



VE2DX ÉLECTRONIC

VE2DX 2X6 SO2R Remote

Antenna Switch Manual

Version 2 (30 Relays)

Version 02.05.01

January 6th, 2024

VE2DX Electronics Design Inc. 2024c

WWW.VE2DX.COM

!!! WARNINGS !!!

Read the following carefully, and **DO NOT PROCEED** unless you fully understand and follow them!

This device is switching using 12VDC or 24VDC to the required input, according to the board version purchased.

Keeping the connector side **ALWAYS facing down** is strongly recommended to prevent water infiltration.

ALWAYS make sure the enclosure is properly grounded.

Do not climb the tower unless trained and follow proper safety protocols.

Do not use it if lightning is possible.

Always ensure proper lightning protections are installed on your coax and control lines.

Ensure your coaxes and control connectors are appropriately protected against water infiltration.

Specification:

| | |
|---------------------------|----------------------------------------------|
| Switching Voltage | 12 VDC or 24VDC |
| Maximum Frequency: | 60 Mhz. |
| Power: | 1.5 Kw. |
| Isolation: | 80 db. |
| Enclosure rating : | IP67, NEMA 1,2,4,4X,12,13 Boxes |
| Device Weight: | 3.9lbs - 1.78Kg |
| DeviceSize: | 11 X 7.75 X 4 - 28cmX20cmX10cm |
| Box Weight: | 4.65lbs - 2.12Kg |
| Box Size: | 12.25 X 9.25 X 6.75 - 31cm X 23.5cm X 16.5cm |

Instructions;

1-Verifications;

Carefully verify the content of the box.

Contact your reseller or **VE2DX Electronics Design Inc.** at 450-689-4591 or info@ve2dx.com if you find any damage.

Box content:

1 X Parts pack with (Photo 1);

2 X Green Plugs.

2 X 1.50 inch X 0.25 inch/10-24 Bolts.

2 X 0.75 inch X 0.25 inch/10-24 Bolts.

1 X 0.50 inch X 0.25 inch/10-24 Bolts.

8 X 10-24 0.25 inch/10-24 nuts.

8 X 0.25 inch washers.

8 X cover screws.

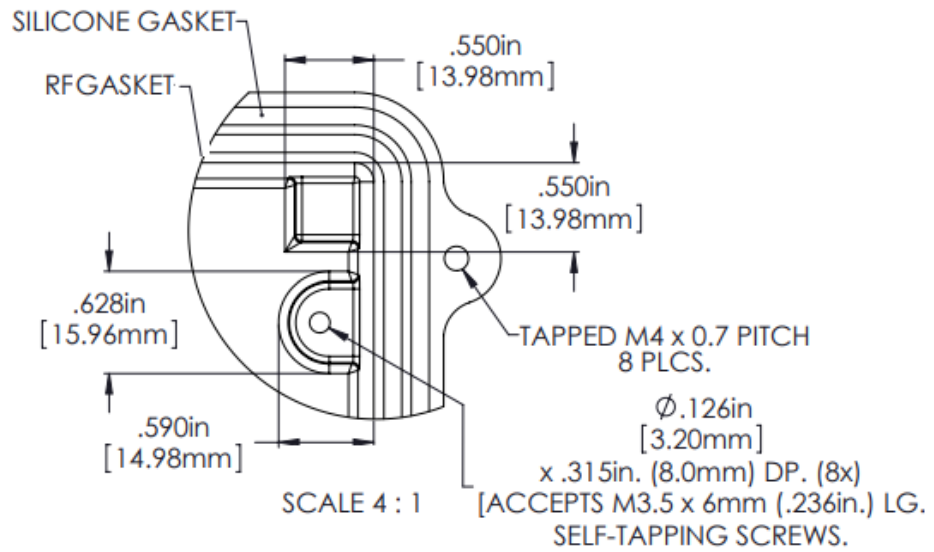
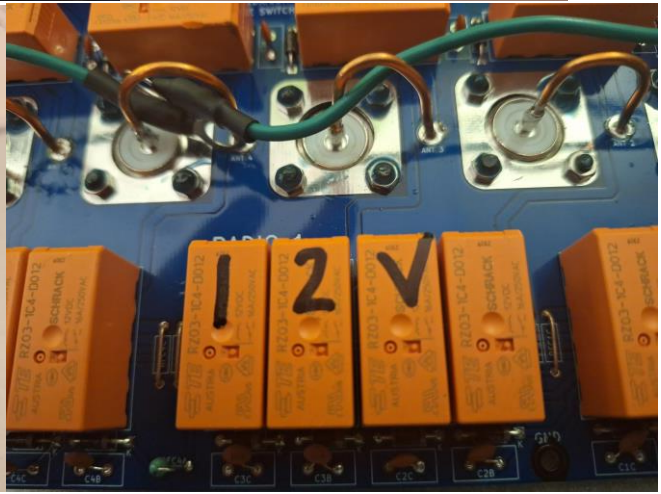
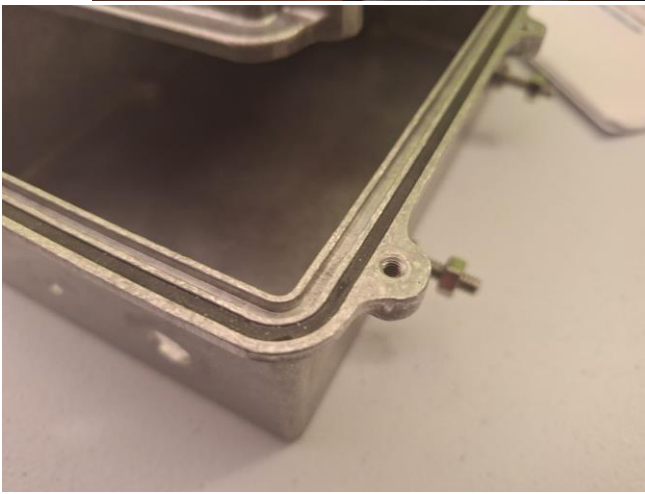
1 X top cover with PCB.

1 X Predrilled bottom cover

1 X manual

WARNING! At this point, the cover is NOT screwed into the base and may fall off.

- Carefully remove the **VE2DX SO2R 2X6 Remote Switch** from the bag and look for any damage.
- Carefully remove the cover from the **VE2DX SO2R 2X6 Remote Switch**.
- Verify that the bottom cover's rubber seal (photo 2) is not damaged and appropriately positioned. It may sometimes come apart when the enclosure's two halves are separated.
- Confirm that the voltage indicator (photo 3) matches your order. If not, contact your reseller or **VE2DX Electronics Design Inc.** at 450-689-4591 or info@ve2dx.com.



2-Tools required;

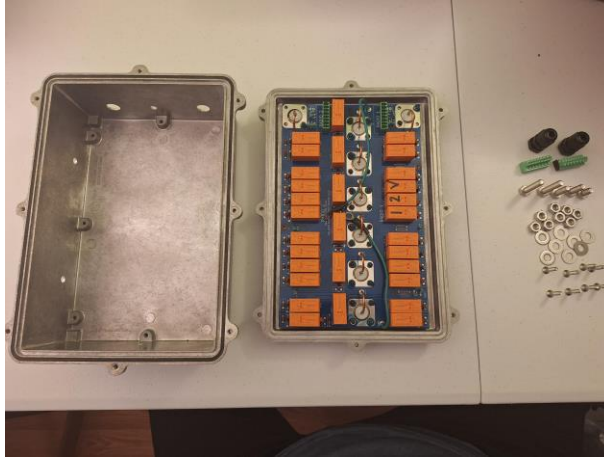
Tools required for the installation ;

- 1 X Small blade screwdriver.
- Pliers.
- Wire Cutters.
- 1 adjustable wrench.

3- Assembly;

Please follow these steps carefully.

