OMRON

NX-series High-speed Counter Unit
NX-CT□□□□

High-speed counter unit ideal for edge control, achieving high-speed response and high-resolution performance

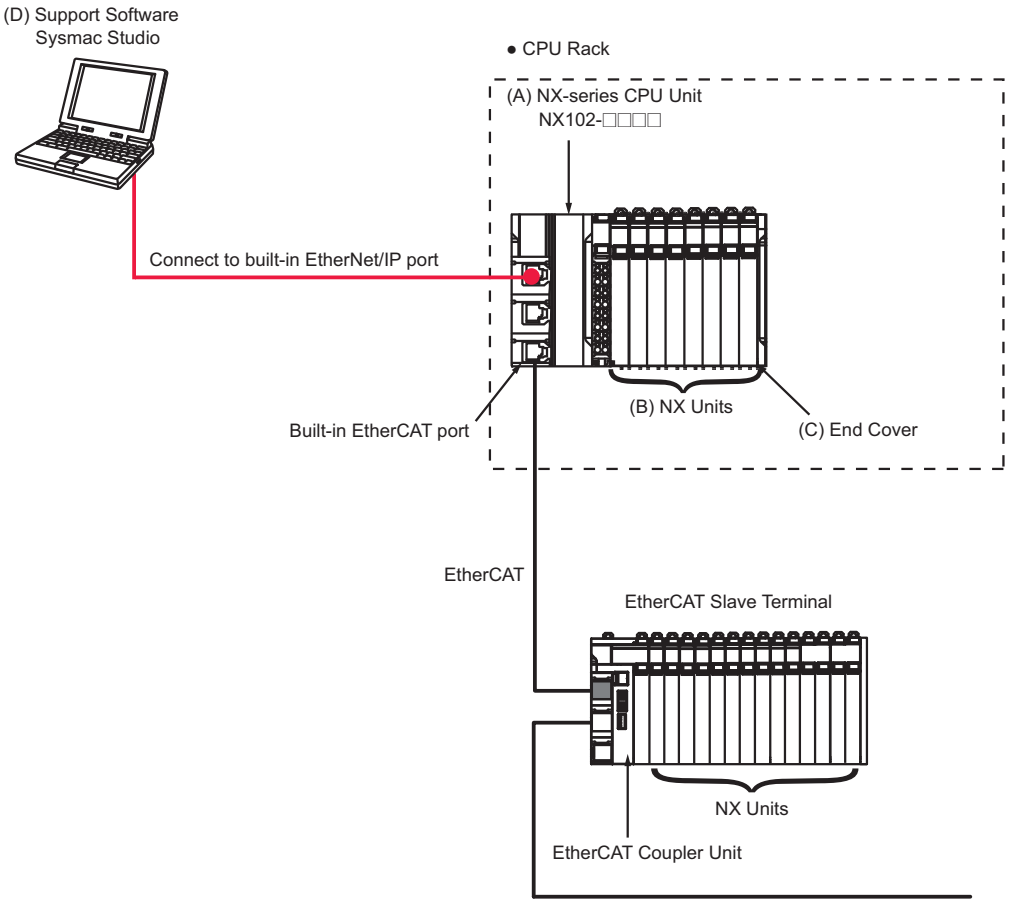
Features

- Counter Match Output with detection performance of less than 1 μs, realizing high-speed edge control independent of the system's scan time
- Advance Time for precisely adjusting the output timing by correcting for the target device's operation delays
- Counter Logging, which collects the count data of fast-moving workpieces Logging up to 4,096 data entries
- PWM Output, which synchronizes the control pulse signal output with the target matching
- Switchable between the three-phase (Phase A/Phase B/Phase Z), 2-channel mode and the single-phase, 6-channel mode
- Counter Noise Filter configurable per channel

System Configuration

System Configuration in the Case of a CPU Unit

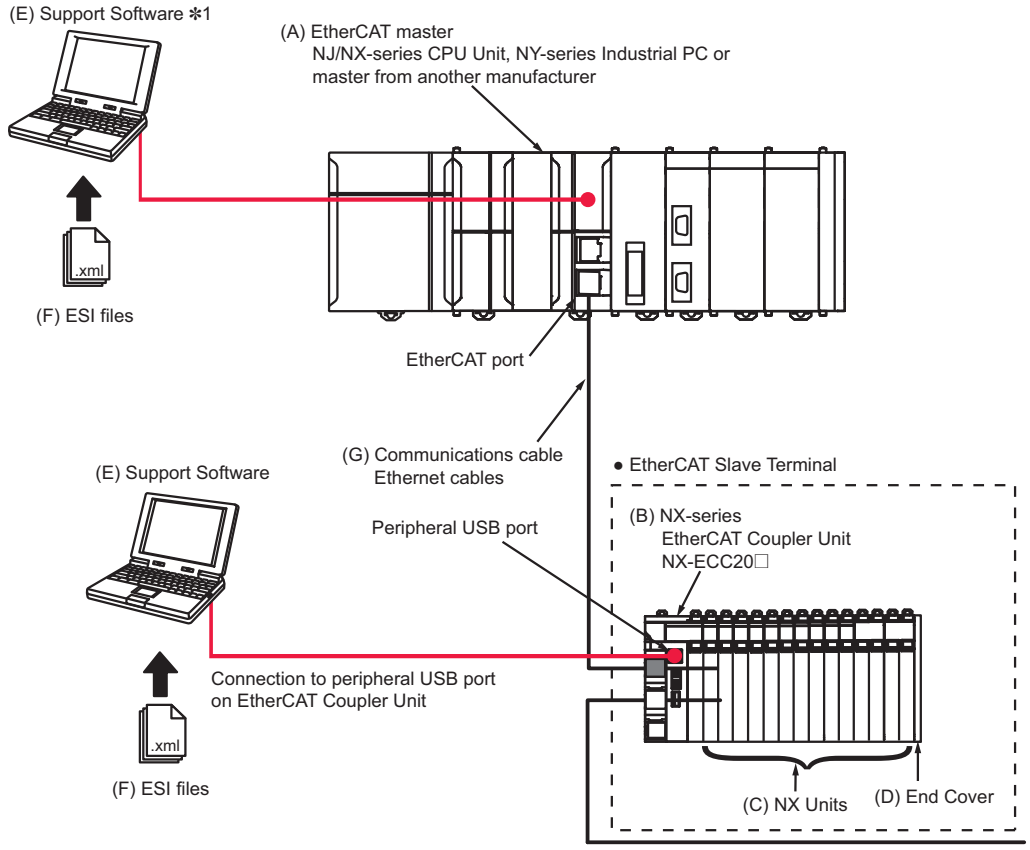
The following figure shows a system configuration when a group of NX Units is used with an NX-series NX102 CPU Unit.
Refer to *the user's manual for the connected CPU Unit* for information on how to configure the system when a CPU Unit other than the NX102 CPU Unit is used.
You can connect the EtherCAT Slave Terminal to the built-in EtherCAT port on the CPU Unit.



Letter	Item	Description
(A)	NX-series CPU Unit	The Unit that serves as the center of control for a Machine Automation Controller. It executes tasks, refreshes I/O for other Units and slaves, etc. NX Units can be connected to an NX102 CPU Unit.
(B)	NX Units	The NX Units perform I/O processing with connected external devices. The NX Units exchange data with the CPU Unit through I/O refreshing. A maximum of 32 NX Units can be connected to an NX102 CPU Unit.
(C)	End Cover	The End Cover is attached to the end of the CPU Rack.
(D)	Support Software (Sysmac Studio)	A computer software application for setting, programming, debugging, and troubleshooting NJ/NX/NY-series Controllers. For an NX102 CPU Unit, this application performs setting operation by making a connection to a built-in EtherNet/IP port.

System Configuration of Slave Terminals

The following figure shows an example of the system configuration when an EtherCAT Coupler Unit is used as a Communications Coupler Unit. Refer to *the user's manual for the connected Communications Coupler Unit* for details on how to configure the system when any other type of Communications Coupler Unit is used.



✻1. The connection method for the Support Software depends on the model of the CPU Unit or Industrial PC.

Letter	Item	Description
(A)	EtherCAT master ✻1	The EtherCAT master manages the network, monitors the status of slaves, and exchanges I/O data with slaves.
(B)	EtherCAT Coupler Unit	The EtherCAT Coupler Unit serves as an interface for process data communications on the EtherCAT network between the NX Units and the EtherCAT master. The I/O data for the NX Units is accumulated in the EtherCAT Coupler Unit and then all of the data is exchanged with the EtherCAT master at the same time. The EtherCAT Coupler Unit can also perform message communications (SDO communications) with the EtherCAT master.
(C)	NX Units ✻2	The NX Units perform I/O processing with connected external devices. The NX Units perform process data communications with the EtherCAT master through the EtherCAT Coupler Unit.
(D)	End Cover	The End Cover is attached to the end of the Slave Terminal.
(E)	Support Software ✻3	The Support Software runs on a personal computer and it is used to configure the EtherCAT network and EtherCAT Slave Terminal, and to program, monitor, and troubleshoot the Controllers.
(F)	ESI (EtherCAT Slave Information) files	The ESI files contain information that is unique to the EtherCAT Slave Terminal in XML format. You can load an ESI file into the Support Software to easily allocate Slave Terminal process data and make other settings. The ESI files for OMRON EtherCAT slaves are installed in the Support Software. You can obtain the ESI files for the latest models through the Support Software's automatic update function.
(G)	Communications cable	Use a double-shielded cable with aluminum tape and braiding of Ethernet category 5 (100Base-TX) or higher, and use straight wiring.

✻1. An EtherCAT Slave Terminal cannot be connected to any of the OMRON CJ1W-NC□81/□82 Position Control Units even though they can operate as EtherCAT masters.
✻2. For whether an NX Unit can be connected to the Communications Coupler Unit, refer to *the version information in the user's manual for the NX Unit*.
✻3. The term Support Software indicates software that is provided by OMRON. If you connect to a master from another company, use the software tool corresponding to that master.

Ordering Information

High-speed Counter Unit

Product name	Specification						Model
	Number of channels ✻1	Number of external inputs	Number of external outputs	Maximum response frequency ✻2	I/O refreshing method	Input method	
High-speed Counter Unit	2 (NPN)	6 (NPN)	6 (NPN)	1 MHz	• Free-Run refreshing • Synchronous I/O refreshing • Task period prioritized refreshing	5 V/24 V voltage input	**NX-CT2120**
	2 (PNP)	6 (PNP)	6 (PNP)				**NX-CT2220**
	2	6 (NPN)	6 (NPN)	4 MHz		RS-422 Line receiver input	**NX-CT2320**
	2	6 (PNP)	6 (PNP)				**NX-CT2420**

✻1. When set to 6ch mode, the counter channel number is 6 channels.
✻2. When set to 6ch mode, the maximum response frequency is 100 kHz.

Optional Products (Order Separately)

Product name	Specification	Model
Unit/Terminal Block Coding Pins	For 10 Units (30 terminal block pins and 30 unit pins)	**NX-AUX02**

Product name	Specification			Model
	No. of terminals	Ground terminal mark	Terminal current capacity	
Terminal Block	16	None	10 A	**NX-TBA162**
				NX-TBB162

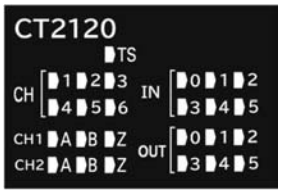
General Specifications

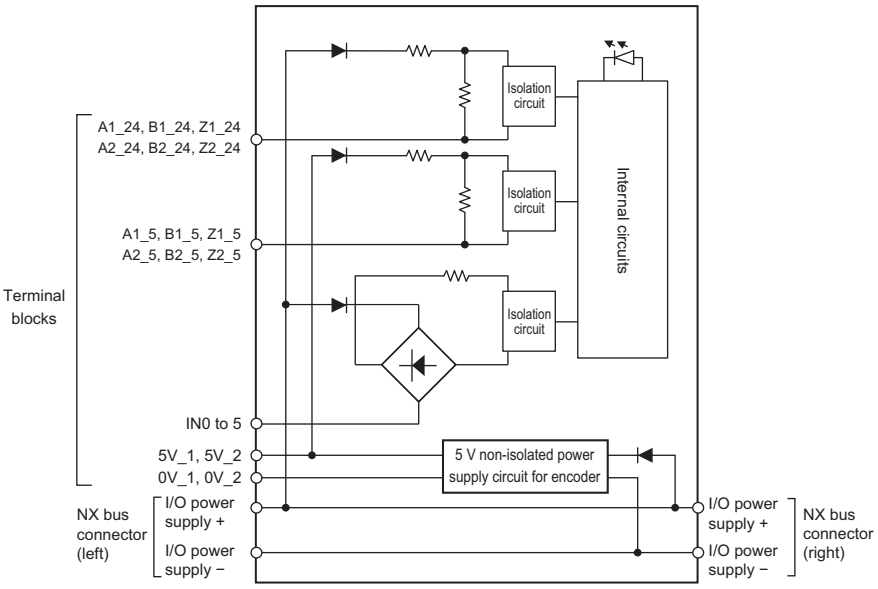
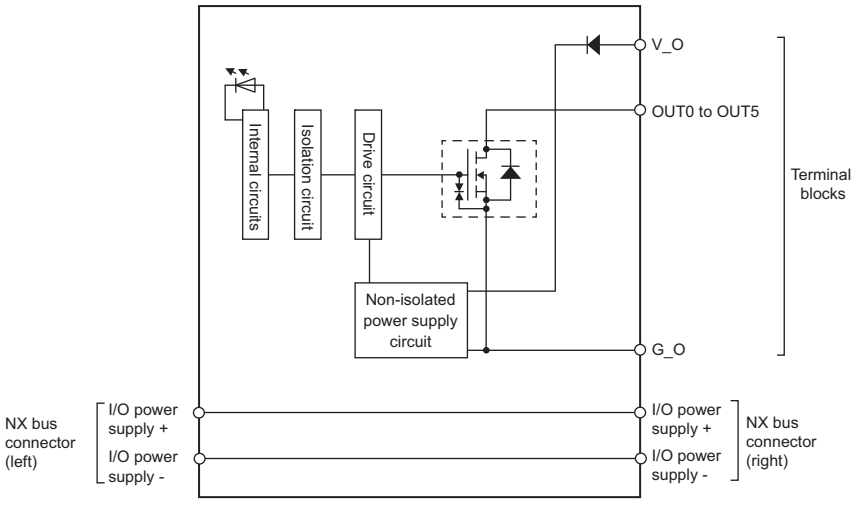
Item		Specification
Enclosure		Mounted in a panel
Grounding methods		Ground to 100 Ω or less
Operating environment	**Ambient operating temperature**	0 to 55°C
	Ambient operating humidity	10 to 95% RH (with no icing or condensation)
	Atmosphere	Must be free from corrosive gases.
	Ambient storage temperature	-25 to 70°C (with no icing or condensation)
	Altitude	2,000 m max.
	Pollution degree	Pollution degree 2 or less: Conforms to JIS B 3502 and IEC 61131-2.
	Noise immunity	Conforms to IEC 61000-4-4, 2 kV (power supply line)
	Overvoltage category	Category II: Conforms to JIS B 3502 and IEC 61131-2.
	EMC immunity level	Zone B
	Vibration resistance	Conforms to IEC 60068-2-6. 5 to 8.4 Hz with amplitude of 3.5 mm, 8.4 to 150 Hz, acceleration of 9.8 m/s^2 100 min each in X, Y, and Z directions (10 sweeps of 10 min each = 100 min total)
	Shock resistance	Conforms to IEC 60068-2-27, 147 m/s^2, 3 times each in X, Y, and Z directions
Applicable standards ✻1		cULus: Listed (UL61010-2-201), ANSI/ISA 12.12.01, EU: EN 61131-2, RCM, and KC (KC Registration)

✻1. Refer to the OMRON website (www.ia.omron.com) or ask your OMRON representative for the most recent applicable standards for each model.

