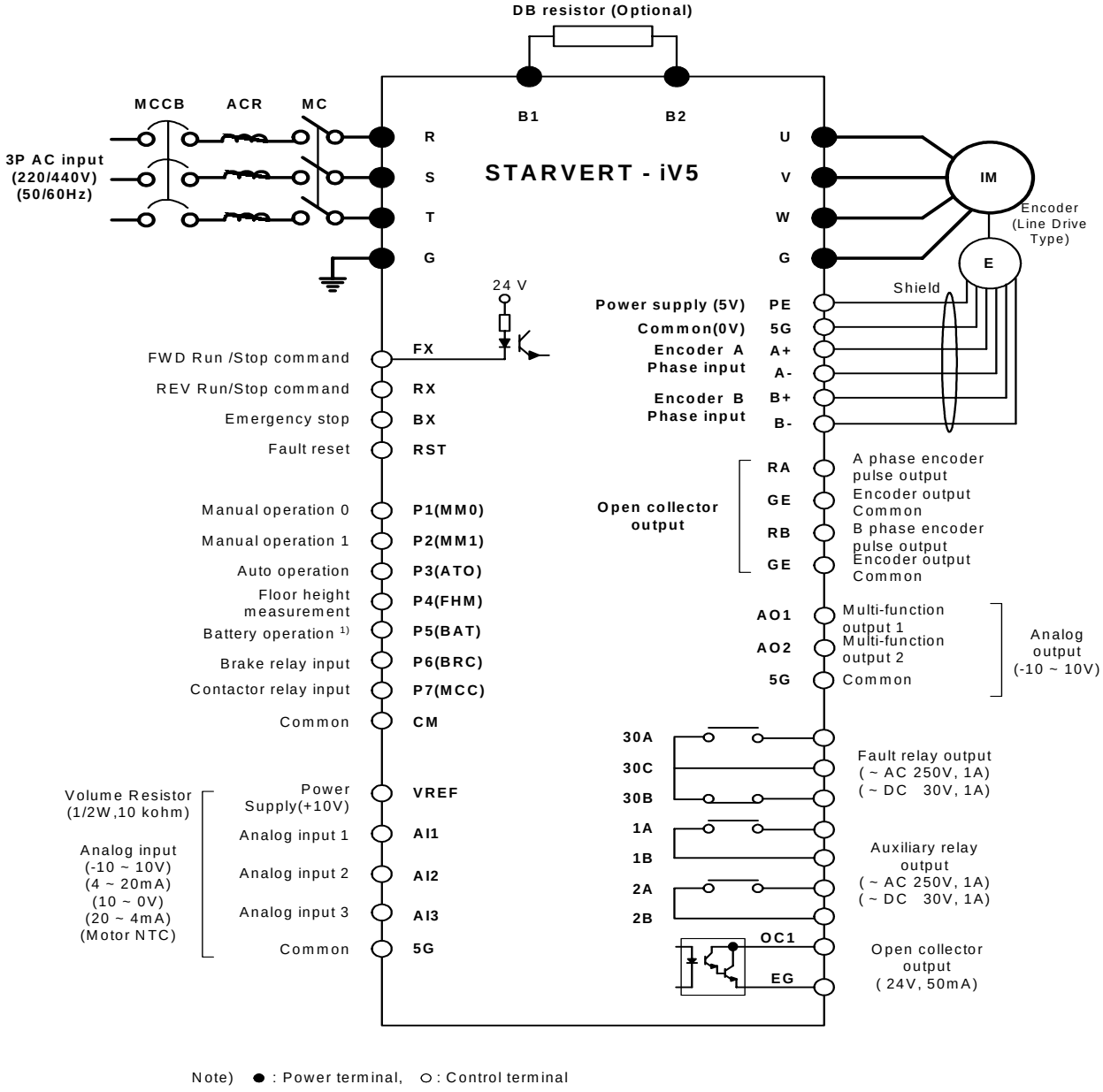
Refer to iV5 series Users Manual for general functions. This manual only describes functions for Elevator I/O board. To make use of elevator functions, install EL-I/O (Elevator-dedicated I/O) board onto the iV5 inverter.

1 Installation and wiring

1.1 Terminal wiring block diagram

■ SV055, 075, 110, 150, 185, 220iV5-2(DB)
SV055, 075, 110, 150, 185, 220iV5-4(DB)

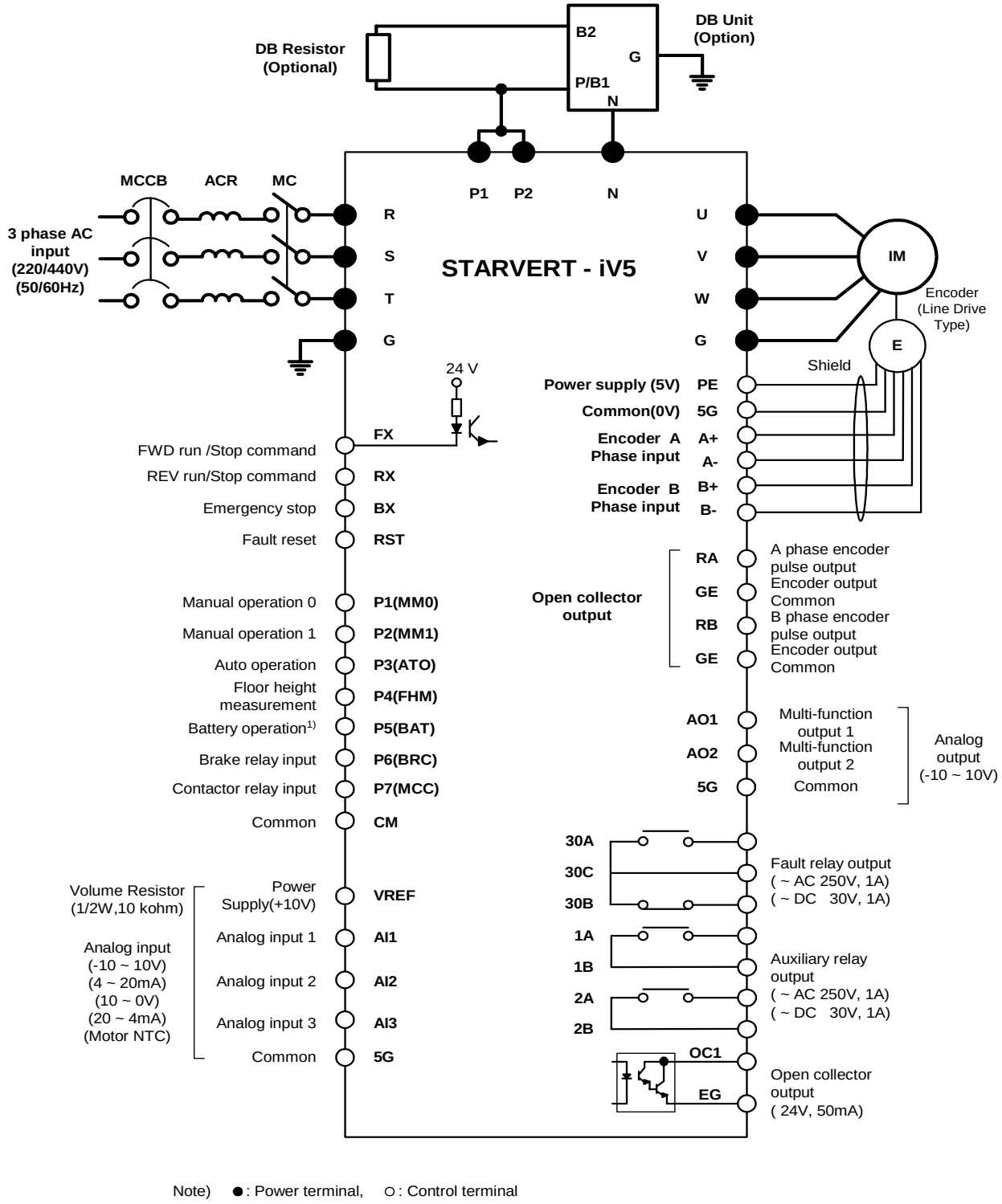


Note) ● : Power terminal, ○ : Control terminal

1) Values defined as Multi-function input terminals P1 ~ P7are factory defaults. Battery operation is in preparation.

■ SV300, 370iV5-2

SV300, 370, 450, 550, 750, 900, 1100, 1320, 1600, 2200iV5-4



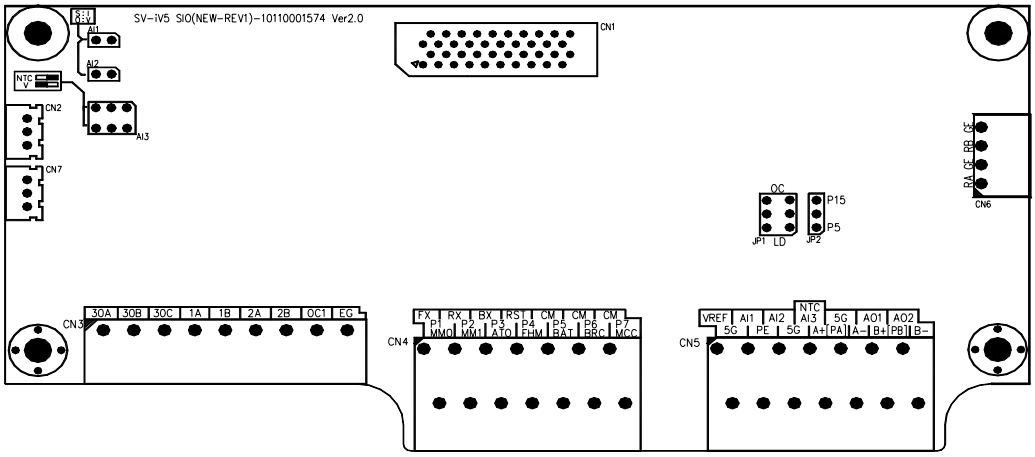
Note) ● : Power terminal, ○ : Control terminal

1) Values defined as Multi-function input terminals P1 ~ P7are factory defaults. Battery operation is in preparation.

