

# **HEV AC Drive**

## **Integrated Solution for Elevator**

→ **System Configuration**

CAN-B3  
Cabinet Communication Unit



CAN-B3-E Expansion

1

**CANbus**



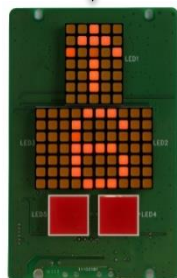
**HEV  
Integrated Inverter**

EHP Commissioning  
Keypad

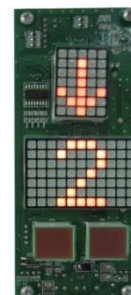


**CANbus**

CAN-CDB Digital Display  
Inside Cabinet



CAN-C2 Outside  
Communication



ECANC-LE1 Outside  
Communication



→ **Features**

**Distinguished Core Control Technology**

- Advanced elevator logical algorithm and variable frequency driving technology
- Better time series, ride safety and reliability

**Perfect Ride Comfort**

- Sophisticated vector multispeed control leads to the optimum smooth curve
- Leading technology of start compensation without weighing (ARB)
- Genuine direct docking technology, higher operating efficiency

**High Reliability & Stability**

- Industry CPU 32bit, high antijamming, high accuracy
- Passed all factory standard test, trustworthy
- Key parts from world-class suppliers

**Professional Electric Solution**

- Sophisticated electric control technology
- Perfect electric selection & solution
- Reasonable system designing & power supply solution

**Fully Services**

- Sophisticated elevator technology experience
- Professional service team, quick troubleshooting
- Advanced production and strict quality control assure 100% qualified

**→ Inverter Specifications**

Model No.	Rated Power (kW)	Input Current (A)	Output Current (A)	Motors (kW)
HEV-7R5G3	7.5	18	17	7.5
HEV-011G3	11	28	27	11
HEV-015G3	15	37	34	15
HEV-018G3	18.5	39	37	18.5
HEV-022G3	22	46.5	45	22
HEV-037G3	37	77	75	37
HEV-F-055G3	55	90	113	55

**HEV Inverter****Covering most elevators' sizes****3****Note: 55kW features regeneration type**

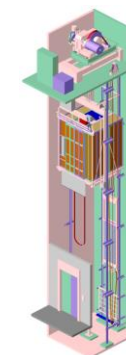
### → Model Selection of Inverters

150							
120							
105							
90							
60							
Speed (m/min) Load (kg)	630	825	900	1050	1150	1350	1600

	HEV-037G3
	HEV-022G3
	HEV-018G3
	HEV-015G3
	HEV-011G3
	HEV-7R5G3
Color	Inverter Model

#### Remark :

■The above model selection is merely as reference,users can select inverters as per their actual operation experience.





**→ Braking Resistors**

Inverter Model	Resistor	Power	Connection	Min Resistance
HEV-7R5G3	11Ω, 2pcs	1.5kW×2	In series	20Ω
HEV-011G3	12Ω, 3pcs	1.5kW×3	In series	35Ω
HEV-015G3	11Ω, 3pcs	1.5kW×3	In series	18Ω
HEV-018G3	16Ω, 4pcs	2kW×4	2 in parallel,2 in series	15Ω
HEV-022G3	16Ω, 4pcs	2kW×4	2 in parallel,2 in series	15Ω
HEV-037G3	16Ω, 6pcs	2kW×6	3 in parallel,2 in series	9Ω

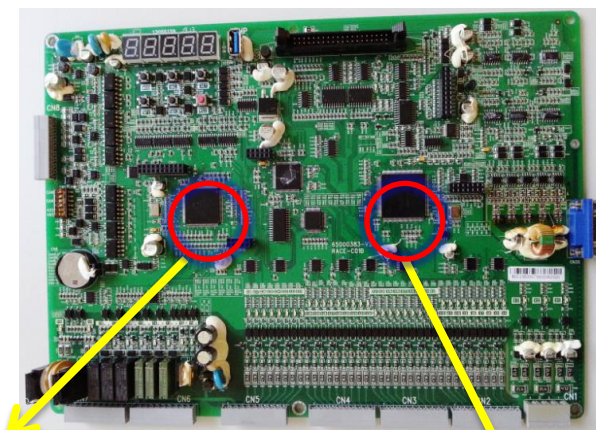
**Remark:**

- The above is only as reference,users may configure resistors as per their experience,but resistance and power value shall match the user manual.
- The above selection of models refers to corrugated resistors.



