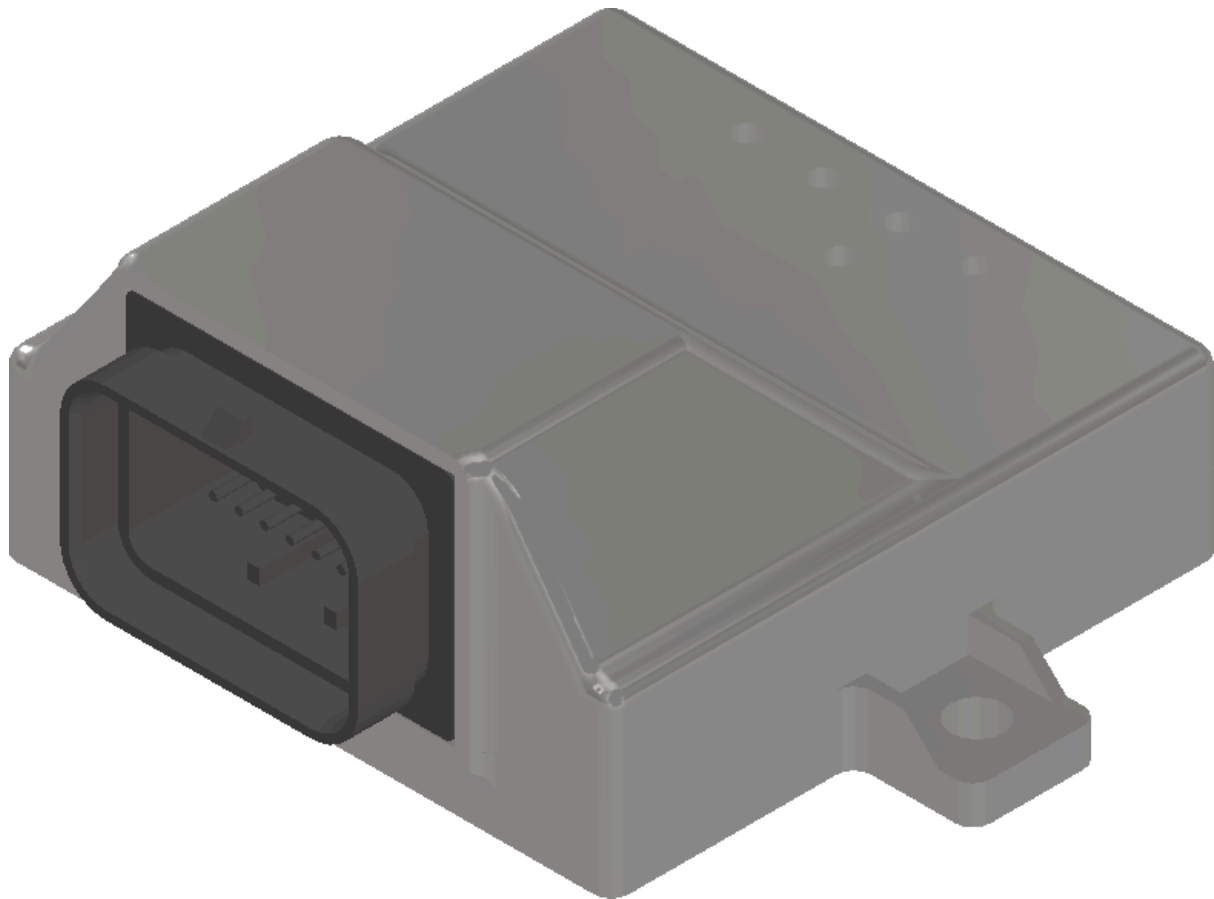


# Encased Can Switch Board



## User manual

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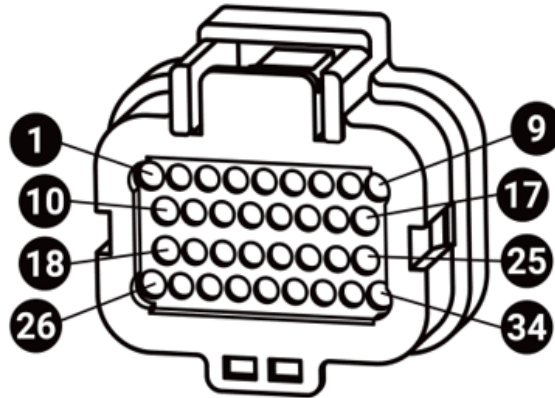
## **General description**

