Fuji Electric

Innovating Energy Technology

Variadores compactos y de alto rendimiento

Serie FRENIC-Mini (C2)

FEA-ACDR-BR-105a

FRENIC-Mini (C2)

The next generation FRENIC-Mini inverter is a high performance AC drive in a compact size. Get our most user-friendly drive yet; with its rich functionality, compact design, simple operation, and global compatibility. With the highest standards of control and performance in its class, the FRENIC-Mini (C2) elevates the performance of a wide range of devices and equipment including conveyors, fans, pumps, centrifugal separators, and food processing machines. Its capabilities gives you the system integration, energy efficiency, reduce labor, and overall costs for which you are looking.

With standard functions like high starting torque, sychronous motor control, optimum energy savings, PID control, built in Modbus RTU, plus more all in a compact size makes the FRENIC Mini (C2) ideal for OEM's and panel builders. The optional NEMA/UL Type 1 kit allows the FRENIC-Mini (C2) to also be easily applied to stand alone appliations.

Uso General: (Par Constante)	Transportadores, Agitadores, Elevadores, Extrusoras, Molinos, Trituradoras, Troqueladoras, Grúas (Puente, Carro, Gancho), Enrolladora, Cortadora, Trefiladora, etc.
Par Variable:	HVAC, Bombas y Ventiladores Centrífugos, Chillers, Sopladores, Aire acondicionado

FRENIC-Mini (C2)

FRENIC-Mini (C2) Model Numbering System Diagram

Description FRN #### C 2 S - # U

Product Code
FRENIC Series

Applicable Current Rating
0002 = 1.5Amps
0007 = 6.3Amps
0011 = 10.5Amps
(Model Number Amp Rating is Rounded UP to Next Highest Integer)

Application Range
C = FRENIC-Mini Compact

Development Series
2 - 2nd Generation

Enclosure
S = Standard (IP20 / UL Open Type)
E = EMC Filter Built-In (IP20) *[Non-Stock Item]*

Input Power Source
6 = 115VAC - 1-Phase
7 = 230VAC - 1-Phase
2 = 230VAC - 3-Phase
4 = 460VAC - 3-Phase

Destination/Manual
U = USA/English
E = Europe/English (EMC Filter Built-in Version) *[Non-Stock Item]*

Variadores FRENIC-Mini (C2)

Variadores compactos y de alto rendimiento

El FRENIC-Mini (C2) es nuestra generación de variadores más reciente y completamente compatible con el modelo previo (C1) que ofrece una potencia extendida (hasta 20 HP) con un diseño compacto. El FRENIC-Mini (C2) es nuestro controlador más intuitivo hasta el momento, su rendimiento se ha mejorado y el modelo básico viene con RS-485, control de par dinámico, motor con imán permanente y control PID. Esta rica funcionalidad se combina con un diseño compacto para una mejor experiencia de usuario, y los clientes disfrutarán la facilidad de operación y la compatibilidad global. El nuevo FRENIC-Mini eleva el rendimiento de una amplia variedad de dispositivos y equipamiento que incluyen transportadores, ventiladores, bombas, separadores centrífugos y máquinas de procesamiento de alimentos. Sus capacidades le proporcionan la integración del sistema, la eficiencia energética y la reducción de los costos generales que está buscando.

Control de entradas/salidas

5 entradas digitales: X1 a X3, funciones de FWD (avance) y REV (retroceso) programables, 21 funciones seleccionables
2 entradas analógicas: 1 - 0 a + 10 Vdc y 1 - 4 a 20 mA
2 salidas digitales: 1 relés de forma C y 1 transistor, 23 funciones seleccionables
2 salidas analógicas: Tipo seleccionable: 0 a 10 VCC o 4 a 20 mA, 43 funciones de señal de salida proporcional seleccionables
1 conector RS-485: Puerto RJ45
TECLADO del operador con pantalla de LED
Indicador de operación del sistema y conversión de unidades asociadas en la pantalla
Indicación del teclado de operaciones, número de veces que la unidad se ubica en el funcionamiento, duración y kWh de salida
Terminal de salida de 24 VCC: 50 mA de suministro máximo

Completamente compatible con los productos existentes (FRENIC-Mini C1)

Dimensiones externas: Intercambiable
Dimensiones para la instalación: Intercambiable
Número de terminales: Iguales para el circuito principal y los controladores
Posición de terminal: Terminal compatible con el largo
Códigos de función: Códigos de función compatibles
Comunicación RS-485 incorporada: Protocolo de comunicación compartido

Flexibilidad

El teclado de FRENIC-Mini muestra la velocidad, la corriente, la frecuencia o la salida de voltaje, los datos de operación PID y puede configurarse para indicar unidades en funcionamiento.
Teclado USB opcional
Software cargador de programación de PC
Datos de mantenimiento fácil: Simulacro de defectos, número de inicios, tiempo acumulativo de funcionamiento del motor, potencia total, registro de desconexiones, etc.
Control de ahorro de energía automático: control óptimo del controlador y pérdida del motor
Controlador PID con modo de suspensión, configuración de parámetros proporcional, integral y diferencial para maximizar el control
Función de control de ENCENDIDO/APAGADO del ventilador de refrigeración
Configuración de 3 pasos no lineal V/F
2 controles de interruptor de motor
Señal de frenado
Control de dirección de rotación
Modelos de entrada monofásica disponibles
Control de motor sincrónico

Control de motor

Capacidad de control de motor PM
Control: control V/F, compensación de desplazamiento, aumento de par automático, sistema de control vectorial de par dinámico
Niveles: 150 % por 1 min
200 % por 0.5 s

Seguridad y estándares

EN61800-5-1 (directiva de bajo voltaje)
UL 508C, CE
Kit tipo 1 según NEMA/UL opcional
Cumplimiento de la normativa RoHS

