Manual Control Box with Compact

ASANOR

LIFT CONTROLLER

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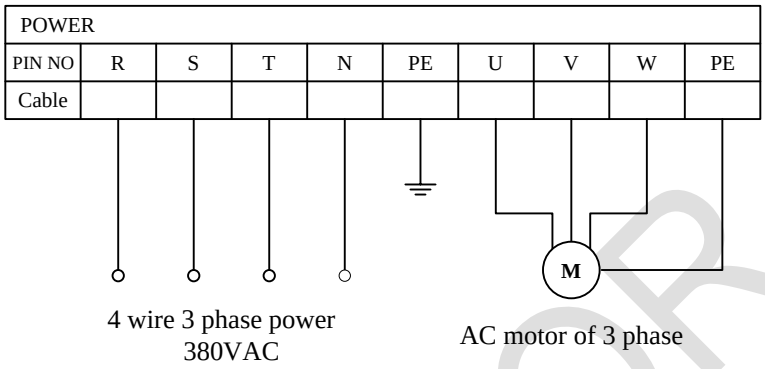
Wiring and auto-tuning of the traction machine

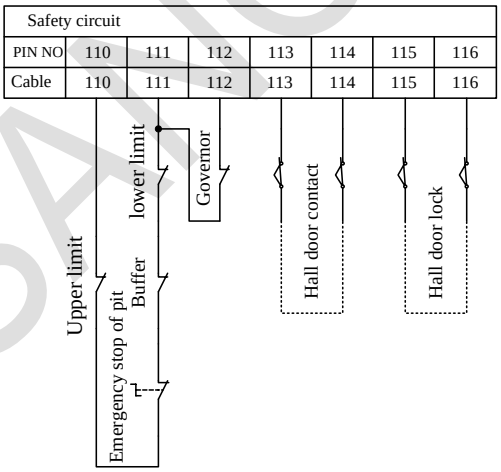
1- Please install the control cabin on the wall

2- Then, connect main power cable in the power distribution box in the machine room securely with the control cabinet. After confirming that all the connections are correct and supply voltage is normal (input voltage of 3-phase, 5-wire system and the voltage between three phases should be 380VAC, with phase difference not exceeding 15VAC, and voltage between each phase and neutral line is 220VAC), and then connect motor cable , motor brake.

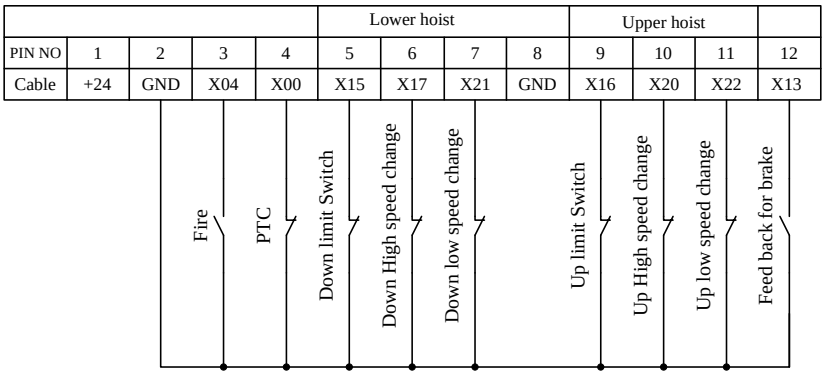


3- If the traction machine needs to start the motor auto-tuning, you must enter the motor parameters in the inverter; such explanation is given in the inverter section.

4- Short circuit all the control signal terminals in the control cabinet:

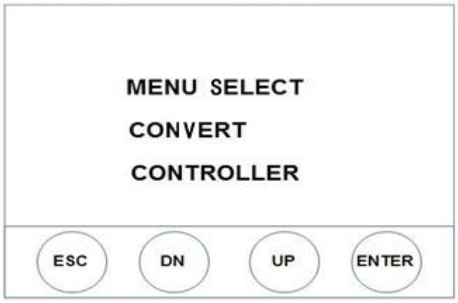


Also, terminals: 2 and 5, 5 and 7, 7 and 9, 9 and 11, 11 and T2



Start-Up Programming & Operation:

Firstly, wired according to drawing, and connect the power for control system. ASANOR logo will show, please press ENTER key to enter the main interface of inverter, press ENTER again to go into main menu mode, as below picture:

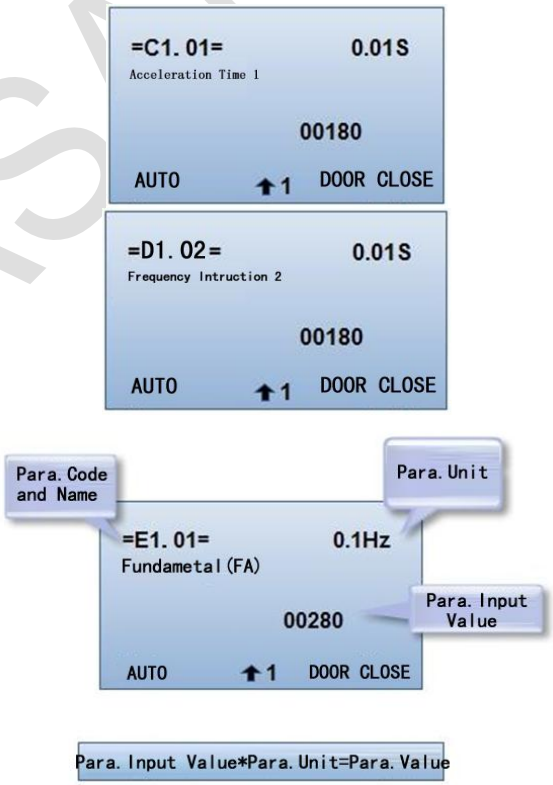


Now, you can select by "UP""DOWN" key for election, ESC key for EXIT and back to main menu, ENTER go to selection, and CONVERT for inverter parameter, CONTROLLER for main board parameters.

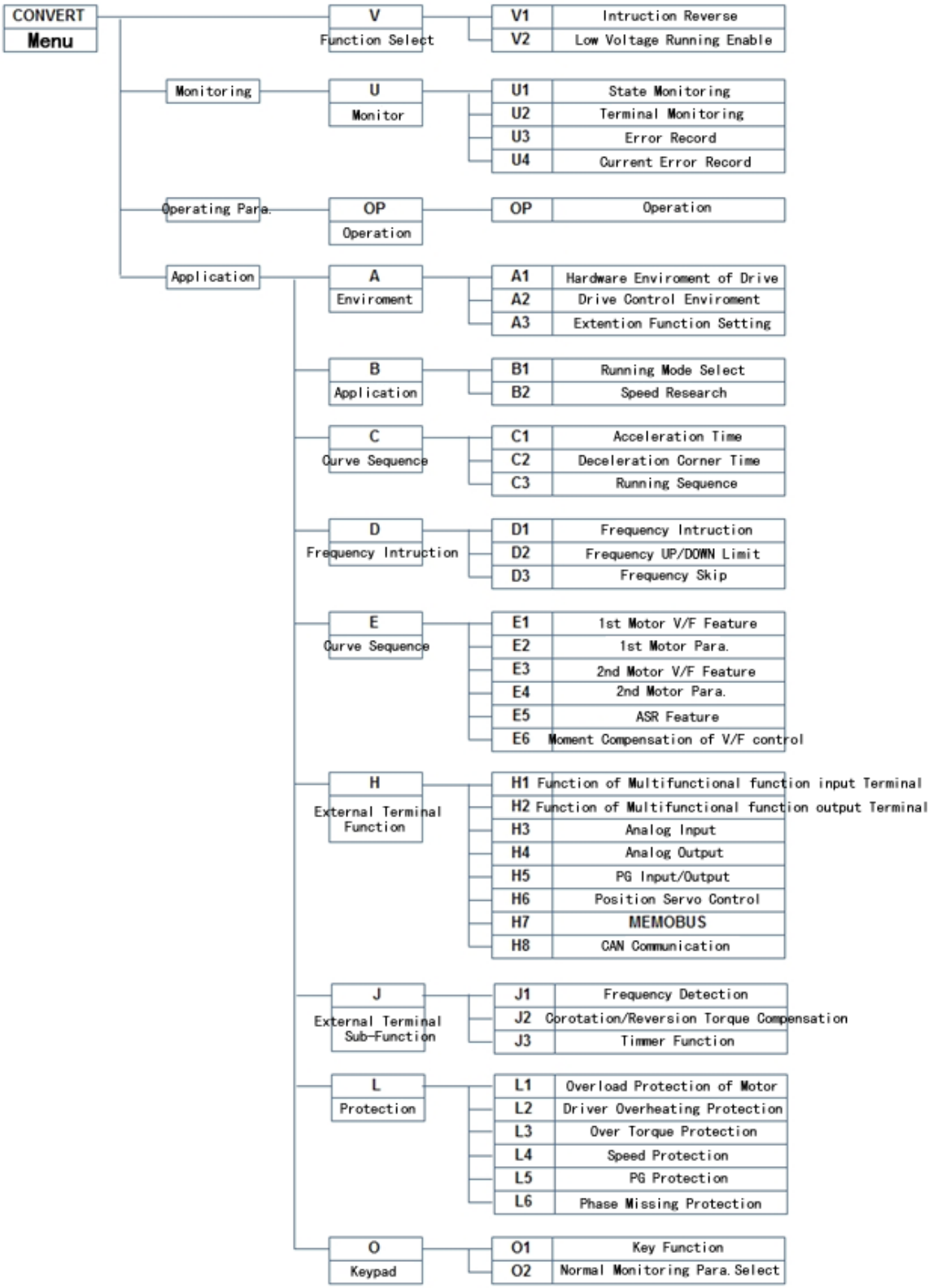
Inverter Parameter Modification

ENTER OP1 for password input;
Modify Parameters;
Enter OP6 for saving;

Below is the referenced interface of inverter parameter：



Menu Structure for Digital Operator:



No.	Name	Control Mode		Remark
		IM Motor	PM Motor	
OP: System operating parameter				
OP1	Parameter password 1 Range 0000~9999	0000	0000	
OP2	Parameter password 2 Range 0000~9999	0000	0000	
OP3	Slef-learning Motor parameter self-learning 0：line resistance (Silent Type) 1：line resistance and motor leakage reactance (Silent Type) 2：angel phase (Silent type) 3：angel phase (rotation type)	0/1	2	
OP4	Reset inner parameter System Parameter Initialization 0：Standard Type Initialization 1~99：Customer Definition Initialization 100：Extending Mode Initialization			
OP5	Clear Error Record Clear Error Record of Monitoring content			
OP6	Save parameter Only for saving the parameters			
OP7	Write user default parameters			
OP8	System Password Setting permission to modify system parameters. After setting password, system parameters will be unchangeable. Range 0000~9999			
A1: Hardware Initialization Parameters				
A1.01	Inverter Capacity, Only for reference			
A1.02	Series , Only for reference			
A1.03	Supply Voltage	380	380	
A1.04	Expansion Card type Showing the installed PG card			
A1.05	Motor Type	0	0	
A1.06	Encoder Type: 0:ABZ Incremental Type 2:SIN/COS (ERN1387) 7:SIN/COS (ERN1313)	0	2	
A2: Control Initialization Parameters				
A2.01	Motor Control Mode: 2：Closed Loop Vector Control 3： Current Vector Control 5：Closed Loop Vector Control for PM Motors	2,3	5	
A2.02	Carrier Frequency, Range 2.0~16.0K	8.0K	8.0K	
A2.03	Down Limit of carrier frequency, Range 2.0~16.0K	8.0K	8.0K	
A2.04	Up Limit of carrier frequency, Range 0.0~60.0K	50.0K	50.0K	
A2.05	Current compensation enabled 0：Without 1：With	1	1	

B1: Running Mode				
B1.01	Running command selection: 0：Operator 1：External terminal control 2：Serail Port	2	2	
B1.02	Running ways selection: 0：Positive and Negative Direction 1：Three wires 2：Enable Increasing Direction	0	0	
B1.03	Stopping Method Selection: 0：Coast to stop 1：Ramp to stop 2：Have time limit to stop 3 : Zero speed locking / non-zero-speed free glide 4：Stop by DC control	0	0	
B1.04	Frequency Command Selection: 0：Operator 1：External terminal control 2：Analog (Action Following) 3：Analog (Command Following) 4：Expansion card 5：Torque Given 6：Position Following	1	1	For Direct to stop set to 2
B1.05	Selection of Analog mode command: 0：Analog port 1 1：Analog port 2 2：Analog port 3 3：Analog port 1+ Analog port 2 4：Expansion Command 1 5：Expansion Command 2 6：Expansion Command 3 7：Expansion Command 4 8：Pulse Given	0	0	For Direct to stop set to 5
B1.06	Selection when less then Min output frequency : 0：Run according to frequency command 1：Zero Speed Running 2：Follow E1.05.Running 3：Basic Block	0	0	
B1.07	Selection for if can reverse: 0：Yes 1：No	0	0	
B1.08	Selection for if can Re Acc: 0：Yes 1：No	0	0	
B1.09	DC braking current: Range 0%-150%, Normally=50%	50%	50%	
B1.10	Frequency of DWELL when starting: Range 0.00-2.50Hz, Normally=0.00Hz	0.00Hz	0.00Hz	
B1.11	Time of DWELL when start: Range : 0.00-2.50s, Normally=0.00s	0.00S	0.00S	
B1.12	Enable of rapid speed exchange:	0	0	