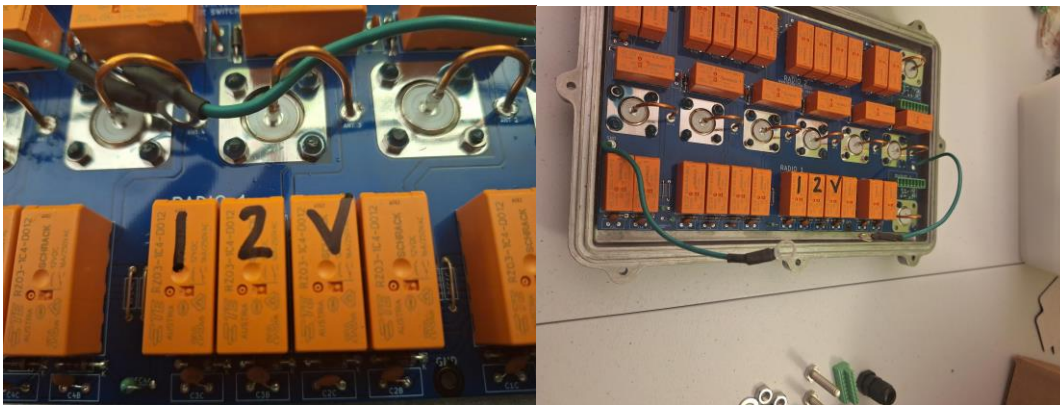
- Once the **VE2DX SO2R 2X6 Remote Switch** is removed from its packaging and the preceding verifications have been made.
- Carefully install the base and cover in a large working area.
- Empty the parts bag in a separate plate.



- In the top cover;

- Note the two **GREEN** ground cables located in the center area. These are in their shipping position around connectors for antenna 3 and 4.

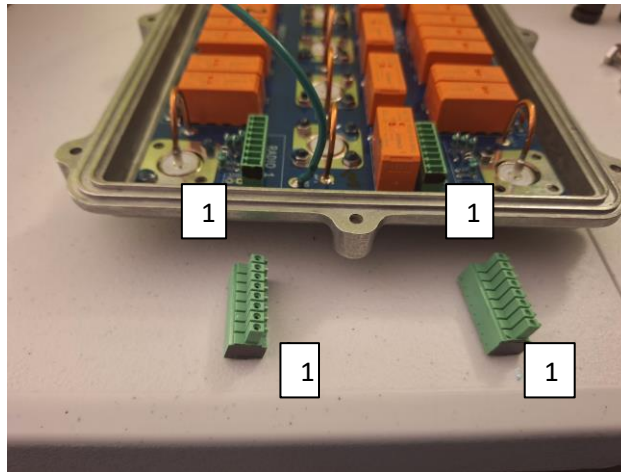
- Move the two ground cable lugs end toward the left and right-hand side, being careful not to damage the connections for antenna 3 and 4.



- Note the two Green antenna control jacks on the same side as the radio coax connector in the corner of the **VE2DX SO2R 2X6**

Remote Switch pcb.

- Locate the two Green connectors in the parts package, with one side marked in black; this is pin1.

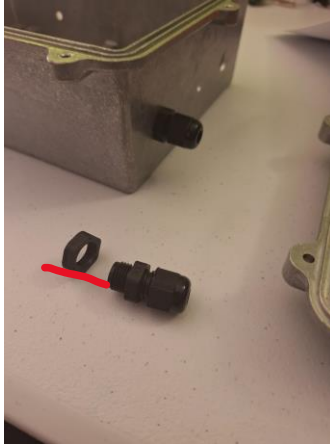


- The pinout of these connectors are as follows;