Garantía

3 años desde la fecha de envío

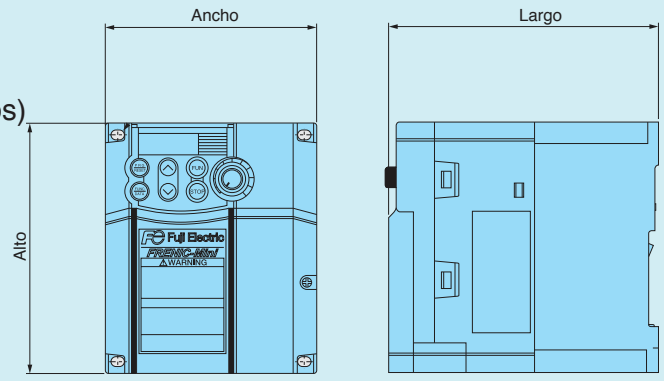
Dimensiones

Modelo		HP	FLA	Masa (lb)	Alto	Ancho	Largo
Monofásico de 115 V	FRN0001C2S-6U	1/8	0.7	1.5	4.72	3.15	3.94
	FRN0002C2S-6U	1/4	1.4	1.5	4.72	3.15	3.94
	FRN0003C2S-6U	1/2	2.5	1.8	4.72	3.15	4.53
	FRN0005C2S-6U	1	4.2	2.9	5.12	4.33	5.47
Monofásico de 230 V	FRN0001C2S-7U	1/8	0.8(0.7)	1.3	4.72	3.15	3.15
	FRN0002C2S-7U	1/4	1.5(1.4)	1.3	4.72	3.15	3.15
	FRN0004C2S-7U	1/2	3.5(2.5)	1.5	4.72	3.15	3.74
	FRN0006C2S-7U	1	5.5(4.2)	2.0	4.72	3.15	5.51
	FRN0010C2S-7U	2	9.2(7.0)	4.0	5.12	4.33	5.87
	FRN0012C2S-7U	3	12.0(10.0)	5.5	7.09	5.51	5.47
Trifásico de 230 V	FRN0001C2S-2U	1/8	0.8(0.7)	1.3	4.72	3.15	3.15
	FRN0002C2S-2U	1/4	1.5(1.4)	1.3	4.72	3.15	3.15
	FRN0004C2S-2U	1/2	3.5(2.5)	1.5	4.72	3.15	3.74
	FRN0006C2S-2U	1	5.5(4.2)	1.8	4.72	3.15	4.72
	FRN0010C2S-2U	2	9.2(7.0)	3.7	5.12	4.33	5.47
	FRN0012C2S-2U	3	12.0(10.0)	3.7	5.12	4.33	5.47
	FRN0020C2S-2U	5	19.1(16.5)	5.5	7.09	5.51	5.47
	FRN0025C2S-2U	7.5	25.0(23.5)	6.8	8.66	7.09	6.22
	FRN0033C2S-2U	10	33.0(31.0)	6.8	8.66	7.09	6.22
	FRN0047C2S-2U	15	47.0(44.0)	9.8	10.24	8.66	7.48
	FRN0060C2S-2U	20	60.0(57.0)	9.8	10.24	8.66	7.48
Trifásico de 460 V	FRN0002C2S-4U	1/2	1.8(1.5)	2.6	5.12	4.33	4.53
	FRN0004C2S-4U	1	3.1(2.5)	2.9	5.12	4.33	5.47
	FRN0005C2S-4U	2	4.3(3.7)	3.7	5.12	4.33	5.47
	FRN0007C2S-4U	3	6.3(5.5)	3.7	5.12	4.33	5.47
	FRN0011C2S-4U	5	10.5(9.0)	5.5	7.09	5.51	5.47
	FRN0013C2S-4U	7.5	13	6.8	8.66	7.09	6.22
	FRN0018C2S-4U	10	18	6.8	8.66	7.09	6.22
	FRN0024C2S-4U	15	24	9.8	10.24	8.66	7.48
	FRN0030C2S-4U	20	30	9.8	10.24	8.66	7.48

Cuando la temperatura ambiente supera los 40 °C (104 °F), use la información (##). Consulte el manual de instrucciones INR-SI-47-1729a-E para obtener más información.

Opciones

- Kit tipo 1 según NEMA/UL
- Adaptador de carril DIN (5 HP y menos)
- Resistor DB (1/2 HP y más)
- Teclado USB
- Filtro CE



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Especificaciones

Capacidad	Monofásico de 115 V: 1/8 a 1 HP Monofásico de 230 V: 1/8 a 3 HP Trifásico de 230 V: 1/8 a 20 HP Trifásico de 460 V: 1/2 a 20 HP
Capacidad de sobrecarga	150 % 1 min; 200 % 0.05 s
Potencia de entrada	115 V/230 V mono/trifásico: 200 a 240 V, 50/60 Hz Trifásico de 460 V: 380 a 480 V, 50/60 Hz Voltaje: +10 % a -15 % (Desbalance de 2 % o menos) Frecuencia: +5 % a -5 %
Control	Control V/F (motor de inducción) Control vectorial de par dinámico (motor de inducción) Imán permanente/motor síncrono con control V/F
Frecuencia de salida	0.1 a 400Hz
Precisión de salida	Configuración analógica: +/-2 % de frecuencia máxima Configuración digital: +/- 0.01 % de frecuencia máxima (por configuración de teclado)
Par de arranque	150 % funcionando a 1 Hz con compensación de deslizamiento
Transistor de frenado	Incorporado excepto en 1/4 HP y menor
Temperatura ambiente	-10 a 50 °C (14 a 122 °F) para funcionamiento -25 a 75 °C (-13 a 158 °F) para almacenamiento
Humedad relativa	5 a 95 % HR (sin condensación)
Ubicación de instalación	Grado 2 de polución según el estándar de IEC 60664-1. (Libre de gases corrosivos, gases inflamables, vapor de aceite, polvo y luz solar directa). Solo para uso en interiores.
Altitud	Nivel del mar a 3300 ft (1000 m): sin disminución 3300 ft (1000 m) a 9900 ft (3000 m): con disminución
Carcasa	Tipo abierto según UL, tipo 1 por kit de opciones según NEMA/UL
Estándar	UL508C, EN 61800-5-1:2007

