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# Diligence™ 600

## Multi-Parameter 2-Way Adaptor Box




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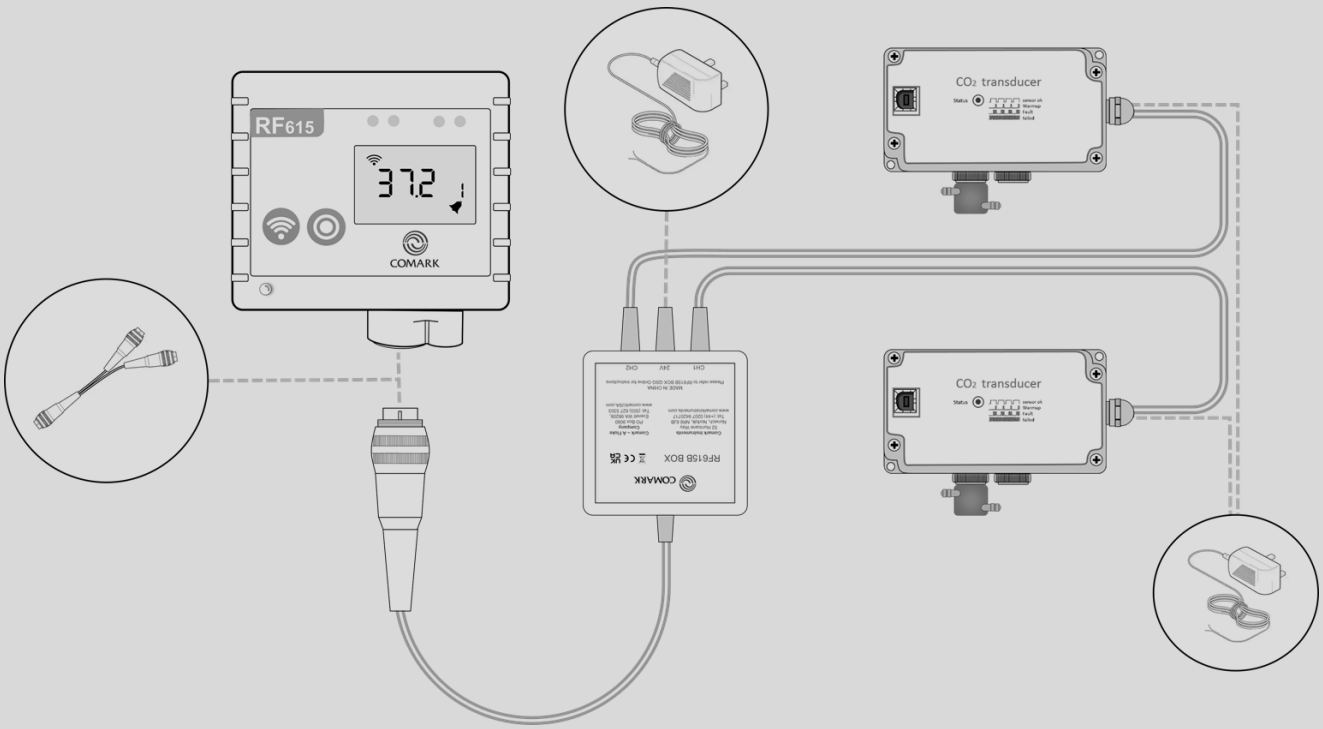
# Contents





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# Introduction

This user guide is designed to assist anyone wishing to install the **Diligence 600 Multi-Parameter 2-Way Adaptor Box (RF615B)** and sets out the various types of transducer that the adaptor can accommodate, as well as detail the relevant connectivity.

It should be noted that the Diligence 600 Multi-Parameter 2-Way Adaptor Box (RF615B) is only designed to work with the Diligence 600 WiFi Multi-Parameter Transmitter (RF615) which itself is suited to a wide range of applications and is capable of measuring parameters such as current, voltage, pressure, gas, flow, level, dissolved oxygen and CO2.


Part No: RF615 (5306340)


## Multi-Parameter 2-Way Adaptor Box

Part No: RF615B (5306391)

A two-channel device designed to allow for the connection of up to **TWO** external transducers of either 0-1V, 0-10V or 4-20mA, using integrated screw terminals.

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# Accessories

For the Diligence 600 WiFi Multi-Parameter Transmitter (RF615)

The Diligence 600 WiFi Multi-Parameter Transmitter (RF615) is capable of handling up to FOUR external transducers through a combination of adaptors.

## Y Adaptor

Part No: RF602Y (5306378)

Use the Y Adaptor should you wish to add TWO Multi-Parameter 2-Way Adaptor Boxes to your transmitter in order to maximize the number of external channels you can measure.

