



VE2DX ÉLECTRONIC

## VE2DX 2X6 SO2R Interlock Manual

Version 02.02.01

December 15th 2023

VE2DX Electronics Design Inc. 2023c

[WWW.VE2DX.COM](http://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 to the required input.**

# 1. Specification:

**Switching Voltage:** 12 VDC

**Maximum Contact Current:** 2Amps

**Device Weight:** XXX lbs - XXX Kg

**DeviceSize:** 3.5inch X 3.5inch - 87mm X 87mm

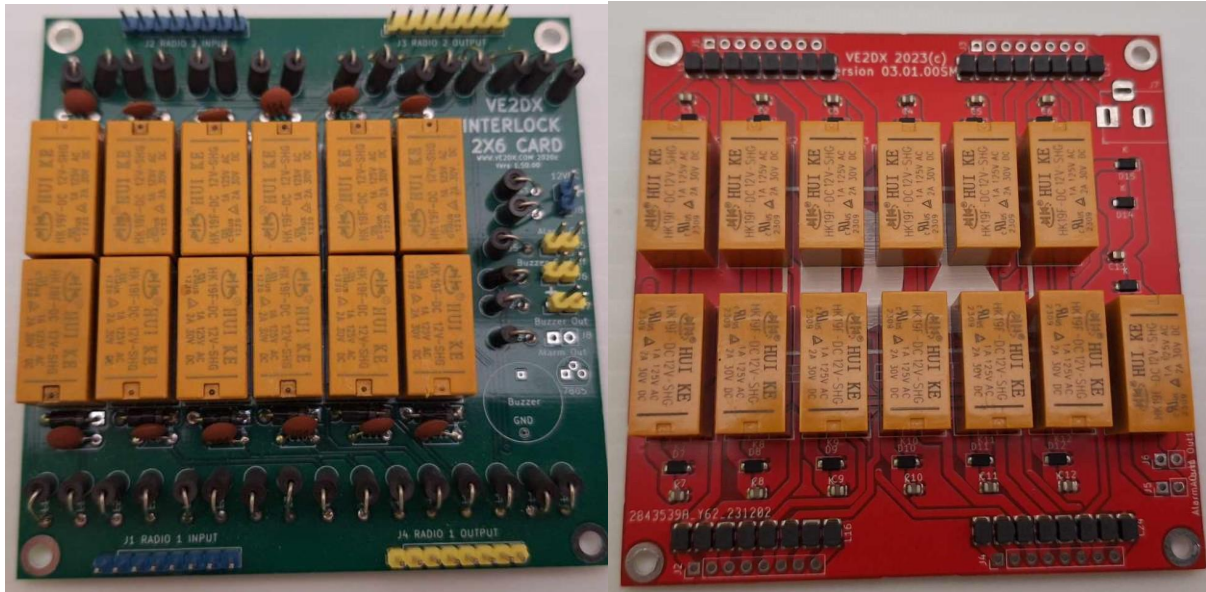
**Box Weight:** ? lbs - ? Kg

## 2. Introduction;

The VE2DX 2X6 Interlock was designed as an add-on option for the VE2DX 2X6 SO2R Remote Antenna Switch, when installed it will prevent the users from selecting the same Antenna and the user trying to select an antenna already in use can receive an alarm to indicate the fact that it is not available.

The VE2DX 2X6 Interlock is a simple series of interlocked relays that will prevent the user from selecting an output that is already in use.

There were two variations on the The VE2DX 2X6 Interlock, the GREEN 2020 design and the RED 2023 design released in early 2024.



Version 1, 2020 Design

Version 3, 2023/2024 Design

The main difference between the 2020 and 2023 designs, is the use of the 13th relay on the newer version offering the 2 dry contacts outputs for the alarms, vs a 12VDC output of the older version.

They come in both Kit form or assembled. They are designed to be installed in either a remote enclosure in the shack or the The VE2DX 2X6 SO2R Remote Antenna Switch outdoor enclosure using the PCB stacking kit.

### 3. Theory of operations.

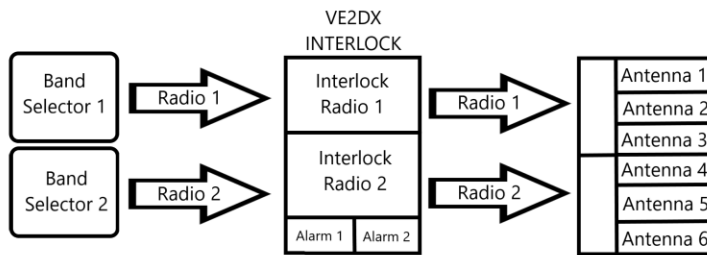
#### 3.1. Principales

In this section we will explain the operation process of the of the **VE2DX 2X6 Interlock**.