→ **Control Unit**

- ◆ Input : 38 inputs,  $6.5\text{mA} > I > 3\text{mA}$ ;  
X1~X3,  $\text{AC}110\text{V} \pm 10\%$ ;  
X4~X38,  $\text{DC}24\text{V} \pm 10\%$ ;
- ◆ Output : 10 Outputs, MOSFET: 4;  
Relay contact: 6;
- ◆ Car Com: Independent CAN interface;
- ◆ Outer Com: Independent CAN interface ;
- ◆ Parallel Group Control: RS422 interface, 8 sets group control (with group control unit)
- ◆ Max Speed: 4m/s;
- ◆ Terminal Type: Phoenix BCH-350, general connection plug;
- ◆ Encoder: Standard sine&cosine ; UVW difference ( with PGC interface) optional, 15 pin female;
- ◆ Keypad onboard: Parameter setting, commissioning and trouble inquiry and etc.



**USA Freescale CPU**

**HEV Control Unit**

**Japan Renesas CPU**

**Remark: The definition of input and output refers to the user manual.**

→ **Elevator Cabinet Communication**

- ◆ Rated Voltage: DC24V;
- ◆ Communication: CAN;
- ◆ Double door function;
- ◆ Max for 48 landing, expansion units(8landing/pc) need to be added for more than 24 landing;
- ◆ Built in operation box installation, less cables;
- ◆ Effective level: 0 volt low level, constant open contact[except overload switch];
- ◆ Automatic stop bell、voice announcement;
- ◆ Serial or point to point communication for overload switch, safety trigger board and light signal



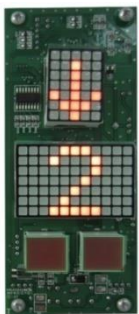


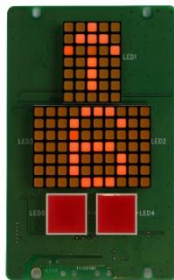


***CAN-B3 COM***



***CAN-B3-E  
Expansion***



### → Communication and Digital Display Outside Elevator Cabinet

Parts Photos						
Models	CAN-C2	BX-CAN-C2	ECANC-LE	CAN-CDB2	CAN-LCD	CANC-HDB
Type	Communication unit outside elevator cabinet (LOP)			Display in elevator cabinet (COP)	LCD Display	Horizontal type digital display
COM	CAN			CAN	CAN	CAN
Display module	Dot matrix			Dot matrix	5" LCD	Dot matrix
Display Color	Red,orange			Red,orange	White letters on blue	Red



Remark: AMP MLC Plugs used for CAN-C2 and CANC-HDB

→ **Commissioning**



★ **Low Speed Operation**

**Parameter Setting**

- ◇ Set parameters of motor and encoder, other parameters as defaulted values



**Determination of Magnetic Pole Angle**

- ◇ Static auto tuning, use EHP keypad. (must be done during the engine room inspection status )



**Low Speed Running**

- ◇ Observe running status, ensure correct running direction without flystart (the elevator shall be stayed at intermediate landing)

★ **High Speed Operation**

**Floor Height Auto Tuning**

- ◇ Set the quantity and length of magnet vanes, and series of deceleration switch;
- ◇ Slow running stops the elevator to stop at the bottom floor;
- ◇ Enter the mode of floor height measurement



**Leveling Adjustment**

- ◇ Apply inspection running mode to stop the elevator at the intermediate landing, recover to the normal running mode, use EHP to ensure the elevator to run normally;
- ◇ Use F5.13 and F5.12, optimize leveling