The RRR Encased Can Switch Board is a boxed version of Ecumaster CAN Switch Board V3. It retains full functionality of the original module with some additional features such as four fused 10A relay outputs, LED state indicator for each high current output channel and heartbeat, and also duplicated CAN bus connection. Compact enclosure ensures protection from external factors.

## **Features summary**

- Full functionality of Ecumaster CSB V3 including eight 10-bit analogue inputs and eight switch inputs
- Four manageable fused 10A (each) relay outputs, choosable high or low side operation
- Five LED indicators for each relay channel and heartbeat
- Pair of CAN bus pins, making wiring manageable
- Compact 100 mm x 83.1 mm box enclosure dimensions

# Pinout



Pin	Function	Pin	Function
1	Out 1	18	Out 2
2	Switch 1	19	Switch 7
3	CAN-L (internally connected to PIN 6)	20	Analog 1
4	CAN-H (internally connected to PIN 7)	21	SGND (internally connected to PIN 13)
5	12V supply	22	5V (internally connected to PIN 14)
6	CAN-L (internally connected to PIN 3)	23	Analog 2
7	CAN-H (internally connected to PIN 4)	24	Switch 8
8	Switch 2	25	Feed 4
9	Feed 3	26	Feed 2
10	Feed 1	27	Analog 3
11	Switch 3	28	Analog 4
12	Switch 4	29	Analog 5
13	SGND (internally connected to PIN 21)	30	Ground
14	5V (internally connected to PIN 22)	31	Analog 6
15	Switch 5	32	Analog 7
16	Switch 6	33	Analog 8
17	Out 3	34	Out 4

## Characteristics table

For electrical characteristic, device configuration, connection examples and CAN data refer to original Ecumaster CSB V3 documentation.

[LINK](#)

Parameter	Min.	Typ.	Max.	Unit
Relay outputs current	-	-	10	A
Operating temperature	-40	-	+70	°C

## Connection examples (relay outputs only)

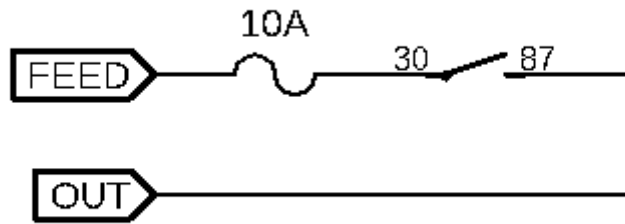
Each relay output is equipped with two pins - "feed" and "out". As these pins are galvanic isolated from chassis ground or 12V supply, they can be used as low or high side switches. Make sure to use high-quality wires and reliable clamped plugs to prevent signal noises and misreadings. The wiring loom should be secured to prevent potential short circuits and wire cuts. Use good-quality crimping tools to install terminals.

