High-Speed Motion Control Board for PCI (8 axes)

SMC-8DL-PCI

* Specifications, color and design of the products are subject to change without notice.
* The contents in this document are subject to change without notice.
* Visit the CONTEC website to check the latest details in the document.
* The information in the data sheets is as of July, 2024.

This product is a PCI bus board that supports stepping motors and ("pulse string input" types of) servomotors.

SMC-8DL-PCI can perform motor control for up to 8 axes.

This product has the functions for positioning, origin return, linear interpolation, and for S-curve acceleration and deceleration, capable of multi-axial linear interpolation and speed/position overriding.

This product covers a wide range of applications including semiconductor equipment, test instruments, multi-axis robots, and X-Y robots.

These various functions make it possible to build complex positioning control systems for variety of uses such as manufacturing devices and test devices.

Windows/Linux device driver is supported with this product.

About Migration From The Existing Products

This product cannot use [API-SMC(98/PC)] (Disk attached) which is the driver software for the existing products SMC-2P(PCI), SMC-4P(PCI), and SMC-3(PC). [API-SMC(98/PC)] cannot be used. Please use [API-SMC(WDM)] which is the driver software for this product. As a reference material when migrating from the existing products to this product, "Migration guide" which summarizes migration methods and differences about initial settings and API function units is provided. Please use the guide for your reference.
"Migration guide" can be downloaded from the download library of CONTEC's Web site.

Features

Capable of multi-axis independent control and pulse output up to 9.8Mpps

SMC-8DL-PCI : Control for up to 8 axes and motor control pulse output up to 9.8Mpps are available.

Command pulse for motor control supports common pulse, independent pulse and 90° phase difference pulse.

Limit input 3channels/axis, general-purpose input 7channels/axis, and general-purpose output 3channels/axis are equipped. Also, depending on the software setting, 5 general-purpose inputs can be used as alarm inputs, and general-purpose outputs as deviation counter clear outputs.

Capable of controlling the jogging at fixed speed or by linear/S-curve acceleration and deceleration, positioning, and origin returning

Carrying a motor control IC in the PCL6100 series from Nippon Pulse Motor Co., Ltd., capable of controlling jogging, positioning, origin returning, synchronization control and linear interpolation.

Provided with various input/output formats enabling connection to an encoder input circuit as well as pulse output circuit

Encoder input circuits can be connected with differential output, TTL level output, and open-collector output. Pulse output circuits can be connected with differential input, opto-coupler and TTL level input.

Windows/Linux support device driver

Using the device driver API-TOOL makes it possible to create applications of Windows/Linux. In addition, a diagnostic program by which the operations of hardware can be checked is provided.

With the multi-axis synchronization control function, capable of aligning the timing for operation start and end

Synchronization control of multi-axis simultaneous start/stop control, linear interpolation operation is available.

Capable of speed and position overriding

Capable of changing the speed and target position during operation.

Comparator circuits allowing the set value and counter value to be compared

A pair of comparator circuits are provided for each axis, allowing the set value and counter value to be compared with each other. They also allow signals to be output while comparator conditions are met.

Provided with seven general-purpose input pins and three general-purpose output pins per axis

Seven general-purpose inputs are provided for each axis, five of which are also available as alarm, positioning completion, deceleration stop, counter latch, and positioning start inputs. Logic can be changed by software. Three output pins are provided for each axis. The output signals can be switched among alarm clear output, driver deviation clear output and comparator output by the software. Logic can be changed by software.

Dedicated terminal strip CCB-SMC2 (option) available focusing on the ease of use for wiring

A dedicated terminal strip CCB-SMC2 (option) which assigns signals for each axis is provided. Driver units and limit sensors for stepping motors and servo motors can be connected up to 4 pieces.

Included Items

Product...1

Please read the following ... 1

Support Software

Name	Contents	How to get
Windows Version Motion Control Driver API-SMC(WDM)	The Windows device driver is provided as a form of Windows API functions. Various sample programs such as C# and Visual Basic .NET , Visual C++, Python etc. and diagnostic program useful for checking operation is provided.	Download from the CONTEC website *1
Linux Version Motion Control Driver API-SMC(LNX)	The Linux device driver is provided as a shared library. The software includes various sample programs such as gcc (C, C++) and Python programs, as well as a configuration tool to configure the device settings.	Download from the CONTEC website *1
Software Development Tool Kits (SDK) and Support Software	In addition to the device drivers, we offer many software programs for using CONTEC devices in an easier manner.	Download from the CONTEC website *2

*1 Download the files from the following URL.
https://www.contec.com/download/

*2 For supported software, search the CONTEC website for this product and view the product page.
https://www.contec.com/