1.2 Control terminal – Standard I/O Board and Elevator I/O board (EL-I/O)

1) Standard I/O Board terminal layout

I/O PCB v2.0



2) Standard I/O Board terminal description

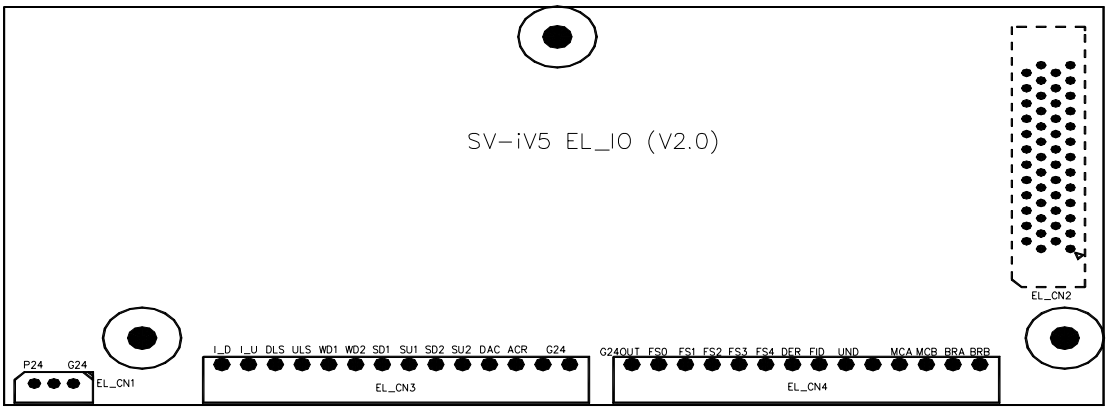
	Code	Function	Description
Contact input	FX	Forward RUN /Stop command	● Forward/Reverse RUN Command is ON when closed to CM separately. ● Motor stops when FX/RX is ON or OFF at the same time.
	RX	Reverse RUN / Stop command	
	BX	Emergency stop	ON when closed to CM, FREERUN Stop and Deceleration Stop. It does not trigger fault alarm signal.
	RST	Fault reset	Resets when fault condition is cancelled.
	P1(MM0)	Multi-function input temrinals	● **Elevator mode- the following 7 functions added to vector mode functions.** Manual operation mode 0/1 (MM0, MM1), Auto operation mode (ATO), Floor Height Measuring (FHM), Operation using Battery (BAT)(1), Brake relay input (BRC), contactor relay input(MCC) ● Operation using Battery function (BAT) is in preparation.
	P2(MM1)		
	P3(AT0)		
	P4(FHM)		
	P5(BAT)		
	P6(BRC)		
	P7(MCC)		
	CM	COMMON	● ON when each contact is closed to CM.
Analog input	VREF	Power Supply for analog setting	● Reference voltage by variable resistor (+ 10V): 10kΩ
	AI1	Voltage/current input	● Voltage (-10 ~ 10V) or current signal mode can be selected for the multi-function analog input. Selectable among following 8 different functions. (Speed/Torque/Flux command, Torque bias, Torque limit, Process PI controller command, Process controller feedback value, Draw command) ● Jumper setting in voltage signal mode (AI1 and AI2 Open ● Jumper setting in current signal mode (AI1 and AI2 Closed ● Selectable for voltage and motor NTC signal (Only for LG Otis Motor) ● Jumper setting (AI3 Open: Voltage signal (AI3 Closed: Motor NTC signal
	AI2		
	AI3	Voltage input Motor NTC input	

	5G	COMMON	● COMMON for analog input

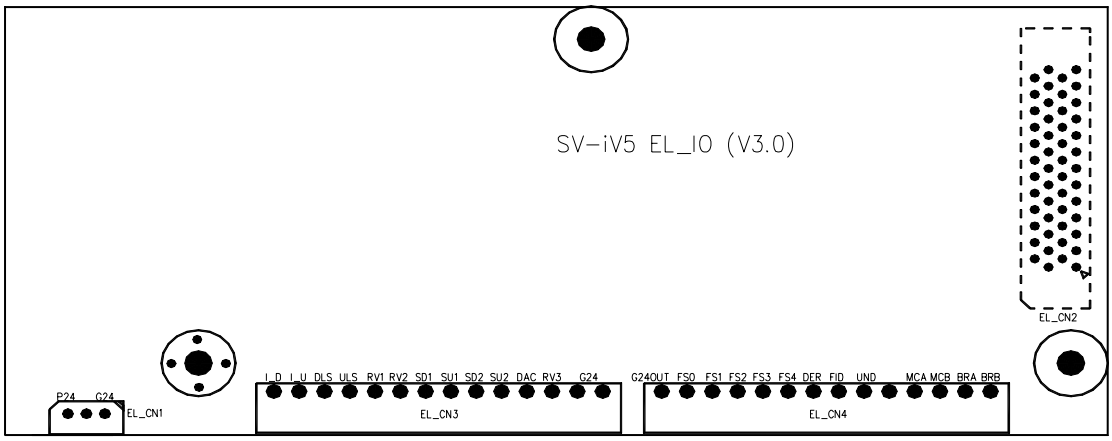
	Code	Function	Description
Pulse Encoder Input	PE	Power Supply for Pulse Encoder	+5V
	5G		0V
	A+	Encoder A phase	● A, B signal in Line Drive type Pulse Encoder ● Jumper JP2 on the I/O PCB should be tied to P5, Jumper JP1 to LD, respectively.
	A-		
	B+	Encoder B phase	
	B-		
	PE	Power Supply for Pulse Encoder	+15V
	5G		0V
	PA	Encoder A phase	● A, B signal in Complementary or Open Collector type Pulse Encoder. Jumper JP2 on the I/O PCB should be tied to P15, Jumper JP1 to OC, respectively.
	PB	Encoder B phase	
Encoder output	RA	A phase encoder pulse output	Encoder A, B phase signal output – Open Collector Type
	GE	Output Common	
	RB	B phase encoder pulse output	
	GE	Output Common	
Analog Output	AO1	Analog output 1	● -10V ~ +10V ● Selectable among 31 different functions (Motor speed, Speed command1~2, Torque command1~2, Torque current, Flux command, Flux current, Output current, Output voltage, Motor temperature, DC Voltage..)
	AO2	Analog output 2	
	5G	COMMON	● COMMON for analog output
Contact Output	1A	Multi-function Contact output 1 (a contact)	● Selectable among the following 14 functions Zero speed detect, Speed detect (Bi-directional), Speed detect (Uni-directional), Speed reach, Speed deviation, Torque detect, On torque limit, Motor overheat, Inverter overheat, On low voltage, Inverter running, Inverter regenerating, Inverter Ready, Timer output
	1B		
	2A	Multi-function Contact output 2 (a contact)	
	2B		
	OC1	Multi-function Open Collector output	
	EG		
	30A	Fault alarm, A contact	● Activated when fault occurs. ● Not activated in case of emergency stop
	30B	Fault alarm, B contact	
	30C	COMMON	● COMMON for contact A and B

3) Elevator I/O board (EL-I/O) terminal layout

- **EL-I/O version: V2.0**



- **EL-I/O version: V3.0**



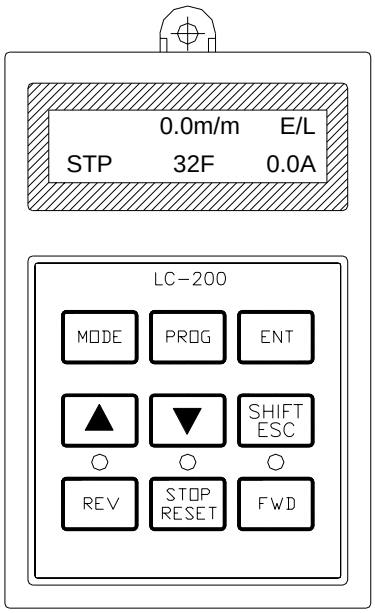
4) Elevator I/O board (EL-I/O) function description

	Code	Function	Description
Elevator contact input (CN3)	I_D	Signal for lower Inductor	Lower inductor signal for detecting car position
	I_U	Signal for upper Inductor	Upper inductor signal for detecting Car position
	DLS	Down Limit Switch	Switch for limiting car down operation. Down operation is disabled when this switch turns ON.
	ULS	Up Limit Switch	Switch for limiting car up operation. Up operation is disabled when this switch turns ON.
	RV1	Reserved	"WD1" in EL_IO version V2.0.
	RV2	Reserved	"WD2" in EL_IO version V2.0.
	SD1	Slow Down Switch Down 1	1st Down Slow-down Switch for forced deceleration
	SU1	Slow Down Switch Up 1	1st UP Slow-down Switch for forced deceleration
	SD2	Slow Down Switch Down 2	2nd Down Slow-down Switch for forced deceleration
	SU2	Slow Down Switch Up 2	2nd UP Slow-down Switch for forced deceleration
	DAC	Decel Allowance Command	Acknowledging signal for deceleration
	RV3	Reserved	"ACR" in EL_IO V2.0.
	G24	COMMON	ON when each contact input and G24 is connected.
	G24		
Elevator contact output (CN4)	G24OUT	COMMON	Common for contact outputs
	FS0	Floor Stop request /Current floor bit 0	● Floor Stop request /Current floor data format (1~32nd) Bit4 Bit3 Bit2 Bit1 Bit0 FS4 FS3 FS2 FS1 FS0 1st floor : OFF OFF OFF OFF OFF 32nd floor: ON ON ON ON ON
	FS1	Floor Stop request/ Current floor bit 1	
	FS2	Floor Stop/ Current floor bit 2	
	FS3	Floor Stop request / Current floor bit 3	
	FS4	Floor Stop request / Current floor bit 4	
	DER	Decel request signal	Car controller releases DAC signal when this signal comes in and stop request floor and hall call floor matches.
	FID	Floor Identification signal	ON : Advance floor OFF : Current floor
	UND	Signal during decel	ON when motor is in deceleration.
	MCA/MCB	Contactor drive relay A contact	Drives magnetic contactor in the inverter output
	BRA/BRB	A contact for Brake driving relay	Drives magnetic contactor for magnetic brake on the traction machine

2 Getting started

2.1 Changing to Elevator mode

Set CON_02 (Application) to “Elevator” after I/O option card for Elevator (E/L-I/O Card) is installed. Then, LCD window is displayed as shown below. Refer to Chapter 4, keypad for detailed key configuration.

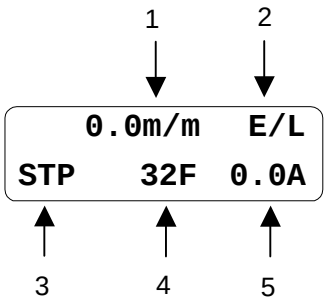


1) Programming Elevator mode

CON▶Application 02 General Vect	Move to Application mode in CON group. (CON_02 can set and displayed only when Elevator I/O card installed.)
CON▶ Application 02 General Vect ■	Press the [PROG] key. General Vector mode (■) will be displayed.
CON▶ Application 02 Elevator ■	Set to Elevator mode using the [▲(Up)] key.
CON▶ Application 02 Elevator	Press the [ENT] key to finish.