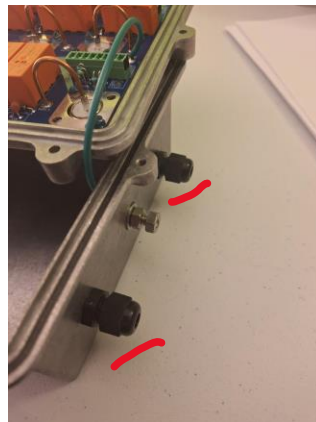
| Pin Number | Function |
|--------------|------------------------------|
| 1 | Ground |
| 2 (Optional) | Remote power source (1) |
| 3 | Antenna 1 (Lower Frequency) |
| 4 | Antenna 2 |
| 5 | Antenna 3 |
| 6 | Antenna 4 |
| 7 | Antenna 5 |
| 8 | Antenna 6 (Higher Frequency) |

(1) Note that the Remote power source is unnecessary to operate the **VE2DX SO2R 2X6 Remote Switch**. It is purely an option; the power source **MUST** be DC (**DO NOT USE** for AC !!!) and no higher than 24VDC. 12VDC is recommended. This is used to power optional devices that may be located in the **VE2DX SO2R 2X6 Remote Switch** enclosure, being careful to keep them separated from the **VE2DX SO2R 2X6 Remote Switch PCB**.

- Locate in the parts package the two Black Cable pass-throughs; these are to be installed on the side of the bottom of the enclosure where there are three holes.



- Carefully install the Black cable passthrough in their assigned position on the left wall of the bottom of the enclosure; note the holes are already drilled.
- The proper installation is as follows: remove ONLY the smaller black nut, insert from the OUTSIDE the larger portion of the cable passthrough, and reinstall the smaller nut; ALWAYS APPLY SILICONE AROUND RGW HOLE ON BOTH SIDES OF THE ENCLOSURE WALL BEFORE INSERTING THE CABLE PASSTHROUGH.
- Carefully loosen the larger external plastic nut of the cable passthrough.



- You may now insert your antenna control cable through the cable passthrough and connect the wires to the Green Plug, then insert the Green plug into the Green jack.

Notes: - Silicone should always be applied around any external holes.

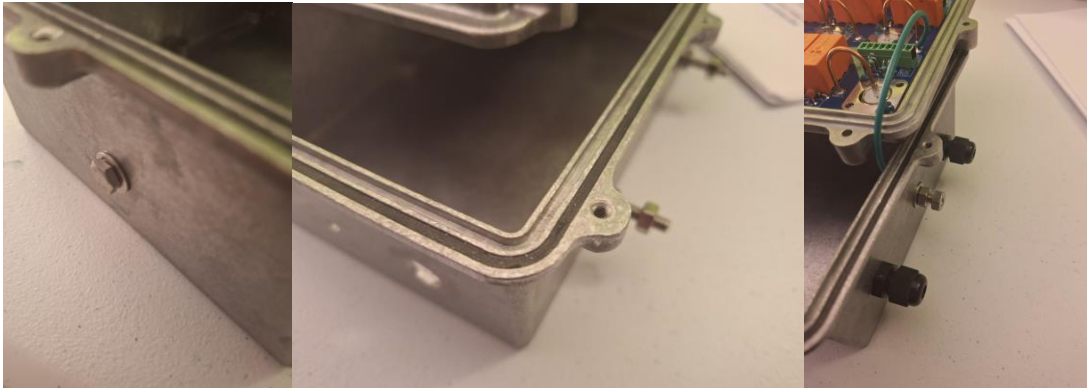
- **If your cable is too large, you may replace the Cable passthrough with a larger one; these are not included.**

- The bottom of the enclosure has six predrilled holes:

- Two larger holes for the cable passthrough on the left wall.

- Two in the rear are used for the 1.50 inch 0.24inch 10-24 bolts to hold the box onto the tower (1); even if not required, these two holes should always be sealed and protected with outdoor-rated silicone.

- One hole on each side for grounding using the 0.75 and 0.50 inch, 0.25 inch 10-24 bolts. If an external ground connection is attached to the ground bolt, the Nuts should be outside. If not, the nuts can be on either side.



- the Green ground cable SHOULD also be attached to the side bolts inside the enclosure.

