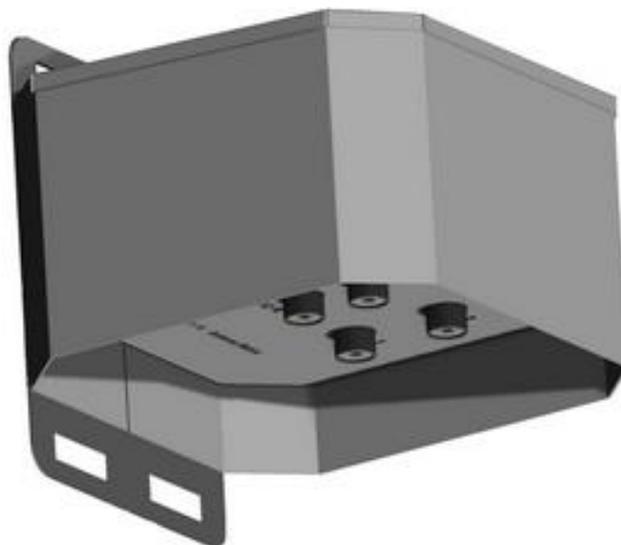




AM-01/6

Remote Antenna Matrix System

USER MANUAL



Rev. 1.0

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We congratulate you on the choice of the Remote Antenna Matrix AM-01/6 system with which it is possible to remote up to 6 antennas with a single coaxial cable. No other cable is needed because, in addition to the RF, also DC power and data commands are sent by the cable.

The remote Matrix is controlled by the Control Box AMB-02 directly connected to the amplifier, no further specific software settings are required in addition to the one already present.

With a particular version of the Remote Antenna Matrix AM-01/6 system it is also possible to automatically manage operations in SO2R.

The system is designed for Expert 1.3K-FA, Expert 1.5K-FA, Expert 2K-FA amplifiers and Combiner CO1-2.

In particular, for the Expert 1.3K-FA and Expert 1.5K-FA the AM-01/6 is able to bring the antennas managed from 4 to 6.

IMPORTANT

Before installing and using the system, we recommend that you carefully read the instructions contained in this manual.

Failure to comply with these instructions results in voiding the warranty.

Keep the manual, it contains important information regarding the safety and correct use of your AM-01/6

The manual may be subject to changes, we recommend that you periodically consult our website www.linear-amplifier.com.

The English version is to be considered the official one.

The Remote Antenna Matrix AM-01/6 is essentially passive and therefore does not require FCC certification (where required) for amateur radio use.

CAUTIONS

WARNING!

DO NOT disconnect, swap, replace coaxial cables during transmission, there is a danger of electric shock or burns.

WARNING!

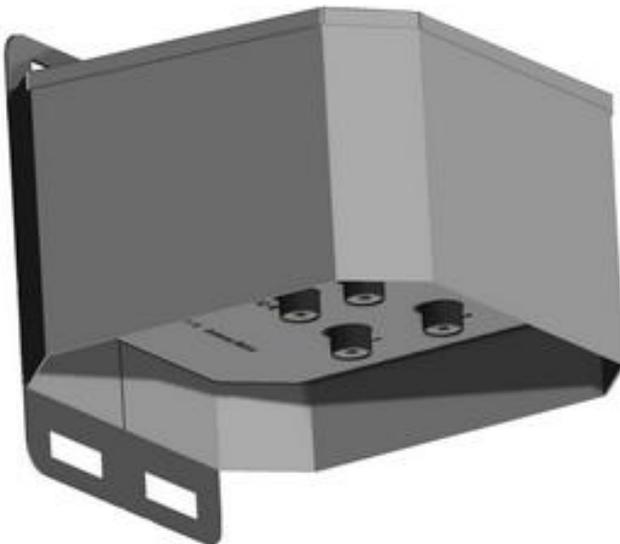
Before powering on AM-01/6 and AMB-02 check the correctness of the power supply value.