2.2 LCD display

1) Initial display



It is called " initial display of Display group" or " initial display" and goes back to it by pressing SHIFT/ESC key. See the folllowing table for details.

	items	Description
1	Elevator car position and speed (settable in E/L_58)	m/m: car speed per minute, m/s: car speed per second rpm: motor actual rotating speed mm: car position at present motor output torque, limit switch status, Remain distance when 1st inductor (upper) is activated
2	Elevator operation mode	E/L: Auto operation mode MAN: Manual operation mode FHM: Floor Height Measurement operation mode N/A: Operation mode not applied (disabled)
3	Current car operating direction	UP: car operating Upward DN: car operating Downward STP: car at a stop
4	Current floor (F)	Current floor displayed
5	Inverter output current (A)	Current flowing into motor displayed

2.3 Changing parameter group

Elevator (**E/L**) group is added below User group when selected.

Groups	LCD display (up left side of LCD)	Description
Display	DIS	Motor rpm, motor control mode, output torque, inverter output current, User select display, Process PID output / Ref / Fdb, current fault display, User group display select.
Input/output	I/O	Digital input parameter, Digital output parameter, Analog input parameter, Analog output parameter
Parameter	PAR	Parameter initialization, parameter READ / WRITE / LOCK / PASSWORD, Motor parameters, Auto tuning etc.
Function	FUN	Operating frequency, operating method, stopping method, electronic thermal selectable
Control	CON	Control mode, ASR PI Gain, Process PID Gain, Draw Control, Droop/ Torque/ V/F control parameters
User	USR	User macro define, User macro save, User macro recall
E/L	**E/L**	**Elevator speed pattern and parameter setting for position control**

- Refer to Chapter 6. Function description except E/L group.

2.4 Motor parameter input

Set the motor parameters as shown below before performing Auto-tuning operation to ensure the optimal control characteristic of the traction motor.

Keypad display	Description
PAR▶ Motor select 07 kW	Enter the motor capacity. Basically it is same as inverter capacity. If no match is found, select "User Define" in PAR_07 and enter the rating in PAR_08 directly. .
PAR▶ UserMotorSel 08 kW	In case of selecting "User Define" in PAR_07, set the motor rating in this code directly.
PAR▶ Enc Pulse 10 [][][][]	Set the pulse numbers per revolution of pulse encoder coupled to the motor shaft.
PAR▶ Base Speed 17 rpm	Set the motor base speed. ☞ Note : it is not the rated speed written on the motor nameplate.
PAR▶ Rated Volt 18 V	Set the rated voltage of the motor. (Voltage value on the name plate)
PAR▶ Pole number 19 []	Set the number of poles of the motor.
PAR▶ Efficiency 20 %	Set the efficiency of the motor. **If this is not found on the nameplate, do not change the initial value.**
PAR▶ Rated-Slip 21 rpm	Set the rated slip speed of the motor. Rated slip = synchronous speed – rated speed
PAR▶ Rated-Curr 22 A	Set the rated current of the motor.

2.5 Auto-Tuning

Parameters such as stator resistance (Rs), stator leakage inductance (sL), flux current (IF), rotor time constant (τ r) and stator self-inductance (Ls) are indispensable for obtaining an excellent control performance in the vector control and are automatically measured keeping the motor at standstill.

1) Before starting

Be sure to turn the machine brake off to hold the motor shaft tightly.

2) Auto-tuning procedure

Keypad display	Description
PAR ▶ AutoTuneType 23 StandStill	Set the auto-tuning type to "**Standstill**".
PAR ▶ Auto tuning 24 ALL1	Auto-tuning starts if **ALL1** is set.
PAR ▶ Auto tuning 24 Rs Tuning	Stator resistance (R_s) is measured without rotating the motor.
PAR ▶ Auto tuning 24 sL Tuning	The leakage inductance (sL) is measured without rotating the motor.
PAR ▶ Auto tuning 24 If/Tr/Ls Tuning	Flux current (IF), rotor time constant (τ_r) and stator self-inductance (Ls) is measured simultaneously without rotating the motor.
PAR ▶ Auto tuning 24 None PAR ▶ Auto tuning 24 [][] Error	When auto-tuning is completed successfully, "None" is displayed. If error occurs during auto-tuning, "[][] Error" is displayed. In this case, verify motor parameters and encoder setting is done properly and retry the auto-tuning. If the problem continues, contact LG representative nearest to you.

2.6 Elevator parameter setting (in the case of 1500rpm, 120m/min, 32nd floor)

1) Enter total floor number

Enter the total number of floors including ground floor which car plate is installed.

```
E/L▶ Floor Number
02           32F
```

2) Elevator rated speed input

```
E/L▶  Car Speed
03      120m/m
```

3) Motor rated rpm input

Enters motor rpm when a car is running at **E/L_03.**

```
E/L▶ Motor Speed
04     1500rpm
```

2.7 Operating mode and Multi-function relay output setting

Changing Elevator operating modes (High speed /Manual/FHM operation) are available using Multi-function input terminals. **The terminal functions should be defined based on the connection of** MM0/P1, MM1/P2, ATO/P3, FHM/P4 **to select elevator operating modes.**

```
I/O▶  P1 define
01 Manual Spd-L
```

```
I/O▶  P2 define
02 Manual Spd-H
```

```
I/O▶  P3 define
03 HighSpeedRun
```

```
I/O▶  P4 define
04    FHM Run
```

After terminal definition is finished, operating modes are determined based on P1-P4 input status as shown below. If two input modes are assigned at the same time, latter one is ignored. If FHM mode is input during Manual mode, it is replaced by FHM mode. However, if terminal definition is done but not signal assignment and the vice versa, LCD window will display 'N/A' and STOP/RESET LED (RED) will blink, operation will be disabled.

P1	P2	P3	P4	Operation	LCD display
ON	OFF	OFF	OFF	Manual	MAN
OFF	ON	OFF	OFF	Manual	MAN
ON	ON	OFF	OFF	Manual	MAN
OFF	OFF	ON	OFF	Auto(High spd)	E/L
OFF	OFF	OFF	ON	FHM	FHM
OFF	OFF	OFF	OFF	NO MODE	N/A

If one of AX1, AX2 is set to "**RUN",** it can be used as Machine brake ON/OFF signal**.**

```
I/O▶   AX1 define
41        Run
```

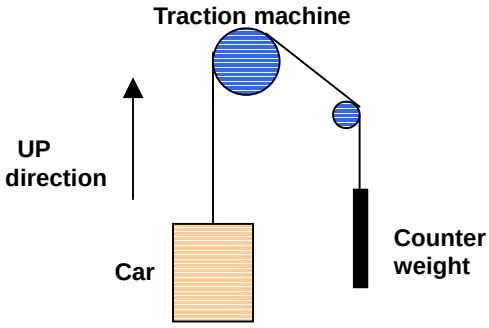
Or

```
I/O▶   AX2 define
42        Run
```

2.8 Checking Encoder in Manual operation

1) UP direction ratating

Up direction means elevator car goes UP when FX input terminal is ON.



2) Parameter setting for control terminal operation - Ex) 15m/min Manual operation

Check the settings in the following table before starting Low Speed Manual Operation and input status of multi-function input terminals. (Refer to 6.1)

Description / MF input terminal	Defining input terminal function	Input value from operation controller
MM0/P1	Manual Spd-L	ON
MM1/P2	Manual Spd-H	OFF

◆ Moving to FUN group

```
FUN▶ Run/Stop Src
01    Terminal 1
```

① RUN/STOP command via control terminal

(“**Err – CMDSRC” will apper when setting via Keypad** and operation unavailable.)

```
FUN▶ Spd Ref Sel
02      Keypad1
```

② Speed ref. selection via Keypad

◆ Moving to E/L group

```
E/L▶ Manual Spd1
22      15.0 m/m
```

③ Operating speed setting

3) UP /DOWN direction operation

① Low Speed Manual operation

- Press the [UP] button and check if motor speed in initial display of Display group is 15m/m and direction “UP”. Floor height is displayed as “—F” before FHM operation.

```
       15.0m/m  MAN
UP      --F    4.6A
```

- Press the [DOWN] button and check if motor speed in initial display of Display group is 15m/m and direction “DN”.

```
       15.0m/m  MAN
 DN     --F    4.6A
```

Operating state in the case of reverse wiring of encoder and motor is as follows;

FX/RX	Car direction	Speed display	Torque display [1)]	Operation status
FWD	UP	+15.0 m/m	Over -10%	Normal
REV	DOWN	-15.0 m/m	Over -10%	
FWD	UP	-4.5 ~ 10.5 m/m	150%	Encoder wiring reversed
REV	DOWN	4.5 ~ 10.5 m/m	-150%	
FWD	DOWN	-4.5 ~ -10.5 m/m	150%	Motor wiring reversed
REV	UP	4.5 ~ 10.5 m/m	-150%	
FWD	DOWN	+15.0 m/m	Over +10%	Encoder / Motor wiring reversed
REV	UP	-15.0 m/m	Over +10%	

1) Torque display is based on No-load low speed Manual operation. Set E/L_58 to “Trq Output” to display torque.

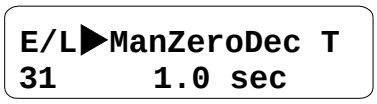
- Check for the encoder wiring reversed. If so, correct the encoder wiring.

Check for the motor wiring reversed. If so, change the wiring of two phases (U,W).

- When the car operating direction on the keypad display is reversed, check whether FX/RX signal is opposite. Or if FX/RX signal is normally set but the car direction is opposite, change the motor rotating direction in (E/L_05)”.

- Check for Encoder wiring and Multi-function input terminal setting when Speed display keeps showing 0.0m/m.

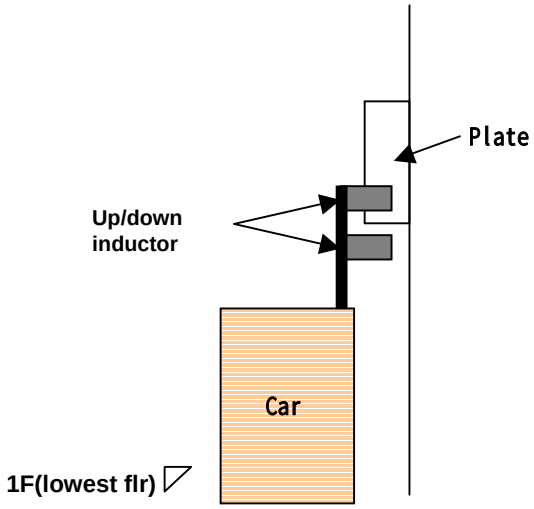
- When vibration level is high during stop of manual operation due to sudden deceleration and Over voltage trip occurs, change the setting of **E/L_31 (ManZeroDec T) to** 1.0 sec.



