



# WorldDrive General Purpose: Quick Start Guide

(Short version)

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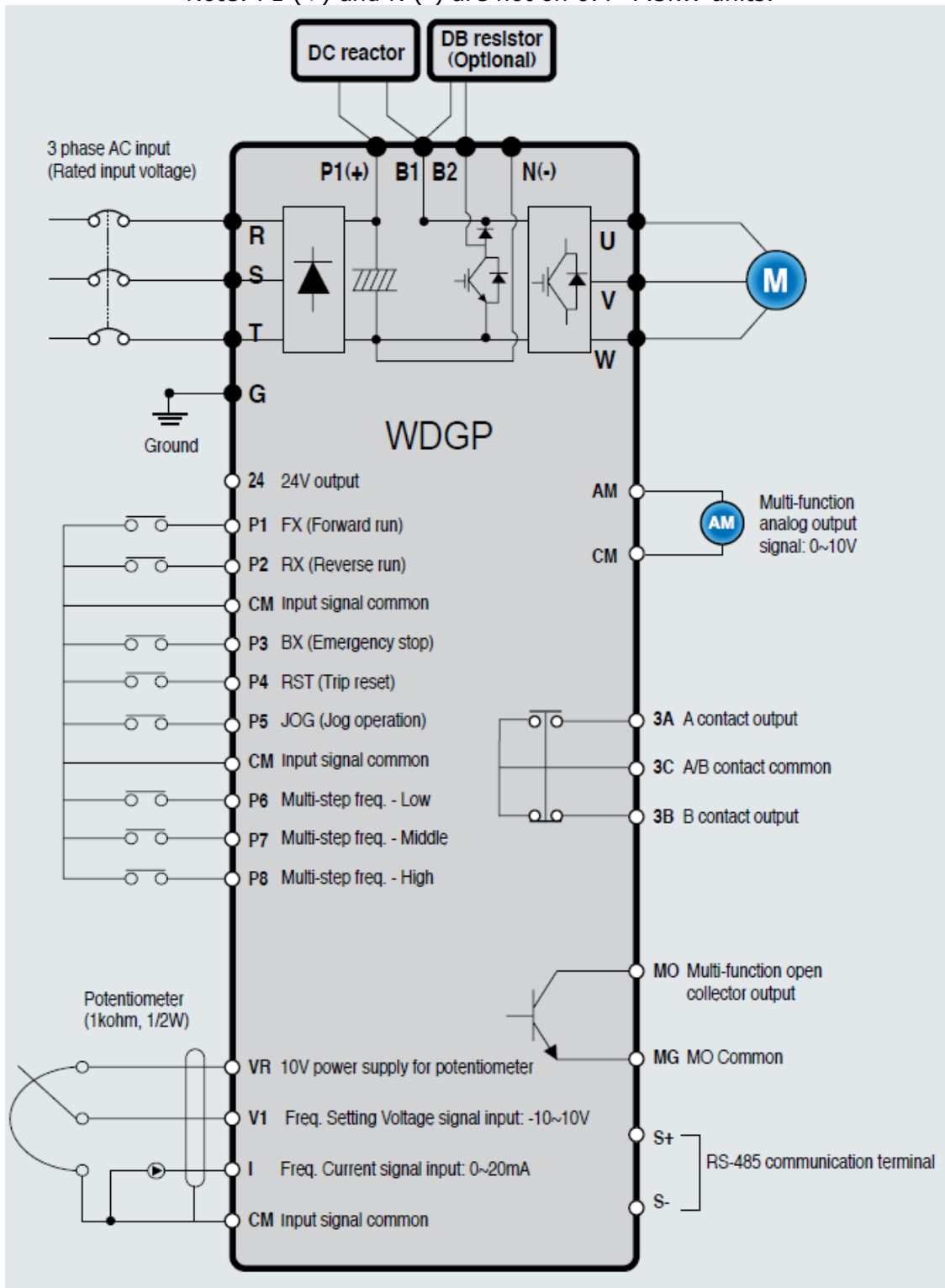
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## Basic Information and Installation