## 24V Power Supply

Part No: 18477 (3616817)

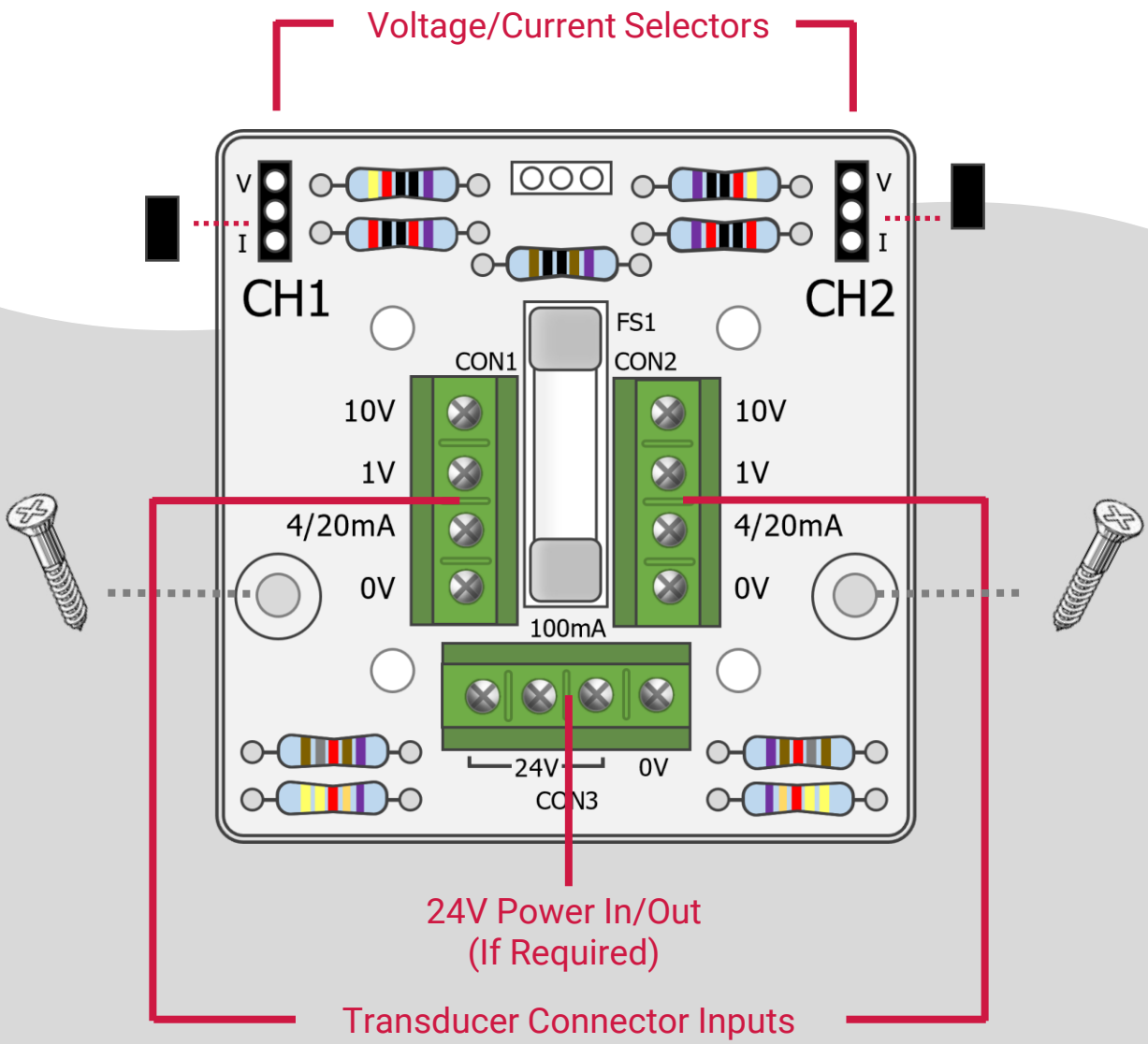
This 24V Power Supply with interchangeable mains plugs to suit your region is designed for use with the Multi-Parameter 2-Way Adaptor Box (RF615B).

You will also need cable to perform the wiring between the Adaptor Box (RF615B) and each Transducer. Standard hook-up wire will be suitable, as the connections are all low voltage or low current. There is no strict limit to the length of the cables, nor between each Transducer and the Transmitter, but it is always recommended to keep these distances as short as practicable. Please note that long cable lengths, especially for Voltage Transducers can affect readings, as there can be voltage drop along the cable.

You may also require separate power directly to your transducers, depending on the manufacturer recommendations.