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General Specifications

Environmental	
Enclosure	UL Open Type (IP20), Optional UL Type 1
Ambient Temperature	+14 to +122°F (-10 to +50°C) - UL Open Type +14 to +104°F (-10 to +40°C) - UL Type 1
Storage Temperature	-13 to +158°F (-25 to +70°C)
Humidity	5% to 95% With No Condensation
Altitude	0 to 3,300 ft. (1,000 m) Without Derating, Derate Output Current for Higher Altitudes per User's Manual

Codes and Standards
UL508C, EN 61800-5-1:2007

Electrical	
Input Voltage: Range-Phase	100-120VAC-1Ph, 200-240VAC-1Ph, 200-240VAC-3Ph, 380-480VAC-3Ph
Input Voltage: Tolerance, Unbalance	3-Ph Input = +10% to -15%, ≤2% 1-Ph Input = +10% to -10%
Input Frequency: Nominal, Tolerance	50/60Hz, +/-5%
Displacement Power Factor	≥0.98 (@ Rated Load)
Output Voltage: Range-Phase	0 to Maximum Input Voltage-3Ph 0 to 230VAC-3Ph for 115VAC Input
Maximum Output Frequency	400Hz
Motor Control Method	Induction Motor: V/f, Dynamic Torque Vector, Slip Comp, Auto-Torque Boost, Automatic Energy Savings Synchronous Motor (PMAC): Sensorless Magnetic Positioning [speed control range: 10% of base frequency and up]
Overload Capacity	150% Rated Current for 1 min. 200% Rated Current for 0.5 sec.
Analog Inputs	Qty 1: 0 to +10VDC Qty 1: 0/4-20mA
Digital Inputs	Qty 5: Programmable
Analog Outputs	Qty 1: 0 to +10VDC, User Selectable Proportional Analog Signal Functionality
Digital Outputs	Qty 1: Form C (1N.O. & 1N.C.) Dry Contacts Rated 0.3A @ 230V Max, User Selectable Functionality Qty 1: Transistor Output Rated 50mA @ 27Vdc Max, User Selectable Functionality
Power Supply	Qty 1: 24VDC, 50mA Max

1. Standard Specifications

1) Three-phase 200V series（0.1 to 15kW / 1/8 to 20HP） **(△ = A, U only)**

Items			Specifications										
Type (FRN□□□C2S-2△、△ = A,U)			0001	0002	0004	0006	0010	0012	0020	0025	0033	0047	0060
Nominal applied motor *1) [kW] (△=A)			0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Nominal applied motor *1) [HP] (△=U)			1/8	1/4	1/2	1	2	3	5	7.5	10	15	20
Output ratings	Rated capacity *2) [kVA]		0.30	0.57	1.3	2.0	3.5	4.5	7.2	9.5	12	17	22
	Rated voltage *3) [V]		Three-phase 200～240V (With AVR)										
	Rated current [A]		0.8 (0.7) *4)	1.5 (1.4) *4)	3.5 (2.5) *4)	5.5 (4.2) *4)	9.2 (7.0) *4)	12.0 (10.0) *4)	19.1 (16.5) *4)	25.0 (23.5) *10)	33.0 (31.0) *10)	47.0 (44.0) *10)	60.0 (57.0) *10)
	Overload capability		150% of rated current for 1min 150% of rated current for 1min or 200% of rated current for 0.5s (If the rated current is in parenthesis)							150% of rated current for 1min or 200% of rated current for 0.5s			
	Rated frequency		50, 60Hz										
Input ratings	Main power supply		Three-phase 200～240V, 50/60Hz										
	Voltage/frequency variations		Voltage: +10 to -15% (Voltage unbalance: 2% or less *7)), Frequency: +5 to -5%										
	Rated current *8) [A]	With DCR	0.57	0.93	1.6	3.0	5.7	8.3	14.0	21.1	28.8	42.2	57.6
		Without DCR	1.1	1.8	3.1	5.3	9.5	13.2	22.2	31.5	42.7	60.7	80.0
	Required power supply capacity *5) [kVA]		0.2	0.3	0.6	1.1	2.0	2.9	4.9	7.4	10	15	20
Braking	Braking torque *6) [%]		150		100		50	30		20			
	DC braking		Starting frequency *9) : 0.0 to 60.0Hz, Braking time: 0.0 to 30.0s, Braking level: 0 to 100%										
	Transistor for braking resistor		-		Built-in								
Applicable safety standards			UL508C, EN 61800-5-1:2007										
Enclosure			IP20 (IEC 60529:1989) / UL open type (UL50)										
Cooling method			Natural cooling				Fan cooling						
Mass [kg] (△=A)			0.6	0.6	0.7	0.8	1.7	1.7	2.5	3.1	3.1	4.5	4.5
Mass [lbs] (△=U)			1.3	1.3	1.5	1.8	3.7	3.7	5.5	6.8	6.8	9.8	9.8

*1) Fuji Electric's/US 4-pole standard motor.

*2) Rated capacity is calculated by regarding the output rated voltage as220V for three-phase 200V series.

*3) Output voltage cannot exceed the power supply voltage.

*4) The load shall be reduced so that the continuous operating current is the rated current in parenthesis or less if the carrier frequency is set to 3kHz or above or ambient temperature exceeds 40℃(104°F).

*5) Obtained when a DC REACTOR is used.

*6) Average braking torque when a motor of no load decelerates from 60Hz.(Varies with the efficiency of the motor).

*7) $\text{Voltage unbalance} = \frac{\text{Max. voltage[V]} - \text{Min. voltage[V]}}{\text{Three - phase average voltage[V]}} \times 67\%$ (IEC61800−3 : 2004)

If this value is 2 to 3%, use an AC REACTOR.

*8) The currents are calculated on the condition that the inverters are connected to power supply of 500kVA (In the case of inverter capacity is more than 50kVA, it is 10 times of the inverter capacity), %X=5%.

*9) Effective function only in induction motor drive.

*10) The load shall be reduced so that the continuous operating current is the rated current in parenthesis or less if the carrier frequency is set to 4kHz or above or ambient temperature exceeds 40℃(104°F).

