Integrated Elevator Drive
IED-G Series
Delta Electronics, an expert in drive control technology, introduces you to a new elevator drive integrating comprehensive elevator control functions: the IED-G series.

The Delta Elevator Drive - IED-G Series is a compact drive that inherits Delta’s core drive control technology and includes a vector control function to provide precise control of both synchronous and asynchronous tractors for a safe and smooth ride. The complete and intelligent elevator control functions are built-in to substantially reduce the required installation and tuning time and sequence. The drive also supports various encoder feedback cards and provides versatile elevator accessory options for users. In addition to precise elevator control, the IED-G series provides a power regeneration function when installed with Delta’s energy feedback devices: the Active Front End - AFE2000 Series and the Power Regenerative Unit - REG2000 Series. The IED-G drive is your most reliable and energy saving elevator solution that offers durability and a long product lifespan.

- Synchronize control for two IED-G series without additional group control cards
- Group control up to 8 IED-G series with a group control card
- Self diagnosis functions
- Control up to 64 floors

- Compact design; suitable for a small installation space or limited to no control room space
- Reserved screw holes for user to design their own ideal top cover
- 7 step display and LED indicators for drive status

- Supports induction and permanent magnet motors
- Emergency Power Supply (EPS) function
- Supports varied encoder signal types

- Hoist-way auto-learning function can detect and record door position precisely
- Static auto-tuning function provides auto-learning of motor specification

- Power regeneration function - available when installed with Delta’s Active Front End (AFE2000 series) or Power Regenerative Unit (REG2000 series)
- Scheduled lighting and air circulation time function for the car
- Standby mode to save energy

- Direct stop
- Peak hour operation - improves peak hour operation efficiency
- Full-load bypass - responses to car calls and ignores hall calls when the car reaches its maximum capacity
Elevator Control Functions

- **Auto-learn holiday**
  - Auto-detects true floor height and individual floor height. Parameter setting instructions are displayed on the digital keypad LCD screen for the user to easily set up the control unit settings.

- **Inspection Mode**
  - Sends a doorlock signal instead of the door signal when the elevator is in inspection mode.

- **Fire Emergency Mode**
  - The IED-G series supports group control of up to 16 floors. Regular operation when the button malfunction occurs. The system automatically generates an emergency stop command to the system when the door opening command is said and the system detects a door open signal.

- **Fire Emergency Return**
  - The system automatically generates an emergency stop command to the system when the fire emergency mode is activated.

- **Inspection Service**
  - When the attendant mode is switched ON, the elevator only responds to call service via the designated control panel.

- **Door Open Delay**
  - Enables manual control of door opening and closing to test the door control efficiency.

- **Next Floor Landing**
  - Supports double opening of the front and rear doors.

- **Door Control**
  - Auto-leveling and parking mode.

- **Protection**
  - The system automatically generates an emergency stop command to the system when the fire emergency mode is activated.

- **Hall Call Service Control**
  - UDP/IP collective-selective control instructs the cars to respond to hall calls for upward/downward lifting.

- **Hall Call Service Protection**
  - Emergency stop command is sent to the elevator when the contactor feedback or hoistway doorlock error occurs. Once the hoistway doorlock is unlocked, the car moves to the landing area for testing when the door opens and the system returns to normal operation. The car door open signal is sent to the elevator when the contactor feedback or hoistway doorlock error occurs. Once the hoistway doorlock is unlocked, the car moves to the landing area for testing when the door opens and the system returns to normal operation.
Delta provides energy feedback devices to help elevators save energy. The Active Front End - AFE2000 Series and the Power Regenerative Unit - REG2000 Series provide power regeneration functions that collect regenerative energy and convert it into reusable electricity for other facility use. They reduce total energy consumption and lower the temperature in the control room.

