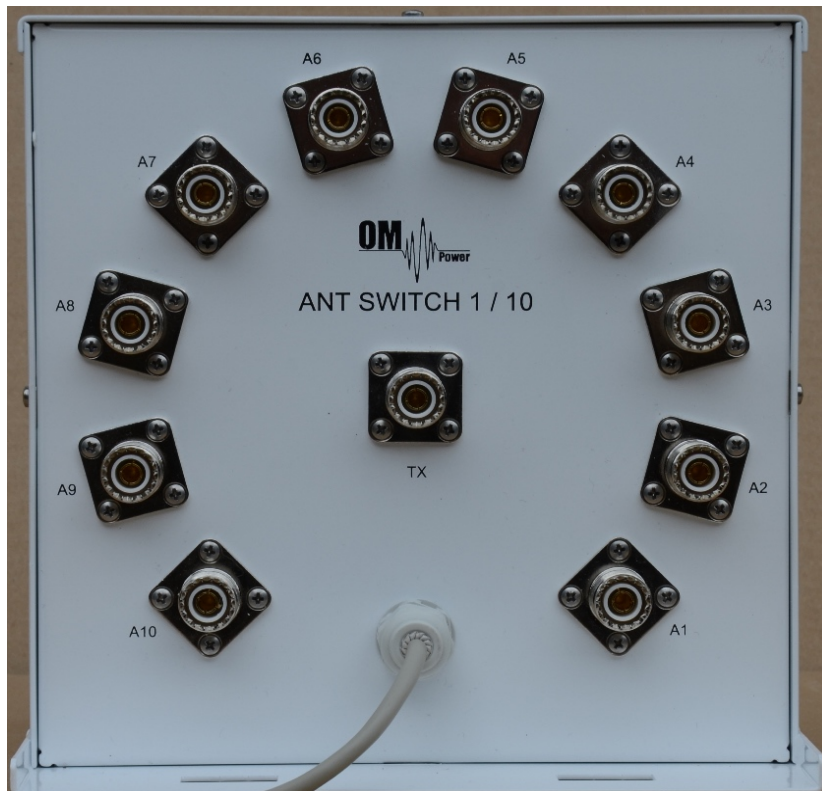




INSTRUCTION MANUAL
OM SW 1/10
OM SW 1/10+
Shortwave plus 50 MHz
Antenna switch



Array Solutions

2611 North Bellline Rd Suite

109 Sunnyvale, Texas 75182 . USA

Tel: 214 954 7140 fax: 214 954 7142

E-mail: info@arraysolutions.com

IMPORTANT WARNINGS

+++++ **HIGH RF VOLTAGE** +++++

Never use the antenna switch if is not connected to a proper lightning grounding system. NEVER TOUCH ANTENNA during transmission because it may result in an electric shock.

NEVER operate the antenna switch with open cover.

WARNING

If you're using the antenna controller without hot switching protection never switch antenna ports during transmission, because it can cause destruction of antenna switch. OM Power automatic amplifier's are equipped with hot switching protection.

CAUTION

To avoid damage (which are not covered in warranty) read carefully this instruction manual about the installation, operation and safe usage of the antenna switch. If you have any questions, please consult your dealer.

Description

The antenna switch OM SW 1/10 is designed for remote antenna switching. It allows to connect one of ten antennas to common antenna output.

Antenna switch OM SW 10/1 was designed to cooperate with OM Power automatic power amplifiers OM2200A, OM2500A and OM4000A and the OM SW 10/1+ which is equipped with BCD decoder cooperate with OM2000A+.

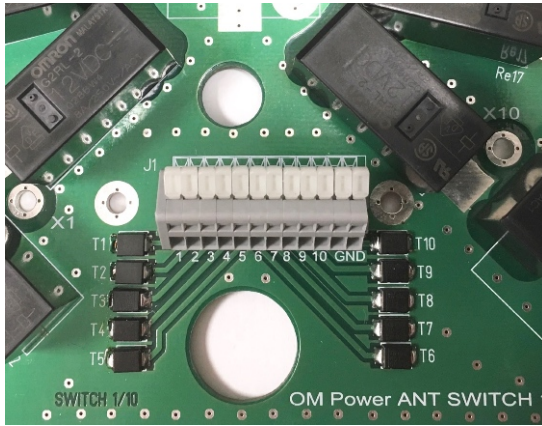
Of course, the antenna switch OM SW 10/1 and OM SW 10/1+ can be used independently from OM Power amplifiers with various controllers.

