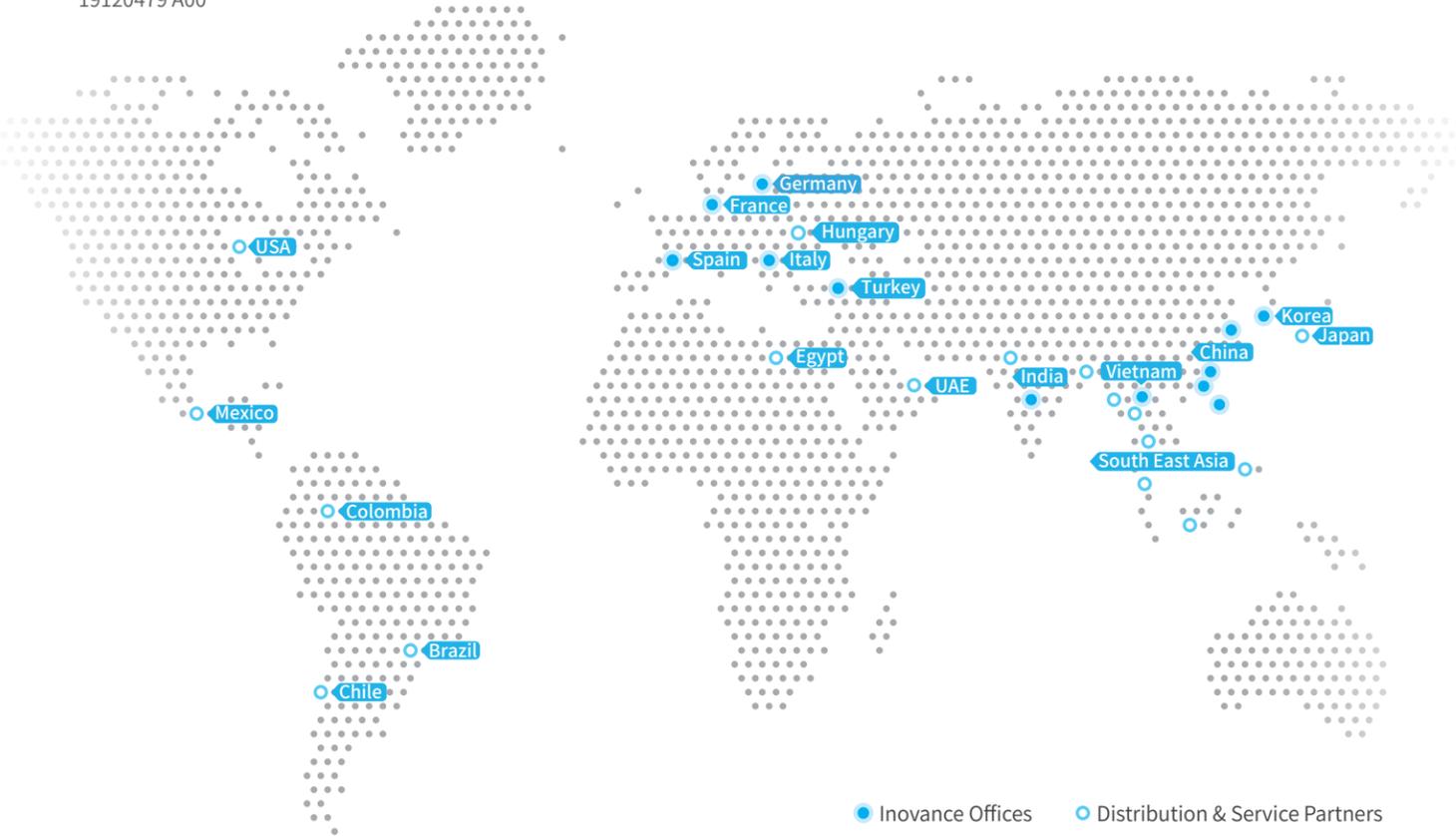




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Advancing industrial technology, for a better world

