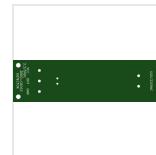
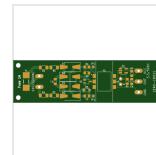
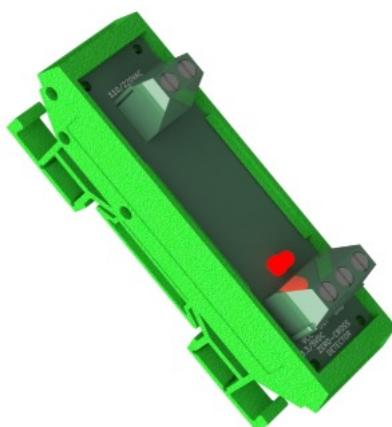


**Dan TStar**

UNITED KINGDOM • Following

**Zero-Cross Detector**

The latest revision of the DIN rail mounting zero-cross detector. 110/220VAC, 3.3/5VDC. Updates i clearance. Single sided board 72x20

278 1 3

Published: May 18, 2024

BOM(Bill of materials)

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**Description****Zero-Cross Detector**

The latest version of the DIN rail mounting zero-cross detector.

Note: 4n35SM optocoupler must be Vishay package option 7 (for required clearance).

AC input to monitor: 110/220VAC, <1A

DC input: 3.3/5VDC. Signal output will be the same voltage. Share ground with MCU.

Produces a square pulse on each zero crossing with a pulselwidth of ~1ms on a 50Hz supply.

Updates:

It's basically the same as the original circuit but with improved clearances. A particularly crucial one is the isolation gap between the mains side and the low voltage side, which must be min. 8mm. The standard 4N35SM optocoupler does not quite give enough clearance (only 7mm) so it

Topic**DIY Electronics**

0mm. The standard 4N35SM optocoupler does not quite give enough clearance (only 7mm) so it needs to be package option 7 from Vishay which has slightly longer legs to give 8mm clearance.

I added test points after the rectifier.

zero cross DIN rail detector

To make it cheaper I went back to using separate diodes rather than a combined package for the bridge rectifier.

The board has square corners and no cutouts so should be easily panelized with v-cuts into panels of 5.

Enclosure: UM72 DIN rail PCB mount

<https://www.aliexpress.com/item/32276247838.html>

<https://www.aliexpress.com/item/4000272944733.html>

OR: Camdenboss CIME/M/SE1125SS (x2) + CIME/M/FE0000SS

<https://www.camdenboss.com/camden-boss/cimemse1125ss-72mm-empty-modular-interface-support%2c-11.25mm-end-section/c-23/p-18376>

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DISCLAIMER: This project uses mains electricity which is HAZARDOUS and can cause ELECTRIC SHOCK or FIRE. This circuit must be independently reviewed, tested and certified by a qualified and registered professional before use. The author accepts no responsibility for accident, injury or loss resulting from the assembly and use of this project in any way. Provided for informational purposes only.

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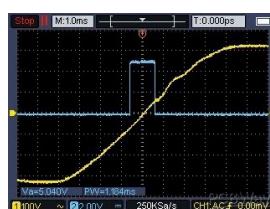


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Hello Dan, Since the previous page version was deleted, the whole conversation history was gone. There were some interesting notes in the original page ;) I wanted to post again this shot from my Owon oscilloscope of this ZCD module (I have the original circuit mentioned). The pulse is centered and is about 1.2ms width.

Jun 04, 2024

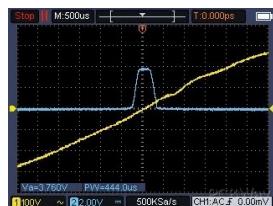
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MATHIEU CARBOU 2024-06-04 21:00:29

F



MATHIEU CARBOU



... and here is to compare the pulse of the Robodyn 24A, which is more trouble to detect on ESP32

Jun 04, 2024 0 Comments

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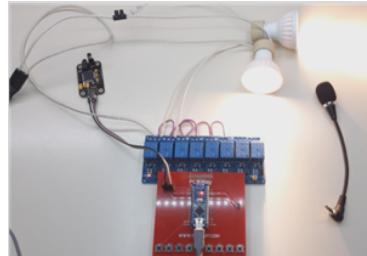
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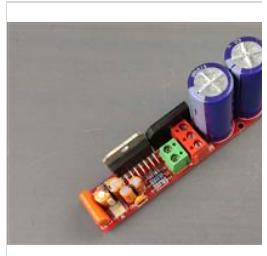
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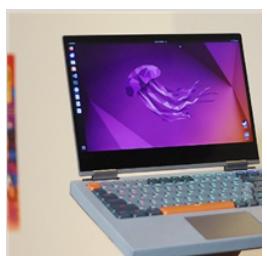
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