Inovance

Inverter | Servo Drive | Integrated Controller | PLC | HMI | PMSM | Energy

2011

Hoisting Solutions

Innovation + Advance

NEVER STOP IMPROVING

Contact Information of Agency

Shenzhen Inovance Technology Co., Ltd.
Add.: Building E, Hongwei Industry Park, Liuxian Road,
Baocheng No. 70 Zone, Bao'an District, Shenzhen
Tel: (0755) 2979 9595
Fax: (0755) 2961 9897
Technical Support: (0755) 2961 9910
Service Hotline: 400-777-1260
http://www.inovance.cn

CE

TÜV Rheinland Group
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ABOUT INOVANCE

Shenzhen Inovance Technology Co., Ltd. is a public company (Stock code: 300124) which focuses on R&D, manufacture and sales of industrial automation control products, aiming to serve high-end equipment manufacturers.

Inovance products include low-voltage inverters, integrated and special drivers, servo systems, PLCs and HMIs, etc. With strong R&D capabilities, we have established a leading position among all domestic companies in the industry since our establishment in 2003. We are now providing not only general but also customized products and solutions for our customers.

As a national high-tech corporate, we possess a number of patents that have been authorized or applied for, including 55 invention patents, 19 utility model patents and 17 design patents. Besides, we have mastered various core platform technologies, covering high-performance vector frequency conversion, PLCs, servo motors and permanent-magnet synchronous motors. Currently, we have a group of professional R&D experts dedicating to research and development of core platform technologies and new products.

Service Network


Headquarter in Suzhou


Headquarter in Shenzhen

Shenzhen:
■Shenzhen Inovance Technology Co., Ltd.

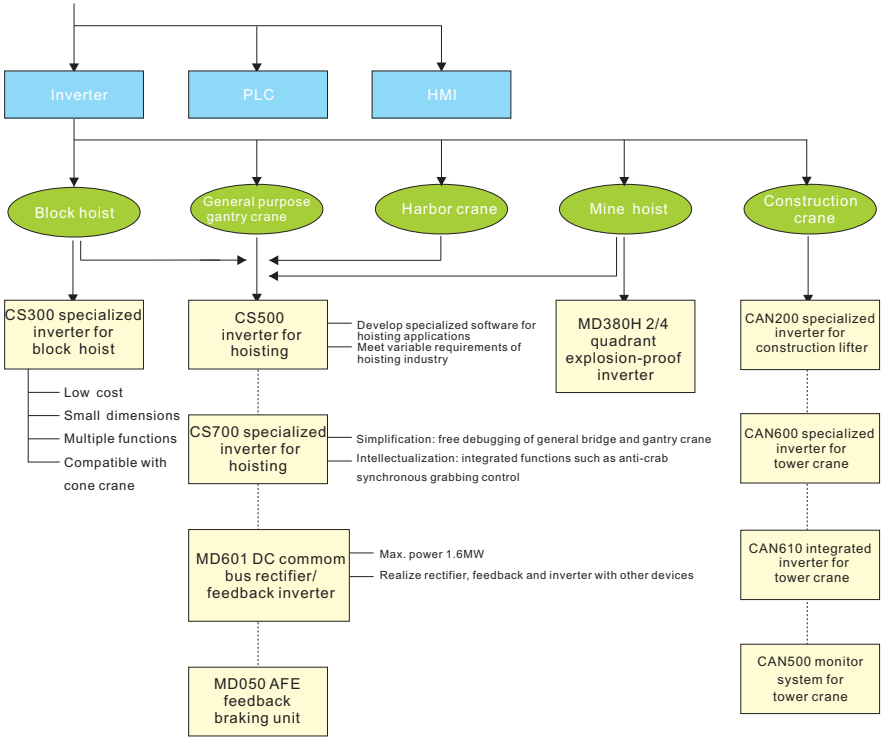
Suzhou:
■Suzhou Inovance Technology Co., Ltd.

