NX-OD/OC

A Wide Range of Digital Output Units from General Purpose use to High-Speed Synchronous Control

- Transistor and relay Output Units for the NX-series modular I/O system.
- Connect to other NX-series I/O Units and EtherCAT Coupler units using the high-speed NX-bus.
- Synchronous Units update their output status according to the controller's instructions every EtherCAT cycle.

Features

- High-speed I/O refreshing is possible by connecting with the NX-series EtherCAT Coupler.
- Output refreshing can be synchronized with the control cycle of the Controller. (Synchronous refreshing)
- ON/OFF response time of the high-speed model is 300 ns max, which enables high-speed, high-precision control.
- The screwless terminal block is detachable for easy commissioning and maintenance.
- Screwless clamp terminal block and Connector types are significantly reduces wiring work.
- Up to 16 digital outputs in a space-saving 12 mm width. (Connector Types 30 mm width)
- The lineup includes 2-point, 4-point, 8-point, 16-point, and 32-point types with 3-wire, 2-wire and 1-wire connection methods.
- With output refreshing with specified time stamp, the Output Unit refreshes outputs at the time specified by the program. This enables high-precision output control independent of the control cycle of the Controller.

System Configuration

Sysmac Studio
Support Software

Connection to peripheral USB port
or built-in EtherNet/IP port on
NJ-series CPU Unit

EtherCAT master*
NJ-series CPU Unit

Built-in EtherCAT port

Sysmac Studio
Support Software

Communications cable
Ethernet cables

Peripheral USB port.

Connection to peripheral USB
port on EtherCAT Coupler Unit

●EtherCAT Slave Terminal

NX Series
EtherCAT Coupler Unit
NX-ECC□□□

NX Units   End Cover

* OMRON CJ1W-NC□81/□82 Position Control Units cannot be connected to the EtherCAT Slave Terminal even though they support EtherCAT.

Ordering Information

International Standards

- The standards are abbreviated as follows: U: UL, U1: UL (Class I Division 2 Products for Hazardous Locations), C: CSA, UC: cULus, UC1: cULus (Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, CE: EC Directives,and KC: KC Registration.
- Contact your OMRON representative for further details and applicable conditions for these standards.

Transistor Output Unit (Screwless Clamping Terminal Block, 12 mm Width)

Unit type	Product Name	Specification						Model	Standards
		Number of points	Internal I/O common	Maximum value of load current	Rated voltage	I/O refreshing method	ON/OFF response time		
NX Series Digital output Units	Transistor Output Unit	2 points	NPN	0.5 A/point, 1 A/Unit	24 VDC	Output refreshing with specified time stamp only*	300 ns max./ 300 ns max.	**NX-OD2154**	UC1, N, L, CE, KC
			PNP					**NX-OD2258**	
		4 points	NPN	0.5 A/point, 2 A/Unit	12 to 24 VDC	Switching Synchronous I/O refreshing and Free-Run refreshing	0.1 ms max./ 0.8 ms max.	**NX-OD3121**	
					24 VDC		300 ns max./ 300 ns max.	**NX-OD3153**	
			PNP		24 VDC		0.5 ms max./ 1.0 ms max.	**NX-OD3256**	
							300 ns max./ 300 ns max.	**NX-OD3257**	
		8 points	NPN	0.5 A/point, 4 A/Unit	12 to 24 VDC		0.1 ms max./ 0.8 ms max.	**NX-OD4121**	
			PNP		24 VDC		0.5 ms max./ 1.0 ms max.	**NX-OD4256**	
		16 points	NPN		12 to 24 VDC		0.1 ms max./ 0.8 ms max.	**NX-OD5121**	
			PNP		24 VDC		0.5 ms max./ 1.0 ms max.	**NX-OD5256**	

* To use output refreshing with specified time stamp, NJ CPU Unit with unit version 1.06 or later, EtherCAT Coupler Unit with unit version 1.1 or later, and Sysmac Studio version 1.07 or higher are required.

Transistor Output Units (MIL Connector, 30 mm Width)

Unit type	Product Name	Specification						Model	Standards
		Number of points	Internal I/O common	Maximum value of load current	Rated voltage	I/O refreshing method	ON/OFF response time		
NX Series Digital output Units	Transistor Output Unit	16 points	NPN	0.5 A/point, 2 A/Unit	12 to 24 VDC	Switching Synchronous I/O refreshing and Free-Run refreshing	0.1 ms max./ 0.8 ms max.	**NX-OD5121-5**	UC1, CE, KC
			PNP		24 VDC		0.5 ms max./ 1.0 ms max.	**NX-OD5256-5**	
		32 points	NPN	0.5 A/point, 2 A/common, 4 A/Unit	12 to 24 VDC		0.1 ms max./ 0.8 ms max.	**NX-OD6121-5**	
			PNP		24 VDC		0.5 ms max./ 1.0 ms max.	**NX-OD6256-5**	

Relay Output Unit (Screwless Clamping Terminal Block, 12 mm Width)

Unit type	Product Name	Specification					Model	Standards
		Capacity	Relay type	Maximum switching capacity	I/O refreshing method	ON/OFF response time		
NX Series Digital output Units	Relay Output Unit	2 points	N.O.	AC250V/2A (cosφ=1) AC250V/2A (cosφ=0.4) DC24V/2A 4A/NX Unit	Free-Run refreshing	15ms max./ 15ms max.	**NX-OC2633**	UC1, N, L, CE, KC
			NO+NC				**NX-OC2733**	UC1, N, CE,KC

Option

Product Name	Specification	Model	Standards
Unit/Terminal Block Coding Pins	For 10 Units (Terminal Block: 30 pins, Unit: 30 pins)	**NX-AUX02**	---

Product Name	Specification				Model	Standards
	No. of terminals	**Terminal number indications**	**Ground terminal mark**	**Terminal current capacity**		
Terminal Block	8	A/B	None	10 A	**NX-TBA082**	---
	12				**NX-TBA122**	
	16				**NX-TBA162**	

Accessories
Not included.

General Specification

Item		Specification
Enclosure		Mounted in a panel
Grounding method		Ground to 100 Ω or less
Operating environment	**Ambient operating temperature**	0 to 55°C
	Ambient operating humidity	10% to 95% (with no condensation or icing)
	Atmosphere	Must be free from corrosive gases.
	Ambient storage temperature	−25 to 70°C (with no condensation or icing)
	Altitude	2,000 m max.
	Pollution degree	2 or less: Conforms to JIS B3502 and IEC 61131-2.
	Noise immunity	2 kV on power supply line (Conforms to IEC61000-4-4.)
	Overvoltage category	Category II: Conforms to JIS B3502 and IEC 61131-2.
	EMC immunity level	Zone B
	Vibration resistance*	Conforms to IEC 60068-2-6. 5 to 8.4 Hz with 3.5-mm amplitude, 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		cULus: Listed UL508 and ANSI/ISA 12.12.01 EC: EN 61131-2 and C-Tick, KC: KC Registration, NK, LR

* For the Relay Output Unit, refer to the Digital Input Unit Specifications.

Digital Output Unit Specifications

● Transistor Output Unit (Screwless Clamping Terminal Block 12 mm, Width)
NX-OD2154

Unit name	Transistor Output Unit	Model	NX-OD2154
Capacity	2 points	External connection terminals	Screwless clamping terminal block (8 terminals)
I/O refreshing method	Output refreshing with specified time stamp		
Indicators	TS indicator, output indicator **OD2154** ■TS ■0 ■1	Internal I/O common	NPN
		Rated voltage	24 VDC
		Operating load voltage range	15 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 1 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	300 ns max./300 ns max.
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Digital isolator 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.5 A/terminal max., IOG: 0.5 A/terminal max.
NX Unit power consumption	0.50 W max.	I/O current consumption	30 mA max.
Weight	70 g max.		

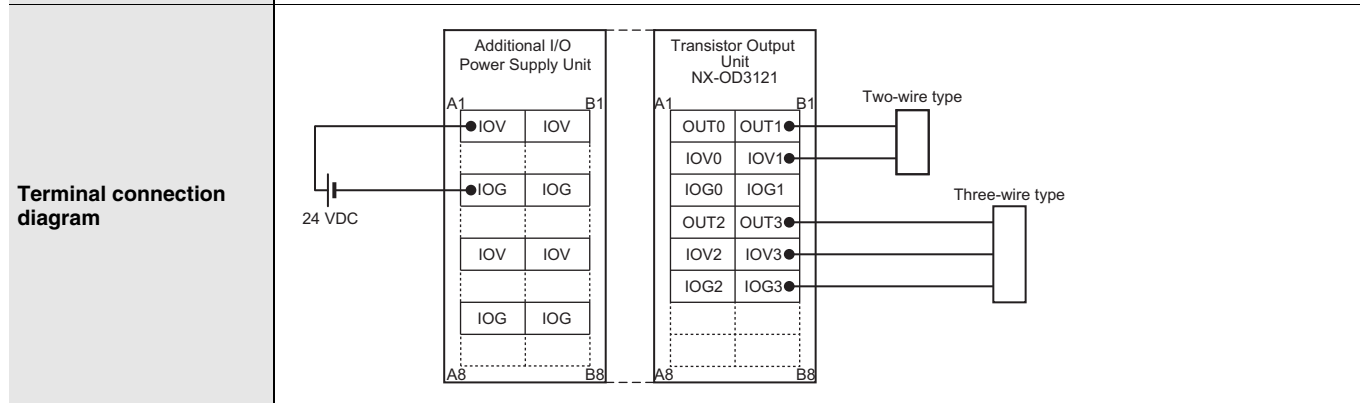| Circuit layout	This unit uses a push-pull output circuit.
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions
Terminal connection diagram	
Disconnection/ Short-circuit detection	Not supported.	Protective function	Not supported.