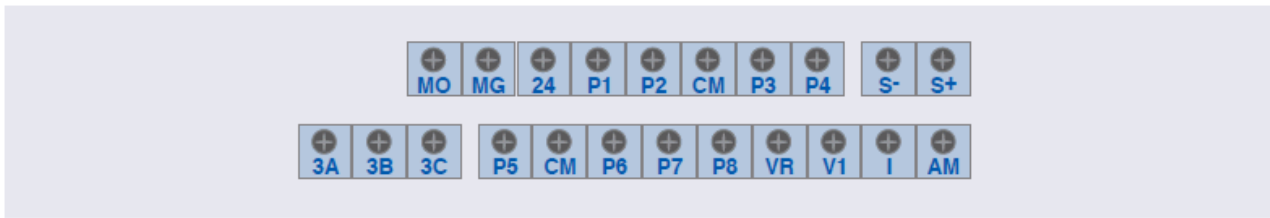
- The VFD may be very hot during operation. Install it on a non-combustible surface.
- Mount the VFD on a flat, vertical and level surface. VFD orientation must be vertical (top up) for proper heat dissipation. Also leave sufficient clearances around the VFD.
- Protect from moisture and direct sunlight.
- Do not install the VFD in any environment where it is exposed to water drops, oil mist, dust, etc. Install the VFD in a clean place or inside a "totally enclosed" panel any suspended matter is not entered.

# Terminal Wiring (Control I/O)

Note: P1 (+) and N (-) are not on 0.4 -7.5kW units.