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FOLLOW US

INOVANCE

Easy Series PLC

High performance, compact, EtherCAT-enabled PLC



Features & functions

- Compact footprint
- Real-time fieldbus
- Simulation mode for offline debugging
- A complete product range – from the simplest to the most complex motion control capable PLC
- PLCopen compliant axis control

EtherCAT

EtherNet/IP

CANopen



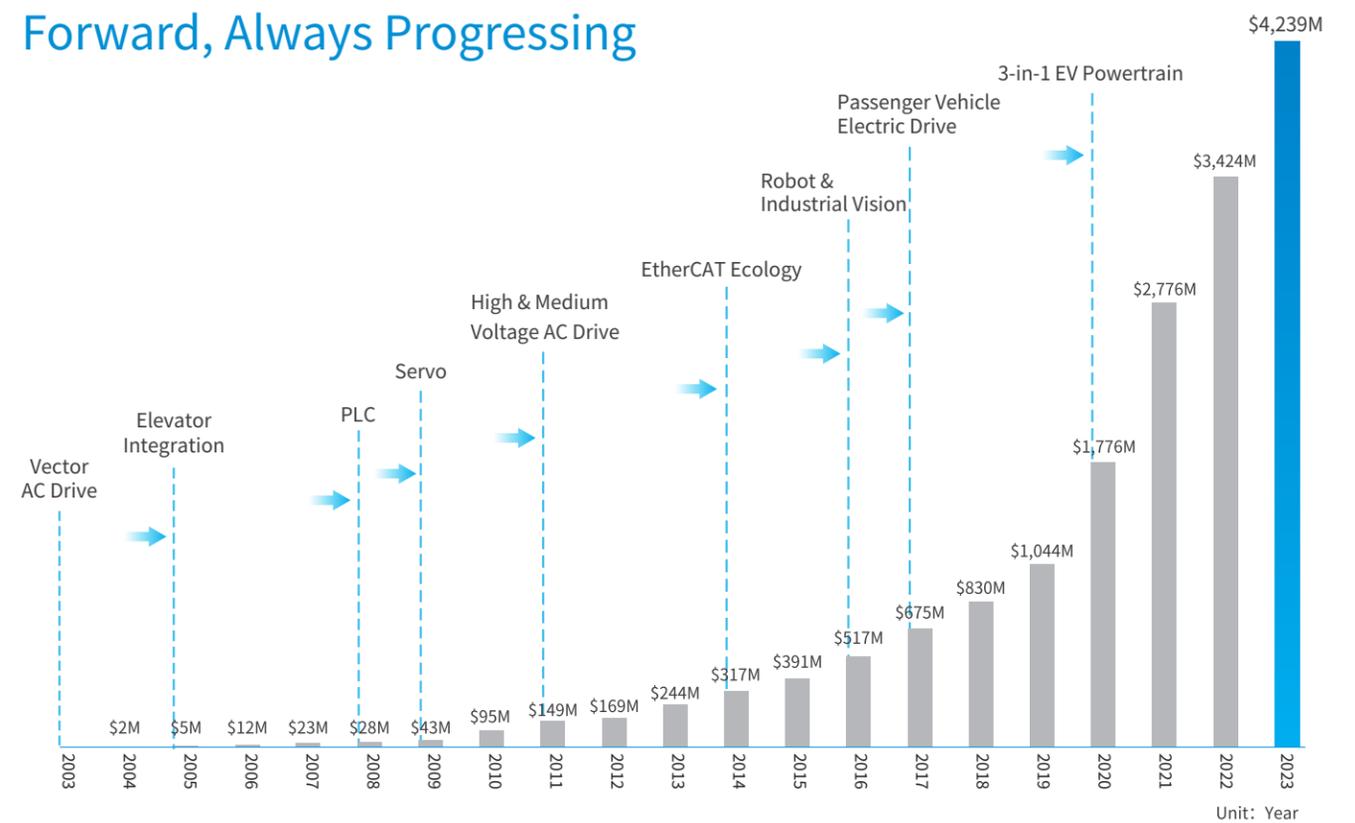


About Inovance

The Inovance Group, founded in 2003, is a rising star in the global industrial automation business and has revenues of \$4.2 in 2023. Inovance is headquartered in Shenzhen, China, and has built a global operation with offices and facilities in Germany, France, Italy, Spain, Turkey, India, and South Korea. Additionally, the company has a strong network of distribution partners around the world.

The company's flexible production techniques and expert understanding of all industry sectors - from plastics to printing to packaging to iron & steel production - have allowed it to establish globally leading industry-specific