NX-OD2258

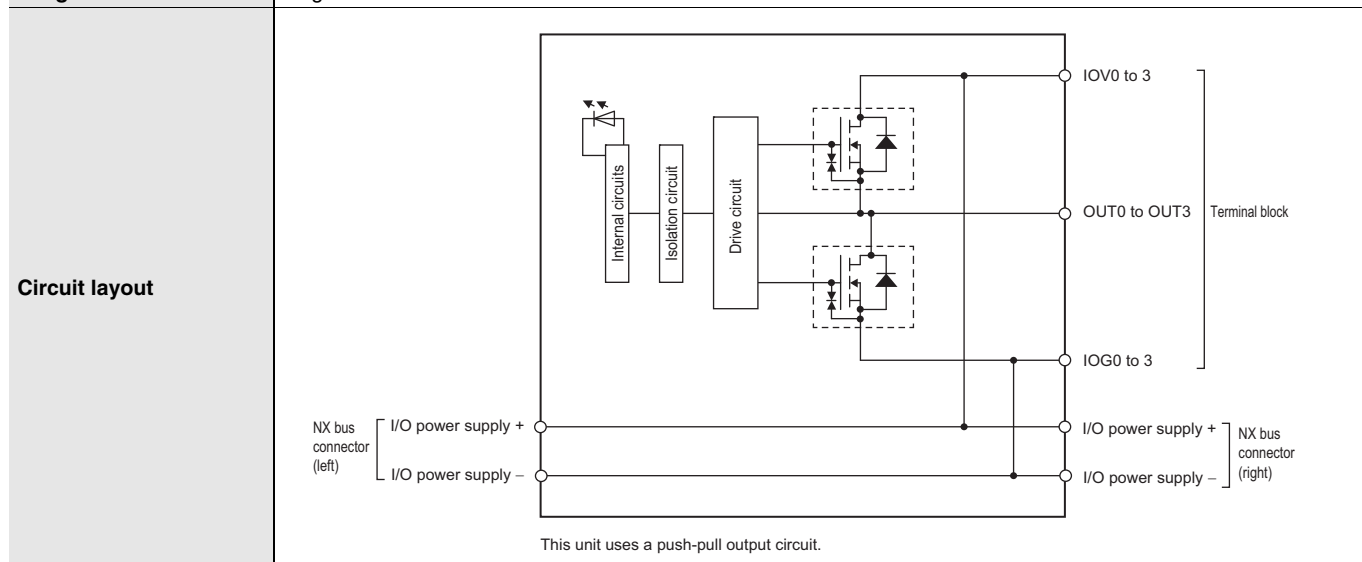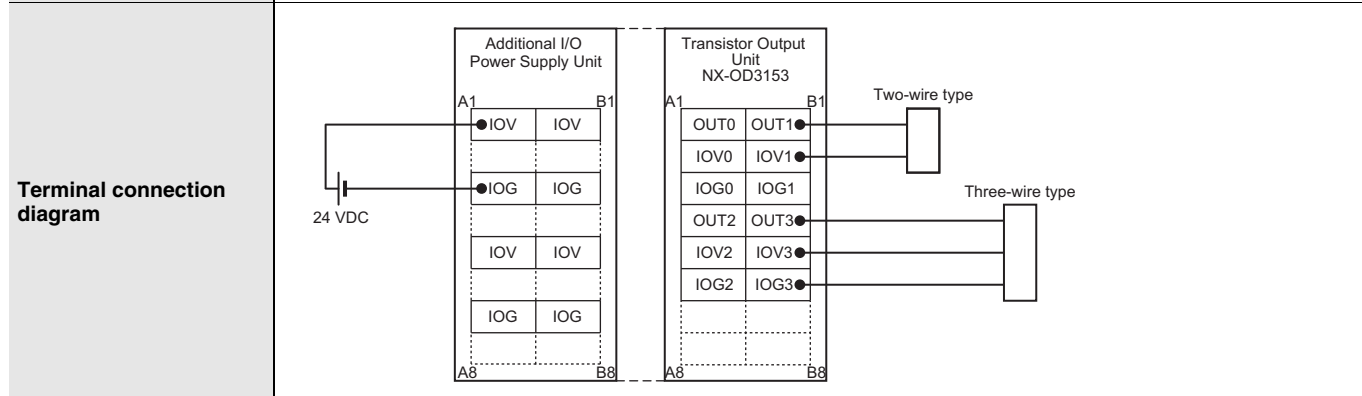| Unit name	Transistor Output Unit	Model	NX-OD2258
Capacity	2 points	External connection terminals	Screwless clamping terminal block (8 terminals)
I/O refreshing method	Output refreshing with specified time stamp		
Indicators	TS indicator, output indicator **OD2258** ■TS ■0 ■1	Internal I/O common	PNP
		Rated voltage	24 VDC
		Operating load voltage range	15 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 1 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	300 ns max./300 ns max.
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Digital isolator 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.5 A/terminal max., IOG: 0.5 A/terminal max.
NX Unit power consumption	0.50 W max.	I/O current consumption	40 mA max.
Weight	70 g max.		
Circuit layout	This unit uses a push-pull output circuit.		
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Disconnection/ Short-circuit detection	Not supported.	Protective function	With load short-circuit protection.

NX-OD3121

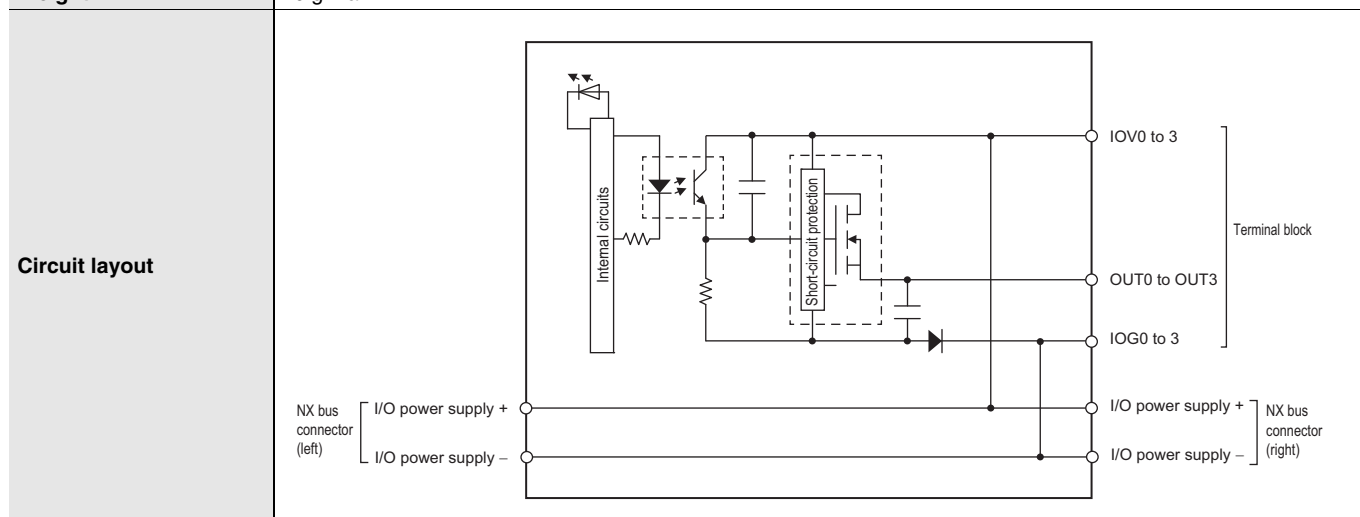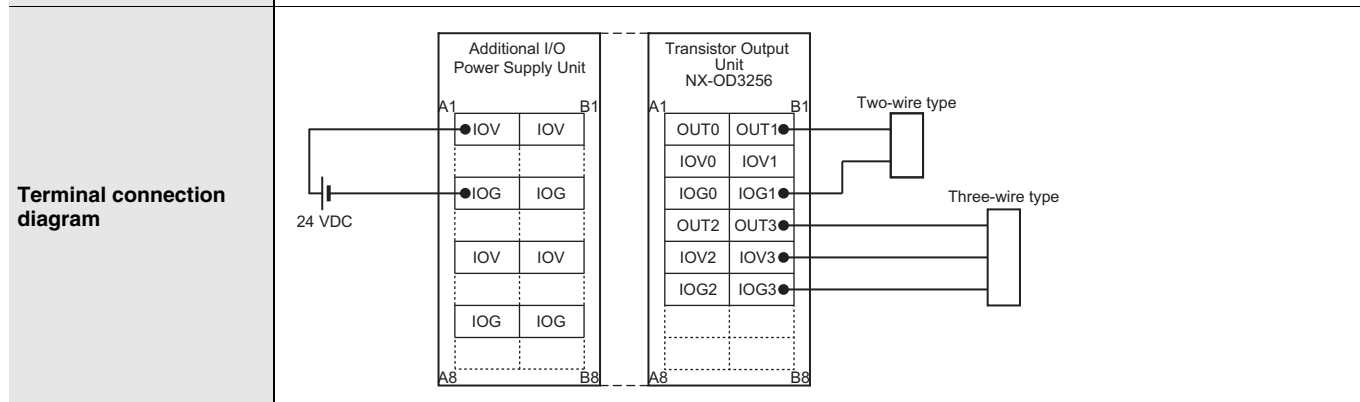| Unit name	Transistor Output Unit	Model	NX-OD3121
Capacity	4 points	**External connection terminals**	Screwless clamping terminal block (12 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing		
Indicators	TS indicator, output indicator **OD3121** ■TS ■0 ■1 ■2 ■3	**Internal I/O common**	NPN
		Rated voltage	12 to 24 VDC
		Operating load voltage range	10.2 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 2 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	0.1 ms max./0.8 ms max.
Dimensions	12 (W) x 100 (H) x 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.
I/O power supply method	Supply from the NX bus	**Current capacity of I/O power supply terminal**	IOV: 0.5 A/terminal max., IOG: 0.5 A/terminal max.
NX Unit power consumption	0.55 W max.	**I/O current consumption**	10 mA max.
Weight	70 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Disconnection/ Short-circuit detection	Not supported.	**Protective function**	Not supported.

