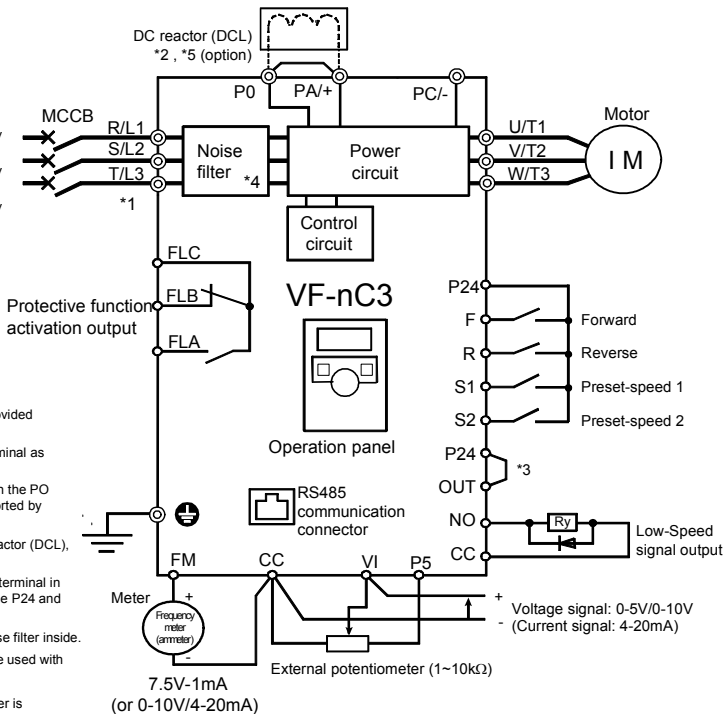
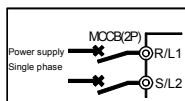


2.2.2 Standard connection diagram 2

Standard connection diagram - SOURCE (Positive) (common:P24)

Main circuit power supply
 1ph-120V class: single-phase 100-120V
 -50/60Hz
 1ph-240V class: single-phase 200-240V
 -50/60Hz
 3ph-240V class: three-phase 200-240V
 -50/60Hz



*1: The T/L3 terminal is not provided for single-phase models.

Use the R/L1 and S/L2 terminal as input terminals.

*2: The inverter is supplied with the PO and the PA+ terminals shorted by means of a shorting bar.

Before installing the DC reactor (DCL), remove the bar.

*3: When using the NO output terminal in source logic mode, short the P24 and OUT terminals.

*4: 1ph-240V models have noise filter inside.

*5: 1ph-120V models cannot be used with DC reactors.

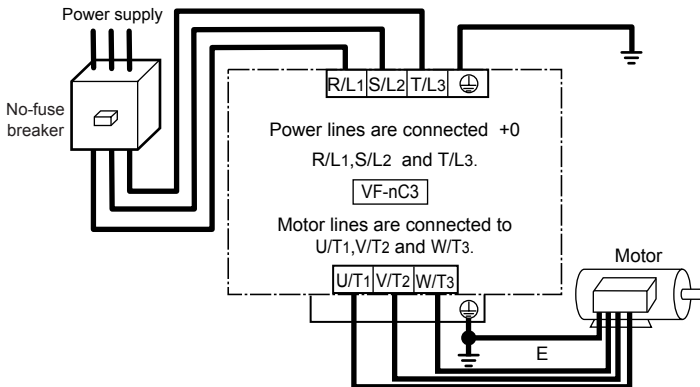
*6: When external potentiometer is connected by using P5 terminal, set the parameter $F103 = 3$.

2.3 Description of terminals

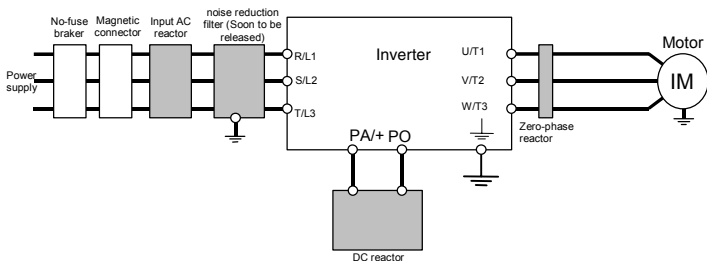
2.3.1 Power circuit terminals

This diagram shows an example of wiring of the main circuit. Use options if necessary.

Power supply and motor connections



Connections with peripheral equipment



Note 1: The T/L3 terminal is not provided for any single-phase models. So if you are using single-phase models, use the R/L1 and S/L2 terminals to connect power cables.