2) Three-Phase 400V Series（0.4 to 15kW / 1/2 to 20HP）

Items			Specifications								
Type (FRN□□□C2S-4△、△ = A,C,E,U)			0002	0004	0005	0007	0011	0013	0018	0024	0030
Nominal applied motor *1) [kW] (△=A,C,E)			0.4	0.75	1.5	2.2	3.7(△=A,C)/ 4.0(△=E)	5.5	7.5	11	15
Nominal applied motor *1) [HP] (△=U)			1/2	1	2	3	5	7.5	10	15	20
Output ratings	Rated capacity *2) [kVA]		1.3	2.3	3.2	4.8	8.0	9.9	13	18	22
	Rated voltage *3) [V]		Three-phase 380～480V (With AVR)								
	Rated current [A]		1.8 (1.5) *4)	3.1 (2.5) *4)	4.3 (3.7) *4)	6.3 (5.5) *4)	10.5 (9.0) *4)	13.0	18.0	24.0	30.0
	Overload capability		150% of rated current for 1min 150% of rated current for 1min or 200% of rated current for 0.5s (If the rated current is in parenthesis)					150% of rated current for 1min or 200% of rated current for 0.5s			
	Rated frequency		50, 60Hz								
Input ratings	Main power supply		Three-phase 380～480V，50/60Hz								
	Voltage/frequency variations		Voltage: +10 to -15% (Voltage unbalance: 2% or less *7)), Frequency: +5 to -5%								
	Rated current *8) [A]	With DCR	0.85	1.6	3.0	4.4	7.3	10.6	14.4	21.1	28.8
		Without DCR	1.7	3.1	5.9	8.2	13.0	17.3	23.2	33.0	43.8
	Required power supply capacity *5) [kVA]		0.6	1.1	2.0	2.9	4.9	7.4	10	15	20
Braking	Braking torque*6) [%]		100		50	30		20			
	DC braking		Starting frequency *9) : 0.0 to 60.0Hz, Braking time: 0.0 to 30.0s, Braking level: 0 to 100%								
	Transistor for braking resistor		Built-in								
Applicable safety Standards			UL508C, EN 61800-5-1:2007								
Enclosure			IP20 (IEC 60529:1989) / UL open type (UL50)								
Cooling method			Natural cooling		Fan cooling						
Mass [kg] (△=A,C,E)			1.2	1.3	1.7	1.7	2.5	3.1	3.1	4.5	4.5
Mass [lbs] (△=U)			2.6	2.9	3.7	3.7	5.5	6.8	6.8	9.8	9.8

*1) Fuji Electric's/US 4-pole standard motor.

*2) Rated capacity is calculated by regarding the output rated voltage as440V for three-phase 400V series.

*3) Output voltage cannot exceed the power supply voltage.

*4) The load shall be reduced so that the continuous operating current is the rated current in parenthesis or less if the carrier frequency is set to 3kHz or above or ambient temperature exceeds 40℃(104°F).

*5) Obtained when a DC REACTOR is used.

*6) Average braking torque when a motor of no load decelerates from 60Hz. (Varies with the efficiency of the motor).

*7) $\text{Voltage unbalance} = \frac{\text{Max. voltage[V]} - \text{Min. voltage[V]}}{\text{Three - phase average voltage[V]}} \times 67\%$ (IEC61800－3：2004)

If this value is 2 to 3%, use an AC REACTOR.

*8) The currents are calculated on the condition that the inverters are connected to power supply of 500kVA (In the case of inverter capacity is more than 50kVA, it is 10 times of the inverter capacity), %X=5%.

*9) Effective function only in induction motor drive.

3) **Single-Phase 200V Series（0.1 to 2.2kW / 1/8 to 3HP）**

Items			Specifications						
Type (FRN□□□C2S-7△、△ = A,C,E,U)			0001	0002	0004 ⓐ	0006	0010	0012
Nominal applied motor *1) [kW] (△=A,C,E)			0.1	0.2	0.4	0.75	1.5	2.2
Nominal applied motor *1) [HP] (△=U)			1/8	1/4	1/2	1	2	3
Output ratings	Rated capacity *2) [kVA]		0.30	0.57	1.3	2.0	3.5	4.5
	Rated voltage *3) [V]		Three-phase 200～240V (With AVR)					
	Rated current [A]*4)		0.8 (0.7)	1.5 (1.4)	3.5 (2.5)	5.5 (4.2)	9.2 (7.0)	12.0 (10.0)
	Overload capability		150% of rated current for 1min 150% of rated current for 1min or 200% of rated current for 0.5s (If the rated current is in parenthesis)					
	Rated frequency		50, 60Hz					
Input ratings	Main power supply		Single-phase 200～240V, 50/60Hz					
	Voltage/frequency variations		Voltage: +10 to -10%, Frequency: +5 to -5%					
	Rated current *7) [A]	With DCR	1.1	2.0	3.5	6.4	11.6	17.5
		Without DCR	1.8	3.3	5.4	9.7	16.4	24.0
	Required power supply capacity *5) [kVA]		0.3	0.4	0.7	1.3	2.4	3.5
Braking	Braking torque*6) [%]		150		100		50	30
	DC braking		Starting frequency *9) : 0.0 to 60.0Hz, Braking time: 0.0 to 30.0s, Braking level: 0 to 100%					
	Transistor for braking resistor		-		Built-in			
Applicable safety standards			UL508C, EN 61800-5-1:2007					
Enclosure			IP20 (IEC 60529:1989) / UL open type (UL50)					
Cooling method			Natural cooling				Fan cooling	
Mass [kg] (△=A,C,E)			0.6	0.6	0.7	0.9	1.8	2.5
Mass [lbs] (△=U)			1.3	1.3	1.5	2.0	4.0	5.5

*1) Fuji Electric's/US 4-pole standard motor.

*2) Rated capacity is calculated by regarding the output rated voltage as 220V.

*3) Output voltage cannot exceed the power supply voltage.

*4) The load shall be reduced so that the continuous operating current is the rated current in parenthesis or less if the carrier frequency is set to 3kHz or above or ambient temperature exceeds 40℃(104°F).

*5) Obtained when a DC REACTOR is used.

*6) Average braking torque when a motor of no load decelerates from 60Hz. (Varies with the efficiency of the motor).