Specifications of Individual Units

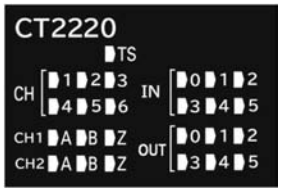
NX-CT2120

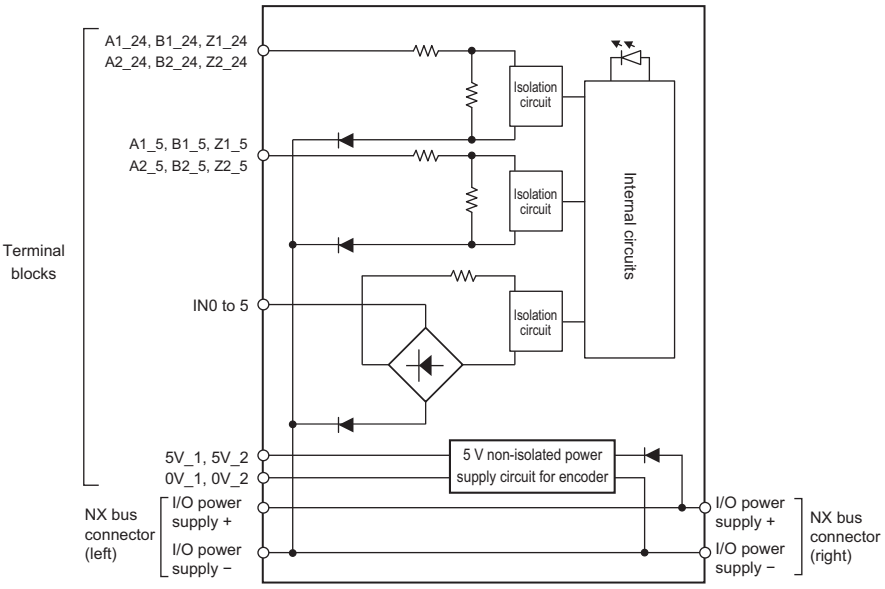
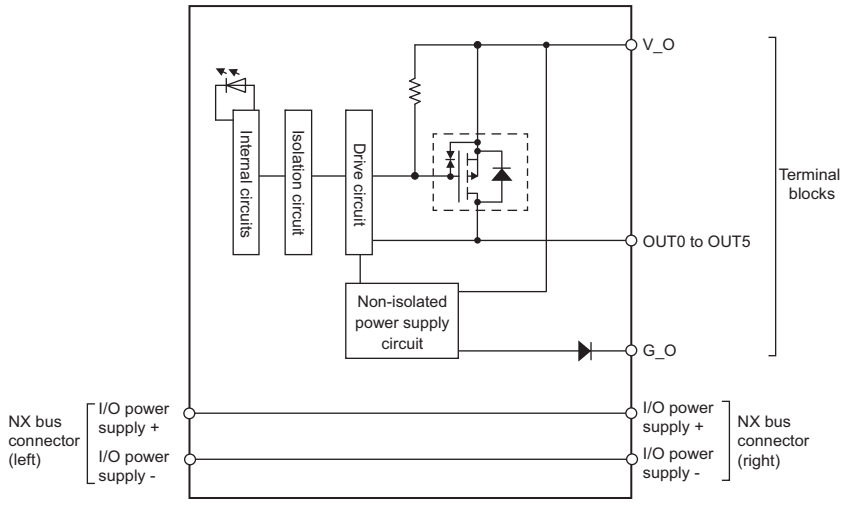
Unit name	High-speed Counter Units	**Model**	NX-CT2120
Number of channels	2ch/6ch switching	**External connection terminals**	Screwless clamping terminal block (16 terminals × 2)
I/O refreshing method	Free-Run refreshing, synchronous I/O refreshing, or task period prioritized refreshing		
Indicators	TS LED, CH LED, A/B/Z LED, IN LED, OUT LED 		
Input signals	Counter input terminal: In 2ch Mode: A-phase 2, B-phase 2, Z-phase 2 In 6ch Mode: A-phase 6 External input terminal: 6		
Output signal	External output terminal: 6		
Counter input format	Voltage input (5 V, 24 V)		
Pulse Input Method	In 2ch Mode: Phase differential pulse (multiplication x1/2/4), pulse + direction, up and down pulse inputs In 6ch Mode: Single-phase		
Counter range	-2147483648 to 2147483647		
Counter functions			
Counter Type	Ring counter or linear counter		
Counter controls	Gate control, counter reset, and counter preset		
Latching	In 2ch Mode: Counter Latch 2/ch In 6ch Mode: Counter Latch 1/ch		
Measurements	Pulse rate measurement and pulse period measurement		
Counter Input Specifications (Voltage input)			
Input voltage (24 V)	20.4 to 28.8 VDC (24 VDC +20%/-15%)	**Input voltage (5 V)**	4.5 to 5.5 VDC
ON voltage/ON current (24 V)	18.6 VDC min./3 mA min.	**ON voltage/ON current (5 V)**	4.5 VDC min./3 mA min.
OFF voltage/OFF current (24 V)	4.0 VDC max./1 mA max.	**OFF voltage/OFF current (5 V)**	1.5 VDC max./1 mA max.
Input current (24 V)	5.6 mA typical (24 VDC)	**Input current (5 V)**	5.3 mA typical (5 VDC)
Maximum response frequency	In 2ch Mode: A- and B-phase: Single-phase 250 kHz (phase differential pulse input at multiplication x4: 1 MHz), Z-phase: 250 kHz In 6ch Mode: Single-phase 100 kHz		
Internal I/O common processing	NPN		
I/O power supply method	Supply from the NX Bus		
External power supply output (5 V) ✻1	Output voltage: 4.9 to 5.25 VDC (5 VDC +5%/-2%) Output current: 500 mA/channel min., 1 A/unit min.		
External Input Specifications			
Input voltage	20.4 to 28.8 VDC (24 VDC +20%/-15%)	**ON voltage/ON current**	15 VDC min./3 mA min.
Input current	3.3 mA typical (24 VDC)	**OFF voltage/OFF current**	5.0 VDC max./1 mA max.
ON/OFF response time	1 µs max./1 µs max.		
Internal I/O common processing	NPN		
I/O power supply method	Supply from the NX Bus		
External Output Specifications			
Rated voltage	5 to 24 VDC		
Load voltage range	4.75 to 28.8 VDC	**Residual voltage**	0.6 V max.
Maximum value of load current	0.5 A/point, 1.8 A/Unit	**Leakage current**	0.1 mA max.
ON/OFF response time	1 µs max./3 µs max. (at load current 7 to 500 mA)		
Internal I/O common processing	NPN	**Load Short-circuit Protection**	None
I/O power supply method	External supply, 4.75 to 28.8 VDC		
Current consumption from I/O power supply	20 mA max.		

Dimensions	24 (W) × 100 (H) × 71 (D)	**Isolation method**	Photocoupler isolation
Insulation resistance	20 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**	510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
NX Unit power consumption	• Connected to a CPU Unit 1.45 W max. • Connected to Communications Coupler Unit 1.05 W max.	**Current consumption from I/O power supply**	Unit current consumption: 20 mA max. External 5 V power supply consumption: 0.25 × external 5 V power supply current consumption ✻2
Weight	140 g max.		
Circuit layout	Count input, external input  External output  		
Installation orientation and restrictions	Refer to *NX-series High-speed Counter Units User's Manual* (Man. No. W647).		
Terminal connection diagram	Refer to *Terminal Block Arrangement and Wiring Example* on page 14.		

✻1. When counter input is input voltage (24 V), external power supply (5 V) cannot be used.
✻2. Use this formula to convert 5 V power supply current consumption to 24 V power supply current consumption.

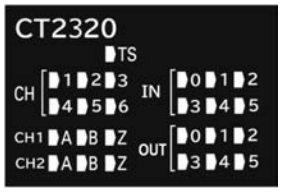
NX-CT2220

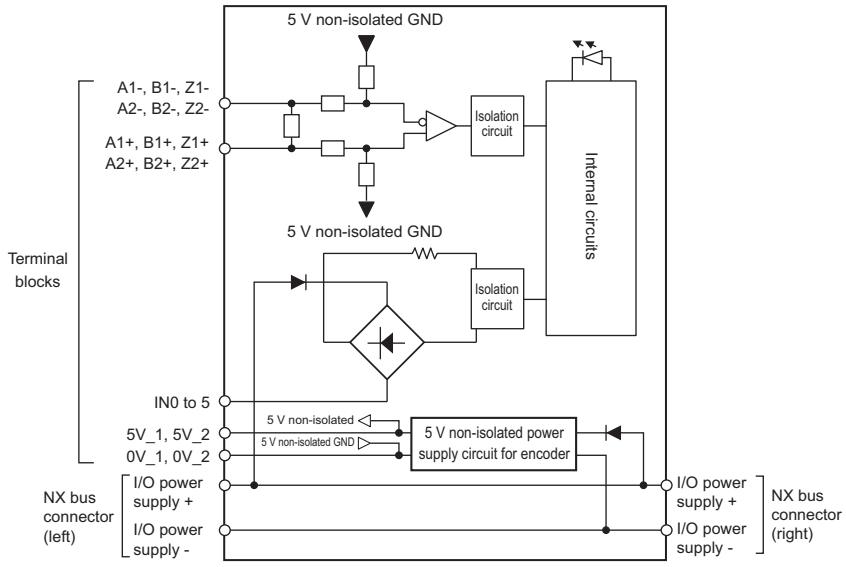
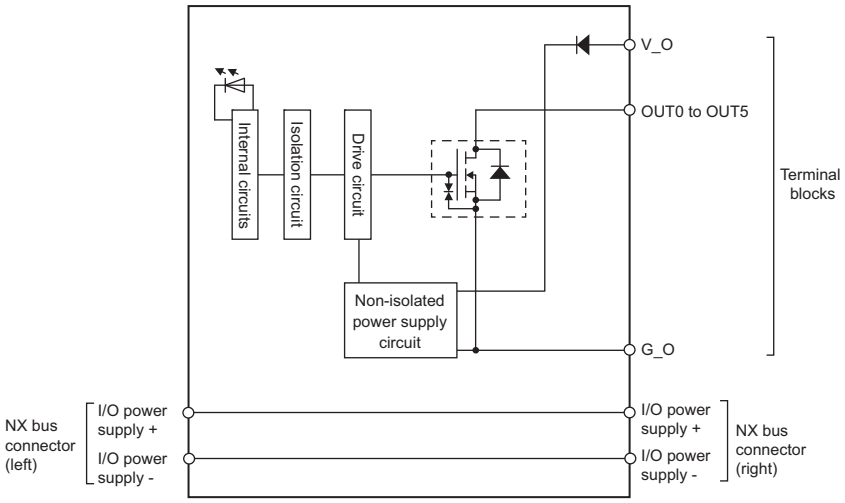
Unit name	High-speed Counter Units	**Model**	NX-CT2220
Number of channels	2ch/6ch switching	**External connection terminals**	Screwless clamping terminal block (16 terminals × 2)
I/O refreshing method	Free-Run refreshing, synchronous I/O refreshing, or task period prioritized refreshing		
Indicators	TS LED, CH LED, A/B/Z LED, IN LED, OUT LED 		
Input signals	Counter input terminal: In 2ch Mode: A-phase 2, B-phase 2, Z-phase 2 In 6ch Mode: A-phase 6 External input terminal: 6		
Output signal	External output terminal: 6		
Counter input format	Voltage input (5 V, 24 V)		
Pulse Input Method	In 2ch Mode: Phase differential pulse (multiplication x1/2/4), pulse + direction, up and down pulse inputs In 6ch Mode: Single-phase		
Counter range	-2147483648 to 2147483647		
Counter functions			
Counter Type	Ring counter or linear counter		
Counter controls	Gate control, counter reset, and counter preset		
Latching	In 2ch Mode: Counter Latch 2/ch In 6ch Mode: Counter Latch 1/ch		
Measurements	Pulse rate measurement and pulse period measurement		
Counter Input Specifications (Voltage input)			
Input voltage (24 V)	20.4 to 28.8 VDC (24 VDC +20%/-15%)	**Input voltage (5 V)**	4.5 to 5.5 VDC
ON voltage/ON current (24 V)	18.6 VDC min./3 mA min.	**ON voltage/ON current (5 V)**	4.5 VDC min./3 mA min.
OFF voltage/OFF current (24 V)	4.0 VDC max./1 mA max.	**OFF voltage/OFF current (5 V)**	1.5 VDC max./1 mA max.
Input current (24 V)	5.6 mA typical (24 VDC)	**Input current (5 V)**	5.3 mA typical (5 VDC)
Maximum response frequency	In 2ch Mode: A- and B-phase: Single-phase 250 kHz (phase differential pulse input at multiplication x4: 1 MHz), Z-phase: 250 kHz In 6ch Mode: Single-phase 100 kHz		
Internal I/O common processing	PNP		
I/O power supply method	Supply from the NX Bus		
External power supply output (5 V) ✻1	Output voltage: 4.9 to 5.25 VDC (5 VDC +5%/-2%) Output current: 500 mA/channel min., 1 A/unit min.		
External Input Specifications			
Input voltage	20.4 to 28.8 VDC (24 VDC +20%/-15%)	**ON voltage/ON current**	15 VDC min./3 mA min.
Input current	3.3 mA typical (24 VDC)	**OFF voltage/OFF current**	5.0 VDC max./1 mA max.
ON/OFF response time	1 µs max./1 µs max.		
Internal I/O common processing	PNP		
I/O power supply method	Supply from the NX Bus		
External Output Specifications			
Rated voltage	5 to 24 VDC		
Load voltage range	4.75 to 28.8 VDC	**Residual voltage**	0.6 V max.
Maximum value of load current	0.5 A/point, 1.8 A/Unit	**Leakage current**	0.1 mA max.
ON/OFF response time	1 µs max./3 µs max. (at load current 7 to 500 mA)		
Internal I/O common processing	PNP	**Load Short-circuit Protection**	None
I/O power supply method	External supply, 4.75 to 28.8 VDC		
Current consumption from I/O power supply	30 mA max.		

