

General Specifications

Model ND220 Ai/DeviceNet Converter

GS 77P01K01-01E

General

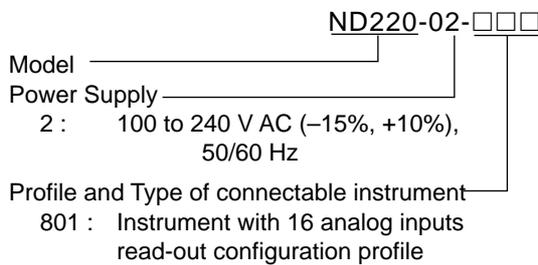
The Model ND220 Ai/DeviceNet converter converts 16* inputs of 1 to 5 V DC analog signals from signal converter—Yokogawa M&C's JUXTA D Series or VJ Series—to digital signals (0 to 10000), and transmits them via the DeviceNet to OMRON's SYSMAC PLCs or Yokogawa Electric's FA-M3 PLCs.

The ND220 is designed for either wall mounting or DIN-rail mounting.

*: Up to 16 JUXTA D series and VJ series converter can be used.



Model and Suffix Codes



User-defined optional feature:

The 1 to 5 V read-out scale can be user-defined within the range of −30000 to 30000 when ordering. No user definition results in the default range of 0 to 10000.

Hardware Specifications

- Construction: 14-pin plug-in converter designed for wall or DIN-rail mounting
- Material: ABS resin for casing
- Weight: Approx. 380 g (including a 110 g socket)
- Analog input side:
 - 16 points of 1 to 5 V DC signal, connector
- I/O on DeviceNet side:
 - DeviceNet front-panel connector
- LED indicator: RDY, MS and NS
- Power supply: 100 to 240 V AC (−15%, +10%), 50/60 Hz
- Insulation resistance:
 - 100 MΩ min. at 500 V DC between any two terminals among the ND220 input, DeviceNet input terminals, power supply and grounding terminals
- Withstand voltage:
 - 2000 V AC for 1 minute between any two terminals among the ND220 input, DeviceNet input terminals, power supply and grounding terminals
- Power consumption:
 - Approx. 3.0 VA (100 V AC)
 - Approx. 5.3 VA (240 V AC)

Input Specifications

- Accuracy: ±0.1% of span* (under standard operating conditions)
- *: $\pm(2.5/\text{scaling span}) \times 100\%$ when scaling span is 2500 or less.
- Read-out count: 0 to 10000
(The scale can be user-defined within the range of −30000 to 30000 when ordering.)
- Input cycle: 320 ms

DeviceNet Specifications

- Baud rate setting:
 - 125, 250 or 500 kbps set with DIP switch
- Node address setting:
 - 0 to 63, set with DIP switch
- Number of channels occupied: 24
- Baud rate/distance:
 - The available overall distance of transmission differs depending on the baud rate, as shown below:
 - 125 kbps: up to 500 m
 - 250 kbps: up to 250 m
 - 500 kbps: up to 100 m
- Bias setting function:
 - Adds a bias setting to the measured value. By default, the setting equals 0.

Environmental Requirements

- Normal operating conditions:
 - Ambient temperature range: 0 to 50°C
 - Temperature change: 10°C/h max.
 - Ambient humidity range: 5 to 90% RH (no condensation)
 - Altitude of installation: 2000 m max.
- Transport/storage conditions:
 - Temperature range: −40 to 70°C
 - Ambient humidity range: 5 to 95% RH (no condensation)
- Effect of ambient temperature change:
 - Voltage input: ±0.2% of span max. per 10°C
- Effect of supply voltage fluctuation (within rated supply voltage range):
 - Voltage input: ±0.1% of span max. (within power supply voltage range)

