C-DIAS Digital Input Module CDI 169-O

with 16 Counter inputs (8-bits each)

The CDI 169-O has 16 counter inputs, each with an 8-bit width for open collector outputs. The actual input signal can be read (use as digital input). The inputs 1-16 can be used as interrupt and counter inputs. To suppress noise in the signal lines, input filters are provided.

Technical Data

Input specifications

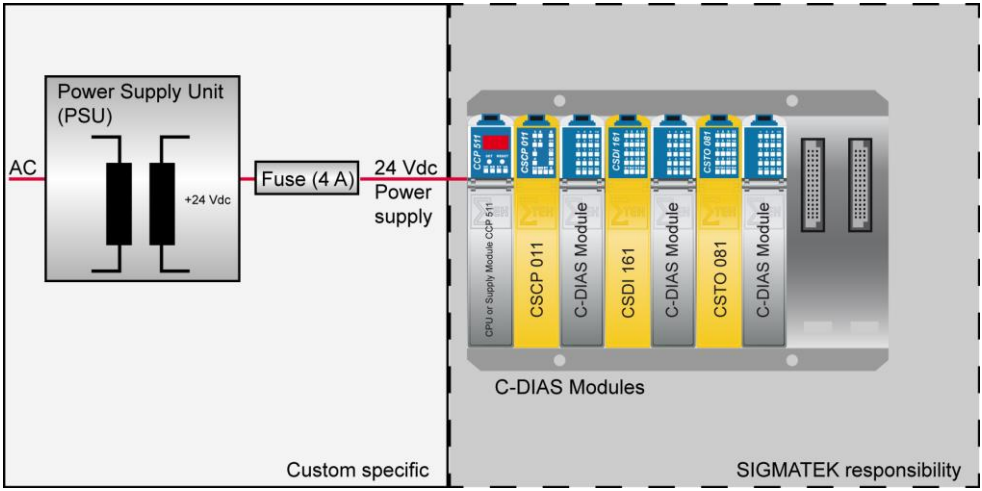
Number of …	16	
Input signal	GND switching	
Pull-up voltage	Typically +24 V	Maximum +30 V
Collector current	Typically 2.4 mA	Maximum 3 mA
Saturation voltage	Maximum 1 V @ 3 mA	
Residual current	Maximum 200 µA	
Counter frequency	Maximum 1 kHz	
Input delay	50 µs low pass 1. order	
Status display	None	

Functions / operating modes

Counter mode (can be set separately for each counter)	Forward / Backward Rising flank / Falling flank / Rising and falling flank Reset counter
Counter width	8 bits
Operating modes of inputs	Read inputs (2 x 8 bits)

Electrical requirements

Voltage supply from C-DIAS bus	+5 V	
Current consumption on the C-Dias bus	Typically 60 mA	Maximum 80 mA
Voltage supply from C-DIAS bus	+24 V	
Current consumption on the C-Dias bus; all inputs active	Typically 38 mA	Maximum 50 mA



The control panel was tested as a limited voltage/limited current (LVLC) device according to the UL508 Norm. To fulfill the normative requirements, the control panel must be powered by a galvanically isolated supply that is protected with a UL-approved fuse in the secondary circuit. The maximum rated current is determined by UL508, table 32.1.

UL508, table 32.1: rated fuse values

Output voltage (peak value) U_{max}	Current limit
0 V – 20 V (0 V– 28.3 V) 20 V – 30 V (28.3 V – 42.2 V)	5.0 $100/U_{max}$

Example:
Output voltage: 24 VDC
Maximum current: 100/24 V = 4.17 A
Selected fuse: 4 A