Dimensions	24 (W) × 100 (H) × 71 (D)	**Isolation method**	Photocoupler isolation
Insulation resistance	20 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**	510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
NX Unit power consumption	• Connected to a CPU Unit 1.45 W max. • Connected to Communications Coupler Unit 1.05 W max.	**Current consumption from I/O power supply**	Unit current consumption: 20 mA max. External 5 V power supply consumption: 0.25 × external 5 V power supply current consumption ✻2
Weight	140 g max.		
Circuit layout	Count input, external input  External output  		
Installation orientation and restrictions	Refer to *NX-series High-speed Counter Units User's Manual* (Man. No. W647).		
Terminal connection diagram	Refer to *Terminal Block Arrangement and Wiring Example* on page 18.		

✻1. When counter input is input voltage (24 V), external power supply (5 V) cannot be used.
✻2. Use this formula to convert 5 V power supply current consumption to 24 V power supply current consumption.

NX-CT2320

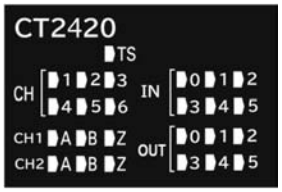
Unit name	High-speed Counter Units	**Model**	NX-CT2320
Number of channels	2ch/6ch switching	**External connection terminals**	Screwless clamping terminal block (16 terminals × 2)
I/O refreshing method	Free-Run refreshing, synchronous I/O refreshing, or task period prioritized refreshing		
Indicators	TS LED, CH LED, A/B/Z LED, IN LED, OUT LED 		
Input signals	Counter input terminal: In 2ch Mode: A-phase 2, B-phase 2, Z-phase 2 In 6ch Mode: A-phase 6 External input terminal: 6		
Output signal	External output terminal: 6		
Counter input format	Line receiver input		
Pulse Input Method	In 2ch Mode: Phase differential pulse (multiplication x1/2/4), pulse + direction, up and down pulse inputs In 6ch Mode: Single-phase		
Counter range	-2147483648 to 2147483647		
Counter functions			
Counter Type	Ring counter or linear counter		
Counter controls	Gate control, counter reset, and counter preset		
Latching	In 2ch Mode: Counter Latch 2/ch In 6ch Mode: Counter Latch 1/ch		
Measurements	Pulse rate measurement and pulse period measurement		
Counter Input Specifications (line receiver input)			
Input voltage	EIA standard RS-422-A line driver levels	**High-level input voltage**	V_{IT+}: 0.1 V min.
Input impedance	120 Ω ±5%	**Low-level input voltage**	V_{IT-}: -0.1 V max.
Hysteresis voltage	Vhys (V_{IT+} - V_{IT-}): 60 mV		
Maximum response frequency	In 2ch Mode: A- and B-phase: Single-phase 1 MHz (phase differential pulse input x4: 4 MHz), Z-phase: 1 MHz In 6ch Mode: Single-phase 100 kHz		
External power supply output (5 V) ※1	Output voltage: 4.9 to 5.25 VDC (5 VDC +5%/-2%) Output current: 500 mA/channel min., 1 A/unit min.		
External Input Specifications			
Input voltage	20.4 to 28.8 VDC (24 VDC +20%/-15%)	**ON voltage/ON current**	15 VDC min./3 mA min.
Input current	3.3 mA typical (24 VDC)	**OFF voltage/OFF current**	5.0 VDC max./1 mA max.
ON/OFF response time	1 μs max./1 μs max.		
Internal I/O common processing	NPN		
I/O power supply method	Supply from the NX Bus		
External Output Specifications			
Rated voltage	5 to 24 VDC		
Load voltage range	4.75 to 28.8 VDC	**Residual voltage**	0.6 V max.
Maximum value of load current	0.5 A/point, 1.8 A/Unit	**Leakage current**	0.1 mA max.
ON/OFF response time	1 μs max./3 μs max. (at load current 7 to 500 mA)		
Internal I/O common processing	NPN	**Load Short-circuit Protection**	None
I/O power supply method	External supply, 4.75 to 28.8 VDC		
Current consumption from I/O power supply	20 mA max.		

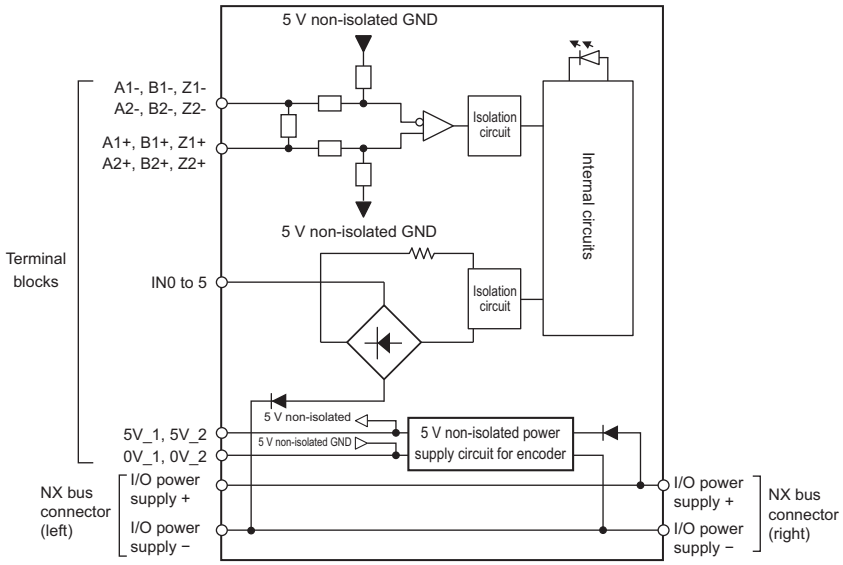
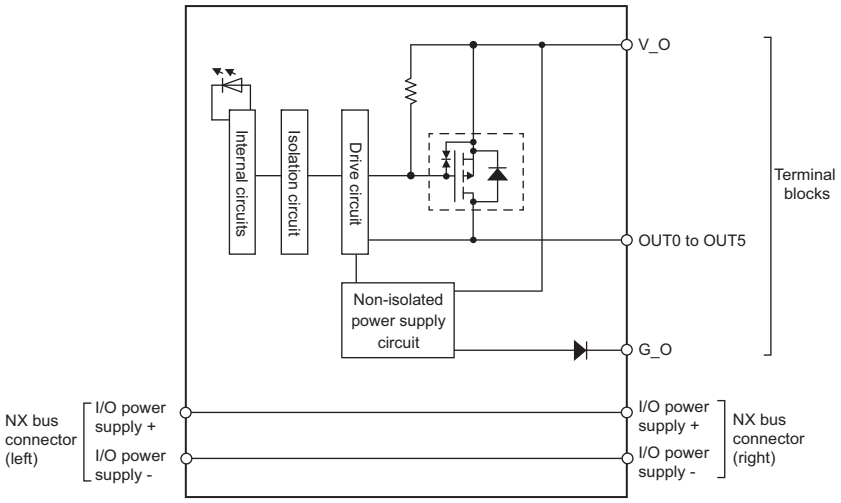
Dimensions	24 (W) × 100 (H) × 71 (D)	**Isolation method**	Photocoupler isolation
Insulation resistance	20 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**	510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
NX Unit power consumption	• Connected to a CPU Unit 1.45 W max. • Connected to Communications Coupler Unit 1.1 W max.	**Current consumption from I/O power supply**	Unit current consumption: 30 mA max. External 5 V power supply consumption: 0.25 × external 5 V power supply current consumption ✻2
Weight	140 g max.		
Circuit layout	Count input, external input  External output  		
Installation orientation and restrictions	Refer to *NX-series High-speed Counter Units User's Manual* (Man. No. W647).		
Terminal connection diagram	Refer to *Terminal Block Arrangement and Wiring Example* on page 22.		

✻1. External power supply (5 V) may be unavailable due to installation orientation or ambient operating temperature. Refer to *NX-series High-speed Counter Units User's Manual* (Man. No. W647).

✻2. Use this formula to convert 5 V power supply current consumption to 24 V power supply current consumption.

NX-CT2420

Unit name	High-speed Counter Units	**Model**	NX-CT2420
Number of channels	2ch/6ch switching	**External connection terminals**	Screwless clamping terminal block (16 terminals × 2)
I/O refreshing method	Free-Run refreshing, synchronous I/O refreshing, or task period prioritized refreshing		
Indicators	TS LED, CH LED, A/B/Z LED, IN LED, OUT LED 		
Input signals	Counter input terminal: In 2ch Mode: A-phase 2, B-phase 2, Z-phase 2 In 6ch Mode: A-phase 6 External input terminal: 6		
Output signal	External output terminal: 6		
Counter input format	Line receiver input		
Pulse Input Method	In 2ch Mode: Phase differential pulse (multiplication x1/2/4), pulse + direction, up and down pulse inputs In 6ch Mode: Single-phase		
Counter range	-2147483648 to 2147483647		
Counter functions			
Counter Type	Ring counter or linear counter		
Counter controls	Gate control, counter reset, and counter preset		
Latching	In 2ch Mode: Counter Latch 2/ch In 6ch Mode: Counter Latch 1/ch		
Measurements	Pulse rate measurement and pulse period measurement		
Counter Input Specifications (line receiver input)			
Input voltage	EIA standard RS-422-A line driver levels	**High-level input voltage**	V_{IT+}: 0.1 V min.
Input impedance	120 Ω ±5%	**Low-level input voltage**	V_{IT-}: -0.1 V max.
Hysteresis voltage	Vhys (V_{IT+} - V_{IT-}): 60 mV		
Maximum response frequency	In 2ch Mode: A- and B-phase: Single-phase 1 MHz (phase differential pulse input x4: 4 MHz), Z-phase: 1 MHz In 6ch Mode: Single-phase 100 kHz		
External power supply output (5 V) ✻1	Output voltage: 4.9 to 5.25 VDC (5 VDC +5%/-2%) Output current: 500 mA/channel min., 1 A/unit min.		
External Input Specifications			
Input voltage	20.4 to 28.8 VDC (24 VDC +20%/-15%)	**ON voltage/ON current**	15 VDC min./3 mA min.
Input current	3.3 mA typical (24 VDC)	**OFF voltage/OFF current**	5.0 VDC max./1 mA max.
ON/OFF response time	1 μs max./1 μs max.		
Internal I/O common processing	PNP		
I/O power supply method	Supply from the NX Bus		
External Output Specifications			
Rated voltage	5 to 24 VDC		
Load voltage range	4.75 to 28.8 VDC	**Residual voltage**	0.6 V max.
Maximum value of load current	0.5 A/point, 1.8 A/Unit	**Leakage current**	0.1 mA max.
ON/OFF response time	1 μs max./3 μs max. (at load current 7 to 500 mA)		
Internal I/O common processing	PNP	**Load Short-circuit Protection**	None
I/O power supply method	External supply, 4.75 to 28.8 VDC		
Current consumption from I/O power supply	30 mA max.		

Dimensions	24 (W) × 100 (H) × 71 (D)	**Isolation method**	Photocoupler isolation
Insulation resistance	20 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**	510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
NX Unit power consumption	• Connected to a CPU Unit 1.45 W max. • Connected to Communications Coupler Unit 1.05 W max.	**Current consumption from I/O power supply**	Unit current consumption: 30 mA max. External 5 V power supply consumption: 0.25 × external 5 V power supply current consumption ✻2
Weight	140 g max.		
Circuit layout	Count input, external input  External output 		
Installation orientation and restrictions	Refer to *NX-series High-speed Counter Units User's Manual* (Man. No. W647).		
Terminal connection diagram	Refer to *Terminal Block Arrangement and Wiring Example* on page 26.		

✻1. External power supply (5 V) may be unavailable due to installation orientation or ambient operating temperature. Refer to *NX-series High-speed Counter Units User's Manual* (Man. No. W647).

✻2. Use this formula to convert 5 V power supply current consumption to 24 V power supply current consumption.

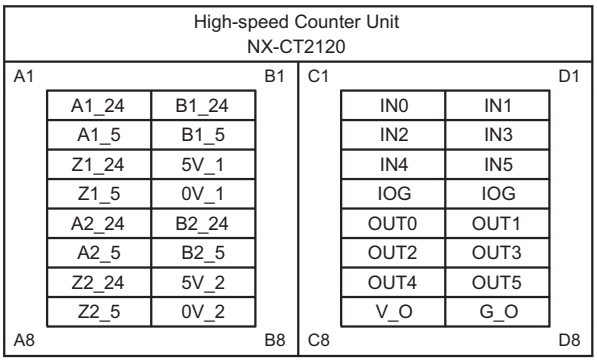
Terminal Block Arrangement and Wiring Example

For each High-speed Counter Unit model, terminal block array and wiring examples for 2ch mode and 6ch mode are described here.
For Counter Input A-phase/B-phase/Z-phase wiring, use a shielded cable with a ground of 100 Ω or less for the shield.