*8) The currents are calculated on the condition that the inverters are connected to power supply of 500kVA (In the case of inverter capacity is more than 50kVA, it is 10 times of the inverter capacity), %X=5%.

*9) Effective function only in induction motor drive.

4) **Single-Phase 100V Series（0.1 to 0.75kW / 1/8 to 1HP） (△ = U only)**

Items			Specifications			
Type (FRN□□□C2S-6△、△ = U)			0001	0002	0003	0005
Nominal applied motor *1) [HP]			1/8	1/4	1/2	1
Output ratings	Rated capacity *2) [kVA]		0.26	0.53	0.95	1.6
	Rated voltage *3) [V]		Three-phase 200～240V (With AVR)			
	Rated current [A]		0.7	1.4	2.5	4.2
	Overload capability		150% of rated current for 1min or 200% of rated current for 0.5s			
	Rated frequency		50, 60Hz			
Input ratings	Main power supply		Single-phase 100～120V, 50/60Hz			
	Voltage/frequency variations		Voltage: +10 to -10%, Frequency: +5 to -5%			
	Rated current *8) [A]	With DCR	2.2	3.8	6.4	12.0
		Without DCR	3.6	5.9	9.5	16.0
	Required power supply capacity *5) [kVA]		0.3	0.5	0.7	1.3
Braking	Braking torque*6) [%]		150		100	
	DC braking		Starting frequency *9) : 0.0 to 60.0Hz, Braking time: 0.0 to 30.0s, Braking level: 0 to 100%			
	Transistor for braking resistor		-		Built-in	
Applicable safety standards			UL508C			
Enclosure			IP20 (IEC 60529:1989) / UL open type (UL50)			
Cooling method			Natural cooling			
Mass [kg]			0.7	0.7	0.8	1.3
Mass [lbs]			1.5	1.5	1.8	2.9

*1) Fuji Electric's/US 4-pole standard motor.

*2) Rated capacity is calculated by regarding the output rated voltage as 220V.

*3) Output voltage cannot exceed the twice of power supply voltage.

*5) Obtained when a DC REACTOR is used.

*6) Average braking torque when a motor of no load decelerates from 60Hz. (Varies with the efficiency of the motor).

*8) The currents are calculated on the condition that the inverters are connected to power supply of 50kVA, %X=5%.

*9) Effective function only in induction motor drive.

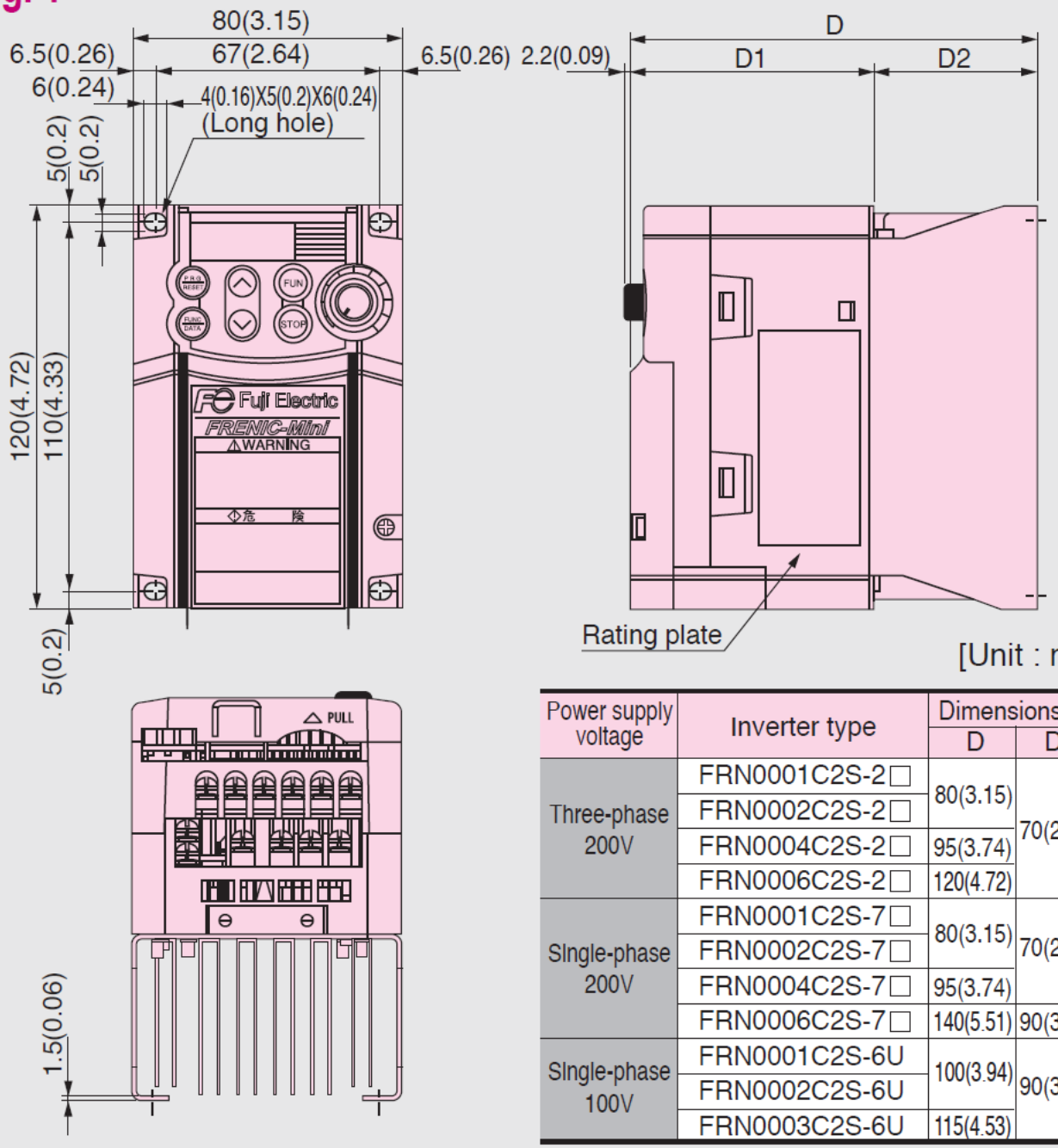
Note

When driven by 100 VAC, the single-phase 100 V series of inverters limit their shaft output and maximum output torque as listed below. This is to prevent their output voltage from decreasing when load is applied.