2.9 FHM (Floor height measurement) operation

1) Check inductor signal and forced deceleration switch SD1 and SU1 are wired to elevator I/O board. If SU1 is not properly installed, caution should be taken because the car may not stop at the highest level automatically during FHM operaton. Move the car to Lowest floor and Highest floor by manual operation to check the input of inductor and forced decel switch is properly installed. (Refer to 7.3 (46))

2) Move the car to the lowest floor with manual operation ON and stop the car at the position where upper inductor is within the plate and down inductor is out of the plate as shown below.



3) Check E/L_02 (Floor Number) sett value matches total floors (Max. stop floor).

4) Change the operating mode to FHM operation by issuing ON signal to multi-function input terminal defined as this operation. If inductor position is different from the above figure or SD1 is not activated, keypad will display the message "**NOTRDY"** as shown below and STOP/RESET LED (Red) will be flickering. In this case, FHM operation cannot be activated. Return to Manual operation mode and set the inductor position correctly and check the forced deceleration switch and try FHM operation again.

```
E/L▶  0.0m/m  FHM
Err     1F NOTRDY
```

5) Apply FX signal and FHM operating command in inverter control terminal and initiate FHM operation. Keep UP operation command until car reaches the highest floor level. Car speed change is available if terminals defined as MM0, MM1 are turned ON.

3) When car reaches the highest level, inverter automatically starts to decelerate and maintains the zero speed. At this time, remove the FX signal and FHM operation is finished.

- When UP/DOWN inductors signal is reversely connected to EL-I/O board, operation is stopped and fault message will appear as shown below upon the car leaving lowest floor in early stage of FHM operation. In this case, change the wiring of inductor signals. After this, return to Manual operation, move the car to the position

same as figure (page 15) and perform FHM operation again.

```
DIS▶   Faults
05  IND Reversed
```

- After FHM operation started and plate sensing signals from UP/Down inductors are not input at the same time, the following message will appear with the operation stopped. In this case, adjust the inductor position. After this, return to manual operation and move the car as directed in page 15 and restart FHM operation.

```
DIS▶   Faults
05  IND'TOR FAIL
```

- LCD display when FHM is completed. Current floor value becomes Highest floor (E/L_02).

```
     0.0m/m   FHM
STP    32F    0.0A
```

- After finishing FHM operation, each floor height can be checked in E/L_60 in mm.

```
E/L▶Show FlrPosi
60              1F
```

① Press [PROG] key in E/L_60.

```
E/L▶POSI      0mm
60              1F
```

②Increase/decrease the floor No. by pressing [UP]/[DOWN] Key.

```
E/L▶POSI 45000mm
60             16F
```

③ Accumulated floor height is displayed as floor number is increasing.

```
E/L▶POSI  3000mm
60              2F
```

④ Escape the code using [MODE] or [ENT] key when finished.

- When highest floor is reached but sensing number of UP/DOWN inductor is less than E/L_02 or measured floor height data is incorrect, fault message will appear when removing FX signal.

```
DIS▶   Faults
05  FHM Run Fail
```

① Plate sensing number does not match E/L_02 (Max stop-available floor).

```
DIS▶   Faults
05  Flr Data Fail
```

② Measured floor data is wrong.

- Check plate installation, noise interference in inductor signal and inductor malfunction to correct the error. After clearing the cause, move the car to the lowest floor and retry FHM operation.

- When FHM is failed, error message will appear in the initial display if not pressing [STOP/RESET] key while fault message is output. Only pressing [MODE] key moves to initial display at fault message output ([SHIFT/ESC] deactivated).

① Number of car plate sensing does not match E/L_02 (Max stop-available floor). FHM Run Fail

```
     0.0m/m   FHM
Err   32F   Fcount
```

② When there is a certain floor far less than below floor or distance is too close. Flr Data Fail

```
     0.0m/m   FHM
Err    32F   Fdata
```

- When FHM is succeeded, each floor height and its checksum save into memory. If previous Checksum data and new Checksum when power ON differ, the following error message will appear and FHM operation is required.

```
DIS▶   Faults
05  Checksum Err
```

- Forced decel switch (SD1, SU1) position measurement – Measure SD1 installation position based on lowest floor level during FHM operation. Also, measure SU1 installation position based on highest floor level. Measured data can be checked after setting DIS_01 ~ DIS_03 to either “SDSD1 Posi” or “SDSU1 Posi”..

DIS▶ SDSD1 Posi	DIS▶ SDSU1 Posi
01 1200.0 mm	01 1200.0 mm

2.10 High speed auto operation

- High speed operation is ready to perform when FHM operation is finished successfully. However, FHM operation is stopped when the upper inductor (IND_U) is not within a car plate so car does not begin operation when hall call is input even if E/L_50 is set to “Inductor ON”(high speed operation active in normal condition). Therefore, high speed auto operation should be performed after setting UP/DOWN indutors within the car plate by performing manual operation.

E/L▶HighSpdStart
50 Inductor ON

- **Adjustment of Speed control gain and torque limit value**

  Adjust the gain for speed control and torque limit when large level error is generated at leveling to stop or car is not stable during accel/decel operation. Gain value for speed control increases if ASR P Gain1 (CON_03) value is increases, ASR I Gain1 (CON_04) value decreases.

  Adjust the torque limit values for Pos Trq Lmt (CON_29), Neg Trq Lmt (CON_30), Reg Trq Lmt (CON_31) between 160% and 180% depending on the load condition.

- **Overload trip level and time setting**

  Set the OLT Level (I/O_60) between 150 and 170%, 10% less than torque limit value and OLT Time (I/O_61) to 60 sec.

- **Adjustment of operating condition at starting**

  Perform one floor, two floors, three floors and highest/lowest floor operation repeatedly to check car operating condition at start, stop and during running at constant speed. Especially when sudden start shock occurs due to static friction of traction machine, adjust the set value as shown below to get a better riding comfort.

Recommended adjusting range

E/L▶StartUpAccel	E/L▶StartUpAccT	E/L▶StartUp Wait
52 0.01m/s2	53 0.50 sec	54 0.20 sec
(0.01 ~ 0.03m/s^2)	(0.3 ~ 0.8 sec)	(0.2 ~ 0.4 sec)

3 Display group (DIS_[][])

1) DIS_01 ~ 03 (User display select 1, 2, 3)

One of the following parameters is displayed when selected in this code.

Factory default values: **DIS_01= "PreRamp Ref"**, **DIS_02= "DC Bus Volt"**, **DIS_03= "Terminal In"**

- **When EL-I/O board is connected to the inverter control board and CON_02 is set to "Elevator", the followings will appear according to selection.**

<table>
<tr><th>Code</th><th>LCD display</th><th>Name</th><th>Unit</th><th>Description</th></tr>
<tr><td rowspan="20">DIS_01 ~ DIS_03</td><td>Car Speed</td><td>Rated car speed per minute</td><td>m/min</td><td>Current Car speed displayed in "m/min"</td></tr>
<tr><td>Car Speed</td><td>Rated car speed per sec</td><td>m/sec</td><td>Current Car speed displayed in "m/sec"</td></tr>
<tr><td>Car Position</td><td>Value of current car position</td><td>mm</td><td>Current Car position displayed in "mm"</td></tr>
<tr><td>ELIO IN</td><td>ELIO input signal</td><td>-</td><td>Inductor, limit switch, decel acknowledging signal, input terminal ON/OFF status display, '1' : Closed, '0' : Open, displayed differently between v2.0 and v3.0
LSB MSB (see the first row for ELIO v2.0 and second row for ELIO v3.0)
I_D | I_U | DLS | ULS | WD1 | WD2 | SD1 | SU1 | SD2 | SU2 | DAC | ACR
I_D | I_U | DLS | ULS | RV1 | RV2 | SD1 | SU1 | SD2 | SU2 | DAC | RV3</td></tr>
<tr><td>Limit S/W In</td><td>Limit switch status</td><td>-</td><td>ON/OFF switch status display considering E/L_40 ELIO IN A or B contact, '1': S/W ON, '0': S/W OFF, bit meaning is the same as ELIO IN.</td></tr>
<tr><td>ELIO Out</td><td>ELIO output signal</td><td>-</td><td>Floor info (current floor, forward going floor), floor indication, decel request, decelerating, contactor driving, brake signal ON/OFF status displayed
LSB MSB
FS0 FS1 FS2 FS3 FS4 | DER | FID | UND | MC | BR</td></tr>
<tr><td>Tuning Dist</td><td>Tuning distance</td><td>mm</td><td>Remaining distance when 1st inductor is operating (UP: IN_U, Down: IN_D)</td></tr>
<tr><td>Cur Floor</td><td>Current floor</td><td>F</td><td>Floor value where elevator car is located.</td></tr>
<tr><td>Adv Floor</td><td>Stop-available floor</td><td>F</td><td>Floor where the elevator car can stop at.</td></tr>
<tr><td>Remain Dist</td><td>Remain distance</td><td>mm</td><td>Remain distance to target floor level after deceleration.</td></tr>
<tr><td>SDS1 Speed</td><td>1st SDSD (Up) car speed</td><td>m/m</td><td>Displays car speed in m/m when SDSD1 (negative value) or SDSU1 (positive value) operates.</td></tr>
<tr><td>SDS2 Speed</td><td>2nd SDSD (Up) car speed</td><td>m/m</td><td>Displays car speed in m/m when SDSD2 (negative value) or SDSU2 (positive value) operates.</td></tr>
<tr><td>SDS3 Speed</td><td>3rd SDSD (Up) car speed</td><td>m/m</td><td>Displays car speed in m/m when SDSD3 or SDSU3 operates. (in preparation).</td></tr>
<tr><td>Min.FlrDist</td><td>Floor distance Minimum</td><td>mm</td><td>Indicates minimum distance of the floors in the building.</td></tr>
<tr><td>Min.RunDist</td><td>Minimum running distance</td><td>mm</td><td>Distance required to make starting and ending pattern of acceleration</td></tr>
<tr><td>DecelDist</td><td>Rated Decel distance</td><td>mm</td><td>Distance required to decelerate from car rated speed.</td></tr>
<tr><td>Min.SpdAcc</td><td>Min. speed for acceleration end</td><td>m/m</td><td>Min. speed required to make start and end pattern of acceleration</td></tr>
<tr><td>Min.SpdDec</td><td>Min. speed for deceleration start</td><td>m/m</td><td>Min. speed required to make start and end pattern of deceleration</td></tr>
<tr><td>Dec.End Dist</td><td>Distance for deceleration end</td><td>mm</td><td>Distance required to make end pattern of deceleration.</td></tr>
<tr><td>SDSD1 Dist</td><td>1st SDSD distance</td><td>mm</td><td>Distance between the lowest level and SDSD1 installation position.</td></tr>
<tr><td>SDSU1 Dist</td><td>1st SDSU distance</td><td>mm</td><td>Distance between the highest level and SDSU1 installation position.</td></tr>
<tr><td>SDSD2 Dist</td><td>2nd SDSD distance</td><td>mm</td><td>Distance between the lowest level and SDSD2 installation position.</td></tr>
</table>

	SDSU2 Dist	2nd SDSU distance	mm	Distance between the highest level and SDSU2 installation position.
	SDSD3 Dist	3rd SDSD distance	mm	Distance between the lowest level and SDSD3 installation position (in preparation)
	SDSU3 Dist	3rd SDSU distance	mm	Distance between the highest level and SDSU3 installation position (in preparation)

2) DIS_05 (Fault status display)

Current fault status/ previous fault history (1,2) / number of previous faults/ clear previous faults are displayed. Use [SHIFT/ESC] key to navigate these functions in DIS_05.