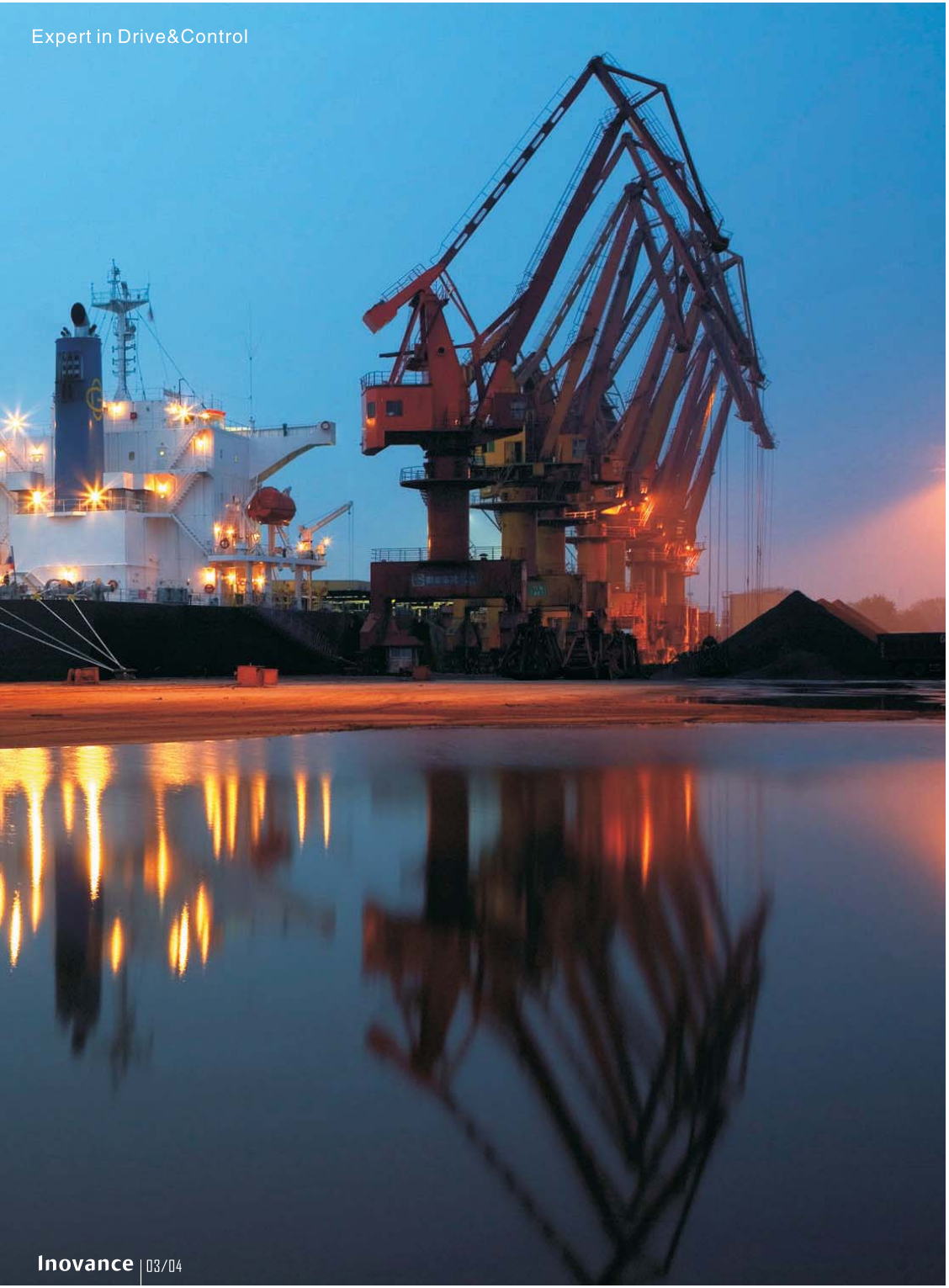
■ HQ & Branch Network

Headquarter in Shenzhen and Suzhou, with a number of subsidiaries in HK, Hangzhou, etc
41 offices throughout China
More than 400 sales and service engineers
200 authenticated distributors
50 nationwide warranty center
8 stock centers
Quickly responding to customer needs

Product Introduction

Inovance Hoisting Product Overview





Crane Division of Inovance

Vision

- Provide state-of-the-art products for system integrators
- Provide perfect solutions for crane manufacturers
- Provide best service for crane users

Brand strategy

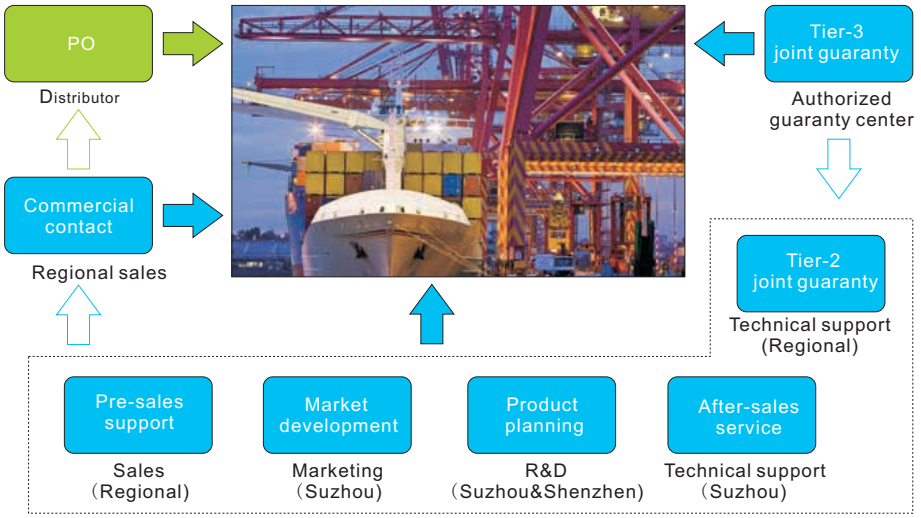
- Strategic partner of leading crane enterprises
- Supplier of comprehensive electrical control solutions for hoisting
- Leader in product customization

Product strategy

- Ease of use
- High safety and reliability
- Individualized design

Target industries

- Construction machinery: tower crane, construction lifter, bridge erecting machine, beam lifter
- Hoisting machinery: overhead crane, jib crane, block hoist, electric winch
- Harbor machinery: container cranes, bulk crane, bucket wheel machine, shipbuilding crane, inclined/vertical ship lift, floating crane
- Mine machinery: mine hoist, winch, belt conveyor