# Internal Configuration

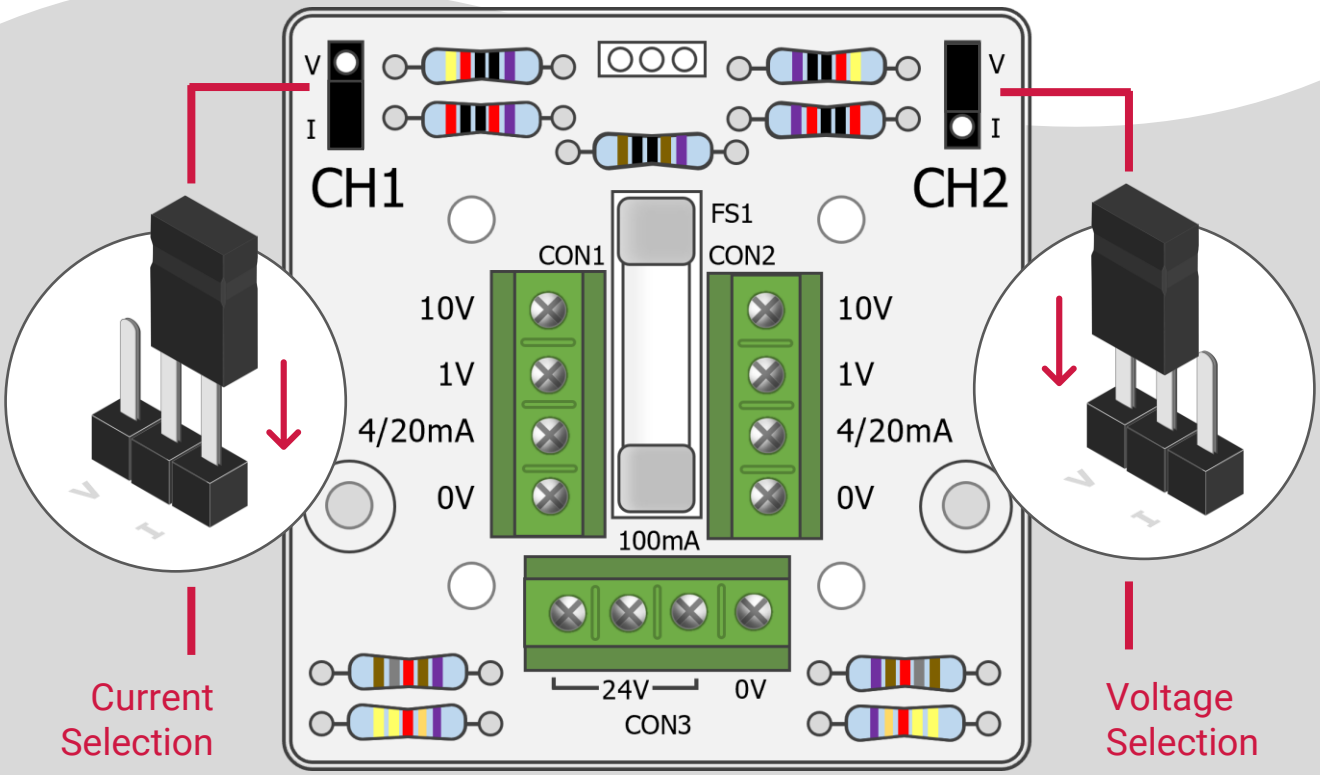
The Multi-Parameter 2-Way Adaptor Box (RF615B) is opened by undoing the two screws located on the rear (underside) of the device. Inside you will see the PCB with several different terminals, as indicated below. All connections are made using the screw terminals provided. Please note that you might need to insert two wires into any of the screw terminals.



# Sensor Selection

The Adaptor Box is divided into two channels which are labelled (CH1 and CH2) as indicated below. If two adaptor boxes are used, via a Y Adaptor (RF602Y), then channel 1 will be reflected as channel 3 on the connected transmitter, and channel 2 as channel 4.

Each channel is independent, so can either be configured for a **voltage** input, or for a **current** input. CH1 and CH2 need not have the same configuration.




The selection of either **voltage** or **current** is made using the included **shorting links** as indicated above. Please ensure that you have made the correct selection else there will be errors in the readings.