Features

- Selecting one of 10 antennas
- Characteristic impedance is 50 ohm , frequency range up to 60 MHz
- Power rating - up to 5kw continuous carrier
- Teflon (PTFE) insulated SO239 connector
- Excellent VSWR and crosstalk isolation
- Only 20 ms switching time between ports
- Compatible without any additional devices directly with OM Power automatic amplifiers
- Compatible with any band decoder with 12V source voltage
- Compatible with Yaesu BCD code (5V logic)
- Unused antenna can be grounded as needed , opened or loaded with characteristic impedance
- Dust and rain protected

- Easily mounted on the wall or tower
- The antenna switch is intended to be used either inside or outside

Connecting the switch OM SW 1/10



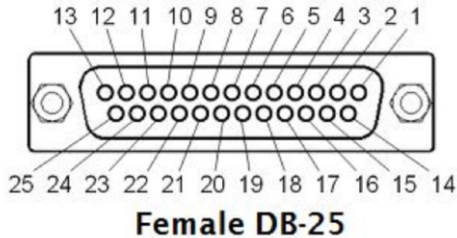
Antenna switch OM SW 1/10 can be connected directly to automatic power amplifier OM2200A, OM2500A, OM4000A or other band decoders and antenna selectors providing +12 to +15 volts to select an antenna. Consumption is 80mA.

Terminals 1 to 10 on antenna switch should be connected to the OM Power automatic amplifier antenna control connector (ANT & BPF SW) or other type of band decoder. GND terminal

connect to the ground of your controller.

Configure your automatic power amplifier or band decoder to activate the appropriate output for the desired antenna on each band.

ANT and BPF SW connector on OM2500A, OM4000A



1. antenna port 1
2. antenna port 2
3. antenna port 3
4. antenna port 4
5. antenna port 5
6. antenna port 6
7. antenna port 7
8. antenna port 8
9. antenna port 9
10. antenna port 10
11. COMMON port of ANT SW – connect +12V external power supply
12. NC
13. GND - connect-12V terminal of external power supply

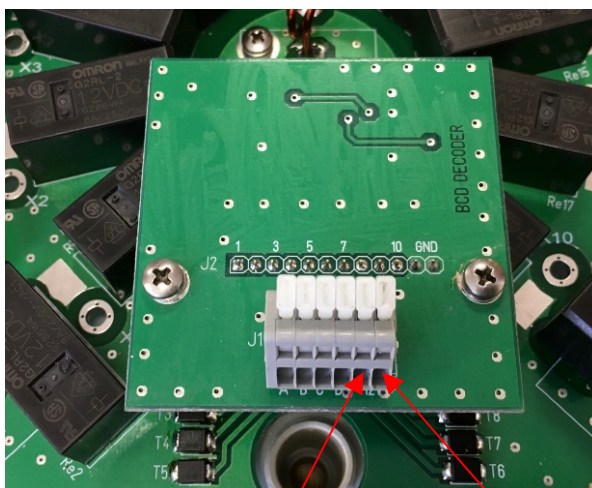
Connecting the switch OM SW 1/10+

Antenna switch OM SW 1/10+ is designed for OM Power amplifier OM2000A+ and can be directly controlled without any additional devices or other type of BCD decoder. Selection of required antenna port is controlled with BCD code (5V logic compatible with YAESU BCD code).

Antenna BCD code table

D	C	B	A	Logic value	Antenna port
0	0	0	0	0	UNDEFINED
0	0	0	1	1	ANT 1
0	0	1	0	2	ANT 2
0	0	1	1	3	ANT 3
0	1	0	0	4	ANT 4
0	1	0	1	5	ANT 5
0	1	1	0	6	ANT 6
0	1	1	1	7	ANT 7
1	0	0	0	8	ANT 8
1	0	0	1	9	ANT 9
1	0	1	0	A	ANT 10
1	0	1	1	B	UNDEFINED
1	1	0	0	C	UNDEFINED
1	1	0	1	D	UNDEFINED
1	1	1	0	E	UNDEFINED
1	1	1	1	F	UNDEFINED

TERMINAL CONNECTION



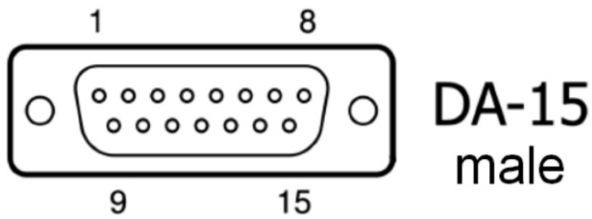
-12 V DC

+12 V DC

Connect terminals A,B,C and D on the antenna switch to the ANT/BPF connector on the OM2000A+ power amplifier. (Connector OM2000A+ ANT/BPF see below) -12V terminal connect to the ground (PIN 6 or 7) and +12V terminal to pin 8 of ANT/BPF connector.

