

DATASHEET

BT-2072 Datasheet

72 DO, 0v to 30v, Sinking, 1ms

- Pico-Clasp Connectivity
- Source up to 60mA per Channel
- 30 VDC Max Input Voltage

The BT-2072 is a digital output module for National Instruments Compact RIO systems. Each channel is capable of sinking 60mA and compatible with signals up to 30 VDC. The BT-2072 is specifically designed to interface with low power industrial logic and electromechanical and solid-state relays. The BT-2072 features a closure counter in the form of an Odometer and a resettable Tripmeter for each channel.

A recommended accessory (BT-8101) can convert the Pico-Clasp connectors to DSUB37 connectors which are pin compatible to National Instruments 32 channel digital accessories. This adapter allows for the direct replacement of NI 9477 as long as the signal voltage and current draw per channel is under 30 VDC and 60mA, respectively.

Package Contents:

- 1 x BT-2072 cRIO Module
- 1 x Drivers USB Stick
- 1 x QuickRef Guide

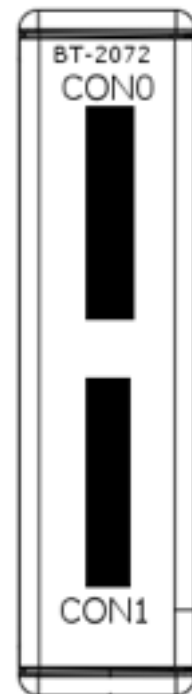
Recommended Accessories:

- 1 x BT-8101 DSUB37 Conversion Cables
- OR ---
- 1 x BT-8102 Pico-Clasp to Fly Leads Cables

Connector Pinouts

CON0		
Pin	Relay Address	Relay Number
1	E3	67
2	E2	66
3	E1	65
4	E0	64
5	GND	N/A
6	B15	31
7	B14	30
8	B13	29
9	B12	28
10	B11	27
11	B10	26
12	B9	25
13	B8	24
14	GND	N/A
15	B7	23
16	B6	22
17	B5	21
18	B4	20
19	B3	19
20	B2	18
21	B1	17
22	B0	16
23	GND	N/A
24	A15	15
25	A14	14
26	A13	13
27	A12	12
28	A11	11
29	A10	10
30	A9	9
31	A8	8
32	GND	N/A
33	A7	7
34	A6	6
35	A5	5
36	A4	4
37	A3	3
38	A2	2
39	A1	1
40	A0	0

CON1		
Pin	Relay Address	Relay Number
1	E7	71
2	E6	70
3	E5	69
4	E4	68
5	GND	N/A
6	D15	63
7	D14	62
8	D13	61
9	D12	60
10	D11	59
11	D10	58
12	D9	57
13	D8	56
14	GND	N/A
15	D7	55
16	D6	54
17	D5	53
18	D4	52
19	D3	51
20	D2	50
21	D1	49
22	D0	48
23	GND	N/A
24	C15	47
25	C14	46
26	C13	45
27	C12	44
28	C11	43
29	C10	42
30	C9	41
31	C8	40
32	GND	N/A
33	C7	39
34	C6	38
35	C5	37
36	C4	36
37	C3	35
38	C2	34
39	C1	33
40	C0	32