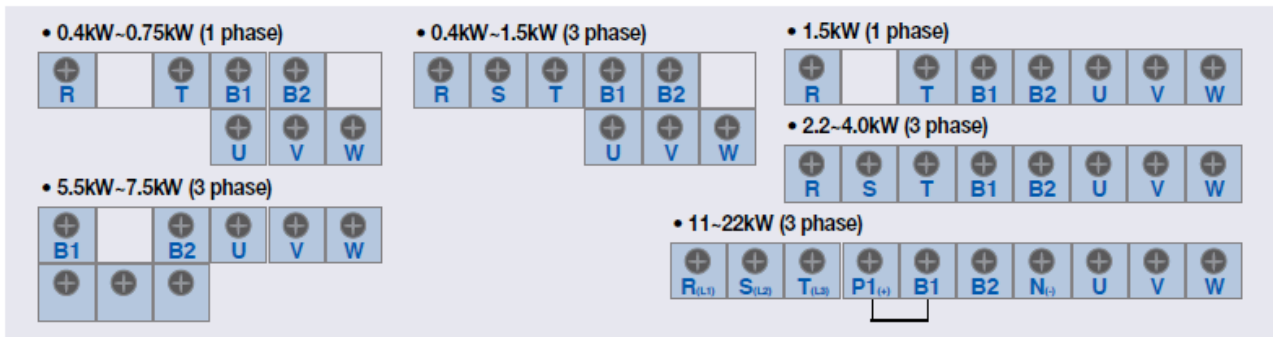


# Control Terminal Specifications

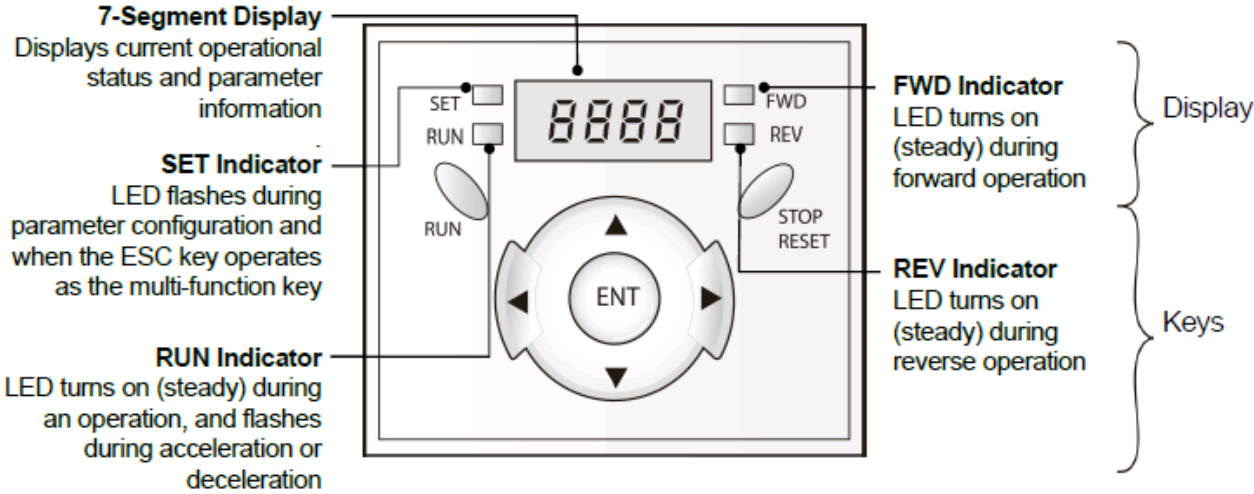







Terminal	Description	Wire size (mm <sup>2</sup> )		Screw size	Torque (Nm) <sup>1)</sup>	Specification
		Single wire	Stranded			
P1~P8	Multi-function input T/M 1-8	1.0	1.5	M2.6	0.4	
CM	Common terminal	1.0	1.5	M2.6	0.4	
VR	Power supply for external potentiometer	1.0	1.5	M2.6	0.4	Output voltage: 12V Max. output current: 100mA Potentiometer: 1~5kohm
V1	Input terminal for voltage operation	1.0	1.5	M2.6	0.4	Max. input voltage: -12V~+12V input
I	Input terminal for current operation	1.0	1.5	M2.6	0.4	0~20mA input Internal resistor: 500ohm
AM	Multi-function analog output terminal	1.0	1.5	M2.6	0.4	Max. output voltage: 11V Max. output current: 100mA
MO	Multi-function terminal for open collector	1.0	1.5	M2.6	0.4	Below DC 26V,100mA
MG	Ground terminal for external power supply	1.0	1.5	M2.6	0.4	
24	24V external power supply	1.0	1.5	M2.6	0.4	Max. output current: 100mA
3A	Multi-function relay output A contact	1.0	1.5	M2.6	0.4	Below AC 250V, 1A
3B	Multi-function relay output B contact	1.0	1.5	M2.6	0.4	Below DC 30V, 1A
3C	Common for multi-function relays	1.0	1.5	M2.6	0.4	

# Specifications for Power Terminal Block Wiring



# Installation and Wiring

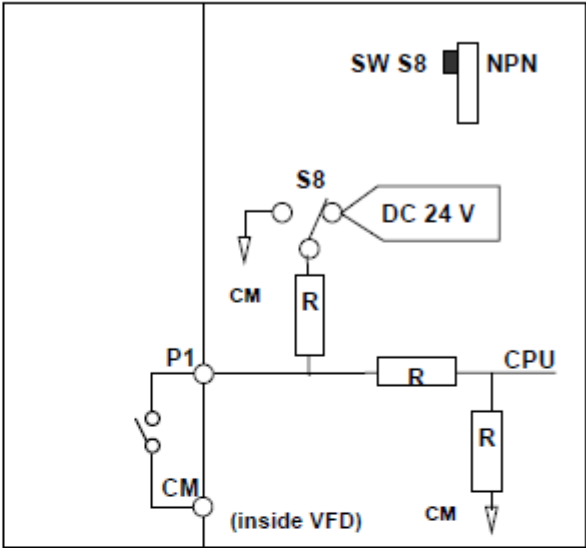
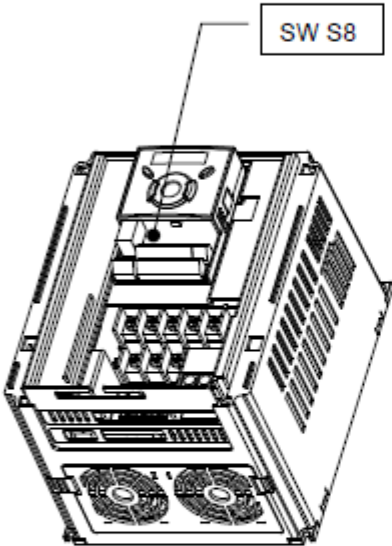


Key	Name	Description
	[RUN] Key	Used to run the VFD (inputs a RUN command).
	[STOP/RESET] Key	STOP: stops the VFD. RESET: resets the inverter following fault or failure condition.
	[▲] Key, [▼] Key	Switch between codes, or to increase or decrease parameter values.
	[◀] Key, [▶] Key	Switch between groups, or to move the cursor during parameter setup or modification.
	[ENT] Key	Used to select, confirm, or save a parameter value.