	0：Invalid 1：Validity			
B1.13	Selection of Starting Position Lock : 0：Invalid 1：Validity	0	1	
C1: Accel/Decel Switching Speed				
C1.01	Acceleration Ramp 1, Range =0.01~600.00s	2.5s	2.5s	
C1.02	Deceleration Ramp1, Range =0.01~600.00s	2.5s	2.5s	
C1.03	Acceleration Ramp 2, Range =0.01~600.00s	5.00s	5.00s	
C1.04	Deceleration Ramp2, Range =0.01~600.00s	5.00s	5.00s	
C1.05	Acceleration Ramp3, Range =0.01~600.00s	2.00s	2.00s	
C1.06	Deceleration Ramp3, Range =0.01~600.00s	2.00s	2.00s	
C1.07	Acceleration Ramp4, Range =0.01~600.00s	2.00s	2.00s	
C1.08	Deceleration Ramp4, Range =0.01~600.00s	2.00s	2.00s	
C1.09	Stop Deceleration Ramp, Range 1~20.0s	1.00s	1.00s	
C1.10	Acceleration Ramp Switching frequency: Range 0~300.00Hz	0.00Hz	0.00Hz	
C1.11	Deceleration Ramp Switching frequency: Range 0~300.00Hz	0.00Hz	0.00Hz	
C1.12	Enable select of Acceleration and Deceleration Ramp: 0：Invalid 1：Combined command 2	0	0	
C2: Jerk Settings				
C2.01	Accel Ramp and Jerk Settings. Range .0.01~2.50s	1.20s	1.20s	
C2.02	Accel Ramp and Jerk Settings. Range .0.01~2.50s	0.80s	0.80s	
C2.03	Decel Ramp and Jerk Settings. Range .0.01~2.50s	0.80s	0.80s	
C2.04	Decel Ramp and Jerk Settings. Range .0.01~2.50s	1.20S	1.20s	
C3: Running Time Sequence				
C3.01	Min. Time of Basis Block, Range 0.10~2.50s	0.1s	0.1s	
C3.02	Excitation/Time of DC braking, Range 0.10~2.50s	0.3s	0.3s	
C3.03	Time delay of brake opening, Range 0.10~2.50s	2.0s	2.0s	
C3.04	Time Delay of starting, Range 0.10~2.50s	0.20s	0.20s	
C3.05	DC braking time of Brake/Stop, Range 0.10~2.50s	0.3s	0.3s	
C3.06	Output stops transit time, Range 0.10~2.50s	0.00s	0.00s	
C3.07	Delay of output contactor, Range 0.10~2.50s	0.20s	0.20s	
D1: Frequency Instruction				
D1.01	Frequency Instruction 1	0.00Hz	0.00Hz	
D1.02	Frequency Instruction 2 (Creeping Speed)	3.00Hz	2.00Hz	
D1.03	Frequency Instruction 3	0.00Hz	0.00Hz	
D1.04	Frequency Instruction 4 (middle speed)	35.00Hz	21.00Hz	
D1.05	Frequency Instruction 5 (Inspection Speed)	6.00Hz	4.00Hz	
D1.06	Frequency Instruction 6 (high speed)	50.00Hz	30.00Hz	
D1.07	Frequency Instruction 7	0.00Hz	0.00Hz	
D1.08	Frequency Instruction 8	0.00Hz	0.00Hz	
D1.09	Point start frequency	0.00Hz	0.00Hz	
D2: Frequency Instruction Relation				
D2.01	Highest output frequency (Motor Rated Value)	50Hz	30Hz	
D2.02	Up limit of frequency	100.00%	100.00%	
D2.03	Down Limit of frequency	0.00%	0.00%	
D2.04	Filter time of output frequency(ms)	0.1mS	0.1mS	
D2.05	Instruction source of upper limit	0	0	

D3: Jump Frequency				
D3.01	Jump Frequency 1	0.00Hz	0.00Hz	
D3.02	Jump Frequency 2	0.00Hz	0.00Hz	
D3.03	Jump Frequency Range	0.00Hz	0.00Hz	
E1: V/F Characteristic (Only for open loop)				
E1.01	Fundamental frequency (FA).	50 Hz	28 Hz	
E1.02	Voltage of Max. Output (VMAX).	380 V	380 V	
E1.03	Intermediate output Frequency (FB).	20 Hz	10 Hz	
E1.04	Intermediate output voltage (VC).	110 V	110 V	
E1.05	Smallest output frequency (FMIN).	1.3 Hz	1.3 Hz	
E1.06	Voltage of Lowest Output frequency (VMIN).	18 V	18 V	
E2: The Motor Parameters				
E2.01	Motor rated power	11	11	
E2.02	Motor Poles	4/6	20/24/32	
E2.03	Motor rated current	16.5A	16.5A	
E2.04	Motor Rated Voltage	380V	300V	
E2.05	Motor rated frequency	50Hz	30Hz	
E2.06	Motor rated RPM	1450RPM	95RPM	
E2.07	Motor No-Load Current	9.5	0	
E2.08	Motor Rated Slip	1.5HZ		Auto-tuning set
E2.09	Motor Line-to-Line Resistance	0.922		
E2.10	Motor Leakage Inductance	18.0%		
E2.11	Motor Iron-Core Saturation Coefficient 1	20%		
E2.12	Motor Iron-Core Saturation Coefficient 2	5%		
E2.13	Lower limit of exciting current damping	50%		
E5: ASR Characteristics				
E5.01	High speed proportion gain. Range 0~100	15	15	
E5.02	Low speed proportion gain. Range 0~100	15	15	
E5.03	Starting proportion gain. Range 0~100	20	50	
E5.04	High speed integration time. Range 0~1000ms	250ms	100ms	
E5.05	Low speed integration time. Range 0~1000ms	50ms	20ms	
E5.06	Staring integration time. Range 0~1000ms	10ms	8ms	
E5.07	ASR switching frequency, Range 0.00~300.00 Hz	50.00Hz	20.00Hz	
E5.08	Upper limit of integrating, Range 0%~100%	100%	100%	
E5.09	Torque filter time, Range 0.1~25.0 ms	1.0mS	1.0mS	
E5.10	Drive torque upper limit , Range 0.0%~500.0%	180%	180%	
E5.11	Braking torque upper limit , Range 0.0%~500.0%	180%	180%	
E5.12	Source of torque upper limit	0	0	
E5.13	Torque limit changing time , Range 0.01~2.50ms	0.1ms	0.1ms	
E5.14	Current gain damping % during decelerating	0	0	
E5.15	Vibration restrain %, Range 0%~50%	0	0	
E5.16	Position servo gain, Range 0.1~10.0	1.0	1.0	
E5.17	Current gain, Range 20%~150%	50%	50%	
E5.18	0Hz current gain, Range 20%~100%	60%	60%	
H1: Multi input terminal function setting				
H1.01	Function selection of terminal X3	1	1	
H1.02	Function selection of terminal X4	2	2	
H1.03	Function selection of terminal X5	3	3	
H1.04	Function selection of terminal X6	28	28	
H1.05	Function selection of terminal X7	21	21	
H1.06	Function selection of Multifunctional input terminal X6	0	0	
H1.07	Function selection of Multifunctional input terminal X7	0	0	

H2: Multifunctional terminal output setting				
H2.01	Function selection of Multifunctional output terminal M1-M2	8	8	
H2.02	Function selection of Multifunctional output terminal Y1	2	2	
H2.03	Function selection of Multifunctional output terminal Y2	16	16	
H2.04	Function selection of Multifunctional output terminal Y3	7	7	
H3: Analog input adjustment				
H3.01	Analog input terminal 1 signal type	1	1	
H3.02	Input gain of Terminal F1	100%	100%	
H3.03	Input offsetting of terminal F1	0	0	
H3.04	Analog input terminal 2	0	0	
H3.05	Input gain of Terminal F2	100%	100%	
H3.06	Input offsetting of terminal F2	0	0	
H3.07	Input gain of Terminal F3	0	0	
H3.08	Input gain of Terminal F3	1000%	1000%	
H3.09	Input offsetting of terminal F3	0	0	
H3.10	Filter time 1 of analog input terminal	1.0 m/s	1.0 m/s	
H3.11	Zero potential threshold of analog input value	0.00V		
H3.12	Gain switching %	0.0%	0.0%	
H3.13	Filter time 2 of analog input terminal	1.0 m/s	1.0 m/s	
H5: Encoder Input/output Setting				
H5.01	PG pulse value	1024	2048	
H5.02	PG filter time	3m/s	3m/s	
H5.03	PG phase	0	0	
H5.04	Selection of frequency division mode	0	0	
H5.05	Output pulse frequency division	4	4	
H5.06	Z phase function	0	0	
H5.07	Offset electrical angel of encoder	0	315.6	
L1: Motor Overload Protection				
L1.01	Motor overload protection function: 0：Unprotected 1：Free slip stop 2：Decel. Stop 3：Abnormal declaration Stop 4：Warning	2	2	
L1.02	Time of motor overload protection: Set 150% motor overload detecting time. Range 0.1~10.0 min	1.0min	1.0min	
L1.03	Protection for motor overheating: 0：Unprotected 1：Free slip stop 2：Decel. Stop 3：Abnormal declaration Stop 4：Warning	2	2	
L1.04	Protection time for motor overheating Range 1~200s	10s	10s	
L1.05	Temperature of motor overheating protection Range 50~255℃	105℃	105℃	
L1.06	Temperature testing resistance type of motor: 0:PTC 1:Resistance 1; 2: Resistance 2; 3: Resistance 3;	0	0	

L2: Overheating Protection				
L2.01	Overheating protection enable: 0：Unprotected 1：Free slip stop 2：Decel. Stop 3：Abnormal declaration Stop 4：Warning	1	1	
L2.02	Temperature of overheating protection Range 50~120℃	85℃	85℃	
L2.03	Time of overheating protection Range 1~250S	10S	10S	
L2.04	Temperature of fan stop Range 20～100℃	45℃	45℃	
L3: Over Torque Protection				
L3.01	Function of over torque protection: 0：Unprotected 1：Free slip stop 2：Decel. Stop 3：Abnormal declaration Stop 4：Warning	1	1	
L3.02	Value of over torque protection Range 0.0%~500.0%	150%	150%	
L3.03	Detection time of over torque protection Range 0.1~25.0s	1.0 S	1.0 S	
L4: Speed Protection				
L4.01	Over speed protection enable: 0：Unprotected 1：Free slip stop 2：Decel. Stop 3：Abnormal declaration Stop 4：Warning	1	1	
L4.02	Frequency of over speed protection: Range 1%~50%	20%	20%	
L4.03	Protection time of speed stall speed: Range 0.01~2.50S	0.50S	0.50S	
L4.04	Over speed protection: 0：Unprotected 1：Free slip stop 2：Decel. Stop 3：Abnormal declaration Stop 4：Warning	1	1	
L4.05	Frequency of over speed protection value: Range 1%~120%	105%	105%	
L4.06	Protection time of overspeed, Range 0.01~2.50s	0.5s	0.5s	
L4.07	Stall proof function in Acceleration: 0：Invalid 1：Valid	0	0	
L4.08	Threshold of Stall protecting in acceleration:	150%	150%	
L4.09	Prevent Stall protecting in acceleration Range 0%~100%	50%	50%	
L4.10	Function of prevent stall speed during running: 0：Invalid	0	0	

	1：Valid			
L4.11	Stall protection threshold in stable speed: Range 50%~200%	160%	160%	
L4.12	Prevent function of stalling during deceleration: 0：Invalid 1：Valid	0	0	
L5: PG Protection				
L5.01	Protection when encoder wire cut: 0：Invalid 1：Valid	0	0	
L5.02	Protection when wrong phase: 0：Invalid 1：Valid	0	0	
L5.03	Protection function of Phase Z rectifying: 0：Unprotected 1：Free slip stop 2：Decel. Stop 3：Abnormal deceleration Stop 4：Warning	0	0	
L5.04	Phase rectifying mistake value, Range 0.1~25	5	5	
L5.05	Error times of phase Z correcting Z. Range 1~100	3	3	
L6: Default Phase Protection				
L6.01	Input phase missing function enable: 0：Unprotected 1：Free slip stop 2：Decel. Stop 3：Abnormal deceleration Stop 4：Warning	2	2	
L6.02	Input voltage of phase missing, Range 1~100V	20V	20V	
L6.03	Output phase missing function enable: 0：Invalid 1：Valid	1	1	
L6.04	Enable of leakage protection: 0：Invalid 1：Valid	1	1	
O1: Key function				
O1.01	Function of Stop key: 0：Invalid 1：Valid	1	1	
O1.02	Keypad running direction: 0：Corotation Instruction 1：Reversal Instruction	0	0	
O1.03	Function of up and down key: 0: Invalid of adding or deleting frequency instruction 1: Valid of adding or deleting frequency instruction	0	0	
O2. Display Content Setting				
O2.01	Setting of Monitoring 1, Range 0~255	1	1	
O2.02	Setting of Monitoring 2, Range 0~255	2	2	
O2.03	Setting of Monitoring 3, Range 0~255	5	5	
O2.04	Selection of frequency unit, Range 0~39999	0	0	
O2.05	1st PG（U2.06.）display way: 0：Input pulse value of PG card 1：Angle	0	0	
O2.06	2ndt PG（U2.08.）display way: 0：Input pulse value of PG card 1：Angle	0	0	
O2.07	Select of pulse counting save when power cut: 0：Invalid 1：Valid	1	1	

Encoder (PG) connection

LPG-07 expansion card

NO.	Content	
1	B pulse phase input（－）	Pressure input（HTL input level） max. frequency 30kHz
2	NC Spare	
3	NC Spare	
4	NC Spare	
5	A pulse phase input（＋）	
6	A pulse phase input（－）	
7	Encoder 0V power supply	DC 0V（power GND）
8	B pulse phase input（＋）	
9	Encoder 12V power supply	DC＋12V（±5%）， max. 100mA
10	NC Spare	
11	NC Spare	
12	NC Spare	
13	NC Spare	
14	NC Spare	
15	NC Spare	

LPG-10 expansion card (ERN 1387)

NO.	Content	
1	B pulse phase input (-)	1V P-P max. frequency 300kHz
2	NC Spare	
3	R pulse phase input (+)	
4	R pulse phase input (-)	
5	A pulse phase input (+)	
6	A pulse phase input (-)	
7	Encoder 0V power supply	DC 0V（power GND）
8	B pulse phase input (+)	
9	Encoder 5V power supply	DC＋5V（±5%）， max. 100mA
10	C pulse phase input (-)	1V P-P max. frequency 300kHz
11	C pulse phase input (+)	
12	D pulse phase input (+)	
13	D pulse phase input (-)	
14		
15		

Display of statues monitoring of inverter.