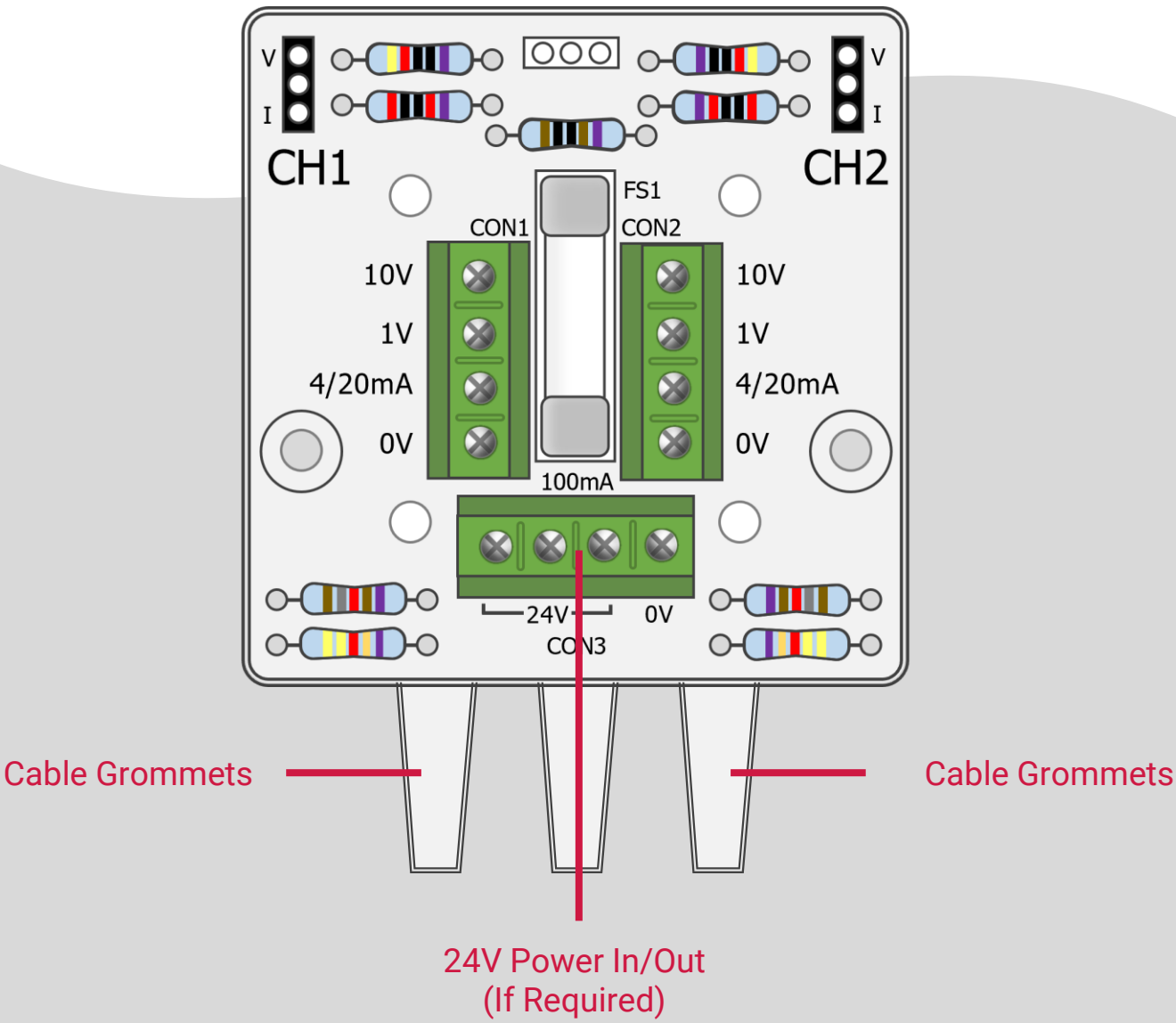
It is recommended that only persons with some prior knowledge of electrical circuits, undertake any required wiring of the Adaptor Box(es).

# Power Options

The Multi-Parameter 2-Way Adaptor Box (RF615B) is pre-fitted with three **cable grommets** which should be used for bringing cables in and out of the housing.

The Adaptor Box also includes connections for a **24V mains power supply unit** (PSU) in order that power can be supplied to connected devices.