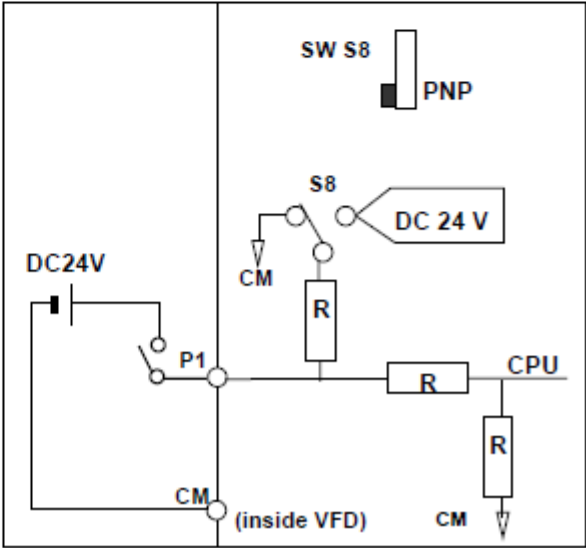
**Warning**  
 Install a separate emergency stop switch in the circuit. The [STOP/RESET] key on the keypad works only when the VFD has been configured to accept an input from the keypad.

# Installation and Wiring (Continued)

## 1. When using DC 24V inside VFD [NPN]



## 2. When using external DC 24V [PNP]



# Keypad & Programming Operations

LED display	Address for communication	Parameter name	Min/Max range	Description	Factory defaults	Adj. during run		
0.00	A100	[Frequency command]	0 ~ 400 [Hz]	This parameter sets the frequency that the drive is commanded to output. During Stop: Frequency Command During Run: Output Frequency During Multi-step operation: Multi-step frequency 0. It cannot be set greater than F21- [Max frequency].	0.00	○		
ACC	A101	[Accel time]	0 ~ 6000 [Sec]	During Multi-Accel/Decel operation, this parameter serves as Accel/Decel time 0.	5.0	○		
dEC	A102	[Decel time]			10.0	○		
drv	A103	[Drive mode]	0 ~ 3	0	Run/Stop via Run/Stop key on the keypad	1	X	
				1	Terminal operation			FX: Motor forward run
								RX: Motor reverse run
								FX: Run/Stop enable
				2	RX: Reverse rotation select			
3	RS485 communication							
4	Set to Field Bus communication <sup>1)</sup>							
Frq	A104	[Frequency setting method]	0 ~ 7	0	Digital	Keypad setting 1	0	X
				1		Keypad setting 2		
				2	Analog	V1 1: -10 ~ +10 [V]		
						V1 2: 0 ~ +10 [V]		
						Terminal I: 0 ~ 20 [mA]		
				5		Terminal V1 setting 1 + Terminal I		
				6		Terminal V1 setting 2+ Terminal I		
				7	RS485 communication			
				8	Digital Volume			
9	Set to Field Bus communication <sup>1)</sup>							
St1	A105	[Multi-Step frequency 1]	0 ~ 400 [Hz]	Sets Multi-Step frequency 1 during Multi-step operation.	10.00	○		
St2	A106	[Multi-Step frequency 2]		Sets Multi-Step frequency 2 during Multi-step operation.	20.00	○		
St3	A107	[Multi-Step frequency 3]		Sets Multi-Step frequency 3 during Multi-step operation.	30.00	○		
CUr	A108	[Output current]		Displays the output current to the motor.	-	-		
rPM	A109	[Motor RPM]		Displays the number of Motor RPM.	-	-		
dCL	A10A	[Drive DC link voltage]		Displays DC link voltage inside the drive.	-	-		
vOL	A10B	[User display select]		This parameter displays the item selected at H73- [Monitoring item select].		vOL	-	
				vOL	Output voltage			
				POr	Output power			
				tOr	Torque			