NX-OD3153

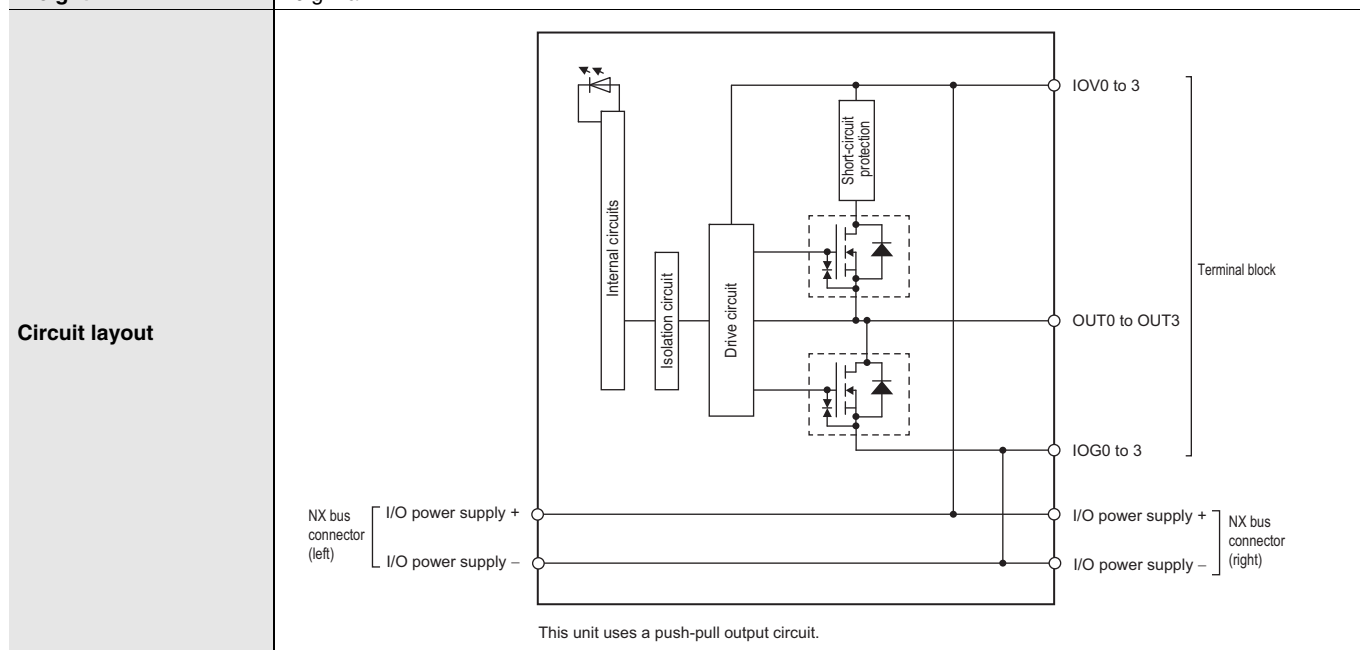| Unit name	Transistor Output Unit	Model	NX-OD3153
Capacity	4 points	External connection terminals	Screwless clamping terminal block (12 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing		
Indicators	TS indicator, output indicator OD3153 ■TS ■0 ■1 ■2 ■3	Internal I/O common	NPN
		Rated voltage	24 VDC
		Operating load voltage range	15 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 2 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	300 ns max./300 ns max.
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Digital isolator 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.5 A/terminal max., IOG: 0.5 A/terminal max.
NX Unit power consumption	0.50 W max.	I/O current consumption	30 mA max.
Weight	70 g max.		
Circuit layout	 This unit uses a push-pull output circuit.		
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Disconnection/ Short-circuit detection	Not supported.	Protective function	Not supported.

NX-OD3256

Unit name	Transistor Output Unit	Model	NX-OD3256
Capacity	4 points	External connection terminals	Screwless clamping terminal block (12 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing		
Indicators	TS indicator, output indicator OD3256 ■TS ■0 ■1 ■2 ■3	Internal I/O common	PNP
		Rated voltage	24 VDC
		Operating load voltage range	15 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 2 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	0.5 ms max./1.0 ms max.
Dimensions	12 (W) x 100 (H) x 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.5 A/terminal max., IOG: 0.5 A/terminal max.
NX Unit power consumption	0.55 W max.	I/O current consumption	20 mA max.
Weight	70 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Disconnection/Short-circuit detection	Not supported.	Protective function	With load short-circuit protection.

NX-OD3257

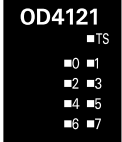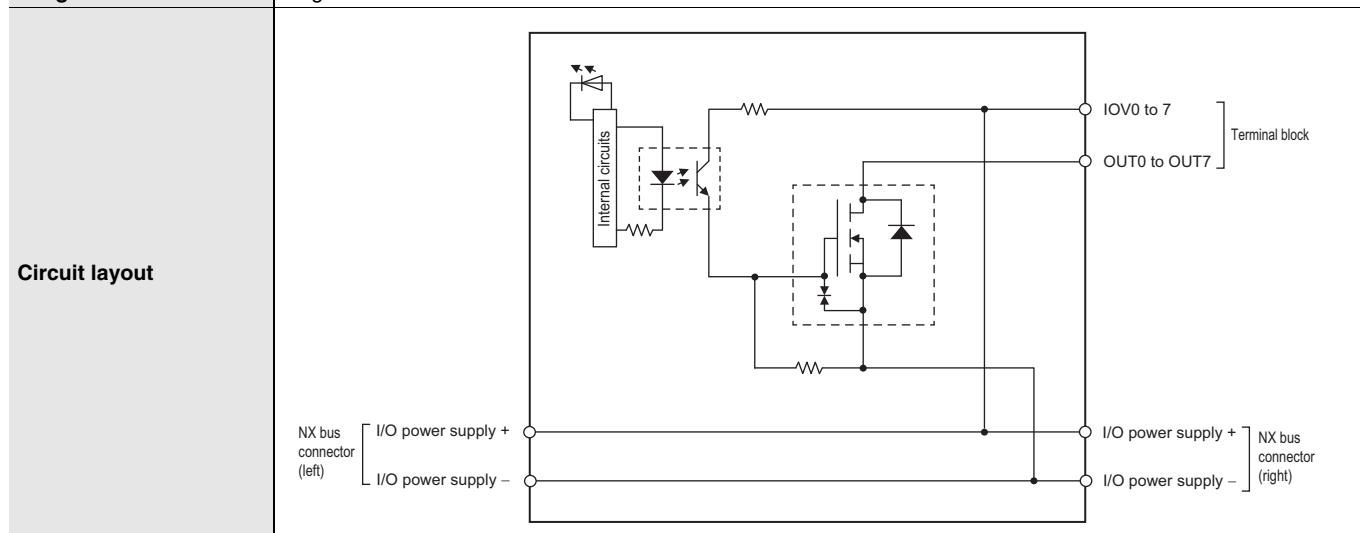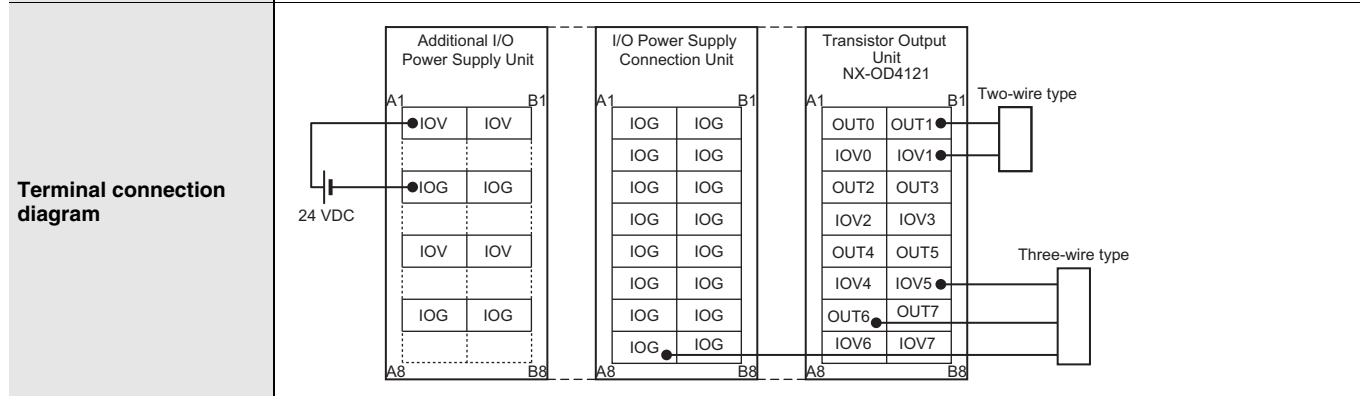| Unit name	Transistor Output Unit	Model	NX-OD3257
Capacity	4 points	External connection terminals	Screwless clamping terminal block (12 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing		
Indicators	TS indicator, output indicator **OD3257** ■TS ■0 ■1 ■2 ■3	Internal I/O common	PNP
		Rated voltage	24 VDC
		Operating load voltage range	15 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 2 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	300 ns max./300 ns max.
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Digital isolator 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.5 A/terminal max., IOG: 0.5 A/terminal max.
NX Unit power consumption	0.50 W max.	I/O current consumption	40 mA max.
Weight	70 g max.		
Circuit layout	This unit uses a push-pull output circuit.		
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Disconnection/ Short-circuit detection	Not supported.	Protective function	With load short-circuit protection.

