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WORLDDRIVE WDGP

Quick Start Guide

This Quick Start Guide is intended to allow a user to become quickly familiar with the basic operations of the WorldDrive GP (WDGP).

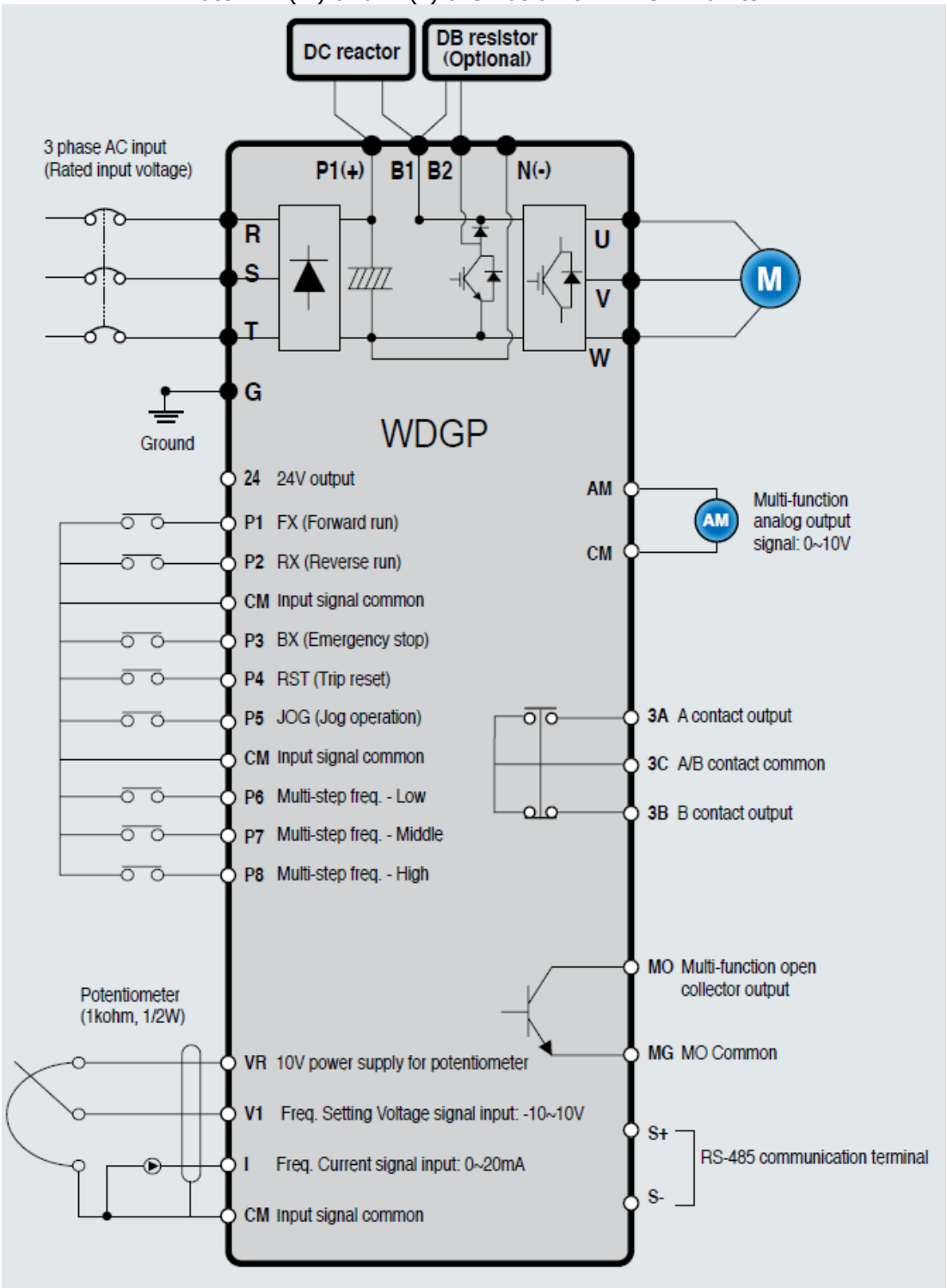
For all other configurations, please refer to the specific setup and configuration instructions available on the WorldWide Electric website: **wwec.co/WDGP**

