

CANdi User's Guide

Revision 1.0



Cross The Road Electronics

www.ctr-electronics.com

Table of Contents

- 1. Device description 4
 - 1.1. Kit Contents..... 4
 - 1.2. Features 5
 - 1.3. Electrical Specifications..... 5
 - 1.4. General/Mechanical Specifications..... 5
 - 1.5. LED States 6
- 2. Installation 7
 - 2.1. Wiring the CANdi Inputs..... 7
- 3. Example Sensor Installation 8
 - 3.1. Example: CTR Mag Encoder 8
 - 3.1. Example: Limit Switch 9
- 4. Software Information..... 10
- 4. Mechanical Drawings..... 11
- 5. Revision History 12

TO OUR VALUED CUSTOMERS

It is our intention to provide our valued customers with the best documentation possible to ensure successful use of your CTR Electronics products. To this end, we will continue to improve our publications, examples, and support to better suit your needs.

If you have any questions or comments regarding this document, or any CTR Electronics product, please contact support@crosstheroadelectronics.com

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1. Device description

The CTR Electronics CANdi is a Digital Input to CAN converter. Users can connect a variable of Digital Input capable signals into the CANdi, and read the state of those devices over CAN. This functionality simplifies wiring, and enables deep integration into the CTR Electronics Phoenix software ecosystem.

1.1. Kit Contents



1.2. Features

- Digital Input to CAN converter
- 2 digital input sources (S1 and S2)
- Unregulated Vbat output
- Regulated 5V output
- Overcurrent protection
- Output short-circuit protection
- Reverse polarity protection
- Quadrature and PWM decoding
- CAN 2.0 and CAN FD
- Floating pin detection
- Can be used as a remote sensor with CAN-enabled Phoenix motor controllers
- Can be used as a remote limit switch with CAN-enabled Phoenix motor controllers

1.3. Electrical Specifications

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Tamb	Ambient temperature		-40		+85	°C
Isupp	Supply Current	DC supply 12.0V		50	60	mA
Vdd	Supply Voltage		6.0	12.0	28.0	V
	Weidmuller Input AWG		14		24	AWG
ESD Rating						
	ESD Protection Contact Discharge				±30	kV
	ESD Protection Air-Gap Discharge				±30	kV
Output Specifications						
Isupp	Max Output Current		0		300	mA

1.4. General/Mechanical Specifications

Description	Specification
Outside Dimensions (WxHxL)	1.05" x 0.83" x 2.43"
Weight	0.992 ounces (28.122727) w/o wires
Hole Spacing	1" (compatible with WCP boxtube)

1.5. LED States

The CANdi has 2 LEDs located on the front of the CANdi. These LEDs indicate various state about the device, and is useful for diagnostics. The table below can be used to look up what corresponding LED color codes mean.

LED Color	LED State	Cause	Possible Fix
Off	LEDS Off	Device does not have power	Provide 12V to V+ and V- inputs.
Red/Off	Alternating red	Device does not have valid CAN	Ensure good connections from the CAN H and CAN L inputs to the robot, and that the robot controller is turned on.
Green/Green	Alternating green	CANdi has a good CAN connection	
Red/Orange	Alternating red/orange	Damaged hardware.	Contact CTR Electronics.
Green/Orange	Single LED alternating green/orange	CANdi in bootloader.	Field upgrade device in Phoenix Tuner X.

2. Installation

The CANdi can be mounted using the two 1-inch spaced through-holes located on the CANdi.

2.1. Wiring the CANdi Inputs

The CANdi 6 Weidmuller inputs that can be used for connecting input power, input CAN, and outgoing CAN. An example of wiring the CANdi inputs can be shown in *Figure 1*.



Figure 1

3. Example Sensor Installation

CANdi simultaneously supports two Digital Input sources connected independently to S1In and S2In. Examples of how to wire commonly used sensors can be seen below.

Important!
Always consult the manufacturer documentation for your sensor. Different sensors behave differently depending on how they are wired.