NX-CT2120

In 2ch Mode

Terminal Block Arrangement



Pin No.	Symbol	I/O	Name
A1	A1_24	I	Counter 1 input A-phase (24 V)
A2	A1_5	I	Counter 1 input A-phase (5 V)
A3	Z1_24	I	Counter 1 input Z-phase (24 V)
A4	Z1_5	I	Counter 1 input Z-phase (5 V)
A5	A2_24	I	Counter 2 input A-phase (24 V)
A6	A2_5	I	Counter 2 input A-phase (5 V)
A7	Z2_24	I	Counter 2 input Z-phase (24 V)
A8	Z2_5	I	Counter 2 input Z-phase (5 V)

Pin No.	Symbol	I/O	Name
B1	B1_24	I	Counter 1 input B-phase (24 V)
B2	B1_5	I	Counter 1 input B-phase (5 V)
B3	5V_1	O	Encoder power supply output 1, 5 V ✻1
B4	0V_1	O	Encoder power supply output 1, 0 V ✻1
B5	B2_24	I	Counter 2 input B-phase (24 V)
B6	B2_5	I	Counter 2 input B-phase (5 V)
B7	5V_2	O	Encoder power supply output 2, 5 V ✻1
B8	0V_2	O	Encoder power supply output 2, 0 V ✻1

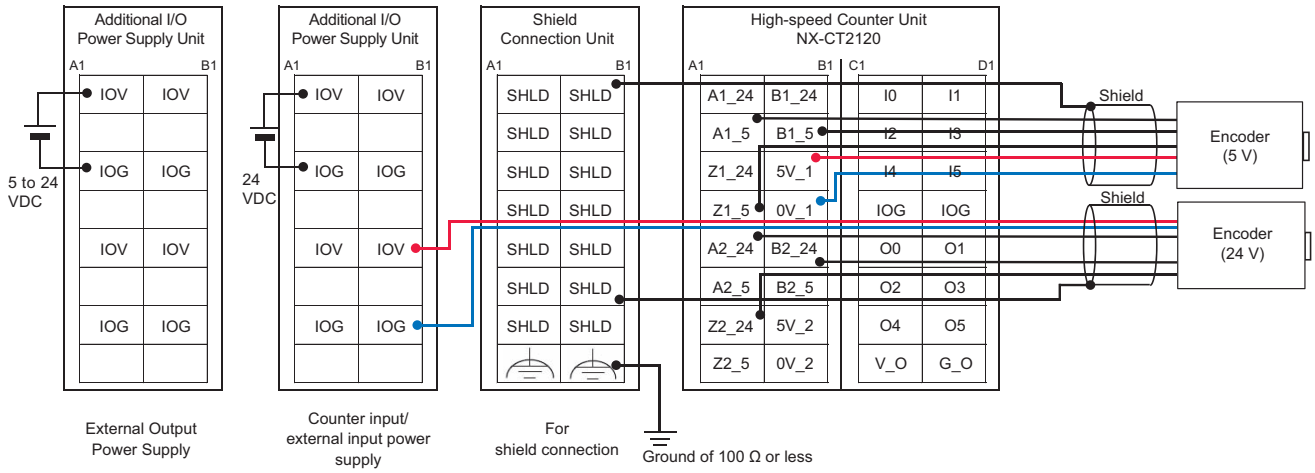
✻1. Encoder power output can be used as a power supply for the 5 V type encoder. When using a 24 V encoder, do not use the encoder power output.

Pin No.	Symbol	I/O	Name
C1	IN0	I	External Input0
C2	IN2	I	External Input2
C3	IN4	I	External Input4
C4	IOG	---	I/O power supply -
C5	OUT0	O	External Output0
C6	OUT2	O	External Output2
C7	OUT4	O	External Output4
C8	V_O	I	External Output Power Supply

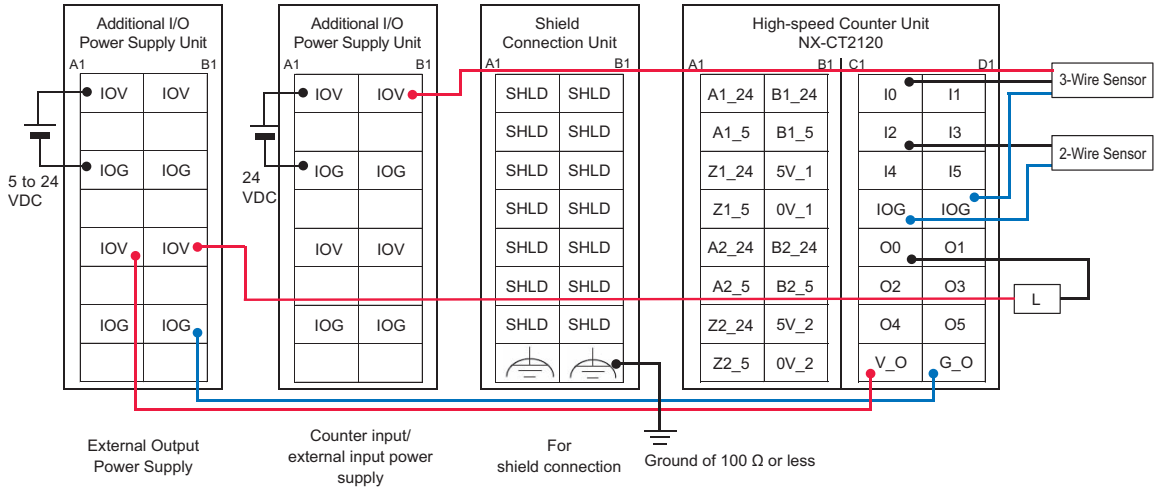
Pin No.	Symbol	I/O	Name
D1	IN1	I	External Input1
D2	IN3	I	External Input3
D3	IN5	I	External Input5
D4	IOG	---	I/O power supply -
D5	OUT1	O	External Output1
D6	OUT3	O	External Output3
D7	OUT5	O	External Output5
D8	G_O	I	External Output Power Supply

Wiring Example (NX-CT2120 2ch mode)

Counter Input Wiring Example

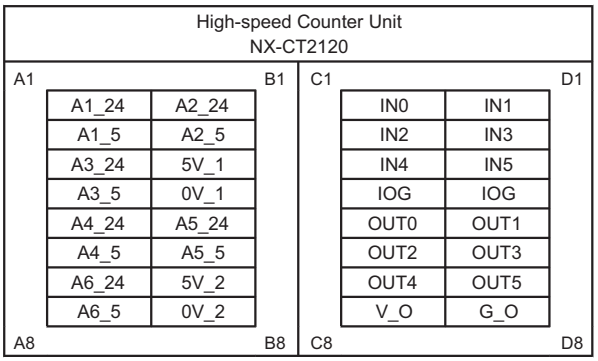


External I/O Wiring Example



In 6ch Mode

Terminal Block Arrangement



Pin No.	Symbol	I/O	Name
A1	A1_24	I	Counter 1 input A-phase (24 V)
A2	A1_5	I	Counter 1 input A-phase (5 V)
A3	A3_24	I	Counter 3 input A-phase (24 V)
A4	A3_5	I	Counter 3 input A-phase (5 V)
A5	A4_24	I	Counter 4 input A-phase (24 V)
A6	A4_5	I	Counter 4 input A-phase (5 V)
A7	A6_24	I	Counter 6 input A-phase (24 V)
A8	A6_5	I	Counter 6 input A-phase (5 V)

Pin No.	Symbol	I/O	Name
B1	A2_24	I	Counter 2 input A-phase (24 V)
B2	A2_5	I	Counter 2 input A-phase (5 V)
B3	5V_1	O	Encoder power supply output, 5 V ✻1
B4	0V_1	O	Encoder power supply output, 0 V ✻1
B5	A5_24	I	Counter 5 input A-phase (24 V)
B6	A5_5	I	Counter 5 input A-phase (5 V)
B7	5V_2	O	Encoder power supply output, 5 V ✻1
B8	0V_2	O	Encoder power supply output, 0 V ✻1

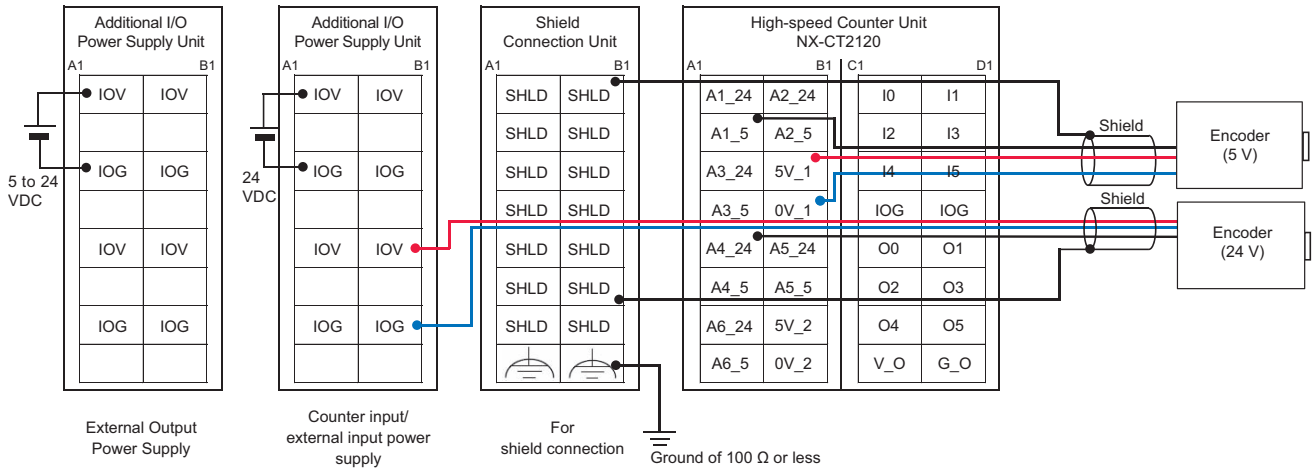
✻1. Encoder power output can be used as a power supply for the 5 V type encoder. When using a 24 V encoder, do not use the encoder power output.

Pin No.	Symbol	I/O	Name
C1	IN0	I	External Input0
C2	IN2	I	External Input2
C3	IN4	I	External Input4
C4	IOG	---	I/O power supply -
C5	OUT0	O	External Output0
C6	OUT2	O	External Output2
C7	OUT4	O	External Output4
C8	V_O	I	External Output Power Supply

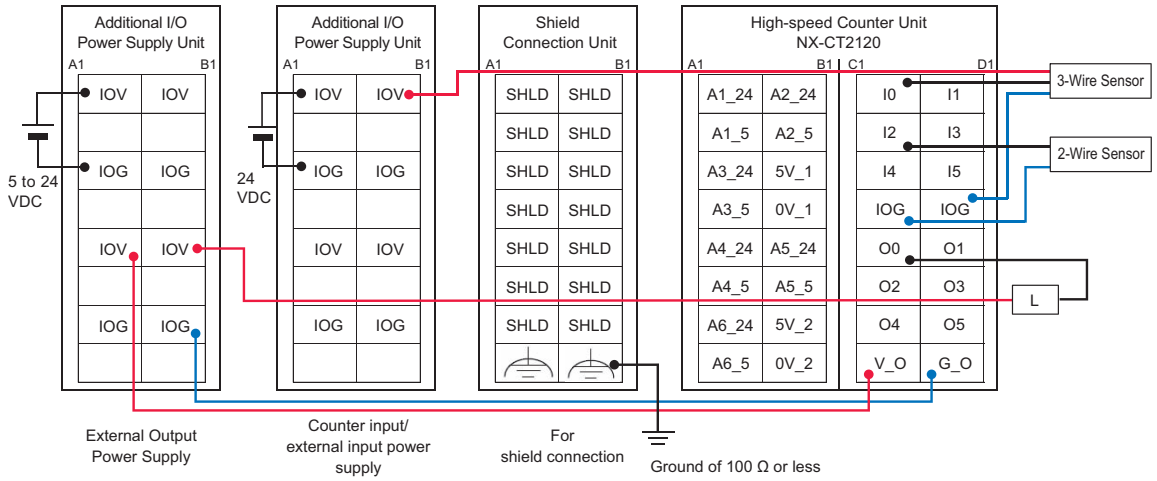
Pin No.	Symbol	I/O	Name
D1	IN1	I	External Input1
D2	IN3	I	External Input3
D3	IN5	I	External Input5
D4	IOG	---	I/O power supply -
D5	OUT1	O	External Output1
D6	OUT3	O	External Output3
D7	OUT5	O	External Output5
D8	G_O	I	External Output Power Supply

Wiring Example (NX-CT2120 6ch mode)

Counter Input Wiring Example



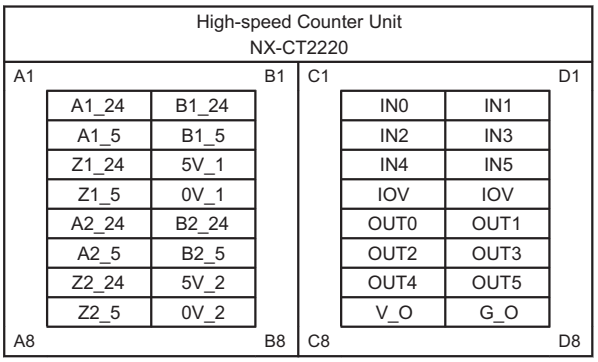
External I/O Wiring Example



NX-CT2220

In 2ch Mode

Terminal Block Arrangement



Pin No.	Symbol	I/O	Name
A1	A1_24	I	Counter 1 input A-phase (24 V)
A2	A1_5	I	Counter 1 input A-phase (5 V)
A3	Z1_24	I	Counter 1 input Z-phase (24 V)
A4	Z1_5	I	Counter 1 input Z-phase (5 V)
A5	A2_24	I	Counter 2 input A-phase (24 V)
A6	A2_5	I	Counter 2 input A-phase (5 V)
A7	Z2_24	I	Counter 2 input Z-phase (24 V)
A8	Z2_5	I	Counter 2 input Z-phase (5 V)