business units. Over the years, Inovance has built an engineering team with specialist expertise in industrial automation. This knowledge allows it to form strong partnerships with OEMs and end users, providing ongoing advice about how to get the most out of their automation solutions today, and how to stay prepared for the market and technology changes that are coming in future.

Forward, Always Progressing



| | | | | |
|--|---|---|--|-------------------------------------|
| | | | | |
| 2003 founded | IPO:2010 Shenzhen, China | 20,000 employees | Global network of offices and distributors | \$4.2+bn revenues in 2023 |
| Servo System 4,500,000+ sets delivered in 2023 | AC Drive 2,20,000+ sets delivered in 2023 | Industrial Robot 22,000+ sets delivered in 2023 | Controller 3,400,000+ sets delivered in 2023 | |

Global Factories

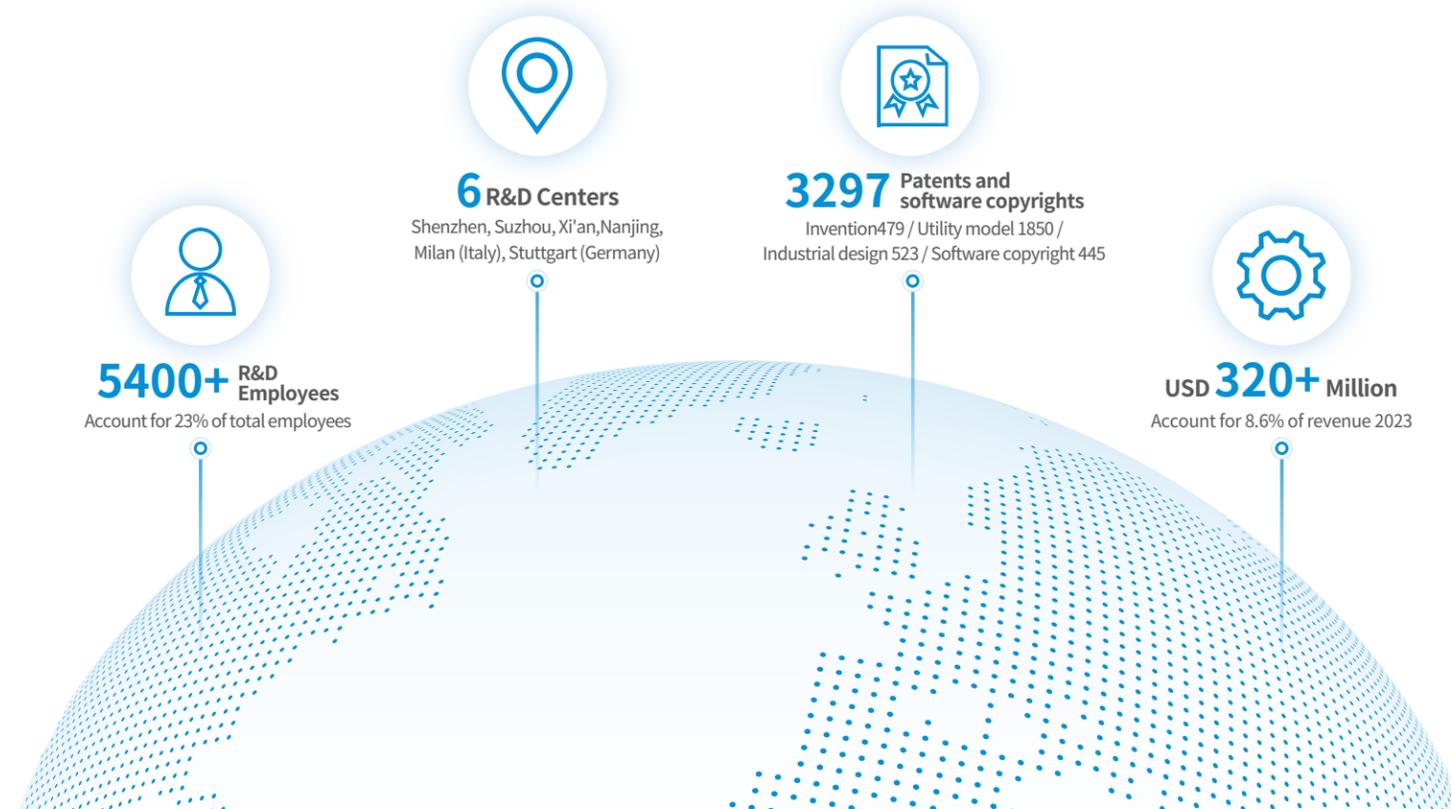
Inovance has built digital factories around the world, including one in India that has been in operation for a decade. In 2022, we started to build the Hungary factory for localized manufacturing in Europe.



