2/03