Pin No.	Symbol	I/O	Name
B1	B1_24	I	Counter 1 input B-phase (24 V)
B2	B1_5	I	Counter 1 input B-phase (5 V)
B3	5V_1	O	Encoder power supply output 1, 5 V ✻1
B4	0V_1	O	Encoder power supply output 1, 0 V ✻1
B5	B2_24	I	Counter 2 input B-phase (24 V)
B6	B2_5	I	Counter 2 input B-phase (5 V)
B7	5V_2	O	Encoder power supply output 2, 5 V ✻1
B8	0V_2	O	Encoder power supply output 2, 0 V ✻1

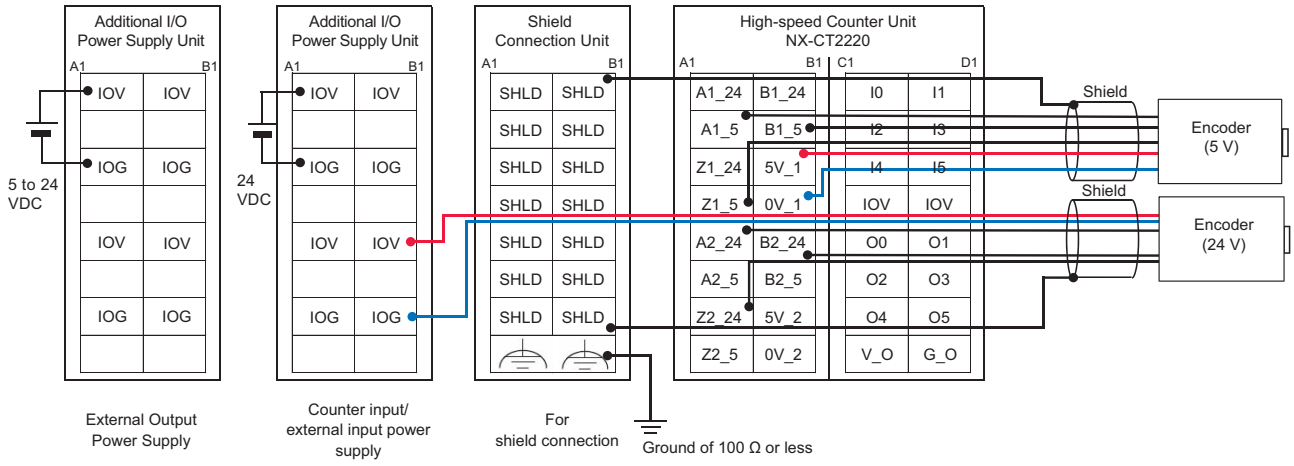
✻1. Encoder power output can be used as a power supply for the 5 V type encoder. When using a 24 V encoder, do not use the encoder power output.

Pin No.	Symbol	I/O	Name
C1	IN0	I	External Input0
C2	IN2	I	External Input2
C3	IN4	I	External Input4
C4	IOV	---	I/O power supply +
C5	OUT0	O	External Output0
C6	OUT2	O	External Output2
C7	OUT4	O	External Output4
C8	V_O	I	External Output Power Supply

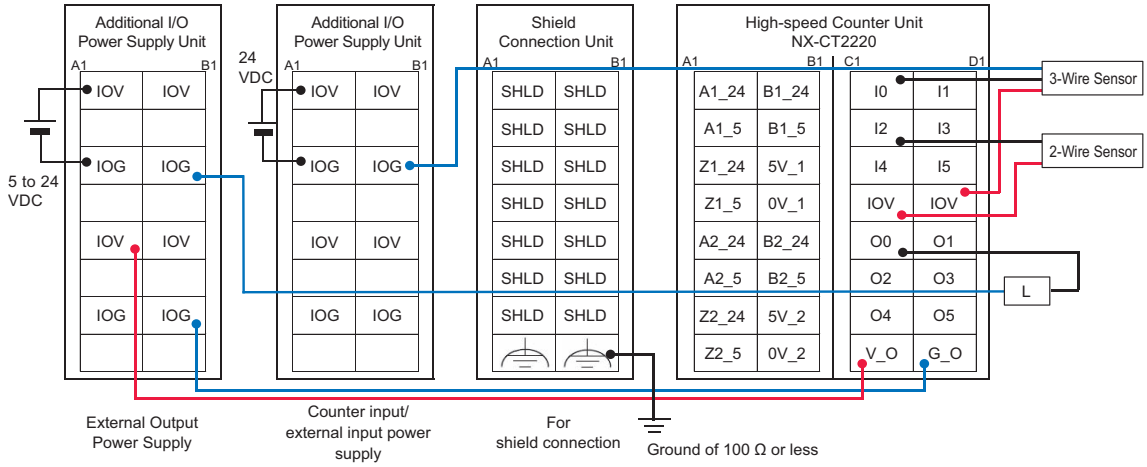
Pin No.	Symbol	I/O	Name
D1	IN1	I	External Input1
D2	IN3	I	External Input3
D3	IN5	I	External Input5
D4	IOV	---	I/O power supply +
D5	OUT1	O	External Output1
D6	OUT3	O	External Output3
D7	OUT5	O	External Output5
D8	G_O	I	External Output Power Supply

Wiring Example (NX-CT2220 2ch mode)

Counter Input Wiring Example

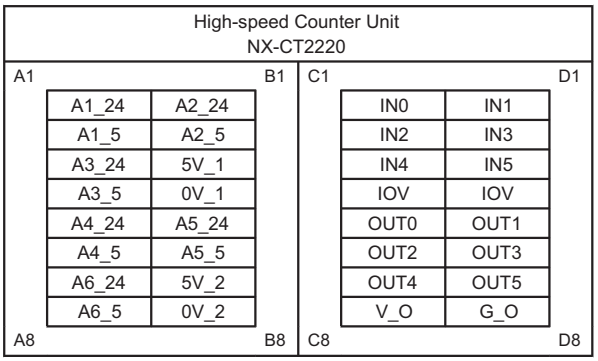


External I/O Wiring Example



In 6ch Mode

Terminal Block Arrangement



Pin No.	Symbol	I/O	Name
A1	A1_24	I	Counter 1 input A-phase (24 V)
A2	A1_5	I	Counter 1 input A-phase (5 V)
A3	A3_24	I	Counter 3 input A-phase (24 V)
A4	A3_5	I	Counter 3 input A-phase (5 V)
A5	A4_24	I	Counter 4 input A-phase (24 V)
A6	A4_5	I	Counter 4 input A-phase (5 V)
A7	A6_24	I	Counter 6 input A-phase (24 V)
A8	A6_5	I	Counter 6 input A-phase (5 V)

Pin No.	Symbol	I/O	Name
B1	A2_24	I	Counter 2 input A-phase (24 V)
B2	A2_5	I	Counter 2 input A-phase (5 V)
B3	5V_1	O	Encoder power supply output, 5 V ✻1
B4	0V_1	O	Encoder power supply output, 0 V ✻1
B5	A5_24	I	Counter 5 input A-phase (24 V)
B6	A5_5	I	Counter 5 input A-phase (5 V)
B7	5V_2	O	Encoder power supply output, 5 V ✻1
B8	0V_2	O	Encoder power supply output, 0 V ✻1

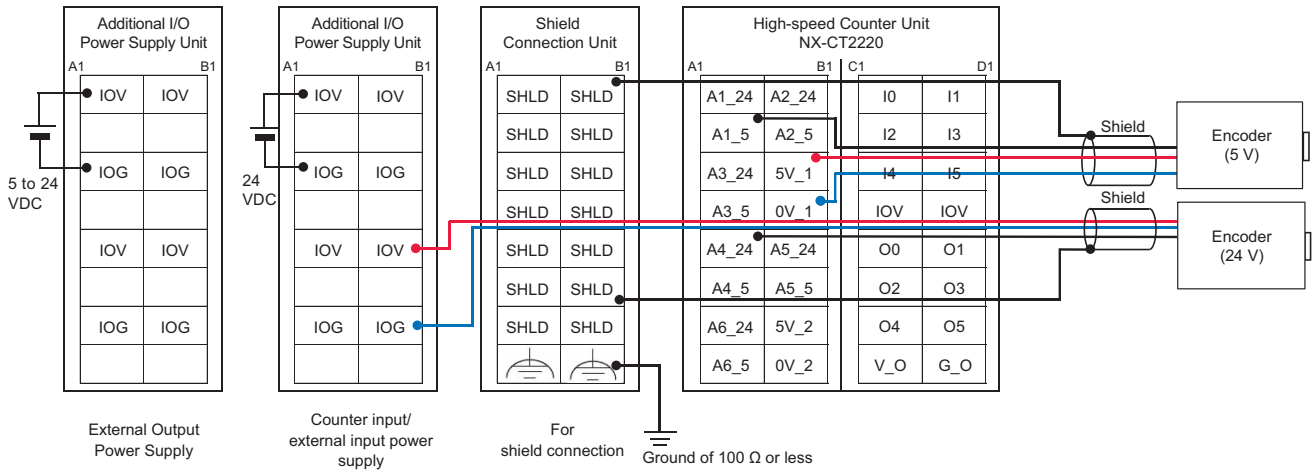
✻1. Encoder power output can be used as a power supply for the 5 V type encoder. When using a 24 V encoder, do not use the encoder power output.

Pin No.	Symbol	I/O	Name
C1	IN0	I	External Input0
C2	IN2	I	External Input2
C3	IN4	I	External Input4
C4	IOV	---	I/O power supply +
C5	OUT0	O	External Output0
C6	OUT2	O	External Output2
C7	OUT4	O	External Output4
C8	V_O	I	External Output Power Supply

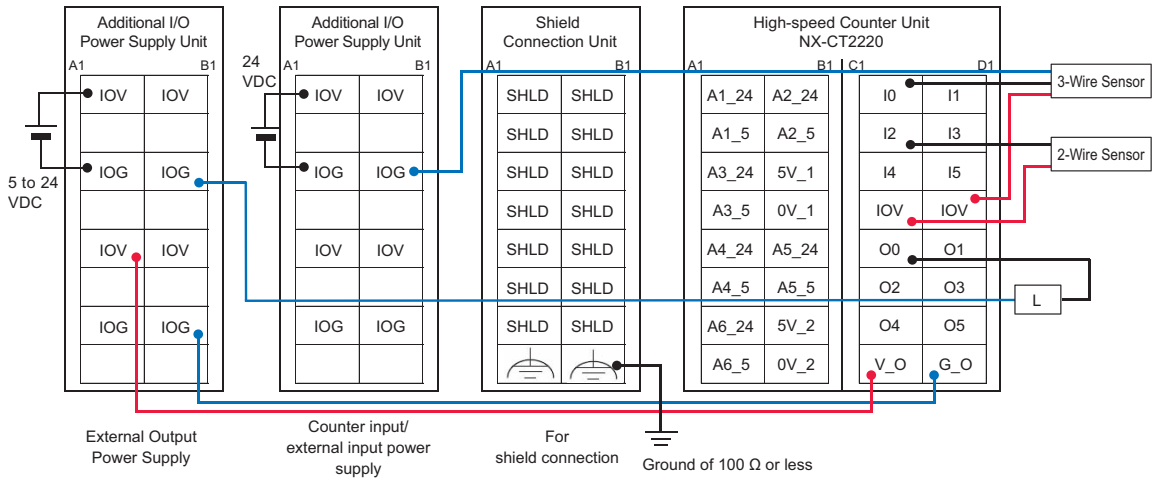
Pin No.	Symbol	I/O	Name
D1	IN1	I	External Input1
D2	IN3	I	External Input3
D3	IN5	I	External Input5
D4	IOV	---	I/O power supply +
D5	OUT1	O	External Output1
D6	OUT3	O	External Output3
D7	OUT5	O	External Output5
D8	G_O	I	External Output Power Supply

Wiring Example (NX-CT2220 6ch mode)

Counter Input Wiring Example



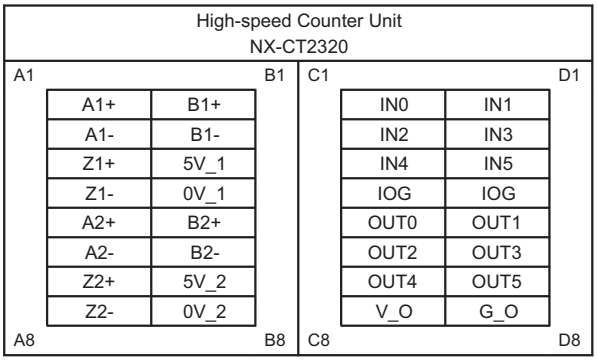
External I/O Wiring Example



NX-CT2320

In 2ch Mode

Terminal Block Arrangement



Pin No.	Symbol	I/O	Name
A1	A1+	I	Counter 1 input A-phase +
A2	A1-	I	Counter 1 input A-phase -
A3	Z1+	I	Counter 1 input Z-phase +
A4	Z1-	I	Counter 1 input Z-phase -
A5	A2+	I	Counter 2 input A-phase +
A6	A2-	I	Counter 2 input A-phase -
A7	Z2+	I	Counter 2 input Z-phase +
A8	Z2-	I	Counter 2 input Z-phase -