**Features IED-G**

One Drive for All Control Needs IED-G

**Floor Display Board**
- • EA-FM02SVTG1: Vertical matrix display board Standard Type
- • EA-FM02SHTG1: Horizontal matrix display board Standard Type
- • EA-FMPLVTG1: LCD display type

**Integrated Cartop and Floor Button Board**
- • EA-CTPG1: Integrated cartop and floor button board
- • EA-CP16G1: Button expansion board

**External Digital Keypad**
- • KP1G-CC01
  - Controller setting
  - Drive setting
  - Parameter copy

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**Active Front End**
AFE2000 Series

**Power Regenerative Unit**
REG2000 Series

**Harmonic Suppression**

**Power Regeneration**

**Power Factor Improvement**
## Control Terminals

<table>
<thead>
<tr>
<th>Name</th>
<th>Quantity</th>
<th>Terminal Explanation</th>
</tr>
</thead>
</table>
| Multi-function digital input              | 21       | 1. User-defined functions  
2. Non-isolated photocoupler input  
3. Input impedance: 9k  
4. Input voltage: 0~24V             |
| High-voltage digital input port (TB7)    | 4        | 1. User-defined functions  
2. Resistive load  
3. Inductive load                |
| Multi-function relay output (TB6)        | 6        | 1. Function defined: safety,  
2. Isolated photocoupler input  
3. Input impedance: 20k  
4. Input voltage: 0~110Vac/0~110Vdc|
| Non-standard RS485 communication (TB4)   | 2        | 1. Communication for hall display accessory  
2. Communication for car accessory       |
| CANBUS communication (TB4)               | 1        | 1. Communication for CAN parallel group control                                     |
| USB port (J6)                            | 1        | 1. Communication for the optional handheld type digital keypad KPG-CC01            |
| Analog signal input (TB1)                | 1        | 1. Input voltage: +10V ~ -10V  
2. Input impedance: 20k  
3. Resolution 12 bit*             |

**Control circuit terminals**

- Control circuit terminals
- Shielding wire

**Wiring**

- Provides 3-phase power input
- Circuit breaker
- MCU contactor
- Brake contactor
- Strong shock contactor
- Contact point A for bifurcated contactor
- Contact point B for bifurcated contactor
- Fire feedback
- Contact point A for fire feedback

**Relay output terminals**

- Factory settings
- Chamber door lock high voltage detection
- Car door lock high voltage detection
- Safety high voltage detection

**Communication terminals**

- Outbound communication
- Car communication
- CAN communication

**Main circuit terminals**

- Control circuit terminals
- Shielding wire

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*1 Control board terminals for emergency power or standby power, suitable for Frame C and D models.*
Specifications

460V Series

<table>
<thead>
<tr>
<th>Model</th>
<th>IED_ _ _ G43A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Range (kW)</td>
<td>5.5 7.5 11 15 18.5 22 30</td>
</tr>
<tr>
<td>Power Range (HP)</td>
<td>7.5 10 15 20 25 30 40</td>
</tr>
<tr>
<td>Rated Output Capacity (kVA)</td>
<td>10.4 13.5 18.3 24 30.3 36 46.2</td>
</tr>
<tr>
<td>Rated Output Current (A)</td>
<td>13 17 23 30 38 45 58</td>
</tr>
<tr>
<td>Max. Output Voltage (V)</td>
<td>3 Phase 380~480V, 50/60Hz</td>
</tr>
<tr>
<td>Carrier Frequency (kHz)</td>
<td>2<del>15kHz (8kHz) 2</del>9kHz (6kHz)</td>
</tr>
<tr>
<td>Input Current (A)</td>
<td>14.9 19.4 26.3 34.3 43.4 51.4 66.3</td>
</tr>
<tr>
<td>Allowable Range of Voltage Variation (V)</td>
<td>342~528Vac</td>
</tr>
<tr>
<td>Allowable Range of Frequency Variation (Hz)</td>
<td>47~63Hz</td>
</tr>
<tr>
<td>Drive Weight (Kg)</td>
<td>8 10 10 10 10 13 13</td>
</tr>
<tr>
<td>Cooling Method</td>
<td>Fan Cooling</td>
</tr>
<tr>
<td>Brake Chopper</td>
<td>Frame C, D: Included</td>
</tr>
<tr>
<td>DC Reactor</td>
<td>Frame C, D: Optional</td>
</tr>
<tr>
<td>EMI Filter</td>
<td>Frame C, D: Optional</td>
</tr>
</tbody>
</table>