Specifications

Common Section

Item	Specification
Control target	Stepping motor or servo motor driver unit (pulse train input type)
Number of axes to control	8axis
Device used	PCL6143 (Nippon Pulse Motor CO., LTD.) or PCL6145 (Nippon Pulse Motor CO., LTD.) *1
Interrupt	1 ch
Interrupt factor	At the time of stop by positive-direction end limit input ON At the time of stop by negative-direction end limit input ON At the time of stop by alarm input on At the time of stop by simultaneous stop operation At the time of stop by deceleration (decelerated stop) input on At the time of occurring the encoder input error The other event (setting by the software)
I/O address	Any 128 ports boundary
Current consumption	5VDC 1500mA (Max.)
Operating condition	0 - 50°C, 10 - 90% (No condensation)
PCI bus specification	32-bit, 33MHz, Universal key shapes supported *2
Dimension (mm)	176.41(L) x 105.68(H)
Connector used	HDRA-E100W1LFDT1EC-SL+ [mfd by HONDA TSUSHIN KOGYO CO., LTD.] or equivalence to it
Weight	120g

*1 The device used is listed in the diagnosis report.

*2 This board requires power supply at +5 V from an expansion slot (it does not work on a machine with a +3.3V power supply alone).

Encoder Input Section

Item	Specification
Encode type	Incremental
Maximum counter value	PCL6143*1 : 8000000h - 7FFFFFFh(-134,217,728 - 134,217,727), 28 bit PCL6145*1 : 80000000h - 7FFFFFFFh(-2,147,483,648 - 2,147,483,647), 32 bit
Input signal type	Single-phase input (UP/DOWN/Z) / Phase input(A/B/Z)
Supported output type	Differential output, TTL level output, open-collector output
Device used	AM26LS32A(T.I) or equivalence to it
Terminal resister	150Ω (Separable with SW)
Receiver input sensitivity	±200mV
In-phase input voltage range	±7V
Distance in which signal can be extended	10m (Depending on the time of connecting the differential output, wiring environment and input frequency) 3m (Depending on the time of connecting the open-collector output, wiring environment and input frequency) 1.5m (Depending on the time of connecting the TTL level output, wiring environment and input frequency)
Response frequency	5MHz duty (When connecting the differential output, 2-phase Input, Multiply by 4, duty 50%) (Max.), 3MHz duty (When connecting the TTL level output, 2-phase Input, Multiply by 4, duty 50%) (Max.), 1MHz duty (When connecting the open-collector output, 2-phase Input, Multiply by 4, duty 50%) (Max.)

*1 The device used is listed in the diagnosis report.

Limit Input Section

Item	Specification
Signal channel	3channels/axis (original point, Forward limit, reserve limit)
Input signal name	ORG : origin input +LIM : positive direction end limit input -LIM : negative direction end limit input
Input logic	Enables selecting the positive/negative logic by using the Software
Input type	Opto-isolated input (corresponding to current sink output)
Response time	200 µsec (Max.)
Input resister	4.7kΩ
Input ON current	2.0mA or more
Input OFF current	0.16mA or less
External circuit power supply	12V - 24VDC(±10%)

General-purpose Input Section

Item	Specification
Signal channel	7channels/axis
Input signal name	IN1/ALM : alarm input, general-purpose input IN2/INP : positioning completion input, general-purpose input IN3/SD : deceleration (decelerated stop) input, general-purpose input IN4/LTC : counter latch input, general-purpose input IN5/PCS : positioning control start input, general-purpose input IN6 : general-purpose input IN7 : general-purpose input
Input logic	Enables selecting the positive/negative logic by using the Software
Input type	Opto-coupler input (corresponding to current sink output)
Response time	200 µsec (Max.)
Input resister	4.7kΩ
Input ON current	2.0mA or more
Input OFF current	0.16mA or less
External circuit power supply	12V - 24VDC(±10%)

Pulse Output Section

Item	Specification
Pulse rate	0.3 - 9.8 Mpps
Output signal name	CW : pulse / CW output CCW : direction / CCW output
Output signal system	2 Pulse types (pulse for positive/negative direction) or the common pulse type (pulse signal/directional signal) 90° phase difference pulse (lead/lag pulse)
Output form	Un-isolated differential line driver output
Device used	AM26LS31(T.I) or equivalence to it
H-level output voltage	2.5V - 5.25V
L-level output voltage	0V - 0.5V
Output rating current	20mA (Max.)

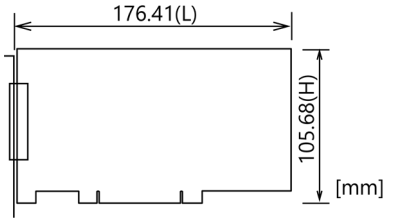
General-purpose Output Section

Item	Specification
Number of signal channel	3channels/axis
Output signal name	OUT1 : general-purpose output OUT2 : general-purpose output OUT3 : general-purpose output (Each output pin can be switched with the following functions) ALMCLR : alarm clear output ERC : driver differential clear output CP1 : comparator1 output CP2 : comparator2 output
Signal specification	Un-isolated open collector output (current sink type) (Enables selecting the positive/negative logic by using the Software)
Response time	10µsec (when using the loading on the input side 510Ω, +24VDC) (Max.)
Rated output current	100mA per 1ch, 300mA per 1axis (Max.)
Rated output withstanding voltage	550VDC (Max.)