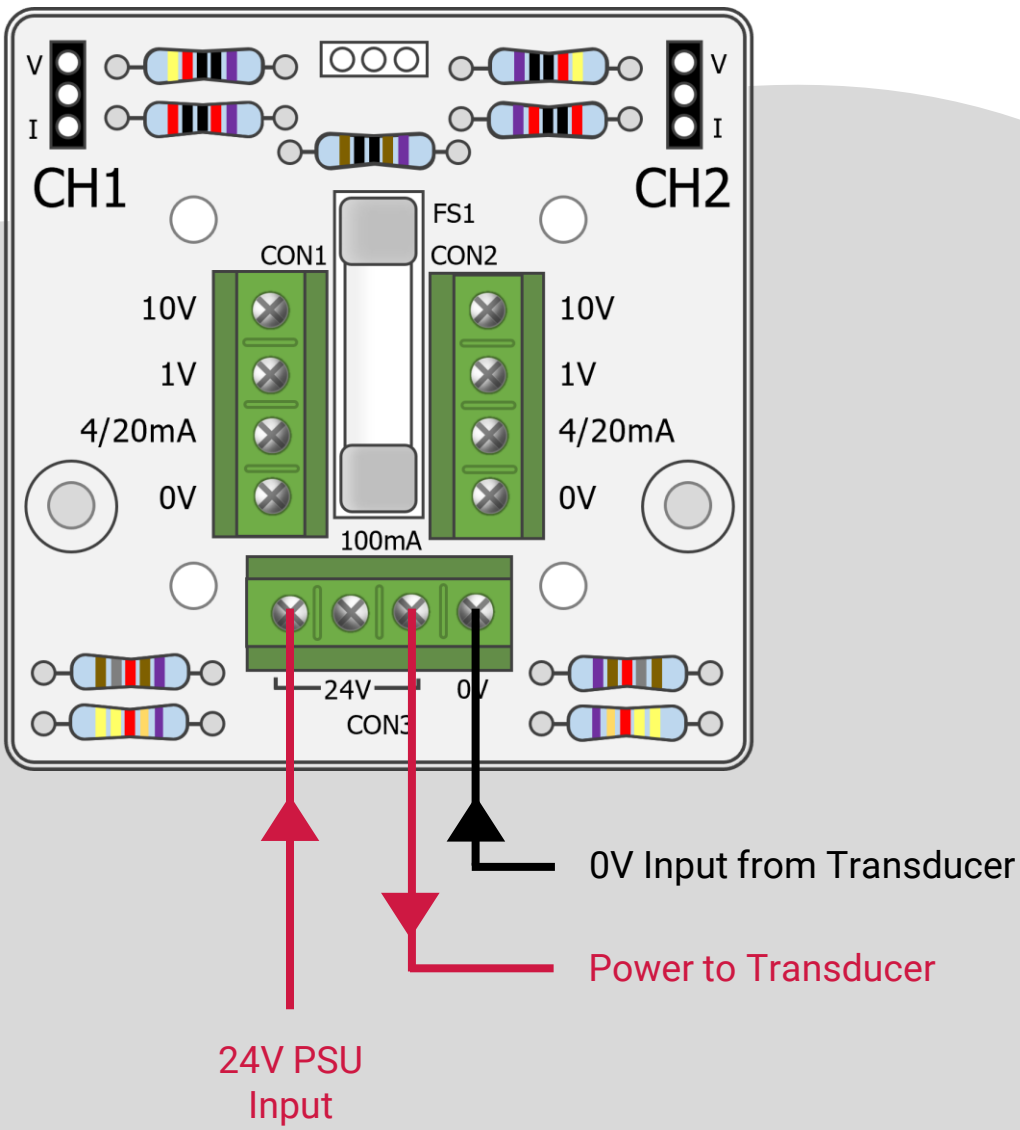
It should be noted that some transducers require a separate PSU. In the case of 4-20mA transducers, some are loop-powered, with the connections in series.



# Power Options (Cont.)

The 24V PSU connection to the Adaptor Box (RF615B) includes **two additional connectors**, to allow power output to the transducer. The **ground connection** should be used for both the PSU and connections to 0V on the transducers.

In some special cases, current (4-20mA) transducers do not have a separate output for the signal and rely on the two-wire connection for both sensor power and the output to the loop. In such cases special attention should be paid to the connections required. An example of wiring for **loop-power** is given further on.