3.1. Example: CTR Mag Encoder

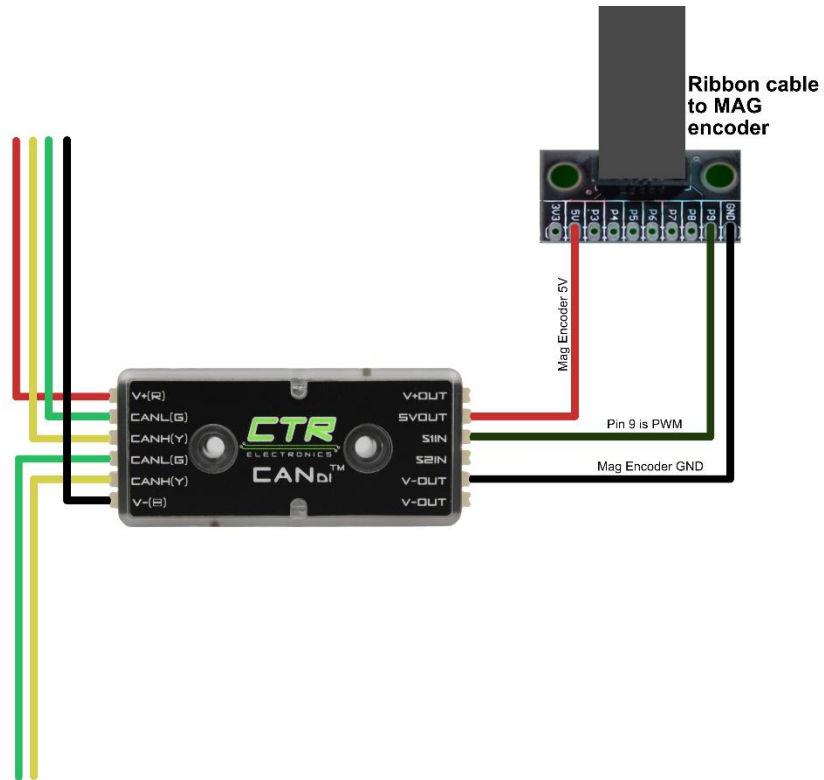


Figure 2

3.1. Example: Limit Switch

In *Figure 3*, the limit switch COM is wired to V-/GND. The result of this wiring is such that pressing the limit level will cause the S1 input to transition into a "LOW" state. When the limit switch is not pressed, the S1 input will match the configured S1 Float State.

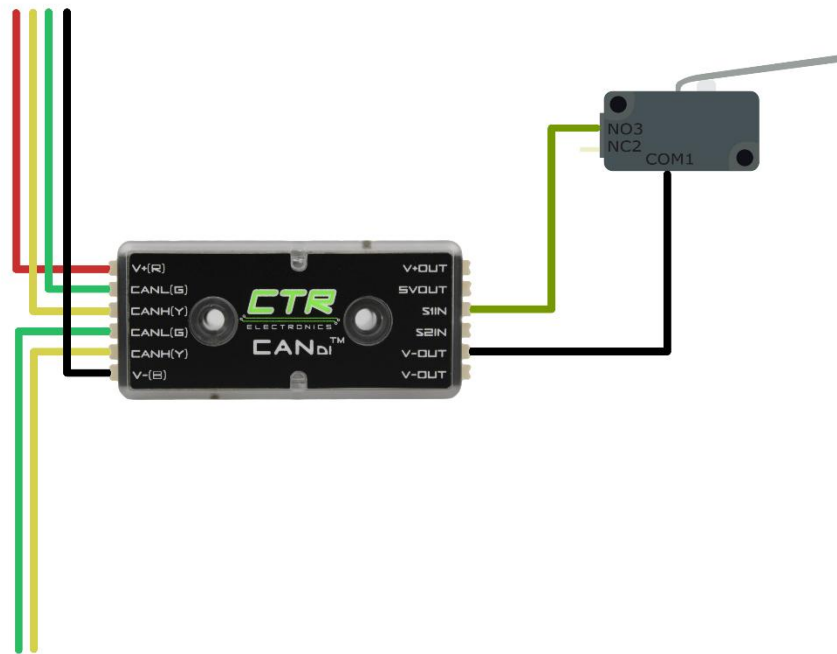
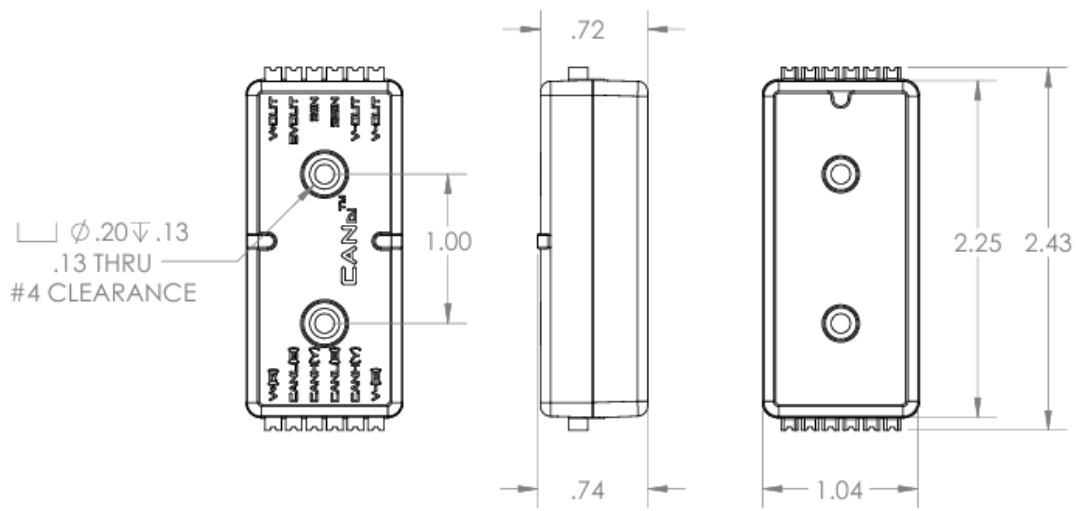


Figure 3

4. Software Information

Software information can be found on our documentation landing page at <https://docs.ctr-electronics.com>.

4. Mechanical Drawings



5. Revision History

Revision	Date	Description
1.0	6-Dec-2024	Initial Creation.