Installation Environment Requirements

Item	Specification
Operating ambient temperature	0 - +50°C
Operating ambient humidity	10 - 90%RH (No condensation)
Floating dust particles	Not to be excessive
Corrosive gases	None
Standard	

Physical Dimensions



The standard outside dimension (L) is the distance from the end of the card to the outer surface of the slot cover.

Option

Product Name	Model type	Description
Shielded Cable With Two 100pin Connector	PCB100PS-0.5	0.5m
	PCB100PS-1.5	1.5m
	PCB100PS-3	3m
	PCB100PS-5	5m
Flat Cable with One 100-Pin Connector	PCA100P-1.5	1.5m
	PCA100P-3	3m
Connection Conversion Board for SMC	CCB-SMC2	*1*2*3
Screw Terminal (M3*100)	EPD-100A	*2*3*4

*1 Distributes 100-pin 0.8-mm pitch connector x 1 to: D-SUB 37 connector x 4, D-SUB-9 connector x 4.

*2 A PCB100PS optional cable is required separately.

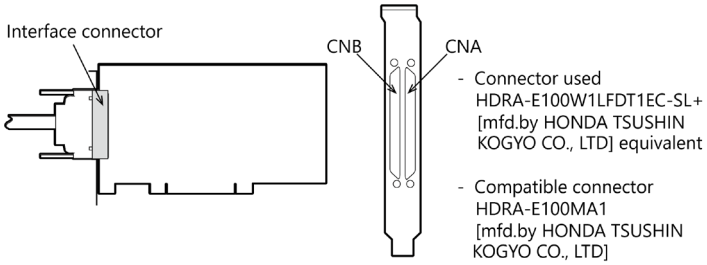
*3 Cables and accessories are required each connector.

*4 "Spring-up" type terminal is used to prevent terminal screws from falling off.

* Check the CONTEC's Web site for more information on these options.

How to connect the connectors

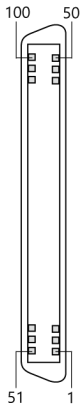
The on-board interface connector (CAN, CNB) is used when connecting this product and the external devices.



- Connector used
  HDRA-E100W1LFDT1EC-SL+
  [mfd.by HONDA TSUSHIN KOGYO CO., LTD] equivalent
- Compatible connector
  HDRA-E100MA1
  [mfd.by HONDA TSUSHIN KOGYO CO., LTD]

Pin Assignments of Interface Connector (CNB)