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CS700 High-performance Inverter for Hoisting (coming soon)

Product features

- 3-tier menu structure (patented)
  - Tier-1 menu: Simple applications can be fulfilled only by setting a few parameters such as the crane type, setting method, and models and specifications of the motor and brake; System optimization can be realized by simply adjusting the parameters or mechanical values of the inverter.
  - Tier-2 menu: All parameters are designed for hoisting applications, including braking and braking release control, high speed self-adaptation with light load, and torque balance control and master/slave control when two motors are mechanically connected. Technicians, without the necessary for knowing the principles of inverters, set the parameters based on process requirements.
  - Tier-3 menu: System optimization can be realized by adjusting parameters of the inverter, such as the current PID and speed PID.
- Optional process cards:
  - Process cards include crane derivation rectification, hoist synchronization, trolley synchronization, precise positioning, grab control, anti-swing control, and etc
  - Each process card is configured with:
    CPU;
    10 logic input terminals (2 of them can be encoder input terminals) and 6 relay output terminals;
    2 high-speed network ports: one for inverter networking to realize special hoisting functions; the other for connecting to a PLC or HMI to realize data exchange or communication control;

Basic specifications

- 380~480V, 0.75kW~450kW; 500~690V, 55~560kW (other specifications can be customized);
- Control mode: SVC, VC and V/F;
- I/O terminals: 5 logic input (including 1 high-speed pulse input), 2 analog input terminals (can be set as logic input), 4 relay output, 1 high-speed pulse output,1 open collector output, 1 analog output and 1 RS485 output
  (The basic specifications include a relay card configured with 3 relay output terminals and 1 RS485 communication output terminal. If an optional process card or I/O control card is used, do not use this relay card.)

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CS500 Specialized Inverter for Hoisting

Product features

- Developed for hoisting, with abundant specialized hoisting applications;
- Configured with basic functions of different crane mechanisms;
- Special hoisting functions can be customized.

Basic specifications

- 380~480V, 2.2kW~450kW; 500~690V, 132~560kW (other specifications can be customized);
- Control mode: SVC, VC and V/F;
- I/O terminals: 5 logic input (including 1 high-speed pulse input), 2 analog input (can be set as logic input), 4 relay output, 1 high-speed pulse output, 1 open collector output, 1 analog output and 1 RS485 output.
  (The basic specifications include a relay card which transforms open collector output into relay output. If an optional process card or I/O control card is used, do not use this relay card.)

CS300 Specialized Inverter for Block Hoist (coming soon)

Product features

- SVC and VC control: built-in mathematical models separately for squirrel-cage motor and tapered motor;
- Maintenance free: customized software for different OEMs based on our basic HW platform;
- Special supply: customized HW platform, specially designed two-in-one or three-in-one integrated drives;
- Smaller size;
- Optional flange-based installation;
- Designed for block hoist, thus is cost-effective;
- Integrated with basic functions of block hoist, thus needing the minimum number of external devices;
- Built-in black box, with an optimum cost performance

Basic specifications

- Voltage: 380V — specially customized for block hoists between 0.5t (8m) to 20t (3.5m);
- Control mode: SVC, VC and V/F;
- I/O terminals: 3 relay output and 8 logic input (ascend, descend, upper limit, lower limit, emergency stop, fault reset, second speed/acceleration, alternative. Signals can be directly introduced);
- The transient overload capacity can meet static testing requirements and the long-time overload capacity can meet dynamic testing requirements.

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CAN200 Specialized Inverter for Construction Lifter

Product features

- Selectable landing methods:
  - Select the landing floors through the keypad;
  - Stop at any target floor through the operating lever;
  - Stop at every floor by the up or down operation;
  - Precisely adjust leveling position;
- Selectable automatic leveling:
  - By using low-resolution encoder to directly access I/O port, automatic leveling solution features in low price, easy installation, low environmental requirements and easy debugging, etc. Hall element or photoelectric sensor can replace photoelectric encoder.
  - Free switch between the manual and automatic modes;
  - Operation instructions can be released via keypad or operating lever.
- Automatic call function;
- Remote control function:
  - If connected with a short message module, CAN200 controller can be directly controlled through mobile phone, enabling remote booting and shutdown.
- Voice prompt function;
- Self-tuning greatly facilitates debugging.

Basic specifications

- 380V, 7.5～55kW;
- Control mode: SVC, VC and V/F;
- I/O terminals: 10 logic input, 2 relay output, 3 logic output, 3 analog input, 3 analog output and 1 RS485 communication port.

CAN500 Monitor System for Tower Crane

Product features

- Modularized design
  - Flexible selection of measurements in accordance with actual requirements such as wind speed, overload, over-torque, ultra-angle and height, etc;
  - Supportive display terminal: Nixie tube, LCD, touch screen, etc;
  - Standard solution or simplified solution for your option;
  - Reserved CANbus port for expansion of GPS and wireless communication functions.
- Full digital sampling
  - Ttraditional analog sampling is replaced with digital sampling which has longer transmission distance;
  - Unique adapter plate design: easier wiring, higher sampling accuracy and no signal attenuation;
- User-friendly HMI
  - Supportive HMI: touch screen, Nixie tube, LCD diaply, etc;
  - Nixie tube display: unique dial plate, displaying torque more intuitively;
  - LCD display: dynamic monitoring, easy operations.
- High quality
  - Low temperature protection: The integrated heating device enables the system to work at the temperature of -40 ℃;
  - Professional lightning protection: ensuring high security and reliability;
  - Two storage methods: standard storage and SD expansion card storage. The maximum storage capacity can be up to 2G.