NX-OD4121

Unit name	Transistor Output Unit	Model	NX-OD4121
Capacity	8 points	External connection terminals	Screwless clamping terminal block (16 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing		
Indicators	TS indicator, output indicator **OD4121** ■TS ■0 ■1 ■2 ■3 ■4 ■5 ■6 ■7	Internal I/O common	NPN
		Rated voltage	12 to 24 VDC
		Operating load voltage range	10.2 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 4 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA
		Residual voltage	1.5 V max.
		ON/OFF response time	0.1 ms max./0.8 ms max.
Dimensions	12 (W) x 100 (H) x 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.5 A/terminal max.
NX Unit power consumption	0.55 W max.	I/O current consumption	10 mA max.
Weight	70 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Disconnection/ Short-circuit detection	Not supported.	Protective function	Not supported.

NX-OD4256

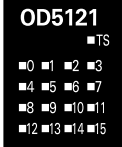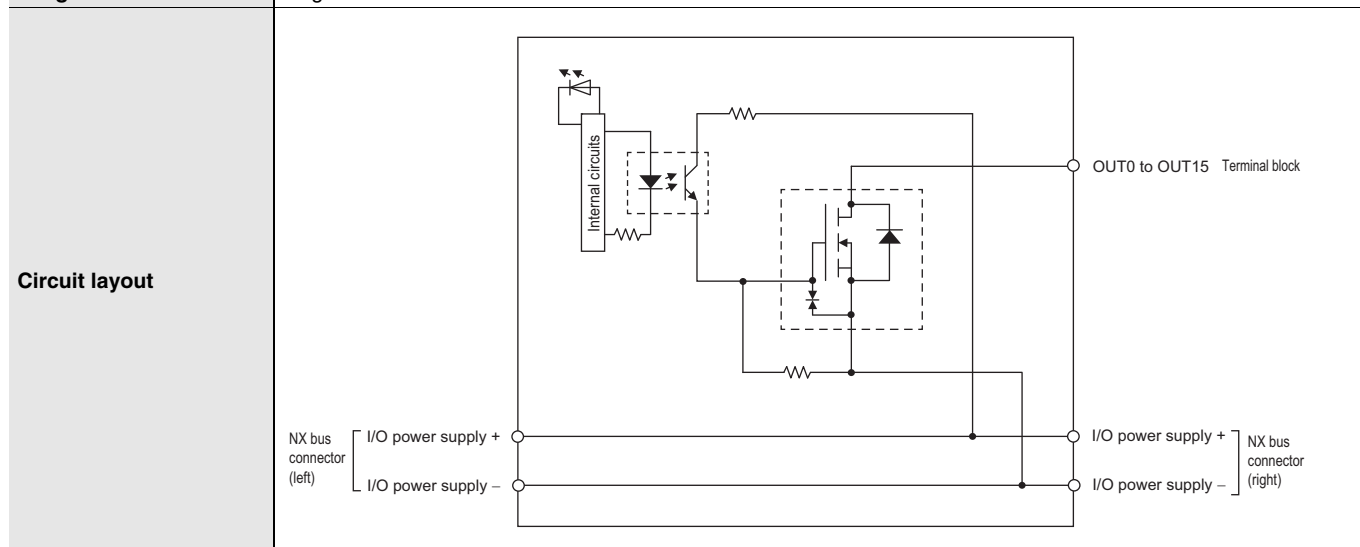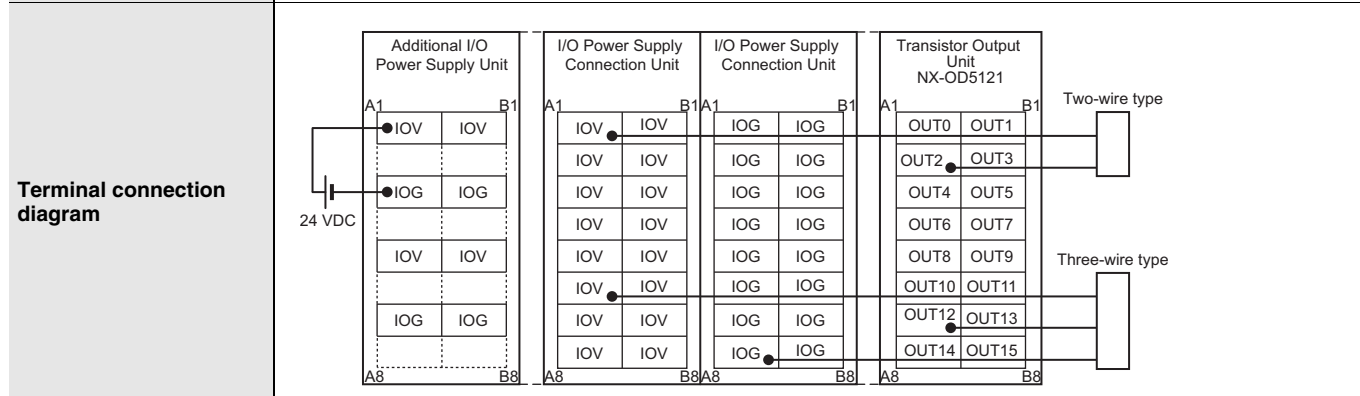| Unit name	Transistor Output Unit	Model	NX-OD4256
Capacity	8 points	External connection terminals	Screwless clamping terminal block (16 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing		
Indicators	TS indicator, output indicator **OD4256** ■TS ■0 ■1 ■2 ■3 ■4 ■5 ■6 ■7	Internal I/O common	PNP
		Rated voltage	24 VDC
		Operating load voltage range	15 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 4 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA
		Residual voltage	1.5 V max.
		ON/OFF response time	0.5 ms max./1.0 ms max.
Dimensions	12 (W) x 100 (H) x 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOG: 0.5 A/terminal max.
NX Unit power consumption	0.65 W max.	I/O current consumption	30 mA max.
Weight	70 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Disconnection/ Short-circuit detection	Not supported.	Protective function	With load short-circuit protection.

NX-OD5121

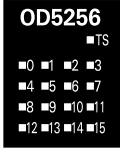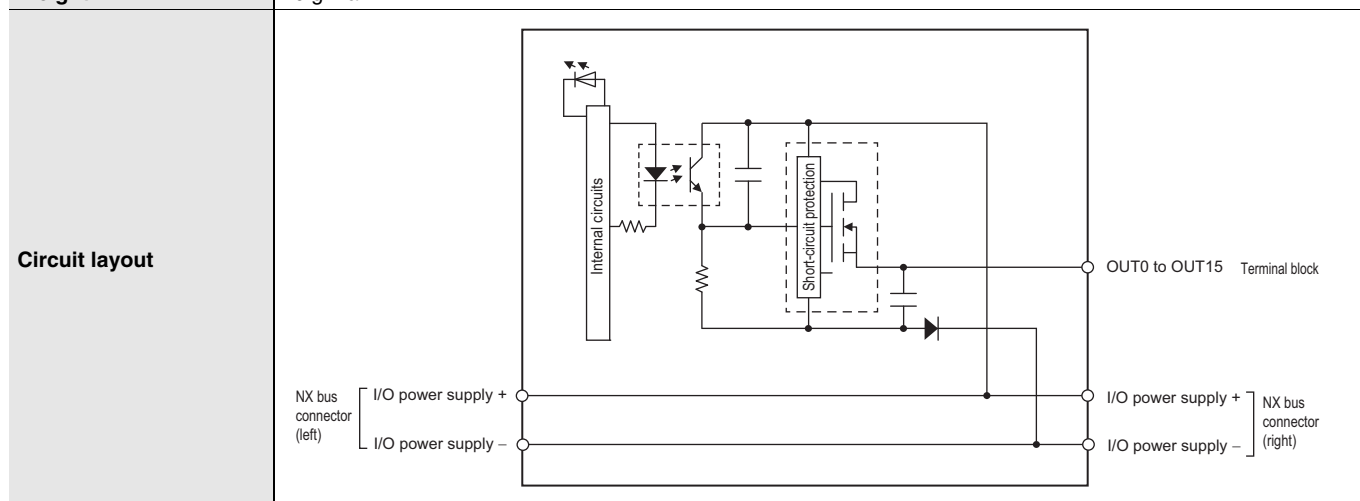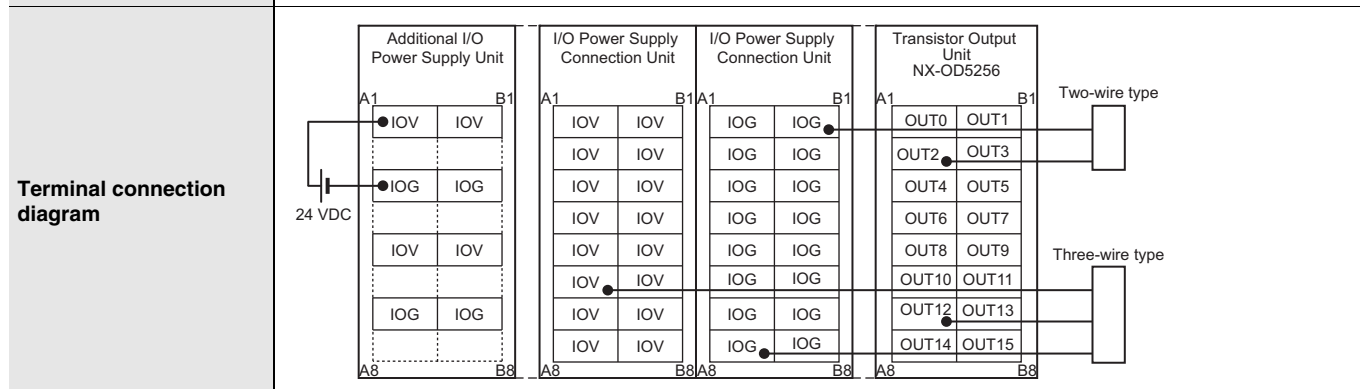| Unit name	Transistor Output Unit	Model	NX-OD5121
Capacity	16 points	External connection terminals	Screwless clamping terminal block (16 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing		
Indicators	TS indicator, output indicator OD5121 ■TS ■0 ■1 ■2 ■3 ■4 ■5 ■6 ■7 ■8 ■9 ■10 ■11 ■12 ■13 ■14 ■15	Internal I/O common	NPN
		Rated voltage	12 to 24 VDC
		Operating load voltage range	10.2 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 4 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	0.1 ms max./0.8 ms max.
Dimensions	12 (W) x 100 (H) x 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	Without I/O power supply terminals
NX Unit power consumption	0.65 W max.	I/O current consumption	20 mA max.
Weight	70 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Disconnection/Short-circuit detection	Not supported.	Protective function	Not supported.