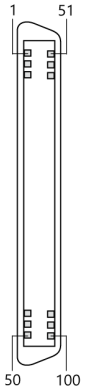
Plus common	axis0 P-COM	100	50	axis2 P-COM	Plus common
General-purpose input1/Alarm input	axis0 IN1/ALM	99	49	axis2 IN1/ALM	General-purpose input1/Alarm input
General-purpose input2/Positioning input	axis0 IN2/INP	98	48	axis2 IN2/INP	General-purpose input2/Positioning input
General-purpose input3/Slow down input	axis0 IN3/SD	97	47	axis2 IN3/SD	General-purpose input3/Slow down input
General-purpose input4/counter latch input	axis0 IN4/LTC	96	46	axis2 IN4/LTC	General-purpose input4/counter latch input
General-purpose input5/ positioning operation start input	axis0 IN5/PCS	95	45	axis2 IN5/PCS	General-purpose input5/ positioning operation start input
General-purpose input6	axis0 IN6	94	44	axis2 IN6	General-purpose input6
General-purpose input7	axis0 IN7	93	43	axis2 IN7	General-purpose input7
Origin input	axis0 ORG	92	42	axis2 ORG	Origin input
Positive-direction limit	axis0 +LIM	91	41	axis2 +LIM	Positive-direction limit
Negative-direction limit	axis0 -LIM	90	40	axis2 -LIM	Negative-direction limit
Plus common	axis1 P-COM	89	39	axis3 P-COM	Plus common
General-purpose input1/Alarm input	axis1 IN1/ALM	88	38	axis3 IN1/ALM	General-purpose input1/Alarm input
General-purpose input2/Positioning input	axis1 IN2/INP	87	37	axis3 IN2/INP	General-purpose input2/Positioning input
General-purpose input3/Slow down input	axis1 IN3/SD	86	36	axis3 IN3/SD	General-purpose input3/Slow down input
General-purpose input4/counter latch input	axis1 IN4/LTC	85	35	axis3 IN4/LTC	General-purpose input4/counter latch input
General-purpose input5/ positioning operation start input	axis1 IN5/PCS	84	34	axis3 IN5/PCS	General-purpose input5/ positioning operation start input
General-purpose input6	axis1 IN6	83	33	axis3 IN6	General-purpose input6
General-purpose input7	axis1 IN7	82	32	axis3 IN7	General-purpose input7
Origin input	axis1 ORG	81	31	axis3 ORG	Origin input
Positive-direction limit	axis1 +LIM	80	30	axis3 +LIM	Positive-direction limit
Negative-direction limit	axis1 -LIM	79	29	axis3 -LIM	Negative-direction limit
Encoder phase A input+	axis0 A+	78	28	axis2 A+	Encoder phase A input+
Encoder phase A input-	axis0 A-	77	27	axis2 A-	Encoder phase A input-
Encoder phase B input+	axis0 B+	76	26	axis2 B+	Encoder phase B input+
Encoder phase B input-	axis0 B-	75	25	axis2 B-	Encoder phase B input-
Encoder phase Z input+	axis0 Z+	74	24	axis2 Z+	Encoder phase Z input+
Encoder phase Z input-	axis0 Z-	73	23	axis2 Z-	Encoder phase Z input-
Encoder phase A input+	axis1 A+	72	22	axis3 A+	Encoder phase A input+
Encoder phase A input-	axis1 A-	71	21	axis3 A-	Encoder phase A input-
Encoder phase B input+	axis1 B+	70	20	axis3 B+	Encoder phase B input+
Encoder phase B input-	axis1 B-	69	19	axis3 B-	Encoder phase B input-
Encoder phase Z input+	axis1 Z+	68	18	axis3 Z+	Encoder phase Z input+
Encoder phase Z input-	axis1 Z-	67	17	axis3 Z-	Encoder phase Z input-
General-purpose output3	axis0 OUT3	66	16	axis2 OUT3	General-purpose output3
General-purpose output2	axis0 OUT2	65	15	axis2 OUT2	General-purpose output2
General-purpose output1	axis0 OUT1	64	14	axis2 OUT1	General-purpose output1
Direction/CCW output+	axis0 DIR+/CCW+	63	13	axis2 DIR+/CCW+	Direction/CCW output+
Direction/CCW output-	axis0 DIR-/CCW-	62	12	axis2 DIR-/CCW-	Direction/CCW output-
Pulse/CW output+	axis0 OUT+/CW+	61	11	axis2 OUT+/CW+	Pulse/CW output+
Pulse/CW output-	axis0 OUT-/CW-	60	10	axis2 OUT-/CW-	Pulse/CW output-
Power ground input (common to internal GND)	GND	59	9	GND	Power ground input (common to internal GND)
General-purpose output3	axis1 OUT3	58	8	axis3 OUT3	General-purpose output3
General-purpose output2	axis1 OUT2	57	7	axis3 OUT2	General-purpose output2
General-purpose output1	axis1 OUT1	56	6	axis3 OUT1	General-purpose output1
Direction/CCW output+	axis1 DIR+/CCW+	55	5	axis3 DIR+/CCW+	Direction/CCW output+
Direction/CCW output-	axis1 DIR-/CCW-	54	4	axis3 DIR-/CCW-	Direction/CCW output-
Pulse/CW output+	axis1 OUT+/CW+	53	3	axis3 OUT+/CW+	Pulse/CW output+
Pulse/CW output-	axis1 OUT-/CW-	52	2	axis3 OUT-/CW-	Pulse/CW output-
Power ground input (common to internal GND)	GND	51	1	GND	Power ground input (common to internal GND)



* Axis0 - Axis3 of this manual corresponds to Axis No.1 - Axis No.4 in API-SMC(WDM).

Pin Assignments of Interface Connector (CNA)