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CAN600 Specialized Inverter for Tower Crane

Product features

- Designed for hoisting, luffing, slewing and travelling mechanisms of tower crane;
- Dedicated tower crane applications;
- Rich I/O resources: greatly reducing the number of external devices and cables;
- Perfect protection functions: overcurrent, overheating, overvoltage, undervoltage, output phase-lacking protection, interphase short circuit and overload, etc
- Simple black box function: monitoring and saving load, luffing and torque values; alarm reporting;
- Be applicable to drive various mechanisms of general bridge or cantilever cranes.

Basic specifications

- 380 V~480V, 5.5kW~400kW
- Control mode: SVC, VC and V/F;
- I/O terminals: 24 logic input, 5 relay output, 1 analog input, 1 RS485 communication and 1 CAN-Bus communication

CAN610 Integreted Inverter for Tower Crane Crane

Product features

- Designed for QTZ63 and QTZ40 tower cranes;
- Lifting, luffing and slewing mechanisms integrated into one article;
- Dedicated tower crane applications;
- Rich I/O resources: greatly reducing the number of external devices and cables;
- Cost-saving common bus structure: By using only one group of braking resistors, the energy generated during lowering can be used for operations of the luffing and slewing mechanisms.
- Size of CAN610 is smaller than 3 inverters together.

Basic specifications

- Power range:
  30kW for lifting + 4.5 kW for luffing + 5.5 kW for slewing
  22kW for lifting + 4.5 kW for luffing + 5.5 kW for slewing
  18kW for lifting + 4.5 kW for luffing + 4.5 kW for slewing
- Control mode: SVC, VC and V/F;
- I/O terminals: 40 logic input (18 for lifting, 11 for luffing and 11 for slewing), 10 relay output (4 for lifting, 3 for luffing and 3 for slewing), 1 analog input (slewing).

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MD050 Harmony Rectifier Feedback Unit

Techinical specifications

- Two configuration schemes: rectifier feedback scheme (rectifier feedback module + converter module) and bypass feedback scheme (inverter+feedback unit);
- Power range: 0.75~450kW;
- Voltage range: 380~480V, 500~690V;
- THDI ⩽ 5%.

MD601 High Drive Harmony Rectifier Feedback and Converter Unit

Technical specifications

- Single module: 200kW; up to 8 modules (1600kW) in parallel;
- The same module can be used as a rectifier feedback unit or a converter unit;
- When the master and slave systems are used in parallel, their drive signals are transmitted by optical fiber; drive signals of the slave system are transmitted by the master system. This solves the problem of uneven fluidity while using paralleling modules and the uneven fluidity can be reduced to 5% or below.

H_{2U} PLC

Technical specifications

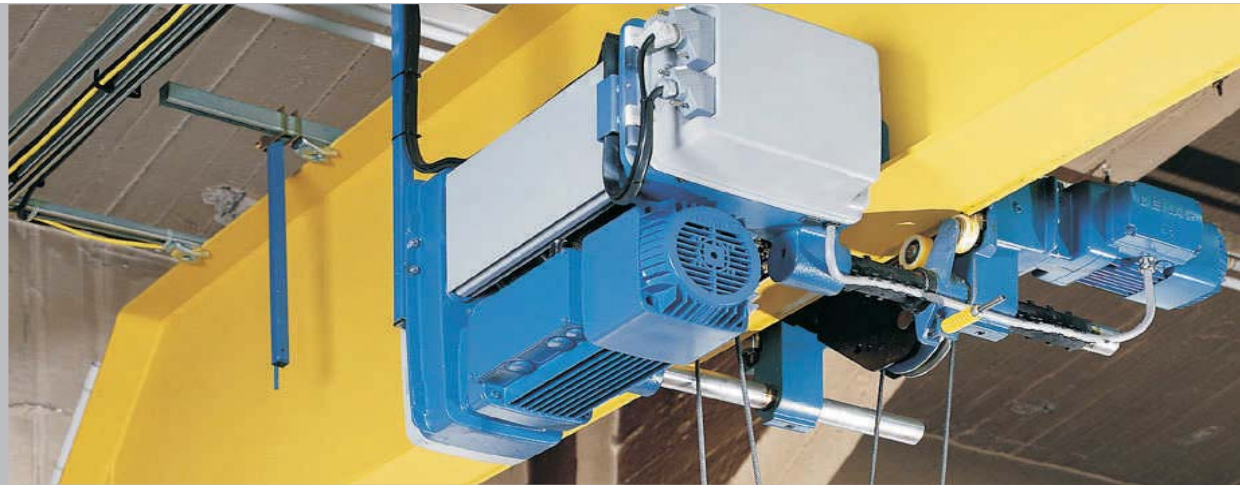
- I/O points: 32~256 points (Max. config.: 192 input and 64 output points) ;
- Up to 6 channels of 100kHz high-speed input and 3 channels of 100kHz high-speed output;
- Various optional analog I/O modules and communication modules;
- Running speed of basic instructions: 0.26uS;
- Supporting programming via ladder diagram, instruction list and sequential function chart;
- Up to 24K program memory.