U1 status monitoring			
NO.	Designation	Condition	Unit
U1.01	Final frequency	Monitoring/setting (display setting:O2.04)	0.01Hz
U1.02	Output frequency	Output monitoring (display setting:O2.04)	0.01Hz
U1.03	Feedback frequency	Setting (display setting:O2.04)	0.01Hz
U1.04	Motor speed	Monitoring	1RPM
U1.05	Output current	Monitoring	0.1A
U1.06	Output torque	All in one output torque monitoring	0.1%
U1.07	Output voltage	All in one output voltage monitoring	0.1V
U1.08	Output power	Monitoring	0.1KW
U1.09	Main circuit VDC	Monitoring	0.1V
U1.10	Cooler temperature	Monitoring	1℃
U1.11	Motor temperature	Monitoring	1℃
U1.12	Total running time	Monitoring	0H
U2: terminal monitoring specification			
U2.01	I/O terminal status	X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16	
U2.02	Extension I/O terminal status	Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y8 Y9 Y10 Y11 Y12 Y13 Y14 Y15	
U2.03	F1 input analog value	Terminal F1 input analog value	0.1%
U2.04	F2 input analog value	Terminal F2 input analog value	0.1%
U2.05	F3 input analog value	Terminal F3 input analog value	0.1%
U2.06	input pulse PG/motor angle	Monitor corresponding content according to 02.05 setting	1Pls/0.1°
U2.07	PG(PG1)pulse deviation peak	Used for evaluate the interference of PG signal	1Pls
U2.08	PG(PG2) pulse counting	Used to monitor input pulse value when using position servo control	0%
U2.09	Encoder UVW Phase	Current state of UVW	1
U2.10	Tolerance of position close loop		
U2.11	Tolerance of encoder revise	Used for evaluating the disturbance of Z phase PG signal	
U2.12	Ed%	Duty Cycle of braking unit open	
U2.13	Operation state	Current operation state	
U2.14	Code		
U2.15	Data	EG.：05b10=12/10/2005	
U2.16	Software edition		

U3: Error Record Parameter			
U3.01	Error History Record 1	1st happened error	
U3.02	Repeat Times of Error 1	Repeat times of 1st error	
U3.03	Running Times of Error 1	Running Times of 1st error	
U3.04	Error History Record 2	The 2nd error	
U3.05	Repeat Times of Error 2	Repeat times of the 2nd error	
U3.06	Running Times of Error 2	Running Times of the 2nd error	
U3.07	Error History Record 3	The 3rd error	
U3.08	Repeat Times of Error 3	Repeat times of the 3rd error	
U3.09	Running Times of Error 3	Running Times of the 3rd error	
U3.10	Error History Record 4	The 4th error	
U3.11	Repeat Times of Error 4	Repeat times of the 4th error	
U3.12	Running Times of Error 4	Running Times of the 4th error	
U3.13	Error History Record 5	The 5th error	
U3.14	Repeat Times of Error 5	Repeat times of the 5th error	
U3.15	Running Times of Error 5	Running Times of the 5th error	
U3.16	Error History Record 6	The 6th error	
U3.17	Repeat Times of Error 6	Repeat times of the 6th error	
U3.18	Running Times of Error 6	Running Times of the 6th error	
U4: Current Error Record			
U4.01	Error Record	Current error record	
U4.02	Frequency Instruction	Frequency instruction of current error	
U4.03	Output Frequency	Output frequency of current error	
U4.04	Feedback Frequency	Feedback Frequency of current error	
U4.05	Output Current	Output Current of current error	
U4.06	Instruction Moment	Instruction Moment of current error	
U4.07	Output Voltage	Output Voltage of current error	
U4.08	DC Voltage of BUS	DC Voltage of BUS for current error	
U4.09	Cooler Temperature	Cooler Temperature of current error	
U4.10	Input/output State	Input/output State of current error	
U4.11	F1 input voltage value	F1 input voltage value of current error	
U4.12	F2 input value	F2 input value of current error	
U4.13	Operate State	Operate State of current error	
U4.14	ASR State	ASR State of current error	
U4.15	Ancillary information of Alarm	Current alarm ancillary information	

Display of common Faults of Inverter

Error code	Error Name	Condition	Error Causes
0	Over current when speed change	During acceleration and deceleration, the output current of driver is over threshold value (about 200% of rated current)	The load is too big; acceleration or deceleration time is too short; has use special motor or biggest power class motor, output outlet of driver occur short circuit or ground
1	Over current when steady speed	During steady speed, the output current of driver is over threshold value (about 200% of rated current)	The load is too big; has use special motor or biggest power class motor, output outlet of driver occur short circuit or ground
2	Over voltage when deceleration	During deceleration, OV or DV>OV threshold value	Deceleration too fast, brake resistor value too big or no connection, brake unit invalidated
3	Over voltage when not deceleration	Not deceleration, OV or DV>OV threshold value	Input voltage is too high, reverse pull load is too heavy, resistor value for brake resistor is too big or not connected, brake unit invalidated
4	Over current at instant	Module over current too hot	Acceleration is too fast, load it too heavy, motor and inverter are not matched
5	Voltage too low	DV<LV threshold value	Power supply voltage is too low, contactor disconnected, or lack input phase
6			
7	Power voltage abnormal	Power voltage is too high	Power supply voltage is over brake threshold value
8	Creep age when ground	Average creep age current>threshold value	Impedance for motor over to ground is too low
9	Inverter overload	Up to output current upper limit over 10S	Load is too heavy, the motor and inverter not match
10	Over heat under other situations	OT	Small heat dissipation fan invalidated, elasticized resistor too hot, exterior too hot (motor, brake resistor), main contactor disconnected or not well connected
11	Inner brake unit abnormal	Turn on before running or cannot turn on during brake	Brake unit and brake circuit error
12	Main board error1	Reset overtime(system halted)	Be strong disturbed or main board defeated
13	Main board error2	EEPROM data reading efficacy error /write in error	
14	Main board error3	PG card communication error/ absolutely encoder communication error	
15		Extend card self-inspect abnormal	
16	Encoder abnormal		
17	Self test error of current inductor	Original current cannot be zero	Be strong disturbed or main board defeated
18	Drive unit abnormal	Drive board self-inspect error	

19	Program error		
20	Emergency stop by manual		
21	Positive and negative input at the same time		Co rotation command (X1)and reverse coronation command (X2) input at the same time over 0.5 seconds
22	Self-learning failure		Assistant code display during drive board alarm, or in assistant information (U4.15). Detail refer to assistant code table
23	Extension program error	Running code wrong	
24	Extension program error	Parameter setting error or conflicted	
25	Extension program error	Exterior logic error	
26			
27	Main board error2	EEPROM data abnormal (efficacy wrong)	
28			
29			
30	Control power supply is low		
31	Parameter exceed range	EEPROM data reading over range	Lawless EEPROM write in or main board's software version changed
32	Parameter illogicality		Assistant code display during drive alarm, or in assistant information (U4.15).
33	Parameter setting conflicted or repeated		Assistant code display during drive alarm, or in assistant information (U4.15).
34	V/F parameter setting error		Without set according to: D2.01≥ E1.01> E1.03≥ E1.05, E1.02> E1.04≥ E1.06.
35	Parameter not initialized		Not tested new main board
36	Multi function terminal setting conflicted		Without setting the multi function terminals according the regulation or set parameter error or input terminal function repeated.
37	Simulated terminal function setting conflicted		One analog input has been cited by several functions
38	Extend parameter over range		
39	Extend parameter setting error		
40	Exterior operation error		
41	Over using limit time		
50	Module too hot	RTH> threshold value	Temperature for heat sink too hot, heat dissipation fan invalidated
51	Input lack phase	Average DC voltage fluctuate value>threshold value	Load too big, motor and inverter not matched, input lack phase, power supply capacity small, power off instantly

52	Output lack phase	After excitation, motor feedback current cannot reach 50% of setting value	Motor disconnected or motor type wrong
53	Over speed	Motor speed over over speed protect threshold value（L4.05）and over the protect time (L4.06.）.	Command speed too fast, speed control bias too large, the setting value for L4.05.、L4.06 not right
54	Stall speed	Motor speed bias over the setting value of protect threshold value of speed bias (L4.02) and speed bias over protect time（L4.03）.	Load too big, acceleration time too short, load under lock status and the setting value not right
55	Encoder wire disconnected	Average torque command over monitor threshold value, encode pulse change smaller than 2	Encoder wire disconnected
56	Wrong phase	Average torque command over monitor threshold value, the torque command and feedback frequency is reversed.	Encoder phase and motor phase reversed
57	exceed the torque limit	Average torque command over threshold value	Load too heavy, or parameter setting not right
58	Max. current	Output current reaches the max. value and keep some time	Load too heavy, motor locked rotor
59	Motor over load	Motor over load	Load too heavy, motor and inverter not matched
60	Exterior error	Exterior error but terminals valid	
61	Torque fluctuate abnormally	Average torque command fluctuate value over threshold value	
62	Communication disconnected		
63			
64	Encoder pulse fluctuate abnormally	Of steady speed, the pulse varying value per 10ms over than threshold value	Encoder been disturbed or install not well
65	Z phase calibration failed		Without Z phase signal, Z phase signal be disturbed, encoder wire or motor poles setting error
66	Zero servo abnormally	During zero servo but position departure	Load too heavy, zero servo parameter setting not right
67	Terminal signal error	Illegal weighing switch combination	

Low Speed Adjustment

Necessary conditions and Parameter setting

- Power wires are well connected. (Control cabinet, Motor, Brake)
- Short-circuit of safety circuit, hall door lock circuit, car door lock circuit, and UP/Down limit switches. (Refer to the drawing of cabinet)
- Set all the parameters in E2 according to motor nameplate
- Set encoder pulses numbers in encoder menu (H5.01PG)

Self-learning (synchronal motor)
For PM motor, still need to study the encoder Angle values. Select 0 in OP3, to do the resistor learning, after finished resistor learning, do the magnetic pole position learning

Motor Parameters self-learning have below 4 types:

Press “enter” when OP3=0”: Stator resistance self-learning (static self-learning)
Press “enter” when OP3=1”: Stator resistance and motor leakage resistor self-learning (static self-learning)
Press “enter” when OP3=2”: Position of PMSM’s magnetic poles (the coder deviated from electrical angle) self-learning (static self-learning)
The following examples indicates the operation of self-learning

High Speed Adjustment

Hositway switch confirmation
Self-learning is available after inspection running, all the hositway switches is in position and well wired.
Crash the Force-changing switches at UP/DOWN terminal floors under inspection running.
When lift crashes the up terminal force-changing switch with two groups of Force-changing switches installed: X25 OFF at first and then X27 OFF;
When lift crashes the up limit switch: X23 OFF, and shows E5;
When lift going to the DOWN terminal floor: X24 OFF at first, then X26 OFF;
When lift crashes down limit switch, X22 off and shows E6.

Hoistway Parameter Self-Learning:

After hositway switches checking, please check the pluses number if correct: when running up, pulses adding, when running down, pluses reducing. If the lift is moving, encoder pluses no change, or up reducing and down adding, it means input faulty, shows E9. (When pulses no changing, check wiring, when up reducing and down adding, please check A, B direction)
Drive the lift to 1st floor, set to be AUTO state, enter Menu 17: Set self-learning to be ON, lift will be running up with inspection speed, stop at the highest floor. Self-learning finished.
After self-learning, controller will recorded the floor No., if the numbers is wrong with the floors, check the vertical angle of flag and leveling switch.

Leveling and comfort:

Auto running is available after self-learning finished. Firstly is leveling setting, select on middle floor as aim floor, record the position when auto run up/down, if crossed level, please decrease the creeping speed, otherwise if not reach to the level please speed up the creeping speed. Do this till up and down all come to the same level point. Now please check the car, if higher, set the flag down, if lower, set the flag up, do this till level in right position. After leveling done, can set the comfort of lift running, set the parameters in menu C1.01, C1.02 and C2 according to the site state.

Self-Learning Setting for 2 Stops Lift:

Short connect UP Slow Down switch, move the UP Limit Switch higher or move the flag lower, to make the lift crash to the UP-Limit switch when doing self-learning. Require that the lift not in the leveling area when stop.
Remark: Over 2 stops lifts no need to set as above.
Controller Setting

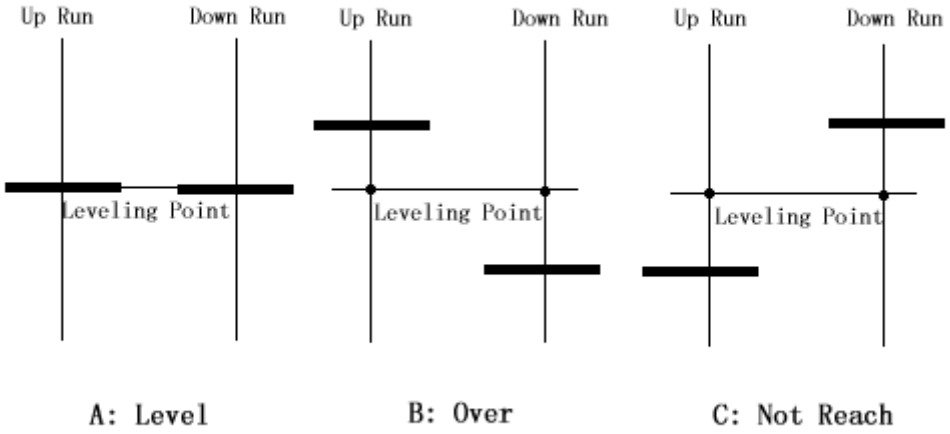
1. This system has the function that through adjusting the magnet vane and pulse number. If have the following conditions, the leveling accuracy can be up to ±2mm., after self-learning the data of hositway, adjust the position of magnet, and setting the controller's data.
   ① The length of the magnet vane is 20±5cm;
   ② The length of magnet vane all the same;
   ③ Setting error ≦2cm.

2. The ways of controller self-measure the hositway datas:
   ① Make sure all the hositway sw. are in normal state
   ② Setting the UP/DOWN-Force-Slow down distance
   ③ The car on the next terminal leveling position
   ④ The lift at AUTO state

⑤ Enter setting menu of controller (CONFIG), choose ON mode of LEARNING. The lift runs from inspection speed, finished self-measure of the hositway data, go to the top floor leveling position and AUTO-stop. Then can be fast-run

3. Controller Leveling Setting:
   ① Check the speed monitoring menu of inverter, make sure the lift creeping speed (C07) run by 500ms at least after slow down.
   ② Make the leveling switch in middle position of flag when the lift stopped.

Method 1: Adjust inverter creeping speed (C07); increase its value when the lift is going up or down without reach the leveling point; and reduce its value when lift going up or down over the leveling point.
Method 2: Item <2A> set to be "5sec" in Controller (M3-ARM), adjust item <92>, reduce its value when the lift is going up or down without reach the leveling point; and increase its value when lift going up or down over the leveling point.



③ Run the lift to each floor by high speed, mark down all the records when the lift runs up and down to the leveling point of each floor. If over or not reach the point, then adjust the flag down and up accordingly as same distance.

