

CX2000 Installation and Connection Guide

IM 04L31A01-71E 4th Edition



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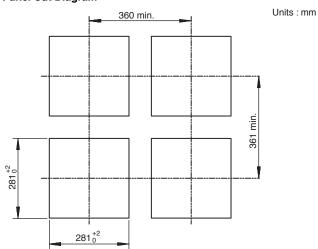
Thank you for purchasing the CX2000.

This manual contains simple explanations about how to install and connect the CX2000. For more information about the procedures described herein, safety precautions, and the CX2000 functions and operation, please refer to the PDF manual found on the provided CD-ROM.

Installation Procedure

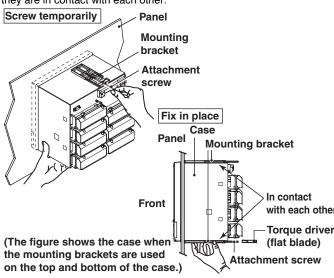
1. Cut the instrument panel according to the diagram below.

Panel Cut Diagram



- 2. Insert the CX2000 into the front of the panel.
- Using the mounting brackets, attach the CX2000 to the panel as shown in the following figure.

First, attach the two mounting brackets and temporarily fasten the attachment screws. Next, fix the CX2000 in place by tightening the attachment screws with the appropriate torque (0.7 to 0.9 N-m.). As you fasten the screws, press the mounting bracket against the case so that they are in contact with each other.



For details about the CX2000 external dimensions, installation environment, and more, please refer to the CX2000 User's Manual (IM 04L31A01-01E) found on the provided CD-ROM.

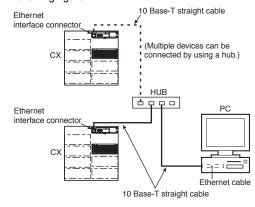
Connection Types and Procedures

There are various terminals and connectors on the rear panel of the CX2000. Connecting them to peripheral devices allows you to perform control and measurement operations. Below are the names of each connector and terminal, as well as connection procedures.

Connecting the Ethernet Interface

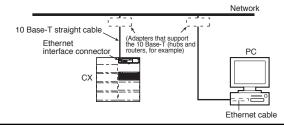
· When only Connecting to a Hub

Connect the CX2000 and the PC through a HUB as shown in the following figure.



When Connecting to a Preexisting Network

The following figure illustrates an example in which the CX2000 and a PC are connected to the network. When connecting the CX2000 or the PC to a preexisting network such things as the transfer rate and connector type must match. For details, consult your system or network administrator.

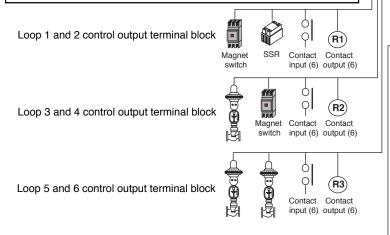


Connecting a Monitor to the VGA Output Terminal

(Option /D5)

Supported monitors: VGA monitors and multisync monitors with VGA display capability.

- 1. Turn off the CX2000 and the monitor.
- Connect the CX2000 and the monitor using an analog RGB cable (D-Sub connector).
- 3. Turn on the CX2000 and the monitor. The screen of the CX2000 is displayed on the monitor.



Option terminal block (Options /A6, /A4F, /A4FR, /A6R, /CST1,and /TPS4)

Connecting the Serial Interface

RS-232 (When Connecting to a Computer or Other Such Devices)

Verify that the CX2000 has an RS-232 connector, and then connect a serial cable to it. Connect the other end of the serial cable to the other device.



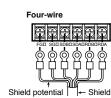
CX2000 Rear Panel

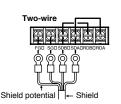
onnected device. Output signal.
ected device. Input signal.

* Pins 1, 4, 6, and 9 are not used.