IT5000 HMI

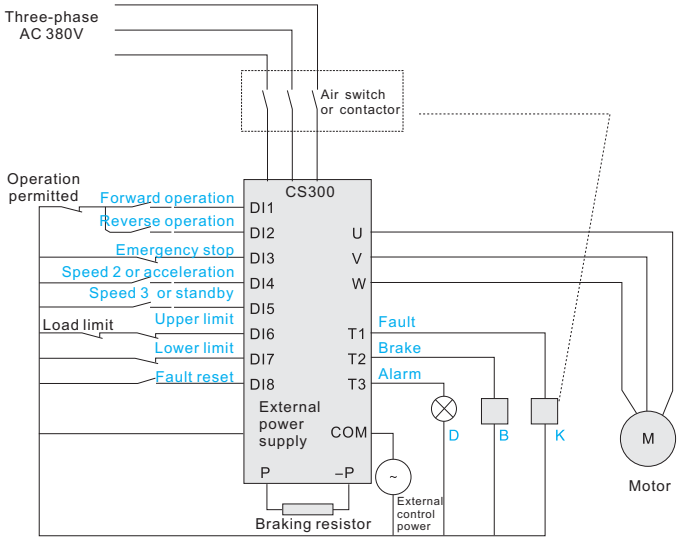
Technical specifications

- Size of display screen: 4.3", 7", 10.2", 10.4", 12.1";
- Resolution: 480×272 (4.3"), 800×480(7"&10.2"), 800×600 (10.4"&12.1");
- 65K true color display. LED backlight source (12.1": CCFL backlight).
- Supporting WINDOWS vector fonts, CSV format character library, and JPG/BMP/GIF-format images;
- 32 bit 400~800M CPU, 128MB Flash, 64MB DRAM;
- Supporting USB interfaces (Host/Client) and SD card;
- Supporting up to 4 communication channels and Ethernet communication;
- Operating temperature: ⩽55℃. IP of HMI panel: IP65;
- Realizing" one-screen multi-device" and "one-device multi-screen" schemes;

Hoisting Solutions

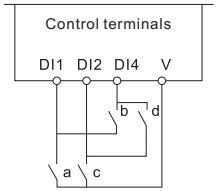


Wiring Example of Block Hoist Inverter



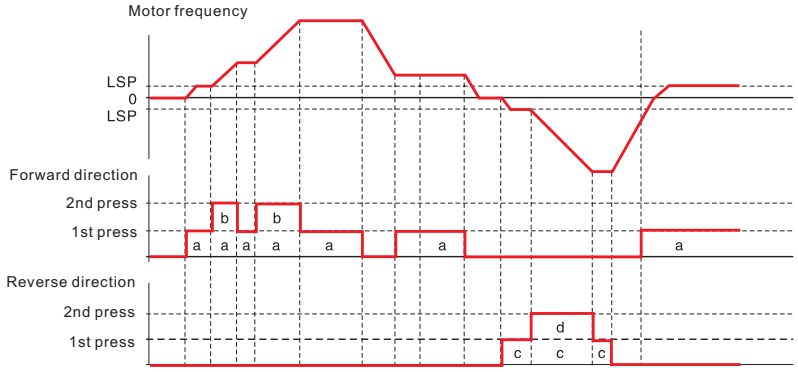
D: Alarm indicator or contactor coil of the alarm indicator
B: Contactor coil of the brake (non-conical motor)
K: Coil of air-switch release or line input contactor
External power: 24~48V

Wiring Example for Stepless Speed Regulation of Block Crane



DI 1: Lifting
DI 2: Lowering
DI 4: Speed +

a & b are two contact points of the forward double-click button
c & d are two contact points of the reverse double-click button