Code	LCD display	Name	Description
DIS_05	Faults	Fault status display	**No Fault** displayed during normal operation. Faults status is displayed when faults occur. (Refer to'[3] fault display)
	Last Fault1	Previous fault display	**Refer to troubleshooting.**
	Last Fault2	Previous previous fault display	
	Fault Count	Total number of faults	Display total number of faults occurred.
	Fault Clear	Clearing faults number	Resets total number of faults to 0.

Fault contents, speed reference at the time of fault, speed feedback, output frequency/current/voltage, torque current reference value and actual value, DC link voltage, input terminal status, output terminal status, operating status, run time can be check using [PROG], [▲(Up)] / [▼(Down)] keys before pressing [RESET] key. Pressing [ENT] key returns to first. Pressing [RESET] key saves data into Last Fault 1. Refer to [Chapter 8 Troubleshooting and maintenance].

No	Fault status	Keypad display	No	Fault status	Keypad display
1	Over current- phase U	OC–U	13	Inverter Overheat	Inv OverHeat
2	Over current- phase V	OC–V	14	Electronic thermal	E-Thermal
3	Over current- phase W	OC–W	15	Overload trip	Over Load
4	Fuse open	Fuse Open	16	External trip input B	Ext-B Trip
5	Over voltage	Over Voltage	17	Option error	Option Err
6	IGBT short- phase U	Arm Short–U	18	Inverter overload	Inv OLT
7	IGBT short- phase V	Arm Short–V	19	Motor overheat	Mot OverHeat
8	IGBT short- phase W	Arm Short–W	20	Inverter thermal open	Inv THR Open
9	IGBT short- phase DB	Arm Short–DB	21	Motor thermal open	Mot THR Open
10	Encoder error	Encoder Err	22	Motor overspeed	Over Speed
11	Low voltage	Low Voltage	**23**	**Floor height measurement data(1)**	**Flr/FHM Data**
12	Groudn fault	Ground Fault	**24**	**Slow down switch error(1)**	**SDS Error**

(1) detection is available only when elevator board is installed.

☞ **Note : when multiple faults occur, latest fault is displayed and others can be checked in previous fault display.**

4 I/O group (I/O_[][])

1) I/O_01 ~ 07 (Multi-function input terminals P1~7 define)

When EL-I/O board is connected to the inverter control board and CON_02 is set to "Elevator", the following functions can be selected in I/O_01 ~ 07.

Code	LCD display	Name	Description
I/O_01 ~ I/O_07	Manual Spd-L	Manual low speed operation command bit 0	Three kinds of speeds can be selected with mixture of manual low speed operation command bit 0 and bit 1.
	Manual Spd-H	Manual low speed operation command bit 1	
	HighSpeed Run	High speed operation Run command	Selects High speed auto run command
	FHM Run	Floor height measurement run command	Selects FHM run command
	BaseFloor Run	Base floor run command	Select this command to compensate the car position by performing lowest floor operation when power failure or emergency stop occurs during high speed auto operation.
	NearFloor Run	Nearest floor run command	Use this command to rescue passengers by operating car to nearest floor when power failure or emergency stop occurs during high speed auto operation.
	MotorM/C State	Motor output contactor relay input	A contact input for checking contactor driving state when contactor is installed between inverter and motor. Operation will not be allowed when there is no contact input even though this function is set to use.
	CarBrake State	Brake contact input	Brake driving relay or brake contact input for Brake driving state check. Operation will not be allowed when there is no contact input even though this function is set to use.

5 Function code table for Elevator group (E/L _□□)

CODE NO.	CODE NAME	LCD DISPLAY	SETTING DATA			Adj. During Run(6)	Page
			RANGE	UNIT	DEFAULT		
E/L_00	Jump Code	Jump Code	1 ~ 60				22
E/L_01	Speed Reference pattern select	Spd Ref Type	DecelReq-D/B DecelReq-T/B		DecelReq-D/B	No	22
E/L_02	Number of total floor	Floor Number	1 ~ 32	FLOOR	32	No	23
E/L_03	Rated car speed	Car Speed	30 ~ 420	m/m	60	No	23
E/L_04	Motor speed at rated car speed	Motor Speed	20.0 ~ 3600.0	rpm	1500.0	No	23
E/L_05	Motor rotating direction select	UP Direction	FX-CCW FX-CW		FX-CCW	No	23
E/L_06	Rated acceleration speed	Rated Accel	0.10 ~ 1.00	m/sec^2	0.50	No	24
E/L_07	Rated deceleration speed	Rated Decel	0.10 ~ 1.00	m/sec^2	0.50	No	24
E/L_08	Acceleration start time	Acc Start T	0.50 ~ 2.50	sec	1.00	No	24
E/L_09	Acceleration end time	Acc End T	0.50 ~ 2.50	Sec	1.00	No	24
E/L_10	Deceleration start time	Dec Start T	0.50 ~ 2.50	sec	1.00	No	24
E/L_11	Deceleration end time	Dec End T	0.50 ~ 2.50	sec	1.00	No	24
E/L_12	Communication delay compensation distance	CommDlyDist	100 ~ 1000	mm	400	No	25
E/L_13	Deceleration start adjustment	DecStart Adj	-10 ~ 100	mm	0	No	25
E/L_14	Pre-excitation time	PreExct Time	100 ~ 10000	msec	300	No	25
E/L_15	Brake open time	Brake Time	0 ~10000	msec	300	No	25
E/L_16	Hold time	Hold Time	0 ~10000	msec	300	No	25
E/L_17	Wait time before Restart	Restart Time	1.00~100.00	sec	1.00	No	25
E/L_18	Plate length	Plate Length	E/L_19~1000.0	mm	200.0	Yes	26
E/L_19	Distance between inductor and top plate	InductorEdge	0.0 ~ E/L_18	mm	20.0	Yes	26
E/L_20	Car speed during FHM (Floor height measurement) operation	FHM/BFR Speed	0.0 ~ 60.0	m/m	15.0	No	27
E/L_21	Floor height measurement data	FHM DATA	0 ~ 321		0	Yes	27
E/L_22	Car speed 1 during manual operation	Manual Spd1	0.0 ~ 60.0	m/m	3.0	No	27
E/L_23	Car speed 2 during manual operation	Manual Spd2	0.0 ~ 60.0	m/m	10.0	No	27
E/L_24	Car speed 3 during manual operation	Manual Spd3	0.0 ~ 60.0	m/m	15.0	No	27
E/L_25	Acceleration speed during manual operation	MAN Accel.	0.01 ~ 5.00	m/sec^2	0.25	No	28
E/L_26	Deceleration speed during manual operation	MAN Decel.	0.01 ~ 5.00	m/sec^2	0.25	No	28
E/L_27	Acceleration start time during manual operation	ManAccStartT	0.01 ~ 2.00	sec	0.50	No	28
E/L_28	Acceleration end time during manual operation	Man AccEnd T	0.01 ~ 2.00	sec	0.50	No	28
E/L_29	Deceleration start time during manual operation	ManDecStartT	0.01 ~ 2.00	sec	0.50	No	28
E/L_30	Deceleration end time during manual operation	Man DecEnd T	0.01 ~ 2.00	sec	0.50	No	28
E/L_31	Deceleration time duirng manual operation	ManZero Dec T	0.00 ~ 600.00	sec	2.00	No	29
E/L_32	Distance compensation, Minimum during operation	DistComp.Min	0.0 ~ 2*E/L_19	mm	0.0	No	29
E/L_33	Distance compensation, Maximum during operation	DistComp.Max	0.0 ~ 100.0	mm	0.0	No	29
E/L_34	Leveling distance compensation (1)	DistComp.Lev	-E/L_19 ~ E/L_19	mm	0	No	29
E/L_35	Creep speed (2)	Creep Speed	0.1 ~ 60.0	m/m	3.0	No	30
E/L_36	Creep distance(2)	Creep Dist.	0 ~ 500	mm	5	No	30
E/L_37	Position control end and zero speed decel start distance	D/B End Dist	0 ~ E/L_19	mm	0	No	30
E/L_38	Time to decelerate to zero speed after position control ends	SpdZero Time	0.00 ~ 10.00	sec	2.00	No	30
E/L_39	ELIO input negative (inversion)	ELIO In Neg	000000000000 ~111111111111	-	000000000000	No	30
E/L_40	Inductor input filter time	IND Filter	0 ~ 50	ms	25	No	31
E/L_41	Filter time for SDS input	SDS Filter	50 ~ 500	ms	250	No	31