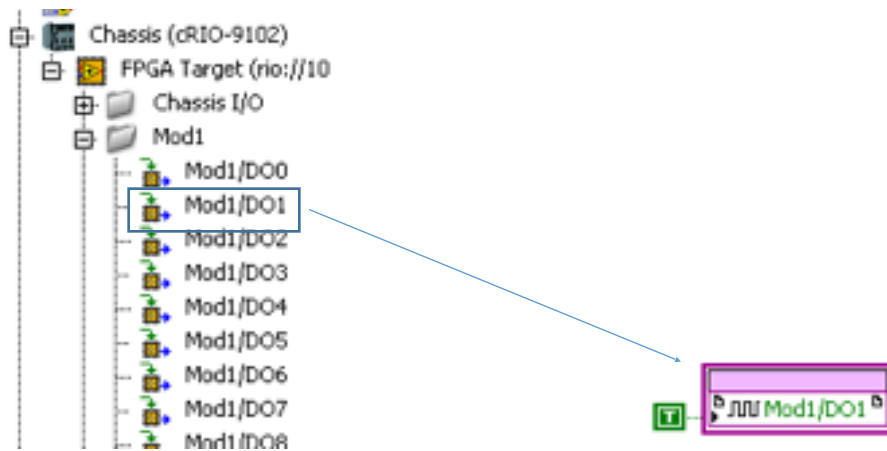


BT-2072 Software / Methods

Drivers are provided on a USB stick and must be installed before the module can be added to the FPGA Target. The module will identify as 'BT-2072' when adding the module.

Accessing the DO by Relay Number - IO Node

After adding the module to your LabVIEW project, click and drag the IO Node in the project list onto the Block Diagram. Wire in the state of the output and when the software executes that part of the code, the output will change on the selected DO Channel.

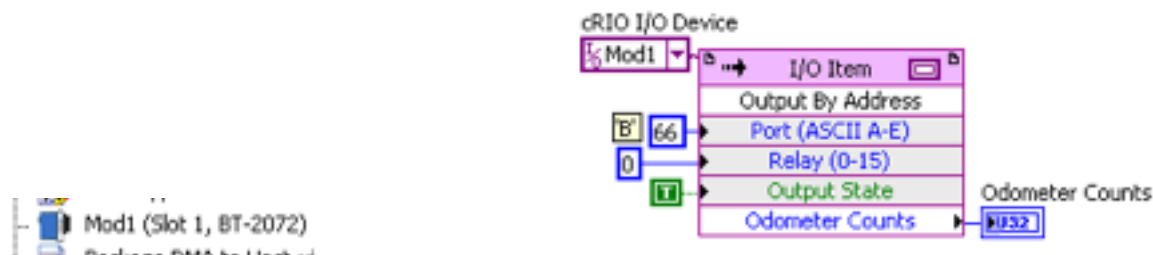


(In Project Explorer)

(On Block Diagram)

Accessing the DO by Relay Address - Method Node

Create a method node and wire in the Module reference. Select 'Output By Address' from the method list and wire the node. Use an ASCII table to convert 'A', 'B', etc. to its ASCII number. Relay Addresses can be found in 'Connector Pinouts'.



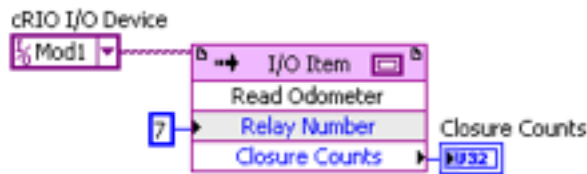
(In Project Explorer)

(On Block Diagram)

Reading the Odometer by Relay Number

The odometer is a non-resettable closure counter available on each channel. The Odometer is automatically read out when an output is accessed via the 'Output By Address' Method node. The odometer can also be read without changing the state of the output by using the 'Read Odometer' method.

Select the 'Read Odometer' method to read the current value of the Odometer for the specified Relay Number.



Reading the Tripmeter by Relay Number

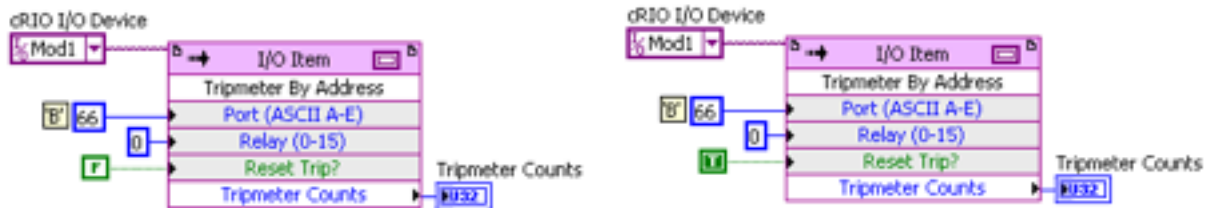
The Tripmeter is a resettable closure counter available on each channel. Every time an output changes from 'F' to 'T', an internal counter is incremented. These counters are stored in non-volatile NVSRAM, so the value is retained even if the system is powered off.