Unpacking

Remove the packaging and carefully check the contents.
If you find any damage, or if there are any parts missing, contact your distributor/dealer immediately.

Accessories included in the carton

- AM-01/6-SO2R or AM-01/6-PW as ordered.
- AMB-02 Control Box.
- N° 1 PORT connection cable between AMB-02 and Expert amplifiers or Combiner.
- N° 1 power cable for AMB-02.



Equipment description and use

The system consists of two types of remote Matrixes with different characteristics, each of which must be used in conjunction with the AMB-02 Control Box.

Each matrix is built in stainless steel sheet capable of resisting snow and any type of driving rain.

It is equipped with a bracket which enables a solid anchorage to a wall or pole.

AM-01/6-SO2R



Able to manage up to 6 antennas even in the case of Expert 1.3K-FA / Expert 1.5K-FA. Maximum power up to 2KW.

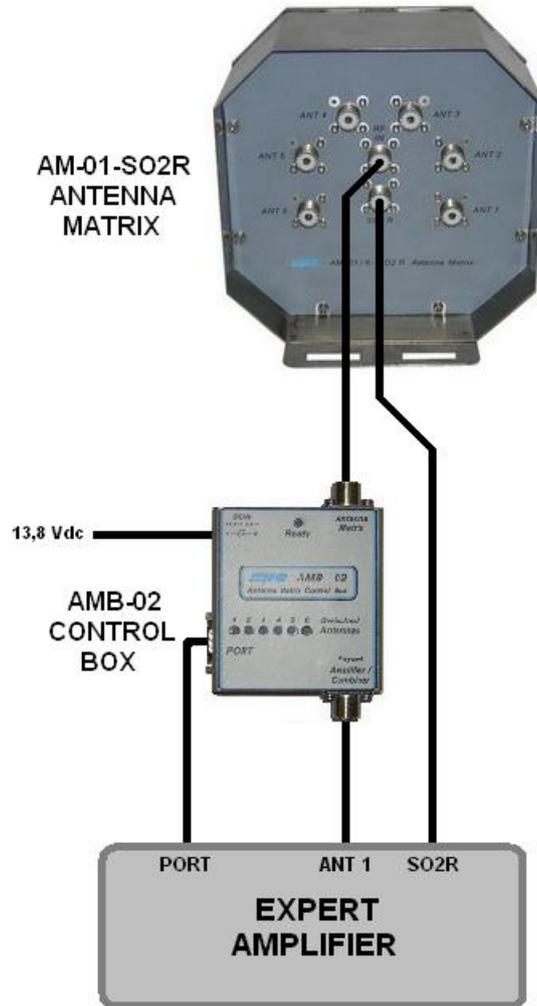
In the case of SO2R operations, a two color LED is associated with each antenna connector:

- Red means that the selected antenna is RTX for the band in use.
- Green means that the selected antenna is currently only RX in the other band.

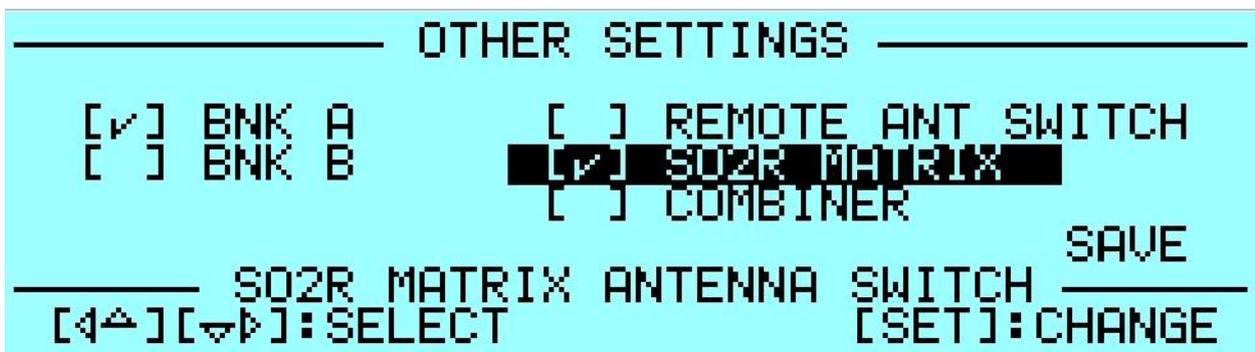
For a more in-depth knowledge of SO2R, refer to the amplifier manual.