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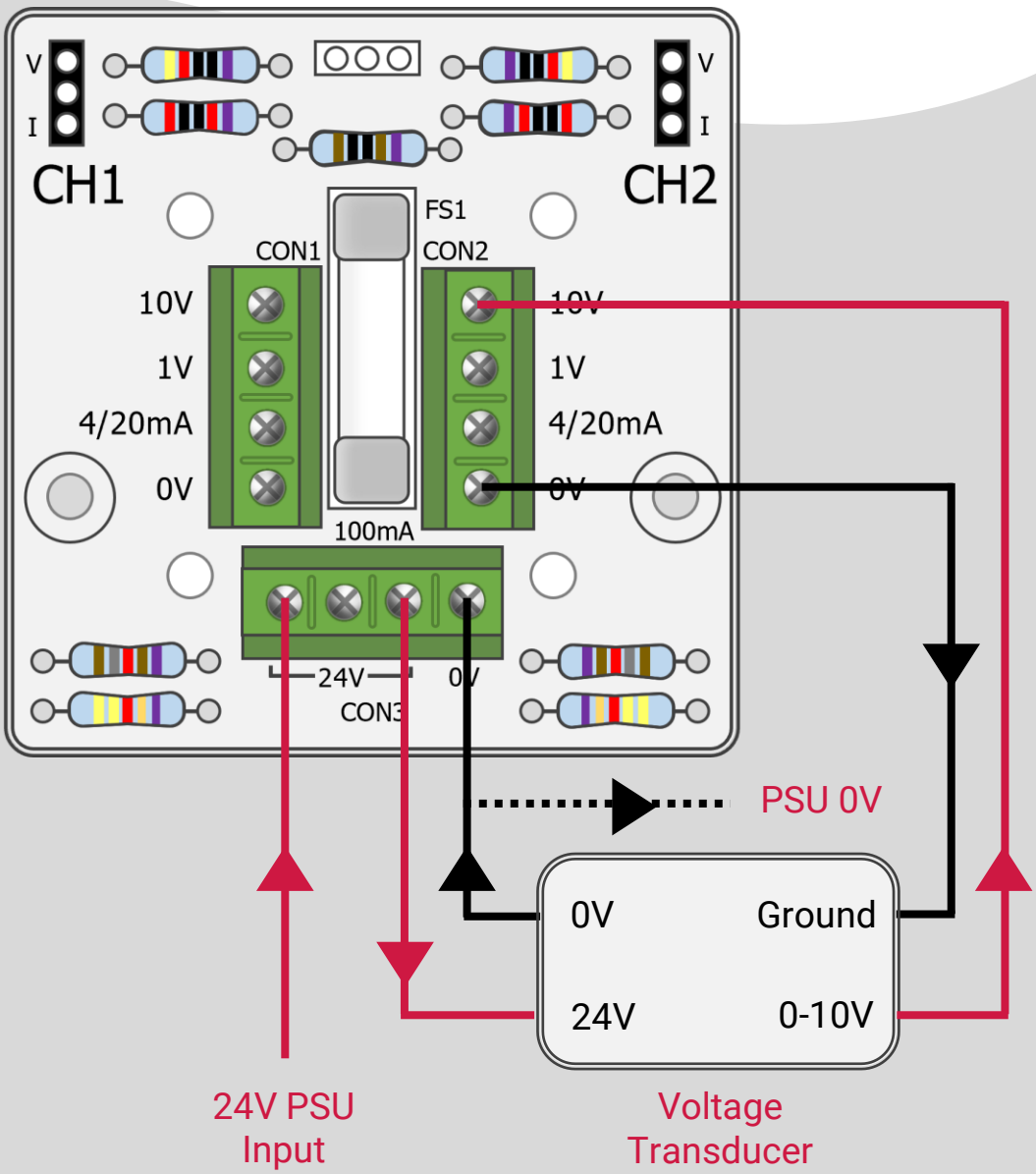
# Voltage Transducer Wiring

Here the transducer has four connections, two for **power in** and two for the **signal out**. It is possible that the **ground input** may be shared with the **0V output** thus having only three connections instead of four.

It may not be necessary to use the power connections inside the Adaptor Box as power can be provided direct to the transducer. However, if using two voltage transducers, then using the Adapter Box connections would allow both to be powered from a single PSU. Always ensure that you use the 0-1V or 0-10V input as per the transducer selection.