Safety Information

- **NOTE:** This Quick Start Guide is intended for users with basic knowledge of electricity and electric devices. If you are unfamiliar with the installation and operation of Variable Frequency Drives or are unsure about any procedure, please contact qualified personnel for installation assistance.
- Do not open the cover of the Variable Frequency Drive (VFD) while it is on or energized. Do not operate the VFD while the cover is open. Exposure of high voltage terminals or charging area to the external environment may result in an electric shock. Do not remove any covers or touch the internal circuit boards (PCBs) or electrical contacts on the product when the power is on or during operation. Doing so may result in serious injury, death, or serious property damage.
- Do not open the cover of the VFD even when the power supply to the VFD has been turned off unless it is necessary for maintenance or regular inspection. Opening the cover may result in an electric shock even when the power supply is off.
- The equipment may hold charge long after the power supply has been turned off. Use a multimeter to make sure that there is no voltage before working on the VFD, motor or motor cable.
- This equipment must be grounded for safe and proper operation.
- Do not supply power to a faulty VFD. If you find that the VFD is faulty, disconnect the power supply and have the VFD repaired or replaced.
- The VFD becomes hot during operation. Avoid touching the VFD until it has cooled to avoid burns.
- Do not allow foreign objects, such as screws, metal chips, debris, water, or oil to get inside the VFD. Allowing foreign objects inside the VFD may cause the VFD to malfunction or result in a fire.
- Do not operate the VFD with wet hands. Doing so may result in electric shock.

Power and Control Input and Output Wiring Diagram

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



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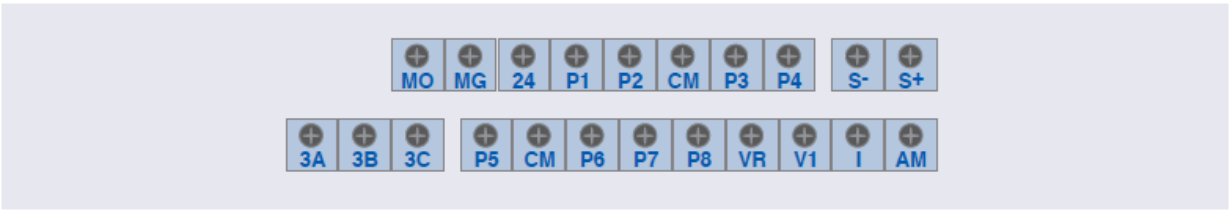
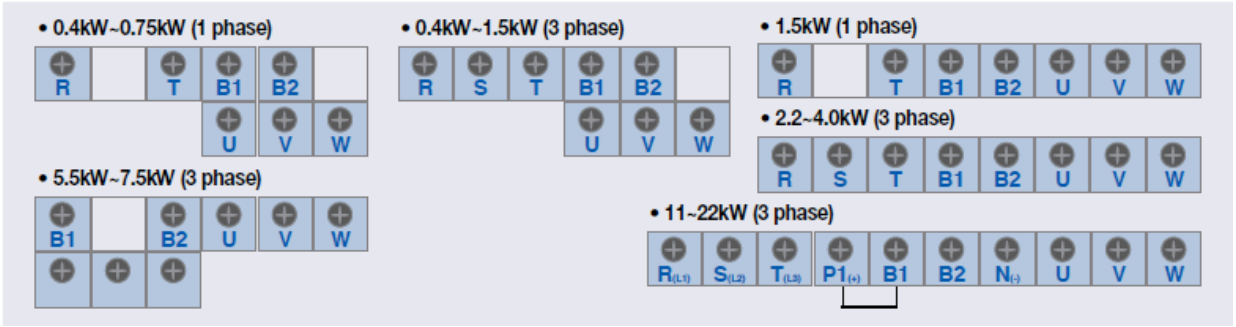
Control Terminal Specifications