Power ground input (common to internal GND)	GND	1	51	GND	Power ground input (common to internal GND)
Pulse/CW output-	axis7 OUT-/CW-	2	52	axis5 OUT-/CW-	Pulse/CW output-
Pulse/CW output+	axis7 OUT+/CW+	3	53	axis5 OUT+/CW+	Pulse/CW output+
Direction/CCW output-	axis7 DIR-/CCW-	4	54	axis5 DIR-/CCW-	Direction/CCW output-
Direction/CCW output+	axis7 DIR+/CCW+	5	55	axis5 DIR+/CCW+	Direction/CCW output+
General-purpose output1	axis7 OUT1	6	56	axis5 OUT1	General-purpose output1
General-purpose output2	axis7 OUT2	7	57	axis5 OUT2	General-purpose output2
General-purpose output3	axis7 OUT3	8	58	axis5 OUT3	General-purpose output3
Power ground input (common to internal GND)	GND	9	59	GND	Power ground input (common to internal GND)
Pulse/CW output-	axis6 OUT-/CW-	10	60	axis4 OUT-/CW-	Pulse/CW output-
Pulse/CW output+	axis6 OUT+/CW+	11	61	axis4 OUT+/CW+	Pulse/CW output+
Direction/CCW output-	axis6 DIR-/CCW-	12	62	axis4 DIR-/CCW-	Direction/CCW output-
Direction/CCW output+	axis6 DIR+/CCW+	13	63	axis4 DIR+/CCW+	Direction/CCW output+
General-purpose output1	axis6 OUT1	14	64	axis4 OUT1	General-purpose output1
General-purpose output2	axis6 OUT2	15	65	axis4 OUT2	General-purpose output2
General-purpose output3	axis6 OUT3	16	66	axis4 OUT3	General-purpose output3
Encoder phase Z input-	axis7 Z-	17	67	axis5 Z-	Encoder phase Z input-
Encoder phase Z input+	axis7 Z+	18	68	axis5 Z+	Encoder phase Z input+
Encoder phase B input-	axis7 B-	19	69	axis5 B-	Encoder phase B input-
Encoder phase B input+	axis7 B+	20	70	axis5 B+	Encoder phase B input+
Encoder phase A input-	axis7 A-	21	71	axis5 A-	Encoder phase A input-
Encoder phase A input+	axis7 A+	22	72	axis5 A+	Encoder phase A input+
Encoder phase Z input-	axis6 Z-	23	73	axis4 Z-	Encoder phase Z input-
Encoder phase Z input+	axis6 Z+	24	74	axis4 Z+	Encoder phase Z input+
Encoder phase B input-	axis6 B-	25	75	axis4 B-	Encoder phase B input-
Encoder phase B input+	axis6 B+	26	76	axis4 B+	Encoder phase B input+
Encoder phase A input-	axis6 A-	27	77	axis4 A-	Encoder phase A input-
Encoder phase A input+	axis6 A+	28	78	axis4 A+	Encoder phase A input+
Negative-direction limit	axis7 -LIM	29	79	axis5 -LIM	Negative-direction limit
Positive-direction limit	axis7 +LIM	30	80	axis5 +LIM	Positive-direction limit
Origin input	axis7 ORG	31	81	axis5 ORG	Origin input
General-purpose input7	axis7 IN7	32	82	axis5 IN7	General-purpose input7
General-purpose input6	axis7 IN6	33	83	axis5 IN6	General-purpose input6
General-purpose input5/ positioning operation start input	axis7 IN5/PCS	34	84	axis5 IN5/PCS	General-purpose input5/ positioning operation start input
General-purpose input4/counter latch input	axis7 IN4/LTC	35	85	axis5 IN4/LTC	General-purpose input4/counter latch input
General-purpose input3/Slow down input	axis7 IN3/SD	36	86	axis5 IN3/SD	General-purpose input3/Slow down input
General-purpose input2/Positioning input	axis7 IN2/INP	37	87	axis5 IN2/INP	General-purpose input2/Positioning input
General-purpose input1/Alarm input	axis7 IN1/ALM	38	88	axis5 IN1/ALM	General-purpose input1/Alarm input
Plus common	axis7 P-COM	39	89	axis5 P-COM	Plus common
Negative-direction limit	axis6 -LIM	40	90	axis4 -LIM	Negative-direction limit
Positive-direction limit	axis6 +LIM	41	91	axis4 +LIM	Positive-direction limit
Origin input	axis6 ORG	42	92	axis4 ORG	Origin input
General-purpose input7	axis6 IN7	43	93	axis4 IN7	General-purpose input7
General-purpose input6	axis6 IN6	44	94	axis4 IN6	General-purpose input6
General-purpose input5/ positioning operation start input	axis6 IN5/PCS	45	95	axis4 IN5/PCS	General-purpose input5/ positioning operation start input
General-purpose input4/counter latch input	axis6 IN4/LTC	46	96	axis4 IN4/LTC	General-purpose input4/counter latch input
General-purpose input3/Slow down input	axis6 IN3/SD	47	97	axis4 IN3/SD	General-purpose input3/Slow down input
General-purpose input2/Positioning input	axis6 IN2/INP	48	98	axis4 IN2/INP	General-purpose input2/Positioning input
General-purpose input1/Alarm input	axis6 IN1/ALM	49	99	axis4 IN1/ALM	General-purpose input1/Alarm input
Plus common	axis6 P-COM	50	100	axis4 P-COM	Plus common



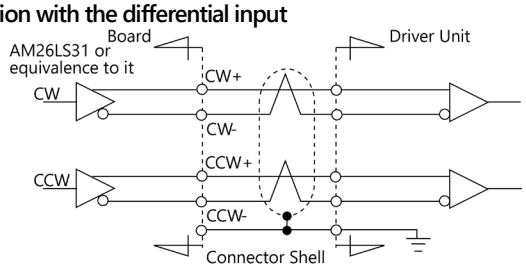
* Axis4 – Axis7 of this manual corresponds to Axis No.5 - Axis No.8 in API-SMC(WDM).

Connecting Output Signals

Pulse output circuit (CW, CCW)

The pulse output circuit on this product, which is in the form of a differential line driver (AM26LS31 equivalent) as shown in the following figure, can be connected with differential input, opto-coupler, and TTL level input.