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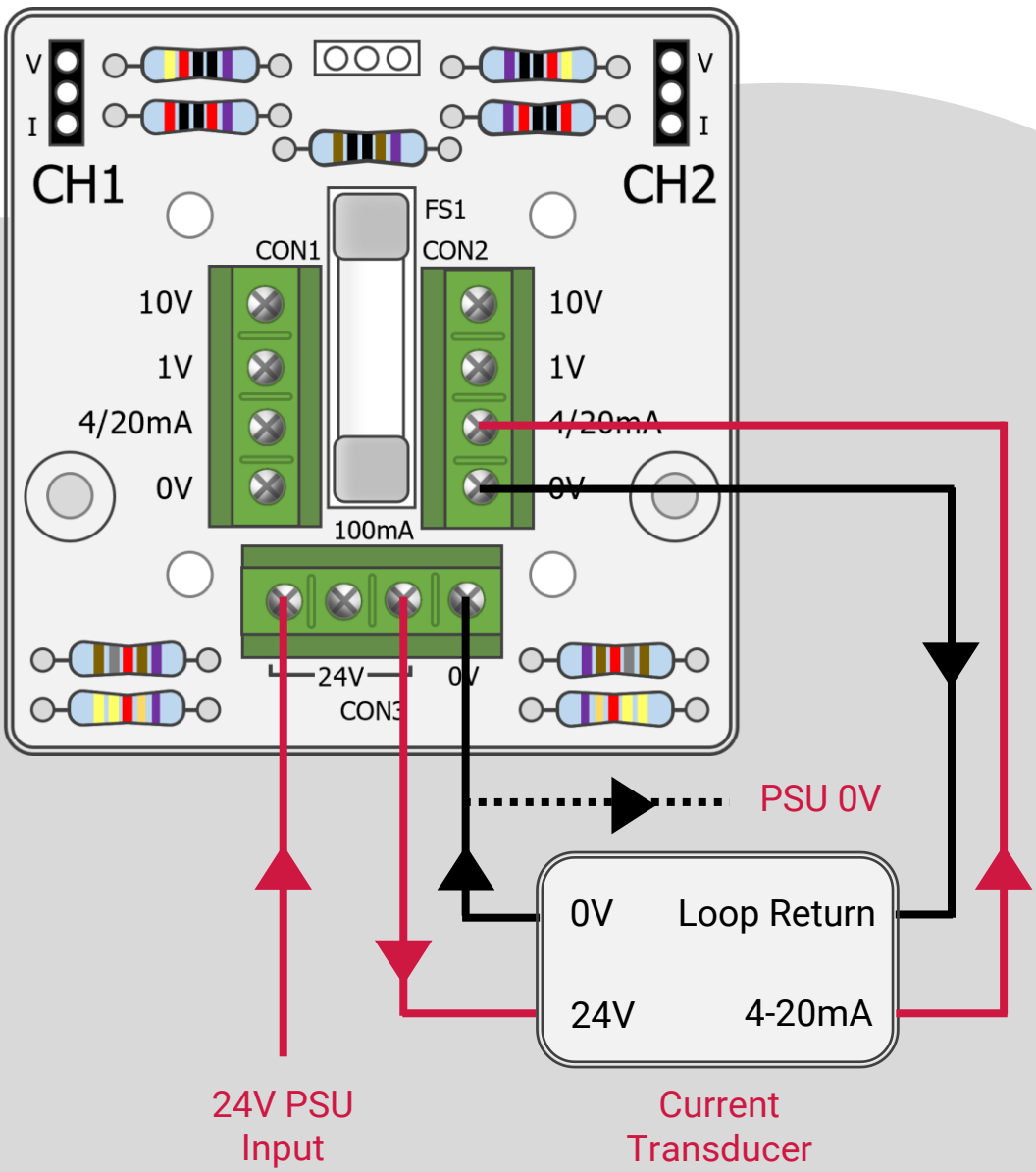
# Current Transducer Wiring

In this example, the transducer has four connections, two for **power in** and two for the **signal out**. It is possible that the **ground input** may be shared with the **0V output** thus having only three connections instead of four.

In this instance the 4-20mA current transducer is not loop-powered and has separate power input and current output.