**Do not connect chassis ground to analogue ground!**

**CAN wires must be twisted pair type!**

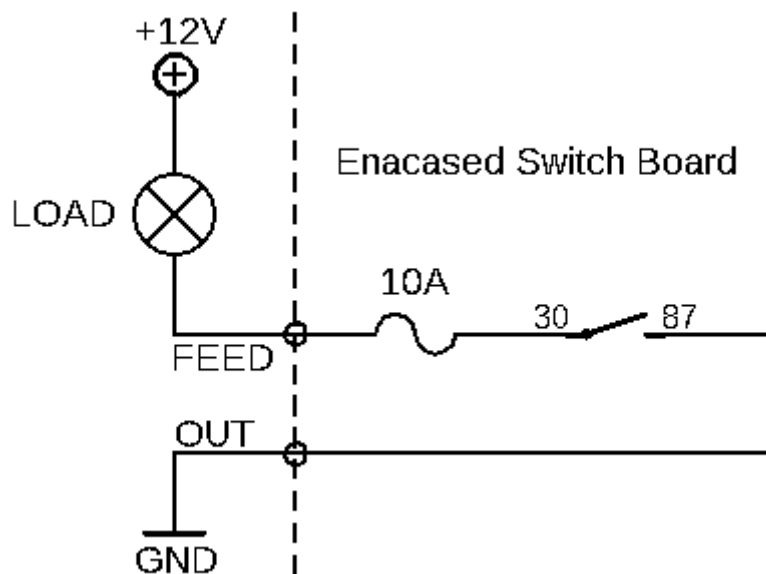
**Do not exceed the maximum current rating of relay channels!**

- **Internal relay circuit schematic (one channel)**



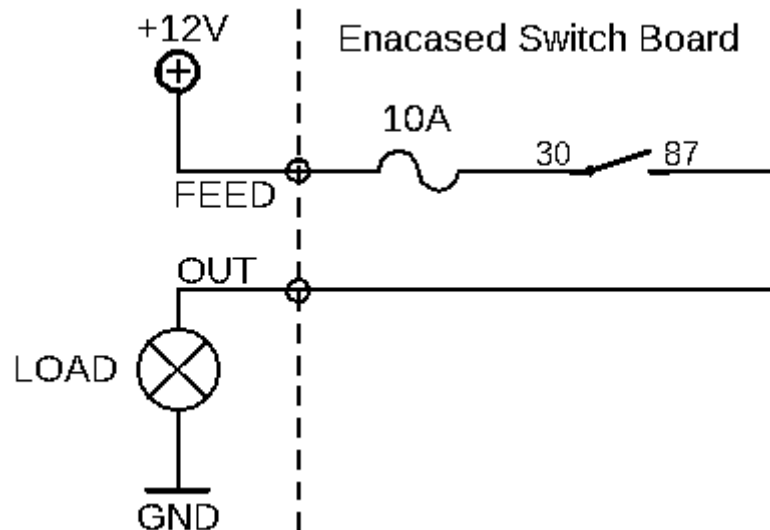
- **Low side connection example**

For low side operation connect the load supply to 12V and its other end to the "Feed" pin. "Out" pin goes straight to the ground during low side operation.