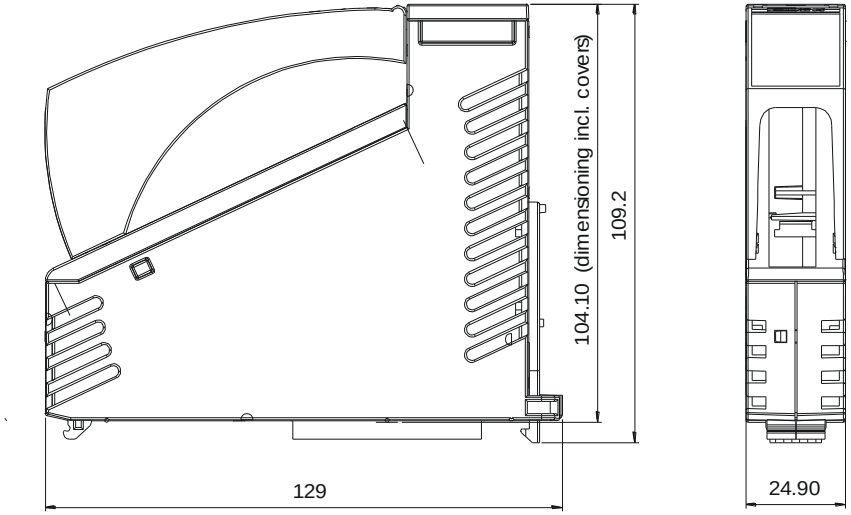
Miscellaneous

Article number	12-006-169-O
Hardware version	1.x
Standard	UL (E247993)

Environmental conditions

Storage temperature	-20 – +85 °C	
Operating temperature	0 – +60 °C	
Humidity	0 - 95 %, non-condensing	
EMC stability	Noise immunity according to EN 61000-6-2 (industrial area) Noise emission according to EN 61000-6-4 (industrial area)	
Shock resistance	EN 60068-2-27	150 m/s²
Protection Type	EN 60529	IP 20

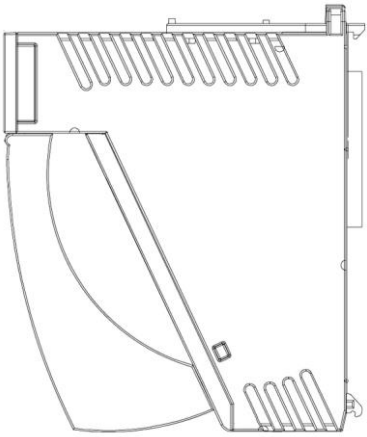
Mechanical Dimensions



Mounting position

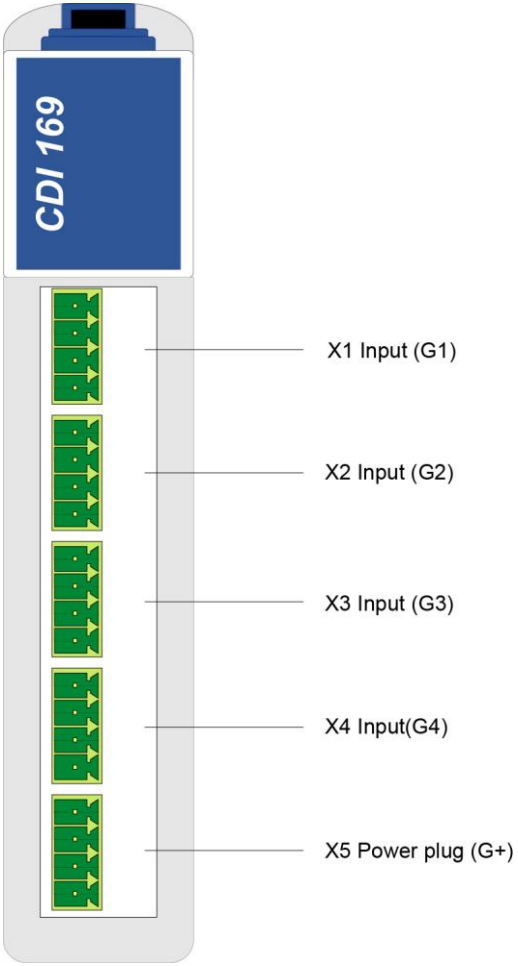
To ensure optimal cooling of the module, the CDI 169-O must be mounted as shown (standing). For an angled mounting position, forced convection (cooling fan) must be used.