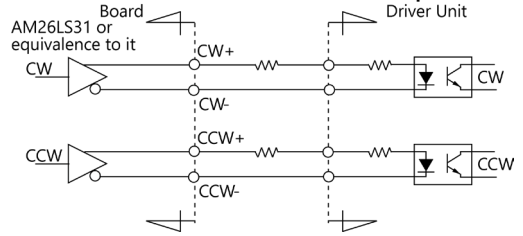
Connection with the differential input



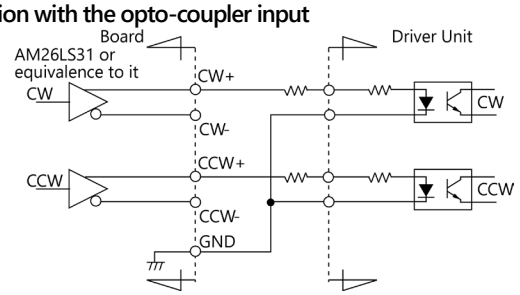
⚠ CAUTION

Please use the shielded twisted-pair cable as a noise measures when connecting it with the differential input.

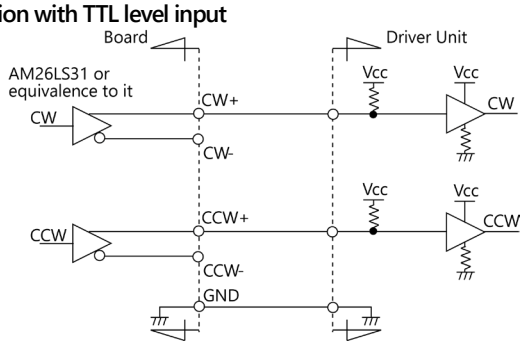
Connection with the opto-coupler input (When the driver unit guarantees the connection with the differential output)



Connection with the opto-coupler input



Connection with TTL level input



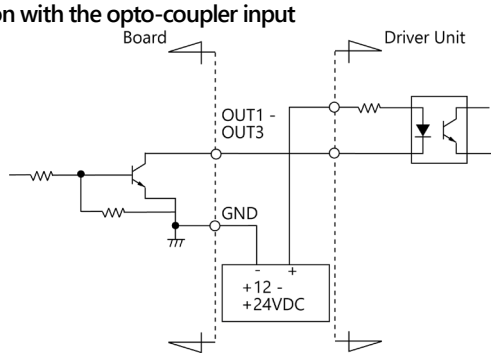
⚠ CAUTION

- The pulse output part of this product outputs the voltage by 2.5V or more at the High level output, and outputs the voltage of 0.5V or less at the Low level output. When connecting with the photo-coupler input or the TTL level input, please connect it after confirming the specification in the pulse input part of the driver unit operates by the above-mentioned voltage. In addition, please insert a current-limiting resistor according to the allowable current and drive current of the connected input circuit.
- To prevent the circuit from malfunctioning due to noise, wire it as far away from other signal lines and noise sources as possible.

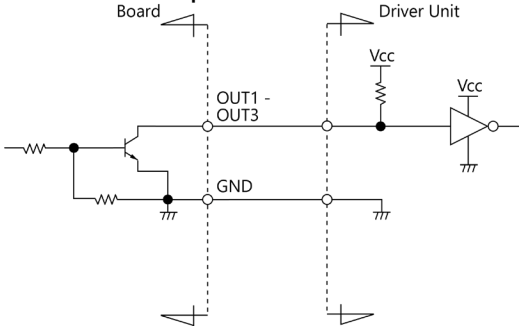
Control signal/general-purpose signal output circuit (OUT1 - OUT3, ERC, CP1, CP2)

Output circuit of each output signal on this product is illustrated below. The signal output is an open-collector output. A ground wire must therefore be connected for driving.