Model Explanation

Common Characteristics

Control System | V/F, VF + PG, SVC, FOC+PG (IM/PM) |
Start Torque | Starting torque: 150% at 0.5Hz and 0Hz under FOC + PG and FOC+PM control modes |
Speed Control Range | 1:100 Sensorless vector (up to 1:1000 when using PG card) |
Speed Control Resolution | ±0.5% Sensorless vector (up to ±0.02% when using PG card) |
Speed Response Ability | 5Hz (up to 40Hz for vector control) |
Max. Output Frequency (Hz) | 0.00 to 400.00Hz |
Output Frequency Accuracy | Digital command ±0.005% at -10°C ~ +40°C, analog command ±0.5% at 25 ±10°C |
Frequency Setting Resolution | Digital command ±0.01Hz, analog command: 1/4096(12-bit) of the max. output frequency |
Torque Limit | Max. is 200% torque current |
Torque Accuracy | ±5% |
Accel/Decel Time | 0.00 to 600.00 seconds |
V/f Curve | Adjustable V/f curve using 4 independent points and square curve |
Brake Torque | About 20% |
Fan Control | On/Off switch |
Motor Protection | Electronic thermal relay protection |
Over-current Protection | The current forces 250% of the over-current protection and 150% of the rated current |
Ground Leakage Current Protection | Higher than 50% of the drive’s rated current |
Overload Ability | Constant torque: 150% for 60 seconds, variable torque: 200% for 3 seconds |
Over-voltage Protection | Over-voltage level: Vdc > 800V |
Low-voltage Protection | low-voltage level: Vdc < 400V |
Over-voltage Protection for Input Power | Varistor (MOV) |
Over-temperature Protection | Built-in temperature sensor |
Protection Level | IP00 |
Operation Temperature | -10°C to 40°C |
Storage Temperature | -20°C to 60°C |
Ambient Humidity | Below 90% RH (non-condensing) |
Vibration | less than 20Hz, 0.6G at 20 to 50Hz |
Cooling Method | Fan cooling (RUN/STOP mode) |
Installation Altitude | Altitude 1,000 m or lower, keep from corrosive gasses, liquid and dust |
International Certification |
### Accessories

<table>
<thead>
<tr>
<th>Group Control Card</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EA-GC08G1</strong></td>
</tr>
<tr>
<td><strong>EA-CTPG1</strong></td>
</tr>
<tr>
<td><strong>EA-CP16G1</strong></td>
</tr>
<tr>
<td><strong>EA-FM02SVTG1</strong></td>
</tr>
<tr>
<td><strong>EA-FM02SHTG1</strong></td>
</tr>
</tbody>
</table>

**Group Control Card**
- EA-GC08G1
  - Dimensions: 132(W) x 114(H) x 25(D) mm
  - Features:
    - Group control of maximum 8 elevators
    - Distributed parking
    - Group sub-zoning
    - Peak hour operation mode
    - Energy saving operation mode

**Integrated Elevator Car Signal Board (32 floors)**
- EA-CTPG1
  - Dimensions: 150(W) x 102(H) x 26.5 (D) mm
  - Features:
    - Provides 32 input terminals for floor command
    - Pairs with EA-CP16G1 provides 48 floors control
    - Pairs with EA-CTPG1 provides to 64 floors

**Floor Button Expansion Board (16 Floors)**
- EA-CP16G1
  - Dimensions: 150(W) x 102(H) x 26 (D) mm
  - Features:
    - Must pair with EA-CTPG1
    - Provides 16 input terminal for floor command

**Floor Display Board (Standard Vertical Type)**
- EA-FM02SVTG1
  - Dimensions: 150(W) x 65(H) x 30 (D) mm
  - Features:
    - 7x11 matrix display, color red
    - Displays floor number and direction
    - Suitable for both car and hall display
    - Supports hall call and elevator lock functions