Inspection Run Setting

1. Please red the manual of frequency inverter and cabinet setting
2. Please make sure all the wires be wired, check the safe loop, door lock loop, UP/DOWN limit if connected, check the power wire if right connected, if have already short connected, use at least 10mm2 ground wire to connect the motor and cabinet.
3. Please connect the speed –measure encoder, install it with light hand in order not to damage it.
4. Please input the rate parameter of motor and the pulse number of encoder.
5. Please connect the door lock, let the lift try slow up and slow down, note if have inverter error, if the direction wrong, must change A-B data, and re-try, check the running direction right or not, if not, change the Left-Right item of DRIVER.

Operating Manual M3

Foreword

M3 ARM Control Systems for Lifts is winning more and more market share after its launch. With beyond-measure security, friendly human-computer interface, M3 ARM becomes the first-choice for lift alternation and lift reconstruction. It is the mainstream of lift technology development.

Features

M3ARM employs local CAN bus control and 32-bit industrial ARM processor. Main processor can handle 32 digits data directly so as to improve the operation ability and handle signals within 64 floors directly. Board-making techniques and surface-paste technology to maximize system's anti-interference ability. The top and bottom board are overlay without wiring. With friendly human-computer interface, the users do not need any programming; only need to input several parameters according to the real instance. It has the following characteristics.

- Hoist way parameters self-learning
- Adopting high-speed counting technology and nicety orientation technology to maximize leveling precision.
- Four-thread system minimizes wiring. The system uses serial communication technology, and thus all the calling signals are connected by two communication wires and reliable insert unit, therefore local wiring progress can be significantly speed up and errors reduced.
- Making controller standardized manufacture possible.
- Calling lifts directly from the system. All the hall call signals and car call signals can be operated and displayed on the system.
- Timing automatic closing-door, opening-door and closing-door protection.
- Choosing not to answer signals from a certain floor.
- Choosing single-door, double-door or not opening-door in a certain floor.
- Setting floor display according to personal preference. For example, setting floor display as –9, -1, or letters.
- Setting base station, and fire-control returning station.
- Displaying the pulses-number of every floor after system self-learning, and the location of on-line car.
- Setting single-floor and multi-floor running curve (set run curve directly while controlled by simulated value), with over-floor decelerating point.
- Supporting remote monitoring and debugging.
- Controlling several lifts at the same time.
- Three display method: seven-segment code, BCD code, and rolling dot matrix.
- Fifty error history records.

Lift Control Functions

Item	Function	Remark
1	Inspection	
2	Universal set control system	
3	Self-security run with slow speed	
4	Automatic opening-door on arrival	
5	Door security protection	
6	Orderly hall call press-button operation for opening doors at the current floor	
7	Press-button operation for opening and closing doors	
8	Automatic closing-door time-delay	
9	Automatic set and change direction	
10	Opening doors and orienting through hall call signal	
11	Car call signal record wrong and re-press to cancel	
12	Automatic cancel command while direction reverse	
13	Automatic divide speed while single / multi-floor run (over 1.5m/s)	
14	Full load bypass	
15	Arrival clock	
16	Automatic cut off car light and fan while waiting lift	
17	Automatic return to base station	
18	Humanity LED operative unit	
19	Communicated with upper position computer	
20	Error history	
21	Hoistway floor self-learning	
22	Set the sever floor	
23	Set display symbol for floor	
24	Driver operate	
25	Flashed lights corresponding to hall call signal when running with a driver	
26	Automatic answering of car call and cancel decelerating signal	
27	Orderly answering of hall call and cancel decelerating signal	
28	Independent running	
29	Floor displayer of dots matrix	
30	Rolling display of run direction	
31	Automatic correct for floor position signal	
32	Lock lift	
33	Emergency return while fire	
34	Fire man operate	
35	Voice report station	
36	Protection of door safe touch board	
37	Over-loaded alarm and protection	
38	Proof disturb of light load	
39	Protection for run with reverse direction	
40	Protection of proof slip	
41	Stop car by hall call answer of the farthest reverse direction	
42	Constrained speed-changing at the terminal floor	
43	Automatic re-opening-door due to closing-door error	
44	Error protection of inverter	
45	Main control CPU WDT protection	
46	Monitor for village (or mansion)	
47	Remote monitor	
48	Parallel run	
49	Group control run	
50	Service for rush time while on duty	
51	Waiting machine dispersedly	
52	Direct landing	

Connecting Serial Unit

M3ARM employs local CAN BUS control, and all the lift-calling signals are serially output to be recorded and be displayed. Floor information, Inspection light and Over-loaded light are also serially output to be displayed. Therefore, communication wires must use the good-quality four-line shielded wires, with two power lines and two signal lines. Power lines need not to be shielded and must be over 1 m^2, while communication lines must be over 0.75 m^2. All the communication wires use reliable sockets to connect, thus it is very convenient to install.

Shielded-layer must be connected to "GND" on every connection point, namely +24V power's "0V". All the wiring must be done in the case of power-off. Diagram2 shows the system construction.

Description for M3 debugger

M3ARM debugger is used for monitoring and adjusting the parameters. Before adjust the parameters, you should enter password. If it is correct, you can enter adjust interface and the debugger will close the adjust interface if no any key pressed over 15 minutes. You must enter password again if exit the adjust interface. It will turn back to the main interface over 20 minutes and to the homepage over 30 minutes and screen or light behind will be closed over 40 minutes.

Menu Description :

M3ARM debugger has ten main menu options altogether. Press ↑ and ↓ key to select among them, and press ENTER to enter submenu. The operation is same as the main menu. Under edit mode, press ↑ and ↓ to change parameters and press enter key to save; press esc key to quit. All parameters are set according to default value of factory but some parameters must be reset according to real conditions.

Main Menu:

【10】CONFIG, 【20】TIME, 【30】STATION, 【40】CALL, 【50】IO MENU, 【60】DOOR, 【70】ERROR HISTORY, 【80】PASSWORD, 【90】PULSE MONITOR, 【A0】INPUT SELECT, 【B0】Leveling , 【D0】Direct to floor .

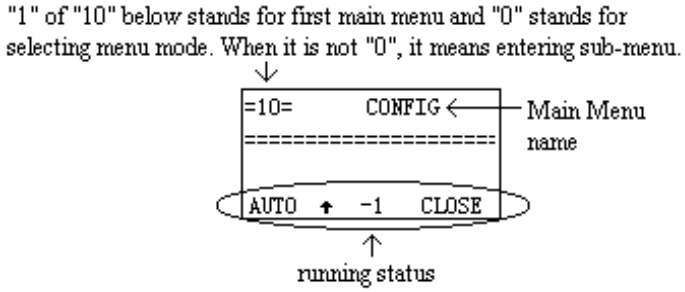
Description of the submenus and adjust procedures:

Remark: 【 】The number in this symbol stands for the number of main menu.

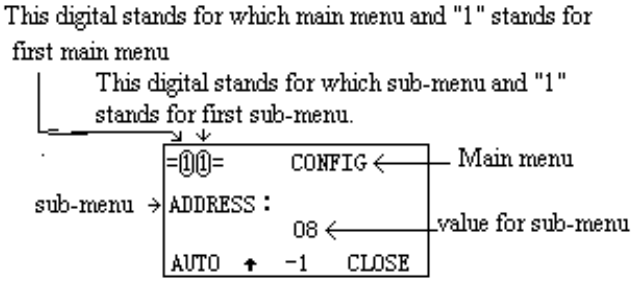
《 》The number in this symbol stands for the number of sub menu.

CONFIG Menu [10]

Under first main menu—CONFIG:

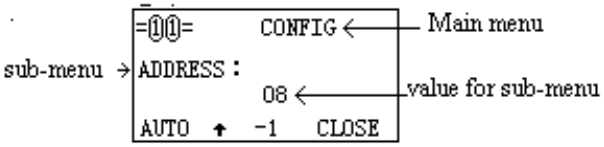


Press enter key to enter first sub-menu (Address) of CONFIG menu.

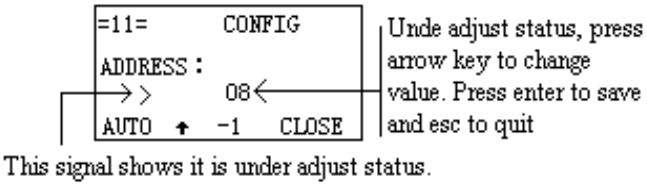


Description for sub menu:

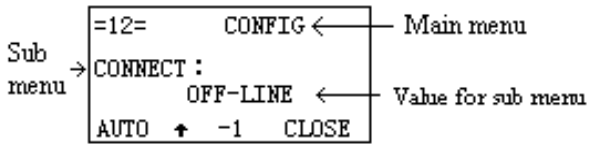
《11》 ADDRESS: range from 0 to 15, setting address of the system in the case of group-controlling or remote monitoring. While two lifts parallel connecting, set one to 1 and the other to 2. It'd better to shut off the power again after setting address.



Press enter key to adjust the value for address and it will display ">" on the left of the parameter.

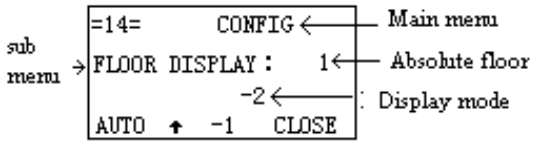


《12》 CONNECT: choosing the OFF-LINE mode, for spare use. (adjust the parameters same as above)

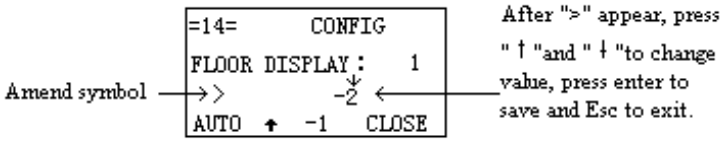


《13》 SPEED: input the lift's rating speed. If V<1.5m/s, the system outputs a high-speed signal; if V>=1.6m/s, the system outputs running curve depending on signal-floor or multi-floor and it runs fast by two speeds. If V>2.0m/s, it runs fast with three speed (signal-floor or multi-floor running curve output with simulative value) and it can over-floor through decelerating point.

《14》 FLOOR DISPLAY: set up the floor display manner. Press ENTER to enter the submenu.



The numerical value of the absolute floor is displayed on the top right corner, such as "1, 2, 3……64". The number in the middle is which needed to show. If the absolute floor is the first floor, and "-2" floor will be displayed. To adjust the display mode, press ENTER, then amendment mouse ">" is highlighted. Press ARROW key to adjust the value and press ENTER to save; ESC to exit.



Letter-display is also provided; if some letters are not with the system, please contact with us.

《17》 LEARNING: Set self-learning function. It will turn to automatic run status after lift return to lower position station and enter into door zone (i.e. position station lower forced switch off and door zone connected). It will begin to self learn after closing door under ON mode. The self learning will finish and lift stop automatically while lift run to upper position station when reaching door zone.
Note: The self learning is successful while the floor value increased sequential. The floor value can be 3 maximum if connecting direction wrong for phase A-B or without pulse input.

《18》 MAUNAL DOOR: Under manual status, it need to press pushbutton to close door for long if set to ON. If set to OFF, the lift will stop by hall call signal.

《19》 MANUAL DIRECTION: While landing call under manual status, it cannot stop lift while set to "ON". If set to "OFF", the lift can be stopped under landing call conditions by manual status.

《1A》 CONVERTER SELECT: Select frequency inverter.

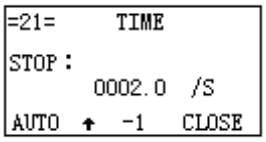
《1B》 DIFERFLOOR: Difference between the floor absolute value of two lifts while two lifts parallel connection. While the floor of two lifts is same, this value is "0"; and while one lift has base floor and the other doesn't, the value will be "1". MicoM3 micro controller is defined that address of lift without base floor (《11》 address menu) is "2" and the other is "1".

《1C》 Software version.

《1D》 Pulse number for encoder. If the pulse divided, it need to enter the pulse number after frequency divided.

TIME Menu ([20]Time)

《21》 STOP: Set the delay time for main contactor off when all speed signals deleted. If using YASKAWA inverter, it is set for brake off.

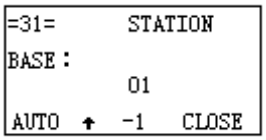


Press enter key to enter in amend status and press arrow key to change the value. Then press enter key to save and ESC to quit.

《22》 START: set the time to open increasing curve. It is used for YASKAWA / FUJI inverter.
《23》 BRAKE: set the time to open the brake. It is used for YASKAWA / FUJI inverter.
《24》 DOOR OPEN: set the time to open door in advance.
《25》 DOOR CLOSE: set the time to close door, showing in seconds.
《26》 OPEN PROTECT: set the time of door-open protect. When door-open limit switch cannot be shut off, this setting can stop opening to avoid the danger of electrifying the door too long.
《27》 CLOSE PROTECT: set the time of door-close protect. When door-close limit switch or door lock error happens, this setting can stop closing and re-open the door.
《28》 RINGING: set the alarm ringing times when receiving hall call signal. This setting is used in the MANUAL mode.
《29》 GONG: set the lasting time of arrival ring.
《2A》 SPEED STOP: Set the delay time to cut off all speed signals while entering into door zone. It will cut off all speed signals when the pulse value reach to set value after decelerating to door zone. In case of pulse calculate invalidate, this time is set to protect so it will later than the time normally cut off. But make sure this time doesn't too long otherwise it cannot stop to nearest station while self secure.
《2B》 FLOOR PROTECT: Floor protect time. The micro controller must get decelerate point signal of each floor in this time; otherwise the micro controller will display E4 error and the lift will decelerate and stop at the nearest.
《2C》 TIME1: While adjusting the inspection speed, delay the time for brake direction after the brake off. When the value is of "0", it won't delay.
《2D》 TIME2: This is for setting time for protecting steel wire rope slip while the car standstill. If the leveling inductor without change within this limited time, it will display E11 of running over time error. If this error occurs, it must shut off the power or open the inspection switch to reset.
《2E》 TIME3: Spare.
《2F》 RUN TIME: The running times of the lift. It just calculates the running times while the lift run fast.

STATION Menu ([30] Station)

《31》 BASE: set the base station and locked-floor station of the parallel connected lift. Setting value of the base station accords to the absolute floor value.



Press enter key to enter in amend status and press arrow key to change the value. Then press enter key to save and ESC to quit.

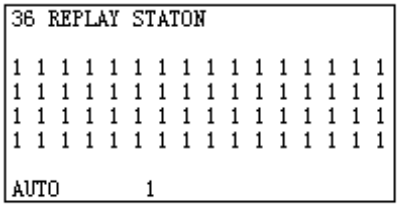
《32》 FIRE HOUSE: set the returning floor value when the lift under the condition of fire-protect. This value must be set according to the absolute floor value.