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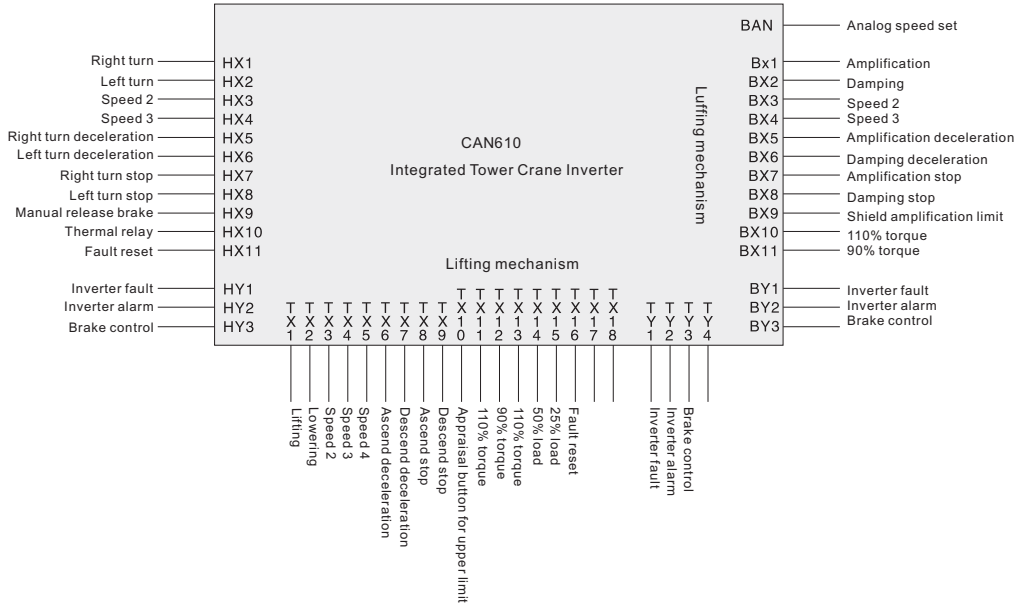
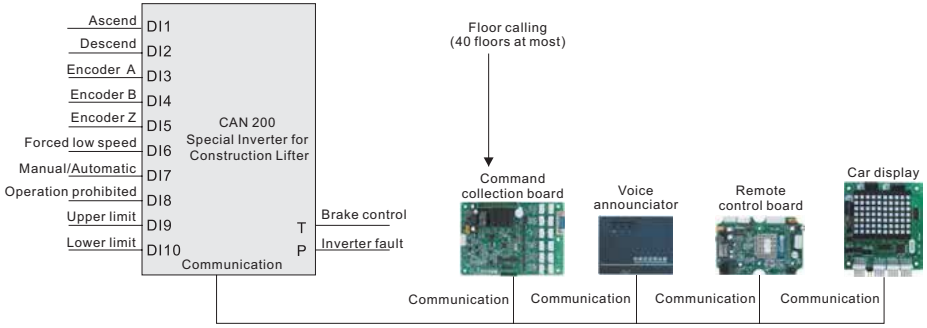
Wiring Example of Integrated Tower Crane Inverter



An Inovance Solution for Automatic Leveling of Construction Lifter



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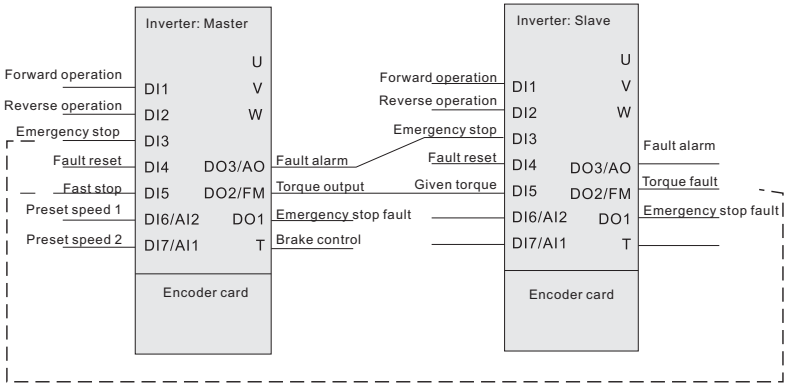
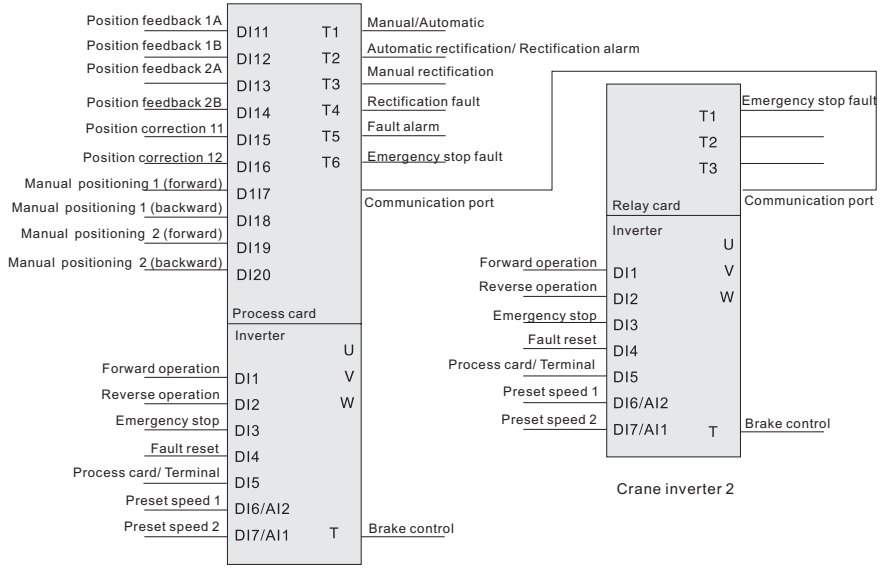
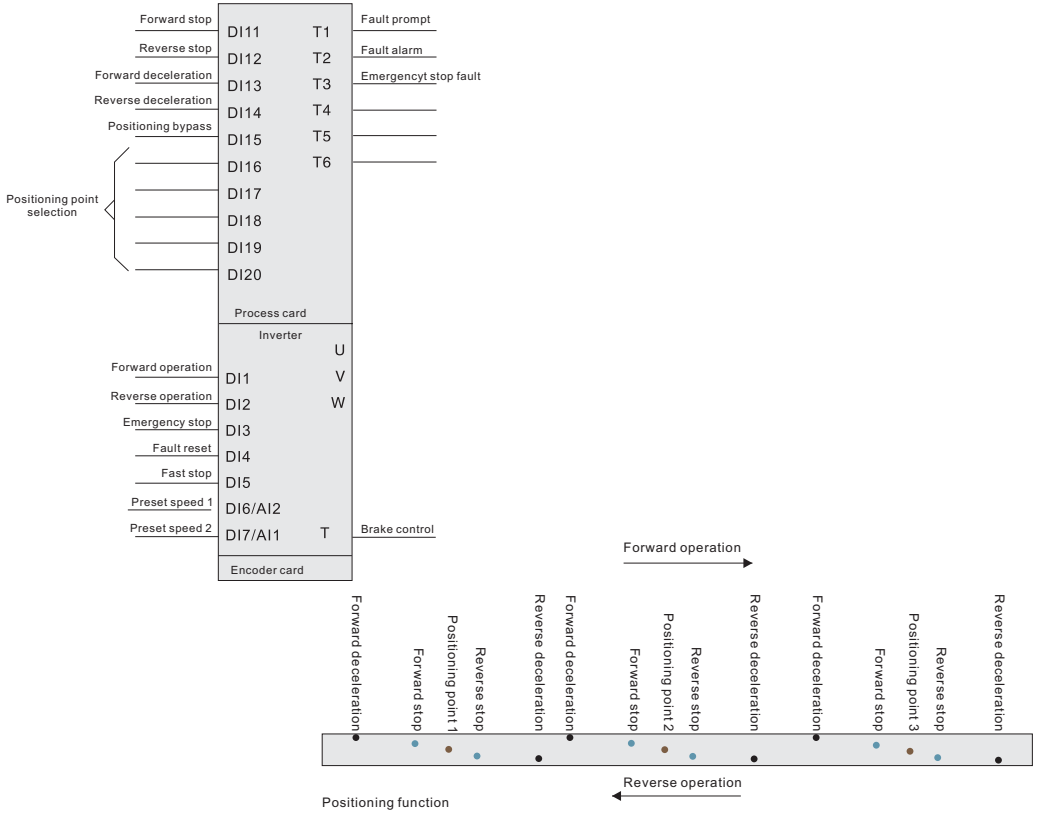
An Inovance Solution of Master-Slave Control for Torque Balance