This Matrix can also be used not in SO2R operations by eliminating or ignoring the SO2R / SO2R coaxial cable (see the following system diagram). In this case, only the red color of the LED will be active automatically.

Typical connection:



In case of SO2R use, press [SET], then set "SO2R MATRIX" in the Config menu.



In case of no SO2R operation, even without removing the SO2R / SO2R coaxial cable, press [SET] then set "REMOTE ANT SWITCH" in the Config menu.

```

OTHER SETTINGS
[✓] BNK A      [✓] REMOTE ANT SWITCH
[ ] BNK B      [ ] SO2R MATRIX
               [ ] COMBINER
                                   SAVE
REMOTE ANTENNA SWITCH
[↑][↓]:SELECT      [SET]:CHANGE
    
```

In both cases the antenna settings remain those previously established in the Antenna menu, as an example:

```

SET ANTENNA ON BANK "A"
160 m: NO NO | 30 m: NO NO | 12 m: 2 NO
 80 m: 3 1   | 20 m: 1 NO  | 10 m: 1 NO
 60 m: NO NO | 17 m: 2 NO  | 6 m: 4 NO
 40 m: 8 1   | 15 m: 1 NO
                                   SAVE
SET 1st ANTENNA ON 40m BAND
[↑][↓]:SEL [TUNE]:ATU Y/N [SET]:CHANGE
    
```

The examples refer to the BANK A, each setting is of course also possible with the BANK B.

Attention: The Matrix was designed for 6 antennas because 6 are contest HF bands. This guarantees the passage between band and band with maximum speed.

If multi-band antennas are used, WARC and 6m bands can also be set.

For the 6 m band, where a preamplifier and a probable sequencer are often used, since a rapid passage with the HF bands is not required, it is advisable, but not mandatory, to have a separate cable and not to pass through the Matrix.

In this case when it is necessary to operate in 50 MHz, returning to the conventional setting, the same ANT output is maintained.

AM-01/6- PW



Maximum power up to 4KW.

Able to manage up to 6 antennas even in the case of Expert 1.3K-FA / Expert 1.5K-FA.

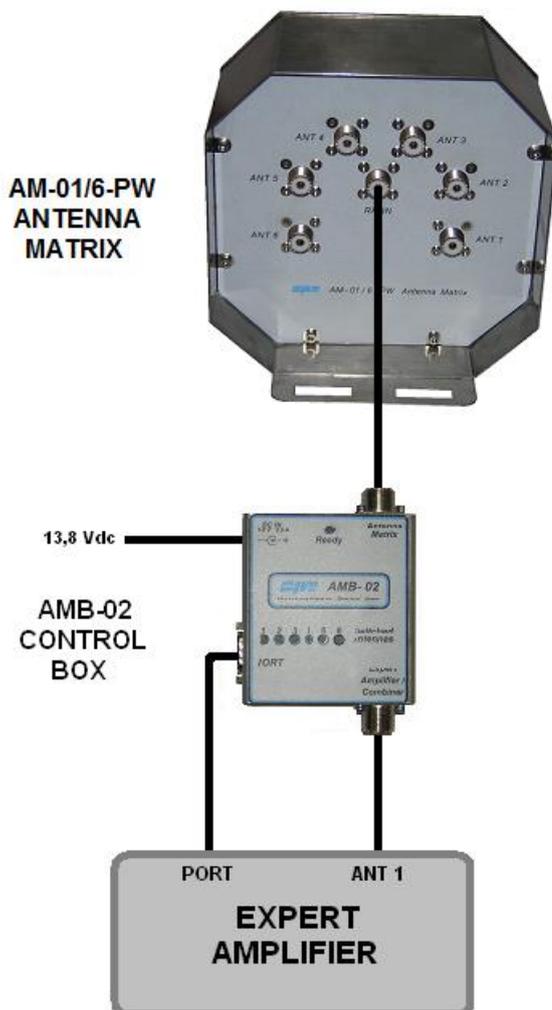
A red LED is associated with each antenna connector which, when lit, indicates the selected antenna.

