

NEIO-B1841 Quick Reference Guide

Ver. B (P/N: 60177B0347X00)

Product Overview

NEIO-B1841 is a cost-effective EtherCAT I/O slave module. Each NEIO-B1841 is equipped with 8-ch Analog Input, 2-ch Analog Output, 8-ch Digital Input, 8-ch Digital Output. NEIO-B1841 provides adjustable input range of voltage and current, so that it can fulfill different application requirements. NEIO-B1841 also provides watchdog function, when it is disconnected, watchdog function can keep the module in a safe state and restore to normal operation. All of the NEIO modules are provided with high isolation protection, and verified by the EtherCAT conformance test tool.

Hardware Specifications

Power Input	
Power Input Range	24 V _{DC} (±20%)
Power Consumption	3 W
Electrical Isolation	2.5 kV
Terminal Block	Spring type (3P, 5.00 mm)
Cross Sections	0.2 ~ 2.5 mm ² / AWG 26 ~ 12
Analog Input	
Channels	8-ch (single-ended)
Input Type	Voltage, Current
Input Range	0 ~ 5 V, 0 ~ 10 V, ±5 V, ±10 V, 0 ~ 20 mA, 4 ~ 20 mA
Resolution	16-bit
Sampling Rate	1 kHz
Accuracy	< ±0.3% of FSR
Internal Resistance	Voltage: > 1MΩ Current: 300Ω
Terminal Block	Detachable screw terminals (90°, 10P, 5.00 mm)
Cross Sections	Solid wire: 0.2 ~ 4 mm ² / AWG 28 ~ 12 Stranded wire: 0.2 ~ 2.5 mm ² / AWG 30 ~ 12



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Analog Output	
Channels	2-ch (single-ended)
Output Type	Voltage, Current
Output Range	0 ~ 5 V, 0 ~ 10 V, ± 5 V, ± 10 V, 0 ~ 20 mA, 4 ~ 20 mA
Resolution	16-bit
Conversion Time	< 100 μ s
Accuracy	< $\pm 0.2\%$ of FSR for voltage output < $\pm 0.1\%$ of FSR for current output
Load Impedance	Voltage: $\geq 1k\Omega$ Current: $\leq 300\Omega$
Terminal Block	Detachable screw terminals (90°, 10P, 5.00 mm)
Cross Sections	Solid wire : 0.2 ~ 4 mm ² / AWG 28 ~ 12 Stranded wire : 0.2 ~ 2.5 mm ² / AWG 30 ~ 12
Digital Input	
Channels	8-ch
Input Type	24 V _{DC} (PNP/NPN)
Input Filter	1 ms
On-state Voltage, "1"	9 ~ 24 V _{DC}
Off-state Voltage, "0"	0 ~ 8 V _{DC}
Input Current	<6 mA/ch
Electrical Isolation	2.5 kV
Terminal Block	Detachable screw terminals (90°, 10P, 5.00 mm)
Cross Sections	Solid wire : 0.2 ~ 4 mm ² / AWG 28 ~ 12 Stranded wire : 0.2 ~ 2.5 mm ² / AWG 30 ~ 12

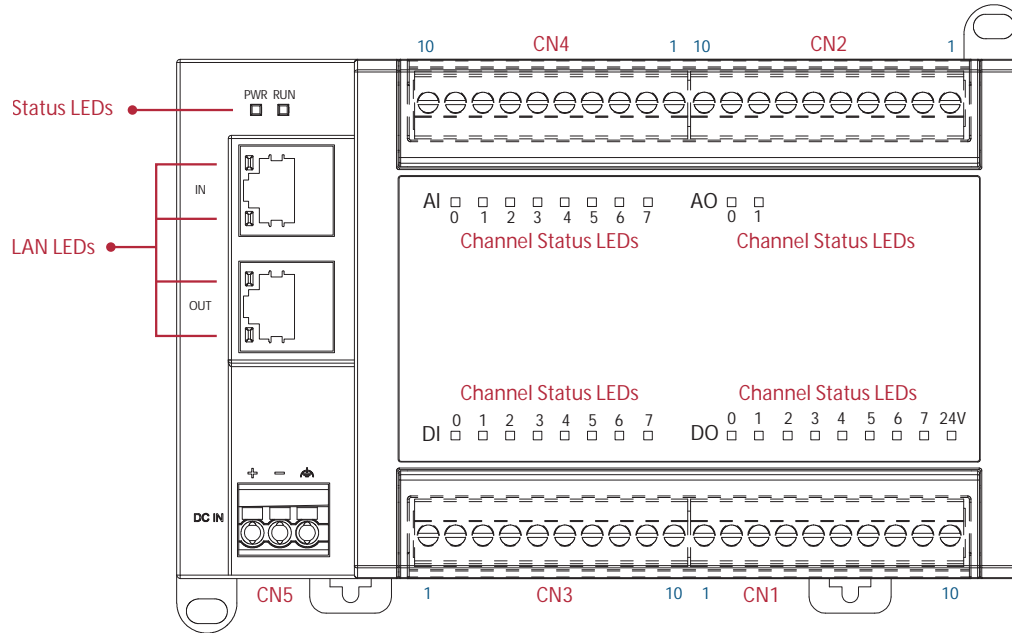
Digital Output	
Channels	8-ch
Output Type	24 V _{DC} (PNP)
Load Type	Resistive, Inductive and Capacitive
Output Current	Maximum: 500 mA/ch
Switching Time	OFF to ON - Maximum: 100 μ s ON to OFF - Maximum: 150 μ s
Output Protection	Over Voltage Protection Short Circuit Protection Reverse Voltage Protection Channel Over Temperature Protection Case Over Temperature Protection
Terminal Block	Detachable screw terminals (90°, 10P, 5.00 mm)
Cross Sections	Solid wire : 0.2 ~ 4 mm ² / AWG 28 ~ 12 Stranded wire : 0.2 ~ 2.5 mm ² / AWG 30 ~ 12
General Specifications	
Dimensions (W x H x D)	155 x 95 x 57.4 mm
Weight	324 g $\pm 20\%$
Mounting	DIN-Rail (35 mm) / wall mount
Operating Temperature	0 ~ +55 °C