An Inovance Solution for Position Rectification

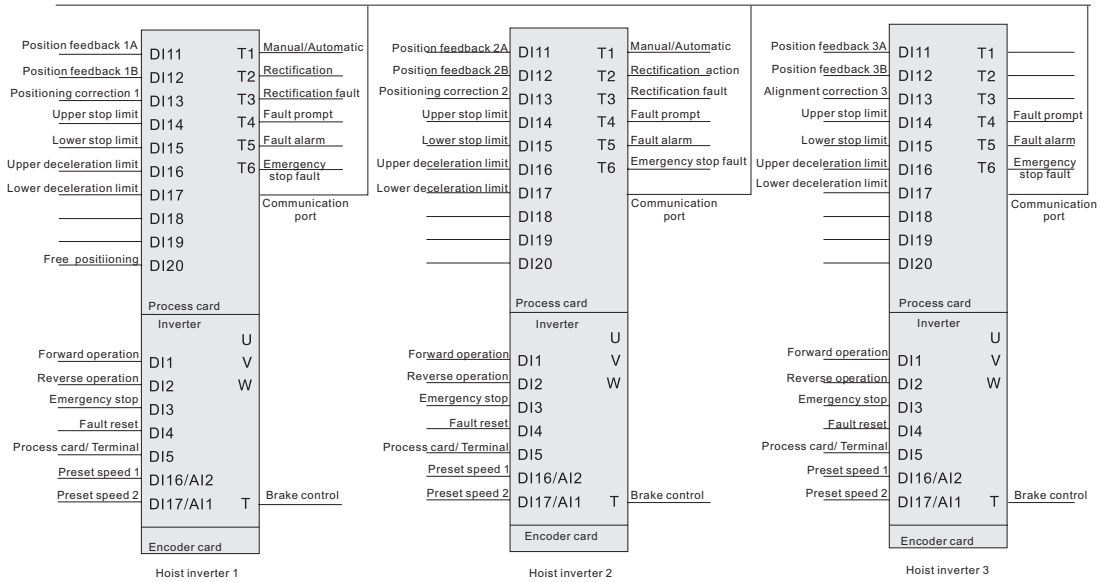


An Inovance Solution for High Position Control



When the demand of positioning accuracy is low, the forward stop and the reverse stop can be installed on the actual anchor point together.