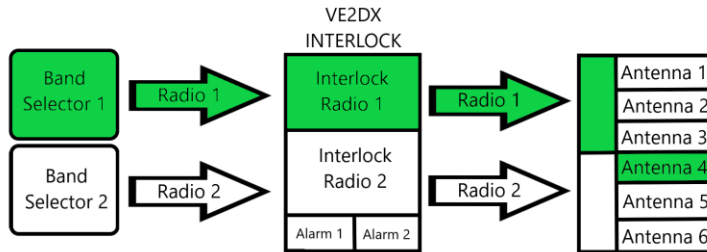
This block diagram shows a normal shack setup using the **VE2DX 2X6 Interlock**. In this diagram the radios and coax are not shown, simply the antenna section control.

The user via either manual antenna selector or automated CAT controlled band selector would send a simply 12VDC voltage on the control wire of the selected antenna, Radio 1 and Radio 2 have distinct control lines for all 6 antennas.

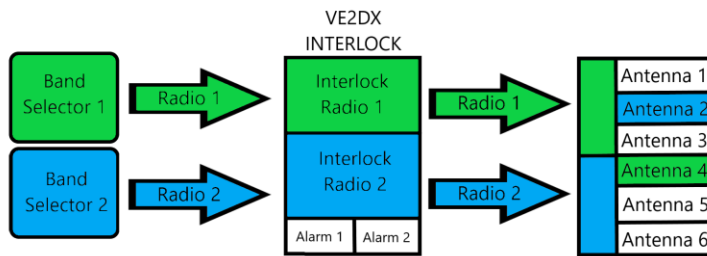
This signal is then send to the **VE2DX 2X6 Interlock**, who then validates that the selected antenna is not already in uses by the other radio. This is done is a purely first come approach.



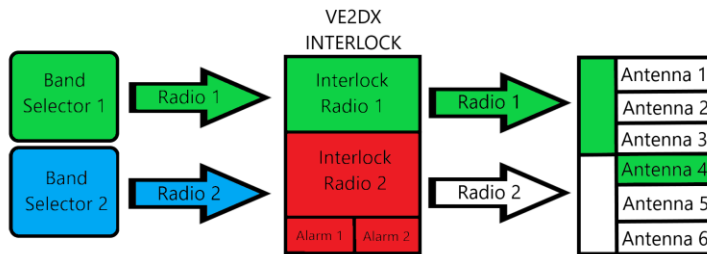
As shown below if Radio 1 is selecting Antenna 4 with Radio 2 not selecting any antenna, then the control is sent to the output control lines on the **VE2DX 2X6 Interlock** and then to the Radio 1 side of the **VE2DX 2X6 SO2R Remote Antenna Switch** and antenna 4 is now assigned to Radio 1 (Green).



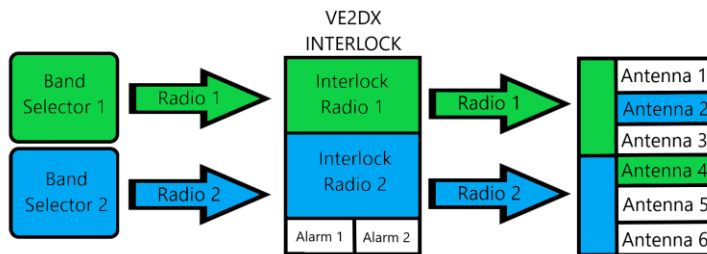
Now if Radio 2 selects antenna 2, since Radio 1 is set to Antenna 4, the **VE2DX 2X6 Interlock** will automatically send the information to the **VE2DX 2X6 SO2R Remote Antenna Switch** and connect Antenna 2 to Radio 2 (Blue)



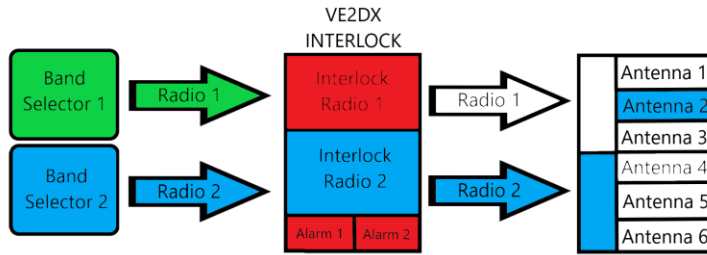
If Radio 2 tries to select Antenna 4 (Already in use by Radio 1!), then the **VE2DX 2X6 Interlock** will see the conflict, and trigger both Alarm 1 and Alarm 2 outputs. And Radio 2 control will be disconnected from the **VE2DX 2X6 SO2R Remote Antenna Switch**.