- The proper bolt assembly sequence should always be Bolt, Ground, Washer, Silicone, enclosure, Silicone, washer, nut, and nut (From the inside). If the bolt is NOT used for external grounding, then the bolt may be inserted from the outside.



- Once everything is installed, simply install the top cover over the bottom cover, ensuring the rubber seal is sitting correctly in its place.

(1) We do NOT recommend drilling into your tower structure; this may affect the structure strength of the tower.

4- Antenna termination:

Antenna RF load termination, when not in use, is significant in reducing problems due to unwanted coupling and reducing unwanted radiation.

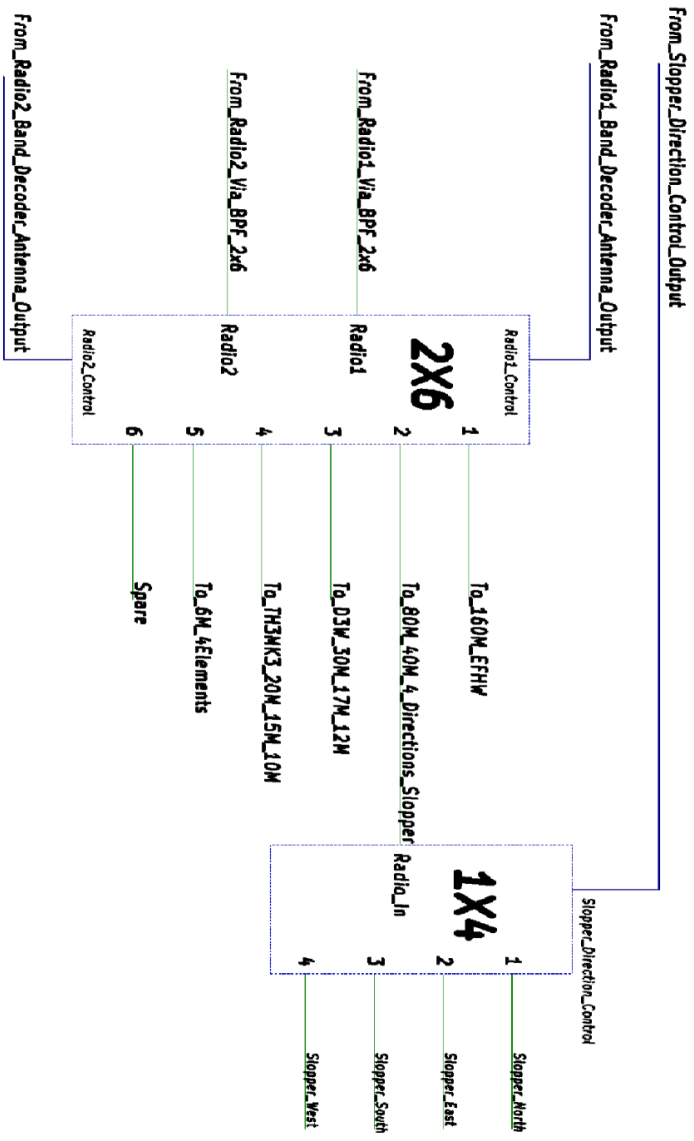
The **VE2DX SO2R 2X6 Remote Switch** has the flexibility to offer the user three different ways to terminate unused antennas;