CODE NO.	CODE NAME	LCD DISPLAY	SETTING DATA			Adj. During Run(6)	Page
			RANGE	UNIT	DEFAULT		
E/L_42	Forced deceleration starting speed during SDS-1 input	ForcedDecSpd	0.0 ~ 420.0	m/m	0.0	No	31
E/L_43	Deceleration speed during SDS-1 forced deceleration (4)	ForcedDecel	0.01 ~ 1.50	m/sec^2	1.50	No	31
E/L_44	Creep speed during forced deceleration (4)	ForcedCrpSpd	0.0 ~ 60.0	m/m	3.0	No	31
E/L_45	Wait after zero speed arrival during forced (4)	Frcd.DecWait	0 ~ 10000	ms	300	No	31
E/L_46	Use SDS-2	Use FrcdDcl2	No Yes		No	No	32
E/L_47	Forced deceleration start speed during SDS-2 input (5)	Frcd.DecSpd2	0.0 ~ 420.0	m/m	0.0	No	32
E/L_50	Starting Condition for High speed Auto Operation	HighSpdStart	Inductor ON Always	-	Inductor ON	No	32
E/L_51	Select the acceleration curve at start-up	AccStartType	Linear S-curve	-	Linear	No	
E/L_52	Start-up acceleration speed	StartupAccel	0.00 ~ 1.00	m/sec^2	0.00	No	32
E/L_53	Start-up acceleration time	StartupAccT	0.01 ~ 5.00	sec	0.50	No	32
E/L_54	Start-up wait time	StartupWait	0.00 ~ 5.00	sec	0.50	No	32
E/L_55	Wait time before leveling at lowest floor/Nearest floor	BFR/NFR Wait	0.00 ~ 5.00	Sec	0.30	No	33
E/L_58	Keypad display selection	Display Sel.	Car Spd (m/m) Car Spd (M/S) Car Spd (RPM) Car Position Trq Output Lmt.S/W State Tuning Dist		Car Spd (m/m)	Yes	32
E/L_59	Clear car position	Clear Posi.	No Yes		No	No	34
E/L_60	Show floor position	Show FlrPosi	1 ~ E/L_02	FLOOR	1	Yes	34
E/L_61	Start condition for Floor Height Measurement operation	FHM Start	ID-OFF/IU-ON DLS ON/SD1-ON	-	ID-OFF/IU-ON	No	
E/L_62	Keypad FHM operation set	Keypad FHM	No Yes		No	No	
E/L_63	Up direction level compensation	UpDir Level	-E/L_19~E/L_19	mm	0	No	
E/L_64	Down direction level compensation	DnDir Level	-E/L_19~E/L_19	mm	0	No	

(Note)

1) Only displayed when E/L_01 is set to “DecelReq-D/B”

2) Only displayed when E/L_01 is set to “DecelReq-T/B”

3) Only displayed when E/L_42 is set to the value other than “0”

4) Only displayed when E/L_42 or E/L_47 is set to the value other than “0”

5) Only displayed when E/L_46 is set to “Yes”

6) Yes: Adjsutable during run, No: not abvailable

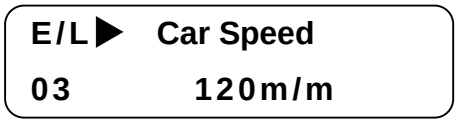
6 Elevator group

1) Jump code

You can move on to the code you want to check using E/L_00.

(Example) moving on to E/L_03

After pressing the [PROG] key, set 3 using [SHIFT/ESC] / [▲UP] / [▼DOWN] keys and press [ENT]. The following will be displayed.



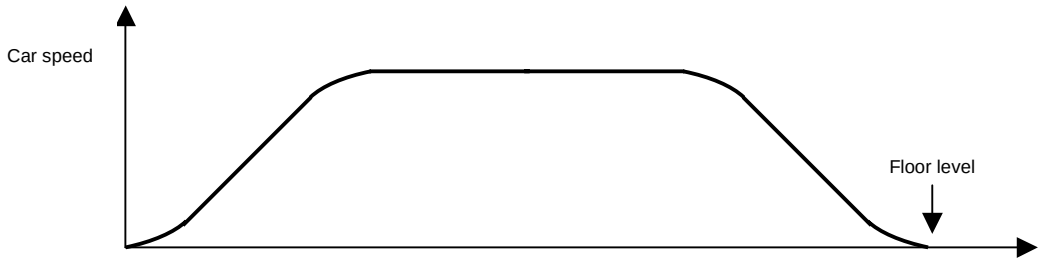
You can check the other codes using [▲UP] / [▼DOWN] keys.

2) E/L_01

In elevator speed patten, two different speed patterns can be selected by Decel request signal before passing the floor which elevator car can stop at. These are “DecelReq-D/B” (Distance-based Decel request) and “DecelReq-T/B” (Time-based Decel request).

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_01	Spd Ref Type	Speed reference type select	DecelReq-D/B DecelReq-T/B	-	DecelReq-D/B

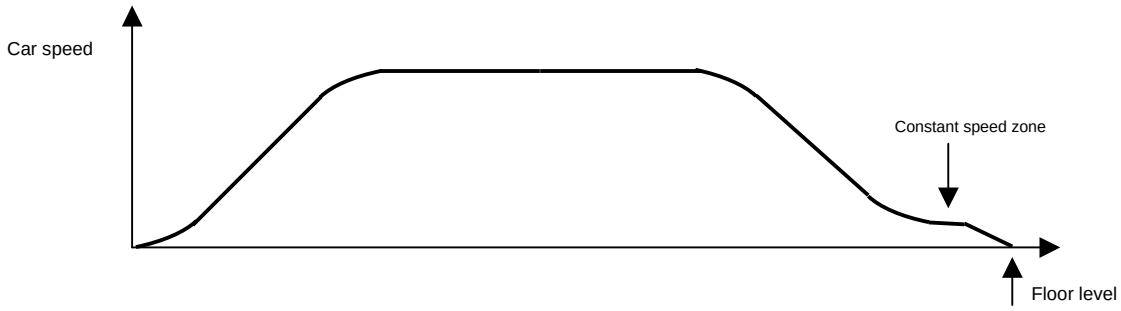
① Speed patten by “DecelReq-D/B”



When the car starts running, position controller generates advance floor (floor at which car can be stopped with speed pattern above) signals (terminals CN4-FS0, FS1, FS2, FS3, FS4, FID on EL-I/O board). Inverter outputs Decel request signal to car controller before advance floor signals are renewed. Car controller receives signal from inverter and checks whether there is floor to be serviced matching advance floor signal which inverter outputs. If advance floor signal matches the floor to be serviced, car controller transmits Decel acknowledging signal (CN3-DAC terminal on the board) to the inverter and then inverter gets ready to decelerate and starts deceleration at the place which distance to target

floor matches deceleration-assuring distance and stops at the target floor with speed reference based on the remaining distance to target floor.

② Speed patter by “DecelReq-T/B”



It is similar to “DecelReq-D/B” except that it speed pattern has constant speed zone (creep zone) before levelling based on time.

3) E/L_02 (Number of total floor, stop-availalble floor)

4) E/L_03 (Rated car speed)

5) E/L_04 (Motor speed at rated car speed)

Sets number of floors for elevator car to stop, rated car speed and motor speed when E/L_03 is output in each parameter. Enter total foor including underground floor in E/L_02 and motor speed in E/L_04 when car is running according to E/L_03.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_02	Floor Number	Number of total floor elevator car stops	1 ~ 32	floor	32
E/L_03	Car Speed	Rated car speed	30 ~ 420	m/min	240
E/L_04	Motor Speed	Motor speed at rated car speed	20.0 ~ 3600.0	rpm	1500.0

6) E/L_05

iV5 is programmed to perform UP operation when FX signal is on. But if the car performs “Down operation” when Fx is ON, set this code to FX-CW.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_05	UP Direction	Motor rotating direction select	FX-CCW FX-CW	-	FX-CCW

7) E/L_06

8) E/L_07

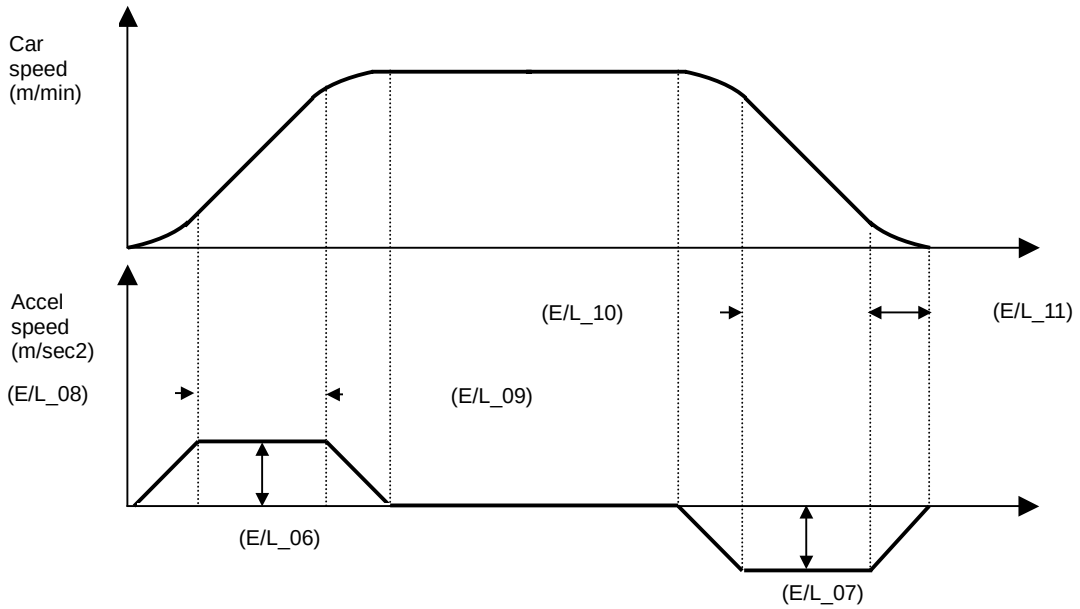
9) E/L_08

10) E/L_09

11) E/L_10

12) E/L_11

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_06	Rated Accel	Rated acceleration speed	0.10 ~ 1.00	m/sec^2	0.50
E/L_07	Rated Decel	Rated deceleration speed	0.10 ~ 1.00	m/sec^2	0.50
E/L_08	Acc Start T	Acceleration start time	0.50 ~ 2.50	sec	1.00
E/L_09	Acc End T	Acceleration end time	0.50 ~ 2.50	sec	1.00
E/L_10	Dec Start T	Deceleration start time	0.50 ~ 2.50	sec	1.00
E/L_11	Dec End T	Deceleration end time	0.50 ~ 2.50	sec	1.00



13) E/L_12

Compensates distance which car is moving while inverter sends decel request signal to car controller and receives decel acknowledging signal. This value is used to calculate stop request floor.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_12	CommDlyDist	Communication delay compenstion distance	100 ~ 1000	mm	400

14) E/L_13

Deceleration start distance can be adjusted corresponding to speed controller characteristics and load quantity. Deceleration starts at the place calculated by deceleration start distance from inverter plus E/L_13.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_13	DecStartAdj	Deceleration start adjustment	-10 ~ 20	mm	0

15) E/L_14

Time taken to output traction machine Brake ON command to BRA-BRB terminal on the board after FX/RX is input.