Top

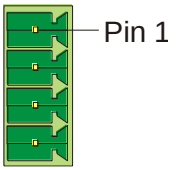


Bottom

Connector Layout

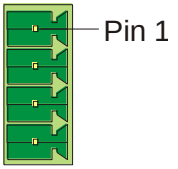


X1: Input connector (G1)



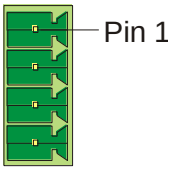
Pin	Function
1	Input 1
2	Input 2
3	Input 3
4	Input 4

X2: Input connector (G2)



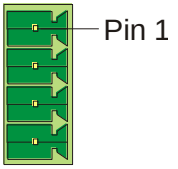
Pin	Function
1	Input 5
2	Input 6
3	Input 7
4	Input 8

X3: Input connector (G3)



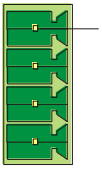
Pin	Function
1	Input 9
2	Input 10
3	Input 11
4	Input 12

X4: Input connector (G4)



Pin	Function
1	Input 13
2	Input 14
3	Input 15
4	Input 16

X5: Power plug (G+)



Pin	Function
1	+24 V
2	+24 V
3	+24 V
4	+24 V

The +24 V are not used by the electronics. All 4 connections are connected to one another in the module. They can therefore be used as distributors for the supply voltage. Maximum current load: 8 A per contact.

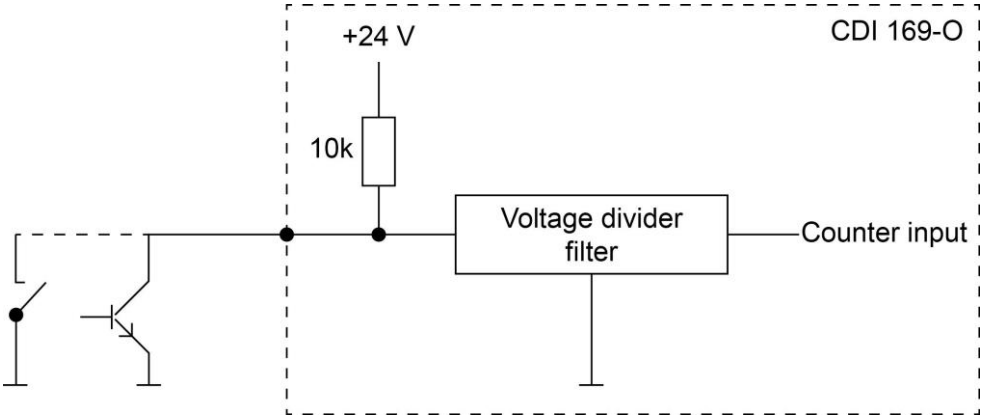
Applicable connectors

Connectors with spring terminals:
Phoenix Contact: FK-MCP 1.5/ 4-ST-3.5

Connector plugs with screw terminal technology:
Phoenix Contact: MC 1.5/ 4-ST-3.5

The complete C-DIAS CKL 031 connector set with spring terminals is available from SIGMATEK under the article number 12-600-031.

Input Circuit



Wiring Guidelines

The input filters, which suppress noise signals, allow operation in harsh environmental conditions. In addition, a careful wiring method is recommended to ensure error-free function.

The following guidelines should be observed:

- Avoid parallel connections between input lines and load-bearing circuits.
- Protective circuits for all relays (RC networks or free-wheeling diodes)
- Correct wiring to mass

The GND connection for the inputs and current supply module must be connected to a common earth bus over the shortest route possible.

The earth bus should be connected to the switchbox when possible!

Si possible, la barrette de mise à terre doit être connecté au bornier de terre de l'armoire de commande!