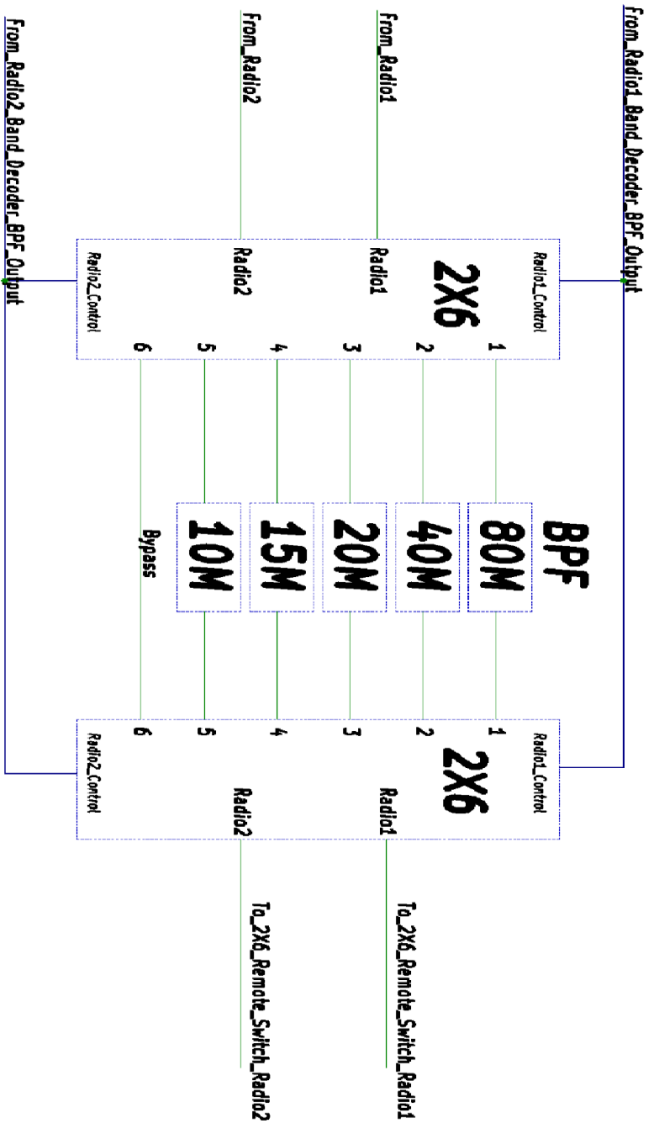
- 1- Grounded at all times while not selected by either radio (Default).
- 2- Open.
- 3- Connected to 50 Ohms load (Not supplied).

This is done by simply replacing the existing SHORT located in J9, J11, J13, J15, J17, and J18 by either removing the six existing shorts or replacing them with a 50-ohms resistor.