16) E/L_15

Time taken to output elevator speed command after traction machine Brake ON command is output to BRA-BRB terminal on the board after FX/RX is input.

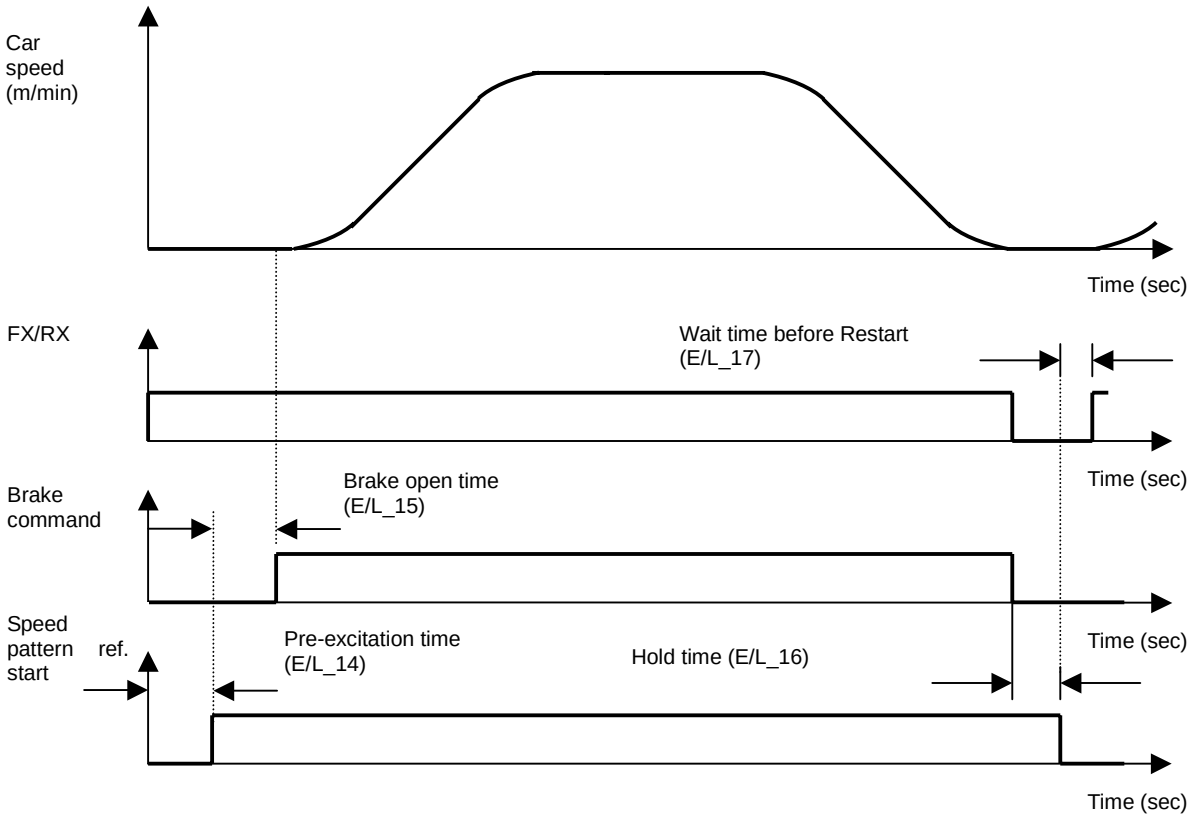
17) E/L_16

Can set the time to maintain zero speed after elevator car speed became zero speed. There is a delay time for traction machine brake to activate after FX/RX command is off, triggering brake command off. If inverter does not output stopping torque at zero speed, elevator car may move Up or Down operation depending on load quantity.

18) E/L_17

Time taken to restart after stop.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_14	PreExct Time	Pre-excitation time	100 ~ 10000	msec	300
E/L_15	Brake Time	Brake open time	0 ~ 10000	msec	300
E/L_16	Hold Time	Hold time	0 ~ 10000	msec	300
E/L_17	Restart Time	Wait time before Restart	0.00 ~ 100.00	sec	1.00

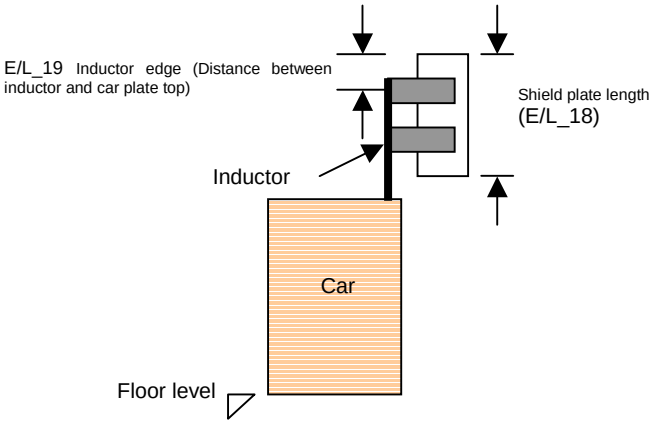


19) E/L_18

20) E/L_19

In FHM operation, inverter measures shield plate length and distance between inductor and shield plate edge as well as floor height of each. Whenever position sensor is triggered at each floor level, accumulated pulse counter value is saved to the memory automatically.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_18	Plate Length	Car plate length	E/L_19 ~ 1000.0	mm	200.0
E/L_19	InductorEdge	Distance between inductor and car plate top	0.0 ~ E/L_18	mm	20.0



21) E/L_20

Sets the car speed per minute (m/m) during FHM operation. When one of the terminal defined as manual operation is turned ON, car speed value is changed to one of E/L_22~E/L_24 from E/L_21. E/L_20 setting is used as the speed ref. for Lowest floor operation.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_20	FHM/BFR Speed	Car speed during FHM (Floor height measurement) operation	0.0 ~ 60.0	m/m	15.0

22) E/L_21

Displays FHM operation results. First two bits indicate the number of floor mesured and the last bit shows success("1" displayed) or failure("0" displayed) of operation. For instance, when "321" is displayed after FHM operation is finished, "32" means the number of floors checked is 32 and "1" means successful operation.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_21	FHM DATA	Floor height measurement data	0 ~ 321		0

23) E/L_22

24) E/L_23

25) E/L_24

Speed for various modes of manual operation (maintenance, escape and FHM operation) can be set by mixing multi-function input terminals **MM0/P1 and MM1/P2.** Codes E/L_22 thru E/L_24 are only displayed when E/L_01 is set either DecelReq-D/B or DecelReq-T/B.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_22	Manual Spd1	Car speed 1 during manual operation	0.0 ~ 60.0	m/m	3.0
E/L_23	Manual Spd2	Car speed 2 during manual operation	0.0 ~ 60.0	m/m	10.0
E/L_24	Manual Spd3	Car speed 3 during manual operation	0.0 ~ 60.0	m/m	15.0

When **MM0/P1**, **MM1/P2** are set to **"Man Speed-L", "Man Speed-M"**, respectively, car speed ref. is determined as the followings.

MM0/P1	MM1/P2	Set speed
OFF	OFF	N/A (1)
ON	OFF	E/L_22
OFF	ON	E/L_23
ON	ON	E/L_24

(1) Decelerates to zero speed when MM0 and MM1 are Off during manual operation. N/A is displayed at a stop.

26) E/L_25

27) E/L_26

28) E/L_27

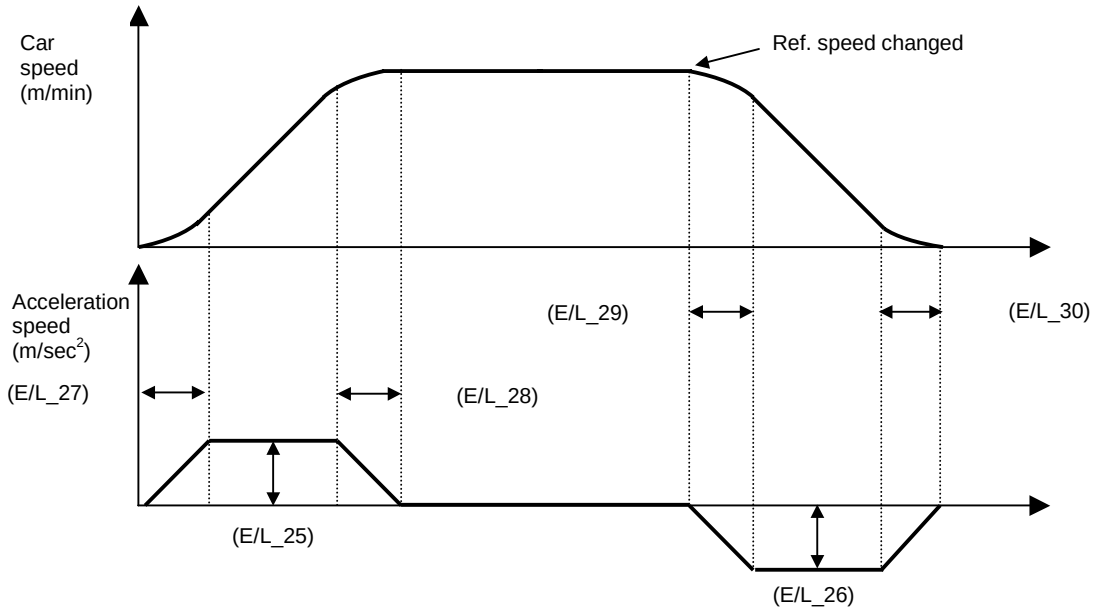
29) E/L_28

30) E/L_29

31) E/L_30

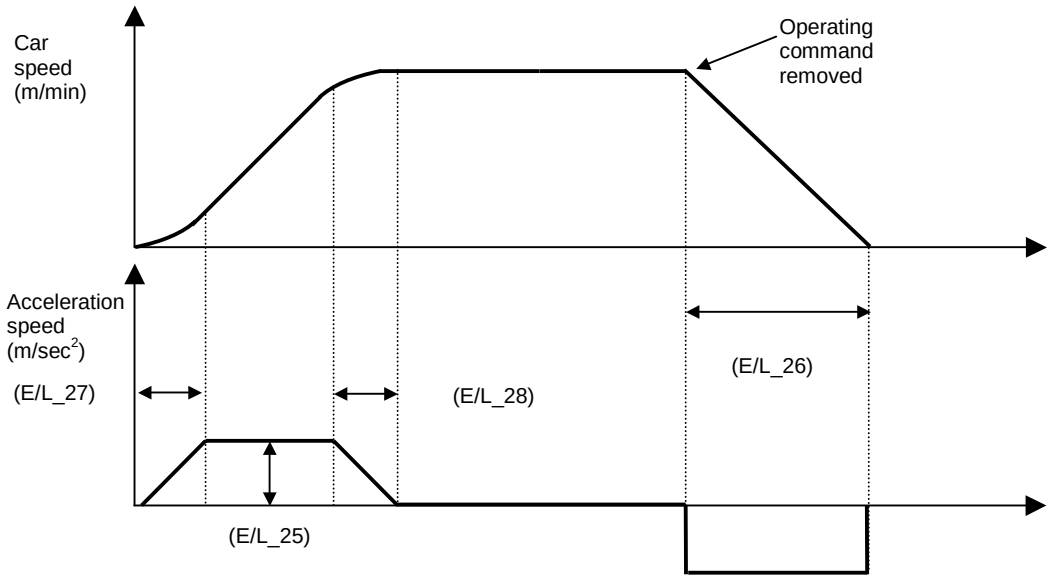
32) E/L_31

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_25	MAN Accel.	Acceleration speed during manual operation	0.01 ~ 5.00	m/sec^2	0.50
E/L_26	MAN Decel.	Deceleration speed during manual operation	0.01 ~ 5.00	m/sec^2	0.50
E/L_27	ManAccStartT	Acceleration start time during manual operation	0.01 ~ 2.00	sec	0.50
E/L_28	Man AccEnd T	Acceleration end time during manual operation	0.01 ~ 2.00	sec	0.50
E/L_29	ManDecStartT	Deceleration start time during manual operation	0.01 ~ 2.00	sec	0.50
E/L_30	Man DecEnd T	Deceleration end time during manual operation	0.01 ~ 2.00	sec	0.50