RS-422/485 (When Connecting to a PLC, Temperature Controller or Other Such Devices)

Verify that the CX2000 has an RS-422/485 connector, and then connect the crimp connectors (for 4-mm screws) to the terminal strip as illustrated on the right. Do not expose more than 5 cm of the cable surface from the shield.









With an RS-232

Use a power supply that meets the following conditions:
Rated supply voltage: 100 to 240 VAC
Supply voltage range used: 90 to 132, 180 to 264 VAC

Connecting the Power Supply

Supply voltage range used: 90 to 132, 18
Rated supply voltage frequency: 50/60 Hz
Permitted supply voltage frequency range:

50/60 Hz ± 2%

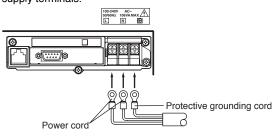
Maximum power consumption: 75 VA (100 V), 106 VA (240 V)

 Turn OFF the CX2000 and open the cover (transparent) for the power supply wires.

⚠ When using electrical wiring, be certain to follow the safety

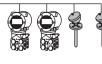
recommendations prescribed in the CX2000 User's Manual.

Connect the power cord and the protective ground cord to the power supply terminals.

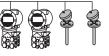


Close the cover (transparent) for the power supply wires and secure it in place with screws.

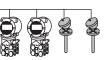
For the power supply specifications and connection method of the 24VDC/AC power supply option, please refer to the CX2000 User's Manual.



Control input terminal block (loops 1, 2, 3, 4, 5, and 6)



Measurement input terminal block (CH1 to 10)



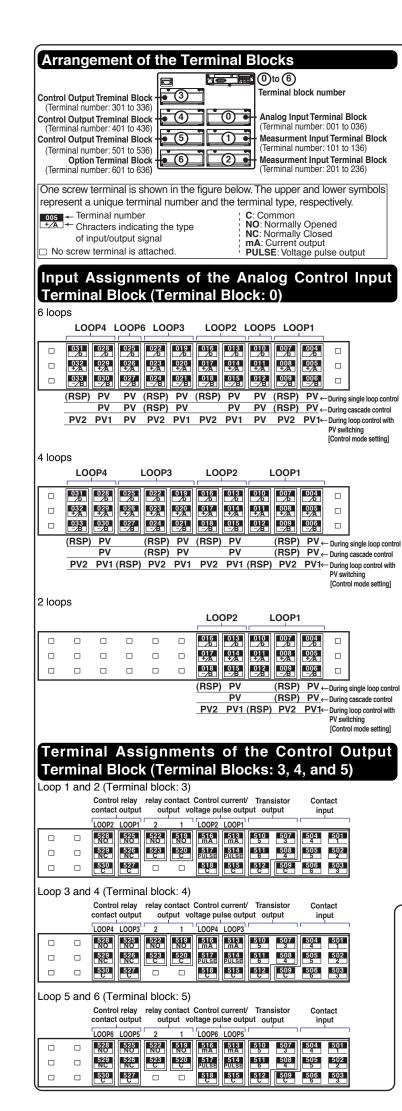
Measurement input terminal block (CH11 to 20)

Connecting Input/Output Connectors

When connecting various input/output connectors for control or measurement, proceed as described below.

Connect the crimp connectors (for 4-mm screws) to the terminal strip.

- 1. Turn off the CX2000 and remove the terminal cover.
- Wire the signal wires to the terminals.
 Attach the terminal cover and secure it with the screws.