**Floor Display Board (Standard Horizontal Type)**
- EA-FM02SHTG1
  - Dimensions: 150(W) x 65(H) x 32 (D) mm
  - Features:
    - 7x11 matrix display, color red
    - Displays floor number and direction
    - Suitable for both car and hall display
    - Supports hall call and elevator lock functions

**LCD Floor Display Board**
- EA-FMPLVTG1
  - Board Size: 155(W) x 61(H) x 12(D) mm
  - Screen Size: 114(W) x 58(H) mm
  - Features:
    - Supports both horizontal and vertical display, white font on blue background
    - Customized wording and pattern (please contact Delta for more details)
    - Displays car full, stop and other elevator status
    - Suitable for both car and hall display
    - Supports hall call and elevator lock functions

**Digital Keypad (Handheld Type)**
- KPIG-CC01
  - Dimensions: 60(W) x 90(H) x 40(D) mm
  - Features:
    - Supports control function and drive parameter settings
    - View ERROR code
    - Supports parameter duplicate function
**IED-G Accessories**

- **EA-IC64G1**

  **IC Card Module**
  - **Dimensions**: 90(W) x 64.5(H) x 36(D) mm
  - **Features**:
    - Built-in antenna
    - Supports floor control max. 64 floors
    - Installed on car/hall control panels

- **EA-VBG1**

  **Voice Module**
  - **Dimensions**: 113(W) x 75(H) x 39(D) mm
  - **Features**:
    - Supports audio files in MP3 and WMA file format
    - Built-in audio volume control button
    - User-defined audio content and music

- **EA-TX04G1**

  **Text (SMS) Module**
  - **Dimensions**: 113(W) x 75(H) x 39(D) mm
  - **Features**:
    - Sends error codes via text messages to up to 4 cellular phones
    - Simultaneous control of 2 elevators
    - Supports GSM 900/1800 frequency bands

* Please contact Delta for launch information and product details

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**Dimensions**

- **Frame C**

<table>
<thead>
<tr>
<th>Frame</th>
<th>W</th>
<th>W1</th>
<th>H</th>
<th>H1</th>
<th>D</th>
<th>S1</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>inch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>235.0</td>
<td>204.0</td>
<td>350.0</td>
<td>337.0</td>
<td>141.5</td>
<td>6.5</td>
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<tr>
<td></td>
<td>9.25</td>
<td>8.03</td>
<td>13.78</td>
<td>13.27</td>
<td>5.57</td>
<td>0.26</td>
</tr>
</tbody>
</table>
### Dimensions

- **Frame D**

![Dimensions Diagram]

### Ordering Information

#### IED-G Series

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Voltage</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>IED055G43A</td>
<td>460V</td>
<td>5.5kW</td>
</tr>
<tr>
<td>IED075G43A</td>
<td>460V</td>
<td>7.5kW</td>
</tr>
<tr>
<td>IED110G43A</td>
<td>460V</td>
<td>11kW</td>
</tr>
<tr>
<td>IED150G43A</td>
<td>460V</td>
<td>15kW</td>
</tr>
<tr>
<td>IED185G43A</td>
<td>460V</td>
<td>18.5kW</td>
</tr>
<tr>
<td>IED220G43A</td>
<td>460V</td>
<td>22kW</td>
</tr>
<tr>
<td>IED300G43A</td>
<td>460V</td>
<td>30kW</td>
</tr>
</tbody>
</table>