I/O Configuration Profile

Number of channels occupied: 24

No.	Input	IN AREA	Content	OUT AREA	Content
No.1	input 1-5V	0 (HEX)	No.1 Measured data + Bias setting data	0 (HEX)	No.1 Bias setting data
No.2	input 1-5V	1	No.2 Measured data + Bias setting data	1	No.2 Bias setting data
No.3	input 1-5V	2	No.3 Measured data + Bias setting data	2	No.3 Bias setting data
No.4	input 1-5V	3	No.4 Measured data + Bias setting data	3	No.4 Bias setting data
No.5	input 1-5V	4	No.5 Measured data + Bias setting data	4	No.5 Bias setting data
No.6	input 1-5V	5	No.6 Measured data + Bias setting data	5	No.6 Bias setting data
No.7	input 1-5V	6	No.7 Measured data + Bias setting data	6	No.7 Bias setting data
No.8	input 1-5V	7	No.8 Measured data + Bias setting data	7	No.8 Bias setting data
No.9	input 1-5V	8	No.9 Measured data + Bias setting data	8	No.9 Bias setting data
No.10	input 1-5V	9	No.10 Measured data + Bias setting data	9	No.10 Bias setting data
No.11	input 1-5V	A	No.11 Measured data + Bias setting data	A	No.11 Bias setting data
No.12	input 1-5V	B	No.12 Measured data + Bias setting data	B	No.12 Bias setting data
No.13	input 1-5V	C	No.13 Measured data + Bias setting data	C	No.13 Bias setting data
No.14	input 1-5V	D	No.14 Measured data + Bias setting data	D	No.14 Bias setting data
No.15	input 1-5V	E	No.15 Measured data + Bias setting data	E	No.15 Bias setting data
No.16	input 1-5V	F	No.16 Measured data + Bias setting data	F	No.16 Bias setting data
10	(bit) 0			10	(bit) 0
	(HEX)				(HEX)
	1			1	
	2			2	
	3			3	
	4			4	
	5	No.1 : Positive over range		5	
	6	No.1 : Negative over range		6	
	7	No.1 : Burnout		7	
	8			8	
	9	No.2 : Positive over range		9	
	A	No.2 : Negative over range		A	
	B	No.2 : Burnout		B	
	C			C	
	D	No.3 : Positive over range		D	
	E	No.3 : Negative over range		E	
	F	No.3 : Burnout		F	
11	0			11	0
	1	No.4 : Positive over range		1	
	2	No.4 : Negative over range		2	
	3	No.4 : Burnout		3	
	4			4	
	5	No.5 : Positive over range		5	
	6	No.5 : Negative over range		6	
	7	No.5 : Burnout		7	
	8			8	
	9	No.6 : Positive over range		9	
	A	No.6 : Negative over range		A	
	B	No.6 : Burnout		B	
	C			C	
	D	No.7 : Positive over range		D	
	E	No.7 : Negative over range		E	
	F	No.7 : Burnout		F	
12	0			12	0
	1	No.8 : Positive over range		1	
	2	No.8 : Negative over range		2	
	3	No.8 : Burnout		3	
	4			4	
	5	No.9 : Positive over range		5	
	6	No.9 : Negative over range		6	
	7	No.9 : Burnout		7	
	8			8	
	9	No.10 : Positive over range		9	
	A	No.10 : Negative over range		A	
	B	No.10 : Burnout		B	
	C			C	
	D	No.11 : Positive over range		D	
	E	No.11 : Negative over range		E	
	F	No.11 : Burnout		F	
13	0			13	0
	1	No.12 : Positive over range		1	
	2	No.12 : Negative over range		2	
	3	No.12 : Burnout		3	
	4			4	
	5	No.13 : Positive over range		5	
	6	No.13 : Negative over range		6	
	7	No.13 : Burnout		7	
	8			8	
	9	No.14 : Positive over range		9	
	A	No.14 : Negative over range		A	
	B	No.14 : Burnout		B	
	C			C	
	D	No.15 : Positive over range		D	
	E	No.15 : Negative over range		E	
	F	No.15 : Burnout		F	
14	0			14	0
	1	No.16 : Positive over range		1	
	2	No.16 : Negative over range		2	
	3	No.16 : Burnout		3	
	4			4	
15	:			15	:
16	:			16	:
17	B	Remote READY flag		17	:

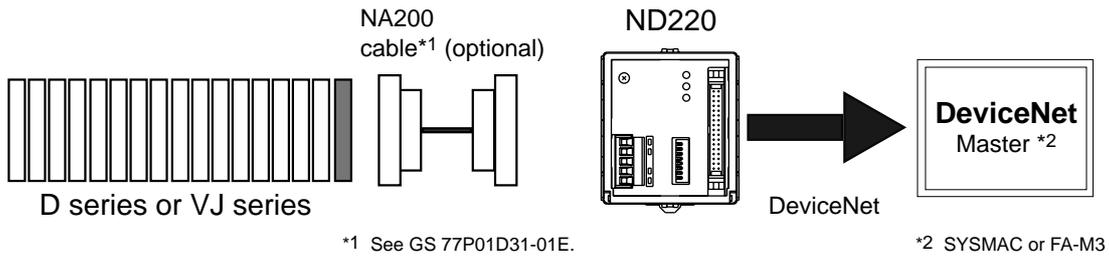
DeviceNet

Node address setting:
0 to 63

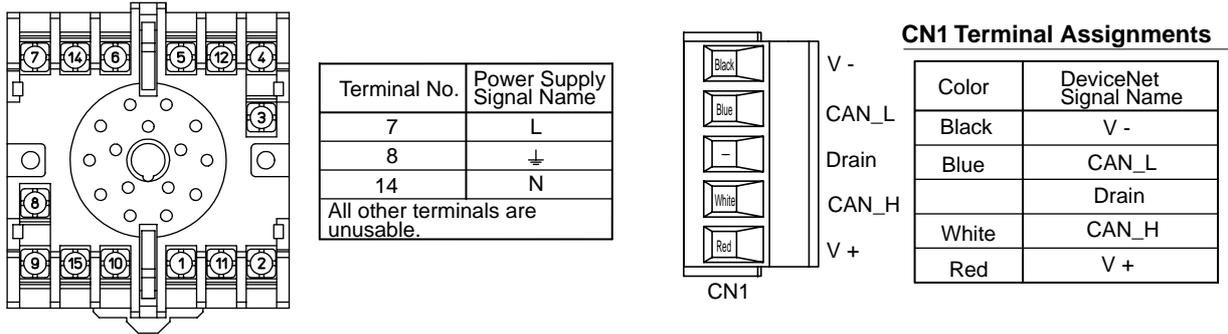
Baud rate setting:

Switch	Setting	Baud Rate
DR0	DR1	
OFF	OFF	125 kbps
ON	OFF	250 kbps
OFF	ON	500 kbps
ON	ON	Not settable