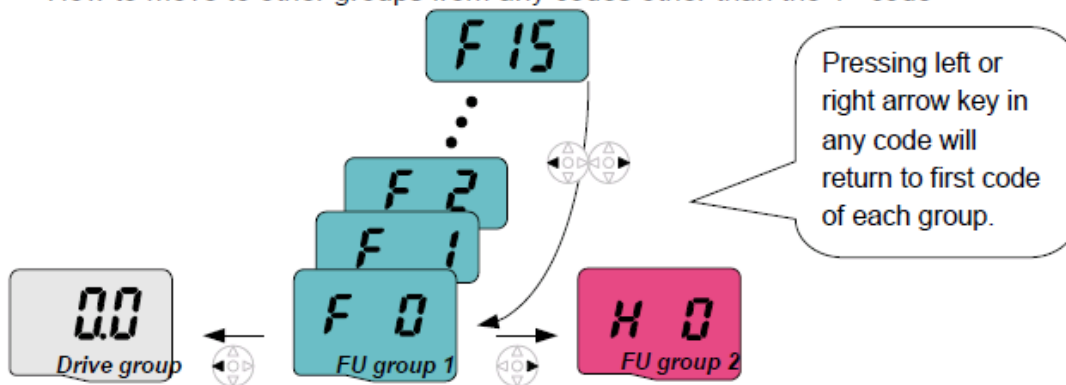
# Keypad & Programming Operations (Continued)

- How to move to other groups at the 1st code of each group

1		- <u>The 1<sup>st</sup> code in Drive group "0.00"</u> will be displayed when AC input power is applied. - Press the right arrow (▶) key once to go to Function group 1.
2		- <u>The 1<sup>st</sup> code in Function group 1 "F 0"</u> will be displayed. - Press the right arrow (▶) key once to go to Function group 2.
3		- <u>The 1<sup>st</sup> code in Function group 2 "H 0"</u> will be displayed. - Press the right arrow (▶) key once to go to I/O group.
4		- <u>The 1<sup>st</sup> code in I/O group "I 0" will be displayed.</u> - Press the right arrow (▶) key once again to return to Drive group.
5		- Return to <u>the 1<sup>st</sup> code in Drive group "0.00"</u> .

♣ If the left arrow key (◀) is used, the above will be executed in the reverse order.

- How to move to other groups from any codes other than the 1<sup>st</sup> code



- To move from the F 15 to function group 2

1		- In F 15, press the Left (◀) or Right arrow (▶) key. Pressing the key goes to the first code of the group.
2		- The 1 <sup>st</sup> code in function group 1 "F 0" is displayed. - Press the right arrow (▶) key.
3		- The 1 <sup>st</sup> code in function group 2 "H 0" will be displayed.



# Keypad & Programming Operations (Continued)

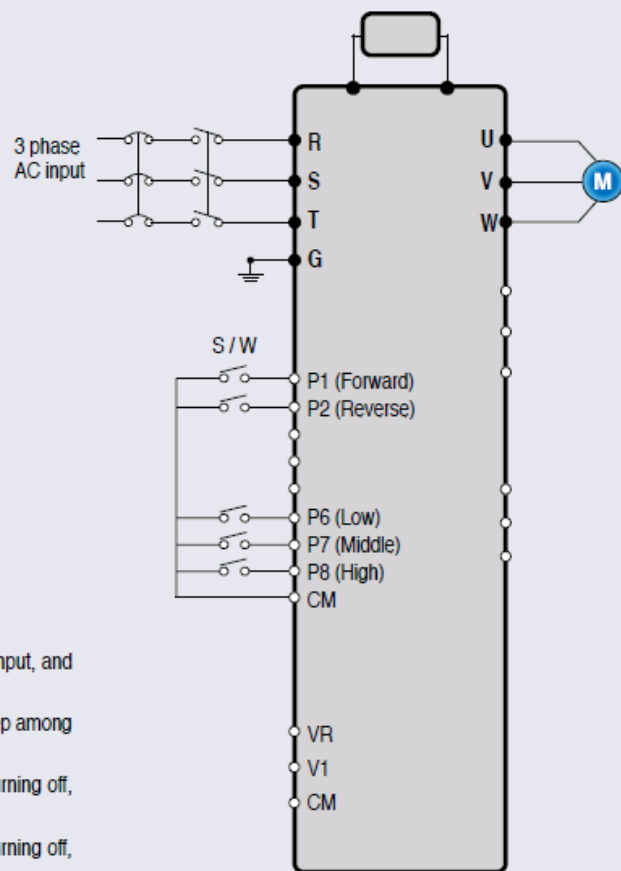
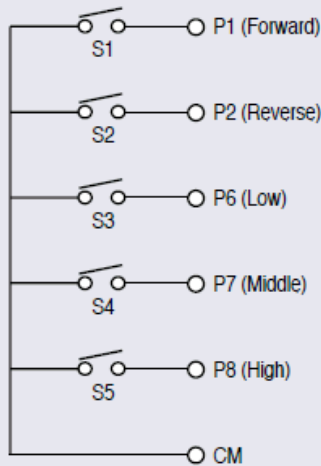
## Operation condition