NX-OD5256

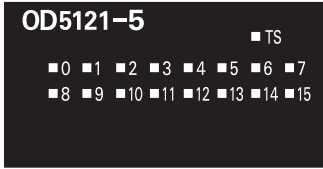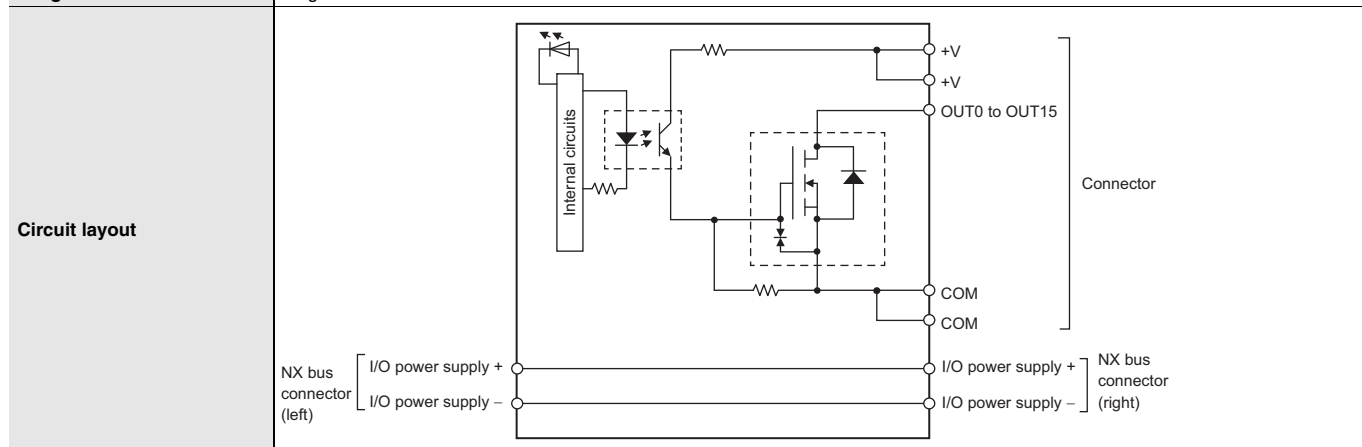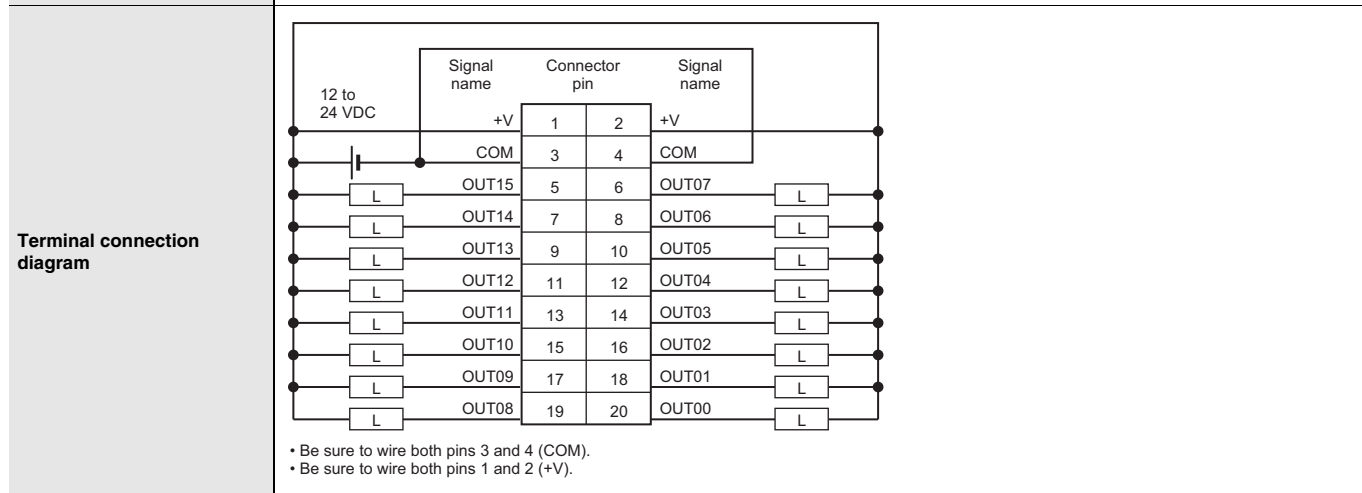| Unit name	Transistor Output Unit	Model	NX-OD5256
Capacity	16 points	External connection terminals	Screwless clamping terminal block (16 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing		
Indicators	TS indicator, output indicator OD5256 ■TS ■0 ■1 ■2 ■3 ■4 ■5 ■6 ■7 ■8 ■9 ■10 ■11 ■12 ■13 ■14 ■15	Internal I/O common	PNP
		Rated voltage	24 VDC
		Operating load voltage range	15 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 4 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	0.5 ms max./1.0 ms max.
Dimensions	12 (W) x 100 (H) x 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	Without I/O power supply terminals
NX Unit power consumption	0.70 W max.	I/O current consumption	40 mA max.
Weight	70 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Disconnection/ Short-circuit detection	Not supported.	Protective function	With load short-circuit protection.

● Transistor Output Units (MIL Connector, 30 mm Width)
NX-OD5121-5

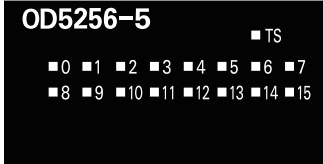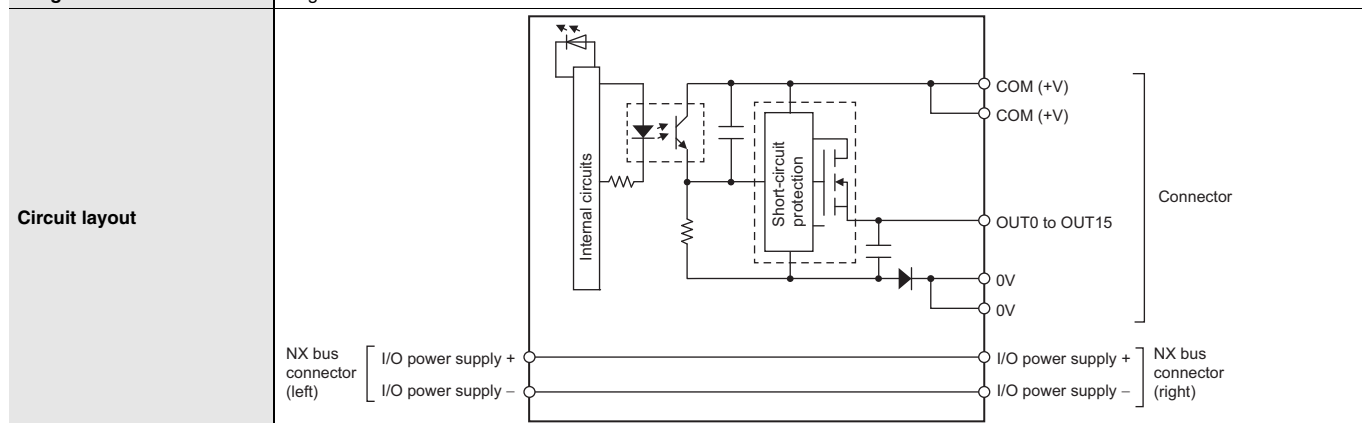| Unit name	Transistor Output Unit	Model	NX-OD5121-5
Number of points	16 points	External connection terminals	MIL connector (20 terminals)
I/O refreshing method	Switching Synchronous I/O refreshing and Free-Run refreshing		
Indicators	TS indicator, output indicator **OD5121−5** ■ TS ■0 ■1 ■2 ■3 ■4 ■5 ■6 ■7 ■8 ■9 ■10 ■11 ■12 ■13 ■14 ■15	Internal I/O common	NPN
		Rated voltage	12 to 24 VDC
		Operating load voltage range	10.2 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 2 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	0.1 ms max./0.8 ms max.
Dimensions	30 (W) x 100 (H) x 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.
I/O power supply method	Supply from external source	Current capacity of I/O power supply terminal	Without I/O power supply terminals
NX Unit power consumption	0.60 W max.	Current consumption from I/O power supply	30 mA max.
Weight	80 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram	 • Be sure to wire both pins 3 and 4 (COM). • Be sure to wire both pins 1 and 2 (+V).		
Disconnection/Short-circuit detection	Not supported.	Protective function	Not supported.