Select the 'Read Tripmeter' method to read the current value of the Tripmeter for the specified Relay Number.



Reading / Resetting the Tripmeter by Relay Address

Select the 'Tripmeter By Address' method to read the current value of the Tripmeter for the specified Relay Address. The Tripmeter can be reset by wiring the 'Reset Trip?' to a 'T'.



Resetting a Single Relay Tripmeter

Select the 'Reset Single Tripmeter' method and input the Relay Address to clear the Tripmeter of the relay number entered. This will reset the internal closure counter.



Resetting all Relay Tripmeters

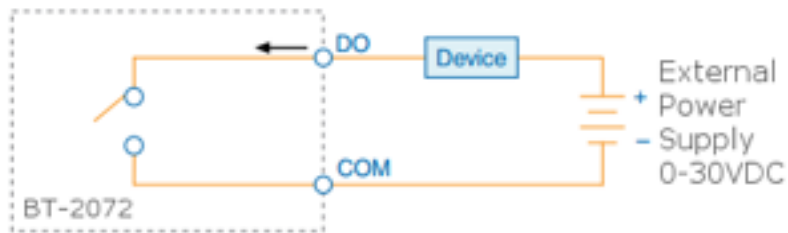
Select the 'Reset All Tripmeters' method and confirm the operation by wiring a 'T' to the 'Reset All?' input. This will reset the internal closure counters of every output channel.



Additional SubVI's

Additional VI's are provided which will help with integration of the BT-2072 into LabVIEW projects. These SubVI's can be found on the included USB Device in the 'SubVI' Folder.

BT-2072 Circuitry



The BT-2072 has sinking digital outputs. Sinking outputs drive current from the inputs (A0-15...E0-7) to GND when the channel is on.

BT-2072 Specifications

The following specifications are typical for the standard operating temperature range. (-40C to 70C)

CAUTION Do not operate the BT-2072 in a manner not specified in this document. Product misuse can result in hazard or unsafe conditions.

Output Characteristics

Number of Channels	72
Output type	Sinking
Power-on output state	Outputs OFF
Output Voltage	$I * R$
Power Supply Range	0VDC to 30VDC
Continuous Output Current (I)	
Per Channel	60mA
Per Module	4.3A
Output Impedance (R)	2.5 Ohms
Reverse-Voltage Protection	NONE
Short-Circuit Protection	NONE
Maximum Update Rate	1ms

Power Requirements

Power Consumption from Chassis	
Active Mode	300mW
Sleep Mode	1mW
Thermal Dissipation (@70C)	
Active Mode	900mW
Sleep Mode	1mW

Physical Characteristics

If you need to clean the module, wipe it with a dry cloth.

TIP For two-dimensional drawings and three-dimensional models of C Series modules and connectors, visit ni.com/dimensions

Weight	200g (7.05oz)
--------	---------------

Safe Voltages

Connect only voltages that are within the following limits:

Channel-to-GND	30 VDC Maximum
Isolation	
Channel-to-channel	NONE
Channel-to-earth ground	
Continuous	30 VDC Maximum

FCC Product Certification

For information regarding FCC Part 15b Declaration of Conformance (DoC), please contact info@bitgen.tech

Environmental

Refer to the chassis you are using for more information about meeting these specifications.

Operating Temperature	-40C to 70C
Storage Temperature	-40C to 70C
Ingress Protection	IP40
Operating Humidity	10%RH to 90%RH Non-Condensing
Storage Humidity	5%RH to 90%RH Non-Condensing
Pollution Degree	2
Maximum Altitude	2,000m

Indoor use only.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers At the end of product life cycle, all BitGen Technologies LLC products must be disposed of according to local laws and regulations.

For additional information or technical support regarding the BT-2072, please contact support@bitgen.tech.