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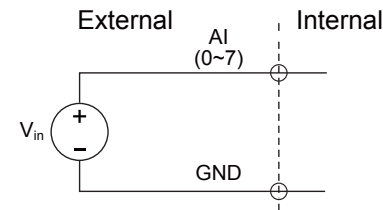
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Product Appearance

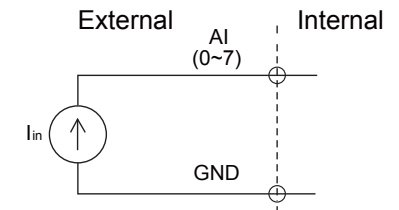


Wiring Diagram

Voltage Input



Current Input



Pin Assignments

CN5: Power

Pin	Description
1	V +
2	V -
3	GND

CN4: Analog Input

Pin	Description
1	GND
2	GND
3	AI 7
4	AI 6
5	AI 5
6	AI 4
7	AI 3
8	AI 2
9	AI 1
10	AI 0

CN2: Analog Output

Pin	Description
1	GND
2	AO 1
3	GND
4	AO 0
5	-
6	-
7	-
8	-
9	-
10	-

CN3: Digital Input

Pin	Description
1	DI 0
2	DI 1
3	DI 2
4	DI 3
5	DI 4
6	DI 5
7	DI 6
8	DI 7
9	COM
10	COM

CN1: Digital Output

Pin	Description
1	DO 0
2	DO 1
3	DO 2
4	DO 3
5	DO 4
6	DO 5
7	DO 6
8	DO 7
9	24V
10	GND



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
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LED Indicators

Status LEDs

LED	Status	Color	Description
PWR	On	Green	Power on (Power input range: 24 V _{DC})
	Off	-	Power off
RUN	On	Green	The module is in the Operational state
	Single Flash	Green	The module is in the Safe-operational state
	Blinking	Green	The module is in the Pre-operational state
	Off	-	The module is in the Initial state

LAN LEDs

LED	Communication Speed	Link	Act
	0	Off	Off
	10 Mbps	Off	Blinking (Yellow)
	100 Mbps	On (Green)	Blinking (Yellow)

Channel Status LEDs

LED	Status	Color	Description
AI 0 ~ AI 7	On	Red	AI limit LED
	Off	-	Normal operation
AO 0 ~ AO 1	On	Red	AO alarm LED
	Off	-	Normal operation
DI 0 ~ DI 7	On	Green	On-state voltage: 9 ~ 24 V _{DC}
	Off	-	Off-state voltage: 0 ~ 8 V _{DC}
DO 0 ~ DO 7	On	Green	Digital output signal is set.
	Off	-	No digital output signal.
24V	On	Orange	24 V _{DC} external power supply for each DO group is connected.
	Off	-	24 V _{DC} external power supply for each DO group is not connected.

Note1: The AI LED lights up if the input value over range.

Note2: The AO LED lights up if the current output load is in open circuit or the IC temperature has exceeded +142°C

Note3: The NEIO series digital output modules all require a 24 V_{DC} external power supply for each DO channel group.

With the DO 24 V_{DC} LEDs you can diagnose the status of external power supply.