《33》 HIGHEST: set the highest floor of the lift, according to the result of the system automatic test. For dual-speed lift, it just needs to input the highest floor.

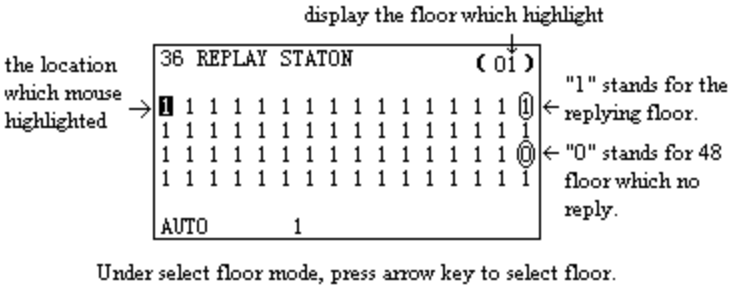
《34》 WAIT(1): set the waiting floor value when the lift under the condition of group-control or parallel-connected.

《35》 WAIT(2): set the waiting floor when the lift under the condition of group-control or parallel-connected.

《36》 REPLY STATION: set the replying floor value.

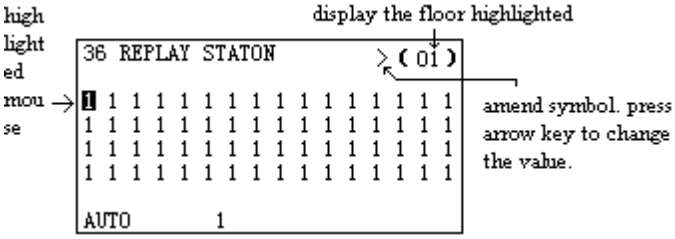


It is displayed with binary digits, "1" representing replying and "0" for no reply. From left to right is the floor value of "1, 2……, 64".



Under select floor mode, press arrow key to select floor.

After pressing ENTER, one of the floor value is highlighted with the mouse in the right top of the screen to amendment. Press arrow key to change the location of mouse and press enter key to amend the replay status of corresponding floor (the amend symbol will show on the left). Press ↑key to set "0" then press↓key to set "1".

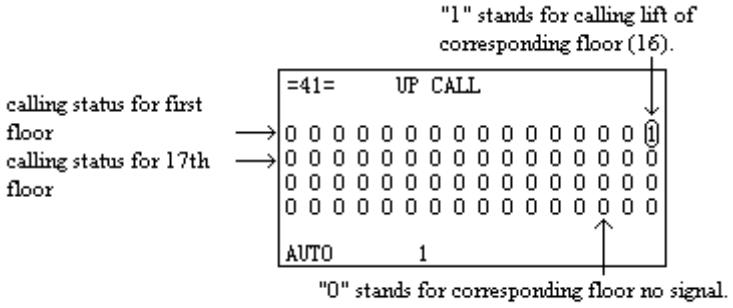


With this function, the reply station can be set without wiring.

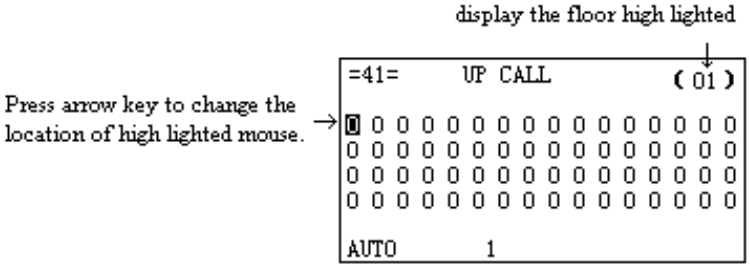
CALL Menu ([40] Call)

This menu can observe or login calling lift signals of every floor and monitor and amend the hall call signals.

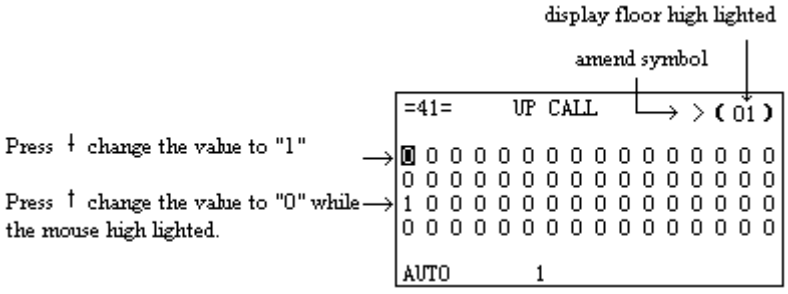
《41》 UP CALL: It can observe or login the calling lift signals below 64 floors and show with the binary digits. “1” representing calling-lift signal and “0” for no signal.



Press enter key, the floor value will appear reverse video on the right top on LCD screen.



Press ENTER again, then appears amendment symbol “>”. Press ARROW key to amend the value located on highlighted mouse.



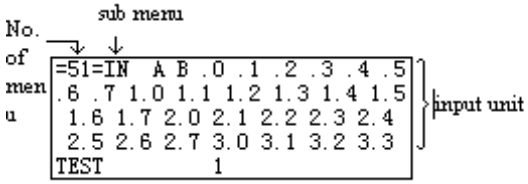
After registering calling lift signals, the calling-lift signal will be deleted when the lift arrives the destination.

《42》 DOWN CALL: used as UP CALL.
《43》 CAR CALL: used as UP CALL.

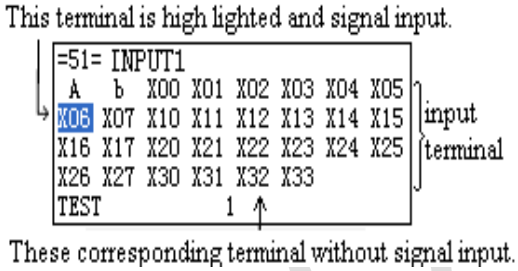
IO Menu ([50] IO)

This menu is just for monitor and cannot be amended.

《51》 INPUT: display the status of system's parallel input units.

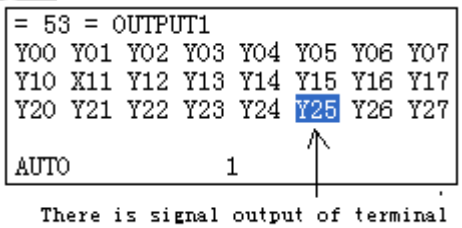


If there is signal input, the name of terminal will be reverse reverse video; if no, there is no signal input.



The code accords to the code of input signal. For example, "A-B" stands pulse input A-B, "0" for 0.0 terminal, "1" representing 0.1 terminal, "1.1" for 1.1 terminal and so on.

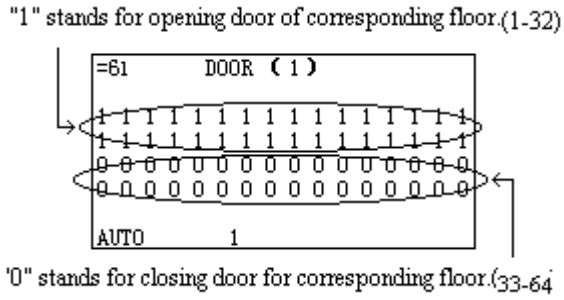
- 《52》 OUTPUT: display the status of system's parallel output units, the code accords to the code of output signal.
- 《53》 OUTPUT 1: Display the status of system's parallel output units, used as INPUT.



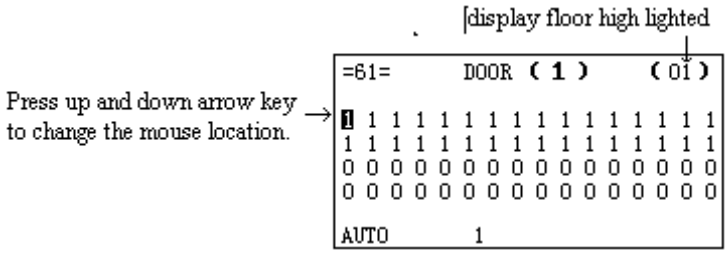
The code accords to the code of output signal. For example, "Y00" stands for Y00 terminal, "Y01" representing Y01 terminal, "Y11" for Y11 terminal and so on.

DOOR Menu ([60] Door)

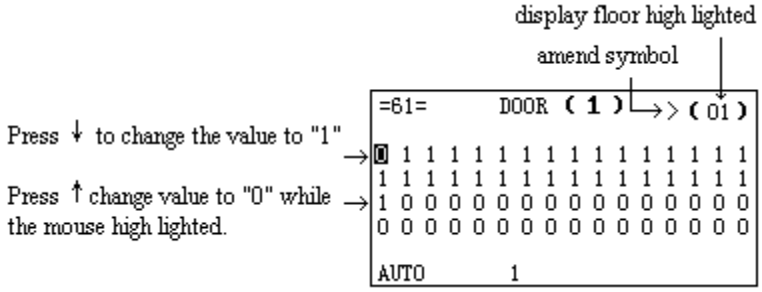
《61》 DOOR 1: set the floor value of opening the lift door of door machine 1# represented by binary digits, with "1" representing open and "0" for close.



Press ENTER, then the highlighted floor value is displayed in the right top of the screen for amendment.



Press enter key again, the amend symbol will appear and press ↑and ↓to change the location of high lighter mouse.

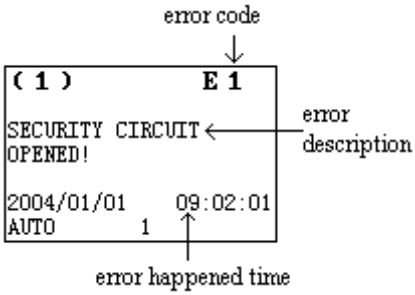


《62》 DOOR 2: set floor value for opening door of door machine 2#. Used as DOOR 1.
Note: If setting one floor no reply (set in station menu), door 1 and door2 must be set to close door.

ERROR HISTORY Menu ([70] Error History)

When error occurs, the code and cause of the error are displayed in the bottom of screen.

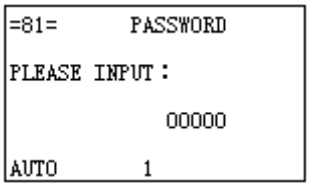
M3 system records maximum 50 history errors. Through this menu, user can check which floor occurs error, the running speed of that time and the running times of lift.



Checking error history, press enter key to enter dele mode and you can dele all error histories after two times dele confirmation.

PASSWORD Menu ([80] Password)

The password is represented by five digits.

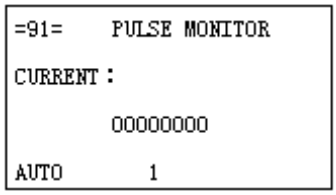


All the operations are validated by the correct password. The default password is 00000. After inputting the password, if the power is reset or no any key be pressed within 15 minutes, the password must be re-enter to activate the operations. If enter correct password again, it will enter to the status to amend password. The new password will be saved after confirm the amendment.

Note: If the password is lost, all the amendment operations can not be used. The system must be decrypted by us.

PULSE MONITOR Menu ([90] Pulse monitor)

《91》 CURRENT: display the current position of the lift-car with pulse number. This parameter is just can be checked and not to be amended.



Remark: Under this menu, you can enter into running curve interface by pressing "enter" key.

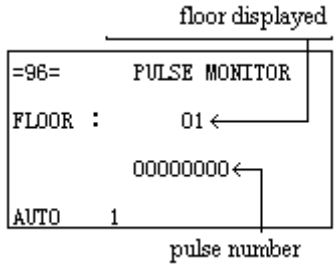
《92》 RUN IN: length of door zone. 1/4 length of magnetism proof board. Amend this value to change the length of door zone corresponding pulse number.

《93》 DEL. 1 DISTANCE: First deceleration distance 1, change the value to adjust the length of deceleration distance.

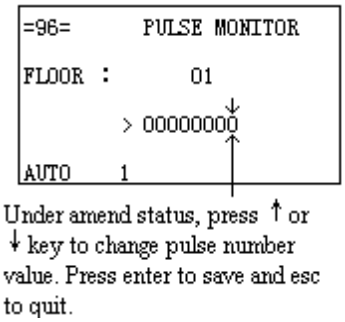
《94》 DEL. 2 DISTANCE: Second deceleration distance 2, change the value to adjust the length of deceleration distance.

《95》 DEL. 3 DISTANCE: Third deceleration distance 3, change the value to adjust the length of deceleration distance.

《96》 FLOOR: display the pulse number of each floor. Press enter key to check the pulse number.



Press ↑or ↓key to check pulse number of 1-64 floors. Press enter key to change the pulse number.



《97》 V2 DEL PERMIT (XDL): Set the distance from start to accelerate to medium speed while selecting the single multi-floor run curve according to the distance. This value is multiple of length of magnetism proof board. Select the single multi-floors run curve depends on floor and this menu is spare.

《98》 V3 DEL PERMIT (XDL): Set the distance from start to accelerate to high speed while selecting the single multi-floor run curve according to the distance. This value is multiple of length of magnetism proof board. Select the single multi-floors run curve depends on floor and this menu is spare.

《99》 RUN V2 DEL PERMIT (XDL): Set the distance for running medium speed while selecting the single multi-floor run curve according to the distance. This value is multiple of length of

magnetism proof board. Select the single multi-floors run curve depends on floor and this menu is spare.

《9A》 RUN V3 DEL PERMIT (XDL): Set the distance for running high speed while selecting the single multi-floor run curve according to the distance. This value is multiple of length of magnetism proof board. Select the single multi-floors run curve depends on floor and this menu is spare.

《9B》 DOOR LENGTH: length of door zone.

With this monitor function, the data of lift self-learning can be examined. Also the precision of leveling can be adjusted. For example, when the lift runs up or down to the second floor, the lift-car is lower than the leveling point. This problem can be solved by increasing the pulse number of the second floor until the lift levels precisely.

INPUT SELECT MENU ([A0] Input select)

《A1》 TOUCH: Select NO or NC for safe touch board signal. (ON for NO, OFF for NC.)

《A2》 BRAKE: Select NO or NC for brake feedback signal. (ON for NO, OFF for NC.)

《A3》 FIRE: Select NO or NC for first signal. (ON for NO, OFF for NC.)

《A4》 CONTACT: Select NO or NC for contactor feedback signal. (ON for NO, OFF for NC.)

《A5》 OVERLOAD: Select NO or NC for over load signal. (ON for NO, OFF for NC.)