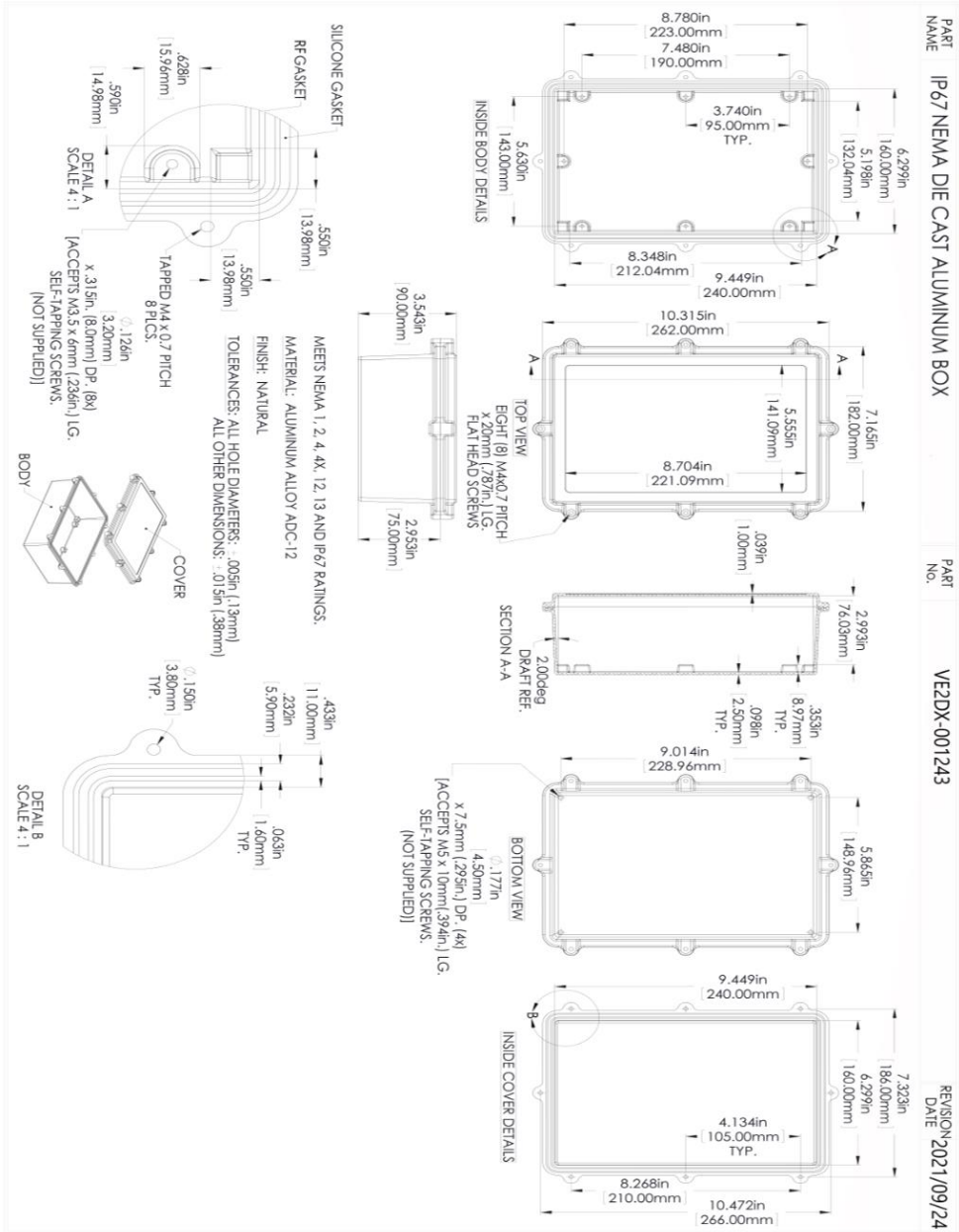
Any such modification may cause damage to the **VE2DX SO2R 2X6 Remote Switch** or other radio equipment attached to it; these modifications should be done by a qualified technician carefully to trim properly the excess wires under the PCB. The **VE2DX SO2R 2X6 Remote Switch** warranty will not cover these.

5-Application examples.





6-Enclosure specifications.



8-Parts List of the Kit.

| Part Number | Value/part number | Quantity | description |
|--------------------|------------------------------------------------------|----------|----------------------------|
| C1-C6 | 0.01uf disc capacitor | 30 | Disc Capacitor |
| D1-D6 | 1N4001 | 30 | Diode |
| K1-K6 | RZ03-1C4-D012 (12vdc) Or RZ03-1C4-D024 (24vdc) | 30 | Relays |
| RFC1-RFC16 | 100uH chokes or Ferrite beeds | 16 | RF Chokes or Ferrite beeds |
| J1 and J4 | TBP03R2-350-08GR | 2 | Industrial connector |
| P1 and P4 | 39500-5008 | 2 | Industrial plug |
| RF Coax Connectors | SO-239 or Femelle N-Type | 8 | SO-239 or Femelle N-Type |

9-Important notes:

- Never use the two ground wires to support the top cover; this will damage the grounds.
- Antenna connector one should always be used for the lowest possible frequency, and gradually, until you get to connector 6, it should always be used for the highest frequency.

Example :

6 Antenna; 160, 80/40, 30, 20/15/10, WARC Beam, 6m

Recommended position ;

| Antenna | Connector |
|-----------|-----------|
| 160M | 1 |
| 80/40 | 2 |
| 30M | 3 |
| 20/15/10 | 4 |
| Warc Beam | 5 |
| 6M | 6 |
| | |

- always follow the warnings stated in this manual.
- NEVER separate the PCB from the cover; this will void your warranty.
- This device is covered with a one-year limited warranty from the date of purchase.

10- Support:

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