## • High side connection example

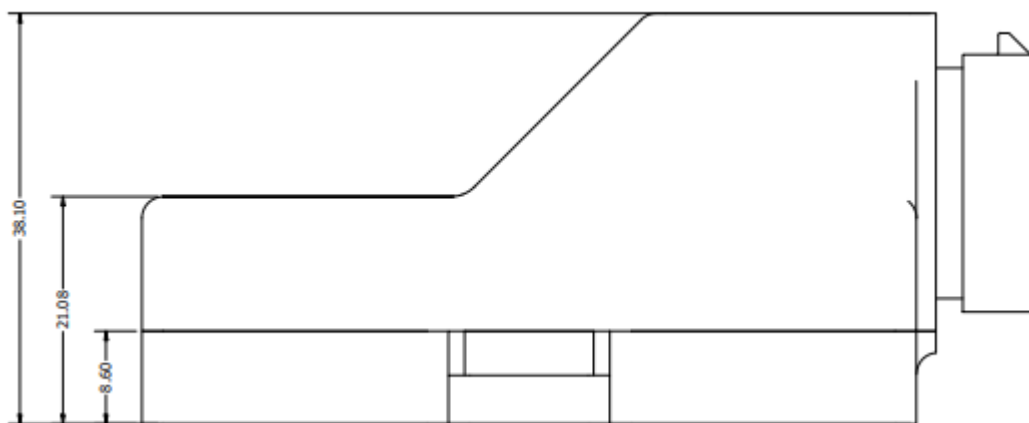
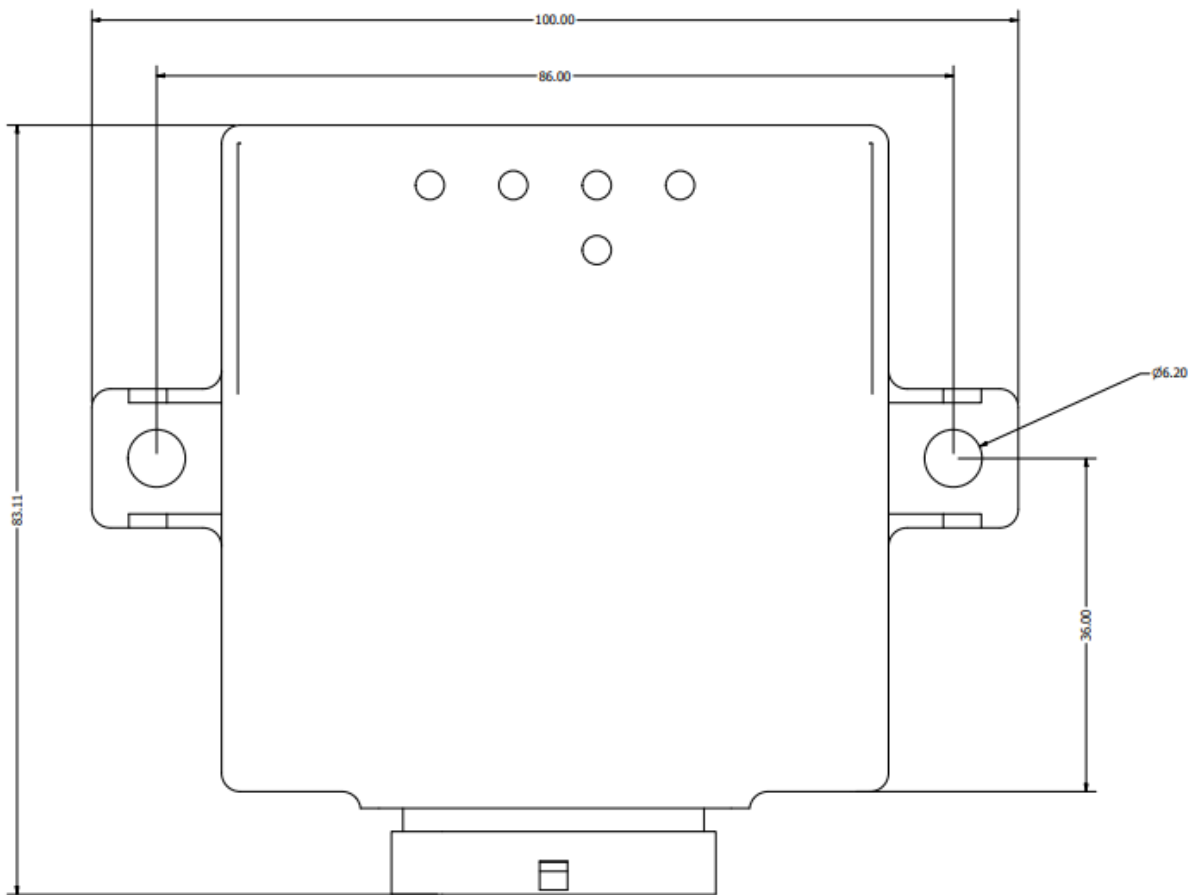
For high side operation connect the load supply to the "Out" pin and its other side straight to the ground. "Feed" pin needs to be connected to 12V.



## Communication

Relay outputs are controlled by "L1 ctrl" & "L2 ctrl" & "L3 ctrl" & "L4 ctrl" bytes in CAN frame.

# Dimensions



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# Accessories

- [External pull-up assembly](#)
- [10 pos rotary switch](#)
- [Rotary potentiometer resistor board](#)
- [Bosch high-temperature fluid sensor](#)
- [Bosch 026 fluid sensor](#)
- [Bosch intake air temperature sensor](#)
- [Ecumaster oil/fuel 10 bar pressure sensor](#)
- [OTTO P9M latching switch](#)
- [OTTO P9 momentary switches](#)
- [Bosch combined pressure and temperature sensor](#)