If Radio 2 goes back to antenna 2, the **VE2DX 2X6 Interlock** will accept this new selection and turn off the Alarms.



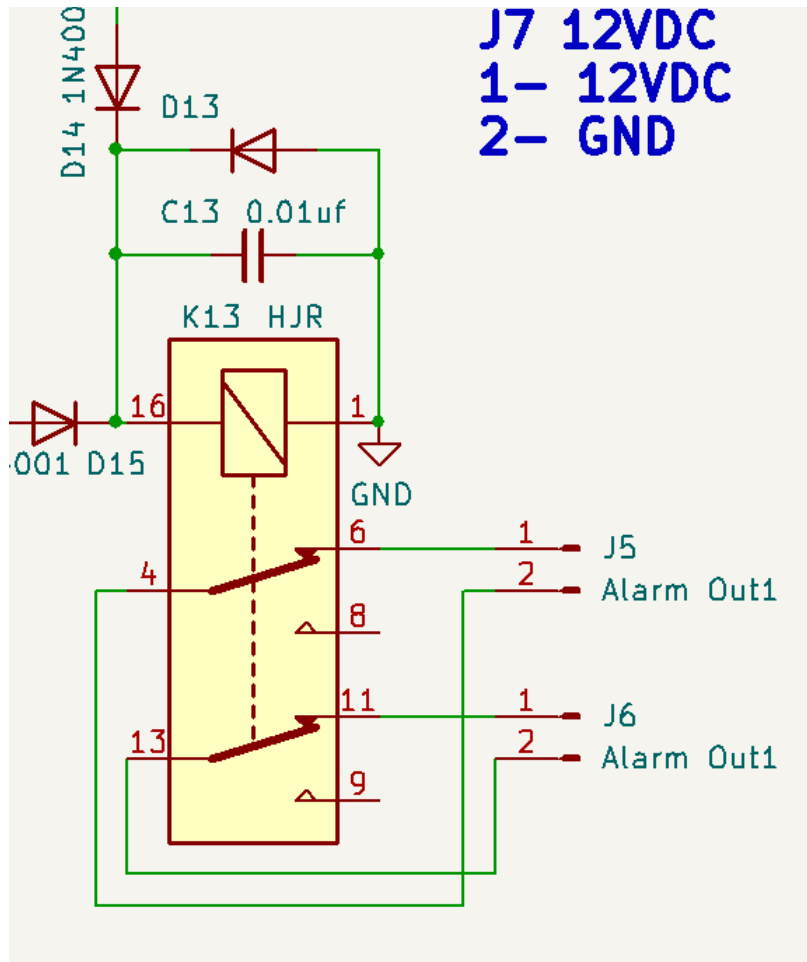
If on the other hand, Radio 1 tries to change from ANTenna 4 to Antenna 2 (already in use by Radio 2!) **VE2DX 2X6 Interlock** will refuse this selection, and trigger both Alarm 1 and Alarm 2 outputs. And Radio 1 control will be disconnected from the **VE2DX 2X6 SO2R Remote Antenna Switch**.



### 3.2. Alarm outputs

The **VE2DX 2X6 Interlock** alarms output are simple dry contacts rated out to 30VDC 2A or 125VAC 1A.

They can be accessed via J5 and J6.



## 4. Installation Instructions;

### 4.1. Verifications;

Carefully verify the content of the box.

Box content:

1 X Parts pack with (Photo 1);

4 X 8 pin male header connector.

2 X 2 pin male header connector.).

2 X 8 pin female to female pin header cables.

1 X VE2DX 2X6 Interlock PCB.

1 X manual.

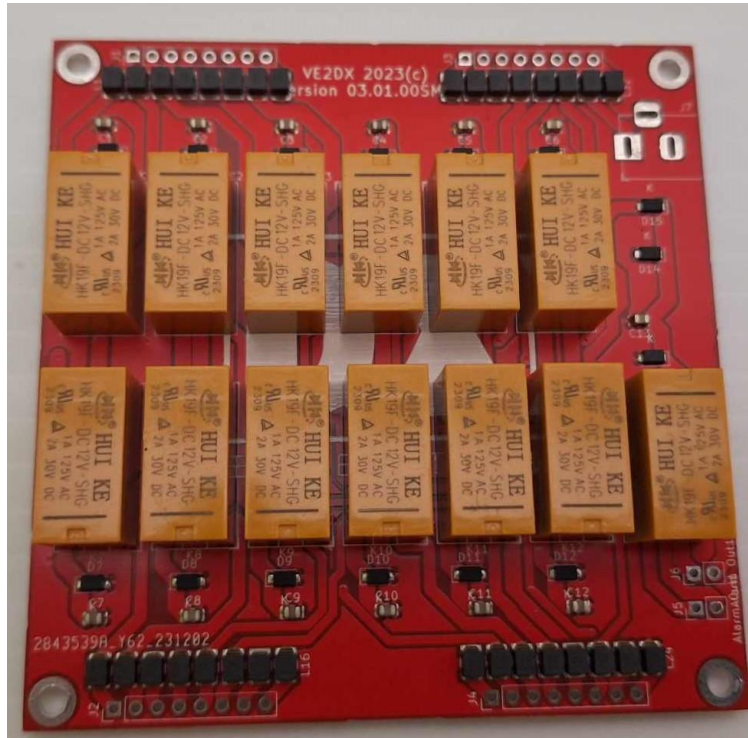
Contact your reseller or **VE2DX Electronics Design Inc.** at 450-689-4591 or [info@ve2dx.com](mailto:info@ve2dx.com) if you find any damage.



## 4.2. Assembly:

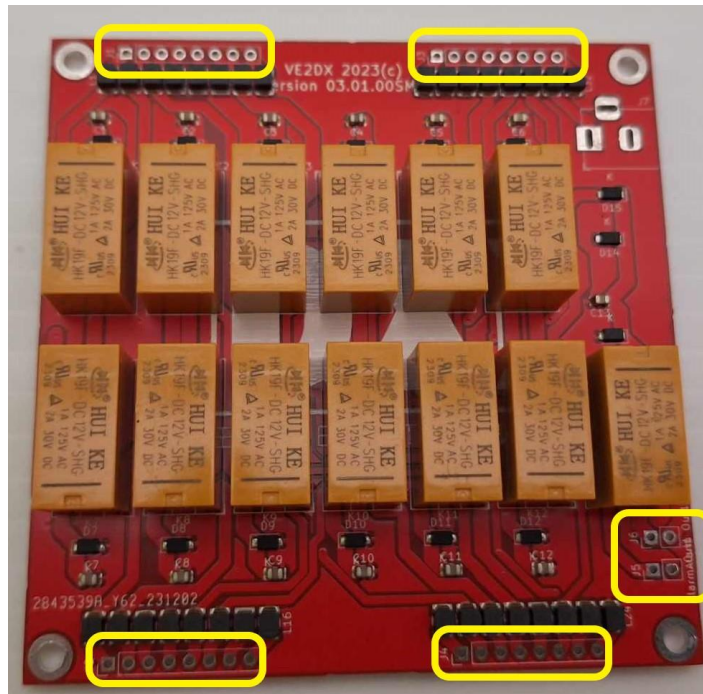
**Please follow these steps carefully.**

- Once the VE2DX 2X6 Interlock Kit is removed from its packaging and the preceding verifications have been made.



## The following are optional!

- Install the 4 X 8pin headers on J1 to J4 and 2 X 2pin headers on J5 and J6.



Notes:

The pin headers are optional, the cabling can be soldered directly onto the PCB.

If using the pin headers, then you should cut the 2 cables included to the required length to reach the VE2DX 2X6 Remote antenna switch input connectors, and solder the incoming cables to the remaining cables.

**All wire to wire connections should be soldered and shrung wrapped.**

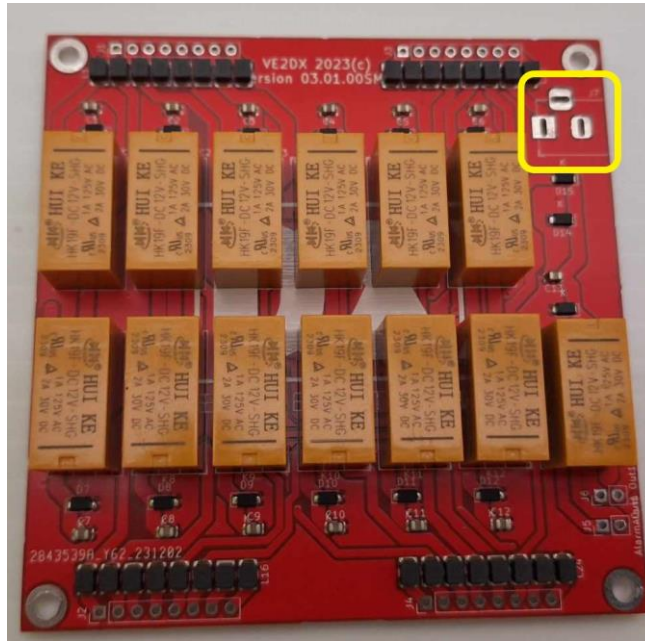
- The pinout of these connectors are as follows;