Connection with the opto-coupler input



Connection with TTL level input

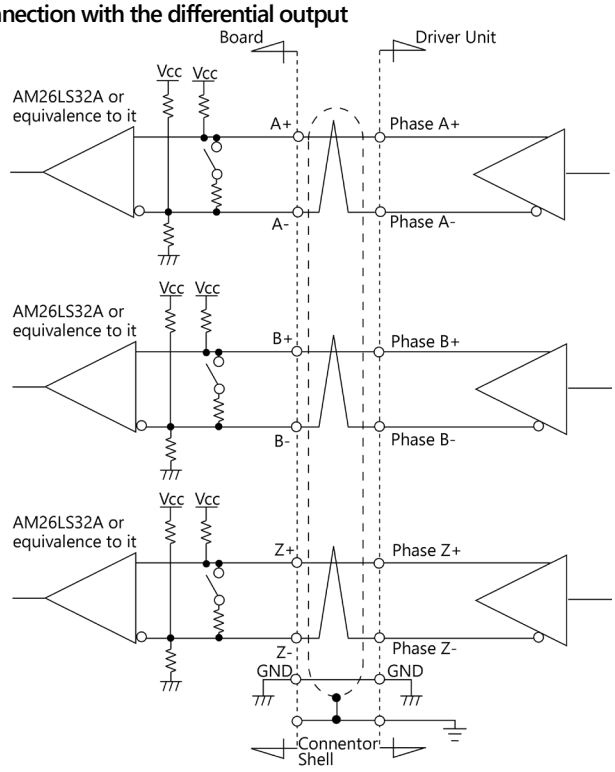


Connecting Input Signals

Encoder input circuit

Encoder input circuit on this product is illustrated below. The signal input is a differential input capable of connecting a line driver output, TTL level output and open-collector output.

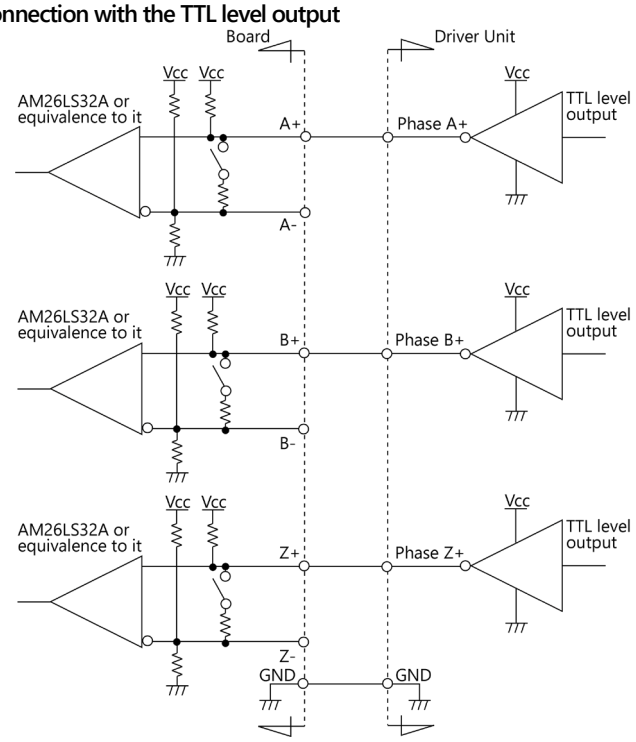
Connection with the differential output



⚠ CAUTION

- Please use the shielded twisted-pair cable as a noise measures when connecting it with the differential output.
- Restrict the use of cables to 10m for the line driver output.

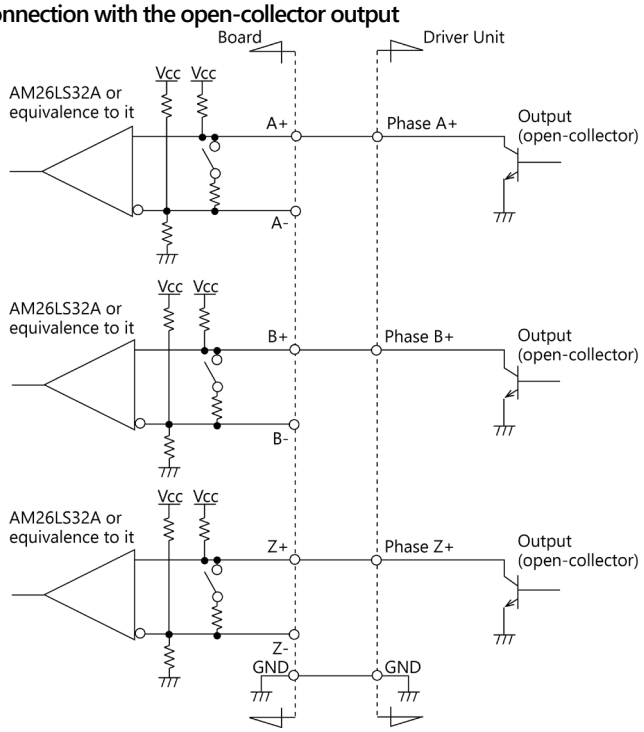
Connection with the TTL level output



⚠ CAUTION

- When connecting TTL level output signals, please do not insert a terminating resistor with reference to "Setting the Terminating Resistor". When inserted with a terminating resistor (factory setting), this product may malfunction, overheat, or causes a failure.
- Restrict the use of cables to 1.5m for the TTL level output.
- To prevent the circuit from malfunctioning due to noise, wire it as far away from other signal lines and noise sources as possible.