Configure your automatic power amplifier or band decoder to activate the appropriate output for the desired antenna on each band.

OM2000A+ ANT / BPF Connector - D-sub 15 male



- Pin 1 - ANT data D - output BCD code - bit 3 for antenna switching
- Pin 2 - ANT data C - output BCD code - bit 2 for antenna switching
- Pin 3 - ANT data B -- output BCD code - bit 1 for antenna switching
- Pin 4 - ANT data A - output BCD code - bit 0 for antenna switching
- Pin 5 - Not connected
- Pin 6 - GND
- Pin 7 - GND
- Pin 8 - +12V 100mA - output supply maximum 100mA for antenna BCD decoder, usable for supply external antenna switch OM SW 1/10+

Cable length and wire size

If antenna switch is located some distance from the power amplifier or controller, it is necessary to use a cable of the appropriate length and wire size.

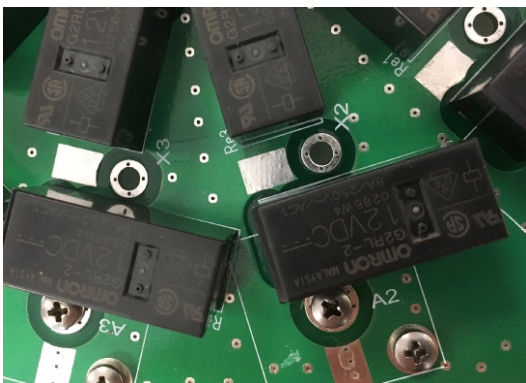
Cable length (m / ft)	Conductor Cross-section(mm ²)	AWG
100 / 300	0,14	26
200 / 600	0,25	24
300 / 1000	0,5	20

We recommend to use a shielded cable with the shield used as an added ground lead to reduce voltage losses. Connect one end of the cable to the terminals of the antenna switch and the other end to an appropriate connector on your OM Power automatic amplifier or controller.

OM SW 1/10 requires a cable with eleven conductors (ten antennas plus return/ground).

OM SW 1/10+ requires a cable with six conductors (A B C D ports, +12V and -12V /ground). It is convenient to use shielded 8 wire (four pair) cable and two – two wires parallel for 12V supply.

Unused antenna termination



Unused antennas are trough relay connected to terminal X (See schematic of antenna switch) If needed and based on configuration of the antenna system, it is possible to leave port X unconnected, connect to the ground or load with a characteristic impedance (for example when is connected to the thriplexer). Usually, antenna switches are delivered with unconnected X ports .

SPECIFICATIONS

Frequency range:	1.7 - 54 MHz
Characteristic impedance :	50 ohm
Number of radio ports :	1
Number of antenna ports :	10
Supply voltage :	+12 to +15V DC
Selection of port :	BCD code or DC 12V select
Consumption :	max. 100mA
Connectors :	SO239 (N type on request)
SWR: (depends on selected port – the worst case)	1.8 MHz: < 1.00 : 1 14 MHz: < 1.02 : 1 28 MHz: < 1.04 : 1 50 MHz: < 1.08 : 1
Isolation: (depends on ports – the worst case)	1,8 MHz: > 90 dB 14 MHz: > 95 dB 28 MHz: > 90 dB 50 MHz: > 80 dB
Insertion loss: (typical)	1.8 MHz < 0.00 dB 14 MHz < 0.01 dB 28 MHz < 0.04 dB 50 MHz < 0.05 dB
Power rating : (depends on antenna SWR)	
up to 30 MHz	SWR <1.2 :1 < 5 KW SWR <1.5 : 1 < 4 KW SWR < 2 : 1 < 3 KW
50 MHz	SWR < 3 : 1 < 2 KW SWR <1.2 :1..... < 3 KW SWR <1.5 : 1 < 2,5 KW SWR < 2 : 1 < 2 KW SWR < 3 : 1 < 1,5 KW
Operating temperature range :	-30 .. +60 C
Dimensions:	W 210mm (8,27") x H 120 mm (4,7") x D 210 mm (8.27")
Weight	1.56 kg (3,44 lbs)



Schematic diagram:

