YD101

Yolico

Power Alarm   380V 3ph   2.2kW

RC
RA
COM
D1
D2
D3
D4
D5
D6
COM
10V
AO
GND
AVI
ACI
A
B
SG

Hz/RPM   FWD   REV   FUN

RUN   MODE

STOP/RESET   ENT

WARNING Burn Risk on Hot Surface

L1
L2
L3
P
BR
U
V
W

YD101

Yolico

User's Manual
Sensorless Frequency Converter
Model : YD101-☐☐☐☐

1Ø 200V 0.4~3.7kW
3Ø 400V 0.4~22kW

Yolico

YOLICO ELECTRIL CO., LTD.

Email: overseas@yolico.com
http://www.yolico.com

Publication 1001A30-01R1.09-2013

Content

Safety Instruction

Instruction Manual

Read this instruction manual first before using the Frequency Converter (AC Drive, VFD, Inverter, Frequency Inverter).

The following symbols may appear in this manual, always read these before continuing.

⚡ WARNING
FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY OR DEATH TO THE USER, PROPERTY DAMAGE, OR ECONOMIC LOSS.

⚠ CAUTION
FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN MALFUNCTION OR VFD DAMAGE.

♨ Heat Warning
BE AWARE OF SPECIFIC PARTS ON THE VFD HAVING HIGH TEMPERATURE MAY RESULT IN INJURY.

Handing the VFD

⚡ WARNING
• INSTALLATION, COMMISSIONING, DEMOUNTING, TAKING MEASUREMENTS, ETC, OF OR ON THE VFD MAY ONLY BE CARRIED OUT BY PERSONNEL TECHNICALLY QUALIFIED FOR THE TASK.   • THE INSTALLATION MUST BE CARRIED OUT IN ACCORDANCE WITH LOCAL STANDARDS.

ESD Protection

⚡ CAUTION
PCB BOARDS IN VFD WITH CMOS COMPONENTS, OBSERVE PRECAUTION FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

Opening the VFD

⚡ **WARNING**

- ALWAYS SWITCH OFF THE MAIN POWER BEFORE OPENING THE VFD AND WAIT AT LEAST 10 MINUTES TO ALLOW THE BUFFER CAPACITOR TO DISCHARGE.
- ALWAYS TAKE ADEQUATE PRECAUTIONS BEFORE OPENING THE VFD. ALTHOUGH THE CONNECTIONS FOR THE CONTROL SIGNALS AND THE SWITCHES ARE ISOLATED FROM THE MAIN VOLTAGE, DO NOT TOUCH THE CONTROL BOARD OR MAKE A WIRING WHEN THE VFD IS SWITCHED ON.

Precautions to be taken with a connected Motor

⚡ **WARNING**

If work must be carried out on a connected Motor or on the Driven Machine, some Actions must be taken below:

- THE MAINS VOLTAGE MUST ALWAYS BE DISCONNECTED FROM THE VFD FIRST. WAIT AT LEAST 10 MINUTES BEFORE STARTING WORK.
- A SEPARATE EMERGENCY STOP SWITCH IS REQUIRED, THE STOP KEY ON DIGITAL OPERATOR IS VALID ONLY WHEN ITS FUNCTION IS SET TO ENABLE.

Earth and Grounding

⚡ **WARNING**

THE VFD MUST ALWAYS BE EARTHED VIA THE MAINS SAFETY EARTH/ GROUND CONNECTION. THE GROUNDING RESISTANCE MUST BE 10Ω OR LESS OR COMPLY WITH NATIONAL/ LOCAL SAFETY REGULATION.

Earth Leakage Current

Mains Voltage Selection

Voltage Test (Megger)

S
1
2
3
4
5
6
7
A

Condensation

> ⚠ **CAUTION**
>
> IF THE VFD IS MOVED FROM A COLD (STORAGE) ROOM TO A ROOM WHERE IT WILL BE INSTALLED, CONDENSATION CAN OCCUR. THIS CAN RESULT IN SENSITIVE COMPONENTS BECOMING DAMP. DO NOT CONNECT THE MAINS VOLTAGE UNTIL ALL VISIBLE DAMPNESS HAS EVAPORATED

Incorrect Connection

> ⚠ **CAUTION**
>
> THE VFD IS NOT PROTECTED AGAINST INCORRECT CONECTION OF THE MAINS VOLTAGE, AND IN PARTICULAR AGAINST CONNECTION OF THE MAINS VOLTAGE TO THE MOTOR LEADS U, V AND W. THE VFD CAN BE DAMAGED IN THIS WAY.

Power Factor Capacitors for improve COSØ

> ⚠ **CAUTION**
>
> REMOVE ANY POWER FACTOR IMPROVING CAPACITORS FROM THE VFD OUTPUT SIDE, MOTOR AND THE MOTOR LEADS.

Precautions during Autoreset and Autorestart

> ⚡ **WARNING**
>
> WHEN THE AUTOMATIC RESET IS ACTIVE, THE MOTOR WILL RESTART AUTOMATICALLY PROVIDED THAT THE CAUSE OF THE TRIP HAS BEEN REMOVED. IF NECESSARY TAKE THE APPROPRIATE PRECAUTIONS.

Electromagnetic Contactor

⚠ CAUTION
REMOVE ANY ELECTROMAGNETIC CONTACTOR BETWEEN THE VFD OUTPUT SIDE AND MOTOR.

DC-Link Residual Voltage

⚡ WARNING
AFTER SWITCH OFF THE MAINS SUPPLY, DANGEROUS VOLTAGE CAN STILL BE PRESENT IN THE VFD. WHEN OPENING THE VFD FOR INSTALLING AND/OR COMMISSIONING ACTIVITIES WAIT AT LEAST 10 MINUTES. IN CASE OF MALFUNCTION A QUALIFIED TECHNICIAN SHOULD CHECK THE DC-LINK OR WAIT FOR HALF HOUR BEFORE DISMANTLING THE VFD FOR REPAIR.

Motor Overload Protection

⚠ CAUTION
TO PROTECT MOTOR IN OVERLOAD SITUATION, SET THE MOTOR OL PROTECTION FUNCTION OF VFD TO ENABLE.

Transport

⚠ CAUTION
TO AVOID DAMAGE, KEEP THE VFD IN ITS ORIGINAL PACKAGING DURING TRANSPORT. THIS PACKAGING IS SPECIALLY DESIGNED TO ABSORB SHOCKS DURING TRANSPORT.

Hot Surface

♨ Heat Warning
BE AWARE OF HEAT FINS OR SOME SPECIFIC PARTS ON THE VFD HAVING HIGH TEMPERATURE MAY RESULT IN INJURY.

1. Introduction

Overview

The Purpose of this Manual is to provide you with the Basic Information Needed to Installation, Start-up, Program and Troubleshoot the YD101 Frequency Converter. In the Course of using, in case of Any Problems not covered by this Manual, please contact Local Yolico Representatives or Engineering Technical Personnel from our Company. Our Professional Staff is glad to Serve you. Please continue to use this Product.

1.1 Nameplate Information

Model Code and applicable Motor Rating

Power Supply Rating

Output Rating

LOT and Serial Number

Yolico WUXI YOLICO ELECTRIC CO.,LTD.

MODEL	:	YD101-00P7-T4
MOTOR RATING	:	1.0HP/0.75kW
INPUT	:	AC 3 phases 50/60Hz
VOLTAGE	:	380-480V (±10%,)
OUTPUT	:	AC 3 phases 0-650Hz
VOLTAGE	:	0-480V
CURRENT	:	2.3A
LOT. NO.	:	69D06008
SER. NO.	:	

CE

No.9,LianHe Road,HuDai Industrial Park,BinHu Borough,Wuxi,China

1.2 Mode Code Configulation

YD101   **00P7**   **T4**   □

YD: Yolico VFD

101: Type（General Purpose）

Motor Rating (kW)
00P4 = 0. 4kW
00P7 = 0.75kW
01P5 = 1.5kW

⟩

0015 = 15kW
18P5 =18.5kW
0022 = 22kW

Power Supply Voltage
T2S:1Ø 200V
T2：1Ø/3Ø 200V
T4：3Ø 400V

Version
(Appearance/ Hardware/ Parameter/ Firmware/ Customize)
Blank: Standard
A1: Version A1
B2: Version B2
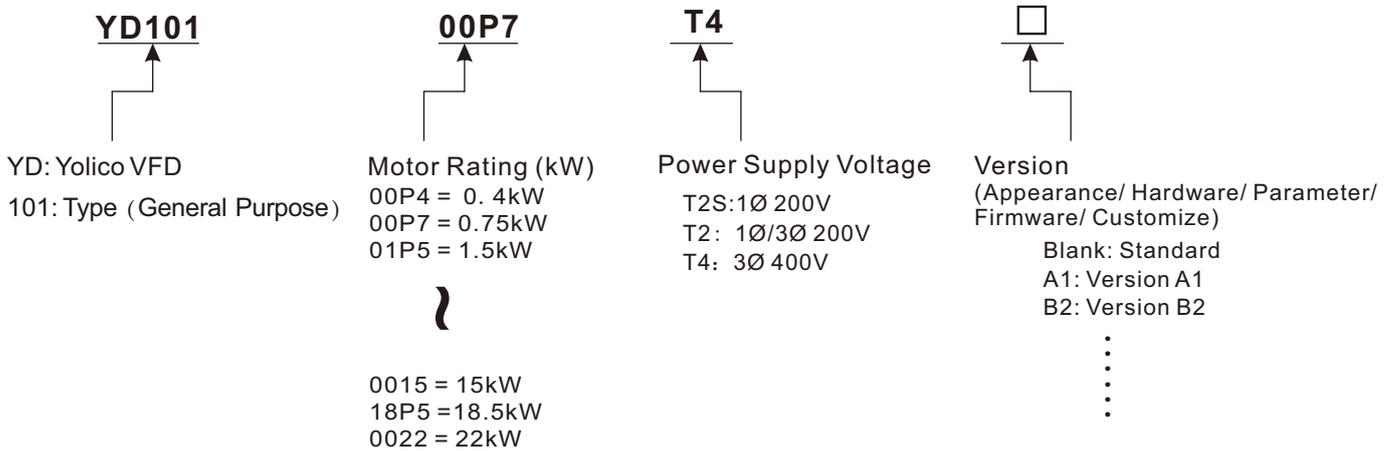
Model List (200V)

Mode Code	Output Rating			Dimension (mm) H × W × D	Frame Size
	Motor (kW)	VA (kVA)	Current (A)		
YD101-00P4-T2S	0.4	1.2	3.1	160×79(90)×126	A(A1)
YD101-00P7-T2S	0.75	1.7	4.5		
YD101-01P5-T2S	1.5	2.9	7.5		
YD101-02P2-T2	2.2	4.0	10.5	210×100×160	B
YD101-03P7-T2	3.7	6.7	17.5		

Model List (400V)

Mode Code	Output Rating			Dimension (mm) H × W × D	Frame Size
	Motor (kW)	VA (kVA)	Current (A)		
YD101-00P4-T4*	0.4	1.2	1.2	160×79(90)×126	A(A1)
YD101-00P7-T4	0.75	1.7	2.3		
YD101-01P5-T4	1.5	2.9	4.0		
YD101-02P2-T4	2.2	4.0	5.2		
YD101-0003-T4	3.0	5.5	7.2		
YD101-0004-T4	4.0	7.3	10.5	210×100×160	B
YD101-05P5-T4	5.5	9.9	13.0		
YD101-07P5-T4	7.5	13.3	17.5	270×135×200	C
YD101-0011-T4	11.0	19.1	25.0		
YD101-0015-T4	15.0	27.4	32.0	300×155×220	D
YD101-18P5-T4	18.5	41.0	40.0		
YD101-0022-T4	22.0	54.0	45.0		

Note: YD101-00P4-T4 by Requested with MOQ.

1.3 General Technical Data

Mains Supply(L1,L2,L3)/ (L1,L2)

Mains Voltage	1x200- 240V ± 10%
	3x200- 240V ± 10%
	3x380- 480V ± 10%
Mains Frequency	50/ 60Hz ± 5%
Mains Protection	Surge Absorber

Output (U,V,W)

Control Method	V/F or VVT
Output Frequency	0- 650Hz (V/F CTL)
	0- 200Hz (VVT CTL)
Torque at Starting	150%/ 3Hz (V/F CTL)
	150%/ 1Hz (VVT CTL)
Output Voltage	0-100% Mains Voltage
Carrier Frequency	1- 15K Hz, Programable
ACC./ DEC Time	0.1- 3600 Sec.
Load Duty	150%/ 60 Sec., 180%/ 3 Sec.

PHC Output (DO,DOG) For 400V, 7.5- 22 kW

Number of Output	1
Specification	DC48V/ 50mA (Open-Collector)

Serial Communication (A, B, SG)

Number of Serial Port	1
Station QTY	1- 32 Stations (120Ω)
Protocol	Modbus RTU/ ASCII
Baud Rate	1200-19200 BPS

Surrounding

Enclosure	IP20
Operating Temperature	−10°C~ +50°C (Ambient)

Local Control Panel (LCP, Keypad, Operator)

Display	5×8 Segment Display+ 4×LEDs
Number of Key	6Keys (RUN/STOP/UP/DOWN/MODE/ENT←)
POT	Dust, Oil Preserving Cover Design
Remote Operator	Standard CAT5 Cable, Applicable 1-3M

Analog Output (AO)

Number of Output	1
Signal Type	Voltage
Signal Level	0- 10V
Maximum Current	2mA
Inaccurancy	1% of Full Scale

Electrical Specification

Model/ Power [kW]	200V			400V	
	Current [A]	-T2S	-T2	Current [A]	-T4
0.4	3.1	YD101-00P4	–	1.2	YD101-00P4
0.75	4.5	YD101-00P7	–	2.3	YD101-00P7
1.5	7.5	YD101-01P5	–	4.0	YD101-01P5
2.2	10.5	--	YD101-02P2	5.2	YD101-02P2
3.0	–	–	–	7.2	YD101-00P3
3.7	17.5	–	YD101-03P7	–	–
4.0	–	–	–	10.5	YD101-00P4
5.5	–	–	–	13.5	YD101-05P5
7.5	–	–	–	17.5	YD101-07P5
11.0	–	–	–	25.0	YD101-0011
15.0	–	–	–	32.0	YD101-0015
18.5	–	–	–	40.0	YD101-18P5
22.0	–	–	–	45.0	YD101-0022

RelayOutput(RA-RC/R1A-R1C&R2C-R2A/R2B)

Number of Relay	1: RA-RC, Frame Size A and A1
	2: R1A-R1C and R2A,R2B-R2C, Frame B to D
Relay Type	RA-RC/ R1A-R1C/ R2A-R2C: Make (N.O.)
	R2B-R2C: Break (N.C.)
Specification	250VAC/5A, 30VDC/2A Max.
Activating Response Time	10ms/ per time

Digital Inputs (D1- D6)

Number of Inputs	6
Logic	NPN
Number of Common	2 off COM
Voltage Level	0-24V, >12V ON
Max. Voltage	28V
Input Resistance (Ri)	4kΩ

PWM/ Pulse Train Input (D6)

Number of Input	1
Voltage Level	0-24V, >12V ON
Frequency	10- 10kHz (Pulse)/ 10- 1kHz (PWM)
Inaccurancy	0.1% FSD

Analog Inputs (AVI, ACI)

Number of Input	2
Signal Type	AVI: Voltage, ACI: Current
Signal Level of AVI	10V/ 2- 10V (20kΩ)
Signal Level of ACI	0- 20／4- 20mA (250Ω)
Accurancy	1：4096 (12bit AD)

A   A1   B

C   D
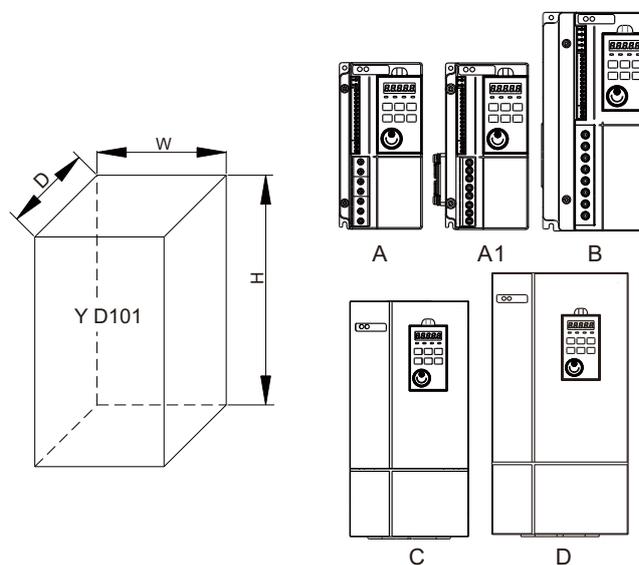
Mechanical Dimension   Tolerance +/- 0.5 mm

Frame Size	Model		Max. Dimension (mm)		
	200V	400V	H	W	D
A	YD101-00P4	YD101-00P7	160	79	126
	YD101-00P7	YD101-01P5			
A1	YD101-01P5	YD101-02P2	160	90	126
	–	YD101-0003			
B	YD101-02P2	YD101-0004	210	100	160
	YD101-03P7	YD101-05P5			
C	–	YD101-07P5	270	135	200
	–	YD101-0011			
D	–	YD101-0015	300	155	220
	–	YD101-18P5			
	–	YD101-0022			

Y D101 Series

Yolico

2. Surrounding and Installation

2.1 Surrounding

Do Enhance the Operation Reliability and Life Time of VFD, the VFD should be installed in an Environment for Temperature Increase Free, the VFD installing Surrounding Meet the Following Conditions

PROTECTION	
Cabinet	I P20
SURROUNDING	
Ambient Temperature	-10~ +50°C
Storage Temperature	-20~ +60℃
Max. Humidity	95%RH Non Condensing Please note that no VFD Freeze (Follow IEC 60068 -2-78)
Vibration Test	20Hz below- 1G(9.8m/s²) 20~ 50Hz- 0.6G(5.88m/s²)(Follow IEC 60068 -2-6）

2.2 Mounting and Installation

The VFD must be installed in a Location Free for.

➢ Direct Sunlight.
➢ Rain/ Moisture or Wet Environment.
➢ Oil Spray, Splashes or Salty Spray.
➢ Corrosive Gases (e.g. Sulfurized Gas) or Liquid.
➢ Physical Shock, Vibration，Using a Vibration Damper if the Vibration can't be avoid in the Environment.

➢ Magnetic Noise (e.g. Welding Machines, Ppower Device, etc.)
➢ Radioactive Substances, Combustible (e.g. Thinner, Solvents)
➢ Floating Dust/ Cotton Dust Metal Power or any Material into VFD

Note:

◆ The VFD must be mounted in a Vertical Position against Flat Surface, and the Frontage of VFD should Face Obverse. VFD may Overheat if mounted in a Incorrect Position.

◆ A VFD or VFDs installed in a Enclosure, be sure the Free Space for Cooling Effect, Yolico recommended the Free Space around VFD is 100mm for H and 50mm for W. please see Fig. 2-1. Table 2-1 shows the Minimum Free Space required around the VFD to Guarantee Adequate Cooling for all Frame Size .
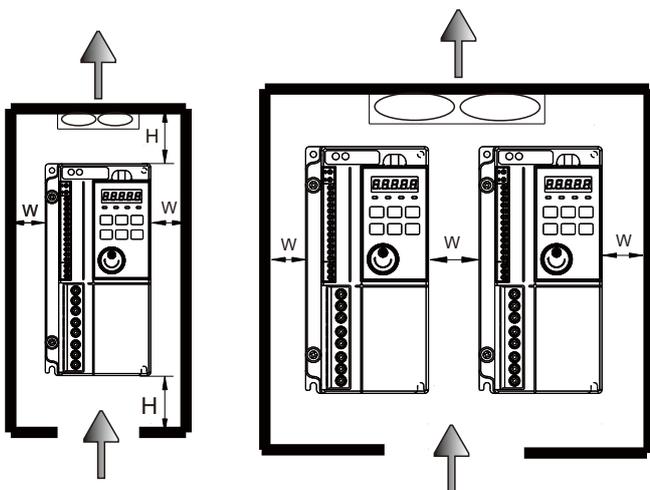
Fig. 2-1

YD101 Min. Free Space Table

Frame Size	Model		Min. Free Space (mm)	
	200V	400V	W	H
A	YD101-00P4-T2S	YD101-00P4-T4	25	40
	YD101-00P7-T2S	YD101-00P7-T4		
	–	YD101-01P5-T4		
A1	YD101-01P5-T2S	YD101-02P2-T4	30	40
	–	YD101-0003-T4		
B	YD101-02P2-T2	YD101-0004-T4	30	60
	YD101-03P7-T2	YD101-05P5-T4		
C	–	YD101-07P5-T4	35	70
	–	YD101-0011-T4		
D	–	YD101-0015-T4	40	80
	–	YD101-18P5-T4		
	–	YD101-0022-T4		

Table 2-1

2.3 Installing Position
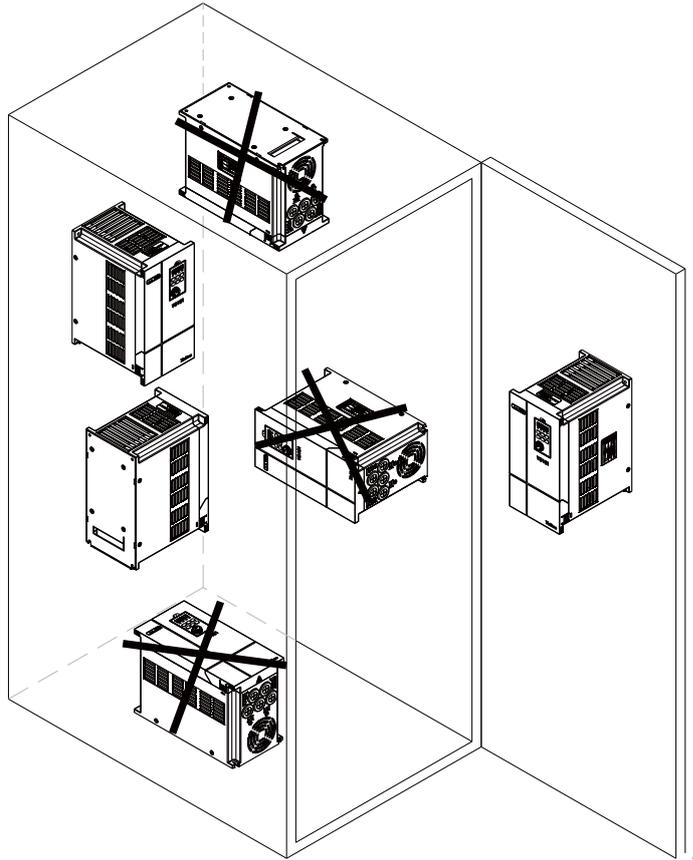
Note:
◆ If the VFDs are mounted for Up and Down Position and no Separator between VFDs, the Space between two VFDs must be more Free.

◆ Take YD101-00P7-T4 and YD101-05P5 as example, the Min. Free Space "H" between VFDs must be a "L1" (150mm). See Fig. 2-2
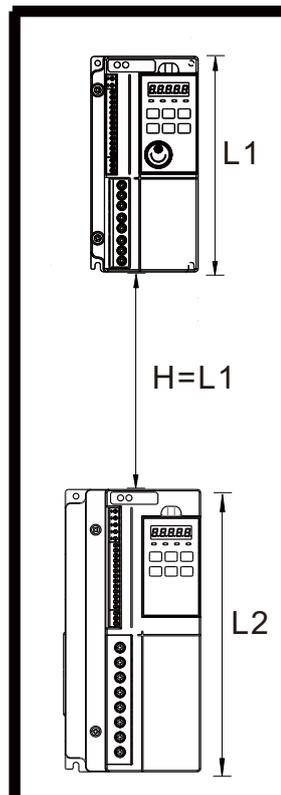
Fig. 2-2

2.4 Appearances and Mechanical Dimensions

Fig.1

Fig.2

Fig.3

Fig.4
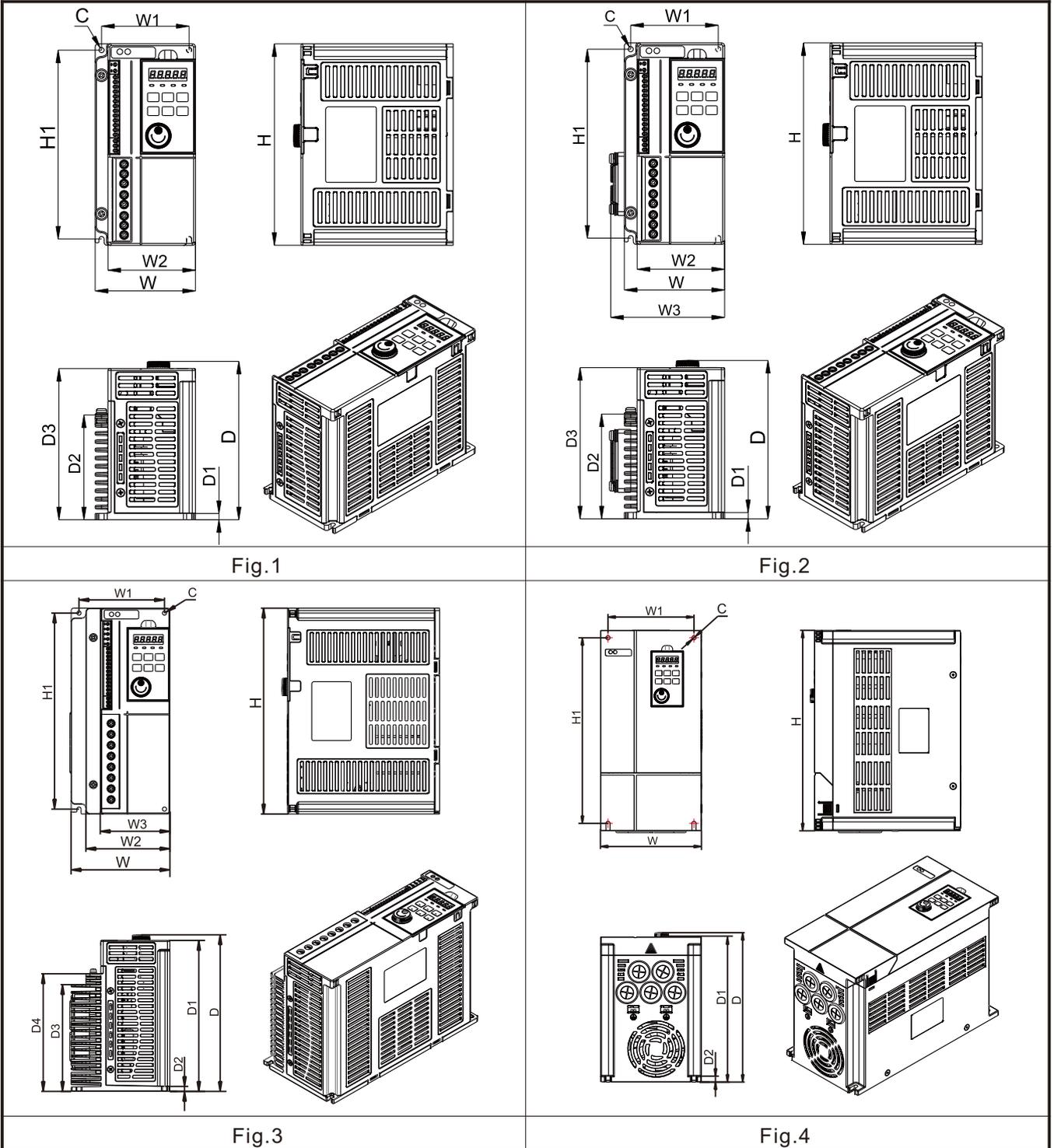
Tolerance +/- 0.5 mm

Frame Size	Dimension (mm)												Fig.
	H	H1	W	W1	W2	W3	D	D1	D2	D3	D4	C	
A	160	150	79	69	69	--	126	5	83	130	--	Ø4	Fig.1
A1	160	150	79	69	69	90	126	5	83	120	--	Ø4	Fig.2
B	210	200	100	86.5	85	70.5	160	154	5	109	120	Ø5	Fig.3
C	270	250	135	115	--	--	200	195	8	--	--	Ø5	Fig.4
D	300	281	155	136	--	--	220	214.5	7	--	--	Ø6	

2.5 Operator Mechanical Dimension

75.±0.2

43.5±0.2

20.0±0.1

15.4±0.1

6.9±0.15

16.4±0.15

20.3±0.15

14.5±0.15

22.±0.1

28.±0.2

6.7±0.1

37.5±0.15

41.1±0.15

69.0±0.2

73.0±0.3

12.5±0.15
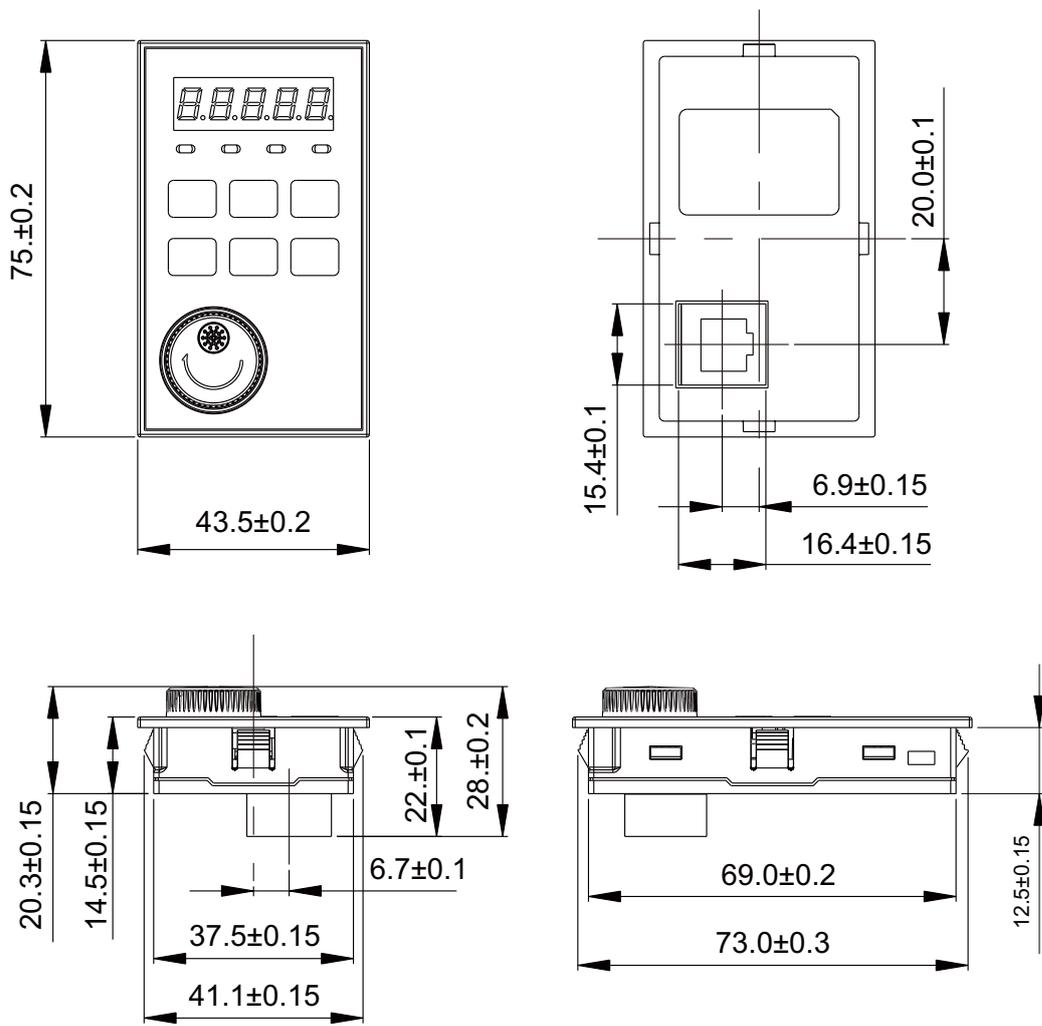
2.6 Operator Punch/ Drill Hole Dimension

38.5

70.0

Thinkness
≤ 3mm
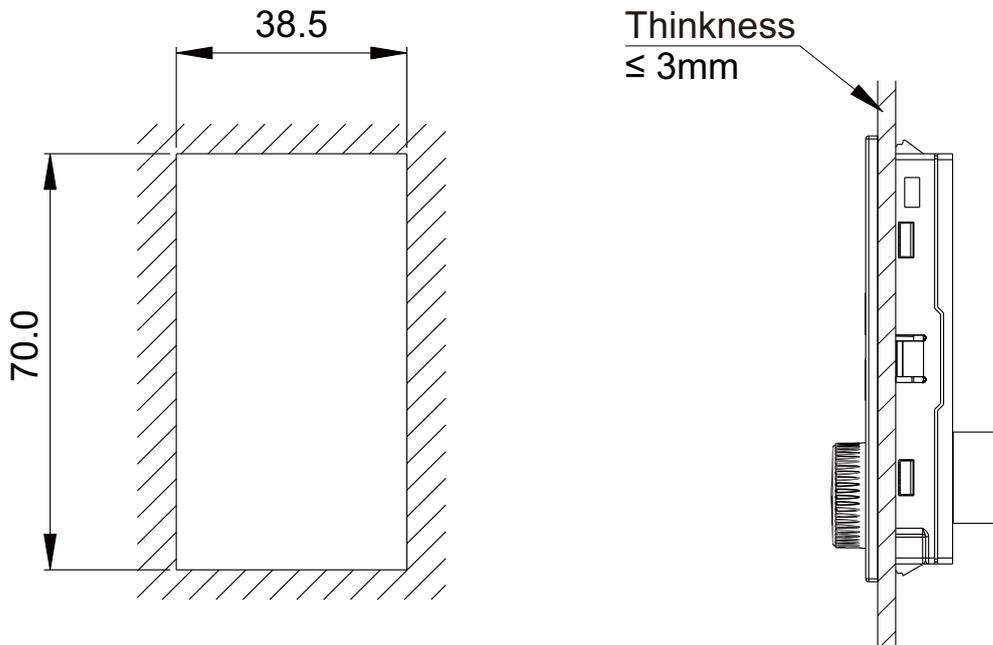
2.7 Removing the Operator

Detail 1
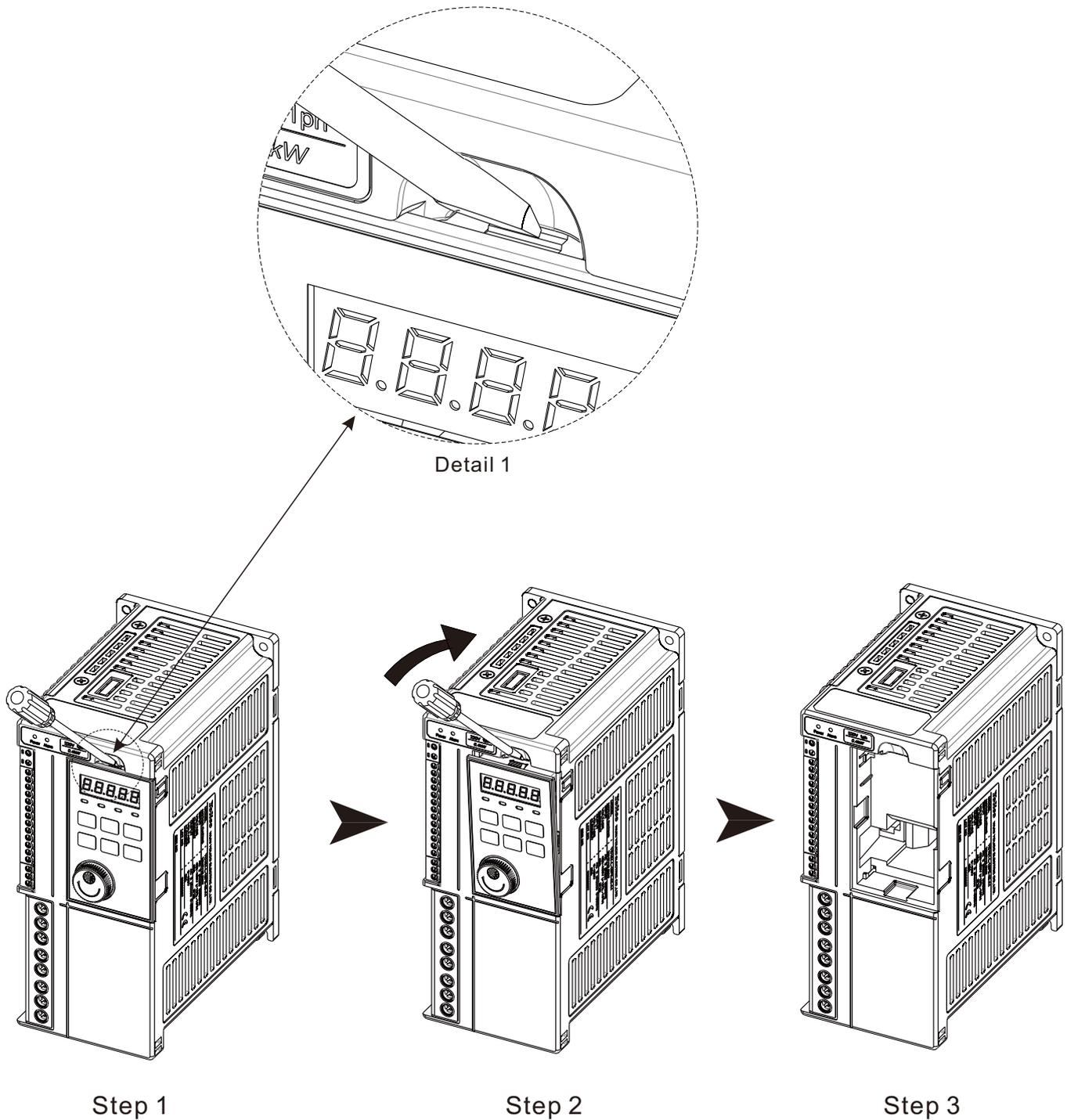
Step 1   Step 2   Step 3

Removing Procedure:

Step 1: Stick a Slotted Screwdriver in the Groove on Top of Operator as Detail 1, approximately 45 Degrees with the Operator.
Step 2: Slight tilt Screwdriver to Snap the Retaining Clip, please do not make it broken.
Step 3: Pull Operator out then Remove it.

Note:
The Screwdriver must be in Right Position when Stuck in the Groove.
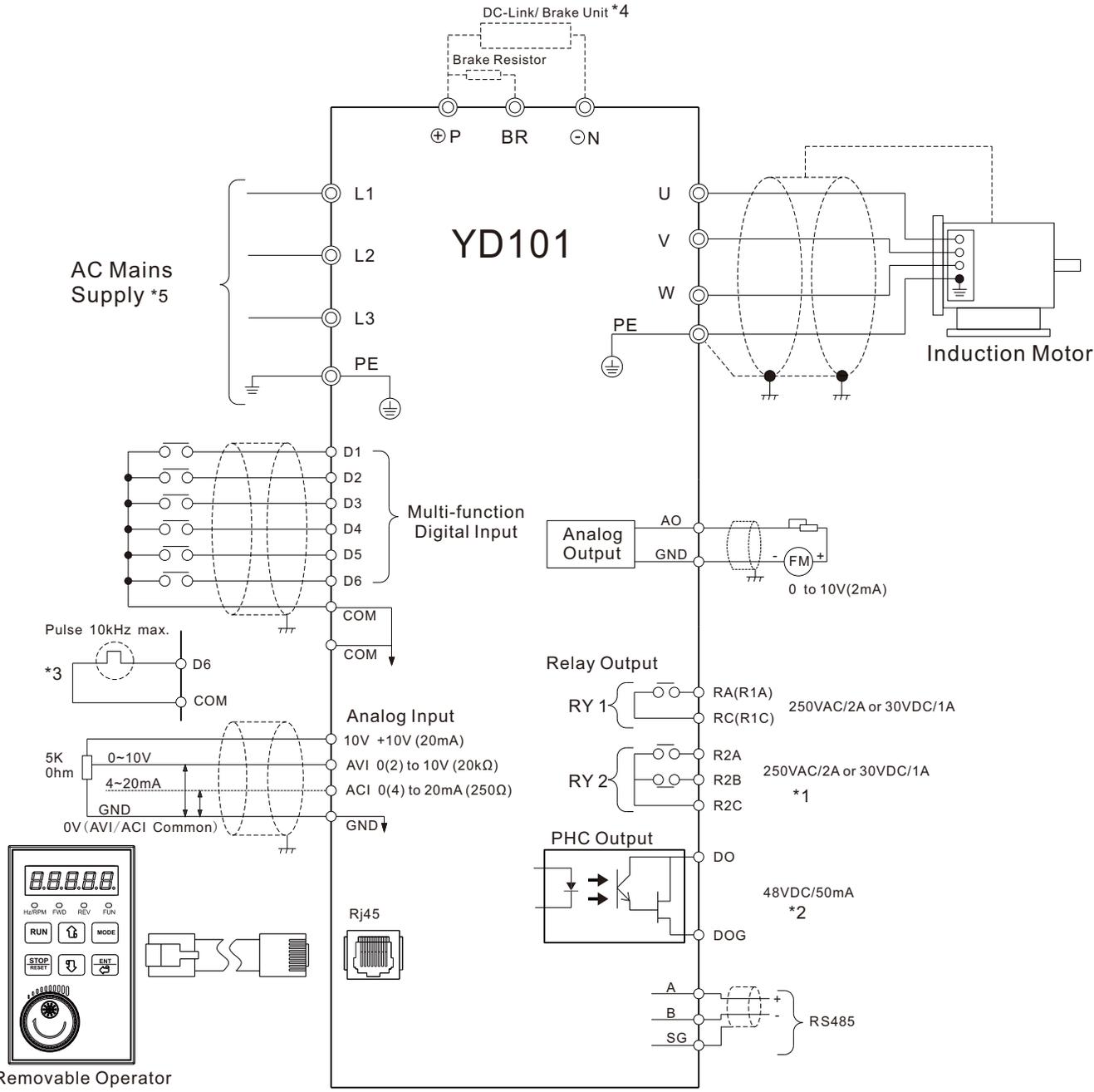
DC-Link/ Brake Unit *4

Brake Resistor

⊕P BR ⊖N

AC Mains Supply *5

L1
L2
L3
PE

YD101

U
V
W
PE

Induction Motor

D1
D2
D3
D4
D5
D6

Multi-function Digital Input

COM
COM

Pulse 10kHz max.

*3 D6

COM

Analog Input

10V +10V (20mA)

5K 0hm

0~10V
4~20mA

AVI 0(2) to 10V (20kΩ)
ACI 0(4) to 20mA (250Ω)

GND
0V（AVI／ACI Common)

GND

Analog Output

AO
GND

FM +

0 to 10V(2mA)

Relay Output

RY 1

RA(R1A)
RC(R1C)

250VAC/2A or 30VDC/1A

RY 2

R2A
R2B
R2C

250VAC/2A or 30VDC/1A
*1

PHC Output

DO

48VDC/50mA
*2

DOG

A
B
SG

RS485

Rj45

Removable Operator

3.2 Mains Circuit Terminals Description

Symbol	Terminals Description
L1	Mains Power Input
L2	1Ø: L1, L2
L3	3Ø: L1, L2, L3
U	
V	3Ø Motor Output
W	
P	
BR	P & BR: External Brake Resister connection
N	P/ N: External Brake Unit or DC-Link connection
⏚	Grounding or Earth

3.3 Mains Terminals Configuration
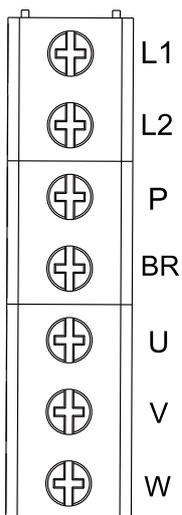
Size A (A1)
200V (0.4~ 1.5kW)
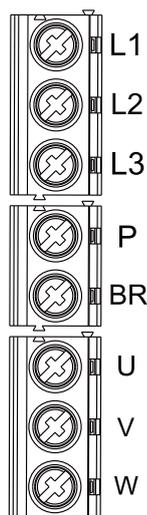
Size A (A1)
400V (0.4~ 3.0kW)
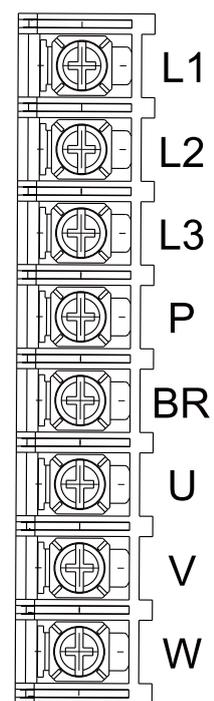
Size B
200V/ 400V, (4.0~ 5.5kW)

L1 L2 L3 P BR N U V W
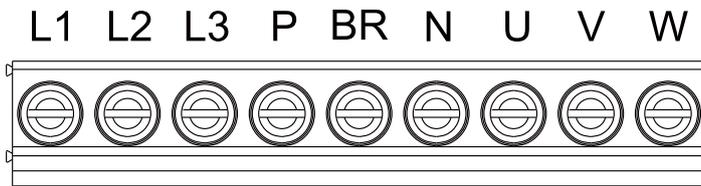
Size C 400V（7.5~ 11kW）

L1 L2 L3 P BR N U V W
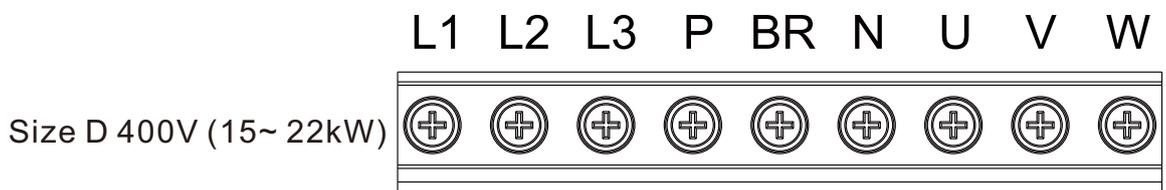
Size D 400V (15~ 22kW)

3.4 Control Terminals Description

Symbol	CTL Terminals Description	
RC(R1C)	Multi-function Relay Output 1 (RY1) Rating: 250VAC/ 2A or 30VDC/ 1A	
RA(R1A)		
R2A	Multi-function Relay Output 2 (RY2) Rating: 250VAC/ 2A or 30VDC/ 1A	
R2B		
R2C		
COM	Common of D1~D6	
D1	Multi-function Digital Input Logic: NPN	
D2		
D3		
D4		
D5		
D6		
COM	Common of D1~D6	
10V	Analog Command Power Supply, Rating: 10V/20mA Max.	
AO	Analog Output for Frequency Meter, Rating: 10VDC/2mA	
GND	Analog Signal Common, for AVI/ ACI/ AO	
AVI	Analog Voltage Reference Input, Rating: 0/2~10VDC	
ACI	Analog Current Reference Input, Rating: 0/4~20mA	
DO	(+)	Multi-function Photo-Coupler (PHC), Rating: (DC 48V/ 50mA)
DOG	(−)	
A	(+) RS485	Serial Communication Port
B	(-) RS485	
SG	Shielding for Serial Com.	

3.5 Control Terminals Configuration

RC RA COM D1 D2 D3 D4 D5 D6 COM 10V AO GND AVI ACI A B SG
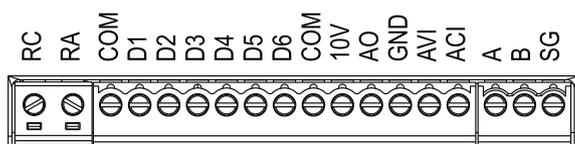
Size A（A1）
  200V : 0. 4~1. 5kW
  400V : 0. 4~3.0kW

R1C R1A R2A R2B R2C COM D1 D2 D3 D4 D5 D6 COM 10V AO GND AVI ACI A B SG
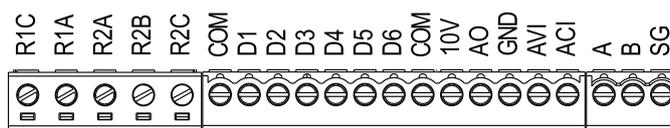
Size B
  200V : 2.2~3.7kW
  400V : 4.0~5.5kW

COM D1 D2 D3 D4 D5 D6 COM 10V AO GND AVI ACI DOG DO R1C R1A R2A R2B R2C A B SG
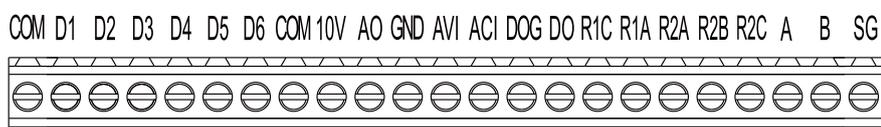
Size C & D （400V : 7. 5~22kW）

3.6 Terminal Tightening Torque and Cable Size in Installation

Frame Size	Mains/ Motor/ DC-Link/ Brake/ Earth			Control		
	Cable Cross Section Range [AWG (mm^2)]	Torque		Cable Cross Section Range [AWG (mm^2)]	Torque	
		N-m	lbf-in		N-m	lbf-in
A(A1) (200V)	20~9AWG(0.5~6mm^2)	1.37	12	25~15AWG (0.14~1.5mm^2)	0.19	1.68
A(A1) (400V)	20~10AWG(0.5~5.5mm^2)	1.37	12			
B	20~8AWG(0.5~10mm^2)	1.4	12.4			
C	13~5AWG(2.5~16mm^2)	1.4	12.4	25~13AWG (0.14~2.5mm^2)	0.5	4.4
D	13~4AWG(2.5~22mm^2)	1.4	12.4			

Note All Cabling must comply with National and Local Regulations on Cable Cross-Sections and Ambient Temperature. Copper Conductors required, 60-75ºC is recommended.

3.7 Wiring Regulation

a) Mains Connection

Be sure to connect AC Power to the Mains Terminal L1, L2, L3 (1Ø 200V: L1, L2), connect Motor Lead to Output Terminal U, V, W.

⚠ The VFD will damage if connect Output Terminal (U, V, W) to Power.

Tip Connect VFD to an Individual Power Circuit.
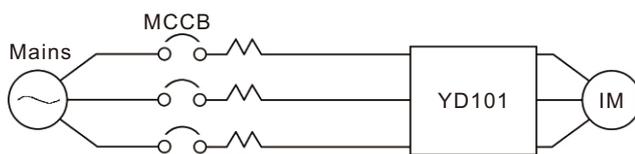
Tip If VFD connected to a Power Circuit with other Devices, please fit a Noise Filter or an Isolated Transformer to eliminate Noise Transmitted between VFD and the Mains Power Line.
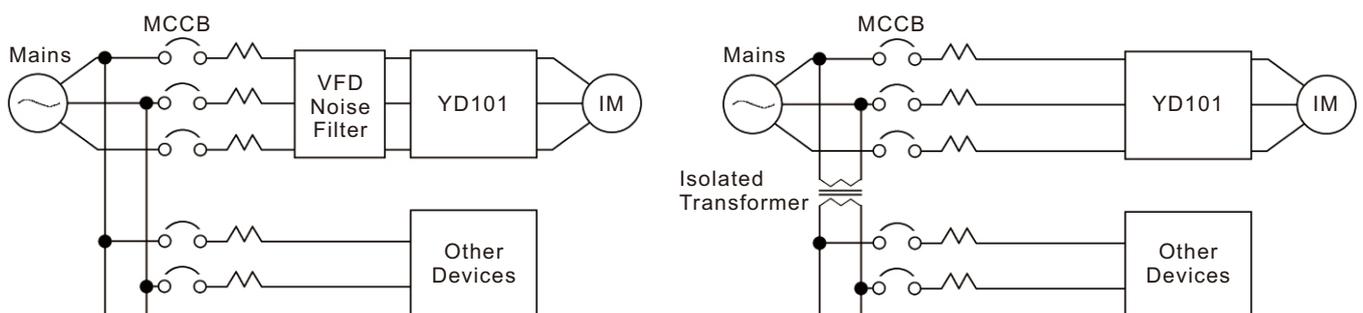
b) Control Connection

Be sure to connect CTL Circuit to the CTL Terminals.

1. All Signal Lines of Control Circuit must not be Longer than 50m and must be Separated from the Mains and Motor Cables, such as L1, L2, L3, U, V, W, P, N, BR.
2. Use a suitable Dimension Screened or Twisted-pair Cables for Control Circuits/ Frequency Reference to prevent VFD Malfunction, the Copper Conductors Cable required, 60-75°C is recommended.
3. Process the Ends of Screened/ Screened Twisted-pair Cable as Figure below.
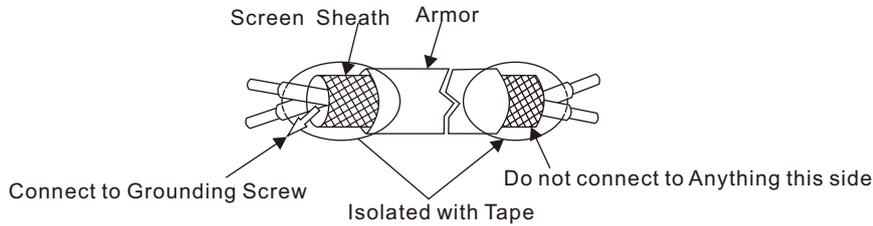
Tip
1. Processing the ends of Screen and connect one side Screened part to Screw Grounding.
2. Do not use the soldered Cable Lead, it would make CTL Signal malfunction.
3. The Stripping Lengths for CTL Cable is 5.5 mm if no Pin Terminals used.

Size of Pin Terminals

Cable Size	Specification	D1	D2	Manufacturer
0.5mm²	A10. 5−8WH	1. 00	2. 60	
0.75mm²	A10. 75−8GY	1. 20	2. 80	Phoenix Contact
1.0mm²	A11−8RD	1. 40	3. 00	
1.5mm²	A11. 5−8BK	1. 70	3. 50	

Pin Insulated Terminals Dimension
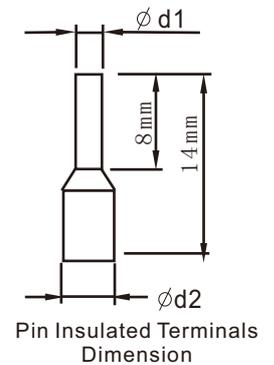
Note
1. Do not Solder the Cable Lead if no Pin Terminals using.
2. The Cable Lead may break by Vibration if soldered.

■ Wiring Procedure

Follow the Procedure below to fit Wire into CTL Terminal.

1. Loose the Screw by a Slotted Screwdriver.

2. Stick the Wire through Bottom of Terminal Strip.

3. Tighten the Screw.
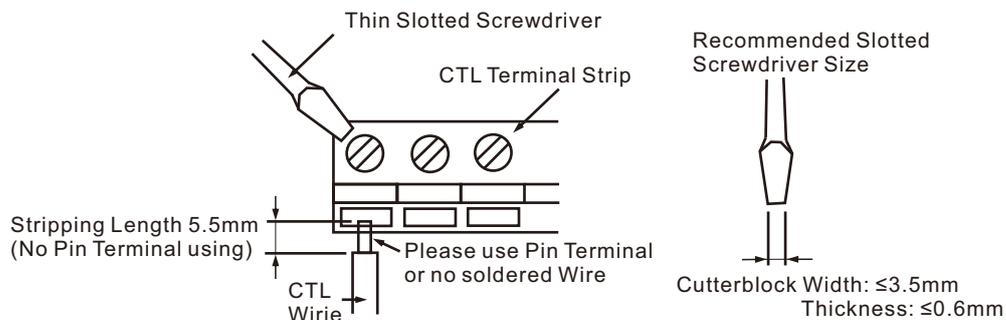
Fit CTL Wire into Terminal Strip

4. LCP Introduction

4.1 Brief Functions of LCP

The Local Control Panel (LCP) is a Removable Operator, it named as Operator, Keypad, Digital Operator in this Manual.
Hereby introduces the Keys/ Functions of LCP with default Display status after VFD Powered up.
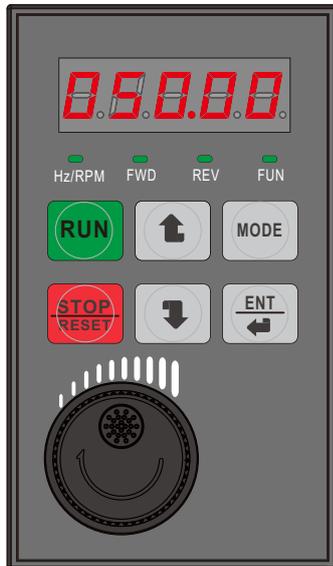
5 off 8 Segments Display LEDs

Displays Set Values of Parameter, Parameter Groups or Motoring Values/ Data such as Output Frequency, Current, Voltage, Fault Code or Fault Log.

Indicator LEDs

Hz/RPM: Illuminates when Motoring Frequency at RPM Scale
FWD: Illuminates at Forward Command
REV: Illuminates at REV Command
FUN: Illuminates when selecting Parameter Mode

Keys (Buttons)

Totally 6 Keys includes 8 Major Functions of RUN/ STOP/ RESET/ ↑(Increase +)/ ↓(Decrease -)/ MODE/ ENT/ ←(Digit Select).
See Table 4-2 below for Detail Information

POT (Potential Meter)

The POT works as Frequency Reference if the Reference is set via POT (B1-01=5). The Max. Value (End of Clockwise Rotating) and Min. Value (End of Counterclockwise Rotating) of POT are corresponding to Frequency Reference Upper Limit (D2-01) and Lower Limit (D2-02).

Table 4-1 Arabic Numeral and English Alphabet correspond to displaying by Segment LED

Numeral	0	1	2	3	4	5	6	7	8	9
LEDs Display	0	1	2	3	4	5	6	7	8	9

Letter	A	B	C	D	E	F	G	H	I	J	K	L	M
LED Display	A	b	c	d	E	F	G	H	I	J	t	L	ññ
Letter	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
LED Display	n	o	P	q	r	S	T	U	v	üü		y	

Table 4-2 Function of Keys

Key	Name	Function Description
RUN	VFD RUN	• The VFD runs after depressing if the Command is set via LCP (B1-02=0)。 • The Default Command is via LCP.
STOP/RESET	VFD STOP or RESET	• Stop: VFD normal stop after depressing if the Command is set via LCP (B1-02=0). • Fast Stop (E.S.): VFD fast Stop after depressing if the Command is not set via LCP (B1-02≠0). • Reset: Depressing to reset Operation after correct the Cause Of Fault.
↑	↑ (Increment, +)	• Increasing the Value of Parameter Name, Group or Setting Value.
↓	↓ (Decrement, -)	• Decreasing the Value of Parameter Name, Group or Setting Value.
ENT	ENTER or ← (Digit Select)	• ENTER: Selects Group, Function or Parameter. Displays each Parameter's Set Value. By depressing this Key (after changing a Parameter Setting), the Set Value is Entered. • ←: Select a Digit of a Set Value to be changed, the Selected Digit Blinks.
MODE	MODE selection	• Select the Monitor, Value or Parameter Mode.

4.2 Monitor Display (Ux-XX)

Basically all Monitor Display Ux-xx can be selected no matter what VFD is in Run or Stop Situation.

Monitor Display List

FNC	Parameter NO.	Name	Content	Analog Output Signal	Min. Unit
Status Monitor	U1−01	Frequency REF	Monitor Frequency Reference	10V: Max. Frequency	0. 01Hz
	U1−02	Output Frequency	Monitor Output Frequency	10V: Max. Frequency	0. 01Hz
	U1−03	Output Current	Monitor Output Current	10V: VFD Rated Current	0. 1A
	U1−06	Output Voltage	Monitor Internal Output Voltage Reference	10V: AC(E1-13)	0. 1V
	U1−07	DC Bus Voltage	Monitor DC Bus Voltage	10V: DC($\sqrt{2}$ X E1-13)	1V
	U1-10	Input Terminal Status	l : Active ι : Inactive Means VFD in Input Terminal Status Motoring Reserved Terminal D1 Terminal D2 Terminal D3 Terminal D4 Terminal D5 Terminal D6 Monitor Digital Input in Active or Inactive Status	Disabled	—
	U1−11	Output Terminal Status	l : Active ι : Inactive Means VFD in Output Terminal Status Motoring Reserved Relay 1 Relay 2 PHC Monitor Digital Output in Active or Inactive Status	Disabled	—
	U1−14	CPU Firmware Number	Manufacturer's ID number	Disabled	—
	U1−15	Terminal AVI Input Voltage % in Frequency REF	Monitors the Input Voltage of the Frequency Reference (AVI). An Input of 10 V corresponds to 100%.	10V: 100% (10V)	0.1%
	U1−16	Terminal ACI Input Current %	Monitors the Input Current of the Frequency Reference or Feedback (ACI). An Input of 20mA corresponds to 100%.	10V: 100% (20mA)	0.1%
	U1−24	PID Feedback	Monitors the Feedback Value when PID Control is used. The Input for the Max. Frequency corresponds to 100%	10V: Max. Frequency	0.1%
	U1−46	IGBT Temperature	Monitors the VFD's IGBT Temperature	Disabled	—
	U1−47	Counter Present Value	Monitors the Counter's Present Value	Disabled	—
	U1−48	Worked Time 1	Monitors the VFD Worked Time1 (Hours)	Disabled	1 Hour
	U1−49	Worked Time 2	Monitors the VFD Worked Time2 (Days)	Disabled	1 Day
Fault Log	U3−01	Most Recent Fault	Monitors the Recent Fault Code	Disabled	—
	U3−02	2nd Most Recent Fault	Monitors the 2nd Recent Fault Code	Disabled	—
	U3−03	3rd Most Recent Fault	Monitors the 3rd Recent Fault Code	Disabled	—
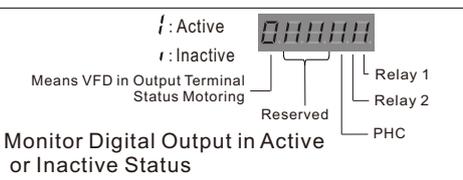
4．3 Operation via the LCP

4.3.1 The Display

In Actual Frequency Outputs
LED Fully Lit while VFD Running

In Frequency Reference
LED Blinks while VFD Stopping

In Frequency Setting LED
Blinks while change Value
of selected Digital

● Displayed VFD in Stopping Status
It shows the Frequency Reference, all LEDs are Blinking. At this moment depress the ↑ or ↓ Key could change the Frequency Reference Value. The Blinking Digital will move by depress the ←/ENT Key. The Display will show Frequency Reference again after wrote-in the Set Value by depress the ←/ENT Key for a while or 5 Seconds later if the ←/ENT Key is not depressed.

● Displayed VFD in Operating Status
It shows the Actual Frequence, all LEDs are Fully Lit. At this moment depress the ↑ or ↓ Key could change the Frequency Reference Value. The Blinking Digital will move by depress the ←/ENT Key. The VFD Outputs and Display shows the changed Actual Frequency Value by depress the ←/ENT Key for a while during the VFD is Operating.

4.3.2 Functions of LED Display

8Segment LED Display	Description
5.00	Displays Setting Frequency while VFD is in Stopping. Displays Outputting Frequency during VFD is in Operating.
A1-02	Displays Parameter Number
00000	Displays Value (Setting Value/ PID Feedback…etc)
220U	Displays AC Voltage
1.1A	Displays Output Current
310U	Displays DC Bus Voltage
24ºC	Displays Heat Fin Temperature
OC	Fault Occurred, refer to 6. VFD Warning/ Alarm Condition, the Possible Cause of Problem
100.0	Displays AVI Value (AVI is in 100%)

4.3.3 ↑ Increment/ ↓ Decrement Functions Structure

↑Increment/   ↓Decrement
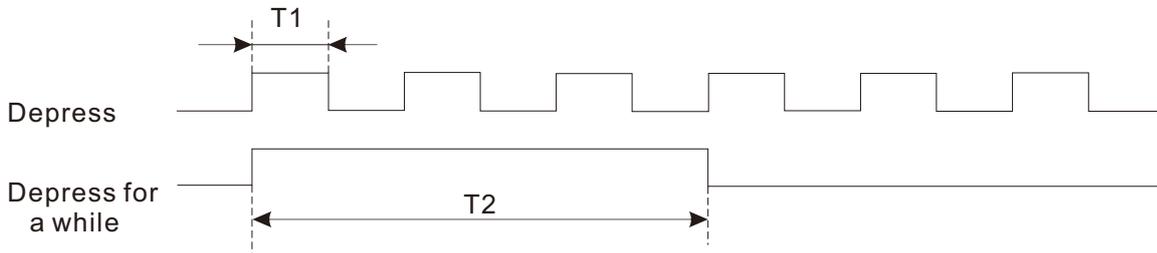
Note The Value of selected Digital just changed by Unit Value if depress the Key. The Value will be continue changed after depress for a while.

4.3.4 LCP Operating Example

● Modify Value for Parameter
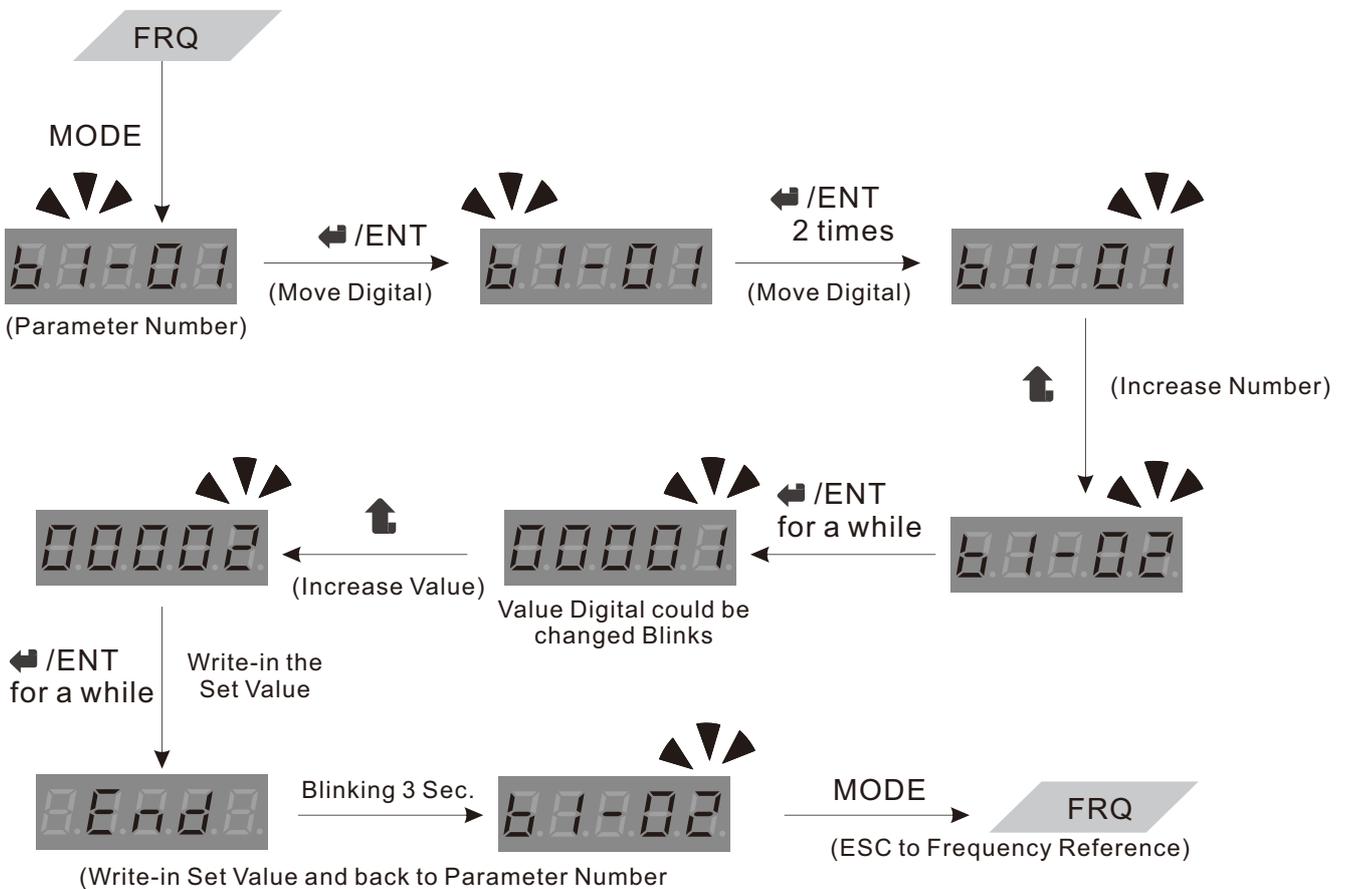
● Change Frequency Reference when VFD in Stops / Operates

Set REF VFD in Stop

```
2200
```
Displays Volt. after
Power On

Blinks
3 Sec.

```
5.00
```
Displayed Frequency
REF

↩ /ENT

```
5.01
```
Set FRQ by Unit Value
(1st Digital)

```
5.00
```
Set FRQ for 1st Digital
(Blinks)

↩ /ENT

```
5.00
```
Set FRQ for 2nd Digital
(Blinks)

↩ /ENT

```
5.00
```
Set FRQ for 3rd Digital
(Blinks)

```
6.00
```
Add Value for 3rd Digital
(Blinks)

↩ /ENT
for a while

```
6.00
```
Write-in New Frequency REF
(Blinks)

Set REF VFD in Run

```
5.00
```
Displays Actual FRQ
(LED Fully Lit)

↩ /ENT

```
5.00
```
Set FRQ for 1st Digital
(Blinks)

↩ /ENT

```
5.00
```
Set FRQ for 2nd Digital
(Blinks)

↩ /ENT

```
5.00
```
Set FRQ for 3rd Digital
(Blinks)

```
6.00
```
Add Value for 3rd Digital
(Blinks)

↩ /ENT
for a while

```
6.00
```
Write-in New Frequency REF
(LED Fully Lit)

Back to Output Frequency Display 5 Seconds later, If Enter Key is not depressed. The New Setting Value is not entered.

Note Set the Frequency Reference when VFD in Stop Status, if depress the ⬆.Key let the Value over than Frequency REF Upper Limit, the Reference Value will increase from Frequency Lower Limit and vice versa

4.3.5 Command and Reference Relation
(Take 3 Wires Control as Example)

REF &
Direction

VFD in Run

VFD in Stop

VFD in Stop

FWD

Output Frequency

Time

REV

Power On

REV Activated

FWD Activated

RUN Activated

REV Activated

FWD Activated

STOP Activated

FWD Indicator (LED)	☀● FWD	○ FWD	☀● FWD	● FWD	○ FWD	● FWD	● FWD
REV Indicator (LED)	○ REV	☀● REV	○ REV	○ REV	● REV	○ REV	○ REV

○= Off   ●= Fully Lit   ☀●= Blinks

5. Parameter Introduction

5. 1 Parameters Reading

Use the following Key to determine which Control Mode, Detail Information and Access Level are Available for each Parameter in this Manual.

					Run	Mod	Initia	V/F	o2-4
A	B	C		D	G	H	I	J	K

A1-02 Control Method Selection	X X X X X

Setting Value

V/F Control	@ [0]
VVT/Control	[5]

Function Description

0: When V/F Control selected, set the Parameter Group E for Application requiring. Set E1-03 to a fixed Pattern or a Custom Pattern.
5: Sensorless Vector Control, it is used for General Application or Torque change suddenly.

E   F
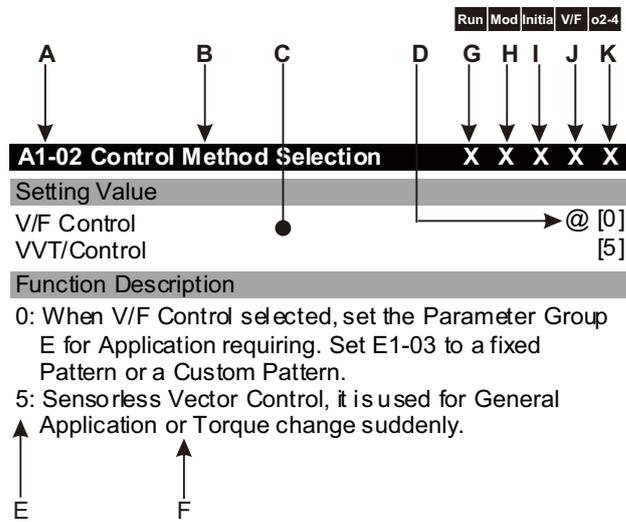
■ Reading Instruction

➤ A: Parameter Number

➤ B: Name of Parameter

➤ C: Set/ Select Value and Name, some Parameter may show Unit in the Bracket after the Setting Range.

➤ D: Default Value or Setting

➤ E: Parameter Setting or Selecting Value

➤ F: Description of Setting or Selecting Value

➤ G to K: Limit Condition for Parameters

   ● G: **Run** This Parameter can be changed during VFD is Operating.

   ● H: **Mod** This Parameter can be changed during Serial Communication is Transmitting.

   ● I: **Initia** This Parameter becomes Default Value if Parameters Initialized.

   ● J: **V/F** This Parameter is limited for V/F Control.

   ● K: **o2-4** This Parameter will be changed if Re-set Inverter Model (O2-04)

   And meaning of Mark

   "O" for YES

   "X" for NO

5. 1.1 Parameters List

Group	Function	Page
U (Monitoring)	U1 (Status Monitor)	4-2
	U3 (Fault Log)	
A (Initialization)	A1 (Initialization Set-up)	5-3
B (Application)	B1 (Sequence）	5-4
	B2 (DC Braking)	5-6
	B3 (Speed Search)	5-6
	B5 (PID Control)	5-7
C (Tuning)	C1 (C1 ACC/DEC Time)	5-11
	C2 (S-Curve ACC/DEC)	5-11
	C3 (Motor Slip Compensation)	5-12
	C4 (Torque Compensation)	5-12
	C6 (Carrier Frequency)	5-12
D (Reference)	D1 (Preset References)	5-13
	D2 (References Limits)	5-16
	D3 (Jump Frequencies)	5-17
E (Motor)	E1 (V/F Pattern)	5-18
	E2 (Motor Set-up)	5-22
	E6 (Operation Direction Definition)	5-22
H (Terminal)	H1 (Digital Inputs)	5-23
	H2 (Digital Outputs)	5-29
	H3 (Analog Inputs)	5-32
	H4 (Analog Outputs)	5-35
	H5 (Serial Communication Set-up)	5-36
L (Protection)	L1 (Motor Overload)	5-38
	L2 (Power Loss Ridethrough)	5-39
	L3 (Stall Prevention)	5-40
	L4 (Reference Detection)	5-42
	L5 (Automatic Restart)	5-42
	L8 (Hardware Protection)	5-44
O (Opertaor)	O1 (Monitor Selection)	5-45
	O2 (Key Selection)	5-45
P (Process)	P1 (Auto Process Operation)	5-47
T (VVT Adjusting)	T1 (Motor Nameplate Data)	5-51
	T2 (Motor Adjusting Constants)	5-51

S
1
2
3
4
5
6
7
A

5.2 Initialization, Group (A)
5.2.1 Initialization Set-up: A1

A1-02 Control Method Selection	X O O X X
Setting Value	
V/F Control	@ [0]
VVT Control	[5]
Function Description	

[0]: When V/F Control selected, set the Parameter Group E for Application requiring. Set E1-03 to a fixed Pattern or a Custom Pattern.

[5]: **V**oltage **V**ector Con**T**rol (VVT), it is used for General Application or Torque change suddenly.

A1-03 Initialize Parameter	X O O X X
Setting Value	
No Initialize	@ [0]
Factory Initialize (50Hz)	[1150]
2 Wires Control Initialize (50Hz)	[2250]
3 Wires Control Initialize (50Hz)	[3350]
Factory Initialize (60Hz)	[1160]
2 Wires Control Initialize (60Hz)	[2260]
3 Wires Control Initialize (60Hz)	[3360]
Function Name	
Initialize Parameters	
Function Description	

1. Set Value to "_ _50" Initializes the Parameter to 50Hz System, "_ _60".Initializes the Parameter to 60Hz System.
2. Set Value to "11_0" Initializes the Parameter to Factory Default, then B1-01/ B1-02= 0 (LCP) Automatically.
3. Set Value to 22_0 Initializes the Parameter to 2 Wires Control, the Set B1-01= 0 (LCP) / B1-02= 1 (Terminals) and B1-11= 1 (RUN/ STOP and FWD/REV) Automatically,
4. Set Value to 33_0 Initializes the Parameter to 3 Wires Control, the Set B1-01= 0 (LCP) / B1-02= 1 (Terminals) and B1-11= 2 (RUN, STOP and FWD/REV) Automatically,

Note:
1. When 2 Wires or 3 Wires Control Initialized, the Parameters will be set H1-01= 80, H1-02= 81, and that no needs to change.
2. When 3 Wires CTL Initialized, the Terminal D3 will be defined to "FWD/ REV Selection" Automatically, the Parameter H1-03 can be set but it is Unavailing

A1-04 Parameter Password	X O O X X
Setting Value	
0~ 65535	@ 00000
Function Name	
Stop Method after OL1Protection Fault Selection	
Function Description	

This Parameter allows the Password Lock-out Parameters as Selection in O2-11, this Parameters A1-04 can be accessed to Key-in. All or some other Parameters cannot be changed. Please see Parameter O2-11 on Page. 5-41 for more Information.

Use the following Procedure to Set the Password to Lock-out and Unlock-out Protection.

● Set Password to Lock-Out
1st Get into Parameter A1-04, the Display must show "0000", enter a Password you want. Depress the Enter Key a few seconds, the Display shows "End".
2nd Get into this Parameter again, the Display will show "0001", enter the Password as Step1. Depress the Enter Key a few seconds, the Password Lock-out is success if Display shows "LOC".
If the Passwords are different from Step1 to Step2, Display shows "Err2", Password Lock-out is fail.

● Unlock-out
Get into Parameter A1-04, the Display must show "0002", enter the Right Password then depress the Enter Key a few seconds, the Display shows "End" if Unlocked. If the Unlock-out Password is Incorrect, Display shows "LOC". (VFD is still in Lock-out situation)

Note:
The VFD is in Unlock-out, if A1-04="0000".

S
1
2
3
4
5
6
7
A

5.3 Application, Group (B)

5.3.1 Sequence: B1

B1-01 Reference Selection   X O O X X

Setting Value	
LCP MOPs	@ [0]
Terminals	[1]
Serial Communication	[2]
Pulse Train/PWM Input (D6)	[4]
POT	[5]
Terminal MOPs	[6]

Function Name

Frequency Reference Source Selection

Function Description

Please Set to "1" if the Reference is via Control Terminals AVI or ACI .

MOP: **M**otor **O**perated **P**otentiometer

POT: Potential Meter of Operator.

B1-02 Operation Method Selection   X O O X X

Setting Value	
LCP Keys	@ [0]
Terminals	[1]
Serial Communication	[2]

Function Name

Operation Command Source Selection

Function Description

Please Set the Command Source match to your Device. If it is set to Terminals, the 2 Wires or 3 Wires Control can be Set by B1-11 (Terminal Control Selection) or A1-03 Initialization. See A1-03 and B1-11 for more Detail.

B1-03 Stopping Method Selection   X O O X X

Setting Value	
Ramp to Stop	@ [0]
Coast to Stop	[1]

Function Description

This Function selects the Stopping Method suitable for the Particular Application.

[0]: Decelerating Stop according to the Deceleration Time.

[1]: Free Run to Stop.

B1-04 Reverse Operation   X O O X X

Setting Value	
Reverse Run Enable	@ [0]
Reverse Run Disable	[1]

Function Name

Prohibition of Reverse Operation

Function Description

A "Reverse Run Disabled" setting does not allow a Reverse Run Command from the Control Circuit Terminal or LCP. This setting is used in Applications

B1-06 Number of Input Scan   X O O X X

Setting Value	
1~ 100	@ 5

Function Name

Number of CTL Sequence Input Scan Setting

Function Description

This Parameter selects the Number of Scan for Reading Sequence Input Data from the Control Circuit Terminals D1 to D6. The Scan Time is 2m Second Cycle.

In Environment contains the Noise Interfere, Increase B1-06 can defense the obstruction, but the Signal Response should be lower.

■ Stopping Method Description

Ramp to Stop (B1-03=0)

Run command   ON   OFF

Output Frequency   ← DEC Time →

DC Brake

DC Braking LVL @ Start (B2-01) →

Follow the Set DEC Time decelerating to Stop   DC Braking Time @ Stop (B2-04)

Coast to Stop (B1-03=1)

Run command   ON   OFF

Outputl Frequency

STOP Command is entered (RUN Command OFF)

Free Run, Coast to Stop
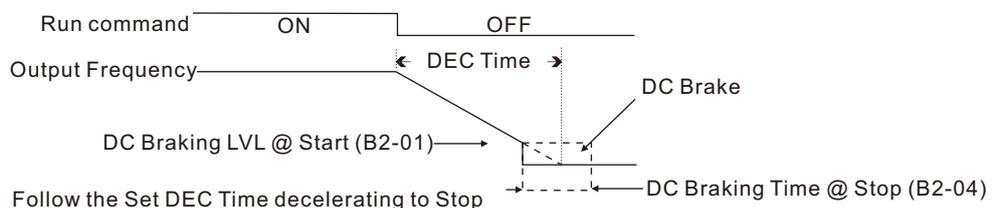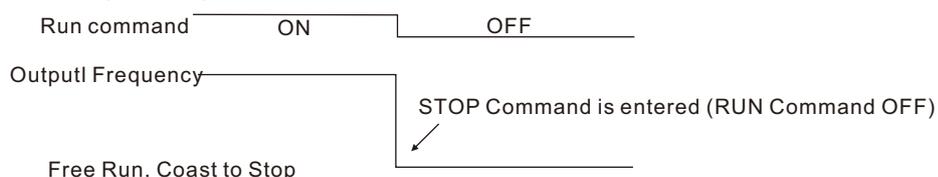
B1-09 Auxiliary Operation Method Selection	X O O X X
Setting Value	
LCP MOPs	@ [0]
Terminals	[1]
Serial Communication	[2]
Function Name	
Auxiliary Operation Command Source Selection	

B1-10 Auxiliary Reference Selection	X O O X X
Setting Value	
LCP MOPs	@ [0]
Terminals	[1]
Serial Communication	[2]
Pulse Train/PWM Input (D6)	[4]
POT	[5]
Terminal MOPs	[6]
Function Name	
Auxiliary Frequency Reference Source Selection	

B1-12 Auto Voltage Regulation	X O O X X
Setting Value	
AVR Enable	@ [0]
AVR Disable	[1]
Function Name	
Auto Voltage Regulation (AVR) for Output Selection	
Function Description	

AVR Enable is the VFD control PWM to maintain the Output Voltage Stability when Input Voltage Variation, and vise versa.

	Run	Mod	Initia	V/F	o2-4
B1-11 Terminal Control Selection	X	O	O	X	X

Setting Value	
FOR/STOP-REV/STOP	@ [0]
RUN/STOP-FOR/REV	[1]
3 Wires Control	[2]

Function Name
Multifunction Input Terminals Control Method Selection

Function Description

● B1-11 is Enabled after B1-02 or B1-09=1(Terminals)
● The LCP STOP Key can be use for a Auxiliary Stop Key during External Terminal Operation (B1-02 or B1-09=1, please refer to O2-02).
● When B1-02 or B1-09 =0, the VFD Stop if FWD and REV Signal are activated at the same time.

The Terminals Connection and Signal Timing Sequence are Described as below:
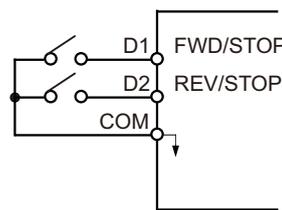
a) B1-11= "0" b) B1-11= "1"
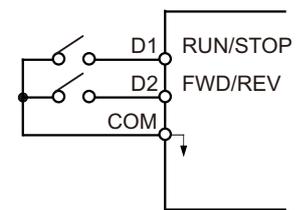
c) B1-11= "2"
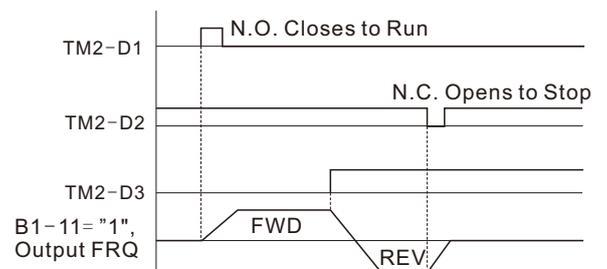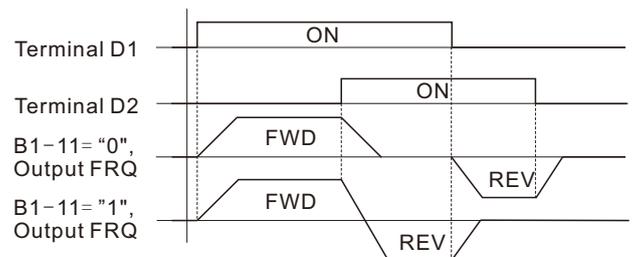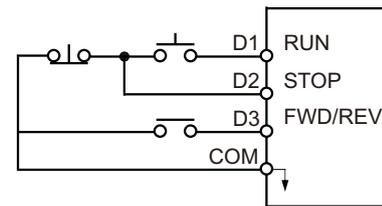
Fig. Terminal Signal Timing Sequence

5.3.2 DC Brake: B2

B2-01 DC Braking Frequency at Stop	X O O X X
Setting Value	
0.10~ 10.00 (0.01 Hz)	@ 1.5
Function Description	

Sets the Frequency at which DC Injection Braking Starts, in Units of 0.01 Hz.
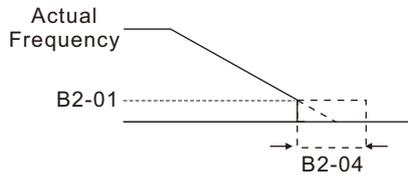
Note: When Coast to Stop is selected as the Stopping Method (B1-03), DC Injection Braking at Stop is Disabled.

B2-02 DC Braking Current at Stop	X O O X X
Setting Value	
0.0~ 150.0 (0.1 %)	@ 50.0
Function Description	

DC Injection Braking Current is set as a Percentage of VFD Rated Current. This parameter should not be set unnecessarily High or Motor Over-excitation may occur.

B2-03 DC Braking Time at Start	X O O X X
Setting Value	
0.0~ 25.5 (0.1 Sec.)	@ 0.0
Function Description	

DC Injection Braking at Start can be used to stop a Spinning Motor (or when Motor Rotation Direction is unknown) prior to Running. DC Injection Braking Time at Start is set in Units of 0.1 Second. When B2-03 is set to "0", DC Injection Braking is disabled and Acceleration Starts from the Minimum Output Frequency.

B2-04 DC Braking Time at Stop	X O O X X
Setting Value	
0.0~ 25.5 (0.1 Sec.)	@ 0.5
Function Description	

DC Injection Braking Time at stop is set in units of 0.1 second.
When B2-04 is set to "0", DC Injection Braking is Disabled, and the VFD Output Shuts OFF.

B2-09 DC Braking Current at Start	X O O X X
Setting Value	
0.0~ 150.0 (0.1 %)	@ 0.0
Function Description	

DC Injection Braking Current is set as a Percentage of VFD Rated Current. This parameter should not be set unnecessarily High or Motor Over-excitation may occur.
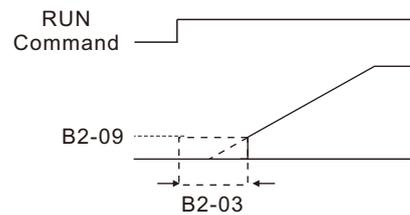
5.3.3 Speed Search: B3

B3-01 Speed Search at Start	X O O X X
Setting Value	
Speed Search Disable	@ [0]
Speed Search Enable	[1]
Function Name	
Speed Search after Run Command	
Function Description	

When starting into a Coasting Motor, use the Speed Search Command or DC Injection Braking at Start, to prevent a VFD trip and Motor burnout.

5.3.4 PID Control: B5

B5-01 PID Control Mode Selection	X O O X X
Setting Value	
PID Disable	@ [0]
PID Enable (Deviation Signal is put through Deviate Control)	[1]
PID Enable with Feed Forward (Feedback Signal is put through Deviate Control)	[2]
PID Enable (Deviation Signal is put through Deviate Control, the Deviate Control with Invert Characteristic)	[3]
PID Enable with Feed Forward (Feedback Signal is put through Deviate Control, the Deviate Control with Invert Characteristic)	[4]

Function Description

[1]: D is the variation(Target – Feedback) in the per unit Time(B5-02)

[2]: D is the Feedback Value in the per unit Time(B5-02)

[3]: D is the variation(Target – Feedback) in the per unit Time(B5-02) with Invert Feature.

[4] D is the Feedback Value in the per unit Time(B5-02) with Invert Feature.

For [1] & [2], when the Target – Feedback is Positive, the Frequency Increase.

For [3] &[4], the Frequency Decrease when Target – Feedback is Positive, vise versa.

As Figure PID Control below, Example for Set Value 3 or 4 (Invert Feature)
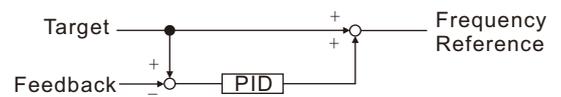
Fig. PID Control Value 3 or 4

■ Purpose for PID Control

Applications using PID Control of the VFD, as shown in the Table below.

● Examples of used PID Control

Application	Control Feature	Detector/ Sensor
Speed Control	♦ Operating Speeds are matched to Target Values as Speed Information in a Mechanical System. ♦ Speed Information for another Mechanical System is Input as Target Values, and Synchronized Control is executed by Feeding back Actual Speed	Tachogenerator (0~10V, 0/4~20mA)
Pressure Control	Pressure Information is returned as Feedback for Stable Pressure Control.	Pressure Sensor
Flow Control	Flow Information is returned as Feedback for Accurate Flow Control.	Flow Sensor
Temperature Control	Temperature Information is returned to Control Temperature by turning a Fan.	Thermocouple Thermistor

● Example of used PID Control

In order to Distinguish the Separate PID Control Operations (i.e., Proportional, Integral, and Deviation), Fig. PID Control Operations shows the changes in the Control Input (i.e. the Output Frequency) when the Deviation between the Target Value and Feedback is held Consult.
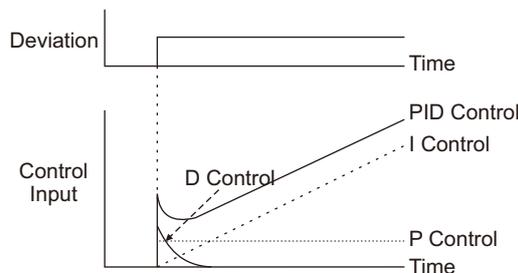
Fig. PID Operation

■ Function of P, I, D and PID

● **Proportional – P Control**: A control Input Proportional to the Deviation is Output. The Deviation can't be Zero by P Control alone.
● **Integral – I Control**: A Control Input which is an Integral of the Deviation is Output. This is effective for matching the Feedback to the Setpoint Value. Suddenly changes, however can't be followed.
● **Derivative – D Control**: A Control Input which is an Integral of the Deviation is Output. Quick response to sudden changes is possible.
● **PID Control**: Optimum Control is achieved combining the best feature of P, I, and D Control.

■ Type of PID Control

Two type of PID Control are possible with the VFD: Measured-Value Derivative PID Control and Basic PID Control.
The Type that is Normally used is Measured-Value derivative PID Control. Please refer the Description below:

● **Measured-Value Derivative PID Control:**

With Measured-Value Derivative PID Control, the Feedback Value is Differentiated for PID Control. Response is possible with respect to change both in Setpoint Values and the Control object.
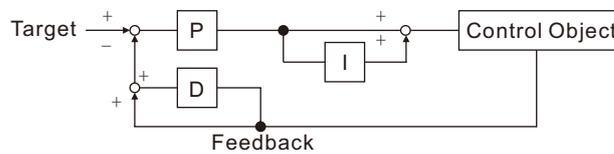
Fig. Measured-Value Derivative PID Control Diagram

● **Basic PID Control:**

This is the Basic form of PID Control. When the D Control Response is adjusted to follow changes in the Control Object, Overshooting and Undershooting can occur with changes in the Setpoint Value.
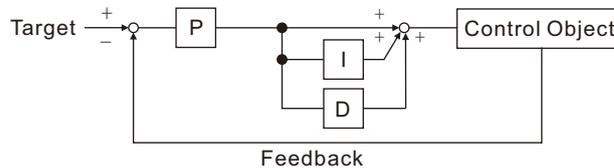
Fig. Basic PID Control Diagram

■ PID Function Block
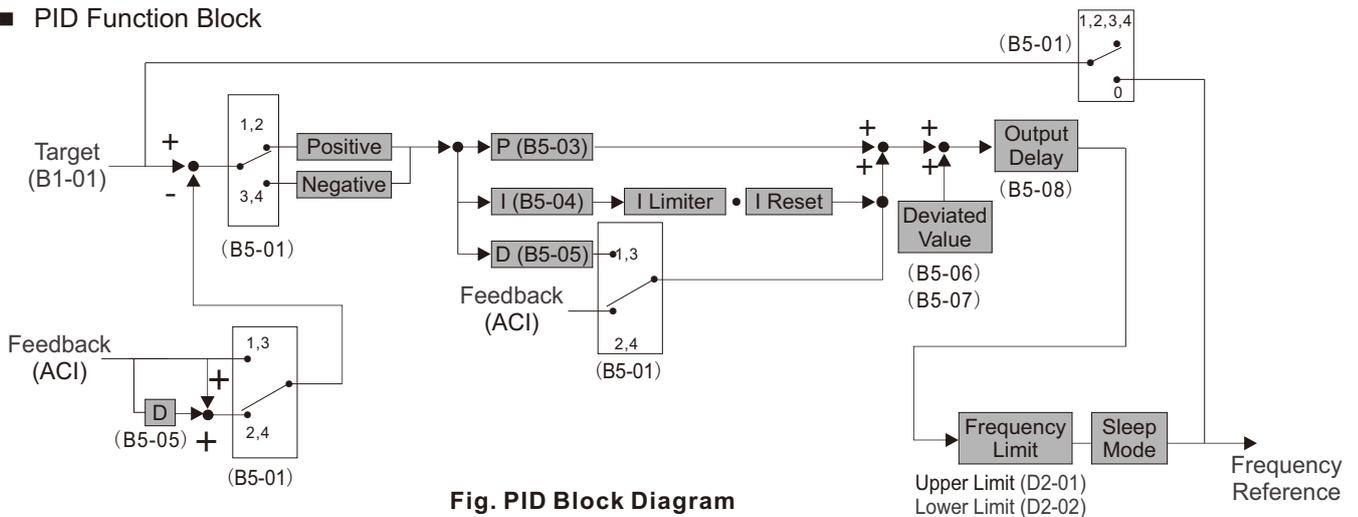
Fig. PID Block Diagram

Note:
1. Runs the PID Control, please set Terminal **ACI** Function Selection to "PID Feedback (H3-09=0).
2. The Set Value of Target (B1-01) in Fig. PID Block Diagram is the Frequency of in B1-01 or B1-10 set.

B5-02 PID Feedback Regulated Gain   O O O X X

Setting Value

0.00~10.00   @ 1.00

Function Description

B5-02 is the Feedback Proportional Coefficient, the Deviation is equal to (Target - Feedback) X B5-02

B5-03 PID Control Proportional Gain   O O O X X

Setting Value

0.0~10.0   @ 1.0

Function Description

The Proportional Gain is the Value by which the Deviation Signal is Multiplied to generate a new Frequency Reference.
The PID is not activated if B5-03=0.0

B5-04 PID Control Integral Time   O O O X X

Setting Value

0.0~100.0   (Sec.)   @ 10.0

Function Description

The Integral Calculation sums the Deviation over time, which eliminates the Offset, thus achieving the Intended Value. The Integral Time determines how quickly the Integral Gain increase is added to the Control Loop.

B5-05 PID Control Derivative Time   O O O X X

Setting Value

0.00~10.00   (Sec.)   @ 0.00

Function Description

The Derivative Calculation attempts to control the Remaining Overshoot left over after the Proportion and Integral Calculations.
If the System is approaching the Intended Value very rapidly, the Derivative Control produces a Strong Braking Action to prevent Overshoot.

If the System is already Stable with very Little Deviation change, Derivative Control has very Little Effect.
The Derivative Time is used to dampen Oscillations and reduce Overshoot, thus improving stability. Setting the Derivative Time to a Larger Number produces more Braking Action in the Control System.

B5-06 PID Control Offset +/- Selection O O O X X

Setting Value

Positive   @ [0]
Negative   [1]

Function Name

PID Control Bias Positive/ Negative Selection

Function Description

Set the PID Offset in Positive or Negative Value.

B5-07 PID Control Offset   O O O X X

Setting Value

0~ 109   (%)   @ 0

Function Description

The PID Offset adds a Bias to the Calculated PID Value, in order to reduce any Offset.

	Run	Mod	Initia	V/F	o2-4

B5-08 PID Control Delay Time   O O O X X

Setting Value

0.0~2.5   (Sec.)   @ 0.0

Function Name

PID Control Output Primary Delay Time

Function Description

The output delay time is used to delay changes in the calculated PID value, which can prevent oscillations and improve stability.

B5-09 PID Feedback Loss Action   X O O X X

Setting Value

Disabled   @ [0]
Alarm, VFD keep Operating   [1]
Fault, VFD Output Shut Off   [2]

Function Description

This Parameter is used to select what Action the VFD will take on a Loss of PID Feedback.
[1]: Alarm, the LCP show "FBL" Message only, VFD Keep Operating.
[2]: Fault, the LCP show "FBL" Message and VFD Output Shut Off.

A Loss of PID Feedback occurs when the Feedback Signal falls below the B5-10 FBL Detection Level for the Time set by B5-11 FBL Detection Time.

B5-10 Feedback Loss Detection Level X O O X X

Setting Value

0~100   (%)   @ 0

Function Description

This Parameter sets the Level at which a Loss of PID Feedback is detected. The Deviation is equal to Target - Feedback, if the Deviation must be at or below this level for the Time defined by B5-11 before a Loss of Feedback can be detected. A Setting of 100% represents 100% of the Feedback Signal.

B5-11 Feedback Loss Detection Time X O O X X

Setting Value

0.0~25.0   (Sec.)   @ 1.0

Function Description

See B5-10 and B5-11

B5-12 PID Control Integral Limit   O O O X X

Setting Value

0~109   (%)   @ 100

Function Description

The Integral Limit Value eliminates Oscillations and improves Stability. This Value is set as a Percentage of Maximum Output Frequency (E1-04).

S
1
2
3
4
5
6
7
A

YD101 Series   @ = Default Value   **Yolico**

B5-14 PID Sleep Frequency	X O O X X

Setting Value

0.00~650.00   (Hz)   @ 0.00

Function Description

If the PID Output is equal to or less than B5-14 set Value for the Time set by B5-15 PID Sleep Delay Time, the VFD will go to Sleep.

B5-15 PID Sleep Delay Time	X O O X X

Setting Value

0.0~25.0   (Sec.)   @ 0.0

Function Description

If the PID Output is equal to or less than B5-14 set Value for the Time set by B5-15 PID Sleep Delay Time, the VFD will go to Sleep.

B5-16 PID Wake Up Frequency	X O O X X

Setting Value

0.00~650.00   (Hz)   @ 0.00

Function Description

The PID Wake-up Level B5-16 and Wake-up Delay Time B5-17 are related to the Reference when VFD should Wake-up or Start again.

B5-17 PID Wake Up Delay Time	X O O X X

Setting Value

0.0~25.0   (Sec.)   @ 0.0

Function Description

PID Sleep Mode is activated when to meet all Conditions below:
B5-01≠ 0 (PID Enabled)
H3-09= 0 (PID Feedback Enabled)
B5-14 PID Sleep Frequency, unit as Hz
B5-15 PID Sleep Delay Time, unit as Second
B5-16 PID Wake Up Frequency, unit as Hz
B5-17 PID Wake Up Delay Time, unit as Second

When the PID Output is equal to or less than B5-14 set Value for the Time set by B5-15 PID Sleep Delay Time, the VFD Output will Shut off then go to Sleep.
If the PID Output is equal to or more than B5-16 set Value for the Time set by B5-17, the VFD will Wake Up.

S 1 2 3 4 5 6 7 A

Fig. PID Sleep Process

5.4 Tuning, Group (C)

5.4.1 Acceleration/ Deceleration Time: C1

C1-01 Acceleration Time 1	O O O X X
Setting Value	
0.1~3600.0 (Sec.)	@ 10.0
Function Description	

The Acceleration Time is defined as the Time it takes for VFD Output Frequency to accelerate from 0% to 100% Motor Rated Frequency.

$$\text{ACC Time} = \frac{\text{C1-01 (or C1-03) X Frequency Reference}}{\text{T1-05}}$$

C1-02 Deceleration Time 1	O O O X X
Setting Value	
0.1~3600.0 (Sec.)	@ 10.0
Function Description	

As Acceleration Time, the Deceleration Time is defined as the Time it takes for VFD Output Frequency to Decelerate from 100% to 0% Motor Rated Frequency.

$$\text{DEC Time} = \frac{\text{C1-02 (or C1-04) X Frequency Reference}}{\text{T1-05}}$$

C1-03 Acceleration Time 2	O O O X X
Setting Value	
0.1~3600.0 (Sec.)	@ 10.0
Function Description	

When any Multifunction Digital Input Selections (H1-01 to H1-06) are set to "1A" for Multi-ACC/ DEC 2,this ACC Time is Enabled by activating Closing the selected Input Terminal.

C1-04 Deceleration Time 2	O O O X X
Setting Value	
0.1~3600.0 (Sec.)	@ 10.0
Function Description	

As Acceleration Time 2, this DEC Time enabled when any Multifunction Digital Input Selections (H1-01 to H1-06) are set to "1A" for Multi-ACC/ DEC 2 and the selected Input Terminal is activated.

5.4.2 S Curve ACC/ DEC: C2

An S-Curve Pattern is used to Reduce Shock and provide Smooth Transitions during Machine Acceleration and Deceleration. S-Curve Characteristic Time is the Time from the Output Frequency to the set ACC/ DEC Time.

C2-01 S-Curve at Accelerating Start	X O O X X
Setting Value	
0.0~4.0 (Sec.)	@ 0.2

C2-02 S-Curve at Accelerating End	X O O X X
Setting Value	
0.0~4.0 (Sec.)	@ 0.2

C2-03 S-Curve at Decelerating Start	X O O X X
Setting Value	
0.0~4.0 (Sec.)	@ 0.2

C2-04 S-Curve at Decelerating End	X O O X X
Setting Value	
0.0~4.0 (Sec.)	@ 0.2

● S-Curves Characteristic Timing

There are 4 S-Curves could be set separately, S-Curve at ACC Start/ End, S-Curve at DEC Start/ End.
The following Figure shows a S-Curve Timing Pattern for VFD Run and Stop in Motor Rated Frequency.

Actual ACC Time=

$$\text{C1-}\_ + \frac{\text{C2-01+ C2-02}}{2}$$

Actual DEC Time=

$$\text{C1-}\_ + \frac{\text{C2-03+ C2-04}}{2}$$

Fig. S-Curve Characteristic Timing Diagram

5.4.3 Motor Slip Compensation at V/F Control: C3

C3-01 Motor Rated Slip Compensation	X	O	O	O	X

Setting Value

0.0~200.0 (%)   @ 0.0

Function Description

This Function controls the Output Frequency in response to the Load's Torque demand, it is used for some Application needs to increase the Sped Precision in V/F Control.

The C3-01 is calculated as Formula below:

$$C3\text{-}01 = \frac{\text{Motor Synchrospeed} - \text{Motor Rated Frequency}}{\text{Motor Synchrospeed}}$$

● Motor Rated Speed: Please see the Motor Nameplate Data.
● Motor Synchrospeed is equal to:

$$\frac{120 \times \text{Motor Rated Frequency}}{\text{Number of Motor Poles}}$$

i.e. 4 Poles, 50Hz Induction Motor, the Synchrospeed= 120 * 50/ 4= 1500 (RPM)

C3-02 Slip Compensation Delay Time	X	O	O	O	X

Setting Value

0.05~10.00 (Sec.)   @ 0.10

Function Name

Slip Compensation Primary Delay Time

Function Description

Adjust the Slip Compensation Delay Time when Motor Speed is Unstable or Speed Response is Slow. Increase the Set Value when Motor Operating is Unstable, Decrease the Set Value as the Motor Speed Response is Slow.

Note: The Slip Compensation Frequency is equal to Formula below:

$$\text{Slip Compensation Frequency} = \frac{\text{Output Current} - (E2\text{-}03)}{(E2\text{-}01) - (E2\text{-}03)} \times (C3\text{-}01)$$

E2-01: Motor Rated Current
E2-03: Motor No Load Current
The Default Value of E2-03 will be different depends the O2-04 (Inverter Model). Please adjust E2-03 up to Motor Condition.

5.4.4 Torque Compensation: C4

C4-01 Torque Compensation @ V/F	X	O	O	O	X

Setting Value

0.0~30.0 (%)   @ 10.0

Function Name

Torque Compensation Gain for V/F Pattern

Function Description

Normally, no Adjustment is necessary for Torque Compensation Gain. In V/F Control, please adjust the Torque Compensation Gain for follow Condition.
● Wiring Distance between the VFD and the Motor is long, Increase C4-01.
● Motor Size is less than VFD Rating, Increase C4-01.
● Motor generates excessive Vibration, Decrease C4-01.

Note : Increasing Torque Compensation Gain increases Motor Torque, but an Excessive increase may cause the following:
● VFD Fault Trips due to Motor Overexcitation
● Motor Overheat or Excessive Vibration.

5.4.5 Carrier Frequency: C6

C6-01 Carrier Frequency Set	X	O	O	X	X

Setting Value

1~15 kHz   @ 5

Function Name

Carrier (Switching) Frequency Selection

Function Description

With the Possibility of Running at Higher Switching Frequency that can Reduce the Audio Noise Level of Motor.
At Switching Frequency > than 5kHz, Heavy Load or Harsh Application might cause the VFD in "OH" Fault , Derating might be Needed.

C6-06 Carrier Frequency Selection	X	O	O	X	X

Setting Value

Carrier Mode 0   [0]
Carrier Mode 1   @ [1]
Carrier Mode 2   [2]

Function Name

Carrier (Switching) Frequency Modulation Selection

Function Description

[0]: Full Range SVPWM Modulation for High Speed Accuracy, Low Motor Audio Noise or High RPM Application. This setting will cause High Drive Temperature Rise, derating or additional Cooling Device if Require.
[1]: 0~half Rated Frequency is 2 Phase Modulation for General HVAC or an Application which Speed Accuracy and Motor Noise is not so strict.
[2]: Auto Adjusting Modulation between Temperature Rise and Motor Noise.

S
1
2
3
4
5
6
7
A

5.5 Reference, Group (D)

5.5.1 Preset References: D1

D1-09 JOG Frequency Reference	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 2.00
Function Description	

The Jog Frequency Reference can be set in this Parameter. The VFD will Run at this Frequency when any Multifunction Digital Input Selections (H1-01~ H1-06) are set to "12 FWD JOG" or "13 REV JOG" and the selected Terminal is activated.

D1-10 JOG Acceleration Time	O O O X X
Setting Value	
0.1~25.5 (Sec.)	@ 0.5
Function Description	

Please Refer to Parameter C1-01.

D1-11 JOG Deceleration Time	O O O X X
Setting Value	
0.1~25.5 (Sec.)	@ 0.5
Function Description	

Please Refer to Parameter C1-02.

D1-12 Multi-step Speed ACC/DEC Time	O O O X X
Setting Value	
ACC/ DEC Time by C1-01~ C1-04	@ [0]
ACC/ DEC Time is up to D1-29~ D1-60 Separately	[1]
Function Name	

Multi-Step Speed ACC/ DEC Time Method Selection

Function Description

[0]: The separate ACC/ Dec/ Time (D1-29 to D1-60) of Master/ Auxiliary Reference & Multi-step Speed are disabled, the ACC/ DEC Time is according to C1-01 to C1-04.

[1]: The ACC/ Dec/ Time of Master/ Auxiliary Reference (Preset Speed 0) & Multi-step Speed 1~15 (D1-14 to D1-28) are according to D1-29 to D1-60.

D1-13 MOPs Speed/ Preset Speed 0	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 5.00
Function Description	

MOPs Speed: LCP/ Terminal MOPs Frequency Reference, if B1-01/ B1-10= "0" or "6".

D1-14 Multi-Step Preset Speed 1	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 5.00

D1-15 Multi-Step Preset Speed 2	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 10.00

D1-16 Multi-Step Preset Speed 3	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 15.00

D1-17 Multi-Step Preset Speed 4	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 20.00

D1-18 Multi-Step Preset Speed 5	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 25.00

D1-19 Multi-Step Preset Speed 6	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 30.00

D1-20 Multi-Step Preset Speed 7	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 35.00

D1-21 Multi-Step Preset Speed 8	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 40.00

D1-22 Multi-Step Preset Speed 9	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 45.00

D1-23 Multi-Step Preset Speed 10	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 50.00

D1-24 Multi-Step Preset Speed 11	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

D1-25 Multi-Step Preset Speed 12	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

D1-26 Multi-Step Preset Speed 13	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

D1-27 Multi-Step Preset Speed 14	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

D1-28 Multi-Step Preset Speed 15	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

D1-29 ACC of REF Source/ Preset 0	O O O X X
Setting Value	
0.1~3600.0 (Sec.)	@ 10.0
Function Name	

ACC Time of Reference Source Speed/ Preset Speed 0

D1-30 DEC of REF Source/ Preset 0	O O O X X
Setting Value	
0.1~3600.0 (Sec.)	@ 10.0
Function Name	

DEC Time of Reference Source Speed/ Preset Speed 0

S
1
2
3
4
5
6
7
A

D1-31 ACC Time of Preset Speed 1   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-32 DEC Time of Preset Speed 1   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-33 ACC Time of Preset Speed 2   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-34 DEC Time of Preset Speed 2   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-35 ACC Time of Preset Speed 3   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-36 DEC Time of Preset Speed 3   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-37 ACC Time of Preset Speed 4   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-38 DEC Time of Preset Speed 4   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-39 ACC Time of Preset Speed 5   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-40 DEC Time of Preset Speed 5   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-41 ACC Time of Preset Speed 6   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-42 DEC Time of Preset Speed 6   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-42 ACC Time of Preset Speed 7   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-44 DEC Time of Preset Speed 7   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-45 ACC Time of Preset Speed 8   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-46 DEC Time of Preset Speed 8   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-47 ACC Time of Preset Speed 9   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-48 DEC Time of Preset Speed 9   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-49 ACC Time of Preset Speed 10   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-50 DEC Time of Preset Speed 10   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-51 ACC Time of Preset Speed 11   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-52 DEC Time of Preset Speed 11   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-53 ACC Time of Preset Speed 12   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-54 DEC Time of Preset Speed 12   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-55 ACC Time of Preset Speed 13   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-56 DEC Time of Preset Speed 13   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-57 ACC Time of Preset Speed 14   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-58 DEC Time of Preset Speed 14   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-59 ACC Time of Preset Speed 15   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

D1-60 DEC Time of Preset Speed 15   O O O X X
Setting Value
0.1~3600.0 (Sec.)   @ 10.0

Y D101 Series   @= Default Value   **Yolico**

■ Real Acceleration/ Deceleration Time Calculation

The Acceleration Time is defined as the Time it takes for VFD Output Frequency to accelerate from 0% to 100% Motor Rated Frequency. It takes the Motor Rated Frequency (T1-05) as the Denominator in Calculation below.

$$\text{Actual ACC Time=} \quad \frac{\text{C1-\_\_ X Frequency Reference}}{\text{T1-05}} + \frac{\text{C2-01+ C2-02}}{2}$$

$$\text{Actual DEC Time=} \quad \frac{\text{C1-\_\_ X Frequency Reference}}{\text{T1-05}} + \frac{\text{C2-03+ C2-04}}{2}$$

i.e.: T1-05= 50Hz(Motor Rated Frequency), D1-14=10Hz(Preset Speed), D1-31= 5Sec.(ACC Time), D1-32=- 20Sec.(DEC Time), C2-01~C2-04= 0.2Sec.(S-Curve)

$$\text{ACC Time=} \quad \frac{\text{D1-31 X 10Hz}}{\text{T1-05}} + \frac{0.2 + 0.2}{2} = 1.2 \text{ (S)}$$

$$\text{DEC Time=} \quad \frac{\text{D1-32 X 10Hz}}{\text{T1-05}} + \frac{0.2 + 0.2}{2} = 4.2 \text{ (S)}$$

■ When D1-12=1 (ACC/ DEC Time is up to D1-29~ D1-60), there are two Time Setting modes as example below.

i.e. B1-02=1 (Terminals), B1-11=1 (RUN/STOP & FWD/REV), H1-01=80 (D1= FWD/STOP), H1-02= 81 (D2= REV/STOP), H1-03=3 (D3= Preset Speed bit 1), H1-04=4 (D4= Preset Speed bit 2), H1-05= 5 (D5= Preset Speed bit 3).

● **Mode 1: ACC/ DEC Time Calculation for each Preset Speed, when RUN Command off & On.**
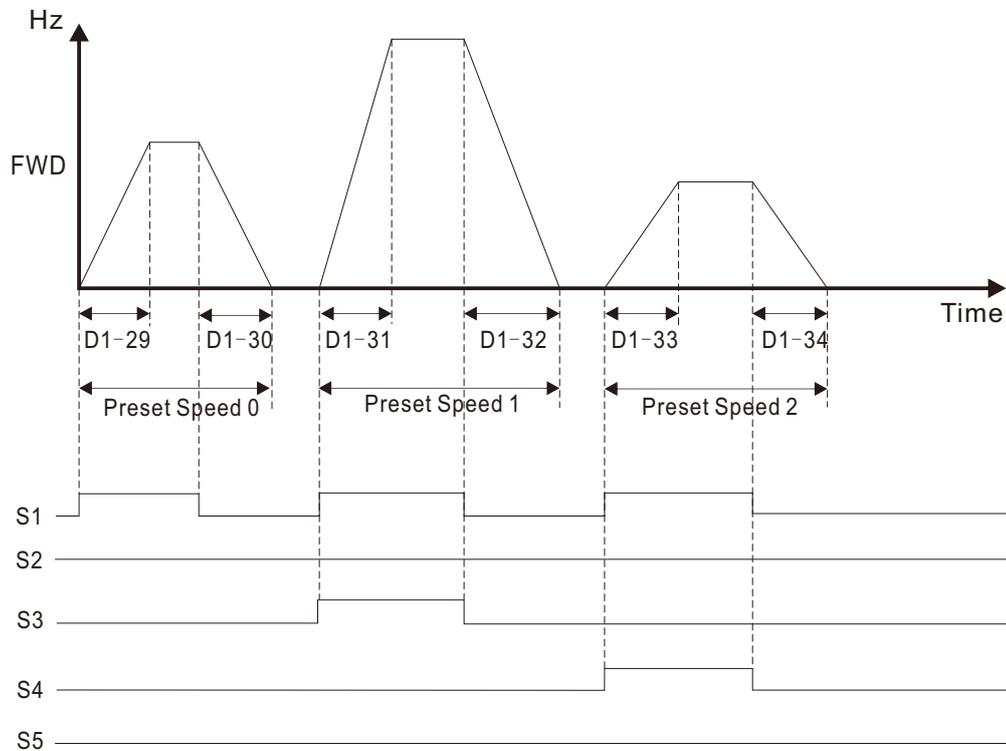

Fig. 1-1

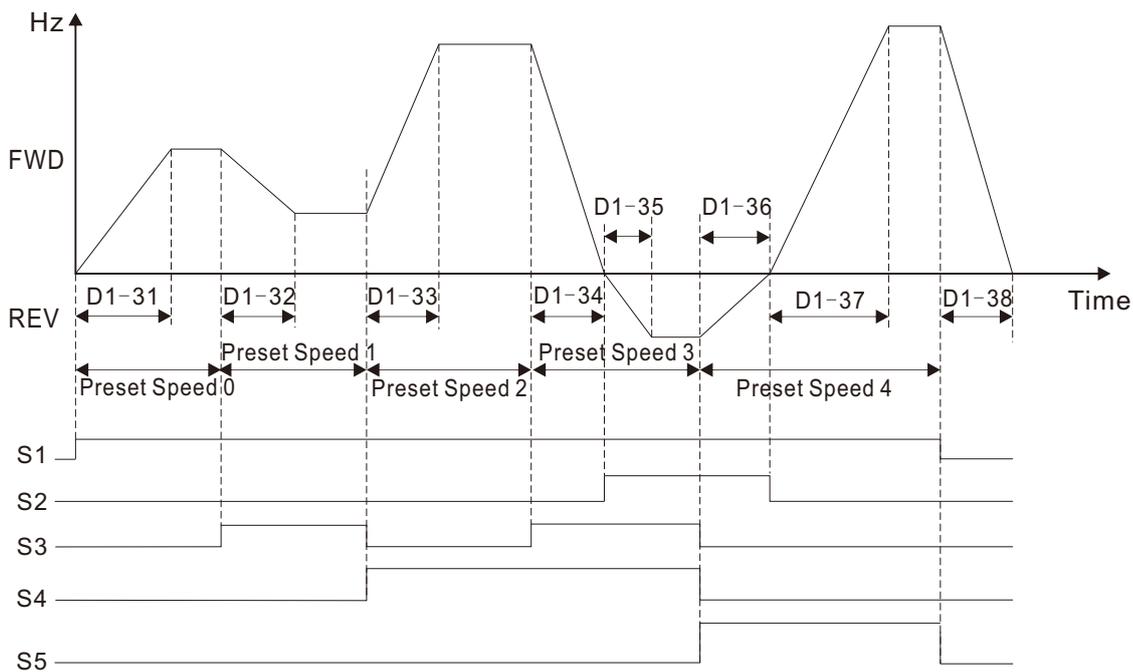●**Mode 2: ACC/ DEC Time Calculation for each Preset Speed, when RUN Command Continued.**

Fig. 1-2

5.5.2 References Limits: D2

D2-01 Frequency Upper Limit	X O O X X
Setting Value	
0.01~650.00 (Hz)	@ 50.00
Function Name	
Frequency Reference Upper Limit	
Function Description	

In VVT Control (A1-02= 5), the Set Range of D2-01 is 0.01~200.00 Hz.
In V/F Control (A1-02= 0), D1-01 set Value must be ≤ E1-04 (Maxi. Frequency), and the Set Range of D2-01 is 0.01~650.00 Hz.
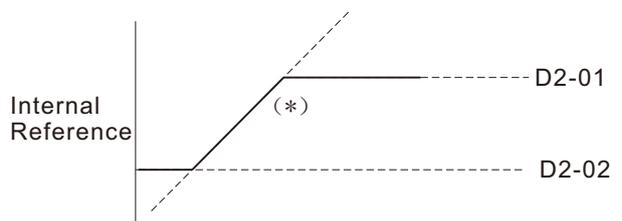
D2-02 Frequency Lower Limit	X O O X X
Setting Value	
0.00~649.99 (Hz)	@ 0.00
Function Name	
Frequency Reference Lower Limit	

∗: 1. If D2-02= 0 Hz and Frequency Reference= 0, then VFD is in 0 Speed.
   2. If D2-02> 0Hz and Frequency Reference≤ D2-02, then VFD Output by D2-02 Value.

5.5.3 Jump Frequencies: D3

This Function allows the Prohibition or "Jumping" of Critical Frequencies so that the Motor can operate without Resonant Vibrations caused by some Machine Systems. This Function is also used for Dead-Band Control. Setting the Value to 0.00Hz disables this Function.

D3-01 Jump Frequency Reference 1	X O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00
Function Name	
Set the Center Value of Prohibition Frequency	

D3-02 Jump Frequency Reference 2	X O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

D3-03 Jump Frequency Reference 2	X O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

D3-04 Jump Frequency Bandwidth	X O O X X
Setting Value	
0.00~30.00 (Hz)	@ 0.00
Function Name	
The Prohibition Frequency Range is equal to D3-0_ ± D3-04 (Jump Frequency Reference ± Bandwidth)	

S
1
2
3
4
5
6
7
A
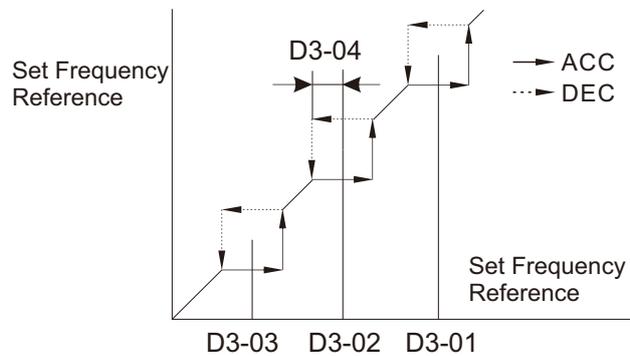
5.6 V/F Pattern & Motor, Group (E)

5.6.1 V/F Pattern: E1 (V/F Control Only)

E1-01 Input Mains Voltage	X O O O X
Setting Value	
170.0~264.0 (VAC)	@ 220.0
323.0~528.0 (VAC)	@ 380.0
Function Description	

Sets the VFD Input Voltage in Units of 1V, this Value as Datum of Protection Function. Please Set the Value in according to Actual Mains Voltage.

E1-03 V/F Pattern Selection	X O O O X
Setting Value	
Preset V/F Pattern can be Selected	[0]~[E]
Custom V/F Pattern can be Set	@ [F]
Function Description	

Choose a Preset V/F Pattern for Operation in V/F Modes only. It may be necessary to change the V/F Pattern when using a High-Speed Motor, or when Special Torque Adjustment is required in the Application.
Set the V/F Pattern according to the Applications described in the Table **V/F Pattern for Applications**.

■ V/F Pattern for Applications

Application	Specification		E1-03 Value
General Purpose	50Hz		0,F*
	60Hz		1,F*
	60Hz (50Hz Saturation)		2
	72Hz (60Hz Saturation)		3
Variable Torque	50Hz	Variable Torque 1	4
		Variable Torque 2	5
	60Hz	Variable Torque 1	6
		Variable Torque 2	7
High Starting Torque	50Hz	High Starting Torque 1	8
		High Starting Torque 2	9
	60Hz	High Starting Torque 1	A
		High Starting Torque 2	B
High Speed Operation	90Hz (60Hz Saturation)		C
	120Hz (60Hz Saturation)		D
	180Hz (60Hz Saturation)		E

**Note:** The Default V/F Specification (Setting: F) depends on A1-03 Initialize Value.

Note:

1. The Following Conditions must be considered when selecting a V/F Pattern:
   • The Voltage and Frequency Characteristics of the Motor.
   • The Maximum Speed of the Motor.
2. Select a High Starting Torque V/F Pattern Only under the Following Conditions:
   • The Wiring Distance is long.
   • Large Voltage Drop at Start-up.
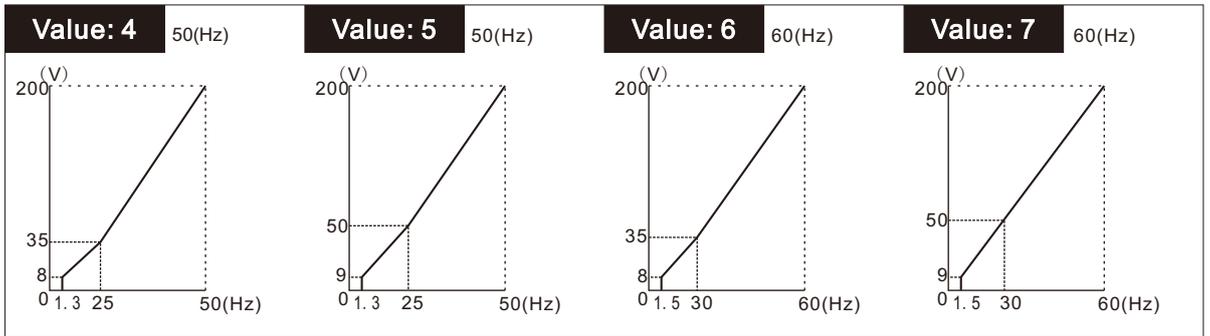   • AC Reactor is connected to the VFD's Input or Output.

■ 1.5kW V/F Pattern
The Voltages showed below are for 200 V class VFDs. Double the Voltages if 400 V class VFDs.
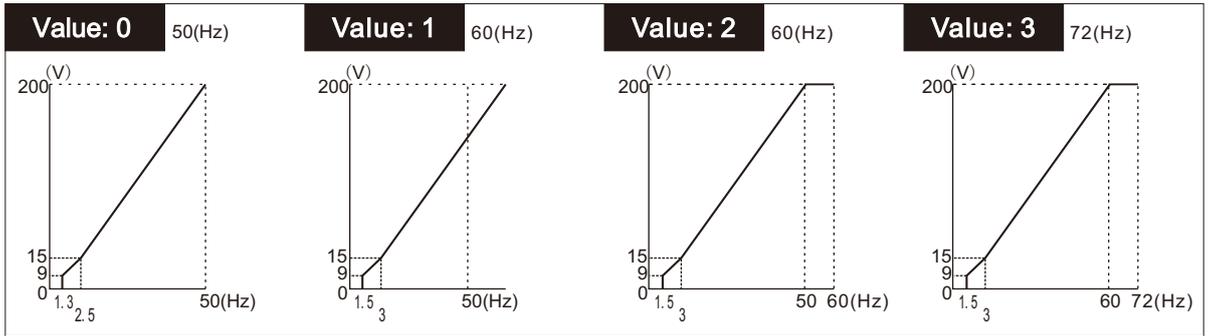
● General Purpose (Value: 0~3)

● Variable Torque (Value: 4~7)

● High Starting Torque (Value: 8~B)

● High Speed Operation (Value: C~E)

■ 2.2~ 4.5kW V/F Pattern

The Voltages showed below are for 200 V class VFDs. Double the Voltages if 400 V class VFDs.
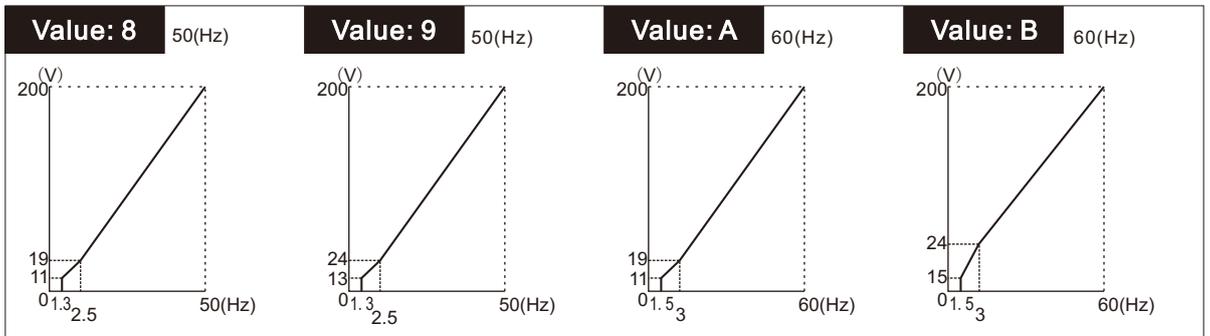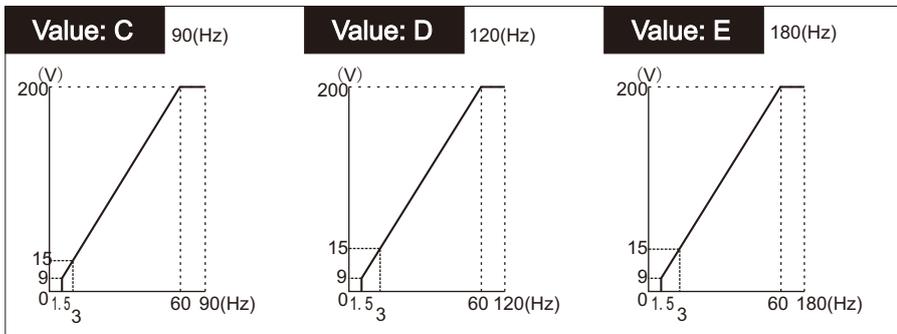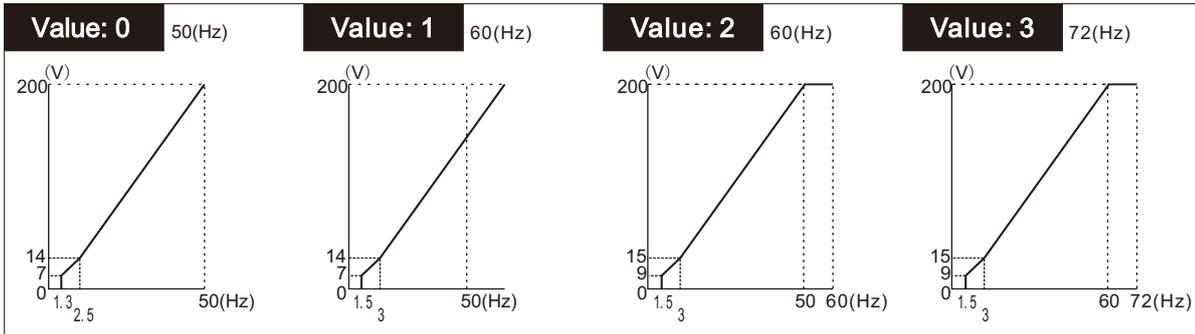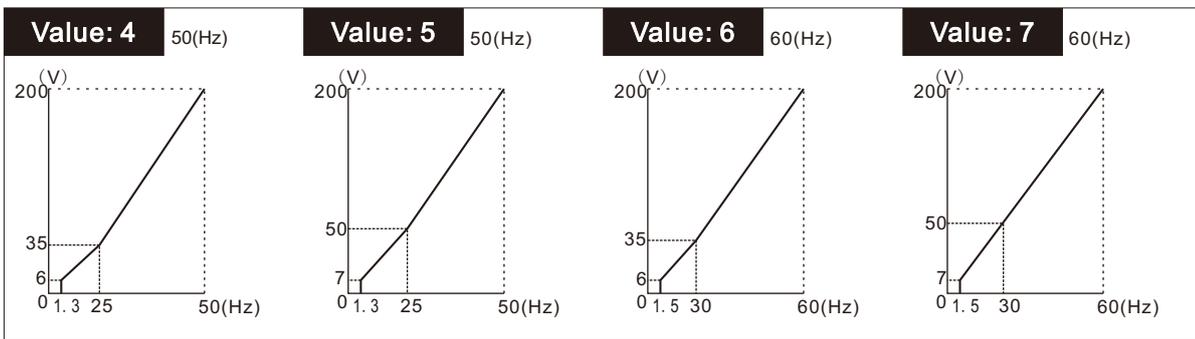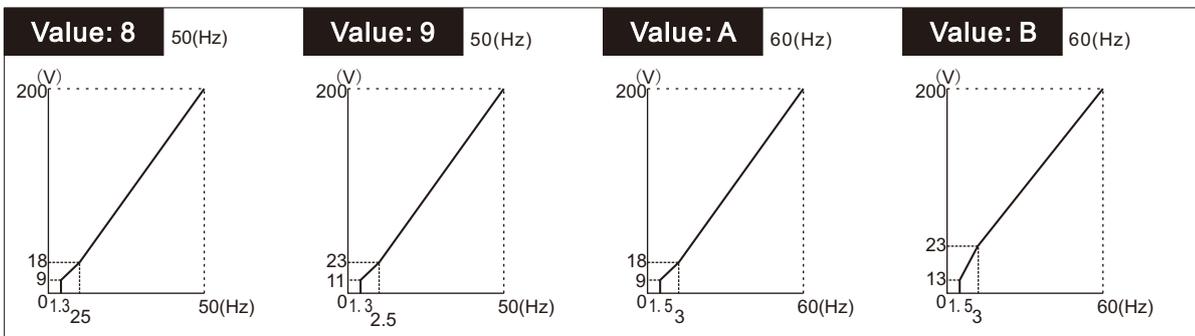
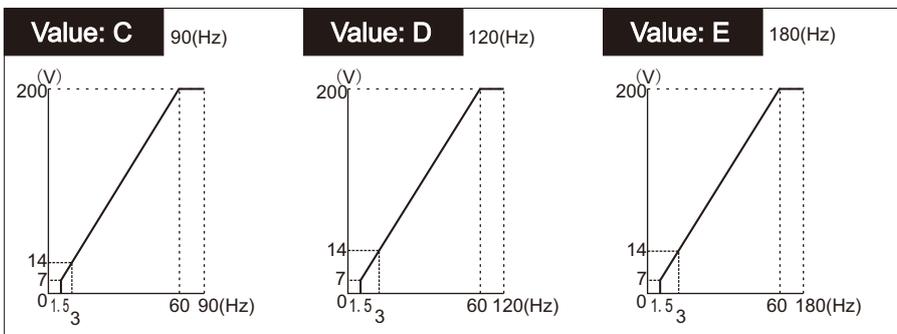### ● General Purpose (Value: 0~3)

● Variable Torque (Value: 4~7)

● High Starting Torque (Value: 8~B)

● High Speed Operation (Value: C~E)

■ Custom V/F Pattern

Set up a Custom V/f Pattern by setting Parameter E1-03 to "F", and then setting the Values in Parameters E1-04 to E1-13

E1-04 Maximum Output Frequency	X O O O X
Setting Value	
40.00~650.00 (Hz)	@ 50.00

E1-05 Maximum Output Voltage	X O O O X
Setting Value	
0.0~255.0 (V)	@ 200.0

E1-06 Base Frequency	X O O O X
Setting Value	
0.10~650.00 (Hz)	@ 50.00

E1-07 Middle Output Frequency A	X O O O X
Setting Value	
0.10~650.00 (Hz)	@ 2.50

E1-08 Middle Output Voltage A	X O O O X
Setting Value	
0.0~255.0 (V)	@ 15.0

E1-09 Minimum Output Frequency	X O O O X
Setting Value	
0.10~650.00 (Hz)	@ 1.30

E1-10 Minimum Output Voltage	X O O O X
Setting Value	
0.0~255.0 (V)	@ 9.0

E1-11 Middle Output Frequency B	X O O O X
Setting Value	
0.00~650.00 (Hz)	@ 0.00
Function Description	
This Function is disabled if Value= 0.00Hz	

E1-12 Middle Output Voltage B	X O O O X
Setting Value	
0.0~255.0 (V)	@ 0.0
Function Description	
This Function is disabled if Value= 0.0V	

E1-13 Base Voltage	X O O O X
Setting Value	
0.0~255.0 (V)	@ 200.0
Function Description	
This Function is used to do fine Tuning for High Speed Operation Area. No need in General.	

Be sure to satisfy the following Conditions for Setting Parameters E1-04 to E1-13
E1-09 ≤ E1-07 < E1-06 ≤ E1-11 ≤ E1-04
Parameters E1-04 through E1-10 can be set by the User when E1-03 has been set to "F". These Parameters are Read-only when E1-03 isn't set to "F".
When making the V/F Patterns a Straight Line, set the same Value in E1-07 (Middle Output Frequency A) and E1-09 (Minimum Output Frequency). In this case, Parameter E1-08 (Middle Output Frequency Voltage A) will be Disregarded.
These Voltage Values are for the 200 V Class; Double the Values for 400 V Class VFDs.
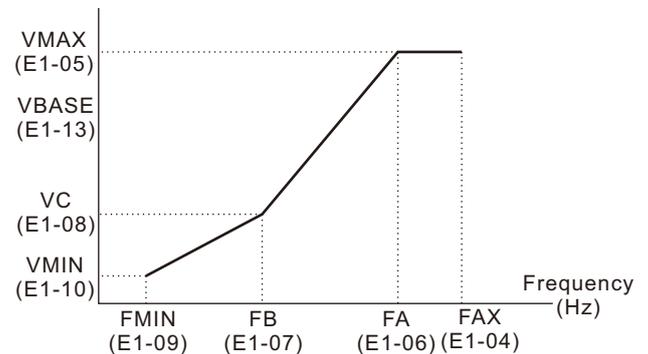
Fig. Custom V/F Pattern

E1-14 V/F Start Frequency	X O O O X
Setting Value	
0.00~10.00 (Hz)	@ 0.00
Function Description	

The VFD will start to Output Frequency from this set Level. For V/F Control Only.

S
1
2
3
4
5
6
7
A

Y D101 Series   @= Default Value   **Yolico**
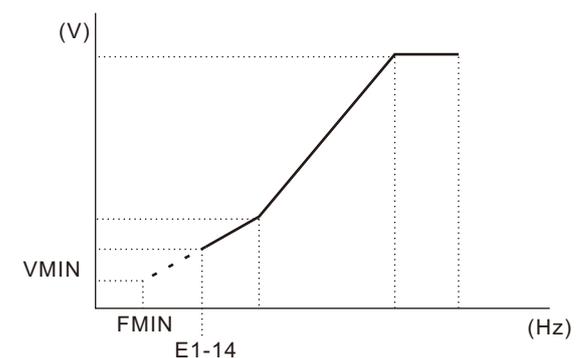
5.6.2 Motor Set-up: E2 (V/F Control Only)

E2-01 Motor Rated Current	X O O O O
Setting Value	
The Default & Setting Varies depending on the VFD Model (o2-04) & Motor Rating.	@
Function Description	
Sets the Rated Current in units of A for Motor Nameplate Data.	

E2-04 Number of Motor Poles	X O O O X
Setting Value	
2~48 (2Poles)	@ 4
Function Name	
Sets the Number of Motor Poles as Nameplate Rcorded.	

E2-03 Motor No-Load Current	X O O O X
Setting Value	
The Default & Setting Varies depending on the VFD Model (o2-04) & Motor Rating.	@
Function Description	
This Value as datum of Motor Slip Compensation. Sets the Value as the Current of Motor running at Rated Frequency , Rated Voltage. Please Contact Motor Manufacture if no Data recorded on Motor Nameplate.	

5.6.3 Operating Direction Definition: E6

E6-01 Motor Direction Selection	O O O X X
Setting Value	
Direct Rotation	@ [0]
Inverse Rotation	[1]
Function Name	
Motor Rotating Direction Definition	

S
1
2
3
4
5
6
7
A

5.7 Terminal, Group (H)

5.7.1 Digital Inputs: H1

The YD101 has Six Multi-function Contact Inputs for the Set-up of Numerous Functions, including Multi-step Speed Operation, PID, Speed Search, and many others.

H1-01 Terminal D1 Selection	X O O X X
Setting Value	
3~89	@ [80]
Function Name	
Multi-function Input Terminal D1 Selection	
Function Description	
Refer to Description below.	

H1-02 Terminal D2 Selection	X O O X X
Setting Value	
3~89	@ [81]
Function Name	
Multi-function Input Terminal D2 Selection	
Function Description	
Refer to Description below.	

H1-03 Terminal D3 Selection	X O O X X
Setting Value	
3~89	@ [3]
Function Name	
Multi-function Input Terminal D3 Selection	
Function Description	
Refer to Description below.	

H1-04 Terminal D4 Selection	X O O X X
Setting Value	
3~89	@ [4]
Function Name	
Multi-function Input Terminal D4 Selection	
Function Description	
Refer to Description below.	

H1-05 Terminal D5 Selection	X O O X X
Setting Value	
3~89	@ [5]
Function Name	
Multi-function Input Terminal D5 Selection	
Function Description	
Refer to Description below.	

H1-06 Terminal D6 Selection	X O O X X
Setting Value	
3~89	@ [30]
Function Name	
Multi-function Input Terminal D6 Selection	
Function Description	
Refer to Description below.	

The Following Table lists the Function Selections for the Multi-function Contact Inputs (Terminals D1 to D6),

● Multi-function Contact Inputs Function List

Set Value	Function Description
3	Multi-step Reference bit 0.
4	Multi-step Reference bit 1
5	Multi-step Reference bit 2
A	ACC/ DEC Ramp Hold (On: Hold)
10	MOP Increase (Must set with MOP Decrease)
11	MOP Decrease (Must set with MOP Increase)
12	FWD JOG Operation
13	REV JOG Operation
14	Fault Reset (Actives on Signal Edge)
15	Fast Stop (E.S.)
19	PID Control Disable
1A	ACC/ DEC Time 2 Selection
30	PID Integral is Reset (On: Reset)
32	Multi-step Reference bit 3
80	FWD Operation
81	REV Operation
82	External Baseblock (B.B., VFD Coast to Stop)
83	Master/ Aux. Run Command Selection
84	Master/ Aux. Reference Selection
85	KEB Ridethrough Power Restore
86	Auto Process Operation
87	Counter Trigger Signal
88	Counter Reset
89	Pulse Input (Terminal D6 Only)

Note: Please refer to Parameters A1-03, B1-02, B1-11 to see more Information for Terminal Definition of 2 Wires/ 3Wires Control.

S
1
2
3
4
5
6
7
A

● Multi-step Reference bit 0~3 (setting: 3,4,5,32)
Multi-Step Ref bit 0 through 3 (Set Value = 3, 4, 5, and 32), see Table Multi-Step Reference Selection

Multi-Step Reference Selection

	Multi-step Reference			
	bit 3	bit 2	bit 1	bit 0
Mater/ Auxiliary Reference Source, Preset Speed 0	0	0	0	0
D1-14 Preset Speed 1	0	0	0	1
D1-15 Preset Speed 2	0	0	1	0
D1-16 Preset Speed 3	0	0	1	1
D1-17 Preset Speed 4	0	1	0	0
D1-18 Preset Speed 5	0	1	0	1
D1-19 Preset Speed 6	0	1	1	0
D1-20 Preset Speed 7	0	1	1	1
D1-21 Preset Speed 8	1	0	0	0
D1-22 Preset Speed 9	1	0	0	1
D1-23 Preset Speed 10	1	0	1	0
D1-24 Preset Speed 11	1	0	1	1
D1-25 Preset Speed 12	1	1	0	0
D1-26 Preset Speed 13	1	1	0	1
D1-27 Preset Speed 14	1	1	1	0
D1-28 Preset Speed 15	1	1	1	1

[1]: the bit is activated,　　[0]: bit is deactivated

Note: D1-13 is effective when B1-01/ B1-10 is set to "0" (LCP MOPs) or "6" (Terminal MOPs) and the Reference is through the selected Way. The Preset Speed 0 should be D1-13 (LCP MOPs or Terminal MOPs).

♦ i.e. 3 off Preset Speed, Wiring and Parameters Setting
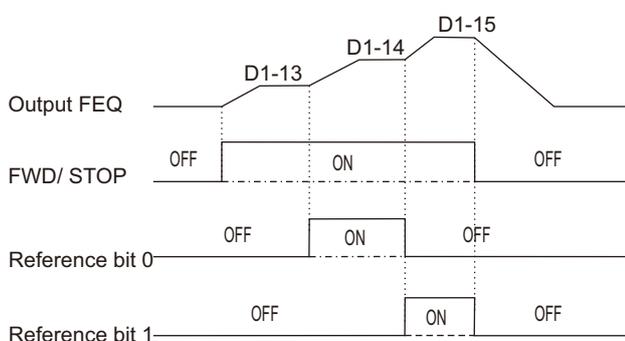
Fig. Process
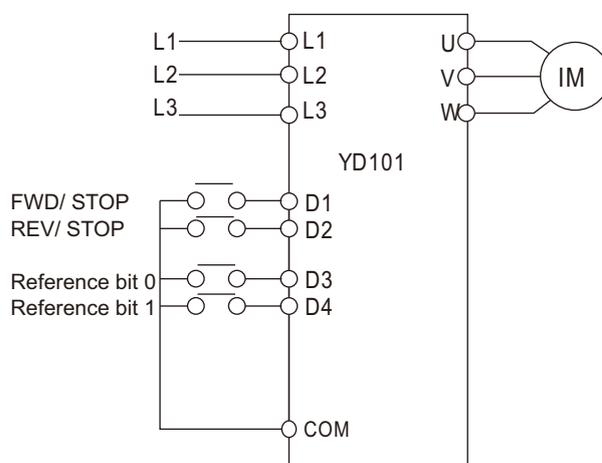
Fig. Wiring

Table, Parameter Setting

Parameter No.	Name	Set Value
B1-01	Reference Source Selection	0, LCP MOPs
B1-02	Command Source Selection	1, Terminals
D1-13	MOPs Speed/ Preset Speed 0	xx.xx Hz
D1-14	Multi-step Preset Speed 1	xx.xx Hz
D1-15	Multi-step Preset Speed 2	xx.xx Hz
H1-01	Terminal Input D1 Selection	80, FWD Operation
H1-03	Terminal Input D3 Selection	3, Multi step Reference bit 0
H1-04	Terminal Input D4 Selection	4, Multi step Reference bit 1

● ACC/ DEC Time Ramp Hold (setting: A)

The ACC/ DEC Hold Command is used to Temporarily Hold the Output Frequency at the Current Frequency Reference, when the Hold Command is Input.

When a Stop Command is Input, the Acc/ DEC Hold condition is released and Operation Stops.
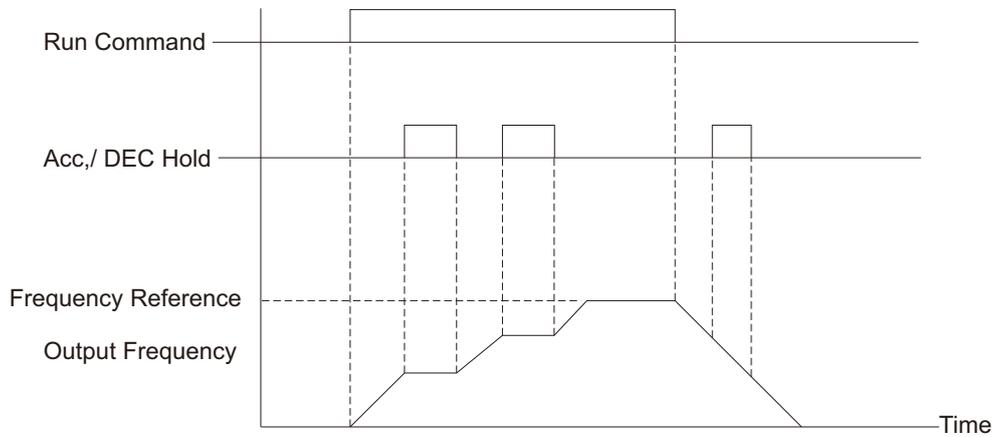
● MOPs Command (settings: Up, Increase= "10". Down, Decrease= "11")

1. Make sure to set B1-01= 6 (Reference by Terminals MOPs) when uses this Function, the MOP Function of LCP is disabled.
2. When uses this Function, be sure to set the Up Command (setting 10) and the Down Command both (setting 11).
3. The Frequency MOP Up/ Down Commands operate according to the Normal Acceleration/ Deceleration Times in C1-01 to C1-04.
4. The Frequency Limits for the Output Frequency with the MOPs Commands are determined by the D2-01 (Upper Limit) and D2-02 (Lower Limit) settings.
5. Please Read Parameters H1-13, H1-14 get more Information.

MOP Up (Increase)	Activated	Inctivated	Inctivated	Activated
MOP Down (Decrease)	Inctivated	Activated	Inctivated	Activated
Operation (Status)	ACC	DEC	Hold	Hold

● FWD JOG/ REV JOG Operation (setting: FWD= "12". REV= "13")

1. The VFD is running on Jog Frequency (D1-09) and Rotating in which Direction when the FWD or REV JOG Command is Input. Uses the D1-10/ D1-11 (JOG ACC/ DEC Time) to set the Accel or Decel Time.
2. The Priority of Frequency Reference is Jog> Preset Speed> Else.

● Fault Reset (setting: 14)

♦ Please Identify and Correct the Cause of Fault First when a Fault Occurred, then could reset the Fault. If Reset the Fault often without Correct the Cause of Fault, it may make the VFD Damaged.
♦ To Restart the VFD, Remove any Run Command and Turn ON the Reset Input Signal or depress the RESET Key on the LCP, or cycle Power to Reset the Stop Status if precious Actions does'nt work. If taking the Remedial Actions described does not solve the problem, it should be some part of VFD is fail.
♦ When VFD is during Operation under no Fault, No matter for VFD if On-Off the Reset Signal.

● Fast Stop (Emergency Stop) (setting: 15)

When this Function is activated (ON), the VFD Decelerates to Stop using Deceleration Time C1-04 (Factory Set to 10 Sec.). The Display shows E.S. in Blinking. The Stop Method of Fast Stop is not Limited by B1-03 Setting.

To clear the Fast Stop, Turn OFF the Run Command, Turn OFF the Fast Stop Input, and then Turn ON the Run Command again.

The Relay (PHC) will Output or not when VFD in Fast Stop, it depends the Set of H2-01/ 02/ 03. If H1-01/ 02/ 03 =1, it will Activates.

● PID Control Disable (setting: 19)

Activated (ON): PID Control is Disabled, Normal VFD Operation.
Inactivated (OFF): PID Control is Enabled by Set B5-01.

● ACC/ DEC Time 2 Selection (setting: 1A)

Activated (ON): Acceleration/ Deceleration Time is set by Parameters C1-03 and C1-04.
Inactivated (OFF): Acceleration/ Deceleration Time is set by Parameters C1-01and C1-02.

● PID Integral is Reset (setting: 30)

Activated (ON):PID Integral Value is set to Zero.
Inactivated (OFF): PID Integral Values are Added.

● FWD/ REV Operation (setting: FWD/ STOP= "80", REV/ STOP= "81")

Activated (ON): VFD is Operating at Defined Direction.
Inactivated (OFF): VFD is Ramp/ Coast to Stop by Set B1-03 or not Functional up to VFD's Original Status.

● External Baseblock (B.B.) (setting: 82)

When an External Baseblock Signal is Input while the VFD is Running, "b.b." Blinks on the LCP's Display, and the VFD Output is Shut OFF (Not Limited by B1-03). When the External Baseblock Signal is Removed, Operation Restarts again by Speed Search.

● Master/ Auxiliary Run Command Selection (setting: 83)

Activated (ON): Run Command Source by Set B1-09.
Inactivated (OFF): Run Command Source by Set B1-02.

● Master/ Auxiliary Frequency Reference Selection (setting: 84)

Activated (ON): Frequency Reference Source by Set B1-10.
Inactivated (OFF): Frequency Reference Source by Set B1-01.

● KEB Ridethrough Power Restore(setting: 85)

In General Applications, the Kinetic Energy Braking (KEB) Control Circuit attempts to maintain the DC Bus Voltage at Voltage Level above the Undervoltage Detection Level during Momentary Power Loss, by using Load Inertia to Regenerate Voltage back to the DC Bus. The VFD Decelerates at L5-08 (Kinetic Energy Braking Deceleration Time), until Power is Restored, or until the Time Runs Out and an Undervoltage Fault (UV) occurs.

The Larger the Inertia, the Longer the Deceleration Rate can be Extended. If the Inertia is Small, then the VFD must Decelerate Quickly to Regenerate Voltage back to the DC Bus, and thus the Ridethrough Time is Shorter. For Most Applications, set L5-08 to "0.0" (Factory Default).

● Auto Process Operation (setting: 86)

Coordinates with Parameter Group P, Activates this Function to Run the Auto Process.
Please Refer to Parameter Group P.

● Counter Trigger Signal (setting: 87)

Refer to Parameters H1-19 and H1-20

● Counter Reset (setting: 88)

When this Function is activated (ON), the Internal Counter's Present Value (U1-47) will be Reset (Clear to "0"). The Counter start to receive the Trigger Signal again until this Function is Inactivated.

● Pulse Input (setting: 89)

This Function is for Multi-function Input Terminal D6 only. It is used for Pulse Train or PWM Signal Input.
Refer to Parameters H1-15~ H1-18.

H1-11 D1~ D5 Input Signal Selection   X O O X X

Setting Value

0 0 0 0 0
- bit 0: D1
- bit 1: D2
- bit 2: D3
- bit 3: D4   @ 00000
- bit 4: D5

Meaning of Value in bit 0~ bit 4:
[0]: Make Signal (N.O.)
[1]: Break Signal (N.C.)

Function Name

N.O. or N.C. Setting of Terminal D1 to D5

Function Description

[0]: Signal Inputs (Activated) when Closed (Make).
[1]: Signal Inputs (Activated) when Opened (Break).

Note: Please Do Not set the Operation Command Source by Terminals before Change the Signal Selection for D1~D6. The Unintended Start could result in Death, Serious Injury, Equipment, or Property Damage.

H1-12 D6 Input Signal Selection   X O O X X

Setting Value

0 0 0 0 0
- bit 0: D6   @ 00000
- bit 1~ bit 4: Reserrved

Function Description

N.O. or N.C. Setting of Terminal D6
Refer to H1-11

H1-13 MOP Control Bandwidth   X O O X X

Setting Value

0.00~ 5.00   @ 0.00

Function Description

There are Two Operation Mode for this Parameter as Following:

1. H1-13="0.00"
   VFD ACC to D1-13 then keep in Stable Frequency that a Run Command is On. The Output Frequency will Ramp Increase/ Decrease Frequency up to MOPs Command is Input, the Frequency is in Stable if MOPs removed. Please see Fig. H1-13=0.00.

2. H1-13≠ "0.00"
   VFD ACC to D1-13 then keep in Stable Frequency that a Run Command is On. The Output Frequency will Increase/ Decrease to D1-13± H1-13 up to MOPs Command is Input. If the MOPs depress more longer than 2 Seconds the MOP Function should be same as when H1-13="0.00". Please see Fig. H1-13≠ 0.00.
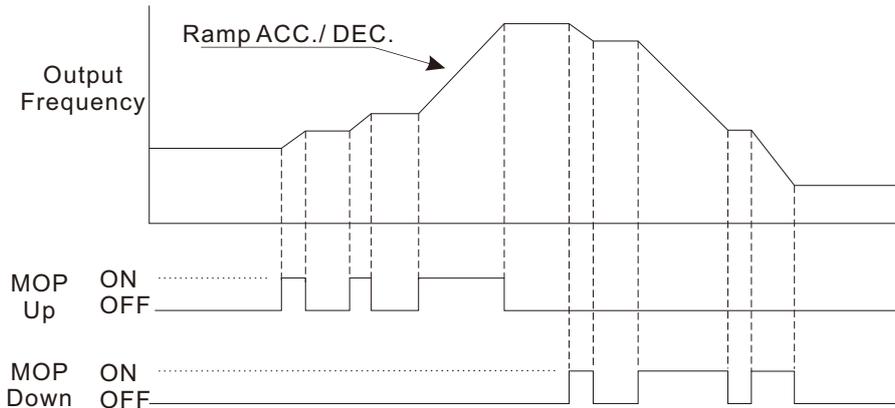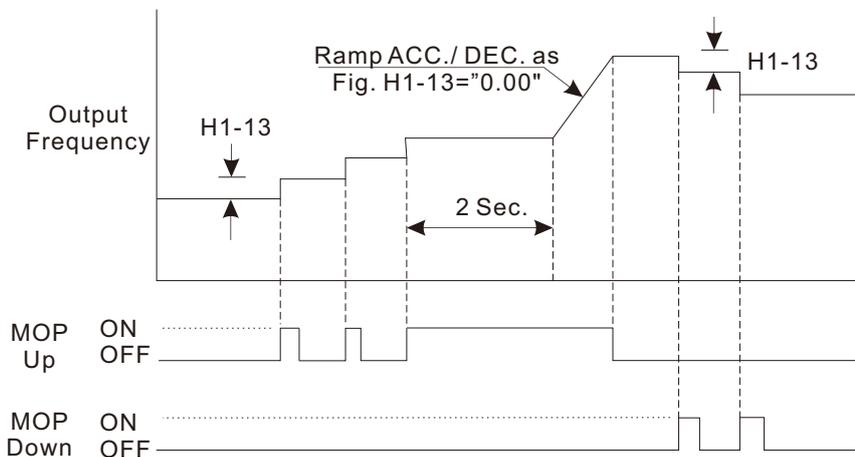

Fig. H1-13= "0.00"

Fig. H1-13≠ "0.00"

H1-14 MOP Hold Reference Selection   X O O X X

Setting Value

Held Frequency during MOP Operation is Retained.	@ [0]
Held Frequency during MOP Operation not Retained.	[1]
Held Frequency during MOP Operation is Retained and MOP Increase/Decrease is still Enable while in STOP.	[2]

Function Name

Hold Reference Memory Selection for MOP Control

Function Description

[0]: The VFD Stop refer to B1-03 and Frequency Reference will be stored in D1-13 once Run Command is Off. MOP Increase/Decrease is Disable while VFD in STOP.

[1]: Held Frequency during MOP Operation not Retained. Ithe VFD Start at 0Hz if a Run Command is ON, the VFD Stop refer to B1-03 and Output Frequency will not be stored after Run Command is Off.

[2]: The VFD Stop refer to B1-03 and Frequency Reference will be stored in D1-13 once Run Command is Off and MOP Increase/Decrease is still Enable while VFD in STOP.

H1-15 Pulse Input Signal Selection   X O O X X

Setting Value

PWM	@ [0]
Pulse Train	[1]

Function Description

[0]: Pulse Width Survey Mode.

[1]: Pulse Frequency Survey Mode.

H1-16 Pulse Input Filter Coefficient   X O O X X

Setting Value

0~ 100	@ 1

Function Name

Pulse Input RMS Filter Coefficient

H1-17 Pulse Input Gain   X O O X X

Setting Value

0.01~ 9.99	@ 1.00

Function Description

● Parameter Setting for Terminal D6 by Pulse Train Inputs
B1-01= 4 (Reference Source by Pulse Train/ PWM Input)

H1-06= 89 (D6-Pusle Input)
H1-15= 1 (Pulse Frequency Survey Mode)
H1-17= 0.01~ 9.99

$$\text{VFD Frequency REF} = \frac{\text{Input Pulse FEQ}}{100} \times (\text{H1-17})$$

The Maxi. VFD Frequency is ≤ D2-01 (Frequency Upper Limit)

Note: The Standard Pulse Train Input Frequency is 10~5kHz, 10kHz Maximum.

● Parameter Setting for Terminal D6 by PWM Inputs
B1-01= 4 (Reference Source by Pulse Train/ PWM Input)
H1-06= 89 (D6-Pusle Input)
H1-15= 0 (Pulse Width Survey Mode)
H1-17= 0.01~ 9.99

VFD Frequency REF= Pulse Width Duty X (D2-01)

Note: PWM allowed Cycle Range: 1~100mS.

H1-18 Pulse Reference Filter for LCP   X O O O X

Setting Value

1~200	@ 20

Function Name

Pulse Input Signal Filter Coefficient for LCP Displayed

Function Description

Increase this set Value if Frequency Reference shown in LCP is Hunting when Pulse Input Function is used.

H1-19 Counter Target Value   X O O O X

Setting Value

0~9999	@ 0

H1-20 Preset Counter Value   X O O O X

Setting Value

0~9999	@ 0

H1-21 Counter Input Scan Time   X O O O X

Setting Value

1~10 (X 2mS.)	@ 1

● Parameter Setting Description for Counter Function.

The Counter Trigger input can be connected to an External Pulse Generator when Counting a Process Step or Unit of Material. The Parameter below is needed for Counter Function.

1. Multi-function Terminal Input (D1~D6):
   A Terminal H1-0_= 87 (Counter Trigger), a Terminal H1-0_= 88 (Counter Reset)
   H1-19=1~9999, H1-20=1~9999.

2. Relay/ PHC Output Setting:
   H2-01~03= 46 (Target Value), when Counter Current Value attains this set Value, Relay/ PHC will Activate, and Inactivates by Next Trigger.
   H2-01~03= 47 (Preset Value), when Counter Current Value attains this set Value, Relay/ PHC will Activate, and Inactivates as same as Set Value= 46.
   H2-01~03= 48, (Counter in Triggering Level)

Note: Each Counter Trigger Signal is activated on Rise Edge and Inactivates on Fall Edge, the Counter's Current Value will be Reset when the Multi-function Terminal Input have set to "88 Counter Reset" and activates, or the Counter Target Value Attains.

S
1
2
3
4
5
6
7
A

● Counter Timing Diagram

The Counter Trigger Input can be connected to an External Pulse Generator when Counting a Process Step or Unit of Material. The Time Diagram below shows how the Counter working and Setting, please read description on Next Page.
i.e. H1-19=5, H1-20=3 (H1-19 > H1-20), H2-01=47, H2-02=46
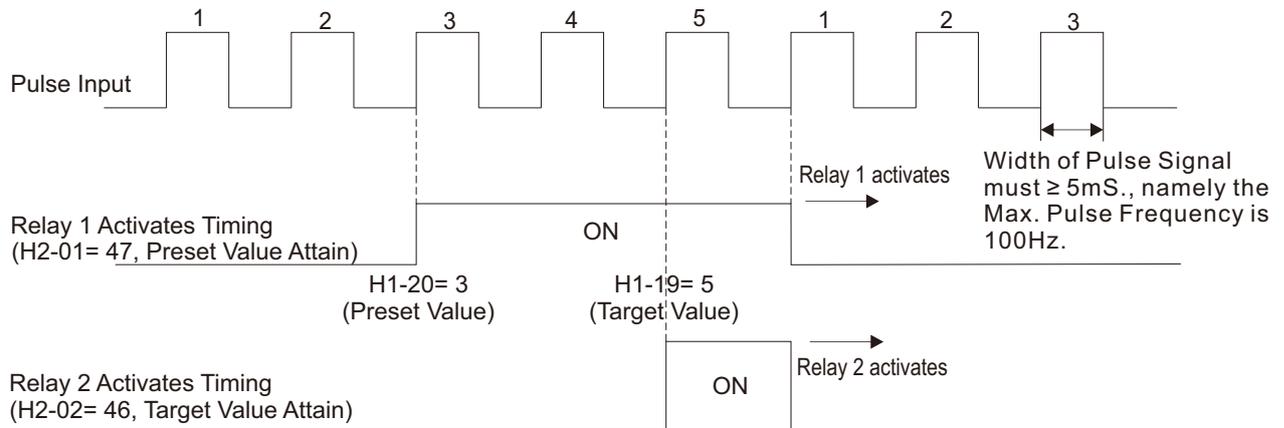
Fig. Counter Timing Diagram

Note: The Pulse Frequency Range is 0~100Hz for the Counter Input.

5.7.2 Digital Outputs: H2

H2-01 Relay 1(RY1) Function Selection X O O X X
Setting Value
0~48   @ [E]

H2-02 Relay 2(RY2) Function Selection X O O X X
Setting Value
0~48   @ [0]

H2-03 PHC Function Selection   X O O X X
Setting Value
0~48   @ [2]
Function Name
Photo-coupler Transistor Output

H2-06 Digital Output Signal Selection   X O O X X
Setting Value
00000
bit 0: RY1
bit 1: RY2
bit 2: PHC   @ 00000
bit 3, 4: Reserved
Meaning of Value in bit 0~ bit 2:
[0]: Make Signal (N.O.)
[1]: Break Signal (N.C.)
Function Name
N.O. or N.C. Setting of Terminal RY1, RY2, PHC
Function Description
[0]: Terminal Closes (Make) when Signal Outputs (Activated).
[1]: Terminal Opens (Break) when Signal Outputs (Activated).

● Multi-function Digital Outputs Function List

Set Value	Function Description
0	During Run
2	Frequency Agree
3	Desired Frequency Agree
4	Frequency Detection 1
5	Frequency Detection 2
E	Fault
1E	Restart Enabled
1F	Motor Overload (OL1) Pre-Alarm (90%)
41	Power Loss Rightthrough
42	Fast Stop (E.S.)
43	In Baseblock (B.B.)
44	VFD Overload (OL2)
45	PID Feedback Lost
46	Counter Target Value Attains
47	Counter Preset Value Attains
48	Counter Signal in Triggering Level

● During Run (setting: "0")

Activates when a Run Command is Input, or when the VFD Outputs Voltage.

● Frequency Agree (setting: "2")

Activates whenever the Output Frequency "Agrees" with the Frequency Reference, Plus or Minus the Free Agree Detection Width (L4-02). This is Effective during Both Forward and Reverse Operation.
Fdet= Reference± L4-02

RUN
Command   RUN   STOP

Detection Width
(L4-02)   Frequency
Reference
Output
Frequency

(L4-02)   Frequency   Agree Signal is
Reference   Inactivated if
Command is Off

Frequency Agree   OFF   ON   OFF   ON   OFF   ON   OFF
Signal
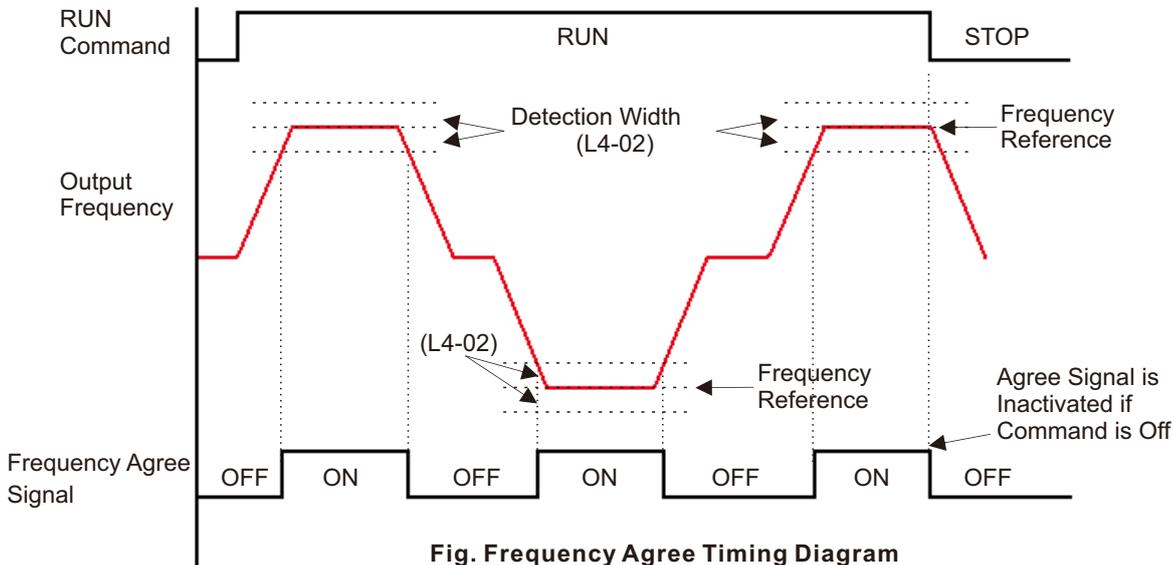
Fig. Frequency Agree Timing Diagram

● Desired Frequency Agree (setting: "3")

Activates whenever the Output Frequency "Agrees" with the Frequency Agree Detection Level, Plus or Minus the Speed Agree Detection Width (L4-02). This is Effective during Both Forward and Reverse Operation.
Fdet= L4-01± L4-02

RUN
Command   RUN   STOP   RUN   STOP   RUN   STOP

L4-01
Frequency
Reference   (L4-02)

Detection Width
(L4-02)   L4-01
Output
Frequency   VFD during ACC
Stall Prevention

L4-01   (L4-02)

Desired Frequency   OFF   ON   OFF   ON   OFF   ON   OFF
Agree Signal

Fig. Desired Frequency Agree Timing Diagram

● Frequency Detection 1 (setting: "4")

Activates whenever the Output Frequency is at or above the Frequency Detection Level (L4-01). This is Effective during both Forward and Reverse Operation.

Fdet= Reference≥ L4-01

Fig. Frequency Detection 1 Timing Diagram

● Frequency Detection 2 (setting: "5")

Activates whenever the Output Frequency is at or below the Frequency Detection Level (L4-01). This is Effective during both Forward and Reverse Operation.

Fdet= Reference≤ L4-01

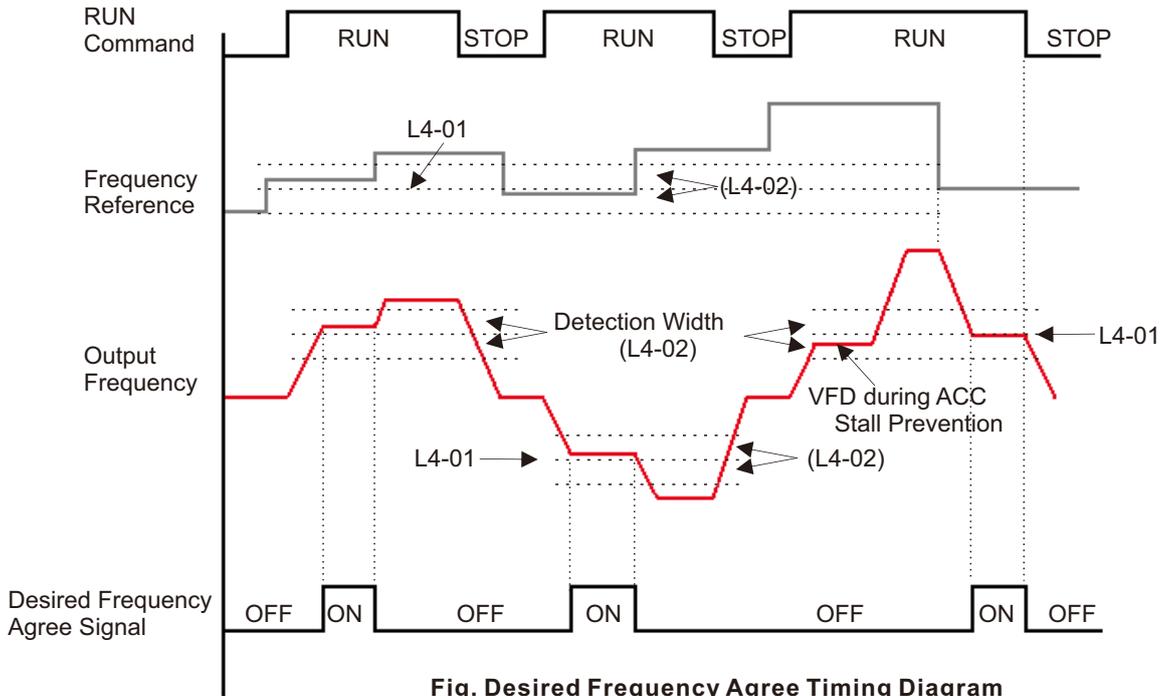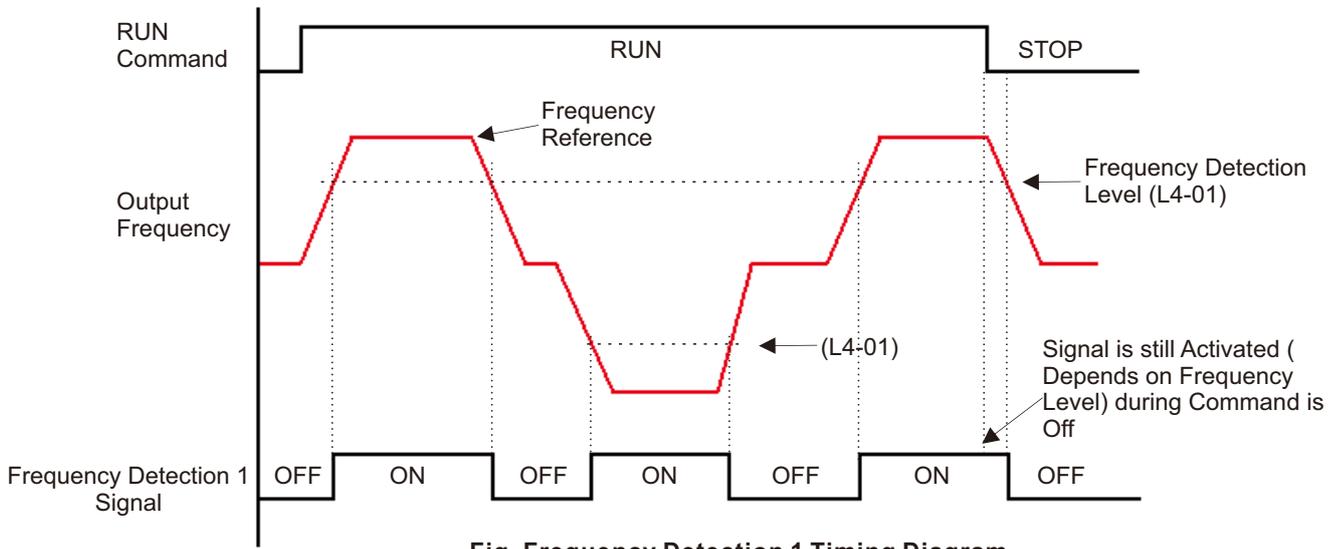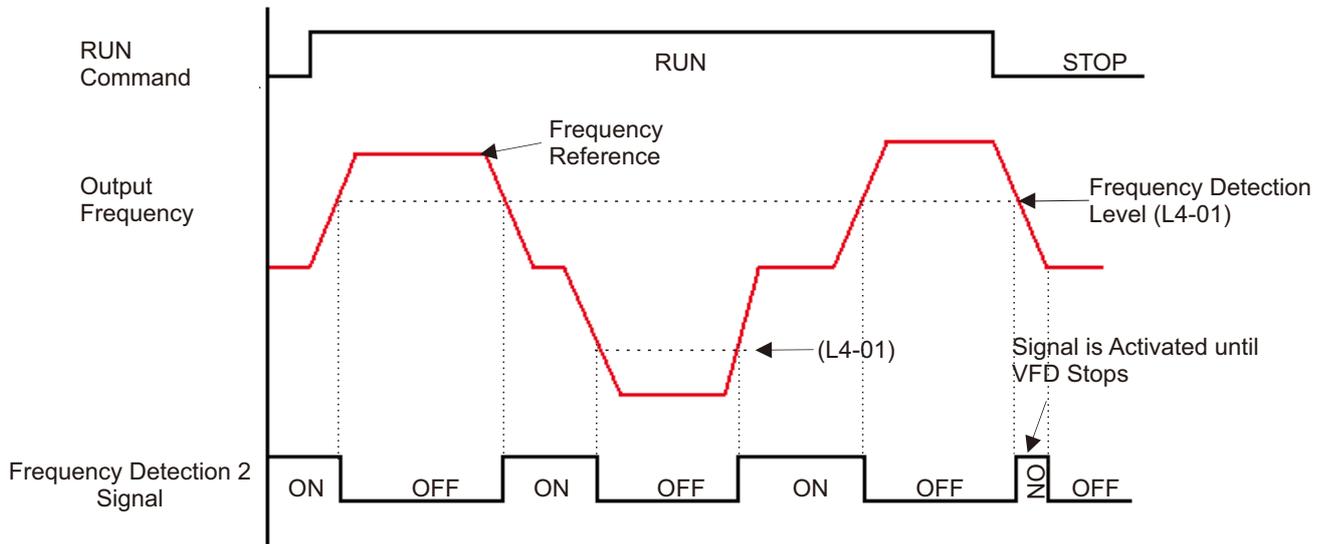**Fig. Frequency Detection 2 Timing Diagram**

5.7.3 Analog Inputs: H3

H3-02 Terminal AVI Reference % Gain   O O O X X

Setting Value

0~1000 (%)   @ 100

Function Description

Set Terminal AVI Input Gain Level when the Reference Voltage is 10V, as Percentage of D2-01 (Frequency Upper Limit).

H3-03 Terminal AVI Reference % Bias   O O O X X

Setting Value

0~100 (%)   @ 0

Function Description

Set Terminal AVI Input Bias Level when the Reference Voltage is 0V, as Percentage of D2-01 (Frequency Upper Limit).

H3-09 Terminal ACI Function Selection X O O X X

Setting Value

PID Feedback Signal   @ [0]
Frequency Bias of POT or AVI   [1]

Function Description

[0]: PID Feedback Signal Input Terminal, PID runs
     according to B5-01.
[1]: When Frequency Reference comes through AVI or
     POT (set B1-01/ B1-10= 1 or 5), ACI could be the
     Bias of Input Reference.

H3-10 Terminal ACI Reference % Gain O O O X X

Setting Value

0~1000 (%)   @ 100

Function Description

Set Terminal ACI Input Gain Level when the Reference Voltage is 20mA, as Percentage of selected Function.

H3-11 Terminal ACI Reference % Bias O O O X X

Setting Value

0~100 (%)   @ 0

Function Description

Set Terminal AVI Input Bias Level when the Reference Voltage is 0/ 4mA (refer to set H3-13), as Percentage of selected Function.

H3-12 Terminal AVI Scan Time   X O O X X

Setting Value

1~100 (X 2mS.)   @ 50

Function Description

The Scan Time is 2m Second Cycle.
In Environment contains the Noise Interfere, Increase H3-12 can defense the obstruction, but the Signal Response should be Lower.

H3-13 AVI ACI Input Signal Selection   X O O X X

Setting Value

Value	AVI	ACI	
[0]	0~10V	0~20mA	
[1]	0~10V	4~20mA	@ [0]
[2]	2~10V	0~20mA	
[3]	2~10V	4~20mA	

Function Description

● Signal is 0~10V or 0~20mA

V:
$$F_{(Hz)} = \frac{V(v)}{10(v)} \times (D2\text{-}01)$$

I:
$$F_{(Hz)} = \frac{I(mA)}{20(mA)} \times (D2\text{-}01)$$

● Signal is 2~10V or 4~20mA

V:
$$F_{(Hz)} = \frac{V\text{-}2(v)}{10\text{-}2(v)} \times (D2\text{-}01), F_{(Hz)}=0 \text{ if } V \leq 2V$$

I:
$$F_{(Hz)} = \frac{I\text{-}4(mA)}{20\text{-}4(mA)} \times (D2\text{-}01), F_{(Hz)}=0 \text{ if } I \leq 4mA$$

H3-14 Terminal AVI Bias +/- Selection   O O O X X

Setting Value

Positive   @ [0]
Negative   [1]

Function Name

Terminal AVI Bias Positive/ Negative Selection

H3-15 AVI Normal/ Invert Selection   O O O X X

Setting Value

Normal   @ [0]
Invert   [1]

Function Name

Terminal AVI Control Normal/ Invert Selection

H3-16 Terminal ACI Scan Time   X O O X X

Setting Value

1~100 (X 2mS.)   @ 50

Function Description

The Scan Time is 2m Second Cycle.
In Environment contains the Noise Interfere, Increase H3-12 can defense the obstruction, but the Signal Response should be Lower.

H3-17 Terminal ACI Bias +/- Selection O O O X X

Setting Value

Positive   @ [0]
Negative   [1]

Function Name

Terminal ACI Bias Positive/ Negative Selection

H3-18 ACI Normal/ Invert Selection   O O O X X

Setting Value

Normal   @ [0]
Invert   [1]

Function Name

Terminal ACI Control Normal/ Invert Selection

H3-19 AI/ Pulse Train Reference Filter X O O X X

Setting Value

1~100   @ 30

Function Name

Analog/ POT/ Pulse Train(D6) Reference Hunting Filter Coefficient

● AVI/ ACI Bias

The Bias is not for Frequency only, the Definition is different depends on H3-14 Selection as below.

1. When H3-14=0 (Positive Value), the Frequency relatives to the Analog Signal Input 0 is called "Reference Bias" (F_{BI}), the Bias is set for Frequency Reference.

2. When H3-14=1 (Negative Value), the Signal Input relatives to the 0 Hz is called "Signal Bias" (S_{BI}), the Bias is set for Signal Input Level.

The Bias Value It is shown by "F_{BI}%".
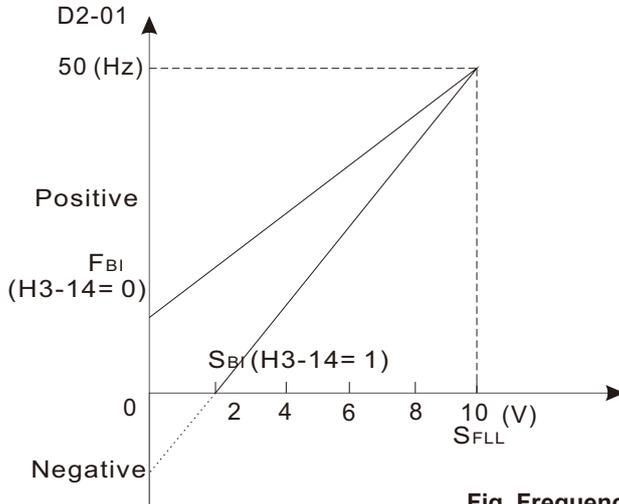
● When Bias set "+" (H3-14= 0)

$$F_{BI}\% = \frac{F_{BI}}{(D2\text{-}01)} \times 100\%$$

● When Bias set "-" (H3-14= 1)

$$F_{BI}\% = \frac{S_{BI}}{S_{FLL}} \times 100\%$$

In these Calculations, :
F_{BI} —Reference Bias (Hz)
F_{BI}% —Reference % Bias
S_{BI} —Signal Bias (V or mA)
S_{FLL} —10V or 20mA
D2-01—Frequency Upper Limit

Fig. Frequency Reference Bias

● AVI/ ACI Reference % Gain

The relation between % Gain, Max. Requiring Frequency and Frequency Upper Limit is as the Calculation below.
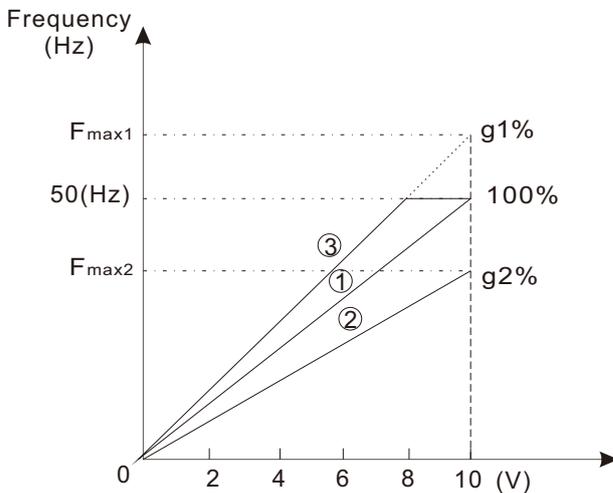
$$g\% = \frac{F_{max}}{(D2\text{-}01)} \times 100\%$$

In the Calculation:
g% —Reference % Gain
F_{max} —Estimated Max.Frequency
D2-01—Frequency Upper Limit

Fig. Frequency Reference Gain

It is hereby the Estimated Max. Frequency (F_{max}) maybe not the same as Frequency Upper Limit (D1-01).

When g% <100% (g2%), the Maximum VFD Output Actual Frequency is equal to the Calculated Value (F_{max2}), as ② in Fig. Frequency Reference Gain.

When g% >100% (g1%), the Maximum VFD Output Actual Frequency is equal to Frequency Upper Limit (D2-01), as ③ in Fig. Frequency Reference Gain.

In the Fig. Frequency Reference Gain, the Line ① is 50Hz Base Pattern.

See Example below to know and get a correct % Bias & Bias Selection for your Application.

● i.e. +50% Bias with Normal Selection
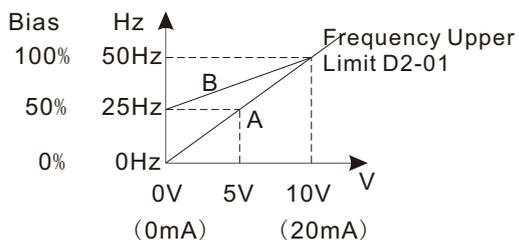
	H3-02	H3-03	H3-14	H3-15
A	100%	50%	0	0
B	100%	0%	0	0

● i.e. +50% Bias with Invert Selection
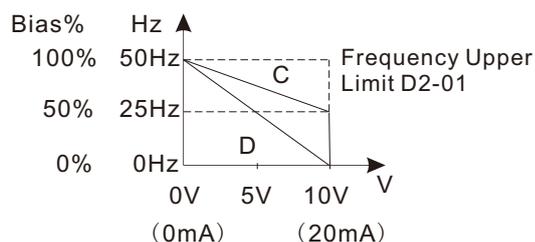
	H3-02	H3-03	H3-14	H3-15
C	100%	50%	0	1
D	100%	0%	0	1

● i.e. -50% Bias with Normal Selection
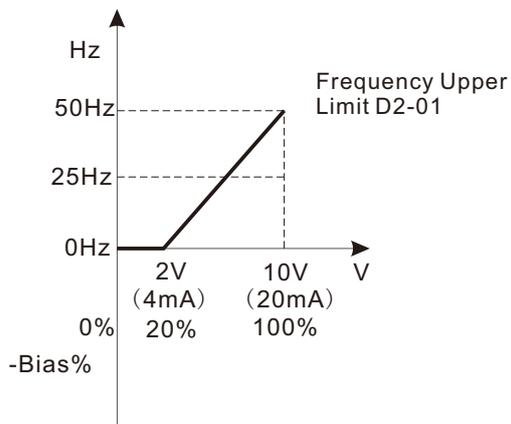
	H3-02	H3-03	H3-14	H3-15
E	100%	20%	1	0

● i.e. -50% Bias with Invert Selection
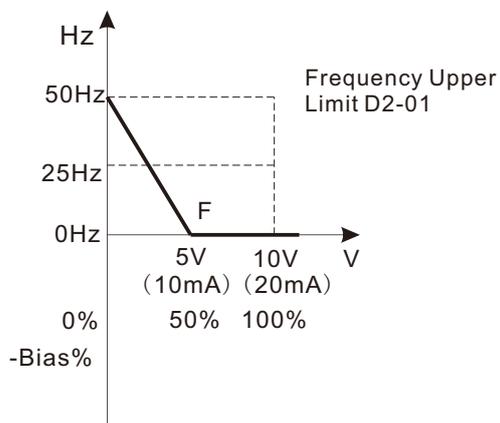
	H3-02	H3-03	H3-14	H3-15
F	100%	50%	1	1

YD101 Series

@= Default Value

Yolico

5.7.4 Analog Outputs: H4

H4-01 AO Function Selection	O O O X X
Setting Value	
Frequency Reference	[1]
Output Frequency	@ [2]
Output Current	[3]
Output Voltage	[6]
DC Bus Volatge	[7]
Function Name	
Analog Output Terminal AO Function Selection	
Function Description	

Terminal AO Output 0~10VDC, uses the H4-02~ H4-10 do some adjusting if there is some difference between a additional Device measured Value and VFD Output Value.
Maximum Output Voltage is 10VDC.

H4-02 Terminal AO % Gain	O O O X X
Setting Value	
0~1000 (%)	@ 100
Function Description	

Sets the Terminal AO Output Gain for the Analog Output Monitors. To obtain the Output Level, multiply the Monitor Output Level by the Gain Value set in H4-02.

H4-03 Terminal AO Reference % Bias	O O O X X
Setting Value	
0~100 (%)	@ 0
Function Description	

Sets the Terminal AO Output Bias for the Analog Output Monitors. To obtain the Output Level, multiply the Monitor Output Level by the Gain Value set in H4-02, then add the Bias Value set in H4-03 to H4-10.
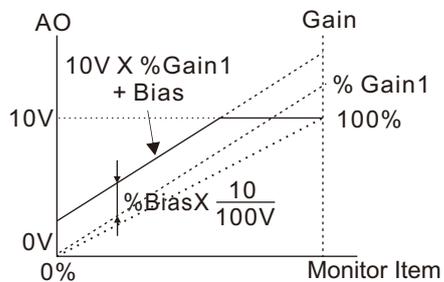
H4-09 Terminal AO Bias +/- Selection	O O O X X
Setting Value	
Positive	@ [0]
Negative	[1]
Function Description	
Refer to Analog Inputs: H3	

H4-10 AO Normal/ Invert Selection	O O O X X
Setting Value	
Normal	@ [0]
Invert	[1]
Function Name	
Terminal AO Control Normal/ Invert Selection	
Function Description	
Refer to Analog Inputs: H3	

S
1
2
3
4
5
6
7
A

Y D101 Series   @= Default Value   *Yolico*

5.7.5 Serial Communication (Modbus) Set-up: H5

The VFD uses Communication Terminals A,B,SG to communicate via MODBUS Protocol.

H5-01 Modbus Station Address	X X X X X
Setting Value	
1~32	@ 1
Function Name	
Serial Communication Station Address	
Function Description	
Selects a Station Address for Identification of the VFD during Serial Communication.	

H5-02 Modbus Baud Rate	X X X X X
Setting Value	
1200 Baud	[0]
2400 Baud	[1]
4800 Baud	[2]
9600 Baud	@ [3]
19200 Baud	[4]
Function Name	
Serial Communication Baud Rate	
Function Description	
Selects the Baud Rate at which the VFD Serially Communicates with External Devices.	

H5-03 Modbus Parity Selection	X X X X X
Setting Value	
No parity	@ [0]
Even parity	[1]
Odd parity	[2]
Function Name	
Serial Communication Parity Selection	
Function Description	
Selects the Transmission Parity for the MODBUS Port.	

H5-04 Stop Method Modbus Error	X X X X X
Setting Value	
[0]: Ramp to Stop according to the Time set in C1-02.	@ [0]
[1]: Coast to Stop.	[1]
[2]: Fast-stop according to the time set in C1-04.	[2]
[3]: Alarm Only Continuous Operation	
Function Name	
Stopping Method After Communication Error	
Function Description	
Selects the Stopping Method after a Transmission Error is detected, the LCP shows "CE".	

H5-06 Modbus Response Delay Time	X X X X X
Setting Value	
1~16 (X 2mS.)	@ 5
Function Name	
Transmission Response Delay Time	
Function Description	
Set this Value for the Time between VFD received Data and Send Data.	

H5-08 ASCII/ RTU Code Selection	X X X X X
Setting Value	
RTU Code	@ [0]
ASCII Code	[1]
Function Name	
Modbus ASCII/ RTU Protocol Code Selection	
Function Description	
Refer to YD101 MODBUS Manual.	

H5-09 Modbus Stop Bit Selection	X X X X X
Setting Value	
1 Stop Bit	@ [0]
2 Stop Bit	[1]
Function Name	
Serial Communication Stop Bit Selection	

H5-10 Modbus Data Format Selection	X X X X X
Setting Value	
8 Bits Data	@ [0]
7 Bits Data	[1]
Function Name	
Serial Communication Data Format Selection	

@= Default Value

H5-11 MODBUS Time Out Detection	X O O X X
Setting Value	
0.0~25.5	@ 0.0
Function Name	
Serial Communication Time Out Detecting Time	
Function Description	

Set the MODBUS Time Out Detection Function. After Initial Communication begins, if Communication is Interrupted for Longer than H5-11, then a Communication Fault will occur.
During a Communication Fault, the Fault Code "CE" will be displayed
If set Value=0.0, the Time Out Detection Function is disabled.

H5-12 Number of MODBUS Error	X O O X X
Setting Value	
1~20	@ 3
Function Name	
Allowed Number of Serial Communication Error	
Function Description	

When the Number of VFD Communication Data Fail is over than H5-12, the Error Code "OPE14" will be displayed.

Master (Controller) **Slave** (YD101) **Slave** (YD101) **Master** (Controller)

PLC Command Data   VFD Responce Data

3.5 off Characters   H5-06 Set Value
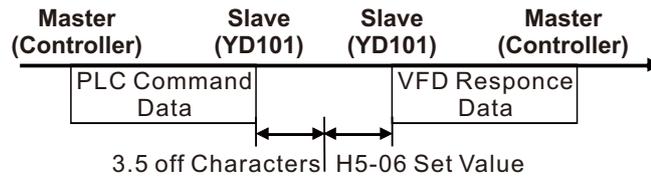
Fig. Transmission Response Delay

S
1
2
3
4
5
6
7
A

5.8 Protection, Group (L)

5.8.1 Motor Overload: L1

L1-06 Motor OL1 Selection	X O O X X
Setting Value	
Motor Overload Detection is disabled.	[0]
Motor Overload Detection is enabled.	@ [1]
Function Name	
Motor Protection Fault Selection (OL1)	
Function Description	

The Motor Electronic Thermal Overload Function estimates Motor Temperature, based on Rated Current setting (E2-01) and Time, to protect the Motor from Overheating.

When the Electronic Thermal Overload Relay is Activated, an "OL1" Error occurs, Shutting OFF the VFD Output and preventing Excessive Overheating in the Motor. As long as the VFD is Powered Up, it continues to calculate the Motor Temperature.

L1-07 Motor Cooling Type Selection	X O O X X
Setting Value	
Self Cooling	@ [0]
Force Cooling Fan	[1]
Function Description	

This Setting for the Type of Motor Ventilation. Affects the Characteristic of Motor Overload Protection by Lowering the Actual Overload Current at Lower Frequency (Speeds).

[0]: With a Motor with a Shaft Mount Fan, the Cooling Ability will drop when Motor Runs at Low Frequency (Speed), therefore the VFD's OL1 Protection responds quickly at Low Frequency.

[1]: VFD's OL1 Protection Level is the same at High Speed and Low Speed.

Note: If set L1-07= 0 (Motor Self Cooling), please Set T1-05 to Real Rated Frequency of Motor that is used.

L1-08 Motor Overload Type Selection	X O O X X
Setting Value	
OL= 150%, 1 Minute	@ [0]
OL= 123%, 1 Minute	[1]
OL= L1-10, Time= L1-11	[2]
Function Description	

[0]: It is for General Application, the Motor can continue Operation if the Load is under 103% of Motor Rating. The Motor Operates 1 Minute only if Load is 150% Motor Rating.

[1]: This is for HVAC (Centrifugal Fan or Pump) Application, the Motor can continue Operation if the Load is under 113% of Motor Rating. The Motor Operates 1 Minute only if Load is 123% Motor Rating.

[2]: It is for Customize Requiring, the OL1 Level and Time depends on Set L1-10 and L1-11. (This is available for Firmware V0.7 and Later.)

L1-09 Stopping Method after OL1	X O O X X
Setting Value	
VFD Shuts Off after OL1 Detected.	@ [0]
VFD Continue Operation after OL1 Detected.	[1]
Function Name	
Stop Method after OL1Protection Fault Selection	
Function Description	

[0]: VFD Output Shuts Off when the OL1 is detected, a "OL1" Signal Blinks on the LCP. If Operation is needed, please do the Reset by Terminal or RESET Key of LCP.

[1]: VFD Continue Operation when the OL1 is detected, a "OL1" Signal Blinks on the LCP. The 'OL1" Signal will Off when the Load (Current) is dropped lower than L1-08 selected Value.

L1-10 Motor Overload Protection Level	X O O X X
Setting Value	
30~200 (%)	@ 100
Function Description	

The Actual OL Protection Level will be 1.2 Times of L1-10 set Value voluntarily. i.e. if set L1-10= 100%, the Motor will stop after L1-11 set Time if Load is 144% Motor Rating.

This Parameter is Enabled when L1-08= 2.

L1-11 Motor Overload Protection Time	X O O X X
Setting Value	
0.1~100.0 (Sec.)	@ 20.0
Function Description	

This Parameter is Enabled when L1-08= 2.

● When operating with one VFD connected to one Motor, an External Thermal Relay is not needed.

● When operating Several Motors with one VFD, Install a Thermal Relay on Each Motor. In this case, set Parameter L1-06 to "0".

● The Motor Protection Function may not protect a Motor when the Power Supply is turned ON and OFF Frequently, because the Thermal Value is Reset Each Time that the Power is turned OFF.

● If the Overload OL1 Pre Alarm (1F) is set in one of the Multi-function Outputs (H2-01 to H2-03), the Output will be turned ON when the Electronic Thermal Value reaches 90% of the Overload Detection Level.

5.8.2 Power Loss Ridethrough: L2

When Momentary Power Loss occurs, Operation can Restart Automatically, according to the Setting of the Following Parameters.

L2-01 Power Loss Selection	X O O X X
Setting Value	
Disabled	@ [0]
Enabled	[1]
Enabled (CPU)	[2]
Function Name	
Momentary Power Loss Ridethrough Selection	
Function Description	

Selects whether the VFD Stops when Power Loss is Detected or "Rides Through" a Momentary Power Loss. When Ridethrough Operation is Selected (Enabled), Speed Search may start from the Current Output Frequency.

[0]: Momentary Power Loss Ridethrough is Ddisabled. When Momentary Power Loss is detected a Fault Contact trips Stopping the VFD, and "LV-C" Signal is shown on LCP.

[1]: Momentary Power Loss Ridethrough is Enabled for the Time set in L2-02. When Momentary Power Loss is detected a Fault Contact does not trip.
If Power is Restored within the Time set in L2-02, VFD Restarts 0.5 Second later, and the Number of Restart is Unlimited.
If Power is not Restored within the Time set in L2-02, a Fault Contact trips Stopping the VFD, and "LV-C" Signal is shown on LCP.

[2]: Momentary Power Loss Ridethrough is Enabled within the Control Logic Time, regardless of the Time set in L2-02. The Control Logic Time differs depending on VFD Capacity. If Power is not Restored within Long Time, VFD Stops.
If Power is Restored before VFD's LCP goes Off, VFD Restarts according to Set B1-02, L5-03 and Terminal Signal Status.

L2-02 Momentary Power Loss Time	X O O X X
Setting Value	
0.0~2.0 (Sec.)	@ 0.5
Function Name	
Momentary Power Loss Ridethrough Time	
Function Description	

Due to a Huge Load Equipment is added to the same Input Power Circuit with VFD, it could result in the Voltage Drops suddenly below the Under Voltage Level, the VFD will Shot off Output at once. If the Power Supply Voltage Level recovers in the Time set L2-02, it will Spin Start Tracing from the Tripped Frequency, or the VFD will trip with 'LV-C' Signal shown in LCP.

Sets the Ridethrough Time allowed before the VFD trips, after Momentary Power Loss. This setting is activated when L2-01 is set to "1". If Power is Restored within this Time, Operation Restarts Automatically.

S
1
2
3
4
5
6
7
A

Note : When B1-02=1(Run Command by Terminal), please Turn the Run Signal & Input Power Off if Power Loss for a long Time. The VFD may Start or Restart if Power is Restored, it could result in Serious Injury or Equipment damaged.

5.8.3 Stall Prevention: L3

This Function Automatically Adjusts the Output Frequency, Acceleration and/or Deceleration Rates in order to Continue Operation without Tripping or "Stalling" the VFD.

L3-01 Acceleration Stall Prevention	X O O X X
Setting Value	
Disabled.	@ [0]
Enabled.	[1]
Function Name	

Stall Prevention Selection During Acceleration

Function Description

[0]: Stall Prevention/ Current Limit during Acceleration is Disabled. The VFD increases the Output Frequency at the set Acceleration Rate. If the Acceleration Rate is too Fast for the Load Condition the VFD may trip on Overcurrent (OC) or Overload (OL).
[1]: Stall Prevention/ Current Limit during Acceleration is Enabled. The Acceleration Rate is Automatically Reduced according to Motor Current to prevent Stalling during Acceleration. The Acceleration Time may be Longer than the Set Value (C1-01 or C1-03).

L3-02 ACC Stall Prevention Level	X O O X X
Setting Value	
50~200 (%)	@ 150
Function Name	

Stall Prevention Level During Acceleration

Function Description

The Stall Prevention/ Current Limit Level during Acceleration is set as a Percentage of VFD Rated Current.
A setting of 200% disables Current Limit during Acceleration. During Acceleration, if the Output Current Exceeds this Current Limit Level (L3-02), Acceleration Stops and Frequency is Maintained.
When the Output Current Decreases below this Current Limit Level (L3-02), Acceleration Restarts.
In General, no need to make a Change for L3-02.
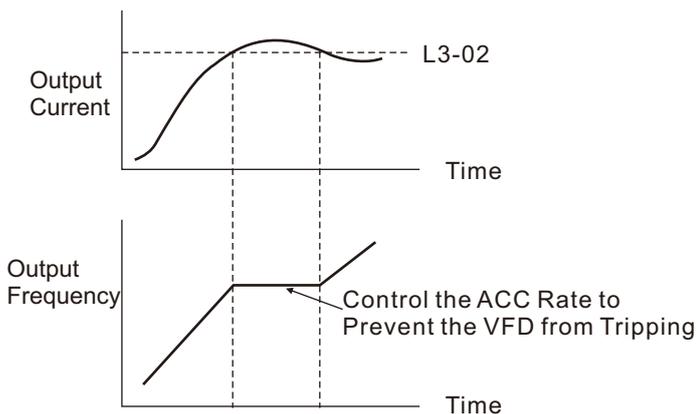
Fig. Stall Prevention Function During ACC (L3-01= 1)

L3-04 Deceleration Stall Prevention	X O O X X
Setting Value	
Disabled.	@ [0]
Enabled.	[1]
Enabled with Limited Function.	[2]
Function Name	

Stall Prevention Selection During Decelerating

Function Description

An Excessively Short Deceleration Time will Generate an Overvoltage Fault (OV)and the VFD will Stop. Please uses the Additional Braking Device (such as Braking Resister/ Braking Unit or Module) if needed.
For Set Value [1] or [2], The DC Bus Voltage Level and Output Current are Monitored and the Deceleration Rate is Automatically Extended to Prevent an Overvoltage or Overcurrent Condition. This Deceleration Rate may be Longer than the Set Value (C1-02 or C1-04).
[0]: Additional Braking Device used, VFD stop the Motor follow Set Value (C1-02 or C1-04)
[1]: Enabled for VFD DEC. to Stop, or VFD DEC for Speed change during Operation.
[2]: Enabled when VFD DEC for Speed change during Operation only, it is Disabled for VFD DEC to Stop. Set [2] is available for Firmware V.0.7 and Later.

Please Refer to Parameter L3-07 for Deceleration Current Limit Setting.
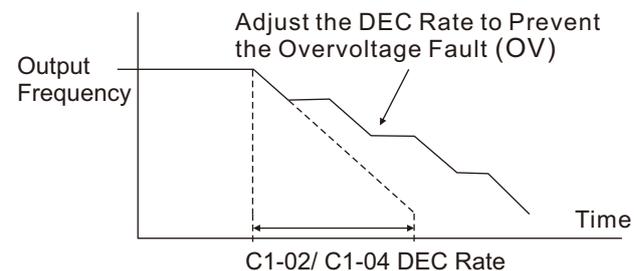
Fig. Stall Prevention Function During Deceleration (L3-04)

L3-05 Running Stall Prevention	X O O X X
Setting Value	
Disabled.	@ [0]
Enabled.	[1]
Function Name	

Stall Prevention Selection During Running

Function Description

[0]: Stall Prevention/ Current Limit during Running is Disabled. An Excessively Load change will generate an Overvload (OL) or Overcurrent (OC) Fault and the VFD will Stop.
[1]: Stall Prevention/ Current Limit during Running is Enabled. When the VFD Output Current Exceeds the Current Limit Level (L3-06), for More than 100ms during Speed Agree the Output Frequency is Decreased according to Deceleration Time (C1-02 or C1-04), and this can Prevent Stalling. When the Load Condition is Stabilized the VFD Accelerates to the Previous Frequency.

L3-06 Running Stall Prevention Level   X   O   O   X   X

Setting Value

50~200 (%)   @ 150

Function Name

Stall Prevention Level During Running

Function Description

The Stall Prevention/ Current Limit Level during Running is set as a Percentage of VFD Rated Current.
A setting of 200% disables Current Limit during Running.
During Speed Agree, if the Output Current Exceeds this Current Limit Level during Running, then Deceleration Starts.
When the Output Current Exceeds this Current Limit Level (L3-06), Deceleration Continues. When the Output Current Decreases below this Current Limit Level (L3-06), Acceleration Starts, Up to the Set Frequency.
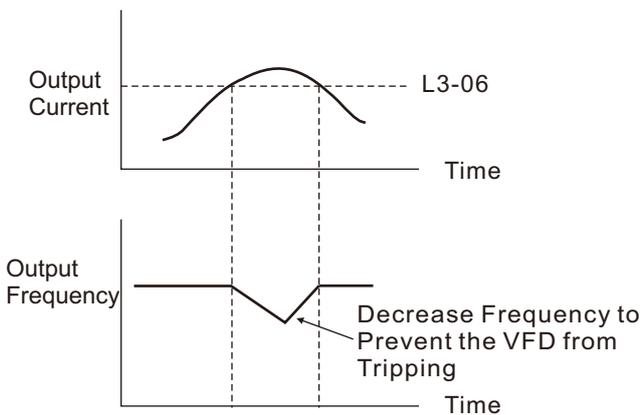
Fig. Stall Prevention Function During Running (L3-05= 1)

L3-07 DEC Stall Prevention Level   X   O   O   X   X

Setting Value

50~200 (%)   @ 150

Function Name

Stall Prevention Level During Deceleration

Function Description

The Stall Prevention/ Current Limit Level during Deceleration is set as a Percentage of VFD Rated Current.
A setting of 200% disables Current Limit during Deceleration. During Deceleration, if the Output Current Exceeds this Current Limit Level (L3-07), Deceleration Stops and Frequency is Maintained.
When the Output Current Decreases below this Current Limit Level (L3-07), Deceleration Restarts.
In General, no need to make a Change for L3-07.
Refer to L3-04 for more Description about Deceleration Stall Prevention.

| Run | Mod | Initia | V/F | o2-4 |

L3-08 Running Over Volt. Prevention   X   O   O   X   X

Setting Value

Disabled   @ [0]
Enabled   [1]

Function Name

Over Voltage Prevention During Running Selection

Function Description

Set Enable to Increases the VFD Output Frequency Automatically when DC Bus Voltage is Over than L3-09 Set Value.

L3-09 Running OV. Prevention Level   X   O   O   X   X

Setting Value

350.0~ 390.0 VDC...(200V Class))   @ 380.0
700.0~ 780.0 VDC...(400V Class)   @ 760.0

Function Name

Overvoltage Prevention Level During Running

Function Description

Refer to Parameter L3-08

L3-10 Deceleration OV. Restraint Gain   X   O   O   O   X

Setting Value

0~25   @ 10

Function Name

Overvoltage Restraint Gain During Deceleration

Function Description

This Parameter can increase the Brake ability for V/F Control Mode.
When Stall Prevention During Deceleration is Enabled, Enlarge this Set Value if Actual Deceleration Time is too long or "OV" Fault occurred.

S
1
2
3
4
5
6
7
A

5.8.4 Reference Detection: L4

Refer to section H2, Digital Outputs on Page 5-28, for More Detailed Information .

L4-01 Frequency Agree Level	O	X X
Setting Value		
0.00~650.00 (Hz)		@ 0.00
Function Name		
Frequency Agree Detection Level		
Function Description		

Sets the Detection Level for the Desired Frequency Agree and Frequency Detection 1 and 2 Functions. The Set Detection Level is Effective during Both FWD and REV Operation.

L4-02 Frequency Agree Width	O O O X X
Setting Value	
0.00~30.00 (Hz)	@ 2.00
Function Name	
Frequency Agree Detection Width	
Function Description	

Sets the Detection Width for Frequency and Desired Frequency Agree 1 and Frequency Detection 1 and 2 functions.

5.8.5 Automatic Restart: L5

After a Fault occurs, the VFD and its Fault Detection Circuit can be Reset. The Automatic Restart Function allows the VFD to Continue Operation after Certain Faults. .

L5-01 Number of Automatic Restart	X O O X X
Setting Value	
0~10	@ 0
Function Name	
Number of Automatic Reset then Restart Attempt	
Function Description	

Sets the Number of Automatic Restart Attempts. Setting to "0" Disables this Function.
Automatic Restart Function is used Frequently that may Result VFD Damaged.

The Number of Restart Attempts is reset to 0 when:
● A Fault does not Occur for More than 10 Minutes after Restart.
● A Fault Reset Command is Input from the Control Circuit Terminal or the Digital Operator.
● Power is Cycled.

L5-03 Automatic Restart Method	X O O X X
Setting Value	
Speed Search	@ [0]
Direct Start	[1]
Function Name	
Starting Method after Automatic Restart Attempts	
Function Description	

[0]: When the Fault is Reset Automatically and Speed Search Starts from the Previous Output Frequency before the Fault Occurred.
[1]: When the Fault is Reset Automatically and VFD Starts from the Zero Speed and according to the Acceleration Time accelerate to the Set Frequency.

L5-04 Automatic Restart Waiting Time	X O O X X
Setting Value	
0.0~800.0 (Sec.)	@ 0.0
Function Name	
Waiting Time of Automatic Restart Attempts	
Function Description	

● If L5-04= 0.0, the Automatic Restart is Disabled.
● When L5-04> 0, L5-01= 0
The Fault is Reset Automatically after Fault Occurs 0.5 Second later. Speed Search Starts from the Previous Output Frequency before the Fault Occurred, then Accel/ DEC to the Current Frequency Reference.
● When L5-04> 0, L5-01> 0
A Fault Occurs, VFD Outputs Shuts Off for L5-04 Set Time. While the L5-04 Time elapses, the Fault is Reset Automatically and Speed Search Starts to the Current Frequency Reference.
● When L5-04> 0, L5-01> 0
Automatic Restart is not Disability during Deceleration to Stop and DC Braking.

L5-05 Restart Mode Selection	X O O X X
Setting Value	
Restart Command is disabled when Run Command Activates.	@ [0]
Restart Command is No Matter with Run Command Status.	[1]
Function Description	

If L5-05= 0, the Run Command Signal must be Inactivated after a Fault Detected then Reset the Fault. Otherwise the Restart Function would be disabled.

L5-06 Direct Start after Power Up	X O O X X
Setting Value	
Enable if Run Command is On.	[0]
Disable if Run Command is On.	@ [1]
Function Description	

[0]: When the B1-02/ B1-09= 2(Terminals) , if Run Command Signal is On and Mains Power Up, the VFD will Start. Yolico Recommend turning Run Command Off if the Mains is Off, avoids the Human Injury or Machine Damage after Power Up again.
[1]: When the B1-02/ B1-09= 2(Terminals) , if Run Command Signal is On and Mains Power Up, the VFD won't Start, a "STP1" Blinks on LCP. Starts VFD by Off-On Run Signal.

L5-07 Direct Start Delay Time	X	O	O	X	X
Setting Value					
2.0~300.0 (Sec.)				@	2.0
Function Name					
Direct Start Delay Time after Power Up					
Function Description					
When Run Signal is activated and L5-06= "0", VFD Starts after L5-07 set Time if Mains is On.					

L5-08 KEB Deceelation Time Setting	X	O	O	X	X
Setting Value					
0.0~25.0 (Sec.)				@	0.0
Function Name					
Kinetic Energy Braking Ridethrough Deceleration Time Setting					
Function Description					
This Parameter allows for setting the Deceleration Time for Load Inertia Ridethrough. This setting is used in Conjunction with Multi-function Contact Inputs set for KEB Ridethrough (H1-__ = "85"), after Momentary Power Loss. When the KEB Deceleration Time is set to "0.0", KEB Ridethrough Functions as Normal, when the KEB Deceleration Time is set to any Value other than "0.0", KEB Ridethrough for Systems use is Enabled. Refer to Page. 5-23 "KEB Ridethrough Power Restore (setting: 85) for more Information.					

i.e. 200V Class

Fig. KEB Ridethrough Timing Diagram

Note:
1. Set L5-08> 0.00, when the DC Bus Voltage is Lower than 190VDC, KEB Ridethrough activates.
2. If Power is Restored till the DC Bus Voltage is ≥ 220VDC (200VAC Class, 440VDC for 400VAC Class) and Rising Edge of KEB Ridethrough Power Restored Signal is activating, VFD accelerates to the Previous Frequency Reference according to Acceleration time (C1-01/ C1-03).

L5-09 DC Bus LV Detection Level	X	O	O	X	X
Setting Value					
150.0~210.0 (VDC)				@	190
300.0~420.0...(VDC)				@	380
Function Name					
DC Bus Undervoltage Detection Level					

L5-07 Direct Start Delay Time	X O O X X
Setting Value	
2.0~300.0　(Sec.)	@ 2.0
Function Name	
Direct Start Delay Time after Power Up	
Function Description	
When Run Signal is activated and L5-06= "0", VFD Starts after L5-07 set Time if Mains is On.	

L5-08 KEB Deceelation Time Setting	X O O X X
Setting Value	
0.0~25.0　(Sec.)	@ 0.0
Function Name	
Kinetic Energy Braking Ridethrough Deceleration Time Setting	
Function Description	

This Parameter allows for setting the Deceleration Time for Load Inertia Ridethrough. This setting is used in Conjunction with Multi-function Contact Inputs set for KEB Ridethrough (H1-__ = "85"), after Momentary Power Loss.
When the KEB Deceleration Time is set to "0.0", KEB Ridethrough Functions as Normal, when the KEB Deceleration Time is set to any Value other than "0.0", KEB Ridethrough for Systems use is Enabled.
Refer to Page. 5-23 "KEB Ridethrough Power Restore (setting: 85) for more Information.

i.e. 200V Class

Fig. KEB Ridethrough Timing Diagram

Note:
1. Set L5-08> 0.00, when the DC Bus Voltage is Lower than 190VDC, KEB Ridethrough activates.
2. If Power is Restored till the DC Bus Voltage is ≥ 220VDC (200VAC Class, 440VDC for 400VAC Class) and Rising Edge of KEB Ridethrough Power Restored Signal is activating, VFD accelerates to the Previous Frequency Reference according to Acceleration time (C1-01/ C1-03).

L5-09 DC Bus LV Detection Level	X O O X X
Setting Value	
150.0~210.0　(VDC)	@ 190
300.0~420.0...(VDC)	@ 380
Function Name	
DC Bus Undervoltage Detection Level	

S
1
2
3
4
5
6
7
A

5.8.6 Hardware Protection: L8

L8-04 Built-in Cooling Fan Selection	X O O X X
Setting Value	
Auto Run by Internal Thermal	[0]
Runs during VFD Runs	@ [1]
Runs Always	[2]
Stops	[3]
Function Name	
Built-in Cooling Fan Operation Mode Selection	
Function Description	

[0]: Cooling Fan Runs when Specific Temperature of IGBT/ Heat Fins is detected. This Setting could Increase the Life of Fan.
[1]: Cooling Fan Runs when VFD is in Runs Situation.
[2]: Cooling Fan Runs always when Mains Power Up.
[3]: Cooling Fan Stops always.

L8-17 Carrier Frequency Auto Reduce	X O O X X
Setting Value	
Disabled.	@ [0]
Enabled.	[1]
Function Name	
Carrier Frequency Auto Reduce when Temperature Rise	
Function Description	

Set L8-17= 1, when Monitor U1-46 is Higher than 100°C, the Carrier Frequency will Automatic Reduce to 4k Hz, and Return to Original Set Value after the Temperature drop to 90°C.
If C6-01 set Value is ≤ 4kHz, the Function of L8-17 is Useless.

@ = Default Value
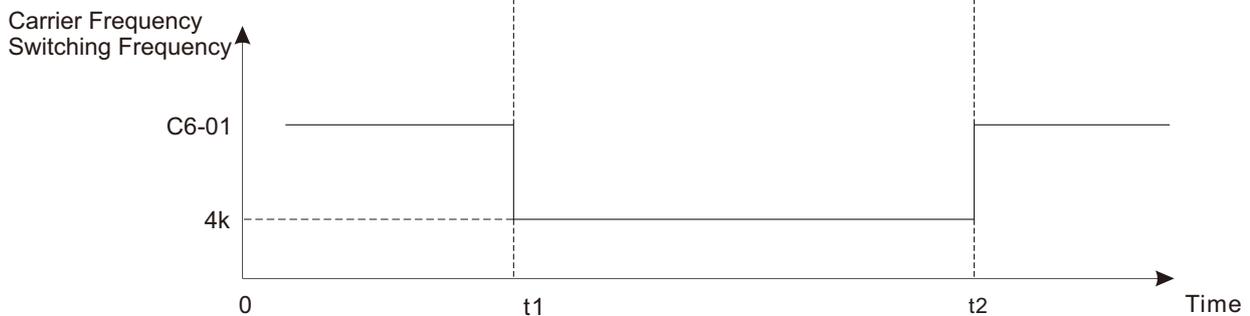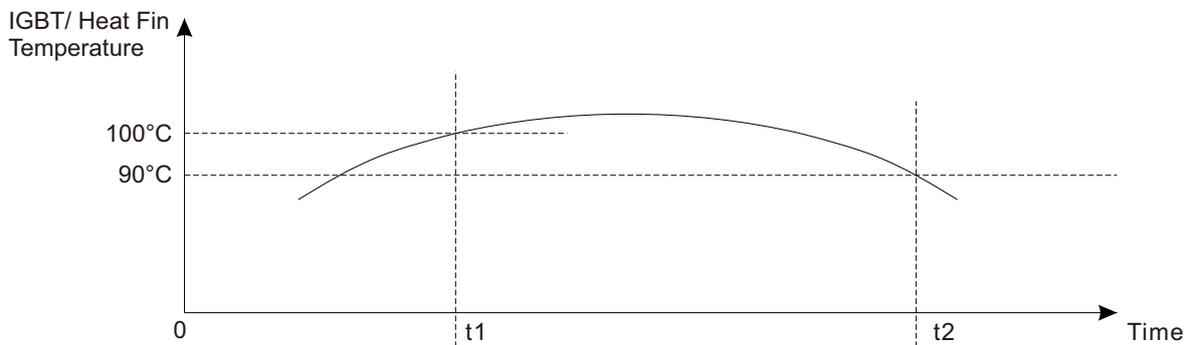
5.9 Operator, Group (O)

5.9.1 Monitor Selection: O1

O1-02 Monitoring after Power Up	X O O X X
Setting Value	
None	@ [0]
Frequency Reference	[1]
Output Frequency	[2]
Output Current	[3]
Output Voltage	[4]
DC Bus Voltage	[5]
Function Name	
Monitor Selection after Power Up	
Function Description	

When the Power is turned On, the Frequency Reference will appear and Blink in the Unit's Data display if the Factory Settings are being used. Change the Setting of Parameter O1-02 to display an Item other than the Frequency Reference in Fully Lit at Startup.

O1-06 RPM Scale for Monitoring	O O O X X
Setting Value	
0~65535	@ 1500-50Hz @ 1800-60Hz
Function Name	
RPM Scale for Monitoring Frequency	
Function Description	

This Parameter determine the Set Value at 100% Motor Rated Frequency (T1-05)
i.e. set Value to 1500, at Motor 50Hz, LCP shows 750 when Output 25Hz.
Refer to O1-07 for more Information.

O1-07 Scale for Monitoring Selection	O O O X X
Setting Value	
Output Frequency	@ [0]
5 Digits of RPM displayed as 00000	[1]
5 Digits of RPM displayed as 0000.0	[2]
5 Digits of RPM displayed as 000.00	[3]
5 Digits of RPM displayed as 00.000	[4]
Function Name	
Scale Setting for Frequency Monitoring	
Function Description	

i.e.1, set O1-07= 1, O1-06=1500, 100% Frequency Reference is displayed as 1500
i.e.2, set O1-07= 2, O1-06=1500, 100% Frequency Reference is displayed as 150.0

5.9.2 Key Selection: O2

O2-02 LCP Stop Key Selection	X O O X X
Setting Value	
Enable	@ [0]
Disable	[1]
Function Name	
STOP Key During External Command Operation	
Function Description	

Enables/ Disables the Digital Operator STOP Key, during Operation from the External Terminals and during Serial Communication.
[0]: The LCP STOP Key is always Enabled even during External Terminal Operation and Serial Communication.
[1]: The LCP STOP Key is disabled when Run Command does not Come from the Digital Operator.

O2-04 Inverter Model	X O X X X
Setting Value	
20P5~ 4075	@ VFD Model Dependent
Function Name	
VFD Capacity Checking Number	
Function Description	

Checks the VFD Capacity, according to Model Number. Control Parameters with Defaults Specific to the VFD Capacity are set Automatically (i.e. Carrier Frequency, Motor Data, etc.). This Parameter is Reserved for the use of Factory, can not change.

S
1
2
3
4
5
6
7
A

O2-05 LCP M.O.P. Mode Selection   X O O X X

Setting Value

M.O.P Disable	@ [0]
M.O.P. Enable	[1]

Function Name

Digital Operator M.O.P. Mode Selection

Function Description

Selects whether the "ENTER" Key is used when the Frequency Reference is set by the Digital Operator. The Digital Operator can Simulate a **M**otor **O**perated **P**otentiometer (**M.O.P.** or **MOP**) by setting this Parameter.

[0]: The LCP M.O.P. Mode is Disabled. The VFD accepts the Frequency Reference when the "ENTER" Key is depressed.

[1]: The LCP M.O.P. Mode is Enabled. The VFD accepts the Frequency Reference as soon as changes are made with the Arrow keys, without the "ENTER" Key being depressed.

O2-08 Accumulative Worked Time   X O X X X

Setting Value

Cumulative Hours at Power On	@ [0]
Cumulative Hours at Running	[1]

Function Name

Accumulative Worked Time Selection

Function Description

Selects this Parameter for the Monitors U1-48, U1-49. The showed Value in U1-48 is 0~23, once the U1-48 Value is Over than 23, it should bring it to U1-49, then U1-48 becomes "0" and Value of U1-49 plus "1".

U1-49 (Days)	U1-48 (Hours)
:	:
0~65535	0~24

O2-10 Allow Worked Days   X O X X X

Setting Value

0~65535 (Days)	@ 0

Function Name

VFD Allowed Workinging Days

Function Description

Set this Parameter to Prohibit the VFD Operating when U1-49 ≥ O2-10.
Set Value "0" to disable this Function.

O2-11 Parameter Lock by Password   X O X X X

Setting Value

All Parameters Monitored Only	@ [0]
O2-10 Monitored Only	[1]

Function Name

Parameter Lock-out Selection by Password Protection

Function Description

Refer to A1-04 to Lock-out Parameter(s) as below.

[0]: All Parameters is accessed to be Monitored only, it can not be Changed.

[1]: Only O2-10 is Locked-out just can be Monitored, The Parameters Else are accessed to be Changed.

S
1
2
3
4
5
6
7
A

5.10 Process, Group (P)

5.10.1 Auto Process Operation: P1

P1-00 Auto Process Selection	X O O X X
Setting Value	
Auto Process Disable	@ [0]
Executes 1 Cycle Operation then Stop	[1]
Continuously Executes Cycles Operation	[2]
Executes 1 Cycle Operation then Keep Running	[3]
at Last Process Speed	
Executes 1 Cycle Operation then Stop	[4]
Continuously Executes Cycles Operation	[5]
Executes 1 Cycle Operation then Keep Running	[6]
at Last Process Speed	
Function Name	
Auto Process Operation Mode Selection	
Function Description	

[1], [2], [3]: VFD will Start Up from the Speed of before VFD Stop, if Start Command given again.
[4], [5], [6]: VFD will Start Up from the 1st Process Speed after VFD Stop, if Start Command given again.
Please read more Description on Page. 5-44

P1-01 Master Frequency	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00
Function Name	
Master Frequency (Auto Process Speed 0)	

P1-02 Auto Process Speed 1	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-03 Auto Process Speed 2	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-04 Auto Process Speed 3	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-05 Auto Process Speed 4	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-06 Auto Process Speed 5	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-07 Auto Process Speed 6	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-08 Auto Process Speed 7	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-09 Auto Process Speed 8	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-10 Auto Process Speed 9	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-11 Auto Process Speed 10	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-12 Auto Process Speed 11	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-13 Auto Process Speed 12	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-14 Auto Process Speed 13	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-15 Auto Process Speed 14	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-16 Auto Process Speed 15	O O O X X
Setting Value	
0.00~650.00 (Hz)	@ 0.00

P1-17 Run Time 0 for Speed 0	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-18 Run Time 1 for Speed 1	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-19 Run Time 2 for Speed 2	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-20 Run Time 3 for Speed 3	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-21 Run Time 4 for Speed 4	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-22 Run Time 5 for Speed 5	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

S
1
2
3
4
5
6
7
A

Y D101 Series

@= Default Value

Yolico

P1-23 Run Time 6 for Speed 6	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-24 Run Time 7 for Speed 7	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-25 Run Time 8 for Speed 8	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-26 Run Time 9 for Speed 9	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-27 Run Time 10 for Speed 10	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-28 Run Time 11 for Speed 11	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-29 Run Time 12 for Speed 12	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-30 Run Time 13 for Speed 13	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-31 Run Time 14 for Speed 14	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-32 Run Time 15 for Speed 15	X O O X X
Setting Value	
0.0~3600.0 (Sec.)	@ 0.0

P1-33 Run Direction 0 for Speed 0	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-34 Run Direction 1 for Speed 1	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-35 Run Direction 2 for Speed 2	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-36 Run Direction 3 for Speed 3	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-37 Run Direction 4 for Speed 4	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-38 Run Direction 5 for Speed 5	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-39 Run Direction 6 for Speed 6	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-40 Run Direction 7 for Speed 7	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-41 Run Direction 8 for Speed 8	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-42 Run Direction 9 for Speed 9	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-43 Run Direction 10 for Speed 10	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-44 Run Direction 11 for Speed 11	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

P1-45 Run Direction 12 for Speed 12	X O O X X
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

S
1
2
3
4
5
6
7
A

Y D101 Series

@ = Default Value

Yolico

P1-46 Run Direction 13 for Speed 13 X O O X X		P1-48 Run Direction 15 for Speed 15 X O O X X	
Setting Value		**Setting Value**	
STOP	@ [0]	STOP	@ [0]
FWD	[1]	FWD	[1]
REV	[2]	REV	[2]

P1-47 Run Direction 14 for Speed 14 X O O X X	
Setting Value	
STOP	@ [0]
FWD	[1]
REV	[2]

● Enable the Auto Process Operation

This Function is used in Conjunction with a Multi-function Contact Input set for Auto Process Operation (H1-__ = "86") and activates this Input Terminal. The related Parameters and Setting are shown as below.

1. Set Auto Process Operation Mode Selection (P1-00) to 1~4
2. Set Process Frequency Reference 0~15 (P1-01~ P1-16) , Running Time for each Reference (P1-17~P1-32) and Running Direction for Each Reference, that could be Simple Process Control.

● Auto Process Operation Mode Selection (P1-00) Selection Description.
  (A) Executes 1 Cycle Operation then Stop (P1-00= 1 or 4)
    VFD is according to set Operation mode, Operates One Cycle then Stop, LCP shows "STP0".
     i.e. P1-01= 1 or 4 , Frequency: P1-01= 15Hz   P1-02= 30Hz   P1-03= 50Hz   P1-04= 20Hz
                    Run Time: P1-17= 20Sec.   P1-18= 25Sec.   P1-19= 30Sec.   P1-20= 40Sec.
                    Direction: P1-33= FWD   P1-34= FWD   P1-35= FWD   P1-36= REV
                    Else: P1-05~ P1-16= 0Hz,   P1-21~ P1-32= 0Sec.   P1-37~ P1-48= 0 (Stop)
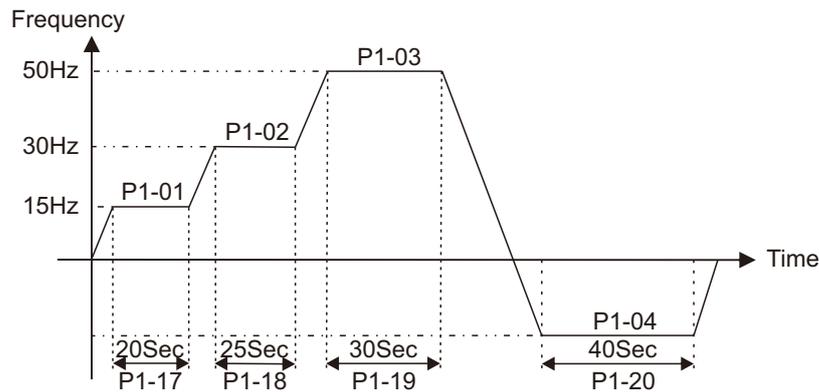
Fig. Executes 1 Cycle Operation then Stop (P1-00= 1 or 4)

(B) Continuously Executes Cycles Operation (P1-00= 2 or 5)
    VFD is according to set Operation mode, Operates One Cycle then Repeats.
    i.e. P1-01= 2 or 5, Else Setting as (A)

Fig. Continuously Executes Cycles Operation (P1-00= 2 or 5)

Y D101 Series   @= Default Value   **Yolico**
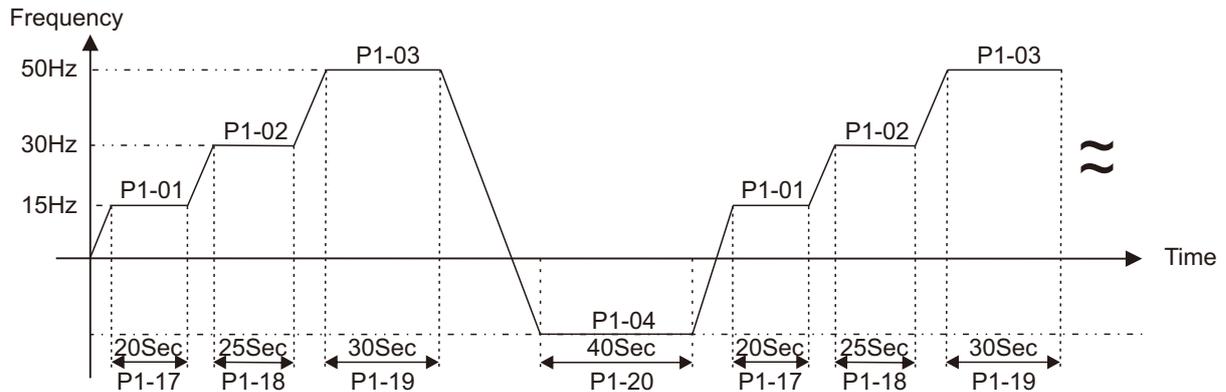
(C) Executes 1 Cycle Operation then Keep Running at Last Process Speed (P1-00= 3 or 6)
VFD is according to set Operation mode, Operates One Cycle then Keep Running at Last Process Speed "Auto Process Speed 15" (P1-16), In other words it is needed to set the P1-16 and closely associated Parameters when P1-00=3 or 6. i.e. P1-01= 3 or 6, Else Setting as (A)
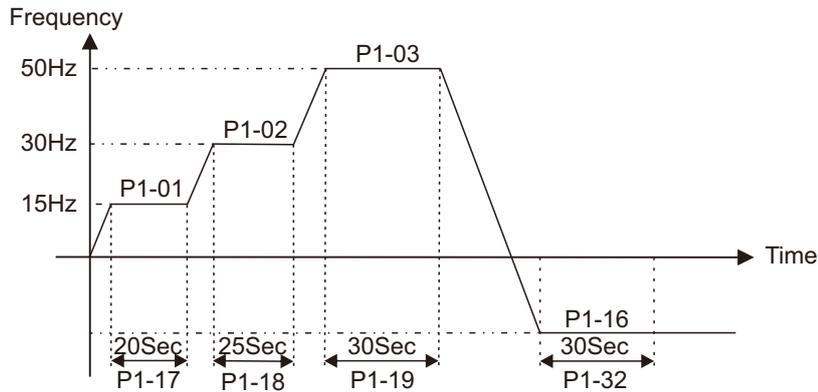
Fig. Executes 1 Cycle Operation then Keep Running at Last Process Speed (P1-00= 3 or 6)

Note:
● If P1-00= 1~3, VFD Restarts after Stop Command has given (Discontinue the Operation), it should accord to the Set P1-00 then starts from the Last Speed before VFD Stops.
● If P1-00= 4~6, VFD Restarts after Stop Command has given (Discontinue the Operation), it should accord to the Set P1-00 then starts from the Original Master Frequency Reference (Auto Precess Speed 0).

P1-00=	1, 2, 3	4, 5, 6
Output Frequency		

● Auto Process Operation Setting for Different Run Command Source

Please refer to Page. 5-44 "Enable the Auto Process Operation" then see. the Examples below.

1. Run/ Stop Source from LCP (B1-02= 0)
   i.e. (1) H1-02= 86 (Terminal D2)
   (2) Accords to previous "P1-00 Selection Description" for P1-00 Set.
   (3) Activates Terminal D2 let VFD into Auto Process Mode, then Uses RUN/ STOP Keys to Run or Stop the VFD with Auto Process Operation.

2. Run/ Stop Source from Terminals (B1-02= 1)
   i.e. (1) B1-11= 0 (Terminal Control Mode is FWD/STOP or REV/STOP), Set B1-11=1 or 2 is Prohibited.
   (2) H1-01= 80 (Terminal D1 for FWD/STOP Control), H1-02= 86 (Terminal D2)
   (3) Accords to previous "P1-00 Selection Description" for P1-00 Set
   (4) Activates Terminal D2 let VFD into Auto Process Mode, then Uses Terminal D1 Signal to Run/ Stop the VFD with Auto Process Operation.

3. Run/ Stop Source from Serial Communication (B1-02= 2)
   i.e. (1) H1-02= 86 (Terminal D2)
   (3) Accords to previous "P1-00 Selection Description" for P1-00 Set
   (4) Use Serial Communication Command to activate the Dummy Terminal D2 let VFD into Auto Process Mode, then Uses Serial Communication to Run/ Stop the VFD with the Auto Process Operation.

YD101 Series @= Default Value   **Yolico**

5.11 VVT Adjusting, Group (T)

Parameters in Group (T) are Related with the Processor Programing of VFD, the VFD will Regulate the Output Automatically according to Parameter Set Group (T) and Feedback Detection.
Please adjusts the following Parameters based on Motor Specification and Application if Needed.

5.11.1 Motor Nameplate Data: T1

T1-02 Motor Rated Power (kW)   X O O X O
Setting Value
VFD Model Dependent

T1-03 Motor Rated Voltage (VAC)   X O O X O
Setting Value
VFD Model Dependent

T1-04 Motor Rated Current (A)   X O O X O
Setting Value
VFD Model Dependent

T1-05 Motor Rated Frequency (Hz)   X O O X O
Setting Value
VFD Model Dependent

T1-07 Motor Rated Speed (RPM)   X O O X O
Setting Value
VFD Model Dependent

5.11.2 Motor Adjusting Constants: T2

T2-00 VVT Torque Compensation K   O O X X O
Setting Value
0~600   @ VFD Model Dependent
Function Name
Torque Compensation Coefficient for VVT Control
Function Description
Increases the T2-00 to Enlarge Output Torque for the Load is too Heavy:

$$\Delta T_e = \underset{\text{(Load Current)}}{I} \times \underset{\text{(T2-00)}}{\text{Coefficient}}$$

● Torque/ Speed Pattern Characteristic is as Below:
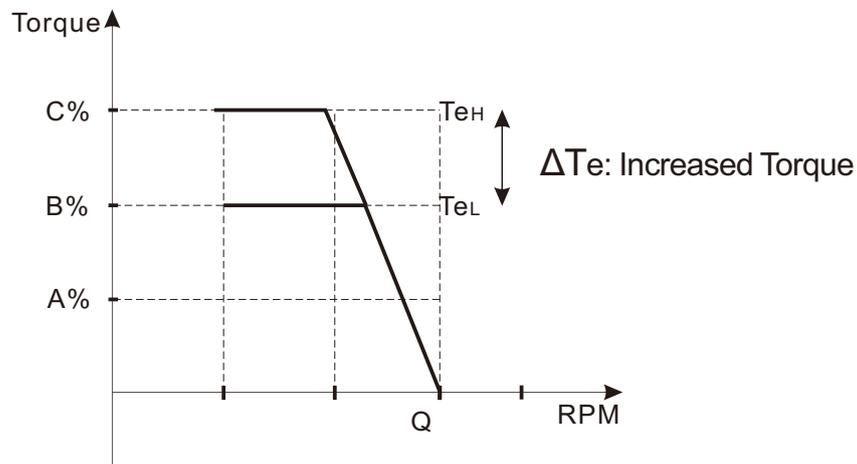
Note:

● Frequency Range of Torque Compensation: 0~ Motor Rated Frequency
● If Motor Output Torque is Insufficient to the Load, then Enlarges T2-00.
● When the Load is under Hunting or Vibration Situation, then Reduces T2-00.
● The Maximum Output Torque is Limited by VFD Rated Current.
● If the Current Rise when T2-00 is Enlarged, please Enlarges the Slip Compensation Coefficient (T2-01) at the Same Time.

T2-01 VVT Slip Compensation K   O O X X O

Setting Value

0~600   @ VFD Model Dependent

Function Name

Slip Compensation Coefficient for VVT Control

Function Description

Increases the T2-01 to Enlarge Slip Frequency for the Load if too Heavy:

$$\Delta F_{slip} = \underset{\text{(Load Current)}}{I} \times \underset{\text{(T2-01)}}{\text{Coefficient}}$$

● Torque/ Speed Pattern Characteristic is as Below:

Note:

● Frequency Range of Torque Compensation: 0~ Motor Rated Frequency
● If Motor Speed is Insufficient to the Load, then Enlarges T2-01.
● When the Load is under Hunting or Vibration Situation, then Reduces T2-01.
● The Maximum Output Frequency is Limited by set T1-05 Motor Rated Frequencyr.
● If the Current Rise when T2-01 is Enlarged, please Enlarges the Torque Compensation Coefficient (T2-00) at the Same Time.

T2-05 VVT Torque Boost at Low Speed   X O X X X

Setting Value

0~100 (%)   @ 30

Function Name

Torque Compensation Gain @ Low Speed for VVT CTL

Function Description

Increases the T2-05 to Enlarge the Output Voltage. In the meanwhile, the Output Toque of Low Frequency will be Enlarged too. Vice versa.

● Output Voltage/ Output Frequency Pattern Characteristic is as Below:

Note:

● Frequency Range of Torque Compensation: 0~ 12Hz @ 60Hz Rating
    0~ 10Hz @ 50Hz Rating
● Whe in Motor Low Frequency: Torque is Insufficient to the Load, then Enlarges T2-05.
    The Load is in Vibration Situation, then Reduces T2-05.

6. Fault Code and Troubleshooting

6.1 Warning/ Fault Condition, the Possible Causes of Problem

6.1.1 VFD Faults & Remedy

When the YD101 Detects a Fault, the Fault Message is displayed on the LCP and Activates a Fault Signal Output, after which the Motor Coasts to a Stop (Some Stopping Method of the Fault is Selectable, the VFD should follow the Set way to Stop when the Fault Occurs).

To Restart the VFD, please follow the Remedial Actions Below.
● Remove Any Run Command.
● Refer to the Following **Table. Fault Condition, the Possible Causes and Remedial Actions (cotinued)**.
● Turn ON the Reset Input Signal or Depress the RESET Key on the LCP, or Cycle Power to Reset the Stop Status.
● Remedial Actions Described does not solve the Problem, please contact Yolico Representative for Help.

Table. Fault Condition, the Possible Causes and Remedial Actions

Fault Condition	Name & Possible Causes	Remedy	Reset (*)
OC Overcurrent	**VFD Over Current** Motor Current Exceeds the Peak VFD Current (Approximately 200% VFD Rated Current): ● Too High Motor Load, Too Short Acceleration Time. ● Excessive Load Change ● Soft Short-circuit between Phases or Phase to Earth ● Poor or Loose Motor Cable Connections	● Check on Acceleration Time settings and make them Longer if Necessary. ● Check on Motor Load. ● Check Motor Coil Resistance & Insulation ● Check on Bad Motor Cable Connections ● Check on Bad Earth Cable Connection ● Check on Water or Moisture in the Motor Housing and Cable Connections.	B
SC Shortcircuit	**Short Circuit** ● VFD Output (Load) is Short Circuited.	● Check Motor Coil Resistance & Insulation ● Check on Motor Installation. ● Check on Bad Motor Cable Connections	B
OV Overvoiltage	**DC Bus Over Voltage** Too High DC Link Voltage Exceeded the Over Voltage Detection Level during Running. 200V Class: Approx. 410V, 400V Class: Approx. 820V ● Too Short Deceleration Time with Respect to Motor/ Machine Inertia. ● Too Small Braking Resistor, or Malfunctioning Brake Transistor or Unit. ● Power Supply Voltage is too High	● Check on Deceleration Time Settings and make them Longer (if necessary). ● Add a Suitable Size Braking Circuit (if Necessary). ● Check on Size of the Brake Circuit and the Related Parameter Setting (if Used) ● Check and Decease the Power Supply Voltage within VFD Specification	B
Uv1 Undervoltage	**DC Bus Under Voltage** Too Low DC Link Voltage Exceeded the Under Voltage Detection Level during Running. 200V Class: Approx. 190VDC or less, 400V Class: Approx. 380VDC or less. ● Too Low or No Supply Voltage or Phase Loss ● Mains Voltage Dip due to Starting Other Major Power Consuming Machines on the Same Line. ● Poor or Loose Mains Cable Connections.	● Make sure all Single/ Three Phases are Properly Connected and that the Terminal Screws are Tightened. ● Check that the Mains Supply Voltage is within the Limits of the VFD. ● Try to use Other Mains Supply Lines if Dip is caused by Other Machinery ● Use the Momentary Power Loss Function	B
Uv3 Undervoltage	**MC Answer Back** Inrush Prevention Circuit or MC (Relay) Fault ● The Pre-charge Relay (Contactor) Opened during Running.	● Check that the Mains Supply Voltage and Wiring. ● Check on Pre-charge Circuit	N

Note:

A: Fault can be Reset by Auto Restart Function.

M: Fault can be Reset by Manual Input (Reset Key of LCP or Multi-function Contact Input)

B: Fault can be Reset by Auto Restart Function/ Manual

N: Fault can not be Reset

Table. Fault Condition, the Possible Causes and Remedial Actions- continued

Fault Condition	Name & Possible Causes	Remedy	Reset (*)
OH Overtemp	**Heat Fins Over Temperature** The Heat Fins Temperature too High, over than Hardware Protection Level. ● Too High Ambient Temperature ● Heat Source Nearby or Insufficient Cooling ● Blocked or Stuffed Cooling Fan	● Check on Cooling of the VFD Cabinet. ● Install a Cooling Unit or Remove Heat Source ● Check on Functionality of the Built-in Cooling Fans by L8-04 Setting. ● Replace a New Fan (if Necessary). ● Clean Fans	B
OL1 Overload	**Motor Over Loaded** VFD Output Exceeded the Motor Overload Level. ● Load too Heavy ● Acceleration, Deceleration, Cycle are too Short. ● V/F Curve Voltage too High ● E2-01 Setting Value is Wrong(too Small) ● Self-Cooled Motor at Low Speed, High Load	● Check on Mechanical Overload on Motor or the Machinery (Bearing, Gearbox, Chains, Belts, etc.) ● Reduce the Load. ● Check on Acceleration, Deceleration, Cycle Time. ● Check on V/F Curve Setting. ● Check on E2-01 Motor Rating Current Setting ● Check on L1-07/ 08 and Motor Cooling System	M
OL2 Overload	VSD output exceeded the VFD Overload Level. ● Load too Heavy ● Acceleration, Deceleration, Cycle are too Short. ● V/F Curve Voltage too High ● The VFD Size too Small	● Check on Mechanical Overload on Motor or the Machinery (Bearing, Gearbox, Chains, Belts, etc.) ● Reduce the Load. ● Check on Acceleration, Deceleration, Cycle Time. ● Check on V/F Curve Setting. ● Replace VFD by Bigger Size	M
CPF03 EEPROM	**EEPROM Error** ● VFD's PCB Control Board Fault.	● Turn Power Supply Off and On again ● VFD needs to Repair (if Failure still On after Cycled Power)	N
CTER CT Error	**Current Transducer Error** ●VFD's Hardware Fault.	● VFD needs to Repair.	N

Note:

M: Fault can be Reset by Manual Input (Reset Key of LCP or Multi-function Contact Input)

B: Fault can be Reset by Auto Restart Function/ Manual

N: Fault can not be Reset

6.1.2 VFD Warnings & Remedy

Unlike Faults, Warnings do not activate Fault Contact Outputs, and The Warning Signal can not be Reset by Auto Restart Function or Manual. After the Cause of the Warning is corrected, the VFD Returns to its Former Operation Status Automatically.

The Digital Operator may display in Blinking when a Warning Occurs. please follow the **Table. Warning Condition, the Possible Causes and Remedial Actions (-continued)** for more Detail & Remedial Actions Below.

Table. Warning Condition, the Possible Causes and Remedial Actions

Warnibg Condition	Name & Possible Causes	Remedy
Uv (Blinking) Undervoltage	**DC Bus Under Voltage** Too Low DC Link Voltage Exceeded the Under Voltage Detection Level during in Ready. 200V Class: Approx. 190V or less, 400V Class: Approx. 380V or less. ● Too Low or No Supply Voltage or Phase Loss ● Mains Voltage Dip due to Starting Other Major Power Consuming Machines on the Same Line. ● Poor or Loose Mains Cable Connections. ● The Pre-charge Relay (Contactor) Opened.	● Make sure all Single/ Three Phases are Properly Connected and that the Terminal Screws are Tightened. ● Check that the Mains Supply Voltage is within the Limits of the VFD. ● Try to use Other Mains Supply Lines if Dip is caused by Other Machinery ● Use the Momentary Power Loss Function ● Check on Pre-charge Circuit
OV (Blinking) Overvoiltage	**DC Bus Over Voltage** Too High DC Link Voltage Exceeded the Over Voltage Detection Level during in Ready. 200V Class: Approx. 410V, 400V Class: Approx. 820V ● Power Supply Voltage is too High	● Check and Decease the Power Supply Voltage within VFD Specification
OH (Blinking) Overtemp	**Heat Fins Over Temperature** The Heat Fins Temperature too High, over than Hardware Protection Level during in Ready. ● Too High Ambient Temperature ● Heat Source Nearby or Insufficient Cooling ● Blocked or Stuffed Cooling Fan	● Check on Cooling of the VFD Cabinet. ● Install a Cooling Unit or Remove Heat Source ● Check on Functionality of the Built-in Cooling Fans by L8-04 Setting. ● Replace a New Fan (if Necessary). ● Clean Fans

6.1.3 VFD Special Conditions & Remedy

Like Warnings, the Fault Contact Outputs will not activate, and the Conditions can not be Reset neither. After the Cause of the Condition is corrected, the VFD Returns to its Former Operation Status Automatically.

The Digital Operator may display in Blinking when a Special Condition Occurs. please follow the **Table. Special Conditions, the Possible Causes and Remedial Actions** for more Detail & Remedial Actions Below.

Table. Warning Conditions, the Possible Causes and Remedial Actions

Special Condition	Name & Possible Causes	Remedy
CE (Blinking) Modbus Error	**MODBUS Communication Discontinue** Communication Lost Time is longer than MODBUS Time Out Detection Value (H5-11).	● Check Communication Devices and Transmission Signals. ● Check On Set Value of H5-11.
STOP	**VFD during in Zero Speed** Run Command is activated (On) and Frequency Reference is < 0.1Hz.	● Stop VFD ● Set Frequency Reference > 0.1Hz
STP1 (Blinking)	**Direct Start after Power Up Fail** VFD's Run Command Source set from Terminal (B1-02= 1) and Direct Start after Power Up Selection (L5-06= 1), the Run Signal is activated befoe Mains is Powered.	● Check On the Functionality of the L5-06 ● Cycle the Run Signal to Run VFD.
STP2 (Blinking)	**STOP Key of LCP is Depressed** When the Run Command is not through LCP and LCP Stop Key Selection is set to Enable (O2-02= 0), once the STOP Key is Depress during VFD in Running, the VFD Stops according B1-03 selected way, a Blinking "STP2" is displayed on LCP.	To Restart VFD, please refer the way below: ● Run Command by Terminals (B1-02= 1): Cycle the Run Signal, VFD Starts again. ● Run Command by Serial Communication (B1-02= 2): The Master (Controller) Transmits a "STOP" Signal then "RUN" Signal, VFD Starts again. ●Check On the Functionality of the L5-06
E.S. (Blinking)	**External Fast Stop Signal is Input** An Fast Stop Signal is active by Input Terminal D1 to D6 ● H1-01 to H1-06 is set to 15 ● Terminal D1~D6 s Enabled during Related Situation	● Check On the Terminals Status. ● Check On Functionality and Setting of Terminal D1~D6 (Parameter H1-01~ H1-06 and H1-11, H1-12 (If Necessary)
b.b.. (Blinking)	**External Base Block Signal is Input** An Base-block Signal is active by Input Terminal D1 to D6 ● H1-01 to H1-06 is set to 82 ● Terminal D1~D6 is Enabled during Related Situation	● Check On the Terminals Status. ● Check On Functionality and Setting of Terminal D1~D6 (Parameter H1-01~ H1-06 and H1-11, H1-12 (If Necessary)

6.1.4 VFD Operation Error & Remedy

Setting the Parameters, if the set Value is Out of the Valid Range or the Functionality between Parameters are contradictory, the Operation Error Code will Appear on LCP. An Operation Error do not activate Fault Contact Outputs, and the VFD can not Start and Warning Signal can not be Reset neither.

Please refer to **Table. Operation Error Condition, the Possible Causes and Remedial Actions** below to correct the Cause of the Error.

Table. Operation Error Condition, the Possible Causes and Remedial Actions

Error Condition	Name & Possible Causes	Remedy
OPE01	**VFD Capacity Setting is incorrect** ● o2-04 doesn't match with VFD Hardware Detection	● Contact Yolico Representative to get the Support
OPE02 Limit	**Parameter Setting Range is Incorrect** ● The Parameter Setting Value is Out of the Valid Range.	● Check the Setting Value
OPE12 Limit	**Operation Incorrect** ● Depress the Increasing or Decreasing Key when B1-01> 0 or Preset Speed Operation. ● Try to change Parameter that is not allowed to change during VFD in Runing.	● Check B1-01 Setting Value. ● Change Parameter when VFD in Stop.
OPE13 Comm Error	**Communication Write Error** ● Try to change Parameters that is not allowed to be changed by Communication	● Do the Correct Parameter Setting before communicate to VFD.
OPE14 Comm Fault	**MEMOBUS Transmission Error** ● Transmission Command is Incorrect. ● Communication Parameters Setting is Incorrect ● Check-Sum Error	● Check the Transmission Command for Master (Controller) ● Communication Parameters Setting H5-01~ H5-12
OPE15 Comm Fault	**Parameter Setting Error** ● Try Change O2-04 ● Try to change Parameters Value that is Out of Valid Range by Communication.	● Set Parameters Value in Valid Range
LOC	**Password is Incorrect or Setting Prohibited** ● Try to change Parameter while Password Protection in Lock-Out ● The Parameter is not allowed to change.	● Keyin Correct Password ● Try another Parameter or Control Status

7.1 Maintenance and Inspection

This Section describes Basic Maintenance and Inspection Procedures for the YD101 Series VFD, Yolico offers the Warranty to Ensure Quality of YD101.

The YD101 will Function Longer if it is kept Clean, Cool and Dry, and if all Precautions Highlighted in this Manual are Observed. Make a Visually Inspect and Routine Maintenance for the VFD as Described in the Table below to Prevent Accidents and to Ensure High Performance with High Reliability.

To Prevent Electrical Shock, Disconnect all Power before Servicing the VFD. Then wait at Least Five Minutes (10 Minutes for 15kW and Above Sizes) after the Power Supply is Disconnected and all LEDs are Extinguished.

■ Routine Inspection

Follows Item below check the System in Operation Daily.

- The Motor should not be Vibrating or Making Unusual Noises.
- There should be no Abnormal Heat Generation.
- The Ambient Temperature should not be Too High.
- The Output Current Value shown on the LCP should not be Higher than Normal.
- The Cooling Fan on the Bottom of the VFD should be Operating Normally.

■ Periodic Inspection & Maintenance

Table Periodic Inspections & Maintenance

Items	Inspection	Remedial Actions
External Device, Terminals, Mounting Bolts, Connectors, etc…	Are all Screws and Bolts Tight?	Tighten Loose Screws and Bolts Firmly.
	Are Connectors Tight?	Reconnect the Loose Connectors.
Heat Fins	Are the Fins Dirty or Dusty?	Clean Off Any Dirt and Dust with an Air Gun using Dry Compressed Air. (*)
PCBs (If Possible)	Is there Any Conductive Dirt or Oil Mist on the PCBs?	Clean Off Any Dirt and Dust with an Air Gun using Dry Compressed Air. (*) Replace the Boards if they can not be made Clean.
Cooling Fan	Is there Any Abnormal Noise or Vibration or has the Total Operating Time Exceeded 20,000 Hours?	Replace the Cooling Fan.
Power Elements	Is there any Conductive Dirt or Oil Mist on the Elements?	Clean Off Any Dirt and Dust with an Air Gun using Dry Compressed Air. (*)
Smoothing Capacitor	Are there any Irregularities, such as Discoloration or Odor?	Replace the Capacitor or VFD.

Note: The Compressed Dry Air is Recommended at a Pressure of 39.2 X 10^4 to 58.8 × 10^4 Pa (4 to 6 kg-cm^2).

■ Periodic Maintenance of Parts

The VFD is configured by Many Parts, and these Parts Operate properly to make Full use of the VFD Functions.

Among the Electronic Components, Some Parts Require Maintenance depending on the Usage Conditions. In Order to keep the VFD Operating Normally Over a Long Period of Time, it is Necessary to perform Period Inspections and Replace Parts according to their Service Life.

Periodic Maintenance and Inspection Standards vary depending the VFD's Installation Surrounding and Usage Conditions.

The VFD's Maintenance Periods are Noted below. Keep them as Reference.

Table Parts Replacement Guidelines

Patrs	Standard Period	Replacement Method
Cooling Fan	2~3 Years	Replace with New Part.
Smoothing Capacitor	5 Years	Replace with New Part. (Determine need by inspection.)
MC or Relays	5 Years	Determine need by inspection.
Aluminum Capacitors on PCBs	5 Years	Replace with new board. (Determine need by inspection.)

Note: Usage Conditions are as Follows:

● Ambient Temperature: Yearly Average of 30°C

● Load Factor: 80% Max.

● Operating Rate: 12 Hours Max.／per day

A.1 Dynamic Braking Configuration

Depends On VFD Model and Size, YD101 Series offer Different Types of Braking Configuration for Brake Devices Connection, as Braking Resister and Braking Unit plus Resister. Please see Table A-1, A-2 below for Detail.

Table A-1 Brake Configuration & Model List

1Ø 200V		
Model	Brake Configuration	
	Resister	Unit + Resister
YD101−00P2−T2S	√	
YD101−00P4−T2S	√	
YD101−00P7−T2S	√	
YD101−01P5−T2S	√	
YD101−02P2−T2S	√	
YD101−03P7−T2S	√	

3Ø 400V		
Model	Brake Configuration	
	Resister	Unit + Resister
YD101−00P4−T4	√	
YD101−00P7−T4	√	
YD101−01P5−T4	√	
YD101−02P2−T4	√	
YD101−0003−T4	√	
YD101−0004−T4	√	
YD101−05P5−T4	√	
YD101−07P5−T4	√	√
YD101−0011−T4	√	√
YD101−0015−T4	√	√
YD101−18P5−T4	√	√
YD101−0022−T4	√	√

Table A-2 Brake Configuration Corresponds to & YD101 Size

1Ø 200V					
Model	Braking Resister Specification			Brake Current (A)	Brake Torque (%)
	Ω (*1)	W @ 10% ED (*1)	W @ 20% ED (*2)		
YD101−00P2−T2S	700	20	40	0.5	123
YD101−00P4−T2S	360	40	80	1.1	120
YD101−00P7−T2S	200	70	140	1.9	116
YD101−01P5−T2S	100	150	300	3.8	116
YD101−02P2−T2S	70	210	420	5.4	114
YD101−03P7−T2S	40	360	720	9.5	118

3Ø 400V					
Model	Braking Resister Specification			Brake Current (A)	Brake Torque (%)
	Ω (*1)	W @ 10% ED	W @ 20% ED (*2)		
YD101−00P4−T4	1500	40	80	0.5	116
YD101−00P7−T4	750	80	160	1.0	123
YD101−01P5−T4	400	150	300	1.9	116
YD101−02P2−T4	250	230	460	3.0	125
YD101−0003−T4	200	290	580	3.8	116
YD101−0004−T4	150	390	780	5.1	116
YD101−05P5−T4	100	580	1160	7.6	125
YD101−07P5−T4	75	775	1550	10.1	123
YD101−0011−T4	50	1175	2350	15.2	125
YD101−0015−T4	40	1450	2900	19.0	116
YD101−18P5−T4	30	1930	3860	25.3	124
YD101−0022−T4	25	2325	4650	30.4	125

⚠ **Note:**　1. The Listed Ω Value is the Specified Minimum Resister Value, if Value of Actual used Brake Resister is Smaller than the Listed Ω Value, the High Brake Current may result VFD Damaged.

2. The W is Power Rating in Watt at Specified ED%, please choose a Suitable ED% depends on the Application. Such as the Brake Duty is Less than 5 Times/ Per Minute or just Brakes in a short Time, that can use Resister in Watt @10%ED or Smaller Watt Value. If the Brake Duty is Larger than 5 Times/ Per Minute or Continue Brakes Over than 4 Minutes, that might use Resister in Watt @ 20%ED or Larger Watt Value, i.e. the Cycling Textile Machine.

● Calculation for Brake Resister Watt Rating

For 400V Models　　$W = \dfrac{577600}{\text{Resister Ohm Value}} \times ED\%$

For 400V Models　　$W = \dfrac{144400}{\text{Resister Ohm Value}} \times ED\%$

		ED%
General Load		10%
Brake Frequently	5 Times/ per Minute	15%
Long Time Brake	4 Minutes/ per Brake	20%

A.2 Parameter List Table

Function		Parameter No.	Name & (Digital Operator Displayed)	Default	Setting Range	Minimum Unit	User Setting
U (Monitor)	U1- (Situation Monitor)	U1-01	Frequency Reference	......	......	0.01Hz	
		U1-02	Output Frequency	......	......	0.01Hz	
		U1-03	Output Current	......	......	0.1A	
		U1-06	Output Voltage	......	......	0.1V	
		U1-07	DC Bus Voltage	......	......	1V	
		U1-10	Input Terminal Status	......	......	......	
		U1-11	Output Terminal Status	......	......	......	
		U1-14	Software Number	......	......	......	
		U1-15	Frequency Reference Terminal AVI Input Level	......	......	0.1%	
		U1-16	CTL Terminal ACI Input Level	......	......	0.1%	
		U1-24	PID Feedback Capacity	......	......	0.1%	
		U1-46	IGBT Temperature	......	......	......	
		U1-47	Counter Present Value	......	......	......	
		U1-48	Worked Time 1	......	......	1Hour	
		U1-49	Worked Time 2	......	......	1Day	
	U3- (Fault Log)	U3-01	Most Recent Fault	......	......	......	
		U3-02	2nd Most Recent Fault	......	......	......	
		U3-03	3rd Most Recent Fault	......	......	......	
A (Environment)	A1- (Environment)	A1-02	CTL Method Selection	0	0 ~ 5	......	
		A1-03	Initialize Parameters	0	0 ~ 65535	......	
		A1-04	Password	0	0 ~ 65535	......	
B (Application)	B1- (Sequence)	B1-01	Reference Source	0	0 ~ 2, 4 ~ 6	......	
		B1-02	Run Source	0	0 ~ 2	......	
		B1-03	Stopping Method Selection	0	0 ~ 1	......	
		B1-04	Reverese Operation Prohibit	0	0 ~ 1	......	
		B1-06	Digital Input Scan Time	5	1 ~ 100	1	
		B1-09	Auxiliary Run Source Selection	0	0 ~ 2	......	
		B1-10	Auxi. Reference Source Selection	0	0 ~ 2, 4 ~ 6	......	
		B1-11	Multi-function Input Terminals CTL Method Selection	0	0 ~ 2	......	
		B1-12	AVR for Output Selection	0	0 ~ 1	......	
	B2- (DC Brake)	B2-01	DC Braking Frequency at Stop	1.5	0.10 ~ 10.00	0.01Hz	
		B2-02	DC Braking Current at Stop	50.0	0.0 ~ 150.0	0.1%	
		B2-03	DC Braking Time at Start	0.0	0.0 ~ 25.5	0.1Sec.	
		B2-04	DC Braking Time at Stop	0.5	0.0 ~ 25.5	0.1Sec.	
		B2-09	DC Braking Current at Start	0.0	0.0 ~ 150.0	0.1%	
	B3- (Speed Search)	B3-01	Speed Search at Start	0	0 ~ 1	......	
	B5- (PID CTL)	B5-01	PID CTL Mode Selection	0	0 ~ 4	......	
		B5-02	PID Feedback Regulated Gain	1.00	0.00 ~ 10.00	0.01	
		B5-03	PID CTL Proportional Gain	1.0	0.0 ~ 10.0	......	
		B5-04	PID CTL Integral Time	10.0	0.0 ~ 100.0	0.1Sec.	
		B5-05	PID CTL Derivative Time	0.00	0.00 ~ 10.00	0.01Sec.	

Function		Parameter No.	Name & (Digital Operator Displayed)	Default	Setting Range	Minimum Unit	User Setting
B (Application)	B5-(PID CTL)	B5-06	PID CTL Offset +/- Selection	0	0 ~ 1	……	
		B5-07	PID CTL Offset	0	0 ~ 109	1%	
		B5-08	PID Output Primary Delay Time	0.0	0.0 ~ 2.5	0.1Sec.	
		B5-09	PID Feedback Loss Action	0	0 ~ 2	……	
		B5-10	PID Feedback Loss Dection Level	0	0 ~ 100	1%	
		B5-11	PID Feedback Loss Detection Time	1.0	0.0 ~25.5	0.1Sec.	
		B5-12	PID CTL Integral Limit	100	0 ~ 109	……	
		B5-14	PID Sleep Frequency	0.00	0.00 ~ 650.00	0.01Hz	
		B5-15	PID Sleep Delay Time	0.0	0.0 ~ 25.5	0.1Sec.	
		B5-16	PID Wake Up Frequency	0.00	0.00 ~ 650.00	0.01Hz	
		B5-17	PID Wake Up Delay Time	0.0	0.0 ~ 25.5	0.1Sec.	
C (Tuning)	C1-(ACC/DEC Time)	C1-01	Acceleration Time 1	10.0	0.1 ~ 3600.0	0.1Sec.	
		C1-02	Deceleration Time 1	10.0	0.1 ~ 3600.0	0.1Sec.	
		C1-03	Acceleration Time 2	10.0	0.1 ~ 3600.0	0.1Sec.	
		C1-04	Deceleration Time 2	10.0	0.1 ~ 3600.0	0.1Sec.	
	C2-(S-Curve)	C2-01	S-Curve at Accelerating Start	0.2	0.0 ~ 4.0	0.1Sec.	
		C2-02	S-Curve at Accelerating End	0.2	0.0 ~ 4.0	0.1Sec.	
		C2-03	S-Curve at Decelerating Start	0.2	0.0 ~ 4.0	0.1Sec.	
		C2-04	S-Curve at Decelerating End	0.2	0.0 ~ 4.0	0.1Sec.	
	C3-(Motor Slip Comp.)	C3-01	Motor Rated Slip Compensation @ V/F CTL	0.0	0.0 ~ 200.0	0.1%	
		C3-02	Slip Compensation Delay Time @ V/F CTL	0.10	0.05~10.00	0.01Sec.	
	C4-(Torque Comp.)	C4-01	Torque Compensation @ V/F CTL	10.0	0.0 ~ 30.0	0.1%	
	C6-(Carrier Frequency)	C6-01	Carrier Frequency Set	5	1~15	1kHz	
		C6-06	Carrier Frequency Selection	1	0~2	……	
D (Reference)	D1-(Preset References)	D1-09	JOG Frequency Reference	2.00	0.00 ~ 650.00	0.01Hz	
		D1-10	JOG Acceleration Time	0.5	0.1 ~ 25.5	0.1Sec.	
		D1-11	JOG Deceleration Time	0.5	0.1 ~ 25.5	0.1Sec.	
		D1-12	Multi-step Speed ACC/DEC Time Selection	0	0~1	……	
		D1-13	MOPs Speed/ Preset Speed 0	5.00	0.00 ~ 650.00	0.01Hz	
		D1-14	Multi-Step Preset Speed 1	5.00	0.00 ~ 650.00	0.01Hz	
		D1-15	Multi-Step Preset Speed 2	10.00	0.00 ~ 650.00	0.01Hz	
		D1-16	Multi-Step Preset Speed 3	15.00	0.00 ~ 650.00	0.01Hz	
		D1-17	Multi-Step Preset Speed 4	20.00	0.00 ~ 650.00	0.01Hz	
		D1-18	Multi-Step Preset Speed 5	25.00	0.00 ~ 650.00	0.01Hz	
		D1-19	Multi-Step Preset Speed 6	30.00	0.00 ~ 650.00	0.01Hz	
		D1-20	Multi-Step Preset Speed 7	35.00	0.00 ~ 650.00	0.01Hz	
		D1-21	Multi-Step Preset Speed 8	40.00	0.00 ~ 650.00	0.01Hz	
		D1-22	Multi-Step Preset Speed 9	45.00	0.00 ~ 650.00	0.01Hz	
		D1-23	Multi-Step Preset Speed 10	50.00	0.00 ~ 650.00	0.01Hz	

Function		Parameter No.	Name & (Digital Operator Displayed)	Default	Setting Range	Minimum Unit	User Setting
D (Reference)	D1-(Preset References:)	D1-24	Multi-Step Preset Speed 11	0.00	0.00 ~ 650.00	0.01Hz	
		D1-25	Multi-Step Preset Speed 12	0.00	0.00 ~ 650.00	0.01Hz	
		D1-26	Multi-Step Preset Speed 13	0.00	0.00 ~ 650.00	0.01Hz	
		D1-27	Multi-Step Preset Speed 14	0.00	0.00 ~ 650.00	0.01Hz	
		D1-28	Multi-Step Preset Speed 15	0.00	0.00 ~ 650.00	0.01Hz	
		D1-29	ACC Time of REF Source/ Preset 0	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-30	DEC Time of REF Source/ Preset 0	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-31	ACC Time of Preset Speed 1	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-32	DEC Time of Preset Speed 1	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-33	ACC Time of Preset Speed 2	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-34	DEC Time of Preset Speed 2	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-35	ACC Time of Preset Speed 3	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-36	DEC Time of Preset Speed 3	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-37	ACC Time of Preset Speed 4	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-38	DEC Time of Preset Speed 4	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-39	ACC Time of Preset Speed 5	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-40	DEC Time of Preset Speed 5	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-41	ACC Time of Preset Speed 6	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-42	DEC Time of Preset Speed 6	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-43	ACC Time of Preset Speed 7	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-44	DEC Time of Preset Speed 7	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-45	ACC Time of Preset Speed 8	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-46	DEC Time of Preset Speed 8	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-47	ACC Time of Preset Speed 9	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-48	DEC Time of Preset Speed 9	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-49	ACC Time of Preset Speed 10	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-50	DEC Time of Preset Speed 10	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-51	ACC Time of Preset Speed 11	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-52	DEC Time of Preset Speed 11	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-53	ACC Time of Preset Speed 12	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-54	DEC Time of Preset Speed 12	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-55	ACC Time of Preset Speed 13	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-56	DEC Time of Preset Speed 13	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-57	ACC Time of Preset Speed 14	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-58	DEC Time of Preset Speed 14	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-59	ACC Time of Preset Speed 15	10.0	0.1 ~ 3600.0	0.1Sec.	
		D1-60	DEC Time of Preset Speed 15	10.0	0.1 ~ 3600.0	0.1Sec.	
	D2-(References Limits)	D2-01	Frequency Upper Limit	50.00	0.01 ~ 650.00	0.01Hz	
		D2-02	Frequency Lower Limit	0.00	0.00 ~ 649.99	0.01Hz	
	D3-(Jump Frequencies)	D3-01	Jump Frequency Reference 1	0.00	0.00 ~ 650.00	0.01Hz	
		D3-02	Jump Frequency Reference 2	0.00	0.00 ~ 650.00	0.01Hz	
		D3-03	Jump Frequency Reference 3	0.00	0.00 ~ 650.00	0.01Hz	
		D3-04	Jump Frequency Bandwidth	0.00	0.00 ~ 30.00	0.01Hz	

S 1 2 3 4 5 6 7 A

Function		Parameter No.	Name & (Digital Operator Displayed)	Default	Setting Range	Minimum Unit	User Setting
E (V/F Pattern & Motor)	E1-(V/F Pattern for V/F CTL)	E1-01	Input Mains Voltage	220.0	170.0~528.0	0.1V	
		E1-03	V/F Pattern Selection	F	0~F	……	
		E1-04	Maximum Output Frequency	50.00	40.00 ~ 650.00	0.01Hz	
		E1-05	Maximum Output Voltage	200.0	0.0 ~ 255.0*	0.1V	
		E1-06	Base Frequency	50.00	0.10 ~ 650.00	0.01Hz	
		E1-07	Middle Output Frequency A	2.50	0.10 ~ 650.00	0.01Hz	
		E1-08	Middle Output Voltage A	15.0	0.0 ~ 255.0*	0.1V	
		E1-09	Minimum Output Frequency	1.30	0.10 ~ 650.00	0.01Hz	
		E1-10	Minimum Output Voltage	9.0	0.0 ~ 255.0*	0.1V	
		E1-11	Middle Output Frequency B	0.00	0.00 ~ 650.00	0.01Hz	
		E1-12	Middle Output Voltage B	0.0	0.0 ~ 255.0*	0.1V	
		E1-13	Base Voltage	200.0	0.0 ~ 255.0*	0.1V	
		E1-14	V/F Start Frequency	0.00	0.00 ~ 10.00	0.01Hz	
	E2-(Motor Set-up for V/F CTL)	E2-01	Motor Rated Current	……	……	0.1A	
		E2-03	Motor No-Load Current	……	……	0.1A	
		E2-04	Number of Motor Poles	4	2~48	2Poles	
	E6-(Motor Direction)	E6-01	Motor Direction Selection	0	0~1	……	
H (Terminal)	H1-(Digital Inputs)	H1-01	Terminal D1 Selection	80	3~89	……	
		H1-02	Terminal D2 Selection	81	3~89	……	
		H1-03	Terminal D3 Selection	3	3~89	……	
		H1-04	Terminal D4 Selection	4	3~89	……	
		H1-05	Terminal D5 Selection	5	3~89	……	
		H1-06	Terminal D6 Selection	30	3~89	……	
		H1-11	D1~ D5 Input Signal Selection	00000	00000~11111	……	
		H1-12	D6 Input Signal Selection	00000	00000~00001	……	
		H1-13	MOP CTL Bandwidth	0.00	0.00 ~ 5.00	0.01Hz	
		H1-14	MOP Hold Reference Selection	0	0~2	……	
		H1-15	Pulse Input Signal Selection	0	0~1	……	
		H1-16	Pulse Input Filter Coefficient	1	1 ~ 100	1	
		H1-17	Pulse Input Gain	1.00	0.01 ~ 9.99	0.01	
		H1-18	Pulse Reference Filter for LCP	20	1 ~ 200	1	
		H1-19	Counter Target Value	0	0 ~ 9999	1	
		H1-20	Preset Counter Value	0	0 ~ 9999	1	
		H1-21	Counter Input Scan Time	1	1 ~ 10	1 (x2mS)	
	H2-(Digital Outputs)	H2-01	Relay 1 (RY1) Function Selection	E	0~48	……	
		H2-02	Relay 2 (RY2) Function Selection	0	0~48	……	
		H2-03	PHC Function Selection	2	0~48	……	
		H2-06	Digital Output Signal Selection	00000	00000~00111	……	
	H3-(Analog Inputs)	H3-02	Terminal AVI Reference % Gain	100	0 ~ 1000	1%	
		H3-03	Terminal AVI Reference % Bias	0	0 ~ 100	1%	
		H3-09	Terminal ACI Function Selection	0	0~1	……	
		H3-10	Terminal ACI Reference % Gain	100	0 ~ 1000	1%	

Note: These Voltage Values are for the 200 V Class; Double the Values for 400 V Class VFDs.

Y D101 Series

Yolico

Function		Parameter No.	Name & (Digital Operator Displayed)	Default	Setting Range	Minimum Unit	User Setting
H (Terminal)	H3-(Analog Inputs)	H3-11	Terminal ACI Reference % Bias	0	0 ~ 100	1%	
		H3-12	Terminal AVI Scan Time	50	1 ~ 100	1 (x2mS)	
		H3-13	Terminal AVI/ACI Signal Selection	0	0~3	……	
		H3-14	Terminal AVI Bias +/- Selection	0	0~1	……	
		H3-15	AVI Normal/ Invert Selection	0	0~1	……	
		H3-16	Terminal ACI Scan Time	50	1 ~ 100	1 (x2mS)	
		H3-17	Terminal ACI Bias +/- Selection	0	0~1	……	
		H3-18	ACI Normal/ Invert Selection	0	0~1	……	
		H3-19	AI Reference Filter for LCP Display	30	1 ~ 100	1	
	H4-(Analog Outputs)	H4-01	Terminal AO Function Selection	2	1~7	……	
		H4-02	Terminal AO % Gain	100	0 ~ 1000	1%	
		H4-03	Terminal AO Reference % Bias	0	0 ~ 100	1	
		H4-09	Terminal AO Bias +/- Selection	0	0~1	……	
		H4-10	AO Normal/ Invert Selection	0	0~1	……	
	H5-(Modbus Communication Set-up)	H5-01	Modbus Station Address Selection	1	1 ~ 32	1	
		H5-02	Modbus Baud Rate Selection	3	0~4	……	
		H5-03	Modbus Parity Selection	0	0~2	……	
		H5-04	Stop Method if Modbus Error	0	0~3	……	
		H5-06	Modbus Response Delay Time	5	1 ~ 16	1 (x2mS)	
		H5-08	ASCII/ RTU Code Selection	0	0~1	……	
		H5-09	Modbus Stop Bit Selection	0	0~1	……	
		H5-10	Modbus Data Format Selection	0	0~1	……	
		H5-11	MODBUS Time Out Detection	0.0	0.0~25.5	0.1Sec.	
		H5-12	Number of MODBUS Error	3	1 ~ 20	1	
L (Protection)	L1-(Motor Overload)	L1-06	Motor OL1 Selection	1	0~1	……	
		L1-07	Motor Cooling Type Selection	0	0~1	……	
		L1-08	Motor Overload Type Selection	0	0~1	……	
		L1-09	Stopping Method after OL1	0	0~1	……	
	L2-(Power Loss Ridethrough)	L2-01	Power Loss Selection	0	0~2	……	
		L2-02	Momentary Power Loss Time	0.5	0.0 ~ 2.0	0.1Sec.	
	L3-(Stall Prevention)	L3-01	Acceleration Stall Prevention	0	0~1	……	
		L3-02	ACC Stall Prevention Level	200	50~200	1%	
		L3-04	Deceleration Stall Prevention	0	0~1	……	
		L3-05	Running Stall Prevention	0	0~1	……	
		L3-06	Running Stall Prevention Level	200	50~200	1%	
		L3-07	DEC Stall Prevention Level	200	50~200	1%	
		L3-08	Running Over Volt. Prevention	0	0~1	……	
		L3-09	Running OV. Prevention Level	380.0	350.0~780.0	0.1v	
		L3-10	Deceleration OV. Restraint Gain	10	0 ~ 25	1	
	L4-(Reference Detection)	L4-01	Frequency Agree Level	0.00	0.00 ~ 650.00	0.01Hz	
		L4-02	Frequency Agree Width	2.00	0.00 ~ 30.00	0.01Hz	

Function		Parameter No.	Name & (Digital Operator Displayed)	Default	Setting Range	Minimum Unit	User Setting
L (Protection)	L5-(Automatic Restart)	L5-01	Number of Automatic Restart	0	0 ~ 10	1	
		L5-03	Automatic Restart Method	0	0~1	……	
		L5-04	Automatic Restart Waiting Time	0.0	0.0 ~ 800.0	0.1Sec.	
		L5-05	Restart Mode Selection	0	0~1	……	
		L5-06	Direct Start after Power Up	0	0~1	……	
		L5-07	Direct Start Delay Time	2.0	2.0 ~ 300.0	0.1Sec.	
		L5-08	KEB Deceelation Time Setting	0.0	0.0~25.0	0.1Sec.	
		L5-09	DC Bus LV Detection Level	190.0	150.0~420.0	0.1V	
	L8-(Hardware Protection)	L8-04	Built-in Cooling Fan Selection	1	0~3	……	
		L8-17	Carrier Frequency Auto Reduce Selection	0	0~1	……	
O(Operator)	O1-(Monitor Selection)	O1-02	Monitoring after Power Up Selection	0	0~5	……	
		O1-06	RPM Scale for Monitoring	1800	0 ~ 65535	1 RPM	
		O1-07	Scale for Monitoring Selection	0	0~4	……	
	O2-(Key Selection)	O2-02	LCP Stop Key Selection	0	0~1	……	
		O2-04	Inverter Model	……	……	……	
		O2-05	LCP M.O.P. Mode Selection	0	0~1	……	
		O2-08	Accumulative Worked Time	0	0~1	……	
		O2-10	Allow Worked Days	0	0~65535	1Day	
		O2-11	Parameter Lock by Password	0	0~1	……	
P (Process)	P1-(Auto Process Operation)	P1-00	Auto Process Mode Selection	0	0~6	……	
		P1-01	Master Frequency (Auto Process Speed 0)	0.00	0.00 ~ 650.00	0.01Hz	
		P1-02	Auto Process Speed 1	0.00	0.00 ~ 650.00	0.01Hz	
		P1-03	Auto Process Speed 2	0.00	0.00 ~ 650.00	0.01Hz	
		P1-04	Auto Process Speed 3	0.00	0.00 ~ 650.00	0.01Hz	
		P1-05	Auto Process Speed 4	0.00	0.00 ~ 650.00	0.01Hz	
		P1-06	Auto Process Speed 5	0.00	0.00 ~ 650.00	0.01Hz	
		P1-07	Auto Process Speed 6	0.00	0.00 ~ 650.00	0.01Hz	
		P1-08	Auto Process Speed 7	0.00	0.00 ~ 650.00	0.01Hz	
		P1-09	Auto Process Speed 8	0.00	0.00 ~ 650.00	0.01Hz	
		P1-10	Auto Process Speed 9	0.00	0.00 ~ 650.00	0.01Hz	
		P1-11	Auto Process Speed 10	0.00	0.00 ~ 650.00	0.01Hz	
		P1-12	Auto Process Speed 11	0.00	0.00 ~ 650.00	0.01Hz	
		P1-13	Auto Process Speed 12	0.00	0.00 ~ 650.00	0.01Hz	
		P1-14	Auto Process Speed 13	0.00	0.00 ~ 650.00	0.01Hz	
		P1-15	Auto Process Speed 14	0.00	0.00 ~ 650.00	0.01Hz	
		P1-16	Auto Process Speed 15	0.00	0.00 ~ 650.00	0.01Hz	
		P1-17	Run Time 0 for Speed 0	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-18	Run Time 1 for Speed 1	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-19	Run Time 2 for Speed 2	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-20	Run Time 3 for Speed 3	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-21	Run Time 4 for Speed 4	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-22	Run Time 5 for Speed 5	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-23	Run Time 6 for Speed 6	0.0	0.0 ~ 3600.0	0.1Sec.	

Function		Parameter No.	Name & (Digital Operator Displayed)	Default	Setting Range	Minimum Unit	User Setting
P (Process)	P1-(Auto Process Operation)	P1-24	Run Time 7 for Speed 7	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-25	Run Time 8 for Speed 8	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-26	Run Time 9 for Speed 9	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-27	Run Time 10 for Speed 10	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-28	Run Time 11 for Speed 11	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-29	Run Time 1 for Speed 12	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-30	Run Time 13 for Speed 13	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-31	Run Time 14 for Speed 14	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-32	Run Time 15 for Speed 15	0.0	0.0 ~ 3600.0	0.1Sec.	
		P1-33	Run Direction 0 for Speed 0	0	0 ~ 2	……	
		P1-34	Run Direction 1 for Speed 1	0	0 ~ 2	……	
		P1-35	Run Direction 2 for Speed 2	0	0 ~ 2	……	
		P1-36	Run Direction 3 for Speed 3	0	0 ~ 2	……	
		P1-37	Run Direction 4 for Speed 4	0	0 ~ 2	……	
		P1-38	Run Direction 5 for Speed 5	0	0 ~ 2	……	
		P1-39	Run Direction 6 for Speed 6	0	0 ~ 2	……	
		P1-40	Run Direction 7 for Speed 7	0	0 ~ 2	……	
		P1-41	Run Direction 8 for Speed 8	0	0 ~ 2	……	
		P1-42	Run Direction 9 for Speed 9	0	0 ~ 2	……	
		P1-43	Run Direction 10 for Speed 10	0	0 ~ 2	……	
		P1-44	Run Direction 11 for Speed 11	0	0 ~ 2	……	
		P1-45	Run Direction 1 for Speed 12	0	0 ~ 2	……	
		P1-46	Run Direction 13 for Speed 13	0	0 ~ 2	……	
		P1-47	Run Direction 14 for Speed 14	0	0 ~ 2	……	
		P1-48	Run Direction 15 for Speed 15	0	0 ~ 2	……	
T (VVT Adjusting)	T1-(Motor Nameplate Data)	T1-02	Motor Nameplate Data	……	……	0.1kW	
		T1-03	Motor Rated Voltage	……	……	0.1VAC	
		T1-04	Motor Rated Current	……	……	0.1A	
		T1-05	Motor Rated Frequency	……	……	0.01Hz	
		T1-07	Motor Rated Speed	……	……	1RPM	
	T2-(Motor Adjusting Constants)	T2-00	Torque Compensation Coefficient for VVT CTL	……	0 ~ 600	1	
		T2-01	Slip Compensation Coefficient for VVT CTL	……	0 ~ 600	1	
		T2-05	Torque Compensation Gain @ Low Speed for VVT CTL	30	0 ~ 100	1%	

A.3 Abbreviation Index

In the Manual, there are Abbreviations with Uppercase Words because of limited space in some Tables, please refer the explanation below to know what the real meaning for the Word.

Alphabet	Abbreviation	Meaning
A	ACC	Acceleration/ Accerlative/ Accerlating
A	AVR	Auto Voltage Regulation
B	BRK	Brake/ Braking
C	CMD	Command
C	CTL	Control/ Controlling
D	DEC	Deceleration/ Decelerative/ Decelerating
E	E.S.	Emergency Stop, Fast Stop
E	ERR	Error
F	FBL	Feed Back Loss
F	FRQ	Frequency
F	FSD	Full Scale Deflection
F	FUN	Function
F	FWD	Forward
I	INT	Invert
K	KPD	Keypad/ Operator/ Local Control Panel
L	LCP	Local Control Panel/ Keypad/ Operator
L	LVL	Level
M	MOB	Modbus
M	MOP(s)	Motor Operated Potentiometer
M	MTR	Motor
N	N.C.	Normal Close
N	N.O.	Normal Open
P	PHC	Photo-Coupler
P	POT	Potentiometer of LCP
R	REF	Reference
R	REV	Reverse
R	RST	Reset/ Mains Terminal Label
R	RY	Relay
S	SGN	Signal
S	SPD	Speed
S	STP	Stop
T	TMN	Terminal(s)
V	VFD	Variable Frequency Drive
V	VVT	Voltage Vector Control