Connection with the open-collector output



⚠ CAUTION

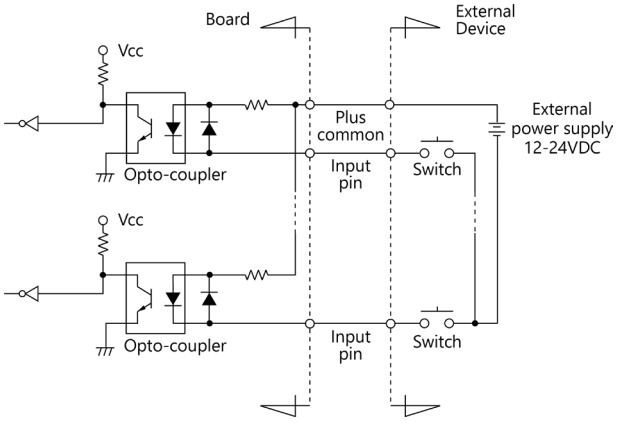
- When connecting open-collector output signals, please do not insert a terminating resistor with reference to "Setting the Terminating Resistor". When inserted with a terminating resistor (factory setting), this product may malfunction, overheat, or causes a failure.
- Restrict the use of cables to 3m for the open-collector output.
- To prevent the circuit from malfunctioning due to noise, wire it as far away from other signal lines and noise sources as possible.

Limit input/general-purpose input/control input circuit (IN1 - IN7, +LIM, -LIM, ORG)

The limit input/general-purpose input/control input circuit on this board is illustrated below.

The signal input is an current drive input by opto-coupler (Corresponding to the current sink output). To drive the limit input/

general-purpose input/control input block, therefore, an external power supply is required at +12 - +24 V.

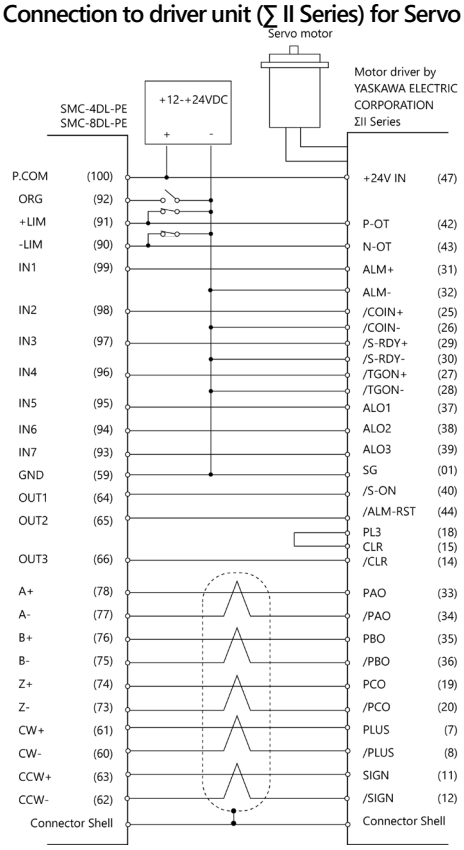


* Input pin is IN1 - IN7, +LIM, -LIM, ORG.

Connection Examples

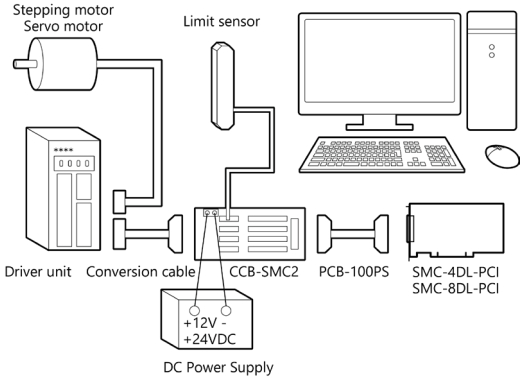
Given below are practical examples of connection of this product that outputs pulses by the independent pulsing method to motor drivers. These examples show the connections through axis0 (Axis No.1 in API-SMC(WDM)).

Example of Connection to driver unit (∑ II Series) for Servo motor



* Please connect the Shield Line of cable with the Connector Shell.

Motion control system configuration



Component features

Item	Description
SMC-8DL-PCI (Main board)	When installed on the PC, this board generates pulses required for position control.
PCB-100PS (Option)	This cable connects the board to the CCB-SMC2.
CCB-SMC2 (Option)	This screw terminal is used to efficiently connect the devices (the board, driver unit, DC power supply, limit sensor) required for position control. The screw terminal can connect a four-axes motion control system alone.
Conversion cable (User)	The shape of the control connector of each driver unit is largely different depending on the manufacturer and type. A conversion cable must be prepared to connect each driver unit to the CCB-SMC2.
Driver unit (Motor maker)	Motor and driver unit to be subject to motion control.
Stepping motor Servo motor(Motor maker)	Available in various types by motor capacity, power-supply voltage, and motor shape. Select the ones that best fit your needs.
Limit sensor (Switch maker)	This sensor is installed at the forward/backward limit and origin detection positions. When a table is used in the system, the sensor is bundled with the table. For a self-made system, use commercially available switches.
DC Power supply (Power supply maker)	Power supply to the CCB-SMC2. Use a 12 - 24-VDC power supply.

Block Diagram