An Inovance Solution for Synchronization of 3 Lifting Mechanisms



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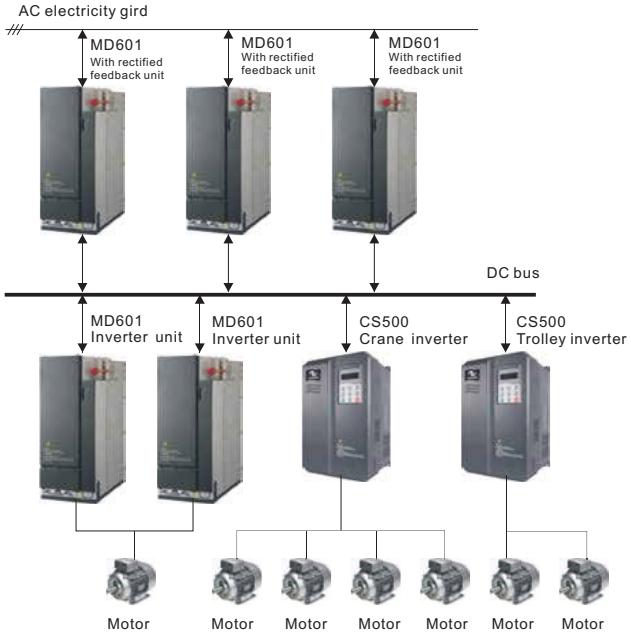
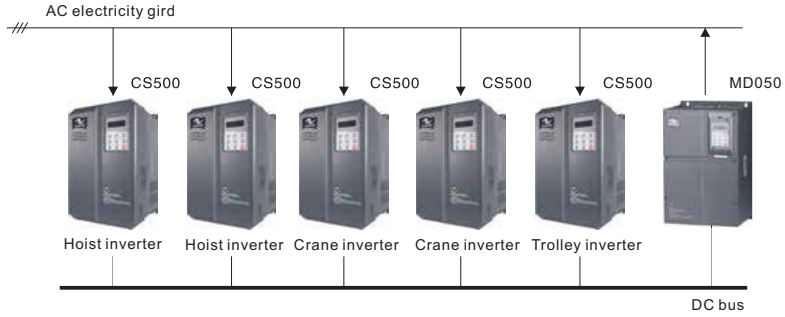
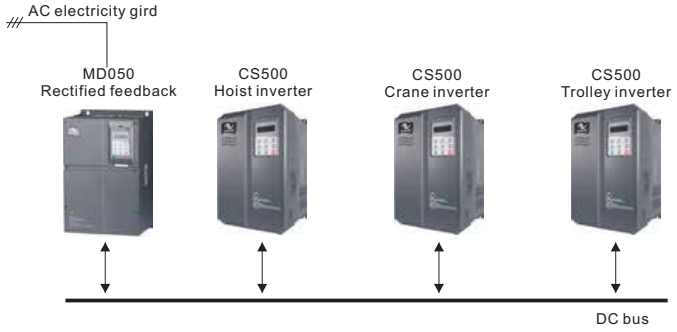
An Inovance Solution for Common DC Bus



An Inovance Solution for Energy Feedback



An Inovance Solution for AFE Energy Feedback



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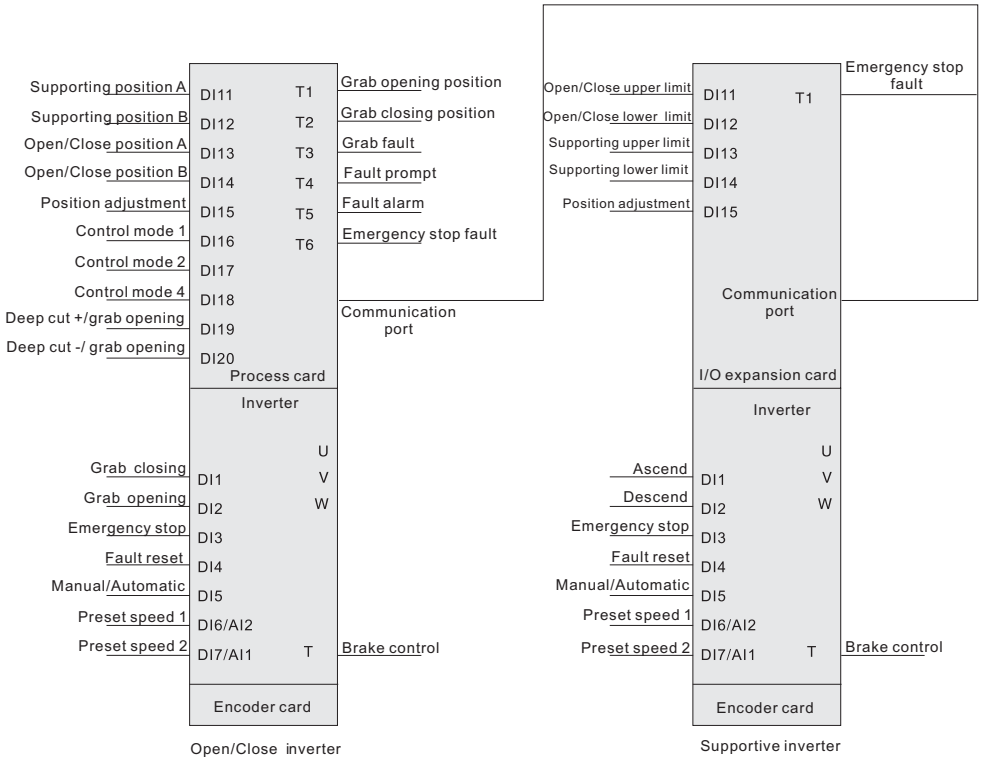
An Inovance Solution for Grab Control



An Inovance Solution for Shipbuilding Crane