《A6》 GOING BACK: Auto back to base floor: 00: Not come back to base floor; xx: Time of come back to base floor (Minutes)

《A7》 DISTURB PRO: Anti-disturbance, forbid to press few buttons at the one time, this function cannot be shielded when light load.

《A8》 DISTURB NUM: Times of Anti-disturbance, 1-8 press few buttons at one time.

《A9》 FIRE MODE.

《AA》 SAFEEDGE

《AB》 CONTROL MODE

《AC》 RE-LEVELING

《AD》 PRE-OPEN

《AE》 PMCARD

《AF》 OPEN-METHOD

《AG》 REPAIR OPEN

《AH》 GROUP

《AI》 MONITOR

《AJ》 ARRIVE LAMP

《AK》 ERROR OPEN TIMES

《AL》 TIME4

《AM》 FORCE CLOSE

《AN》 TEST TIME

《AO》 CLOSE LAMP

《AP》 RUN MODE

Remark: The edit for selecting for NC or NO function of input points is effected only when the lifts under inspect mode.

TIME MENU 2 ([B0] Leveling)

- ✧ 《B6》 CLOSE LAMP: Set the time for close light and calculated by minutes.
- ✧ 《B7》 CLOSE DOOR DELAY: Set the delay time for close door and calculated by minutes.

Self-learning of the lift-hoist way data

Make sure all the lift-hoist way switches are in order, such as limit switch, forced decelerating switch, and leveling switch.
Adjust ascending and descending forced deceleration distance.
While inspection, it runs to the lower station. I.e. the lower forced switch of terminal station is off and the leveling switch connecting.

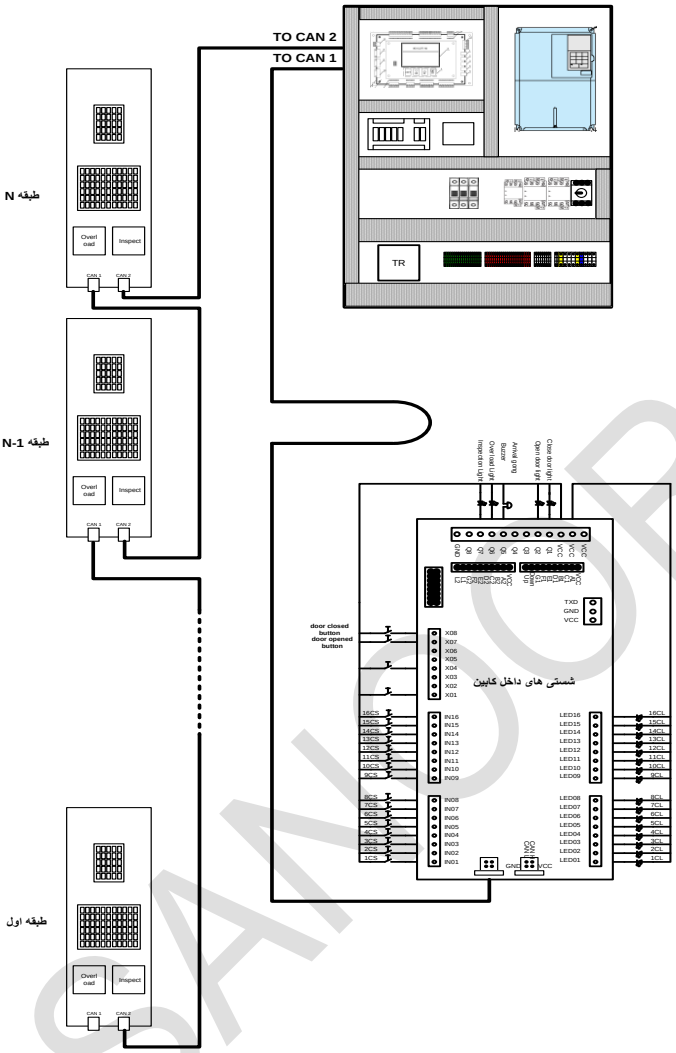
Lift is automatic running after return back to station.
Enter into the sub menu learning of config menu to select ON mode after automatically close door. The lift starts running in the inspect speed automatically. It automatically stops when arrives the top floor level. After following the above five steps to finish self-learning of the lift-hoist way data, the lift can run in high speed.

Note: to optimize the use of the lift, self-learn the lift-hoist way data after re-adjusting the forced deceleration distance or re-adjusting the position signal of door zone.

Some notices during self learning:

1. To be sure self learning successful, the leveling sensor and forced switch must be correct.
2. Make sure the input of pulse encoder must be correct and adopting two phase counting. The connection for pulse input and phase must be accurate in order that pulse will be increased while running up and decreased while running down. Otherwise, please change the A-B phase of input. (Note: the A-B phase of encoder input cannot be changed.)
3. Self learning is successful if the floor display changes and stops until increasing to the highest floor. Otherwise, you should check whether the leveling inductor, forced switch and input and phase of encoder pulse is correct.

Wiring diagram:



Controller Parameter:

10 - CONFIG			
No.	**Name**	**Content**	**Default**
11	ADDRESS	Set the lift address to be even number when there are differ floors or basement under duplex and group control.	
12	CONNECT	OFF-LINE: Normal mode ON-LINE: Automatic Running mode	
13	SPEED	<1.5m/s Single Speed >1.6m/s Dual Speed >2.0m/s Three-Speed	
14	FLOOR DIS	0~64, A~Z, -1~-9, 1A, 2A, 1B, 2B, 1S, 2S, A1, A2, A3, B1, B2, B3,E1, E2, F1, G1, G2, UB, DB, PB, LG, L1, L2, M1, M2, P1, P2, P3, S1, S2, S3, SS,RC, 5A, 8A, 3A, RG, PH, JP, NJ, GH, MP, GF, π, TZ, NF, SB, 3B, P4, P5, B4, B5, UG	
15	DATE	Date setting: YY/MM/DD	
16	TIME	Time setting: HH/MM/SS	
17	LEARNING	ON: Set when doing the self-learning OFF: Auto changed after self-learning	
18	MANUALL DOOR	ON: Press to make door close OFF: Click to make door close	
1A	CONVERT	Select inverter brand: FUJI YASKAWA SESI	
1B	DIFFER FL	0: No differ floors 1: have one differ floor at Ground 2: have two differ floors at ground	
1C	SOFTWARE	Non-setting Item	
1D	PULSEE PR	Running curve display resolution	
20 - TIME			
21	STOP	Direction STOP	3.00S
22	START	Time of opening the increase curve	0.50S
23	BRAKE	Time of Brake open	0.5S
24	DOOR OPEN	Time of door open	2S
25	DOOR CLOSE	Time of door close	5S
26	OPEN PROTECT	Time of door open protection	8S
27	CLOSE PROTECT	Time of door close protection	8S
28	RINGING	Frequency of Buzzer	8S
29	GONG	Arriving gong output period	1S
2A	SPEED STOP	Leveling delay time	0.9S
2B	FLOOR PROTECTION	Single floor time protection	13S
2C	TIME 1	Time of buzzer sound when the safety edge was blocking out	10S
2D	TIME 2	Running Time Protection	60S
2E	TIME 3	Time for keeping the direction after speed signal stop	00S
2F	RUN TIMES	Running time. Only for check	
30 - STATION			
31	BASE	Duplex lift's basic floor or locked floor	1
32	FIRE HOUSE	Firemen floor	1
33	HIGHEST	Showing the highest floor by self-learning	8
34	WAIT 1	Witting floor of duplex lift	3

35	WAIT 2	Default=0 +1: Adjust current floor when leveling switch connected, short floor force change in switch OFF state. According to encoder accounting when the lift in terminal state. +2: when semi door, manual hall door. +4: when tolerance too big, not adjust floor leveling pulse, elevator will adjust floor by floor; +8: For Manual door. +16: When in error state and floor display don't show error code. +32: No Cancel calls.	
36	REPLAY STATION	Set the respond floor	
40 - CALL			
41	UP CALL		
42	DOWN CALL		
43	CAR CALL		
50 – I / O			
51	INPUT	MAIN CONTACTOR INPUT STATE	
52	OUTPUT	MAIN CONTACTOR OUTPUT STATE	
53	X01 – X06	CAR CALL MODULE STATE	
54	A00 – A13	PM709 INPUT SIGNAL STATE	
55	B00 – b06	PM709 OUTPUT SIGNAL STATE	
60 - DOOR			
61	DOOR 1		
62	DOOR 2		
70 - HISTORY			
71	ERROR HISTORY	**Ex:** ERROR CODE **F:** ERROR FLOOR **S:** SPEED WHEN ERROR HAPPENED T: M-D-H-MIN Example: 09 07 02 10	
80 - PASSWORD			
81	PASSWORD	Default Value: 00000	
90 – PULS MONITOR			
91	CURRENT	Current pulses, by self-learning, non-set item.	
92	RUN_IN	1/4 Door Area, by self-learning, normally no need to set.	
93	DEL.1 DIS	V1 deceleration distances, by self-learning, normally no need to set.	
94	DEL.2 DIS	V2 deceleration distances, by self-learning, normally no need to set.	
95	DEL.3 DIS	V3 deceleration distances, by self-learning, normally no need to set.	
96	FLOOR	Floor pulses, by self-learning, normally no need to set.	
97	DEL.V2 PER	V2 Allowed deceleration distance, by self-learning, set accordingly.	
98	DEL.V3 PER	V3 Allowed deceleration distance, by self-learning, set accordingly.	
99	RUN V2 DIS	Start V2 Distance, by self-learning, set accordingly	
9A	RUN V3 DIS	Start V3 Distance, by self-learning, set accordingly.	
9B	DOOR LENGTH	Non-set Item, share use	
A0– INPUT SELECT			

A01	TOUCH	Safety Edge . "ON=Normal Open" or "OFF=Normal Closed"	ON
A02	BRAKE	Brake feedback , "ON=Normal Open" or "OFF=Normal Closed"	OFF
A03	FIRE	Firemen, "ON=Normal Open" or "OFF=Normal Closed"	ON
A04	CONTACT	Contactor feedback . "ON=Normal Open" or "OFF=Normal Closed"	ON
A05	OVERLOAD	Overload. "ON=Normal Open" or "OFF=Normal Closed"	ON
A06	GOJNG BACK	Auto back to base floor: 00: Not come back to base floor; xx: Time of come back to base floor (Minutes)	00
A07	DISTRUB PR	Anti-disturbance, forbid to press few buttons at the one time, this function cannot be shielded when light load.	
A08	DISTURB NU	Times of Anti-disturbance, 1-8 press few buttons at one time	
A09	FIRE MODE	Bit0: 1: Show " F " when fire return. Bit1: 0: Running in fire mode after fire returned. 1: Stop running after fire return. Bit2: 0: Spare 1: Russia mode	0
AA	SAFEEDGE		
AB	CONTROL MODE	Bit0: 0: No assist door locks checking function. 1: Russia mode, door lock and exit checking "E17" need power off to reset. Bit1: 0: for spare. 1: can cancel the first digit exit checking function E17 auto reset. Bit2: must set to be 0 Bit3: Spare Bit4: 0: after come back to base floor, lift cannot use again. 1: after come back to base floor lift can use again. Bit5: 0: Spare 1: monitor point is no select FUJI when match with CT-ES inverter.	
AC	RE-LEVELING	OFF ON	
AD	PRE - OPEN	OFF ON	
AE	PMCART	OFF ON	
AF	OPEN METHOD	+0: Single Door machine and Single COP. +1: Dual COP, dual door machines, door open and close at the same +2: Dual COP, dual door machine, separated control. +4: Door open limit is NO. +8: Door at opening position, keep opening output, till door close command. +16: No inspection for door close limit switch when starting. +32: Open Parking.	
AG	REPAIR OPEN	0: Door open by press DO button in inspection mode. 1: Door open in door area in inspection mode. 2: Door cannot open in inspection mode.	
AH	GROUP	OFF ON	
AI	MONITOR	OFF ON	
AJ	ARRIVER	OFF	

	LAMP	ON	
AK	ERROR OPEN TIMES	When door limit switch not close times more then the setting value, the door will stop closing. If press the DC button, continue open again.	
AL	TIME 4	Delay door close time	
AM	FORCE CLOSE	OFF ON	
AN	TEST TIME	SPARE	
AO	CLOSE LAMP	Automatic light	
AP	RUN MODE	Default=0 +1: Motor heat inspection. +2: Direct to stop. +4: Keep door closing output during elevator running; +8: Check mechanical braking feedback point if release when stop, In default situation, only check brake if open; +16: Check pulse tolerance, elevator no need to come back basic floor to re-adjust when Error 14 +32: Clear hall calls and hall call LED timing, not available in Group control mode.	