NX-OD5256-5

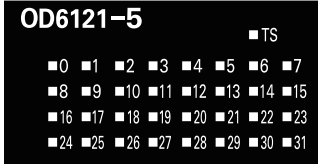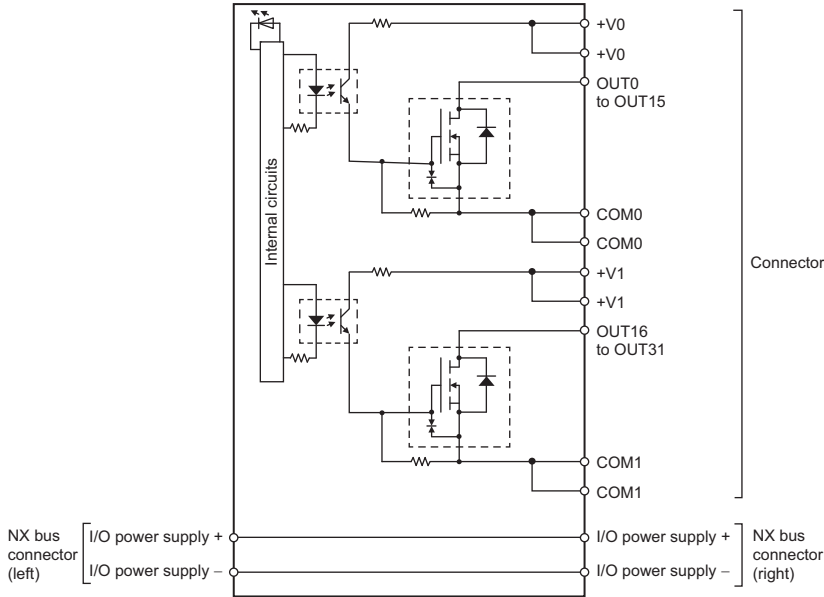| Unit name	Transistor Output Unit	Model	NX-OD5256-5
Number of points	16 points	External connection terminals	MIL connector (20 terminals)
I/O refreshing method	Switching Synchronous I/O refreshing and Free-Run refreshing		
Indicators	TS indicator, output indicator **OD5256-5** ■TS ■0 ■1 ■2 ■3 ■4 ■5 ■6 ■7 ■8 ■9 ■10 ■11 ■12 ■13 ■14 ■15	Internal I/O common	PNP
		Rated voltage	24 VDC
		Operating load voltage range	20.4 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 2 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	0.5 ms max./1.0 ms max.
Dimensions	30 (W) x 100 (H) x 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.
I/O power supply method	Supplied from external source.	Current capacity of I/O power supply terminal	Without I/O power supply terminals
NX Unit power consumption	0.70 W max.	Current consumption from I/O power supply	40 mA max.
Weight	85 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram	 • Be sure to wire both pins 1 and 2 (COM (+V)). • Be sure to wire both pins 3 and 4 (0V).		
Disconnection/Short-circuit detection	Not supported.	Protective function	With load short-circuit protection.

NX-OD6121-5

Unit name	Transistor Output Unit	Model	NX-OD6121-5
Number of points	32 points	External connection terminals	MIL connector (40 terminals)
I/O refreshing method	Switching Synchronous I/O refreshing and Free-Run refreshing		
Indicators	TS indicator, output indicator OD6121−5 ■TS ■0 ■1 ■2 ■3 ■4 ■5 ■6 ■7 ■8 ■9 ■10 ■11 ■12 ■13 ■14 ■15 ■16 ■17 ■18 ■19 ■20 ■21 ■22 ■23 ■24 ■25 ■26 ■27 ■28 ■29 ■30 ■31	Internal I/O common	NPN
		Rated voltage	12 to 24 VDC
		Operating load voltage range	10.2 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 2 A/common, 4 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	0.1 ms max./0.8 ms max.
Dimensions	30 (W) x 100 (H) x 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.
I/O power supply method	Supply from external source	Current capacity of I/O power supply terminal	Without I/O power supply terminals
NX Unit power consumption	0.80 W max.	Current consumption from I/O power supply	50 mA max.
Weight	90 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		

Terminal connection diagram		

	Signal name	Connector pin		Signal name	
12 to 24 VDC	+V1	1	2	+V1	
	COM1	3	4	COM1	
	OUT31	5	6	OUT23	
	OUT30	7	8	OUT22	
	OUT29	9	10	OUT21	
	OUT28	11	12	OUT20	
	OUT27	13	14	OUT19	
	OUT26	15	16	OUT18	
	OUT25	17	18	OUT17	
	OUT24	19	20	OUT16	
	+V0	21	22	+V0	
	COM0	23	24	COM0	
	OUT15	25	26	OUT07	
	OUT14	27	28	OUT06	
	OUT13	29	30	OUT05	
	OUT12	31	32	OUT04	
	OUT11	33	34	OUT03	
	OUT10	35	36	OUT02	
12 to 24 VDC	OUT09	37	38	OUT01	
	OUT08	39	40	OUT00	

• Be sure to wire both pins 21 and 22 (+V0).
• Be sure to wire both pins 23 and 24 (COM0).
• Be sure to wire both pins 1 and 2 (+V1).
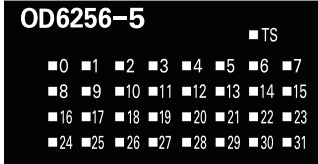• Be sure to wire both pins 3 and 4 (COM1).
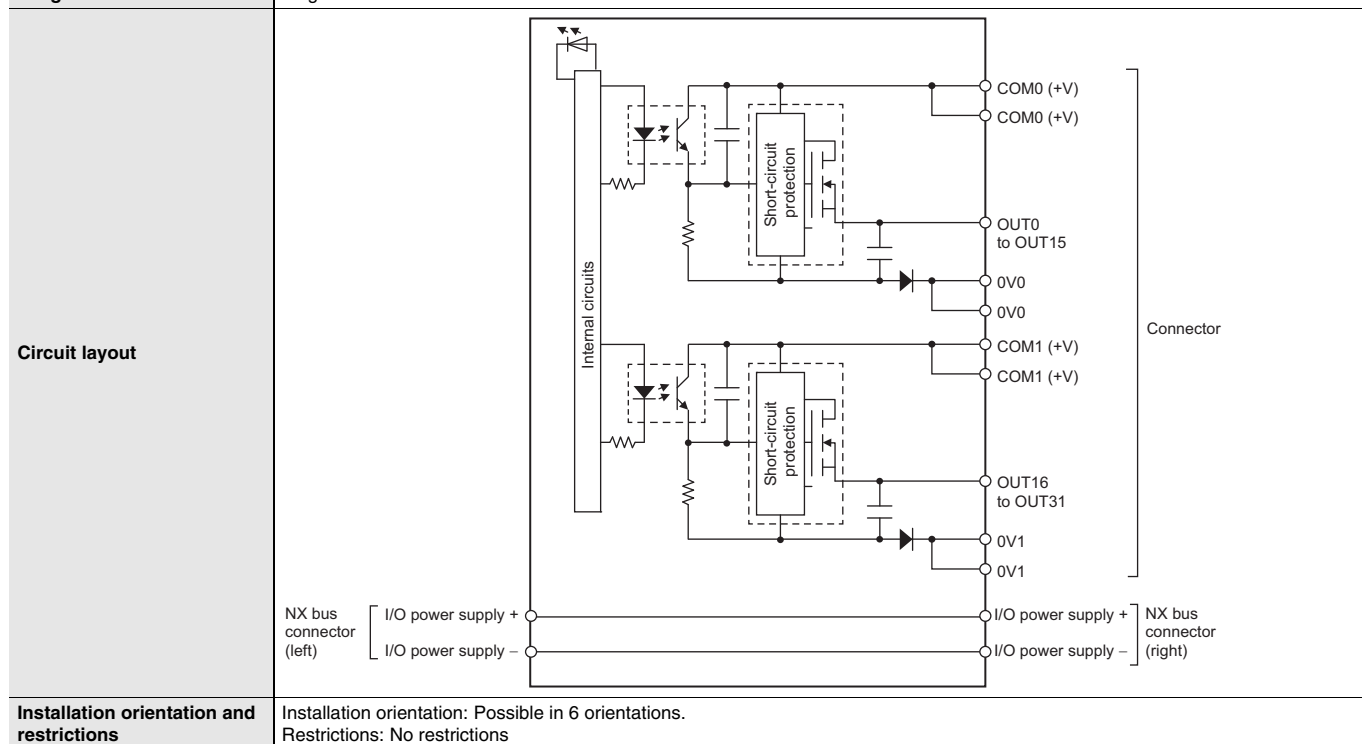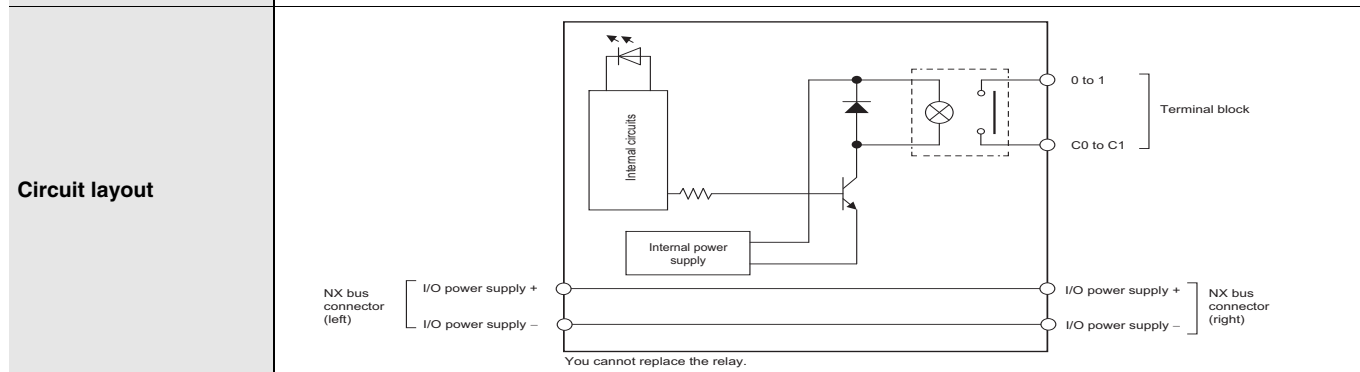
Disconnection/Short-circuit detection	Not supported.	Protective function	Not supported.