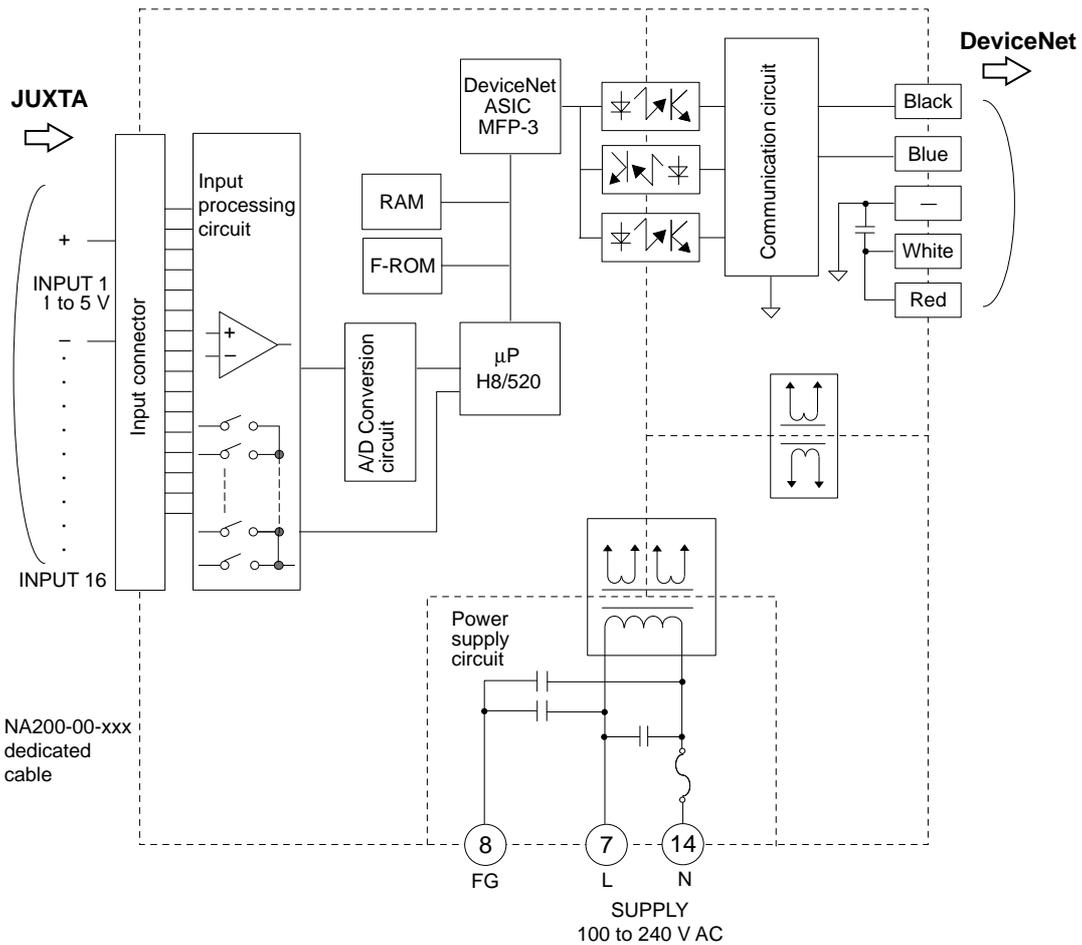
■ Communication Wiring Diagram



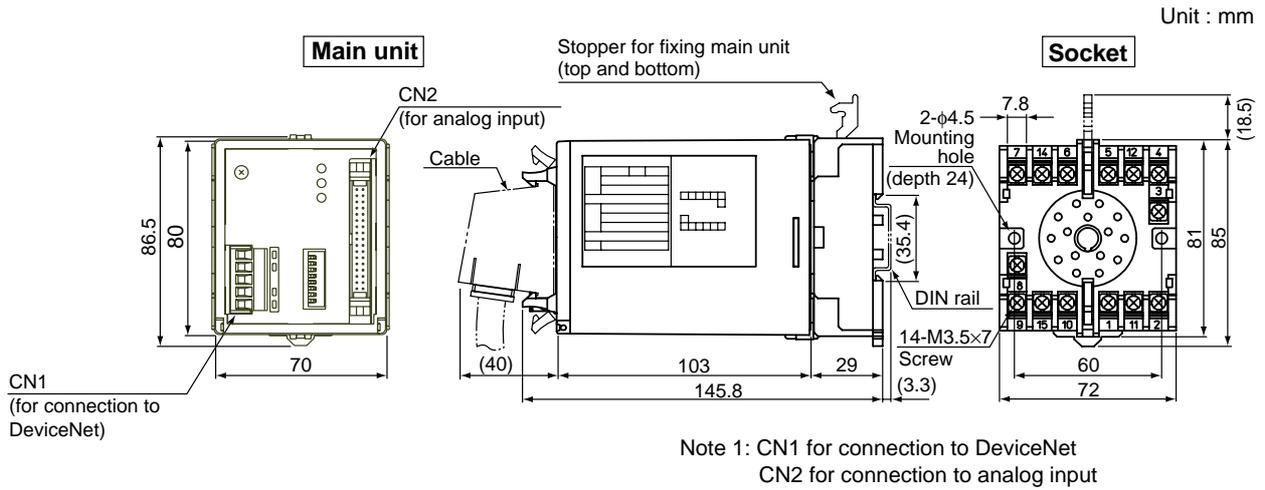
■ Terminal Arrangement



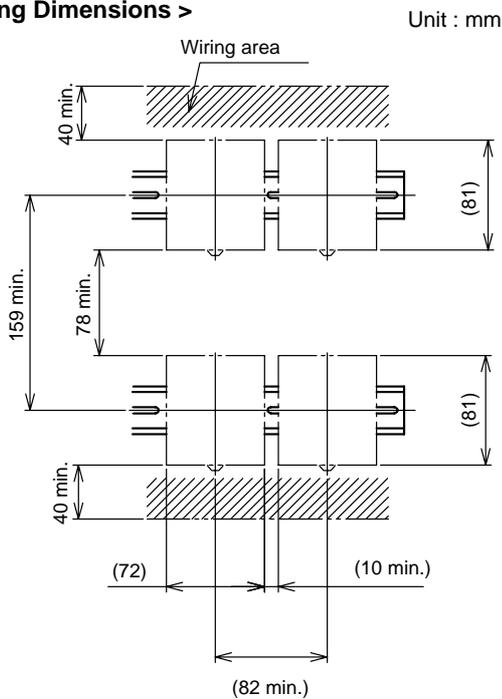
■ Block Diagram



■ Dimensions



< Mounting Dimensions >



Note 2: A minimum spacing of 10 mm is required between ND220 converters for close, side-by-side mounting. No spacing is required, however, if the converters are rated for a 100 to 120 V AC supply voltage range.