	Shaft output (%)	Maximum torque (%)
w/o DC reactor (DCR)	90	150
w/ DC reactor (DCR)	85	120

6. Outline: Standard Models

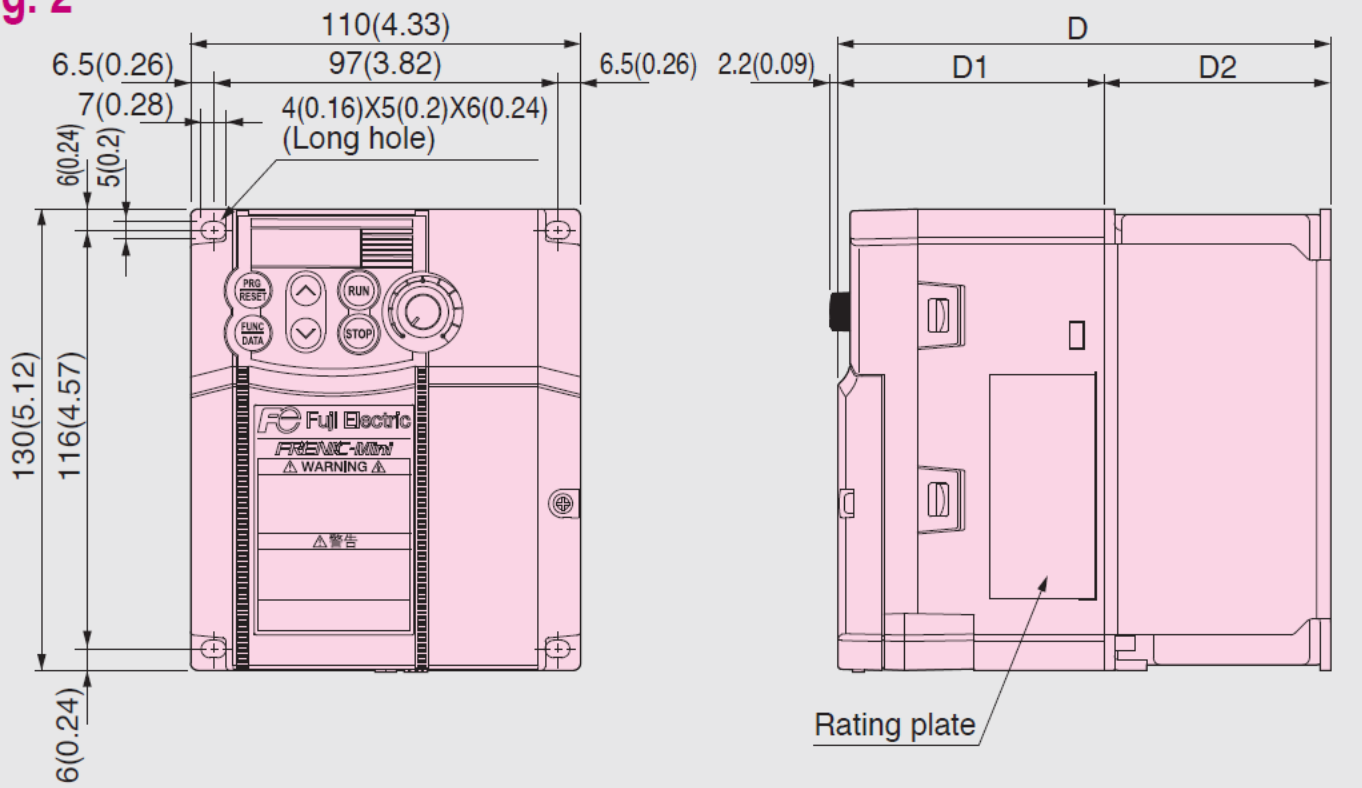
Fig. 1

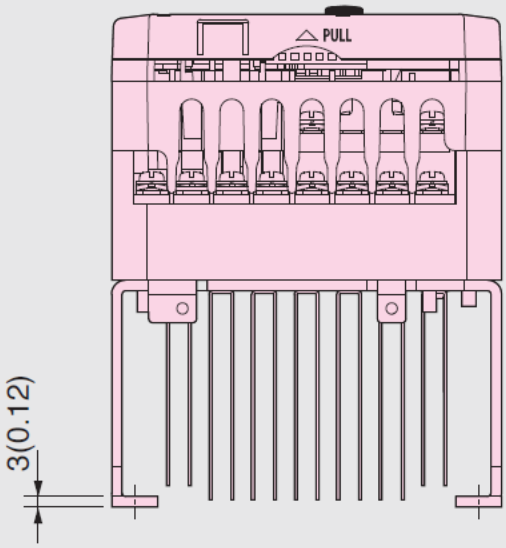


[Unit : mm(inch)]

Power supply voltage	Inverter type	Dimensions (mm(inch))		
		D	D1	D2
Three-phase 200V	FRN0001C2S-2□	80(3.15)	70(2.76)	10(0.39)
	FRN0002C2S-2□			
	FRN0004C2S-2□	95(3.74)		25(0.98)
	FRN0006C2S-2□	120(4.72)		50(1.97)
Single-phase 200V	FRN0001C2S-7□	80(3.15)	70(2.76)	10(0.39)
	FRN0002C2S-7□			
	FRN0004C2S-7□	95(3.74)		25(0.98)
	FRN0006C2S-7□	140(5.51)	90(3.54)	50(1.97)
Single-phase 100V	FRN0001C2S-6U	100(3.94)	90(3.54)	10(0.39)
	FRN0002C2S-6U			
	FRN0003C2S-6U	115(4.53)		25(0.98)