NX-OD6256-5

Unit name	Transistor Output Unit	Model	NX-OD6256-5
Number of points	32 points	External connection terminals	MIL connector (40 terminals)
I/O refreshing method	Switching Synchronous I/O refreshing and Free-Run refreshing		
Indicators	TS indicator, output indicator	Internal I/O common	PNP
	OD6256−5 ■TS ■0 ■1 ■2 ■3 ■4 ■5 ■6 ■7 ■8 ■9 ■10 ■11 ■12 ■13 ■14 ■15 ■16 ■17 ■18 ■19 ■20 ■21 ■22 ■23 ■24 ■25 ■26 ■27 ■28 ■29 ■30 ■31	Rated voltage	24 VDC
		Operating load voltage range	20.4 to 28.8 VDC
		Maximum value of load current	0.5 A/point, 2 A/common, 4 A/NX Unit
		Maximum inrush current	4.0 A/point, 10 ms max.
		Leakage current	0.1 mA max.
		Residual voltage	1.5 V max.
		ON/OFF response time	0.5 ms max./1.0 ms max.
Dimensions	30 (W) x 100 (H) x 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.
I/O power supply method	Supply from external source	Current capacity of I/O power supply terminal	Without I/O power supply terminals
NX Unit power consumption	1.00 W max.	Current consumption from I/O power supply	80 mA max.
Weight	95 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		

Terminal connection diagram				

Signal name	Connector pin		Signal name	
COM1 (+V)	1	2	COM1 (+V)	24 VDC
0V1	3	4	0V1	
OUT31	5	6	OUT23	
OUT30	7	8	OUT22	
OUT29	9	10	OUT21	
OUT28	11	12	OUT20	
OUT27	13	14	OUT19	
OUT26	15	16	OUT18	
OUT25	17	18	OUT17	
OUT24	19	20	OUT16	
COM0 (+V)	21	22	COM0 (+V)	
0V0	23	24	0V0	24 VDC
OUT15	25	26	OUT07	
OUT14	27	28	OUT06	
OUT13	29	30	OUT05	
OUT12	31	32	OUT04	
OUT11	33	34	OUT03	
OUT10	35	36	OUT02	
OUT09	37	38	OUT01	
OUT08	39	40	OUT00	

• Be sure to wire both pins 21 and 22 (COM0 (+V)).
• Be sure to wire both pins 1 and 2 (COM1 (+V)).
• Be sure to wire both pins 23 and 24 (0V0).
• Be sure to wire both pins 3 and 4 (0V1).

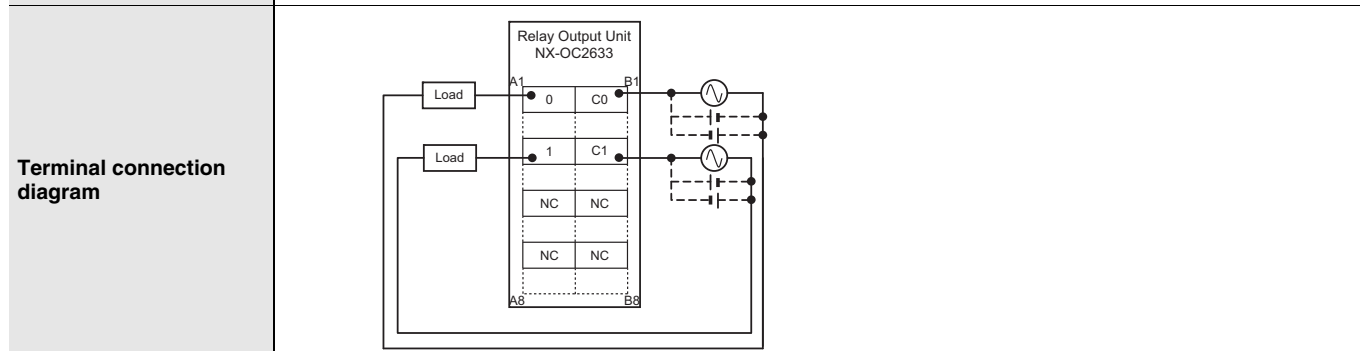| Disconnection/Short-circuit detection	Not supported.	Protective function	With load short-circuit protection.

● Relay Output Unit (Screwless Clamping Terminal Block 12 mm, Width)
NX-OC2633

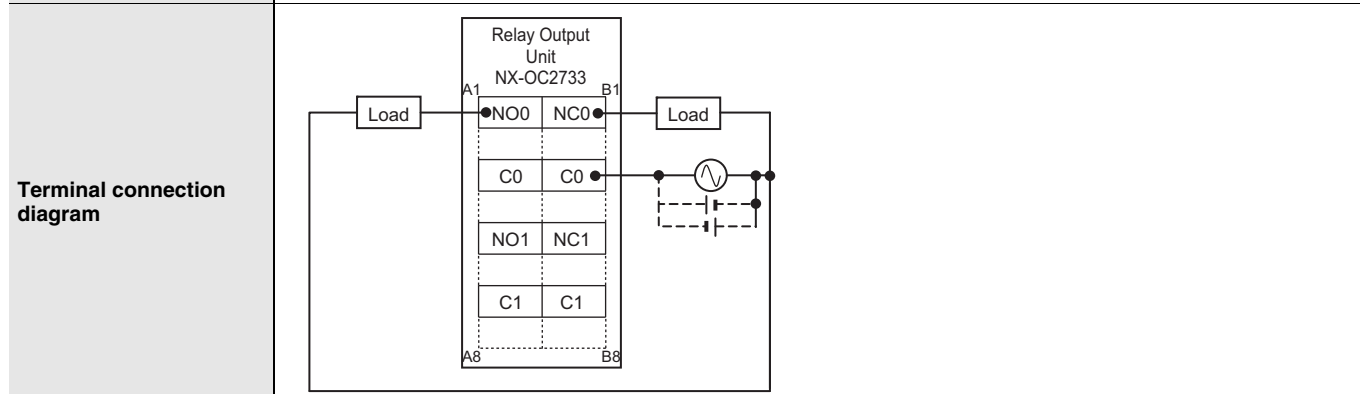| Unit name	Relay Output Units	Model	NX-OC2633
Capacity	2 points, independent contacts	External connection terminals	Screwless clamping terminal block (8 terminals)
I/O refreshing method	Free-Run refreshing		
Indicators	TS indicator, output indicator **OC2633** ■TS ■0 ■1	Relay type	N.O. contact
		Maximum switching capacity	250 VAC/2 A (cosϕ = 1), 250 VAC/2 A (cosϕ = 0.4), 24 VDC/2 A, 4 A/Unit
		Minimum switching capacity	5 VDC, 1 mA
Relay service life	Electrical: 100,000 operations* Mechanical: 20,000,000 operations	ON/OFF response time	15 ms max./15 ms max.
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Relay isolation
Insulation resistance	Between A1/B1 terminals and A3/B3 terminals: 20 MΩ min. (500 VDC) Between the external terminals and internal circuits: 20 MΩ min. (500 VDC) Between the internal circuit and GR terminal: 20 MΩ min. (100 VDC) Between the external terminals and GR terminal: 20 MΩ min. (500 VDC)	Dielectric strength	Between A1/B1 terminals and A3/B3 terminals: 2300 VAC for 1 min at a leakage current of 5 mA max. Between the external terminals and GR terminal: 2300 VAC for 1 min at a leakage current of 5 mA max. Between the external terminals and internal circuits: 2300 VAC for 1 min at a leakage current of 5 mA max. Between the internal circuit and GR terminal: 510 VAC for 1 min at a leakage current of 5 mA max.
Vibration resistance	Conforms to IEC60068-2-6. 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	100 m/s^2, 3 times each in X, Y, and Z directions
I/O power supply method	Supply from external source	Current capacity of I/O power supply terminal	Without I/O power supply terminals
NX Unit power consumption	0.80 W max.	I/O current consumption	No consumption
Weight	65 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Disconnection/ Short-circuit detection	Not supported.	Protective function	Not supported.

* Electrical service life will vary depending on the current value. Refer to "NX-series Digital I/O Units User's Manual" for details.

● Relay Output Unit
NX-OC2733

Unit name	Relay Output Unit	Model	NX-OC2733
Number of points	2 points, independent contacts	External connection terminals	Screwless clamping terminal block (8 terminals)
Capacity	Free-Run refreshing		
Indicators	TS indicator, output indicator OC2733 ■TS ■0 ■1	Maximum switching capacity	250 VAC/2 A (cosϕ = 1), 250 VAC/2 A (cosϕ = 0.4), 24 VDC/2 A, 4 A/NX Unit
		Minimum switching capacity	5 VDC, 10 mA
Relay service life	Electrical: 100,000 operations Mechanical: 20,000,000 operations	ON/OFF response time	15 ms max./15 ms max.
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Relay isolation
Insulation resistance	Between A1/3, B1/3 terminals and A5/7, B5/7 terminals: 20 MΩ min. (at 500 VDC) Between the external terminals and functional ground terminal: 20 MΩ min. (at 500 VDC) Between the external terminals and internal circuits: 20 MΩ min. (at 500 VDC) Between the internal circuit and the functional ground terminal: 20 MΩ min. (at 100 VDC)	Dielectric strength	Between A1/3, B1/3 terminals and A5/7, B5/7 terminals: 2300 VAC for 1 min at a leakage current of 5 mA max. Between the external terminals and the functional ground terminal: 2300 VAC for 1 min at a leakage current of 5 mA max. Between the external terminals and internal circuits: 2300 VAC for 1 min at a leakage current of 5 mA max. Between the internal circuit and the functional ground terminal: 510 VAC for 1 min at a leakage current of 5 mA max.
I/O power supply method	Supply from external source	Current capacity of I/O power supply terminal	Without I/O power supply terminals
NX Unit power consumption	0.95 W max.	Current consumption from I/O power supply	No consumption
Weight	70 g max.		
Circuit layout	 NO0 and NO1 are normal open contacts, and NC0 and NC1 are normal close contacts. You cannot replace the relay.		
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Disconnection/Short-circuit detection	Not supported.	Protective function	Not supported.