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)

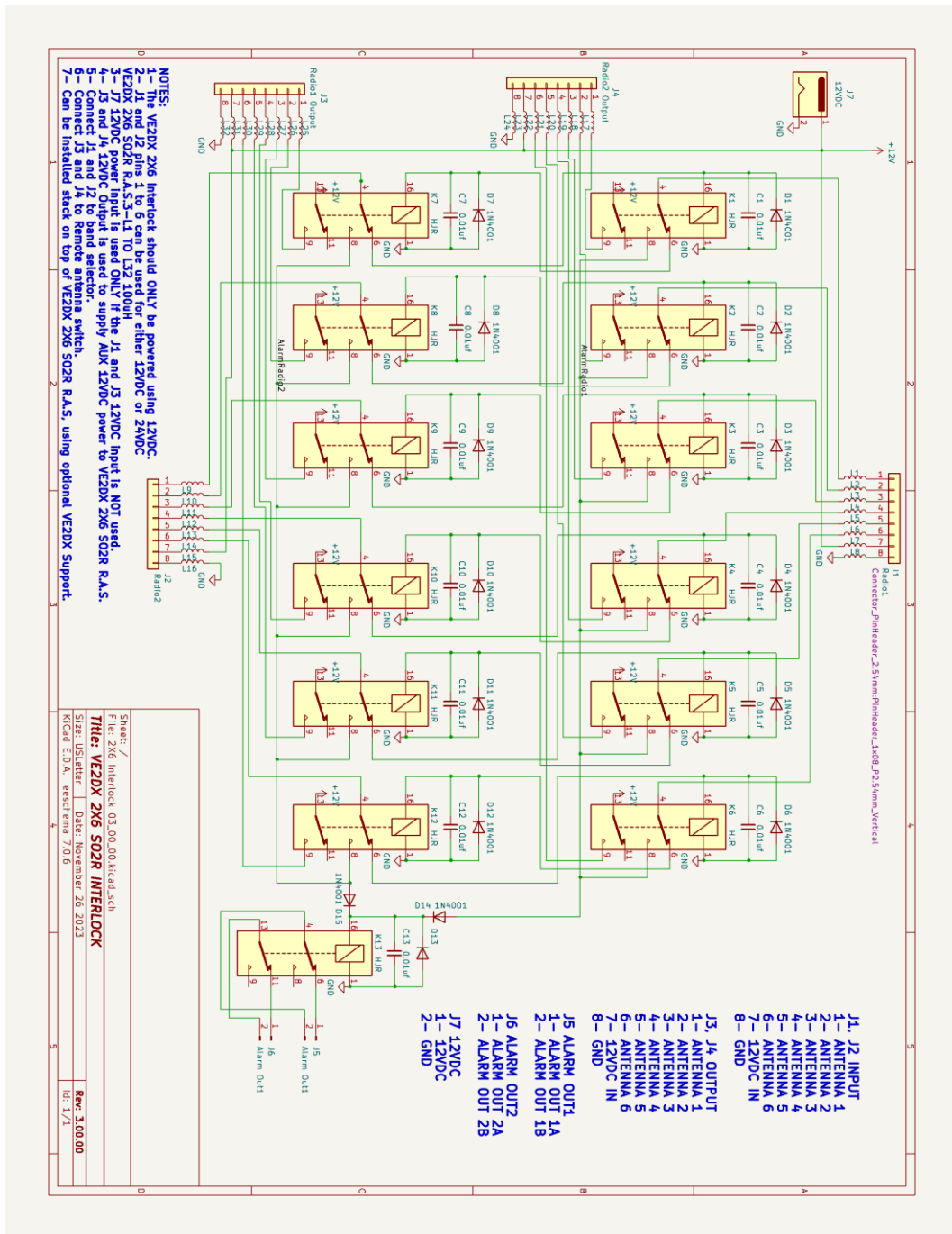
Notes:

- (1) The VE2DX 2X6 Interlock can be powered using 12VDC from the control cable, in this situation the 12 VDC power connector in the next step is NOT required.

- Install the 12VDC barrel connector (Optional).



# 5. Schematics:



## 6. Important notes:

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## **1 - Support:**

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