#### Accessories

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA-FM02SVTG1</td>
<td>Floor display board: 2 digits/7-steps display/vertical type/standard model</td>
</tr>
<tr>
<td>EA-FM02SHTG1</td>
<td>Floor display board: 2 digits/7-steps display/horizontal type/standard model</td>
</tr>
<tr>
<td>EA-FMPLVVTG1</td>
<td>Floor display board: LCD display/standard model</td>
</tr>
<tr>
<td>EA-CMPMLVTG1</td>
<td>Floor display board for car: LCD display/standard model</td>
</tr>
<tr>
<td>EA-GC08G1</td>
<td>Group control board: supports group control up to 8 elevators</td>
</tr>
<tr>
<td>EA-CTPG1</td>
<td>Integrated car signal board and floor push button board of 32 floors; selective EA-PACPG1 for mounting</td>
</tr>
<tr>
<td>EA-CP16G1</td>
<td>Floor push button expansion board of 16 floors, pairing with EA-CTPG1/G2 is allowed; selective EA-PACPG2 for mounting</td>
</tr>
<tr>
<td>KPIG-CC01</td>
<td>Handheld type digital keypad: includes USB cable</td>
</tr>
<tr>
<td>EA-IC64G1</td>
<td>IC card module: supports control up to 64 floors¹</td>
</tr>
<tr>
<td>EA-VBG1</td>
<td>Voice module: supports audio file in MP3 format and SD slot¹</td>
</tr>
<tr>
<td>EA-TX04G1</td>
<td>Text (SMS) Module: Send error codes via text messages to up to 4 cellular phones and monitors up to 2 elevators¹</td>
</tr>
<tr>
<td>EME-D-R12AG1</td>
<td>1Relay output expansion card of 12 relays²</td>
</tr>
<tr>
<td>EA-LCG1</td>
<td>LCD display expansion board: suitable to pair with other LCD display device²</td>
</tr>
</tbody>
</table>

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1. Please contact Delta for more product information and launch date
2. Relay functions are defined by Delta, user-defined is not allowed.
Global Operations

Sales Channels of Delta Industrial Automation are Located Worldwide in 74 Countries

Factories 2 Branch Offices 67 R&D Centers 5 Distributors 603
Industrial Automation Headquarters
Delta Electronics, Inc.
Tao yuan Technology Center
No. 18, Xinglong Rd., Tai yu an City,
Tao yuan County 33068, Taiwan
TEL: 886-3-362-6301 / FAX: 886-3-371-6301

Asia
Delta Electronics (Jiangsu) Ltd.
Wujiang Plant 3
1688 Jiangxing East Road,
Wujiang Economic Development Zone
Wujiang City, Jiang Su Province, P.R.C. 215200
TEL: 86-512-6340-3008 / FAX: 86-769-6340-7290

Delta Green tech (China) Co., Ltd.
238 Min-Xia Road, Pudong District,
Shanghai, P.R.C. 201209
TEL: 86-21-58635678 / FAX: 86-21-58630003

Delta Electronics (Japan), Inc.
Tokyo Office
2-1-14 Minato-ku Shibadaimon,
Tokyo 105-0012, Japan
TEL: 81-3-5733-1111 / FAX: 81-3-5733-1211

Delta Electronics (Korea), Inc.
1511, Byucksan Digital Valley 6-cha, Gasan-dong,
Geumcheon-gu, Seoul, Korea, 153-704
TEL: 82-2-515-5303 / FAX: 82-2-515-5302

Delta Electronics Int‘l (S) Pte Ltd.
4 Kaki Bukit Ave 1, #05-05, Singapore 417939
TEL: 65-6747-5155 / FAX: 65-6744-9228

Delta Electronics (India) Pvt. Ltd.
Plot No 43 Sector 35, HSIIDC
Gurgaon, PIN 122001, Haryana, India
TEL: 91-124-4874900 / FAX: 91-124-4874945

Americas
Delta Products Corporation (USA)
Raleigh Office
P.O. Box 12173, 5101 Davis Drive,
Research Triangle Park, NC 27709, U.S.A.
TEL: 1-919-767-3800 / FAX: 1-919-767-8080

Delta Greentech (Brazil) S.A.
Sao Paulo Office
Rua Itapeva, 26 - 3° andar Edificio Itapeva One-Beia Vista
01332-000-São Paulo-SP-Brazil
TEL: 55 11 3568-3855 / FAX: 55 11 3568-3865

Europe
Deltronics (The Netherlands) B.V.
Eindhoven Office
De Witboogt 20, 5652 AG Eindhoven, The Netherlands
TEL: 31-40-2592850 / FAX: 31-40-2592851

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