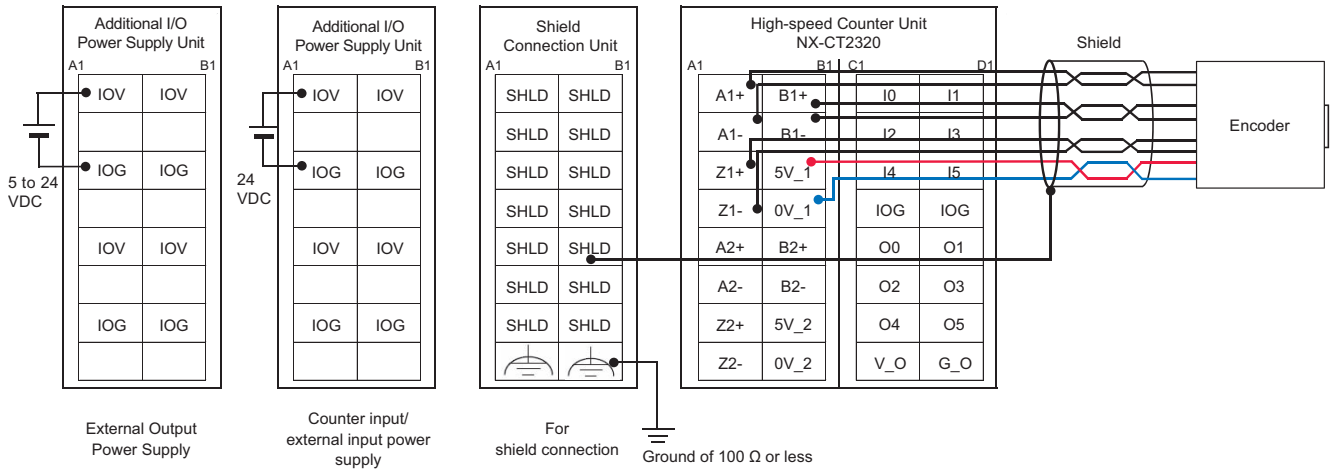
Pin No.	Symbol	I/O	Name
B1	B1+	I	Counter 1 input B-phase +
B2	B1-	I	Counter 1 input B-phase -
B3	5V_1	O	Encoder power supply output 1, 5 V
B4	0V_1	O	Encoder power supply output 1, 0 V
B5	B2+	I	Counter 2 input B-phase +
B6	B2-	I	Counter 2 input B-phase -
B7	5V_2	O	Encoder power supply output 2, 5 V
B8	0V_2	O	Encoder power supply output 2, 0 V

Pin No.	Symbol	I/O	Name
C1	IN0	I	External Input0
C2	IN2	I	External Input2
C3	IN4	I	External Input4
C4	IOG	---	I/O power supply -
C5	OUT0	O	External Output0
C6	OUT2	O	External Output2
C7	OUT4	O	External Output4
C8	V_O	I	External Output Power Supply

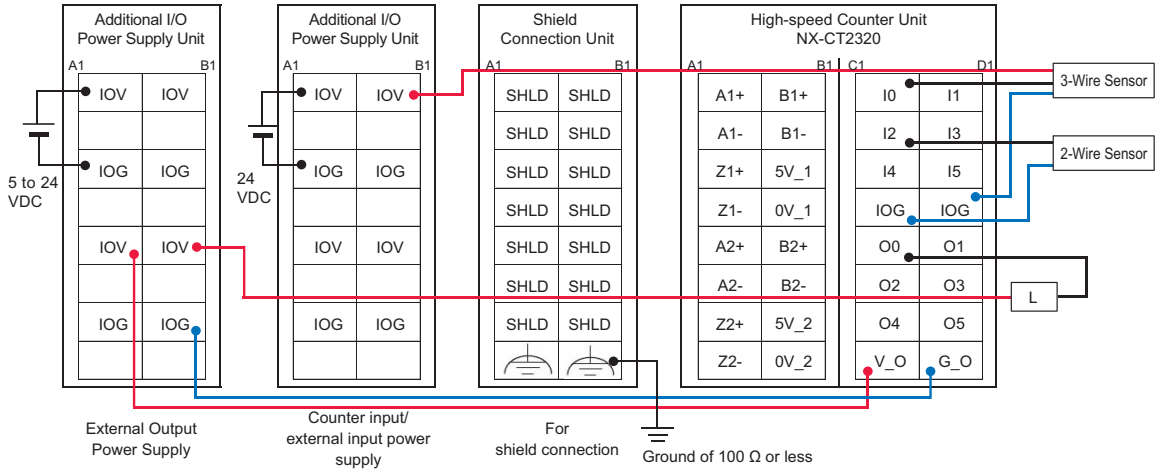
Pin No.	Symbol	I/O	Name
D1	IN1	I	External Input1
D2	IN3	I	External Input3
D3	IN5	I	External Input5
D4	IOG	---	I/O power supply -
D5	OUT1	O	External Output1
D6	OUT3	O	External Output3
D7	OUT5	O	External Output5
D8	G_O	I	External Output Power Supply

Wiring Example (NX-CT2320 2ch mode)

Counter Input Wiring Example

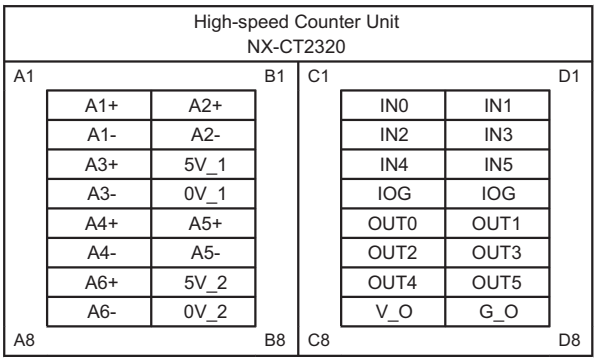


External I/O Wiring Example



In 6ch Mode

Terminal Block Arrangement



Pin No.	Symbol	I/O	Name
A1	A1+	I	Counter 1 input A-phase +
A2	A1-	I	Counter 1 input A-phase -
A3	A3+	I	Counter 3 input A-phase +
A4	A3-	I	Counter 3 input A-phase -
A5	A4+	I	Counter 4 input A-phase +
A6	A4-	I	Counter 4 input A-phase -
A7	A6+	I	Counter 6 input A-phase +
A8	A6-	I	Counter 6 input A-phase -

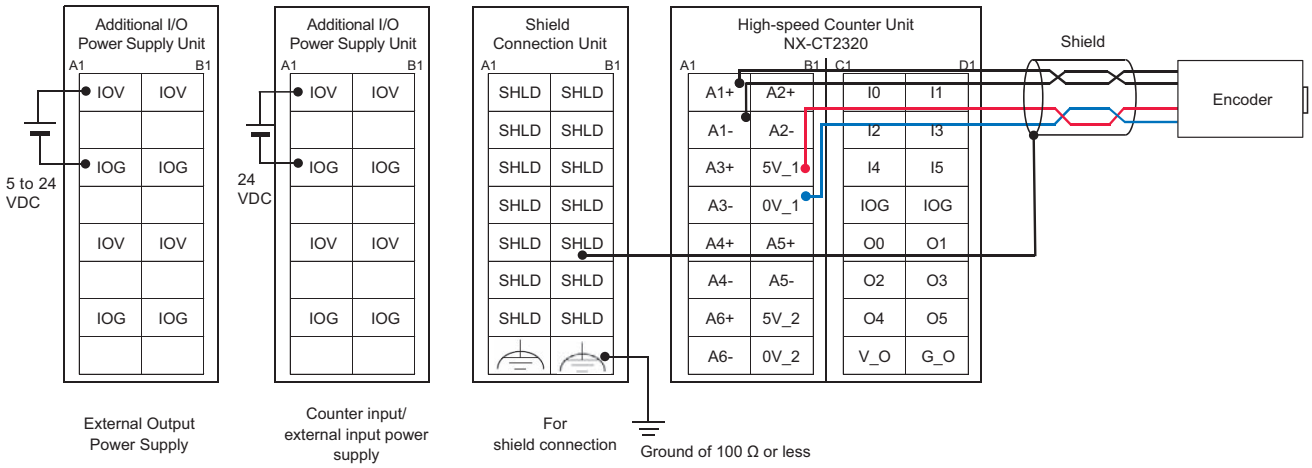
Pin No.	Symbol	I/O	Name
B1	A2+	I	Counter 2 input A-phase +
B2	A2-	I	Counter 2 input A-phase -
B3	5V_1	O	Encoder power supply output, 5 V
B4	0V_1	O	Encoder power supply output, 0 V
B5	A5+	I	Counter 5 input A-phase +
B6	A5-	I	Counter 5 input A-phase -
B7	5V_2	O	Encoder power supply output, 5 V
B8	0V_2	O	Encoder power supply output, 0 V

Pin No.	Symbol	I/O	Name
C1	IN0	I	External Input0
C2	IN2	I	External Input2
C3	IN4	I	External Input4
C4	IOG	---	I/O power supply -
C5	OUT0	O	External Output0
C6	OUT2	O	External Output2
C7	OUT4	O	External Output4
C8	V_O	I	External Output Power Supply

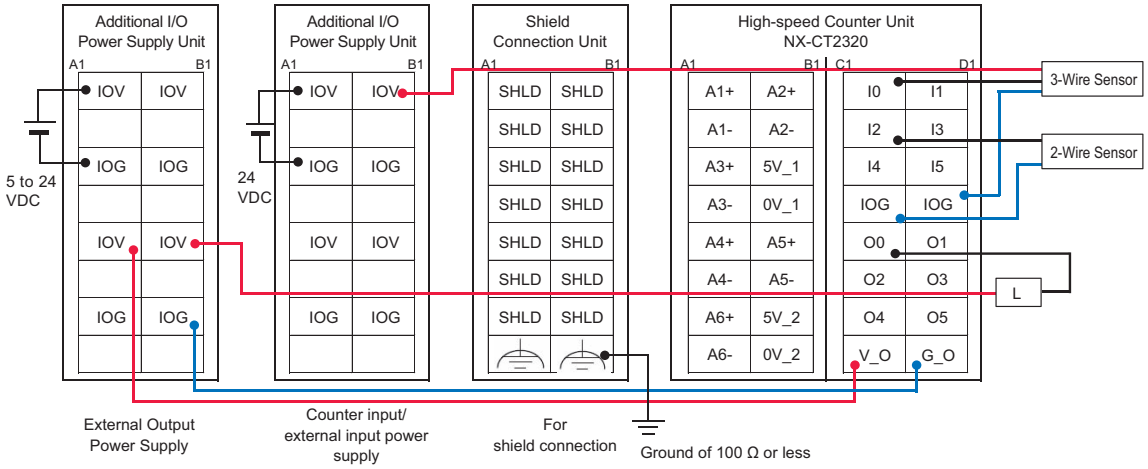
Pin No.	Symbol	I/O	Name
D1	IN1	I	External Input1
D2	IN3	I	External Input3
D3	IN5	I	External Input5
D4	IOG	---	I/O power supply -
D5	OUT1	O	External Output1
D6	OUT3	O	External Output3
D7	OUT5	O	External Output5
D8	G_O	I	External Output Power Supply

Wiring Example (NX-CT2320 6ch mode)

Counter Input Wiring Example



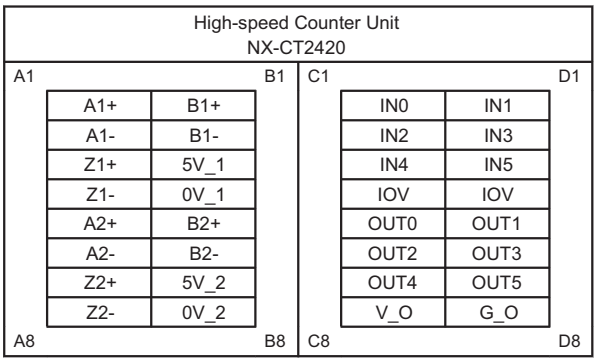
External I/O Wiring Example



NX-CT2420

In 2ch Mode

Terminal Block Arrangement



Pin No.	Symbol	I/O	Name
A1	A1+	I	Counter 1 input A-phase +
A2	A1-	I	Counter 1 input A-phase -
A3	Z1+	I	Counter 1 input Z-phase +
A4	Z1-	I	Counter 1 input Z-phase -
A5	A2+	I	Counter 2 input A-phase +
A6	A2-	I	Counter 2 input A-phase -
A7	Z2+	I	Counter 2 input Z-phase +
A8	Z2-	I	Counter 2 input Z-phase -

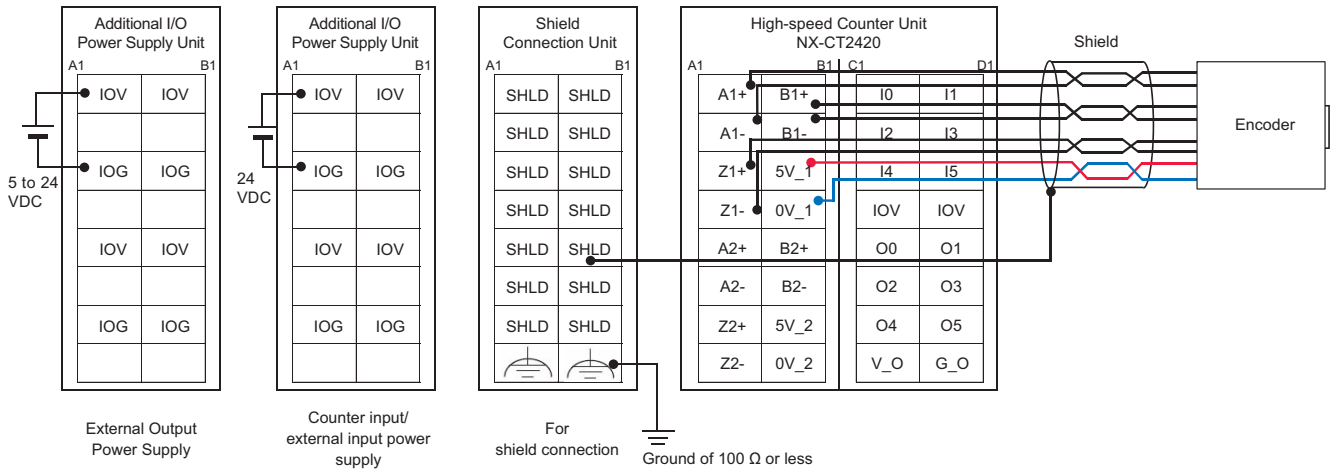
Pin No.	Symbol	I/O	Name
B1	B1+	I	Counter 1 input B-phase +
B2	B1-	I	Counter 1 input B-phase -
B3	5V_1	O	Encoder power supply output 1, 5 V
B4	0V_1	O	Encoder power supply output 1, 0 V
B5	B2+	I	Counter 2 input B-phase +
B6	B2-	I	Counter 2 input B-phase -
B7	5V_2	O	Encoder power supply output 2, 5 V
B8	0V_2	O	Encoder power supply output 2, 0 V