Power circuit

Terminal symbol	Terminal function
	Grounding terminal for connecting inverter. There are 3 terminals in total.
R/L1,S/L2,T/L3	120V class: single-phase 100 to 120V-50/60Hz 240V class: single-phase 200 to 240V-50/60Hz three-phase 200 to 240V-50/60Hz * Single-phase input: R/L1 and S/L2 terminals
U/T1,V/T2,W/T3	Connect to a (three-phase induction) motor.
PC/-	This is a negative potential terminal in the internal DC main circuit. DC common power can be input across the PA terminals (positive potential).
PO, PA+	Terminals for connecting a DC reactor (DCL: optional e11external device). Shorted by a short bar when shipped from the factory. Before installing DCL, remove the short bar. 1-phase 100V models cannot be used with DC reactors.

The arrangement of power circuit terminals are different from each range.

Refer to 1.3.2.1).

2.3.2 Control circuit terminals

The control circuit terminal board is common to all equipment.

Regarding to the function and specification of each terminal, please refer to the following table.

Refer to 1.3.2.3) about the arrangement of control circuit terminals.

Control circuit terminals

Terminal symbol	Input / output	Function	Electrical specifications	Inverter internal circuits
F	Input	Shorting across F-CC causes forward rotation; open causes slow-down and stop. (When ST is always ON) 3 different functions can be assigned.	No voltage contact input 24Vdc-5mA or less *Sink/Source selectable using parameter $F 1 2 7$	
R	Input	Shorting across R-CC causes reverse rotation; open causes slow-down and stop. (When ST is always ON) 3 different functions can be assigned.		
S1	Input	Shorting across S1-CC causes preset speed operation. 2 different functions can be assigned.		
S2	Input	Shorting across S2-CC causes preset speed operation. 2 different functions can be assigned.		

Terminal symbol	Input / output	Function	Electrical specifications	Inverter internal circuits
CC	Common to Input / output	Control circuit's equipotential terminal (2 terminals)		
P5	Output	Analog power supply output	5Vdc (permissible load current: 10mA)	
VI	Input	<p>Multifunction programmable analog input. Factory default setting: 0~10Vdc (1/1000 resolution) and 0~60Hz (0~50Hz) frequency input.</p> <p>The function can be changed to 4~20mA (0~20mA) current input by parameter $F\ 1\ 0\ 9 = 1$ setting and 0~5Vdc (1/1000 resolution) voltage input by parameter $F\ 1\ 0\ 9 = 3$ setting.</p> <p>By changing parameter $F\ 1\ 0\ 9 = 2$ setting, this terminal can also be used as a multifunction programmable contact input terminal. When using the sink logic, be sure to insert a resistor between P24-VIA (4.7 kΩ—1/2 W).</p>	5V/10Vdc (internal impedance: 30kΩ) 4-20mA (internal impedance: 250Ω) Note 1)	
FM	Output	<p>Multifunction programmable analog output. Standard default setting: output frequency.</p> <p>The function can be changed to 0~10Vdc voltage or 0~20mA (4~20mA) current output by parameter $F\ 5\ 8\ 1$ setting.</p>	1mAdc full-scale ammeter 0~10V DC volt meter 0~20mA (4~20mA) DC ammeter Permissible load resistance: 750Ω or less 0~10V DC volt meter	
P24	Output	24Vdc power output	24Vdc-100mA	

Note 1) Be careful, if 4-20 mA is selected, when the inverter's power is ON, the internal impedance is 250 Ω, but when the power is OFF, the internal impedance increases very much to approximately 40 kΩ.

Terminal symbol	Input / output	Function	Electrical specifications	Inverter internal circuits
OUT NO	Output	<p>Multifunction programmable open collector output. Standard default settings detect and output low speed signal. Multifunction output terminals to which two different functions can be assigned. The NO terminal is an isoelectric output terminal. It is insulated from the CC terminal.</p> <p>By changing parameter settings, these terminals can also be used as multifunction programmable pulse train output terminals.</p>	<p>Open collector output 24Vdc-100mA</p> <p>To output pulse trains, a current of 10mA or more needs to be passed.</p> <p>Pulse frequency range: 38~1600Hz</p>	
FLA FLB FLC	Output	<p>Multifunction programmable relay contact output.</p> <p>Detects the operation of the inverter's protection function.</p> <p>Contact across FLA-FLC is closed and FLB-FLC is opened during protection function operation.</p>	<p>250Vac-2A ($\cos\phi=1$) : at resistance load 30Vdc-1A 250Vac-1A ($\cos\phi=0.4$)</p>	

2