Fig. 2

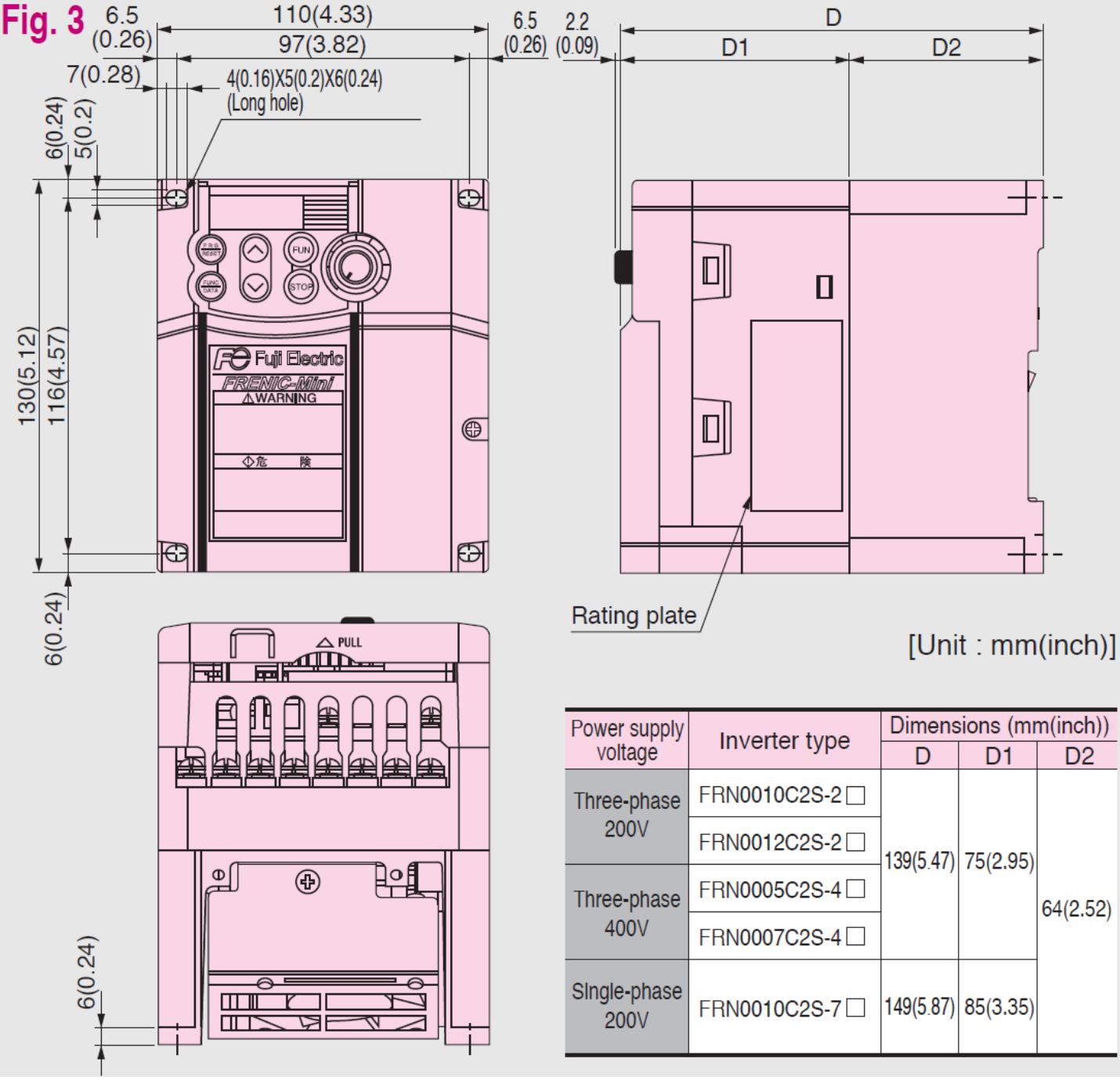




[Unit : mm(inch)]

Power supply voltage	Inverter type	Dimensions (mm(inch))		
		D	D1	D2
Three-phase 400V	FRN0002C2S-4☐	115(4.53)	75(2.95)	40(1.57)
	FRN0004C2S-4☐	139(5.47)		64(2.52)
SIngle-phase 100V	FRN0005C2S-6U	139(5.47)	99(3.9)	40(1.57)