This Matrix, given the high power it can handle, has been specifically designed for use in conjunction with our Combiner CO1-2.

It can also be used as a simple antenna switch by setting "Remote Ant Switch" in the Config menu.

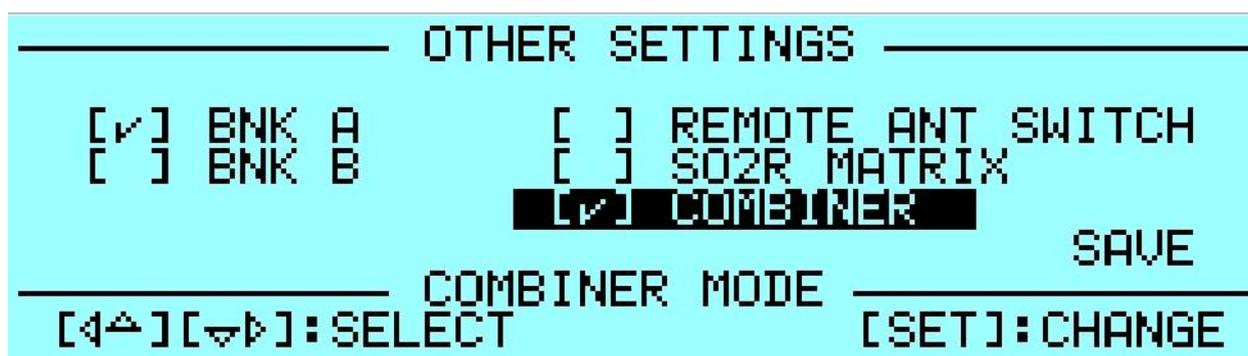
It can also be used with non-SPE systems by manually setting the antenna as described later in this manual.

Typical connection:



The figure refers to use as a simple switch, in conjunction with the Combiner CO1-2 it is sufficient to replace the amplifier in the figure with the Combiner (see its manual on page 17).

Press [SET], then set "COMBINER" in the Config menu.



AMB-02



As highlighted in the previous system diagrams, the AMB-02 control box is usually placed close to the amplifier to which it is connected with a coaxial cable always to antenna 1 or to the single output connector of the Combiner.

The coaxial cable that reaches the Matrix and therefore the antennas must be connected to the opposite connector.

There are six LEDs on the panel, each representing the condition of the corresponding antenna.

In the case of AM-01-SO2R:

- Red LED means that the selected antenna is RTX for the band in use.
- Green LED means that the selected antenna is RX only.
- LED off means that the antenna is not selected.

In the case of AM-01-PW:

- Red LED means that the selected antenna is RTX for the band in use.
- LED off means that the antenna is not selected.