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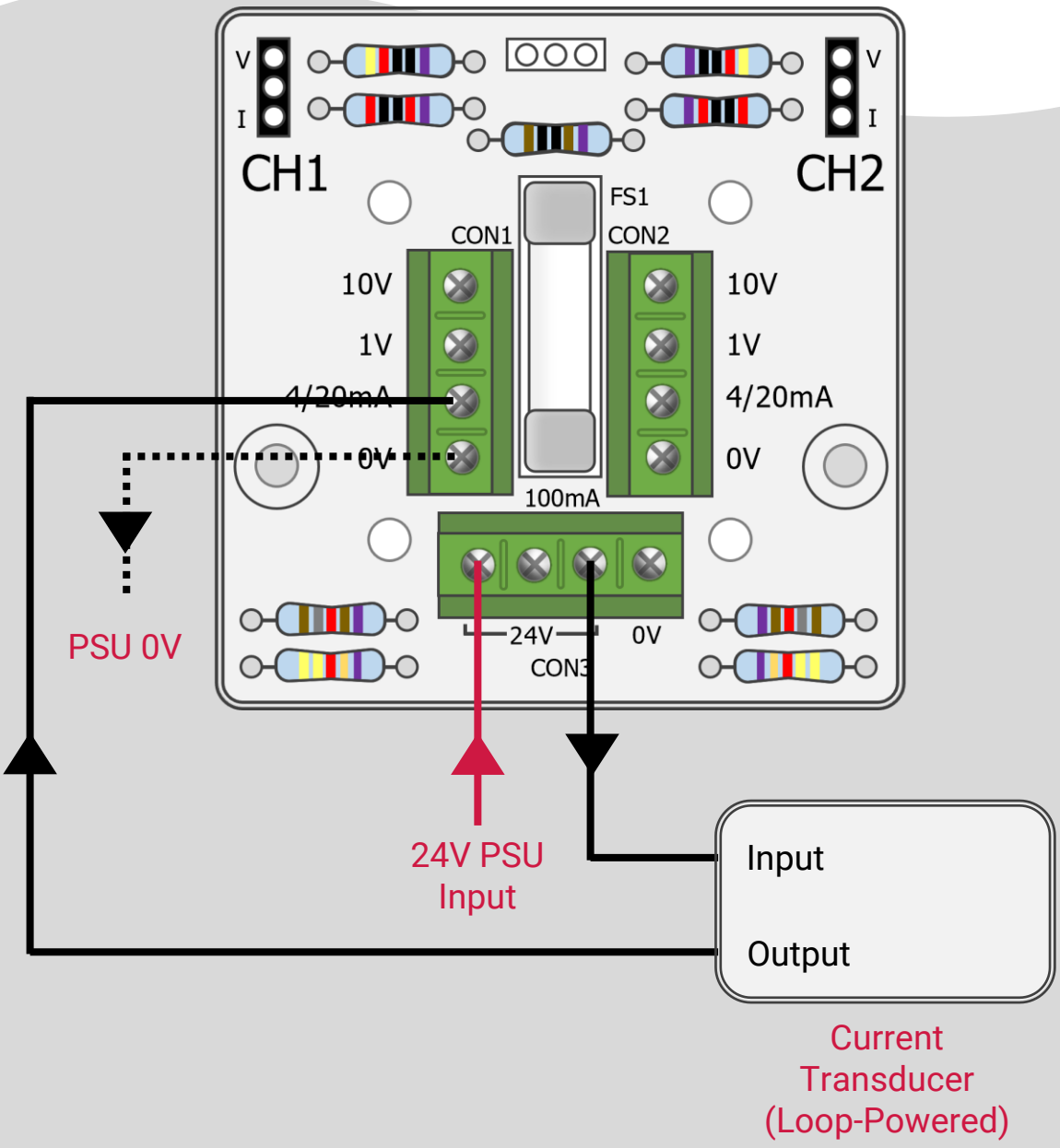
# Current Transducer Wiring (Loop-Powered)

With this option, the transducer is powered by the loop current flowing around the circuit. Two loop-powered transducers can still be connected, but the wiring of each should be kept separate. The second transducer should be wired in parallel with the first to ensure that there are two current loops. If you are breaking into an existing current loop, i.e., in a factory environment, you do not need the additional PSU connection. Simply connect the existing current loop to the 0V/Ground connector and the 4/20mA connector. If the readings on the Transmitter (RF615) are reversed, then simply swap the connections.



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# Important Notes

## Environmental Protection

The Multi-Parameter 2-Way Adaptor Box (RF615B) is not waterproof and therefore should not be used in damp or wet environments. Nor is it rated for intrinsically safe applications.

## Before Connecting Power

We recommend that all wiring is checked thoroughly prior to connecting power. This is especially important if multiple transducers are being connected via the Multi-Parameter 2-Way Adaptor Box (RF615B) to the Diligence 600 WiFi Multi-Parameter Transmitter (RF615), or if there is a mix of voltage and current transducers. Damage can potentially occur if the transducers are incorrectly wired.

We recommend connecting everything to the Transmitter (RF615) initially. If the input is shorted or 24V applied directly to the current input, then the fuse will blow. The fuse is rated for 100mA.

Once all internal connections have been made the case should be reassembled and secured with the two supplied screws.

## Commissioning

In order to now see data from any connected transducer(s), the Diligence WiFi Multi-Parameter Transmitter(s) will need to be tasked.

Please refer to the Diligence Cloud platform help section or the Diligence 600 Reference Manual for further information on this and general transmitter related functions.

# Warranty

Each Comark product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is one (1) year, unless otherwise stated, and the warranty period begins on the date of shipment. Temperature probes are warranted for six (6) months.

The warranty extends only to the original buyer or end-user of a Comark authorized reseller. This warranty does not cover damage resulting from normal wear and tear, abuse, misuse, accidental breakage, negligence, defects caused by modifications, repair and servicing not made or authorised by Comark Instruments, damage caused by handling, operating, storing, or using the product outside the intended uses described by our product literature. Disposable batteries are also exempt from warranty.

Comark's warranty obligation is limited, at Comark's option, to refund of the purchase price, free of charge repair, or replacement of a defective product returned within the warranty period. Products must be returned to Comark or one of Comark's authorized service agents.

This warranty is the buyer's sole and exclusive remedy and is in lieu of all other warranties, express or implied, including but not limited to any implied warranty of fitness for a particular purpose. Comark shall not be liable for any special, indirect, incidental or consequential damages or losses, including loss of data, whether arising from breach of warranty or based on contract, tort, reliance or any other theory. Since some countries or states do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warrant may not apply to every buyer.

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