B0– leveling setting			
B06	Up Direction		
B07	Dn Direction		

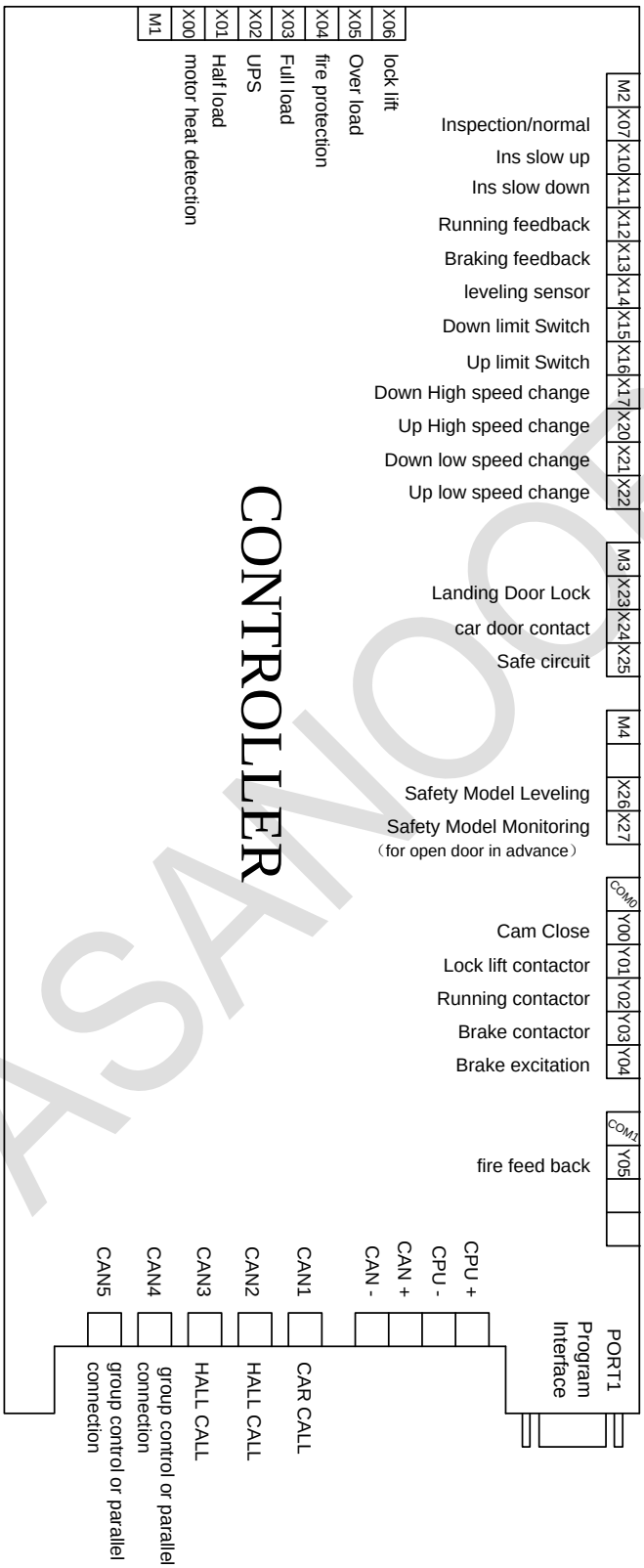
D0– Direct to Stop					
D01	Motor RPM	96			RPM
D02	Encoder pulse	2048			
D03	Rated speed	2000			mm/s
D04	Actual speed	1812			mm/s
D05	Deceleration	600			mm/s^2
D06	Decel jerk	100		200-900	mm/s^2
D07	Acceleration	600		80-120	mm/s^2
D08	Accel jerk	100		200-900	mm/s^2
D09	Creep speed	100		80-120	mm/s
D10	Ins speed	300			mm/s
D11	Leveling speed	200			mm/s
D12	Re-level speed	50			mm/s
D13	Learn speed	300			mm/s
D14	1: Direct stop 0: creep stop	1			
D15	Creep distance	0			
D16	Brake close time	25			0.02 s
D17	Zero speed	1			
D18	Start time	25			
D19	Flag length	240			
D20	Flag pulse	325			
D21	Protect speed for high switch			1800	
D22	Protect speed for low switch			1500	
D23	Show the actual speed in high switch				
D24	Show the actual speed in low switch				

Error Controller

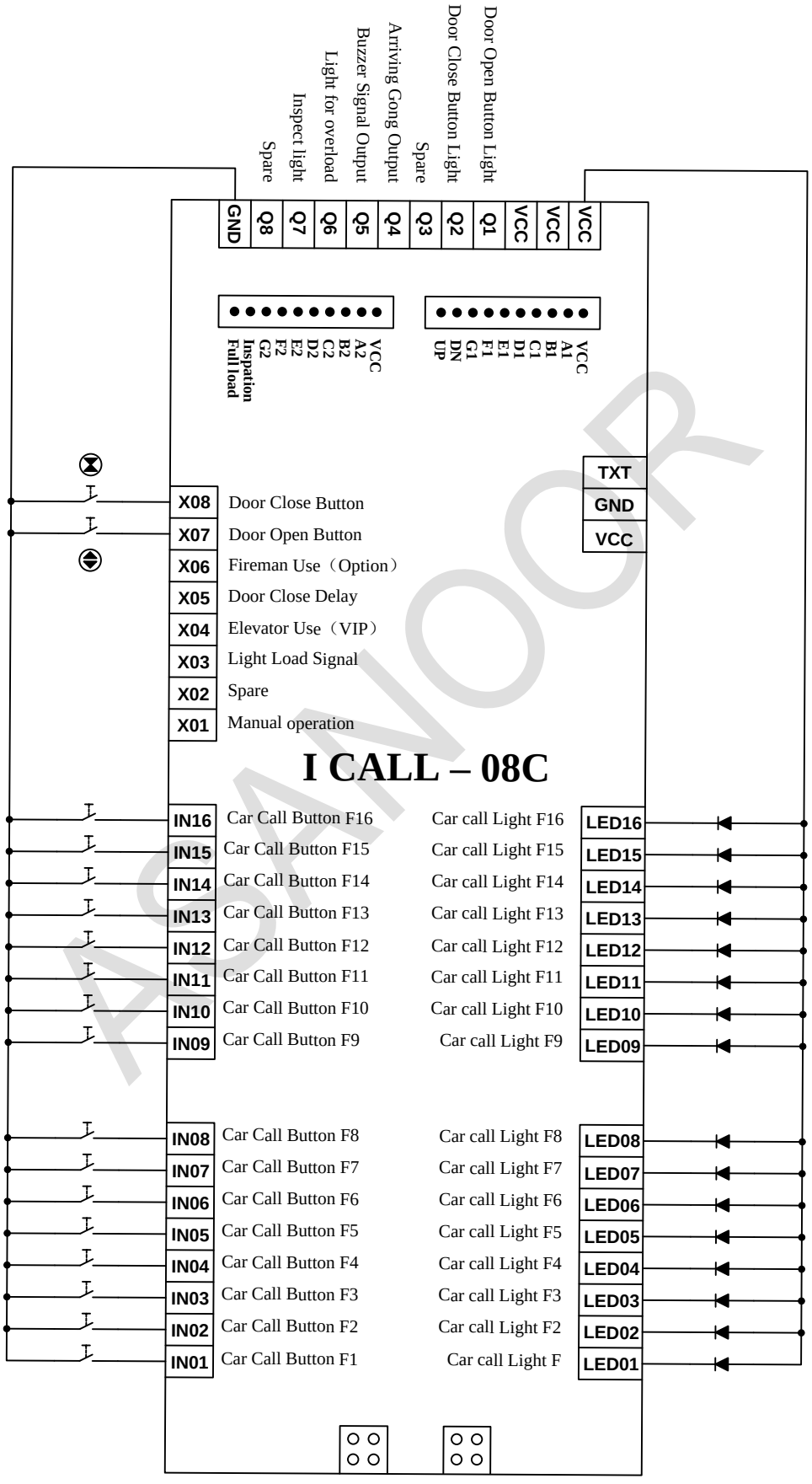
ERROR	Content	Reason
E1	Security circuit opened	• Check the fuses, Check speed governor • Up/Down Limit Switched, Rope broken • Buffer, Switch of safety gear • Check exit, Hand jigger, Pit, Car Top • Machine room, Motor emergency stop
E2	Door Lock Opened Or Error	• Car/Landing door lock OFF, when door closed. Door closed overtime. • Car/Landing door lock OFF, when lift running • Controller monitors Lift Emergency Stop function faulty
E3	Cannot Find the Leveling Point	• Door area switch damaged • Flag not enough depth
E4	Cannot find the deceleration point	• Changing switched faulty • Changing magnet position wrong • Pulses mistake of Inverter divide-frequency card, or have disturb • Time/Floor protect parameter wrong
E5	Up Limited Switch Opened	• Lift crashed Up limit switch
E6	Down Limited Switch Opened	• Lift crashed Down limit switch
E7	Deceleration Switch Error	• Force change switch faulty, speed-changing switch in wrong position
E8	Contact Not Release	• Controller Menu item<A4> NO/NC wrong set • Main contactor or brake contactor and assistant point no release
E9	Taco Direction Error	• Encoder A, B direction wrong • Plugs damaged, missed one • Divide-frequency card faulty
E10	Brake Error	• Brake checking switch damaged. • Check the wiring if OK • Parameter wrong (No this function, but parameter set)
E11	The lift runs over time. The lift runs over the "TIME 2" menu limit, or the signal of leveling sensor does not change	• Time/floor protect or “Time 2” floor protection with short time • Time/speed stop, time set too long • Door zone not found or door zone signal lost • Leveling flag insert into door zone not deep enough • Leveling switch action not in place • Speed-down point with abnormal action
E12	Inverter Error	• Frequency has failure warning; please refer to the frequency error specifications. • Frequency is damaged or with wrong parameter
E13	Door Contact not Release	• Door machine power is absent or manual connection in wrong way • Open/close door control relay in error, check PM709 door machine control signal.
E14	With counting error, the error of the floor where lift is with counting pulse is over shortstop speed-changing distance	• Counting error, be disturbed. Lift not stop at leveling position, sometimes E2, E4, and E9 also may Reasons this warning. • Door area sensors have disturbed Car skidding • When E14 happened, it may also have E20, • E15, E22, caused by wrong calculation, Must solve the calculation problem ahead.
E15	Pulse counting floor is inconsistent with sensor counting	• Door zone switch error or wrong installation • Door zone switch in wrong connection • Pulses signal in abnormal condition, please check the appearance of E9 and E14.
E16	When occur E22 error, the signal for station is wrong and the lift is at limit position. This request the deceleration switch of station must be off when limit position signal is off.	• The deceleration switch of station is damaged or wrong installation

E17	No Function	
E18	It cannot detect the running signal after output direction signal be given 4 seconds	• Parameters setting wrong • Wire connection or terminal fix loose • The main contactor if off during the lift running
E19	No Function	
E20	The floor record is different from the deceleration switch and the switch is off when the lift is not at the station.	• Deceleration switch damaged • Deceleration switch install wrongly • Wrong operation of door zone switch • Counting bias
E21	When test the connection of feed back point of mechanical brake, it will occur this error if the feedback point of mechanical brake is be connected.	
E22	The floor record is different from the deceleration switch and the switch is on when the lift is at the station	• Deceleration switch damaged • Counting bias
E23	The error occurs by pushbutton block and blocked over 30 seconds	• Landing call pushbutton is blocked
E24	The micro controller will record error if the close door limit position switch is not off after the door lock has been connected over 3 seconds. When landing call and car call occur E24 error at the same time and open door reversed; if without 2# door operator, the input point of close door limit position for 2# door operator must be in place.	• Door limit switches damaged • The close door limit switch is not in place • The door operator parameter setting is wrong
E25	When it has the function of open door in advance, it will show E25 while it cannot detect the input point of safe door zone	• Wire connection loose or wrong; safe module damaged
E26	No Function	
E27	No safety touch input when pre-Opening	• Wiring start or wrong connected • Door area signal faulty • Safety module faulty
E28	No Low speed input when pre-opening	• Check inverter parameter setting or components damaged
E29	No Function	•
E30	The Safety Exit opened in Russia mode, lift cannot run, need inspection reset after safe exit closed	• Safety Exit damaged or wiring mistake • Forget to reset
E31	Leveling sensor no release, running signal sent out for 3s, but leveling sensor no action.	• Leveling flag not insert enough depth • Leveling sensor damaged • Wring wrong, have short circuit connection
E32	Motor overheating, door keeps opened	• Motor over heating • Check switch and wiring

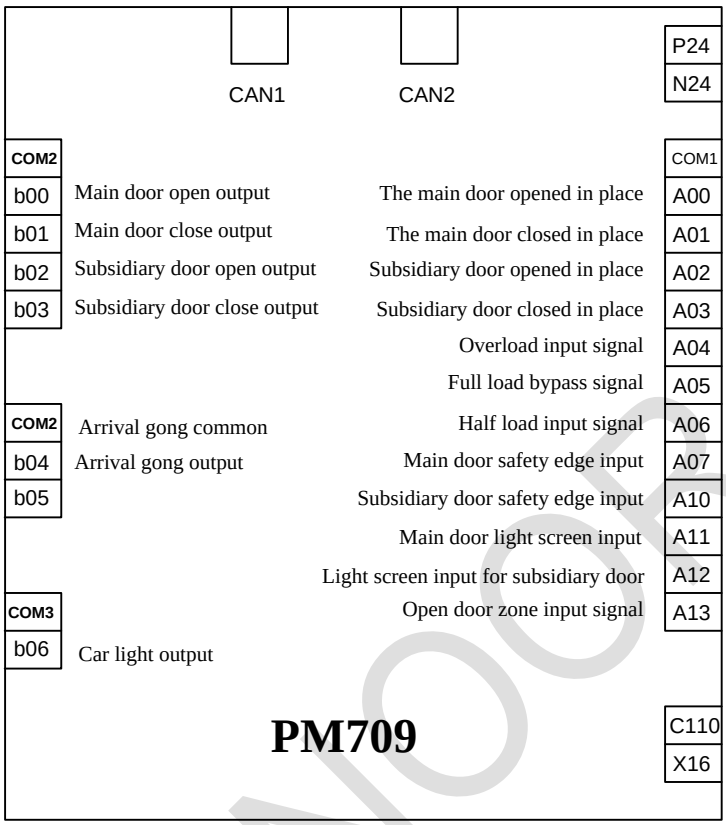
I / O CONTROLLER



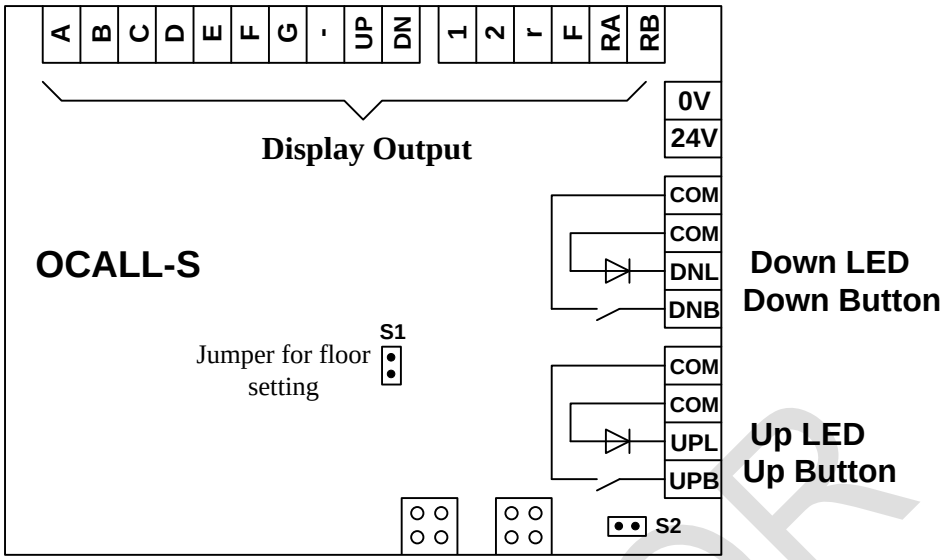
I-CALL


Spare
Inspect light
Light for overload
Buzzer Signal Output
Arriving Gong Output
Spare
Door Close Button Light
Door Open Button Light
GND Q8 Q7 Q6 Q5 Q4 Q3 Q2 Q1 VCC VCC VCC
Full load Inspation G2 F2 E2 D2 C2 B2 A2 VCC
UP DN G1 F1 E1 D1 C1 B1 A1 VCC
TXT
GND
VCC
X08 Door Close Button
X07 Door Open Button
X06 Fireman Use（Option）
X05 Door Close Delay
X04 Elevator Use（VIP）
X03 Light Load Signal
X02 Spare
X01 Manual operation
I CALL – 08C
IN16 Car Call Button F16
IN15 Car Call Button F15
IN14 Car Call Button F14
IN13 Car Call Button F13
IN12 Car Call Button F12
IN11 Car Call Button F11
IN10 Car Call Button F10
IN09 Car Call Button F9
Car call Light F16 LED16
Car call Light F15 LED15
Car call Light F14 LED14
Car call Light F13 LED13
Car call Light F12 LED12
Car call Light F11 LED11
Car call Light F10 LED10
Car call Light F9 LED09
IN08 Car Call Button F8
IN07 Car Call Button F7
IN06 Car Call Button F6
IN05 Car Call Button F5
IN04 Car Call Button F4
IN03 Car Call Button F3
IN02 Car Call Button F2
IN01 Car Call Button F1
Car call Light F8 LED08
Car call Light F7 LED07
Car call Light F6 LED06
Car call Light F5 LED05
Car call Light F4 LED04
Car call Light F3 LED03
Car call Light F2 LED02
Car call Light F LED01