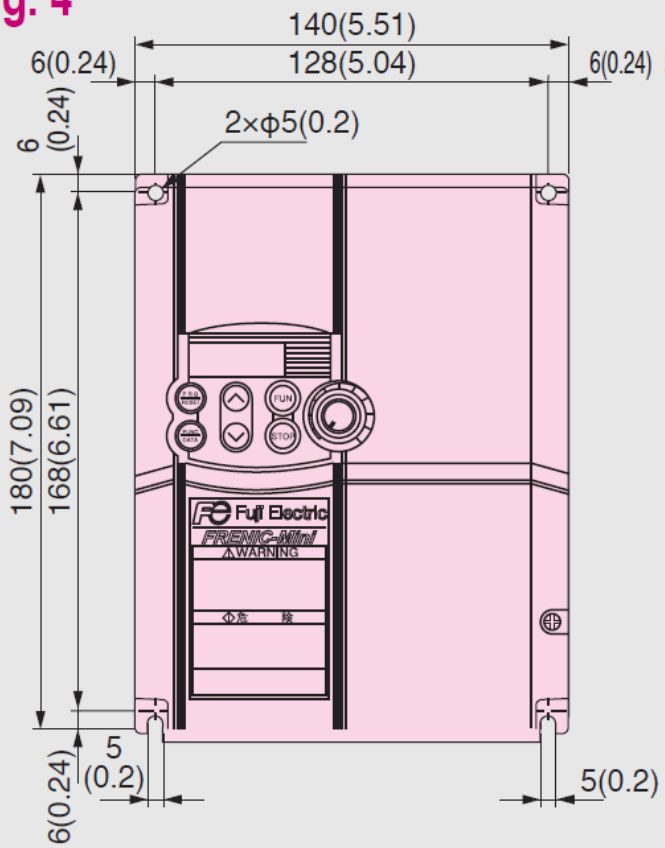
Fig. 3

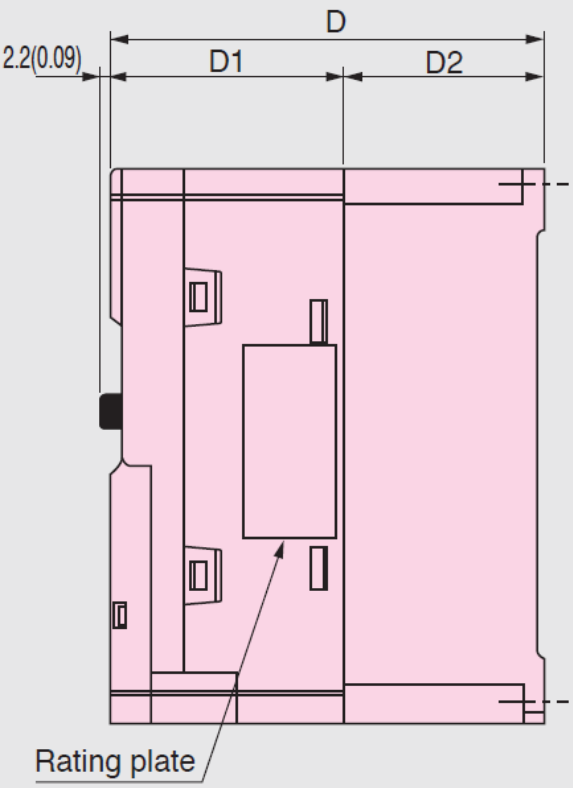


[Unit : mm(inch)]

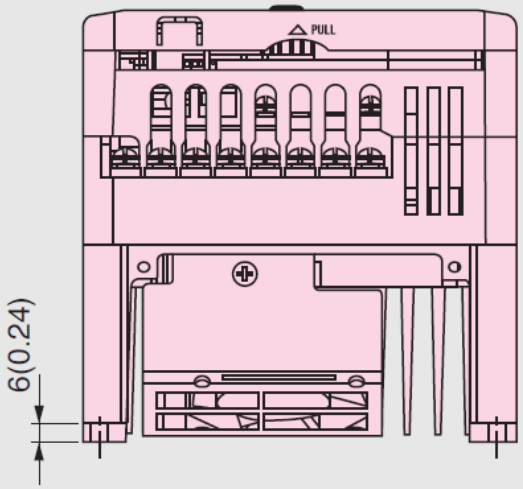
Power supply voltage	Inverter type	Dimensions (mm(inch))		
		D	D1	D2
Three-phase 200V	FRN0010C2S-2☐	139(5.47)	75(2.95)	64(2.52)
	FRN0012C2S-2☐			
Three-phase 400V	FRN0005C2S-4☐			
	FRN0007C2S-4☐			
SIngle-phase 200V	FRN0010C2S-7☐	149(5.87)	85(3.35)	

Fig. 4





[Unit : mm(inch)]



Power supply voltage	Inverter type	Dimensions (mm(inch))		
		D	D1	D2
Three-phase 200V	FRN0020C2S-2□	139(5.47)	75(2.95)	64(2.52)
Three-phase 400V	FRN0011C2S-4□			
Single-phase 200V	FRN0012C2S-7□			

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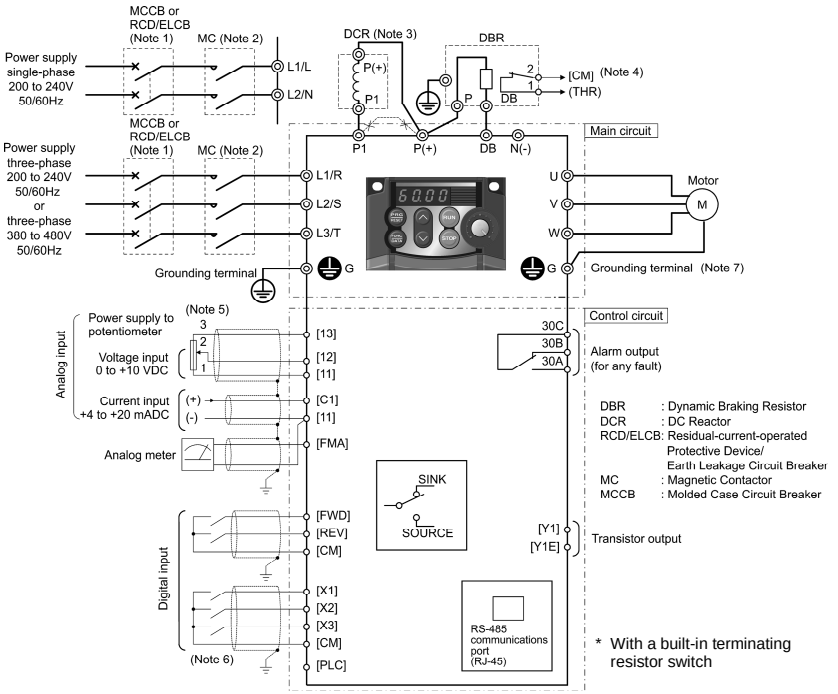
Connection diagram



(Note 1) Install a recommended molded case circuit breaker (MCCB) or a residual-current-operated protective device (RCD)/earth leakage circuit breaker (ELCB) (with overcurrent protection) in the primary circuit of the inverter to protect wiring. Do not use an MCCB or RCD/ELCB whose capacity exceeds the recommended rated current.

(Note 2) A magnetic contactor (MC) should, if necessary, be mounted independent of the MCCB or ELCB to cut off the power fed to the inverter. Refer to page 9-2 for details. MCs or solenoids that will be installed close to the inverter require surge absorbers to be connected in parallel to their coils.

(Note 3) When connecting a DC reactor (option), remove the jumper bar from terminals [P1] and [P+].

(Note 4) The ***THR*** function can be used by assigning "9" (External alarm) to any of terminals [X1] to [X3], [FWD] or [REV] (function code E01 to E03, E98, or E99). For details, refer to Chapter 9.

(Note 5) Frequency can be set by connecting a frequency setting device (external potentiometer) between terminals [11], [12], and [13] instead of inputting voltage signal (0 to +10 VDC or 0 to +5 VDC) between terminals [12] and [11].