Operation command:  
Run/Stop via FX/RX

Frequency command:  
Multi-step operation [Low (20), Middle (30), High (80)]

Max. frequency change:  
From 60Hz to 80Hz

## Wiring



1. Please make sure that R, S, T are connected to 3 phase AC input, and U, V, W are also motor connection terminals.
2. After supplying the power, please set the frequency of multi-step among Low, Middle, and High.
3. If P1 (FX) turns on, the motor operates in forward. And after turning off, it stops according to the deceleration time.
4. If P2 (RX) turns on, the motor operates in reverse. And after turning off, it stops according to the deceleration time.

## Parameter setting

Step	Command	Code	Description	Default	After change
1	Max. frequency change (FU1)	F21	Change Max. frequency.	60Hz	80Hz
2	Multi-step frequency (DRV)	st1	Set 'Low' step.	10Hz	20Hz
3	Multi-step frequency (DRV)	st2	Set 'Middle' step.	20Hz	30Hz
4	Multi-step frequency (I/O)	I30	Set 'High' step.	30Hz	80Hz
5	Forward run (P1: FX)	I17	The default is FX. This value may change.	FX	FX
6	Reverse run (P2: RX)	I18	The default is RX. This value may change.	RX	RX

# Keypad & Programming Operations (Continued)

Speed Potentiometer + Run/Stop via FX/RX + Accel/Decel time change.