Version Information

NX Units		Corresponding unit versions/versions		
Model	Unit Version	EtherCAT Coupler Units NX-ECC201/ECC202*	NJ-series CPU Units NJ501-□□□□/NJ301-□□□□	Sysmac Studio
NX-OD2154	Ver.1.0	Ver.1.1 or later	Ver.1.06 or later	Ver.1.07 or higher
NX-OD2158				
NX-OD3121		Ver.1.0 or later	Ver.1.05 or later	Ver.1.06 or higher
NX-OD3153				
NX-OD3256				
NX-OD3257				
NX-OD4121				
NX-OD4256				
NX-OD5121				
NX-OD5121-5				Ver.1.10 or higher
NX-OD5256				Ver.1.06 or higher
NX-OD5256-5				Ver.1.10 or higher
NX-OD6121-5				
NX-OD6256-5				
NX-OC2633				Ver.1.06 or higher
NX-OC2733				Ver.1.08 or higher

* For the NX-ECC202, there is no unit version of 1.1 or earlier.

External Interface

Screwless Clamping Terminal Block Type

● **12mm Width**
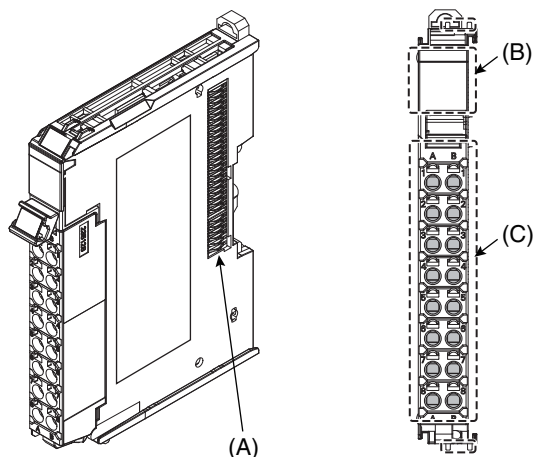
Symbol	Name	Function
(A)	NX bus connector	This connector is used to connect each Unit.
(B)	Indicators	The indicators show the current operating status of the Unit.
(C)	Terminal block	The terminal block is used to connect external devices. The number of terminals depends on the type of Unit.

Terminal Blocks

8-terminal type   12-terminal type   16-terminal type

Symbol	Name	Function
(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, so A1 to A8 and B1 to B8 are displayed. The terminal number indications are the same regardless of the number of terminals on the 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 Terminal Blocks for Each Unit Model

Unit model	Terminal Blocks				
	Model	No. of terminals	Terminal number indications	Ground terminal mark	Terminal current capacity
NX-OD2□□□	NX-TBA082	8	A/B	None	10 A
NX-OD3□□□	NX-TBA122	12	A/B	None	10 A
NX-OD4□□□	NX-TBA162	16	A/B	None	10 A
NX-OD5□□□	NX-TBA162	16	A/B	None	10 A
NX-OC2□□□	NX-TBA082	8	A/B	None	10 A

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 one-pin ferrules. Do not use two-pin ferrules.

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

Terminal types	Manufacturer	Ferrule model number	Applicable wire (mm² (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 mm², AWG24 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 *	
Terminals other than ground terminals	Weidmuller	H0.14/12	0.14 (#26)	Weidmuller (The figure in parentheses is the applicable wire size.) PZ6 Roto (0.14 to 6 mm², 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		

* Some AWG 14 wires exceed 2.0 mm² and cannot be used in 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.

Finished Dimensions of Ferrules

8 to 10 mm
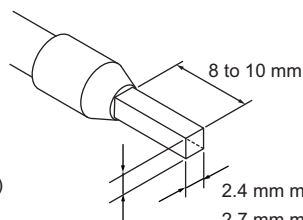
1.6 mm max. (except ground terminals)
2.0 mm max. (ground terminals)

2.4 mm max. (except ground terminals)
2.7 mm max. (ground terminals)

Using Twisted Wires/Solid Wires

If you use the twisted wires or the solid wires, the applicable wire range and conductor length (stripping length) are as follows.

Terminal types	Applicable wires	Conductor length (stripping length)
Ground terminals	2.0 mm²	9 to 10 mm
Terminals other than ground terminals	0.08 to 1.5 mm² AWG28 to 16	8 to 10 mm

Conductor length (stripping length)

Units with MIL Connectors
● 1 Connector with 20 Terminals

(A)

(B)

(C)

| Letter	Name	Function
(A)	NX bus connector	This connector is used to connect each Unit.
(B)	Indicators	The indicators show the current operating status of the Unit.
(C)	Connectors	The connectors are used to connect to external devices.

● 1 Connector with 40 Terminals

(A)

(B)

(C)

Letter	Name	Function
(A)	NX bus connector	This connector is used to connect each Unit.
(B)	Indicators	The indicators show the current operating status of the Unit.
(C)	Connectors	The connectors are used to connect to external devices.

Dimensions

Screwless Clamping Terminal Block Type
● **12 mm Width**
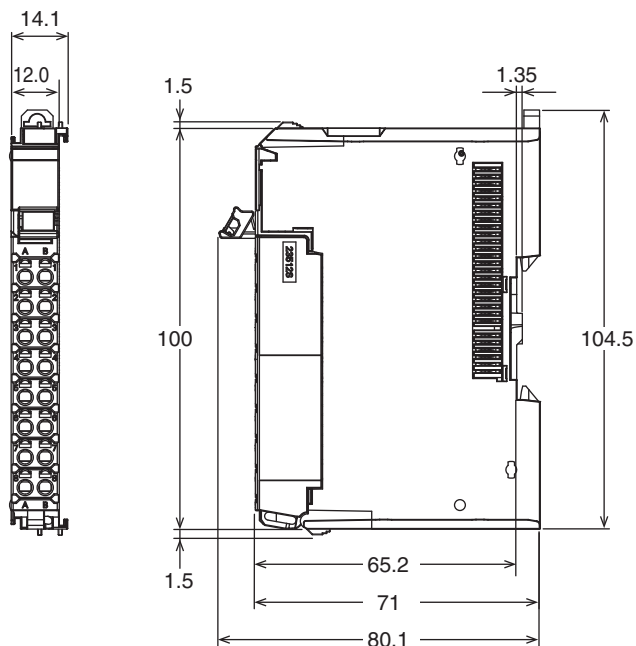
Units with MIL Connectors (1 Connector with 20 terminals)
● **30 mm Width**
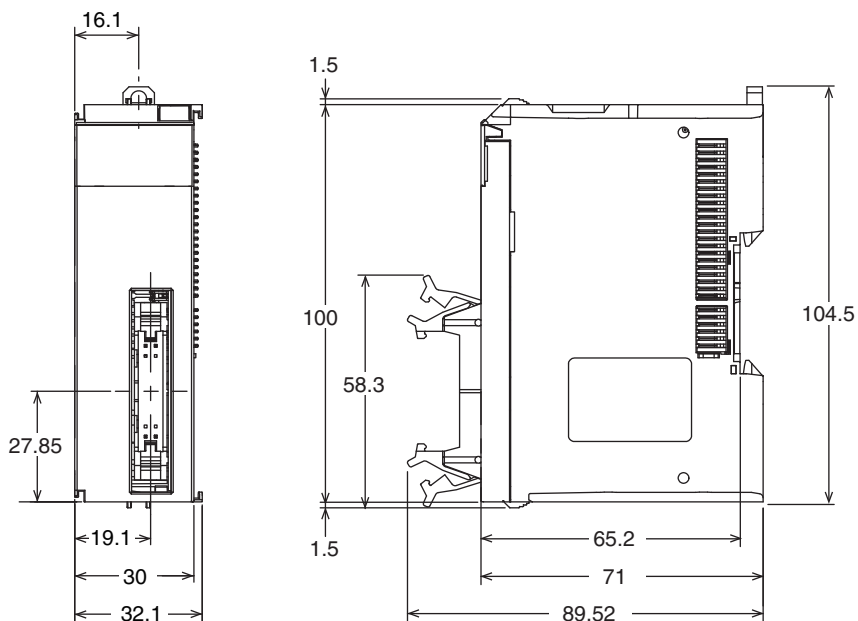
Units with MIL Connectors (1 Connector with 40 terminals)

● **30 mm Width**
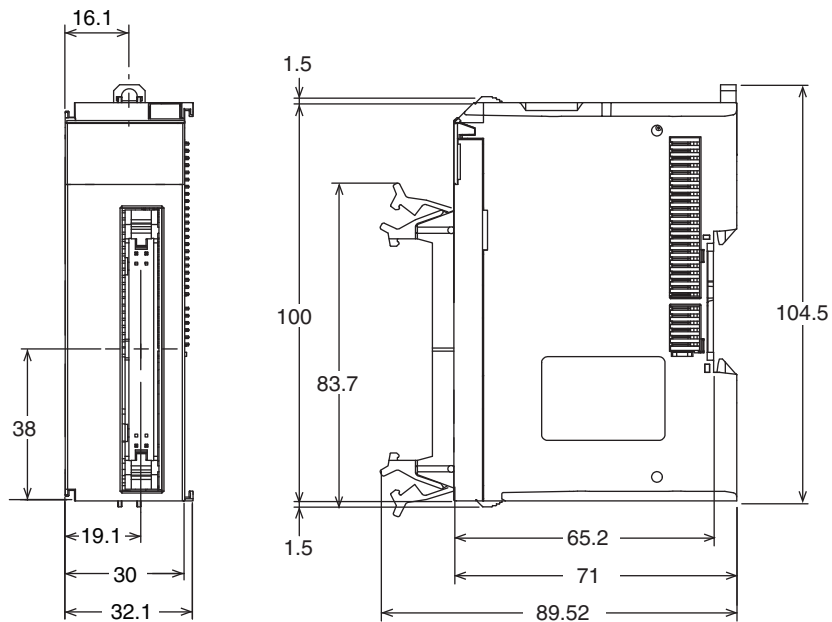
Related Manuals

Cat. No.	Model number	Manual name	Application	Description
W521	NX-IA□□□□ NX-ID□□□□ NX-OD□□□□ NX-OC□□□□ NX-MD□□□□	NX-series Digital I/O Units User's Manual	Learning how to use NX-series Digital I/O Units	The hardware, setup methods, and functions of the NX-series Digital I/O Units are described.

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