Terminal Assignments of the Measurement Input Terminal Block (Terminal Blocks: 1 and 2)

Channel 1 to 10 (Terminal block: 1)

Channel number $\frac{1}{5}$ 6 5 4 3 2														
	131 /b	128 b	125 /0	122 /0	119 /b	116 D	113 /b	110 D	107 /D	104 /b				
	132 +⁄A	129 +⁄A	126 +⁄A	123 + A	120 +⁄A	117 +⁄A	114 +/A	111 +/A	108 +⁄A	105 + A				
	133 -⁄B	130 -/B	127 -∕B	124 ∹∕B	121 -∕B	118 -∕B	115 ⁻∕B	112 -⁄B	109 ⁻∕B	106 -∕B				

Channel 11 to 20 (Terminal block: 2)

 — Channel number →20 19 18 17 16 15 14 13 12 11														
231	228 D	225 0	222	219 0	216 0	213 0	210	207	204					
232 +⁄A	229 +⁄A	226 +⁄A	223 +⁄A	220 +⁄A	217 +⁄A	214 +⁄A	211 +⁄A	208 +⁄A	205 +⁄A					
233 ∹∕B	230 -⁄B	227 = B	224 =/B	221 -⁄B	218 ∹∕B	215 ∹∕B	212 ∹∕B	209 ∹∕B	206 -∕B					

Terminal Assignments of the Option Terminal Block (Terminal Block: 6)

Transistor outpu	ut	Contact input
11 9 7 5	622 619 C C C C C C C C C C C C C C C C C C C	613 610 607 604 601 614 611 88 55 2 615 612 809 606 603 C 12 9 6 8

		Alar	m ou	ıtput				
06	05	04		03	02	01		
634 NC	628 NC	625 NC		619 NC	616 NC	610 NC		
635 C	629 C	626 C		620 C	617 C	611 C		
636 NO	630 NO	627 NO		621 NO	618 NO	612 NO		

/A6R

		Alar	m ou	tput		Me	asurement r	emote input
06	05	04		03	02		01	
634 NC	628 NC	625 NC		619 NC	616 NC		610 NC 6	604 601 3 C
635 C	629 C	626 C		620 C	617 C		611 C 7	605 4 1
636 NO	630 NO	627 NO		621 NO	618 NO		612 NO 8	606 603 5 2

/A4F

FAIL output	Me	mory e		Alarm	output			
			04	03	02	01		
634 NC		628 NC	625 NC	619 NC	616 NC	610 NC		
635 C		629 C	626 C	620 C	617 C	611 C		
636 NO		630 NO	627 NO	621 NO	618 NO	612 NO		

/A4RF

FAIL output	emory end output Alarm output Measuren							t remote input
		04		03	02		01	
634 NC	628 NC	625 NC		619 NC	616 NC		610 60 NC 6	7 604 601 3 C
635 C	629 C	626 C		620 C	617 C		611 C 7	8 605 602 4 1
636 NO	630 NO	627 NO		621 NO	618 NO		612 NO 8	9 606 603

/TPS4

24VDC Transmitter power supply

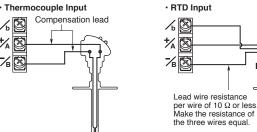
Label on the Front of the Terminal Cover

Label on the Back of the Terminal Cover

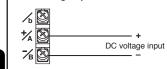
Indicates the type of input/output signals for each terminal.

06							
634	631 +	628 +	625 +				
635	632	629	626				

Measurement Input Wiring



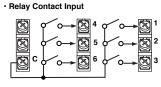
· DC Voltage Input

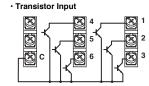


· DC Current Input DC current input Shunt resistor Example: For 4 to 20 mA input,

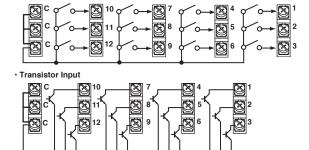
250 Ω ±0.1%.

Contact Input (DIGITAL IN) Wiring





· Relay Contact Inpu



Relay Contact Input/Transistor Input

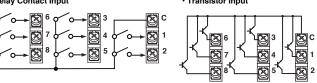
Input signal: no-voltage contact, open collector

Input condition: ON voltage, under 0.5 V (30 mADC); OFF voltage, leakage current under 0.25 mA

Input format: photocoupler isolation (common)

Withstand voltage: 500 VDC, 1 min (between input terminal and earth)

Option Terminal Block Remote Input (REMOTE)



Relay Contact Input/Transistor Input

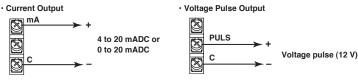
See the "Contact Input (DIGITAL IN) Wiring."