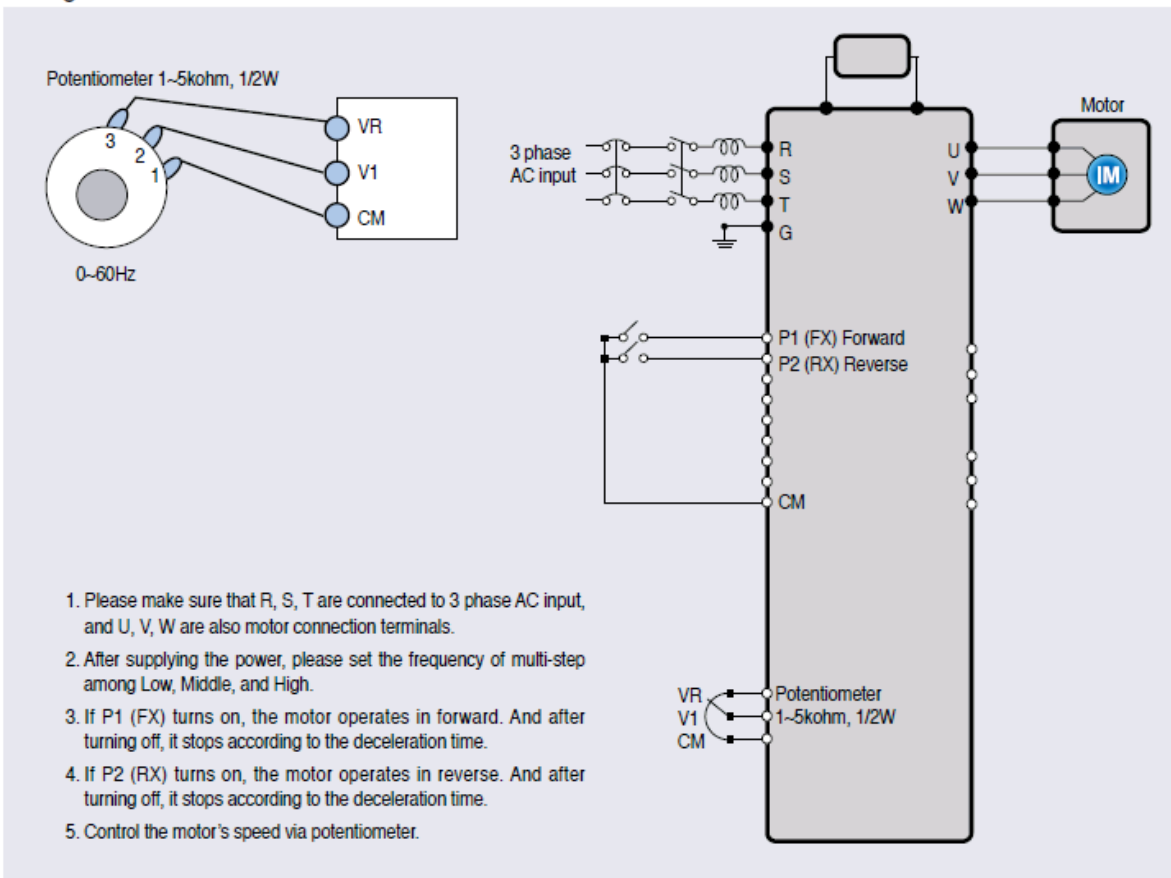
## Operation condition

Operation command:  
Run/Stop via FX/RX

Frequency command:  
0~60Hz analog input via potentiometer

Accel/Decel time:  
Accel-10sec, Decel-20sec

## Wiring



## Parameter setting

Step	Command	Code	Description	Default	After change
1	Operation command (DRV group)	Drv	Turn on/off motor via terminal.	1 (FX/RX-1)	1 (FX/RX-1)
2	Analog input (DRV group)	Frq	Change keypad command to analog voltage command.	0 (Keypad-1)	3 (V1: 0~10V)
3	Accel/Decel time (DRV group)	ACC dEC	Set Accel time to 10sec in ACC Set Decel time to 20sec in dEC.	5sec (Accel) 10sec (Decel)	10sec (Accel) 20sec (Decel)
4	Forward run (P1: FX)	I17	The default is FX. This value may change	FX	FX
5	Reverse run (P2: RX)	I18	The default is RX. This value may change.	RX	RX

# Parameter Read / Write Between Remote Keypad and Drive

Group	Display	Parameter Name	Setting	Range	Default	Unit
Function group 2	H91	[Parameter read]	1	0 ~ 1	0	
	H92	[Parameter write]	1	0 ~ 1	0	

- Used to read/write Inverter Parameters using remote keypad.

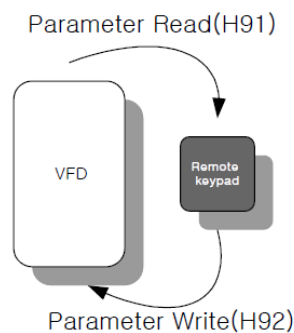
⚠ CAUTION
Take caution when Parameter write (H92) is executed. By doing this, parameters in VFD are cleared and parameters in remote keypad are copied to VFD.

## ▶ Parameter read

Step	Note	Keypad display
1	Move to H91 code.	H91
2	Press Enter (●) key once.	0
3	Press Up (▲) key once.	Rd
4	Press Enter (●) key twice.	rd
5	H91 is displayed when Parameter read is finished.	H91

## ▶ Parameter write

Step	Note	Keypad display
1	Move to H92 code.	H92
2	Press Enter (●) key once.	0
3	Press Up (▲) key once.	Wr
4	Press Enter (●) key twice.	Wr
5	H91 is displayed when Parameter read is finished.	H92