Inspection Board



OCALL-S



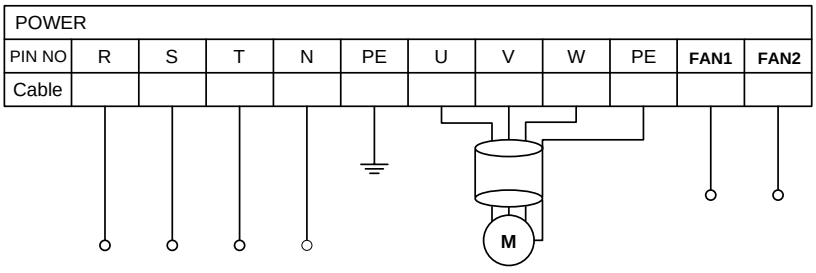
Floor settings:

1. When the floor display occurs after electrifying the board, short-circuit the jumper wire of floor setting, then press up and down pushbutton to set the floor address.
(Note: no arrow display means door A; with arrow display means door B).
2. After the setting finishes, pull out the jumper wire of floor setting without cut off the power supply.

Note: when the floor address is 0, only overload is displayed and full load will not display; when floor address is >0, only full load is displayed and overload will not display.

Wiring Control Box:

Main Terminals:

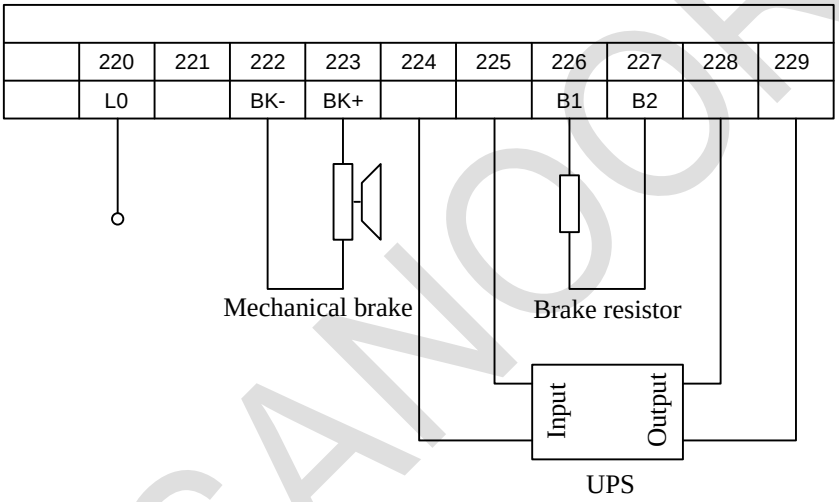


4 wire 3 phase power 380VAC

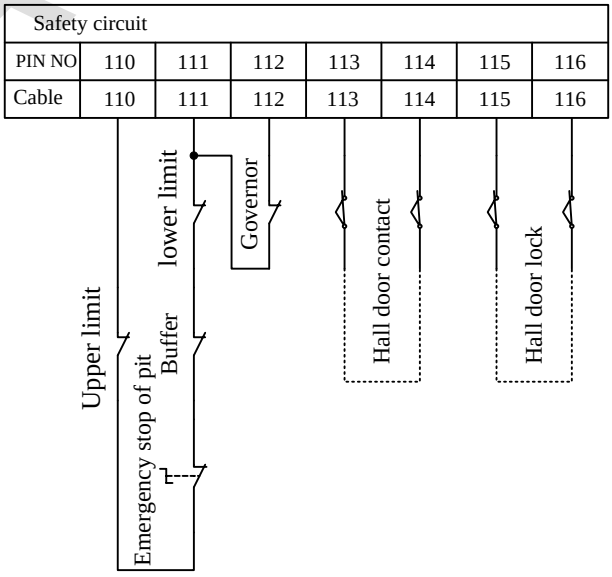
AC motor of 3 phase

Motor Fan (220 VAC)

220 V Terminals:

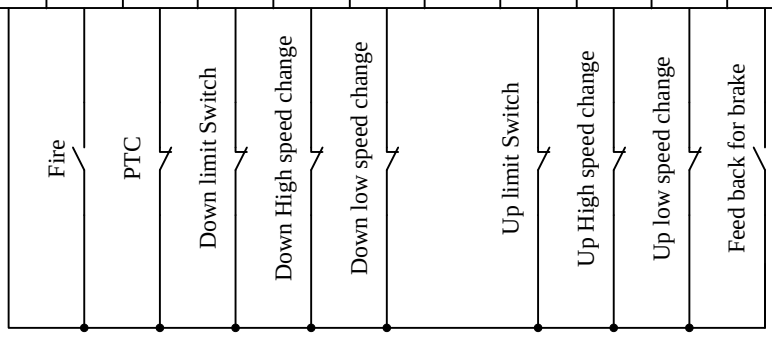


Safety Circuit Terminals:

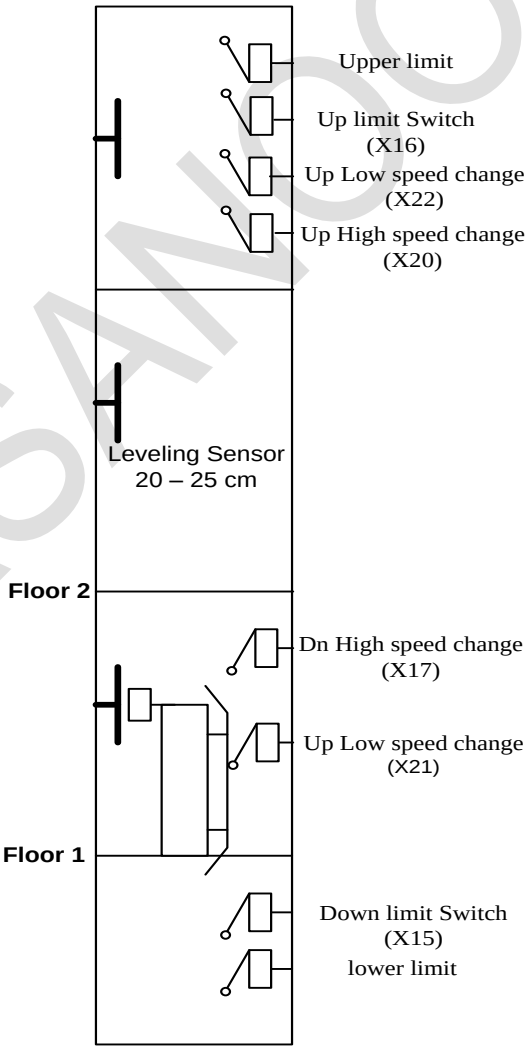


Inputs Hoist:

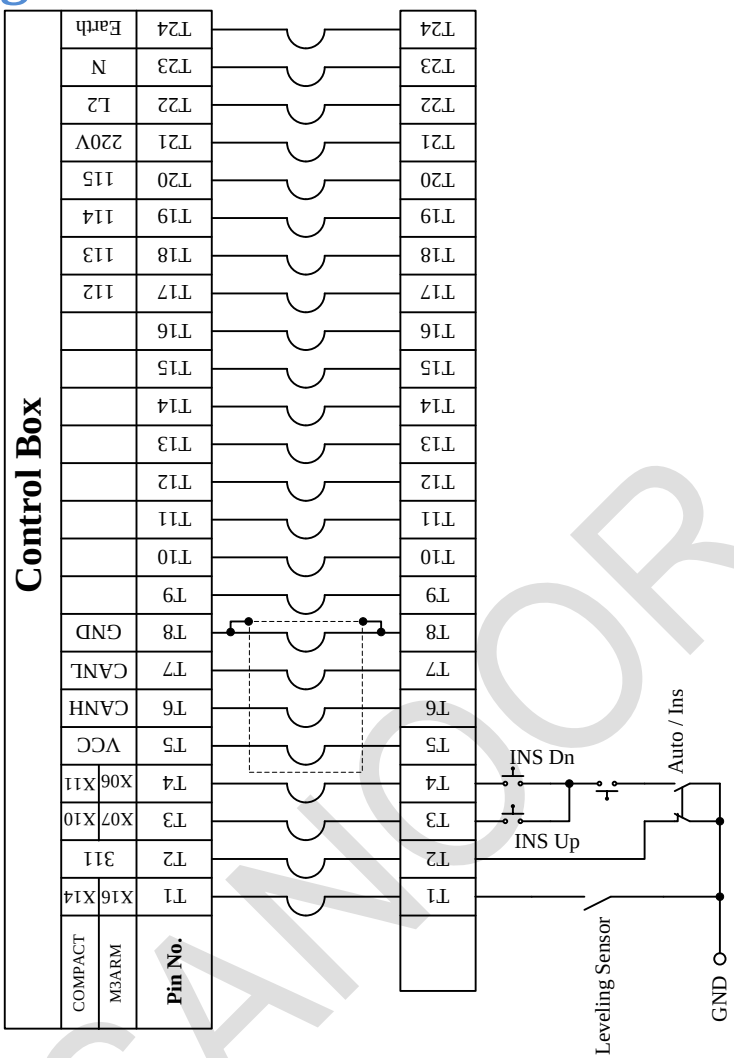
					Lower hoist				Upper hoist			
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12
Cable	+24	GND	X04	X00	X15	X17	X21	GND	X16	X20	X22	X13

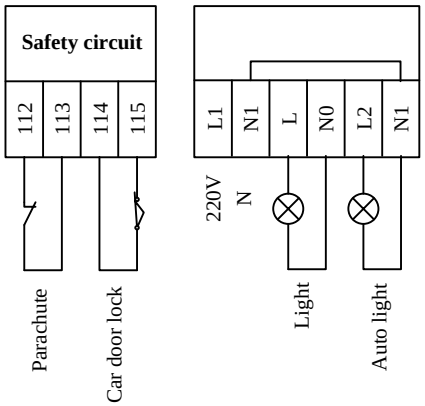


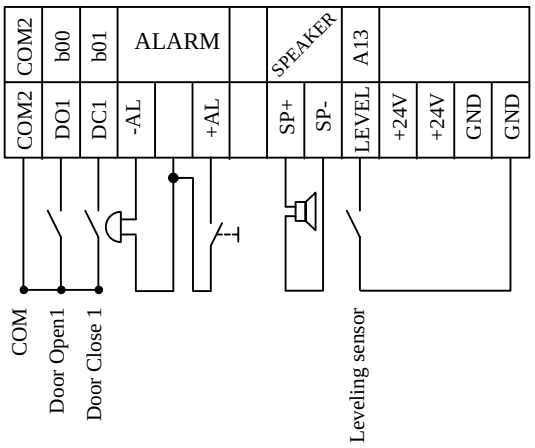
Hoist Wiring:

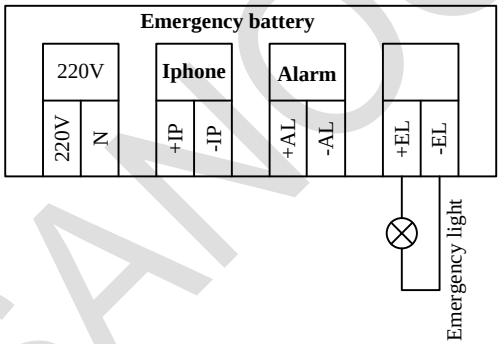


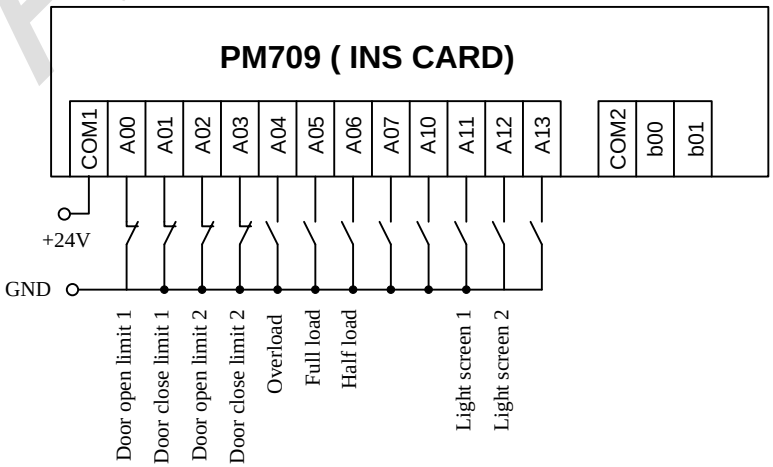
Ins Wiring






COM2
b00
b01
ALARM
SPEAKER
A13
COM2
DO1
DC1
-AL
+AL
SP+
SP-
LEVEL
+24V
+24V
GND
GND
COM
Door Open1
Door Close 1
Leveling sensor


Emergency battery
220V
Iphone
Alarm
220V
N
+IP
-IP
+AL
-AL
+EL
-EL
Emergency light


PM709 (INS CARD)
COM1
A00
A01
A02
A03
A04
A05
A06
A07
A10
A11
A12
A13
COM2
b00
b01
+24V
GND
Door open limit 1
Door close limit 1
Door open limit 2
Door close limit 2
Overload
Full load
Half load
Light screen 1
Light screen 2

ASANOR

LIFT CONTROLLER

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