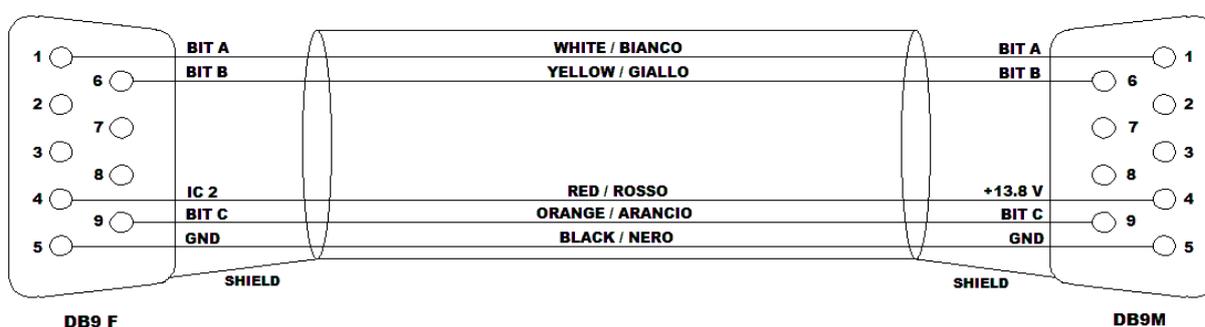
The AMB-02 Control box is powered by an external source of 13.8 VDC nominal (15.5 VDC max), you can use the supplied cable connected to the transceiver Power Supply.

At the top of the panel there is the "Ready" LED with the following meanings:

- Green LED means correct presence of 13.8 VDC.
- Red LED means anomalous absorption of 13.8 VDC.

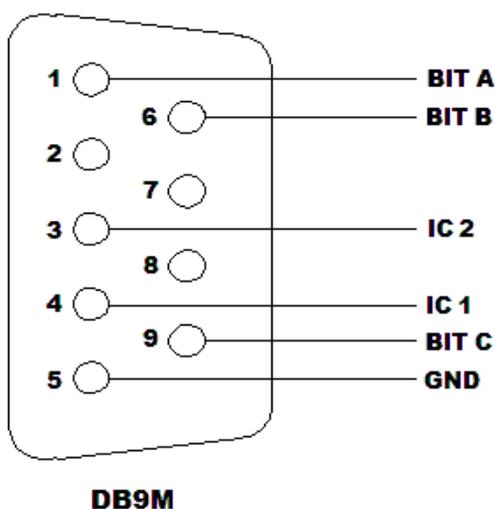
The PORT connector must be connected via the supplied cable to the corresponding PORT of the Expert amplifier or to the PORT OUT of the Combiner.

If a longer cable is required, build a new one according to the following diagram.



Note: with this cable, in the case of the Expert amplifier off, the Matrix automatically activates the ANT1 in accordance with the Expert manual.

PORT Connector



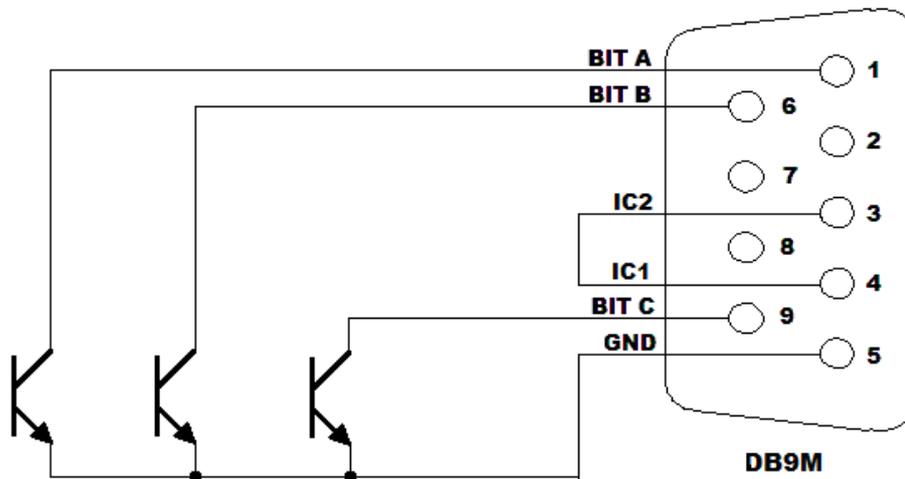
Pin Number	Pin Name	Description
1	BIT A	BIT A input
6	BIT B	BIT B input
9	BIT C	BIT C input
5	GND	GND.
2	NC	
3	IC 2	Internally connected
7	NC	
8	NC	
4	IC 1	Internally connected

Note: IC 1 and IC2 must be connected only as described in the supplied cable or in the cable in case of manual control.