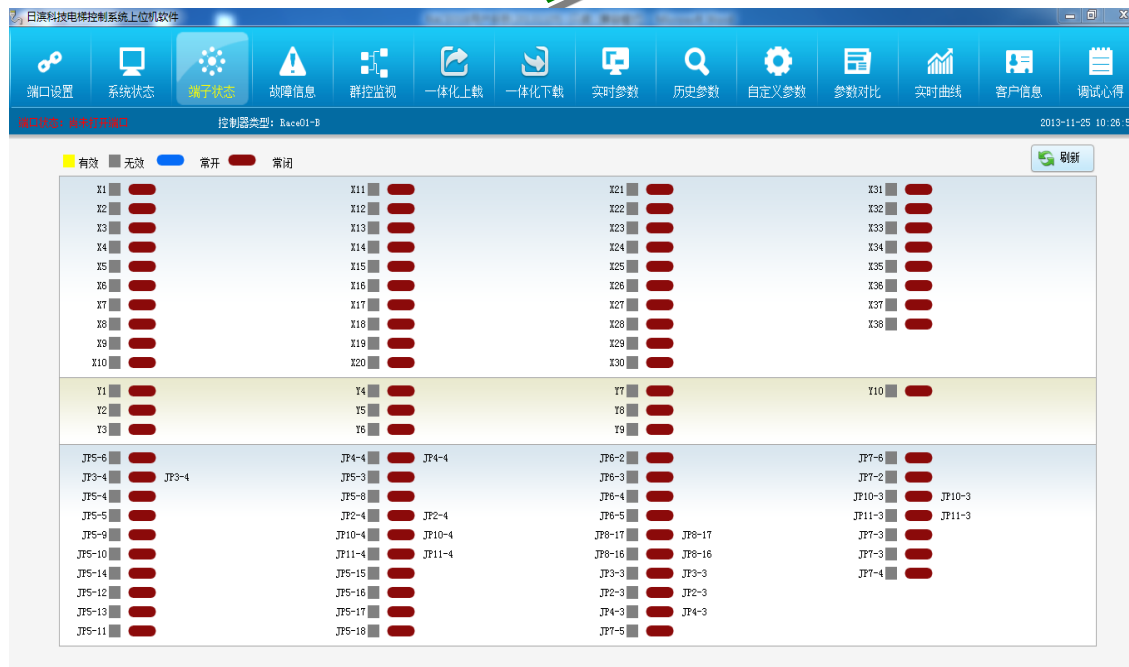


**Ride Comfort Adjustment**

- ◇ Apply F7.10, adjust the start effectiveness of the elevator;
- ◇ In case some obvious abnormal voice occurs from motors, reduce the value of F7.08 and F7.09

### → Production Inspection

#### Host PC Commissioning Software

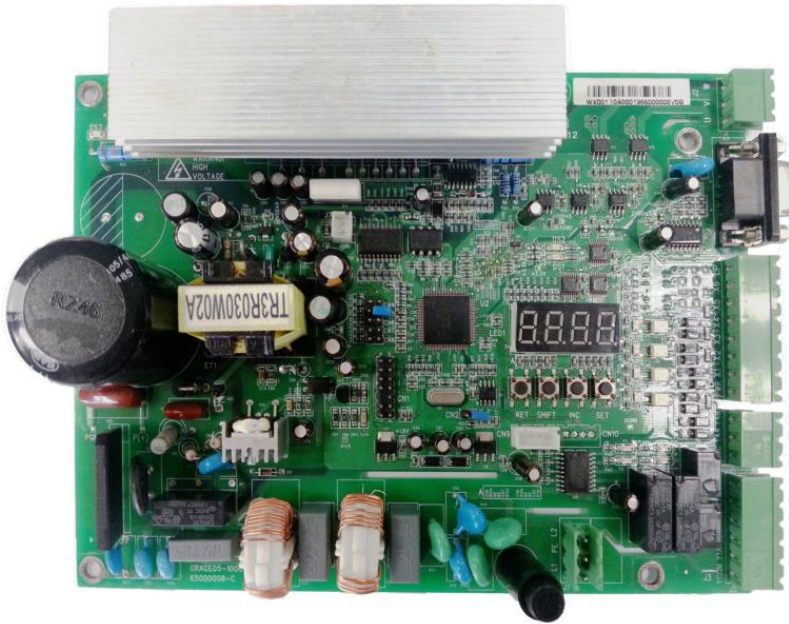


#### Function Inspection of Control Panel



★Parameter setting, up/download, function setting

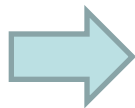
→ **Elevator Door Control System**



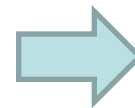
*Elevator Door Control Unit*

★ **Quick Commissioning**

Setting magnet  
pole angle



Measure door  
width



Back to  
electricity

OK

- ◆ Model: GRACE05-1200
- ◆ Input Voltage: Single phase AC220V  $\pm 5\%$   
(50/60Hz)
- ◆ Output voltage: Three phases 0~220V
- ◆ Output Frequency: 0~20Hz
- ◆ Rated Current: 1.5A
- ◆ Motor Type: Asynch/Synchronous (Max 250W)
- ◆ Control Mode: Vector Control
- ◆ Input Signal: Opto-coupler isolation
- ◆ Output Signal: Opto-isolation+relay

### Smart IC System



### Wireless Remote Monitoring System



### Smart Building System



### Five Parties Calling System



### Multimedia LCD



### Residential Quarter Elevator Monitoring





→ **R&D and Production Devices**



**Automatic PCB Production Line**



**PCB Inspection Line**



**Test Devices**