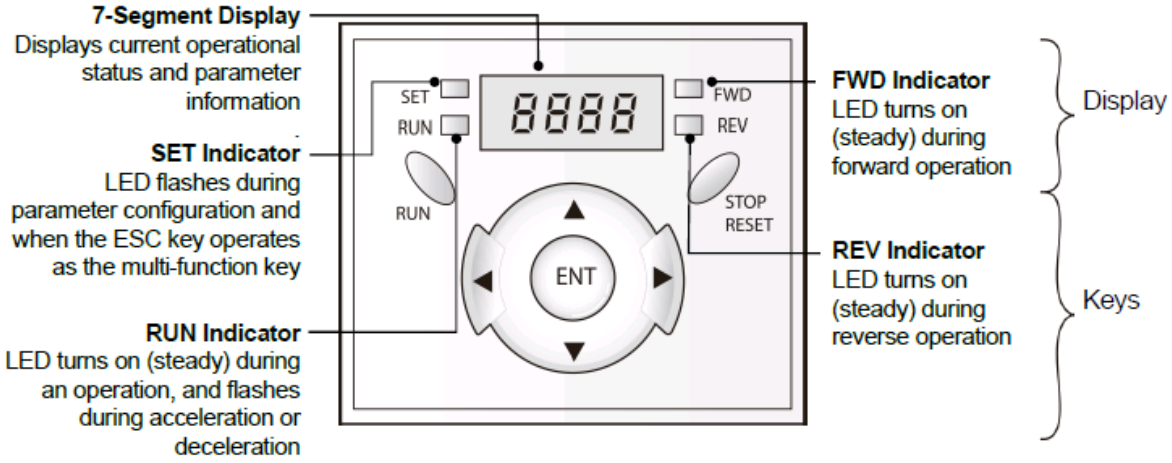


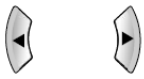
Terminal	Description	Wire size (mm²)		Screw size	Torque (Nm)	Specification
		Single wire	Stranded			
P1~P8	Multi-function input T/M 1-8	1.0	1.5	M2.6	0.4	
CM	Common terminal	1.0	1.5	M2.6	0.4	
VR	Power supply for external potentiometer	1.0	1.5	M2.6	0.4	Output voltage: 12V Max. output current: 100mA Potentiometer: 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	

Power Terminal Block Configurations



Keypad Functions



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.

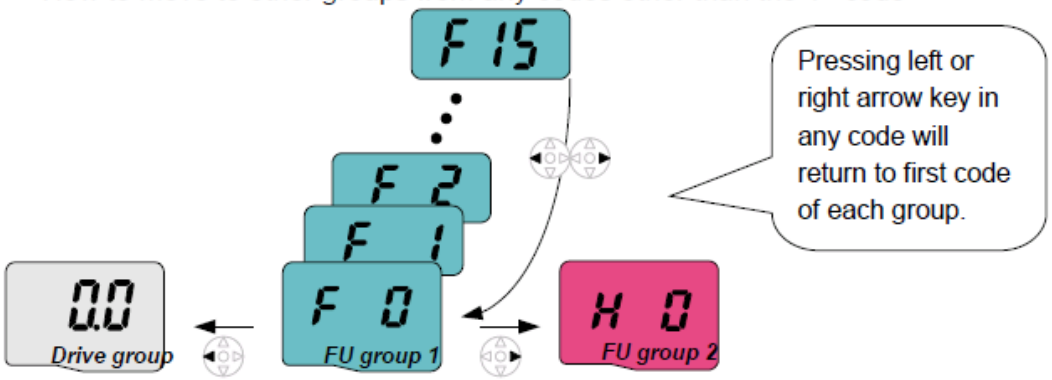
LED display	Address for communication	Parameter name	Min/Max range	Description	Factory defaults	Adj. during run
0.00	A100	[Frequency command]	0 ~ 400 [Hz]	This parameter sets the frequency that the drive is commanded to output. During Stop: Frequency Command During Run: Output Frequency During Multi-step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

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

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

♣ 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 1st code



- To move from the F 15 to function group 2

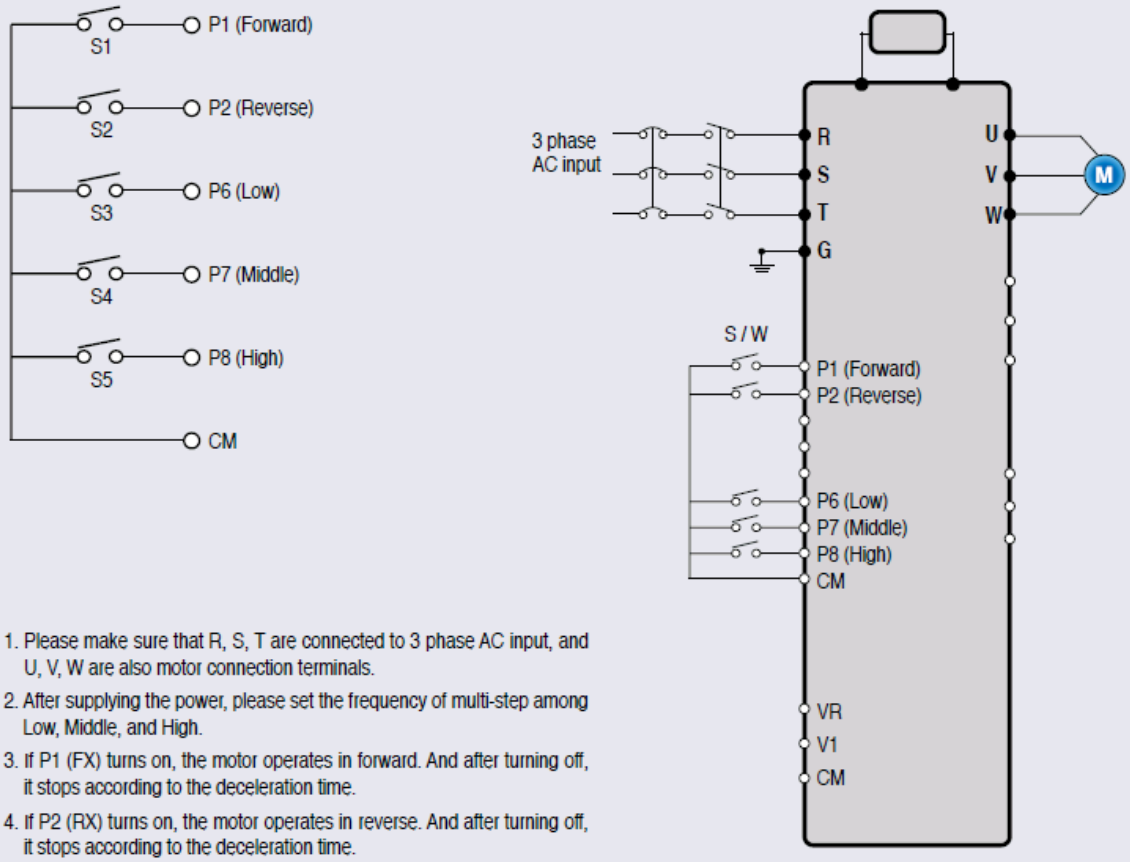
1	F 15	-. In F 15, press the Left (◀) or Right arrow (▶) key. Pressing the key goes to the first code of the group.
2	F 0	-. The 1st code in function group 1 "F 0" is displayed. -. Press the right arrow (▶) key.
3	H 0	-. The 1st code in function group 2 "H 0" will be displayed.

Keypad & Programming Operations (continued)

Operation condition

Operation command:	Frequency command:	Max. frequency change:
Run/Stop via FX/RX	Multi-step operation [Low (20), Middle (30), High (80)]	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

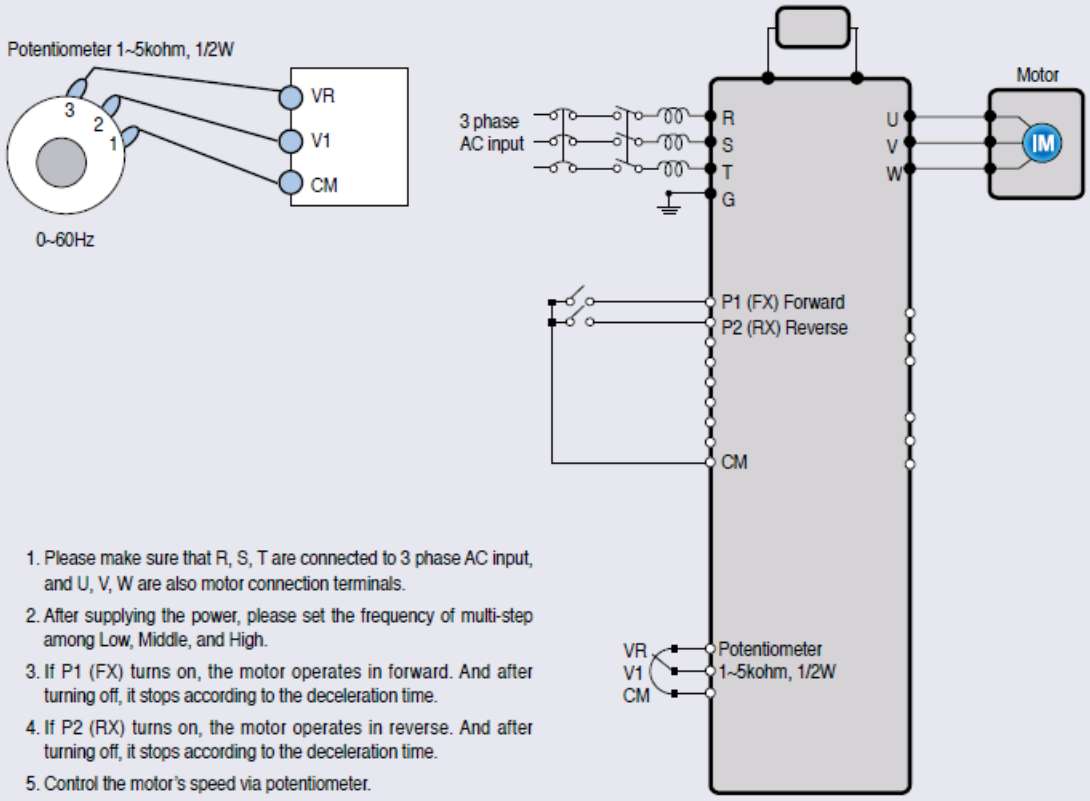
Step	Command	Code	Description	Default	After change
1	**Max. frequency change (FU1)**	**F21**	Change Max. frequency.	60Hz	80Hz
2	**Multi-step frequency (DRV)**	**st1**	Set 'Low' step.	10Hz	20Hz
3	**Multi-step frequency (DRV)**	**st2**	Set 'Middle' step.	20Hz	30Hz
4	**Multi-step frequency (I/O)**	**I30**	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

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

Operation condition

Operation command:	Frequency command:	Accel/Decel time:
Run/Stop via FX/RX	0~60Hz analog input via potentiometer	Accel-10sec, Decel-20sec

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.
5. Control the motor's speed via potentiometer.

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.

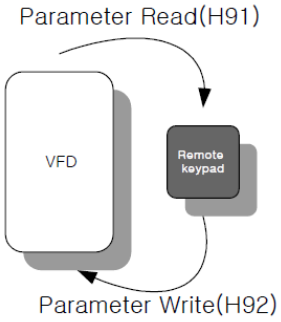
⚠ CAUTION
Take caution when Parameter write (H92) is executed. By doing this, parameters in VFD are cleared and parameters in remote keypad are copied to VFD.