Case of manual control

The AM-01/6-PW system can also be controlled either manually or through a non-SPE interface to be connected to the PORT connector.

Typical connection:



Use open collector transistors or relay contacts where:

Bit = 0 Transistor ON or closed relay contacts
 Bit = 1 Transistor OFF or open relay contacts

The antenna selection is made with the following code:

Antenna	Bit C	Bit B	Bit A
n.1	0	0	1
n.2	0	1	0
n.3	0	1	1
n.4	1	0	0
n.5	1	0	1
n.6	1	1	0

The code is transmitted for as long as the setting remains.

WARRANTY TERM

SPE warrants to the original Purchaser that this product shall be free from defects of materials or workmanship.

SPE warrants for two (2) years from the date of original purchase that SPE will provide free of charge all parts and labour necessary to correct defects in material or workmanship. The Purchaser only has to pay all the shipping expenses for warranty service work.

Customers should address requests for warranty service work to the Distributor/Dealer where they made their purchase. As part of their reseller agreement with SPE, they are responsible for service support.

If the Distributor/Dealer has closed down, or when the Purchaser moves into another area, SPE will be directly responsible for warranty service at their factory in Rome. The shipping expenses to and from SPE will then be paid by the customer. Any repair requests to other dealers will be subject to specific direct negotiations between the customer and the dealer.

In order to not invalidate the warranty service, the original Purchaser must complete the warranty registration card, and send it to SPE within 30 days from the date of purchase. Unless otherwise agreed, the products will be delivered ex-works from the factory of the seller.

The delivery, even in the event of a return for repair, is understood to be completed with the delivery of the goods to the carrier specified by the Purchaser or, failing that, to the carrier chosen by SPE.

The products will travel at the risk of the Purchaser even if, at the request of the same one or for other causes, SPE should carry out transport or choose the carrier.

If the original Purchaser finds some defects after having received the equipment, he must immediately notify the Distributor/Dealer of the defects found by sending a properly completed description. Replacement of the System may be done by SPE in exceptional circumstances and at SPE's complete discretion. In any case no replacement will be provided if more than 20 days have passed after initial delivery.

In case of a purchase of a used System, in order to retain the warranty's validity, it is necessary to notify SPE of the following data:

- Purchase document from the previous owner.
- Invoice for the original purchase.

Replacement of equipment in these circumstances is not an option.

The warranty will still be valid for two years from the date of the first purchase.

The warranty does not apply either if the certificate of the first purchase (invoice) is missing or to any defect that SPE determines is due to:

1. Improper maintenance or repair by persons not authorised by SPE to carry out such work, including the installation of parts or accessories that do not conform to the quality and specifications of the original parts.
2. Misuse, abuse, neglect or improper installation, non-observance of user manual.
3. Carelessness, accidental or intentional damage.

SPE warrants aforesaid items only, and the Purchaser shall have no remedy and no claim for incidental or consequential damages.

It is mandatory, when sending SPE equipment to be repaired, to enclose:

- Invoice of the original purchase.
- Document of the second purchase (if any).

Particular agreements between retailer and Purchaser or particular obligations imposed in other countries are matters for the local retailer and not for SPE.

In the event of dispute, Rome's court of competent jurisdiction will apply.

By purchasing SPE equipment, the Purchaser declares his acceptance of the above Warranty Terms.

SPE s.r.l.

Via di Monteverde, 33 00152 Roma

Tel. +390658209429 (r.a.)

Fax. +390658209647

E-mail: info@linear-amplifier.com

Website: <http://www.linear-amplifier.com>