When speed command is changed due to change in multi-function input state and deceleration begins (for example, 15m/m → 3m/m), set the decel condition in **E/L_26, E/L_29 and E/L_30.** This will lead to S-curve deceleration. However, if FX/RX command is off while multi-function input status is maintained, linear deceleration will be performed at zero speed. It is used when faster stop is required than soft landing.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_31	ManZeroDec T	Deceleration time duirng manual operation	0.00 ~ 2.00	sec	0.00



33) E/L_32

34) E/L_33

Position controller compensates the distance at the instant when an inductor located on the the car leave the shield plate. The adjusting value depends on car speed. Max/Min value should be set for appropriate compensation. E/L_32 value will be automatically set as initial value after FHM operation is finished.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_32	DistComp.Min	Distance compensation, Minimum during operation	0 ~ 2*E/L_18	mm	0
E/L_33	DistComp.Max	Distance compensation, Maximum during operation	0 ~ 100	mm	0

35) E/L_34

This setting value is used to compensate the current position when inductors are activated after car deceleration starts and enters a floor level with E/L_01 set to DecelReq-D/B. This is only displayed when E/L_01 is set to DecelReq-D/B.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_34	DistComp.Lev	Leveling distance compensation (1	-E/L_19 ~ +E/L_19	mm	0

36) E/L_35

Sets the creep speed (car speed running at constant speed before leveling) when E/L_01 is set to DecelReq-T/B.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_35	Creep Speed	Creep speed [2]	1.0 ~ 60.0	m/m	3.0

37) E/L_36

Sets the creep distance when E/L_01 is set to DecelReq-T/B.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_36	Creep Dist.	Creep distance	0 ~ 500	mm	0

38) E/L_37

39) E/L_38

Set the **E/L_37** (distance to end position control) and **E/L_38** (time to decel to zero speed) before leveling to stop. If E/L_37 is set to “0”, deceleration is performed based on the distance untill leveling and if E/L_37 is set to other than “0”, it is changed to time-based for remaining distance to reach target floor level.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_37	D/B End Dist	Position control end and zero speed decel start distance	0 ~ E/L_19	mm	0
E/L_38	SpdZero Time	Time to decelerate to zero speed after position control ends	0.01 ~ 10.00	sec	2.00

40) E/L_39

ELIO board input signal is programmed as A contact (Normally OFF (Open), ON when operating (Closed)). If inductor and limit switch for forced decel are programmed as B contact (normally ON (Closed), OFF when operating (Open)), input signal should be set to "1" to inverse the signal. However, DAC is not able to operate as B contact.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_39	ELIO IN Neg	ELIO input negative (inversion)	000000000000 ~ 111111111111	sec	000000000000

E/L_39 set value is corresponding to EL-I/O input terminal (CN3) one to one and setting "1" makes the selected terminal to "B contact".

MSB											LSB
I_D	I_U	DLS	ULS	RV1(1)	RV2(1)	SD1	SU1	SD2	SU2	DAC	RV3(1)

(1) Available from version 3.0 of EL-I/O option board. These are written as WD1, WD2 and ACR for version 2.0.

41) E/L_40

42) E/L_41

Adjust the filter time when elevator car is operating wrong due to noise interference.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_40	IND Filter	Inductor input filter time	0 ~ 50	ms	25
E/L_41	SDS Filter	Filter time for SDS input	50 ~ 500	ms	250

43) E/L_42

44) E/L_43

45) E/L_44

46) E/L_45

When Limit switch for forced decel (SDS-U1) at the top floor is active and car speed exceeds setting in E/L_42, car starts forced deceleration with E/L_43 and keeps running with E/L_44 until UP/DOWN inductors are active and stops after E/L_45 elapses. E/L_43 and E/L_44 are only displayed when E/L_42 or E/L_47 setting is other than "0". E/L_43, E/L_44, E/L_45 are applied to SDS-D2 and SDS-U2.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_42	ForcedDecSpd	Forced deceleration starting speed during SDS-1 input	0.0 ~ 420.0	m/m	0.0
E/L_43	ForcedDecel	Deceleration speed during SDS-1 forced deceleration	0.01 ~ 5.00	m/sec^2	1.50
E/L_44	ForcedCrpSpd	Creep speed during forced deceleration	0.0 ~ 60.0	m/m	3.0
E/L_45	Frcd.DecWait	Wait after zero speed arrival during forced deceleration	0 ~ E/L_16	msec	300

47) E/L_46

48) E/L_47

Defines the use of SDS-D2 and SDS-U2 and forced decel start speed. E/L_47 will appear when E/L_46 is set to “Yes”. When this limit switch at the top floor is active and car speed exceeds setting in E/L_46, car starts forced deceleration with E/L_43 and keeps running with E/L_44 until UP/DOWN inductors are active and stops after E/L_45 elapses.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_46	Use FrcdDcl2	Use SDS-2	NO/Yes	-	No
E/L_47	ForcedDecSpd	Forced deceleration start speed during SDS-2 input	0.0 ~ 420.0	m/m	0.0

49) E/L_50

When this parameter is set to ‘Inductor ON’, elvator car can start only when two inductors are within shield plate. When set to ‘Always’, car can always start regardless of inductor operation.

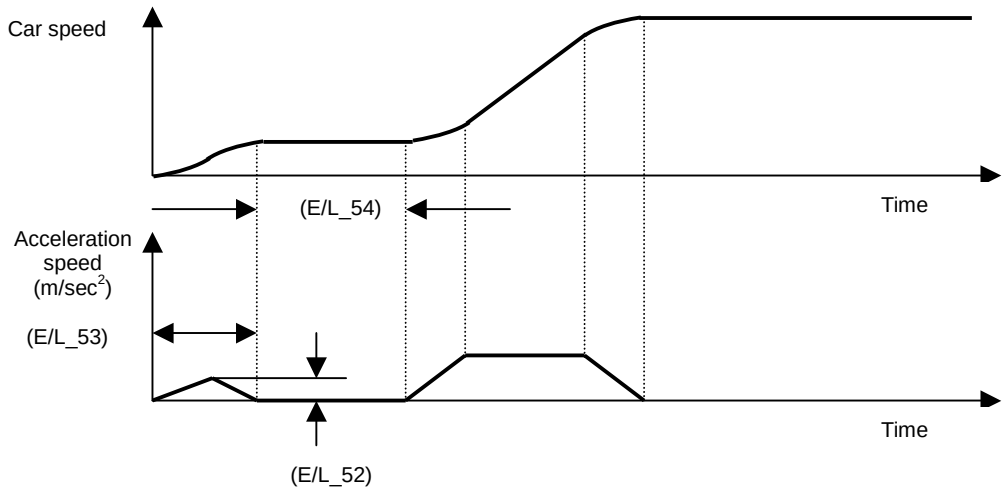
Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_50	HighSpdStart	Starting Condition for High speed Auto Operation	Inductor ON Always	-	Inductor ON

50) E/L_52

51) E/L_53

52) E/L_54

Used for optimal start/stop (up/down) riding comfort of the elevator car during Auto operation. the optimum value can be found by repeating operation with different parameter values input.



Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_52	StartupAccel	Start-up acceleration speed	0.01 ~ 1.00	m/sec^2	0.00
E/L_53	StartupAccT	Start-up acceleration time	0.01 ~ 5.00	sec	0.01
E/L_54	StartupWait	Start-up wait time	0.00 ~ 5.00	sec	0.50

53) E/L_55

Set the wait time taken for leveling/decel/stop to be completed for lowest floor operation or nearest floor operation after UP/Down inductor activates.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_55	BFR/NFR Wait	Wait time before leveling at Lowest floor/Nearest floor	0.00 ~ 5.00	sec	0.30

54) E/L_58 – refer to "Keypad display at elevator mode" for detail description

When CON_02 "**Application"** is set to "**Elevator"**, the following display mode can be set. In case of "Limit S/W State", ON/OFF state will appear according to the setting in E/L_40.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_58	Display Sel.	Current car speed per min.	Car Speed (m/m)	m/m	Car Speed (m/m)
		Current car speed per sec.	Car Speed (m/s)	m/s	
		Motor speed	Motor Speed	rpm	
		Current car position	Car Position	mm	
		Motor output torque	Trq Output	%	
		Limit switch status [1)]	Lmt.S/W State	I--S--S2--	
		Tuning distance when first inductor is active	Tuning Dist	mm	

1) Limit switch status displayed

Ex) when an elevator car is located at the lowest floor level. - IND_UP, IND_DN, SDS1, SDS2 ON (-: OFF, ○: ON)

Inductor	Down	Up	SDS1	Down	Up	SDS2	Down	Up
I	○	○	S	○	-	S2	○	-

55) E/L_59

Current car position can be reset to 0mm, If Yes is set, floor number on the LCD display is changed to “1”.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_59	Clear Posi.	Clear car position	No Yes	-	No

56) E/L_60

The height of each floor can be checked after FHM operation is completed.

Code	LCD display	Parameter name	Setting range	Unit	Factory setting
E/L_60	Show FlrPosi	Show floor position	1 ~ E/L_02	FLOOR	1