Pin No.	Symbol	I/O	Name
C1	IN0	I	External Input0
C2	IN2	I	External Input2
C3	IN4	I	External Input4
C4	IOV	---	I/O power supply +
C5	OUT0	O	External Output0
C6	OUT2	O	External Output2
C7	OUT4	O	External Output4
C8	V_O	I	External Output Power Supply

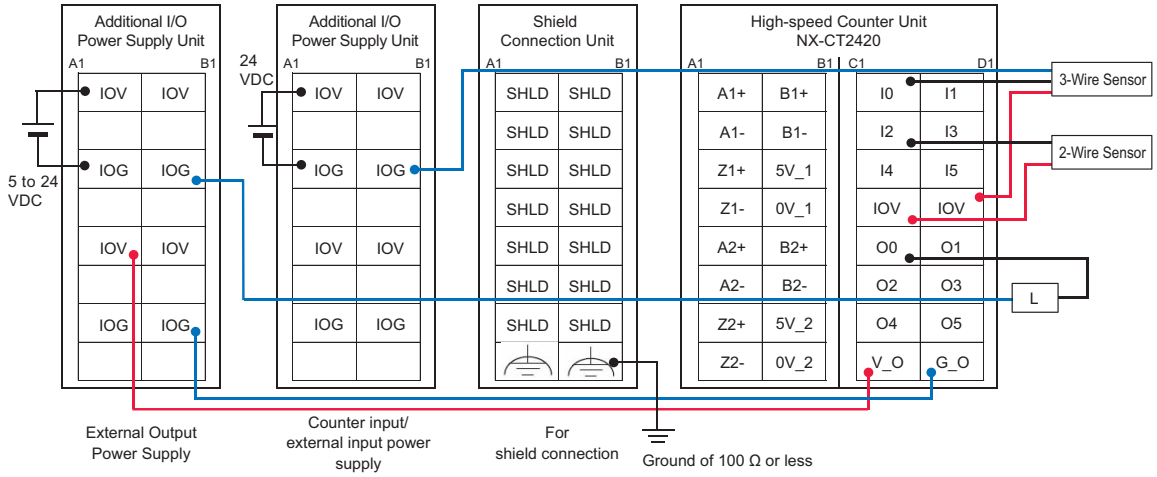
Pin No.	Symbol	I/O	Name
D1	IN1	I	External Input1
D2	IN3	I	External Input3
D3	IN5	I	External Input5
D4	IOV	---	I/O power supply +
D5	OUT1	O	External Output1
D6	OUT3	O	External Output3
D7	OUT5	O	External Output5
D8	G_O	I	External Output Power Supply

Wiring Example (NX-CT2420 2ch mode)

Counter Input Wiring Example

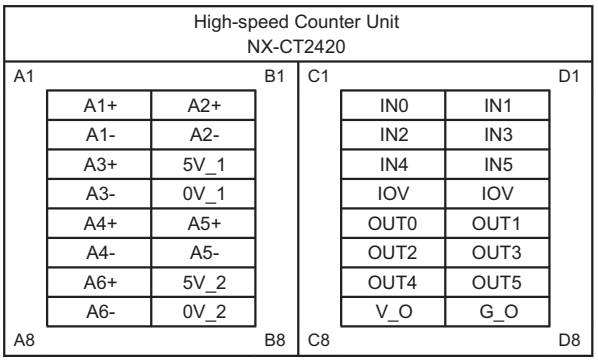


External I/O Wiring Example



In 6ch Mode

Terminal Block Arrangement



Pin No.	Symbol	I/O	Name
A1	A1+	I	Counter 1 input A-phase +
A2	A1-	I	Counter 1 input A-phase -
A3	A3+	I	Counter 3 input A-phase +
A4	A3-	I	Counter 3 input A-phase -
A5	A4+	I	Counter 4 input A-phase +
A6	A4-	I	Counter 4 input A-phase -
A7	A6+	I	Counter 6 input A-phase +
A8	A6-	I	Counter 6 input A-phase -

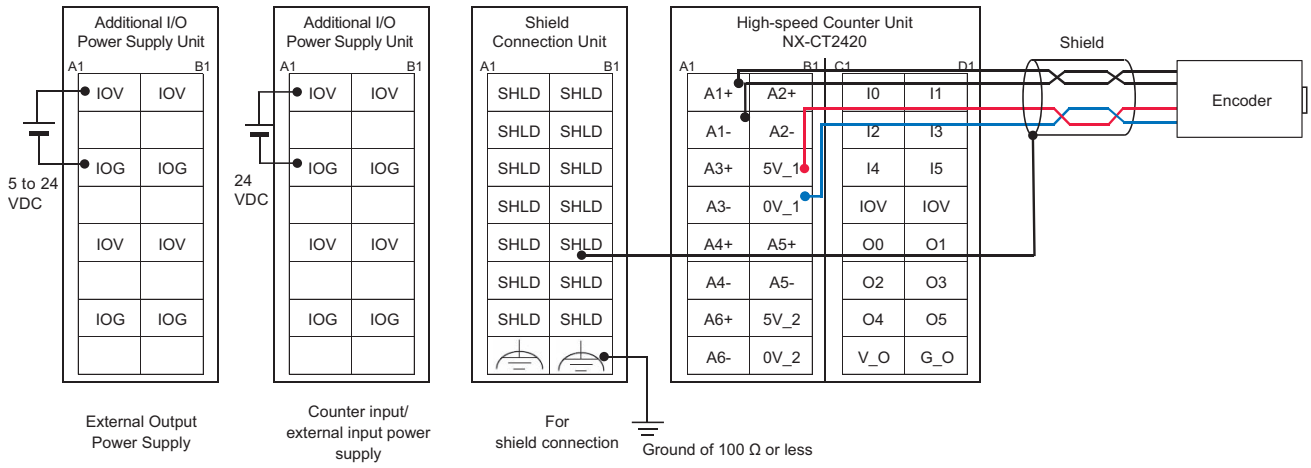
Pin No.	Symbol	I/O	Name
B1	A2+	I	Counter 2 input A-phase +
B2	A2-	I	Counter 2 input A-phase -
B3	5V_1	O	Encoder power supply output, 5 V
B4	0V_1	O	Encoder power supply output, 0 V
B5	A5+	I	Counter 5 input A-phase +
B6	A5-	I	Counter 5 input A-phase -
B7	5V_2	O	Encoder power supply output, 5 V
B8	0V_2	O	Encoder power supply output, 0 V

Pin No.	Symbol	I/O	Name
C1	IN0	I	External Input0
C2	IN2	I	External Input2
C3	IN4	I	External Input4
C4	IOV	---	I/O power supply +
C5	OUT0	O	External Output0
C6	OUT2	O	External Output2
C7	OUT4	O	External Output4
C8	V_O	I	External Output Power Supply

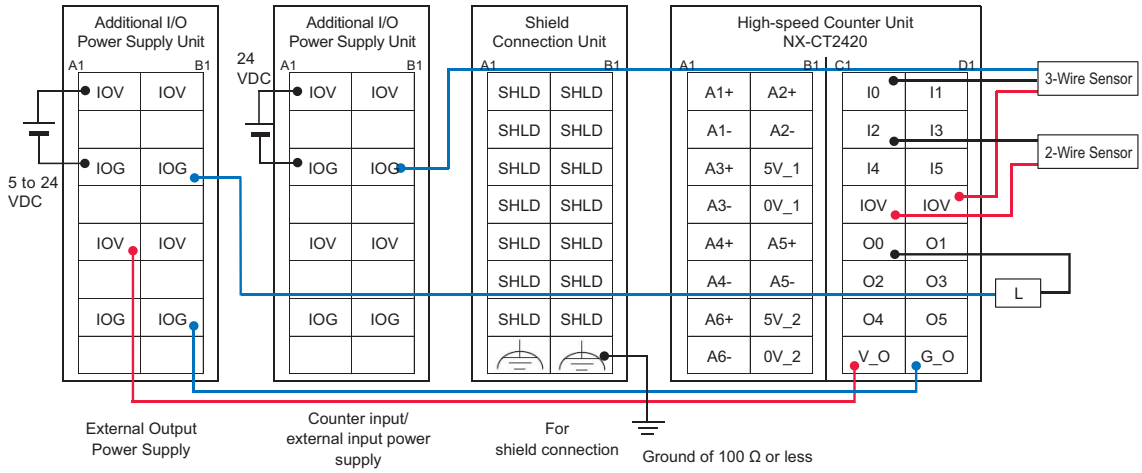
Pin No.	Symbol	I/O	Name
D1	IN1	I	External Input1
D2	IN3	I	External Input3
D3	IN5	I	External Input5
D4	IOV	---	I/O power supply +
D5	OUT1	O	External Output1
D6	OUT3	O	External Output3
D7	OUT5	O	External Output5
D8	G_O	I	External Output Power Supply

Wiring Example (NX-CT2420 6ch mode)

Counter Input Wiring Example



External I/O Wiring Example



Version Information

Connected to a CPU Unit

Refer to *the user's manual for the CPU Unit* for details on the CPU Units to which NX Units can be connected.

NX Units		Corresponding unit versions	
Model	Unit version	CPU Units	Sysmac Studio
NX-CT2120	Ver.1.0	Ver.1.13	Ver.1.65
NX-CT2220			
NX-CT2320			
NX-CT2420			

Connected to an EtherCAT Coupler Unit

NX Units		Corresponding unit versions		
Model	Unit version	EtherCAT Coupler Unit	CPU Unit or Industrial PC	Sysmac Studio
NX-CT2120	Ver.1.0	Ver.1.0	Ver.1.05	Ver.1.65
NX-CT2220				
NX-CT2320				
NX-CT2420				

Connected to an EtherNet/IP Coupler Unit

NX Units		Corresponding unit versions					
Model	Unit version	Use with an NJ/NX/NY-series Controller ∗1			Application with an CS/CJ/CP-series PLC ∗2		
		EtherNet/IP Coupler Unit	CPU Unit or Industrial PC	Sysmac Studio	EtherNet/IP Coupler Unit	Sysmac Studio	NX-IO Configurator ∗3
NX-CT2120	Ver.1.0	Ver.1.0	Ver.1.05	Ver.1.65	Ver.1.0	Ver.1.65	Ver.1.25
NX-CT2220							
NX-CT2320							
NX-CT2420							

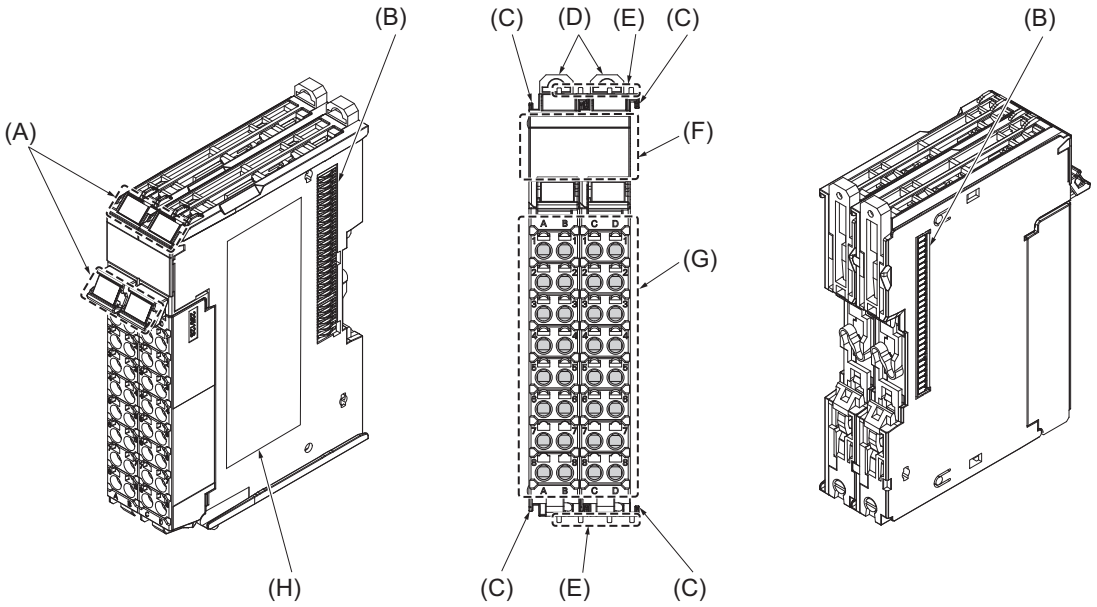
∗1. Refer to version information in the user's manual of the EtherNet/IP Coupler Unit for the unit versions of EtherNet/IP Units corresponding to EtherNet/IP Coupler Units.

∗2. Refer to version information in the user's manual of the EtherNet/IP Coupler Unit for the unit versions of CPU Units and EtherNet/IP Units corresponding to EtherNet/IP Coupler Units.

∗3. For connection to an EtherNet/IP Coupler Unit with unit version 1.0, connection is supported only for a connection to the peripheral USB port on the EtherNet/IP Coupler Unit. You cannot connect by any other path. If you need to connect by another path, use an EtherNet/IP Coupler Unit with unit version 1.2 or later.

External Interface

This section describes the names and functions of the parts of the High-speed Counter Units.



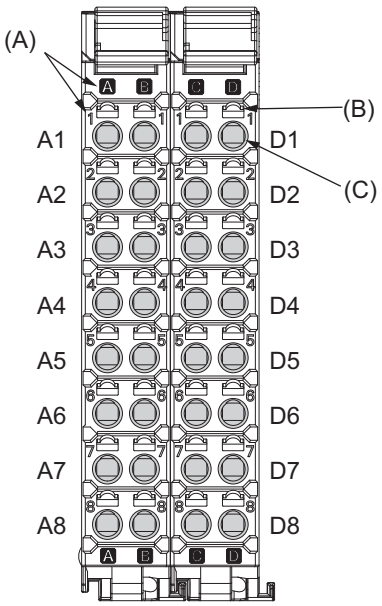
Letter	Name	Description
(A)	Marker attachment locations	The locations where markers are attached. The markers made by OMRON are installed for the factory setting. Commercially available markers can also be installed.
(B)	NX bus connector	This connector is used to connect each Unit.
(C)	Unit hookup guides	These guides are used to connect two Units.
(D)	DIN Track mounting hooks	These hooks are used to mount the NX Unit to a DIN Track.
(E)	Protrusions for removing the Unit	The protrusions to hold when removing the Unit.
(F)	Indicators	The indicators show the current operating status of the Unit.
(G)	Terminal block	The terminal block is used to connect external devices.
(H)	Unit specifications	The specifications of the Unit are given.