Label on the Front (For the 6 Loop Analog Control Input Terminal Block)

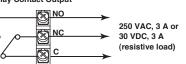
	, , ,
The terminal numbers are written on the label on the front of the terminal cover. Terminal numbers are	LOOP4 LOOP6 LOOP3 LOOP2 LOOP5 LOOP1 CAT II
unique three-digit numbers. They are used to locate terminals on the wiring diagram, etc. The highest	
digit indicates the arrangement position of the terminal block; the lower two digits indicate the terminal	□ 031 028 025 022 019 016 013 010 007 004 □
position within the terminal block (top right terminal is assigned "01" bottom left terminal is assigned	□ 032 029 026 023 020 017 014 011 008 005 □
"36"). The terminals that cannot be used are indicated as "□".	033 030 027 024 021 018 015 012 009 006 0

Label on the Back (For the 6 Loop Analog Control Input Terminal Block) Terminal symbol

You can select the control modes from "single loop control", "cascade control", and "loop control with	A	¬ 🗆	OP4	LOOP6	LOC)P3	LOC)P2	LOOP5	LO	OP1	CAT I	[Control mode setting]
PV switching" on the CX. The arrangement of the analog control input (PV) terminals are changed		(RSP)	PV	PV	(RSP)	PV PV	(RSP)	PV	PV	(RSP)	PV PV	SNGL €	- During single-loop control
depending on the control mode selected. The terminal arrangement for these three control modes are			PV		(RSP)	PV		PV		(RSP)	PV	CAS <	During cascade control
ritten on the label on Analog Control Input Terminal .		PV2	PV1		PV2	PV1	PV2	PV1		PV2	PV1	PVSW €	During loop control with
	PV switching PV, PV1, PV2: measurement input, (RSP): remote input (not used during program control), : unused										PV switching gram control), : unused terminal,		



· Relay Contact Output



Control Output (LOOP1 to 6) Wiring

(when set to energized)

Current Output

Output signal: 4 to 20 mADC or 0 to 20 mADC

Resistive load: 600 Ω or less

Voltage Pulse Output

Output signal: ON voltage=12 VDC Resistive load: 600 Ω or more

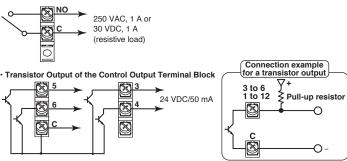
Relay Contact Output

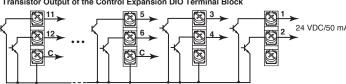
Output signal: NC, NO, COM

Contact rating: 250 VAC (50/60 Hz)/3 A or 30 VDC/3 A (resistive load)

Contact Output (DIGITAL OUT) Wiring

Relay Contact Output of the Control Output Terminal Block





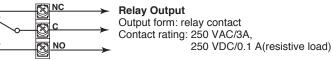
Relay Output

Contact rating: 250 VAC (50/60 Hz)/1 A or 30 VDC/1 A (resistive load)

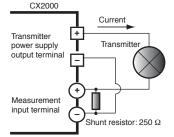
Transistor Output

Output method: open collector output Contact rating: 24 VDC/50 mA

Option Terminal Block Contact Output (ALARM, FAIL, **MEMORY)** Wiring



Transmitter Power Supply Wiring (/TPS4 Option)



Output

Number of loops: 4 Output voltage: 22.8 to 25.2 V (at rated current load) Rated output current: 4 to 20 mADC Maximum output current: 25 mADC (overcurrent protection operating current: approx. 68 mADC) Maximum length of wiring: 2 km (when using CEV cables)