- 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



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Common Parameters

Group Name	Code	Description See WDGP drive manual for complete configuration capabilities	Default Value	Value Range	New Value
Drive		**Drive Group**			
	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	
	dru	Drive mode: Run/Stop Command Source **0** = keypad; **1** = terminal; **3** = 485	1	0~3	
	Frq	Frequency Setting: **0** = Keypad 1; **3** = V1 0-10vDC; **4** = I Current 4-20mA	0	0~7	
	DrC	Direction control: F = Forward; r = reverse	F	F-r	
F Group		**Function Group 1**			
	F4	Stop mode select: **0** = Decel; **1** = DC Brake; **2** = Coast	0	0~3	
	F21	Max frequency	60.00	40~400 Hz	
	F22	Base frequency - set to motor Hz nameplate value - typically 60 Hz	60.00	30~400 Hz	
	F24	Frequency high / low limit select - **0** = disabled; **1** = enables F25 & F26	0	0~1	
	F25	Frequency high limit - set to desired Hz value after F24 = **1**	60.00	0~400 Hz	
	F26	Frequency low limit - set to desired Hz value after F24 = **1**	0.50	0.1~400 Hz	
	F27	Torque boost select: **0** = Manual TQ Boost ; **1** = Auto TQ Boost	0	0~1	
	F57	Overload trip level in % of H33 Motor rated current	180	30~200%	
	F60	Stall prevention level (activates foldback to prevent stall)	150	30~200%	
H Group		**Function Group 2**	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** = No ; **1** = Yes	0	0~1	
	H19	Input/output phase loss protection **0** = None; **1** = Output; **2** = Input; **3** =Both	0	0~3	
	H20	Power On Run - **0** = No ; **1** = Yes (CAUTION - Potential Safety Hazard)	0	0~1	
	H26	Number of Auto Restart attempts	0	0~10	
	H27	Sets the time between restart attempts in seconds	1.0	0~60	
	H30	Motor size in horsepower (HP)		0.5~30.0	
	H31	Number of motor poles: **2** = 3600 rpm; **4** = 1800 rpm; **6** = 1200 rpm; **8** = 900 rpm	4	2~12	
	H33	Motor rated current in Amps - set to motor Full Load Amps		0.5~150	
	H34	No Load Motor Current Amps - set to 25% of motor FLA		0.1~50	
	H39	Carrier Frequency Select in kHz (above 7 kHz oversize the VFD)	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: **0** = Always On; **1** = fan off if VFD not running	0	0~1	
	H91	Parameter read: **0** = None ; **1** = initiate read	0	0~1	
	H92	Parameter write: **1** = initiate write: VFDs must be same firmware Rev	0	0~1	
	H93	Parameter initialize: **1** = factory default: VFDs must be same firmware Rev	0	0~5	
I Group		**Input / Output Group**			
	I17	P1 Define: **0** = FWD; **1** = REV; **2** = E-STOP; **3** = RESET; **4** = JOG; **17** = 3-Wire	0	0~27	
	I18	P2 Define	1	0~27	
	I19	P3 Define	2	0~27	
	I20	P4 Define	3	0~27	
	I21	P5 Define	4	0~27	
	I22	P6 Define: Speed L (default)	5	0~27	
	I23	P7 Define: Speed M (default)	6	0~27	
	I24	P8 Define: Speed H (default)	7	0~27	
	I25	Input terminal status segments: troubleshoot inputs: Down = **Off** ; Up = **On**			
	I26	Output terminal status segments: troubleshoot outputs: Down = **Off** ; Up = **On**			
	I50	Analog output item select: **0** = out Freq; **1** = out Amp; **2** = out volt; **3** = DC Bus	0	0~3	
	I54	Open Collector MO Output: **0** = FDT1: **5** = Overload; **12** = Run; **17** = Fault	12	0~19	
	I55	Relay 3 Output: **0** = FDT1; **5** = Overload; **6** = Inverter Overload Fault; **7** = Motor Stall; **8** = Overvoltage; **9** = Low voltage; **12** = Run; **17** = Fault	17	0~19	
	I56	Fault relay tied to **H26** Auto Restart operations: see manual for BIT selections	2	0~7	

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

Fault Codes and Common Remedies

Fault Code	Description	Remedy
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