Refer to *Installation in the hardware user's manual for the connected CPU Unit* or *the user's manual for the Communications Coupler Unit* for details on attaching markers.

Terminal Blocks

Screwless clamping terminal blocks are used for the High-speed Analog Input Units for easy wiring and removal.
The compatible terminal blocks for the High-speed Analog Input Units are NX-TBA162 and NX-TBB162.
The NX-TBA162 terminal block is connected to the left side of the Unit and the NX-TBA162 terminal block is connected to the right side of the Unit.

24 mm width
16-terminal type × 2



Letter	Name	Description
(A)	Terminal number indications	Terminal numbers for which A to D indicate the column, and 1 to 8 indicate the line are displayed. The terminal number is a combination of column and line, i.e. A1 to A8 and B1 to B8. A1 to A8 and B1 to B8 are terminal number of the left terminal block, C1 to C8 and D1 to D8 are terminal numbers of the right terminal block.
(B)	Release holes	Insert a flat-blade screwdriver into these holes to connect and remove the wires.
(C)	Terminal holes	The wires are inserted into these holes.

Applicable Wires

Using Ferrules

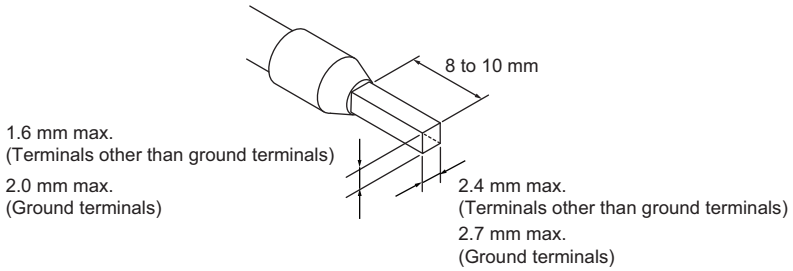
If you use ferrules, attach the twisted wires to them.
Observe the application instructions for your ferrules for the wire stripping length when attaching ferrules.
Always use plated one-pin ferrules. Do not use unplated ferrules or two-pin ferrules.

The applicable ferrules, wires, and crimping tool are given in the following table.

Terminal type	Manufacturer	Ferrule model	Applicable wire (mm^2 (AWG))	Crimping tool
Terminals other than ground terminals	Phoenix Contact	AI0,34-8	0.34 (#22)	Phoenix Contact (The figure in parentheses is the applicable wire size.) CRIMPFOX 6 (0.25 to 6 mm^2, AWG 24 to 10)
		AI0,5-8	0.5 (#20)	
		AI0,5-10		
		AI0,75-8	0.75 (#18)	
		AI0,75-10		
		AI1,0-8	1.0 (#18)	
		AI1,0-10		
		AI1,5-8	1.5 (#16)	
		AI1,5-10		
Ground terminals		AI2,5-10	2.0 ✻1	
Terminals other than ground terminals	Weidmuller	H0.14/12	0.14 (#26)	Weidmueller (The figure in parentheses is the applicable wire size.) PZ6 Roto (0.14 to 6 mm^2, AWG 26 to 10)
		H0.25/12	0.25 (#24)	
		H0.34/12	0.34 (#22)	
		H0.5/14	0.5 (#20)	
		H0.5/16		
		H0.75/14	0.75 (#18)	
		H0.75/16		
		H1.0/14	1.0 (#18)	
		H1.0/16		
		H1.5/14	1.5 (#16)	
		H1.5/16		

✻1. For the ferrule type AI2,5-10, use wires with a diameter of 2.0 to 2.1 mm^2. Wires with a diameter exceeding 2.1 mm^2 cannot be used with the screwless clamping terminal block.

When you use any ferrules other than those in the above table, crimp them to the twisted wires so that the following processed dimensions are achieved.

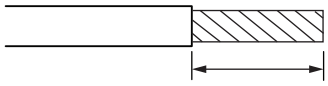


Using Twisted Wires/Solid Wires

If you use the twisted wires or the solid wires, use the following table to determine the correct wire specifications.

Terminals		Wire type				Wire size	Conductor length (stripping length)
		Twisted wires		Solid wire			
Classification	Current capacity	Plated	Unplated	Plated	Unplated		
All terminals except ground terminals	2 A or less	Possible	Possible	Possible	Possible	0.08 to 1.5 mm^2 AWG28 to 16	8 to 10 mm
	Greater than 2 A and 4 A or less		Not Possible	Possible ✻1	Not Possible		
	Greater than 4 A	Possible ✻1		Not Possible			
Ground terminals	---	Possible	Possible	Possible ✻2	Possible ✻2	2.0 mm^2	9 to 10 mm

✻1. Secure wires to the screwless clamping terminal block. Refer to the Securing Wires in the USER'S MANUAL for how to secure wires.
✻2. With the NX-TB□□□1 Terminal Block, use twisted wires to connect the ground terminal. Do not use a solid wire.

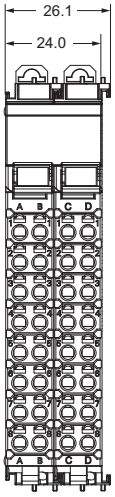


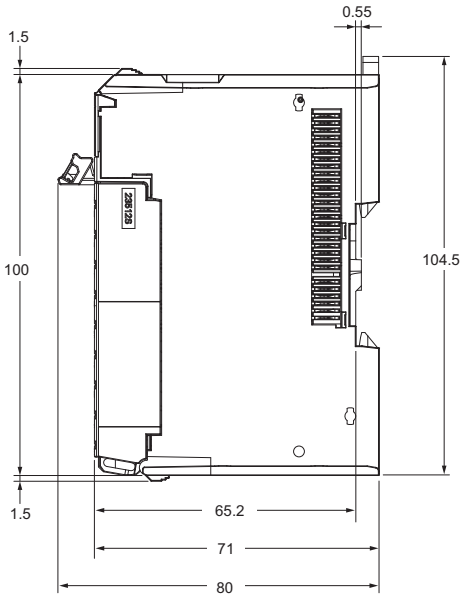
Conductor length (stripping length)

<Additional Information> If more than 2 A will flow on the wires, use plated wires or use ferrules.

Dimensions

NX-CT2□20





Related Manuals

The following table shows related manuals. Use these manuals for reference.

Manual name	Cat. No.	Model numbers	Application	Description
NX-series High-speed Counter Units User's Manual	W647	NX-CT□□□□	Learning how to use NX-series High-speed Counter Units.	The hardware, setup methods, and functions of the NX-series High-speed Counter Units are described.
NX-series Data Reference Manual	W525	NX-□□□□□□	Referencing lists of the data that is required to configure systems with NX-series Units.	Lists of the power consumptions, weights, and other NX Unit data that is required to configure systems with NX-series Units are provided.
NX-series System Units User's Manual	W523	NX-PD1□□□ NX-PF0□□□ NX-PC0□□□ NX-TBX01	Learning how to use NX-series System Units.	The hardware and functions of the NX-series System Units are described.
Sysmac Studio Version 1 Operation Manual	W504	SYSMAC-SE2□□□	Learning about the operating procedures and functions of the Sysmac Studio.	Describes the operating procedures of the Sysmac Studio.
NX-IO Configurator Operation Manual	W585	CXONEAL□□D-V4	Learning about the operating procedures and functions of the NX-IO Configurator.	Describes the operating procedures of the NX-IO Configurator.
NJ/NX-series Troubleshooting Manual	W503	NX701-□□□□ NX502-□□□□ NX102-□□□□ NX1P2-□□□□ NJ501-□□□□ NJ301-□□□□ NJ101-□□□□	Learning about the errors that may be detected in an NJ/NX-series Controller.	Concepts on managing errors that may be detected in an NJ/NX-series Controller and information on individual errors are described.
NY-series Troubleshooting Manual	W564	NY532-□□□□ NY512-□□□□	Learning about the errors that may be detected in an NY-series Industrial PC.	Concepts on managing errors that may be detected in an NY-series Controller and information on individual errors are described.
NX-series EtherCAT® Coupler Unit User's Manual	W519	NX-ECC20□	Learning how to use an NX-series EtherCAT Coupler Unit and Ether-CAT Slave Terminals.	The following items are described: the overall system and configuration methods of an EtherCAT Slave Terminal (which consists of an NX-series EtherCAT Coupler Unit and NX Units), and information on hardware, setup, and functions to set up, control, and monitor NX Units through EtherCAT.
NX-series EtherNet/IP™ Coupler Unit User's Manual	W536	NX-EIC202	Learning how to use an NX-series EtherNet/IP Coupler Unit and EtherNet/IP Slave Terminals.	The following items are described: the overall system and configuration methods of an EtherNet/IP Slave Terminal (which consists of an NXseries EtherNet/IP Coupler Unit and NX Units), and information on hardware, setup, and functions to set up, control, and monitor NX Units.
NX-series CPU Unit Hardware User's Manual	W535	NX701-□□□□	Learning the basic specifications of the NX701 CPU Units, including introductory information, designing, installation, and maintenance. Mainly hardware information is provided.	An introduction to the entire NX701 system is provided along with the following information on the CPU Unit. • Features and system configuration • Introduction • Part names and functions • General specifications • Installation and wiring • Maintenance and inspection

Manual name	Cat. No.	Model numbers	Application	Description
NX-series NX502 CPU Unit Hardware User's Manual	W629	NX502-□□□□	Learning the basic specifications of the NX502 CPU Units, including introductory information, designing, installation, and maintenance. Mainly hardware information is provided.	An introduction to the entire NX502 system is provided along with the following information on the CPU Unit. • Features and system configuration • Introduction • Part names and functions • General specifications • Installation and wiring • Maintenance and inspection
NX-series NX102 CPU Unit Hardware User's Manual	W593	NX102-□□□□	Learning the basic specifications of the NX102 CPU Units, including introductory information, designing, installation, and maintenance. Mainly hardware information is provided.	An introduction to the entire NX102 system is provided along with the following information on the CPU Unit. • Features and system configuration • Introduction • Part names and functions • General specifications • Installation and wiring • Maintenance and inspection
NX-series NX1P2 CPU Unit Hardware User's Manual	W578	NX1P2-□□□□	Learning the basic specifications of the NX1P2 CPU Units, including introductory information, designing, installation, and maintenance. Mainly hardware information is provided.	An introduction to the entire NX1P2 system is provided along with the following information on the CPU Unit. • Features and system configuration • Introduction • Part names and functions • General specifications • Installation and wiring • Maintenance and inspection
NJ-series CPU Unit Hardware User's Manual	W500	NJ501-□□□□ NJ301-□□□□ NJ101-□□□□	Learning the basic specifications of the NJ-series CPU Units, including introductory information, designing, installation, and maintenance. Mainly hardware information is provided.	An introduction to the entire NJ-series system is provided along with the following information on the CPU Unit. • Features and system configuration • Introduction • Part names and functions • General specifications • Installation and wiring • Maintenance and inspection
NY-series IPC Machine Controller Industrial Panel PC Hardware User's Manual	W557	NY532-□□□□	Learning the basic specifications of the NY-series Industrial Panel PCs, including introductory information, designing, installation, and maintenance. Mainly hardware information is provided.	An introduction to the entire NY-series system is provided along with the following information on the Industrial Panel PC. • Features and system configuration • Introduction • Part names and functions • General specifications • Installation and wiring • Maintenance and inspection
NY-series IPC Machine Controller Industrial Box PC Hardware User's Manual	W556	NY512-□□□□	Learning the basic specifications of the NY-series Industrial Box PCs, including introductory information, designing, installation, and maintenance. Mainly hardware information is provided.	An introduction to the entire NY-series system is provided along with the following information on the Industrial Box PC. • Features and system configuration • Introduction • Part names and functions • General specifications • Installation and wiring • Maintenance and inspection
NJ/NX-series CPU Unit Software User's Manual	W501	NX701-□□□□ NX502-□□□□ NX102-□□□□ NX1P2-□□□□ NJ501-□□□□ NJ301-□□□□ NJ101-□□□□	Learning how to program and set up an NJ/NX-series CPU Unit. Mainly software information is provided.	The following information is provided on a Controller built with an NJ/NX-series CPU Unit. • CPU Unit operation • CPU Unit features • Initial settings • Programming based on IEC 61131-3 language specifications

Manual name	Cat. No.	Model numbers	Application	Description
NY-series IPC Machine Controller Industrial Panel PC/ Industrial Box PC Software User's Manual	W558	NY532-□□□□ NY512-□□□□	Learning how to program and set up the Controller functions of an NY-series Industrial PC.	The following information is provided on the NY-series Controller functions. • Controller operation • Controller features • Controller settings • Programming based on IEC 61131-3 language specifications
NJ/NX-series CPU Unit Built-in EtherCAT® Port User's Manual	W505	NX701-□□□□ NX502-□□□□ NX102-□□□□ NX1P2-□□□□ NJ501-□□□□ NJ301-□□□□ NJ101-□□□□	Using the built-in EtherCAT port on an NJ/NX-series CPU Unit.	Information on the built-in EtherCAT port is provided. This manual provides an introduction and provides information on the configuration, features, and setup.
NY-series IPC Machine Controller Industrial Panel PC/ Industrial Box PC Built-in EtherCAT® Port User's Manual	W562	NY532-□□□□ NY512-□□□□	Using the built-in EtherCAT port in an NY-series Industrial PC.	Information on the built-in EtherCAT port is provided. This manual provides an introduction and provides information on the configuration, features, and setup.
NJ/NX-series Instructions Reference Manual	W502	NX701-□□□□ NX502-□□□□ NX102-□□□□ NX1P2-□□□□ NJ501-□□□□ NJ301-□□□□ NJ101-□□□□	Learning detailed specifications on the basic instructions of an NJ/NXseries CPU Unit.	The instructions in the instruction set (IEC 61131-3 specifications) are described.
NY-series Instructions Reference Manual	W560	NY532-□□□□ NY512-□□□□	Learning detailed specifications on the basic instructions of an NYseries Industrial PC.	The instructions in the instruction set (IEC 61131-3 specifications) are described.

MEMO

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