# Common Quick Start Parameters

Group	Code	Description	Default	Value	New
Name		<i>See drive manual for complete configuration capabilities</i>	Value	Range	Value
<b>Drive</b>		<b>Drive Group</b>			
	0.00	Frequency Command: Speed Command Source	0.00	0~400 hz	
	ACC	Accel Time in seconds	5.0	0~6000	
	dEC	Decel Time in seconds	10.0	0~6000	
	drv	Drive mode: Run/Stop Command Source	1	0~3	
	Frq	Frequency Setting Method: 0=Keypad 1; 3=V1 2: 0~+10v; 4=terminal 0~20mA	0	0~7	
<b>F Group</b>		<b>Function Group 1</b>			
	F4	Stop mode select	0	0~3	
	F21	Max frequency	60.00	40~400 hz	
	F22	Base frequency	60.00	30~400 hz	
	F24	Frequency high / low limit select	0	0~1	
	F25	Frequency high limit	60.00	0~400 hz	
	F26	Frequency low limit	0.50	0.1~400 hz	
	F27	Torque boost select in %	0	0~1	
	F57	Overload trip level	180	30~200%	
<b>H Group</b>		<b>Function Group 2</b>	nOn		
	H1	Fault history 1	nOn		
	H2	Fault history 2	nOn		
	H3	Fault history 3	nOn		
	H4	Fault history 4	nOn		
	H5	Fault history 5	nOn		
	H6	Reset fault history	0	0~1	
	H19	Input/output phase loss protection select	0	0~3	
	H26	Number of Auto Restart try	0	0~10	
	H27	Auto Restart time in seconds	1.0	0~60	
	H30	Motor type select in kW	7.5	0.2~22.0	
	H31	Number of motor poles	4	2~12	
	H33	Motor rated current in Amps	26.3	0.5~150	
	H34	No Load Motor Current in Amps	11	0.1~50	
	H39	Carrier Frequency Select in kHz	3	1~15	
	H40	Control mode select: 0 = V/F; 1=Slip Comp; 3=Sensorless vector	0	0~3	
	H41	Auto tuning: 0 = off and 1 = enable	0	0~1	
	H77	Cooling fan control: 1 = fan off if VFD not running	0	0~1	
	H91	Parameter read: 1 = initiate read	0	0~1	
	H92	Parameter write: 1 = initiate write: VFD'S must be same firmware Rev	0	0~1	
	H93	Parameter initialize: 1 = factory default: VFD'S must be same firmware Rev	0	0~5	
<b>I Group</b>		<b>Input / Output Group</b>			
	I25	Input terminal status display: troubleshoot input status			
	I26	Output terminal status display: troubleshoot output status			
	I50	Analog output item select: 0=out Freq; 1=out Amp; 2=out volt; 3=DC Bus	0		
	I55	Multi-function relay select: 12 = During Run	17	0~19	

\* Note: **Shaded** areas above denote commonly programmed parameters.

# Fault Codes and Common Remedies

<b>Fault Code</b>	<b>Description</b>	<b>Remedy</b>
OcT	Overcurrent	Increase Accel time; check mechanical; use larger VFD
GfT	Ground fault current	Disconnect VFD: Megger tests motor & motor cables
IOL	VFD overload	Lower F28 or F29 torque boost; larger VFD & motor capacity
OLt	Overload trip	Lower F28 or F29 torque boost; larger VFD & motor capacity
OHT	Heat sink overheat	Check or replace fan; clean filters; lower ambient temp
POt	Output Phase loss	Check output wiring, contactors or disconnects
FAn	Cooling fan fault	Check or replace fan; clean filters
Out	Over voltage	Increase Decel time; check line voltage; use dynamic brake
Lut	Low voltage	Check line voltage; Adjust line capacity to meet load
EtH	Electronic thermal	Reduce load, assure VFD size to load, adjust ETH level
EtA	External Fault A contact	Reset & eliminate cause of fault on that input contact
EtB	External Fault B contact	Reset & eliminate cause of fault on that input contact
_ _L	Frequency command lost	Check wiring of V1 and I & frequency reference level
rErr	Remote keypad comm error	Check connection of communication line & connector
EEP	Parameter save error	Power down retry - if error remains replace hardware
HWt	Hardware fault	Power down retry - if error remains replace hardware
Err	Communication error	Reset, check hardware & configuration elements
COM	Keypad error	Power down retry - if error remains replace hardware

## Alpha-Numeric View on the LCD Keypad

<i>0</i>	0	<i>R</i>	A	<i>K</i>	K	<i>U</i>	U
<i>1</i>	1	<i>b</i>	B	<i>L</i>	L	<i>v</i>	V
<i>2</i>	2	<i>c</i>	C	<i>m</i>	M	<i>"</i>	W
<i>3</i>	3	<i>d</i>	D	<i>n</i>	N	<i>4</i>	X
<i>4</i>	4	<i>E</i>	E	<i>O</i>	O	<i>Y</i>	Y
<i>5</i>	5	<i>F</i>	F	<i>P</i>	P	<i>z</i>	Z
<i>6</i>	6	<i>G</i>	G	<i>Q</i>	Q		
<i>7</i>	7	<i>H</i>	H	<i>r</i>	R		
<i>8</i>	8	<i>I</i>	I	<i>S</i>	S		
<i>9</i>	9	<i>J</i>	J	<i>t</i>	T		