Worldwide R&D network



Inovance invests heavily in R&D, enabling the company to continuously release a steady stream of new and innovative products. To ensure that all products meet all key global standards wherever possible, Inovance's R&D teams in Europe, India, and China, all work together seamlessly and virtually on engineering projects. Inovance calls this co-development, and the practice ensures that the best technology knowledge and solutions can be gathered from all around the business; and that they are always implemented and adapted in a way that meets the needs of local markets. The company's commitment to innovation is demonstrated through its headcount: over 20% of Inovance's entire global workforce is in R&D.



Easy Series Compact PLC

GE20 Series Expansion Cards

Expandable CAN bus, RS485, RS232, RTC, digital terminal, and analog terminal



EtherNet/IP™

Program download and monitoring;
EtherNet/IP, Modbus TCP, and Socket command

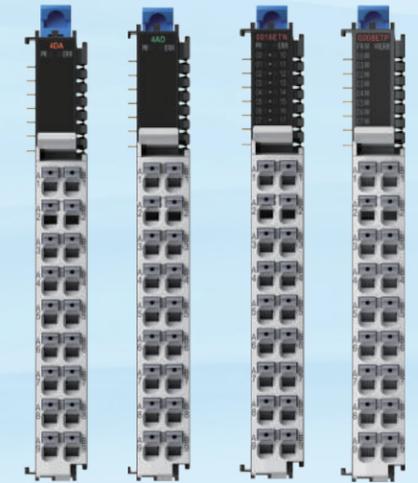
Supports following devices through routing:
information collection and management system,
PC, HMI, robot, PLC, and other Ethernet devices



TCP

GL20 I/O Modules

Five high-speed pulse outputs of 200 kHz,
four for Easy301
Access of up to 16 local modules, eight for
Easy301



Controls 4~5 servo or step motors

EtherCAT®



Up to 72 EtherCAT slaves, including 32 servo axes

RS485, free protocol, MODBUS RTU,
master/slave mode

Access of the slave through serial
ports, and access of the HMI,
instrument, apparatus, and sensor



Scan for more
information

Easy Series Compact PLC

Easy Expansion



Type-C port

The type-C port support programming, uploading/downloading and debugging



2 expansion slots

Analog, digital, CAN, RS485, TF card and RTC optional



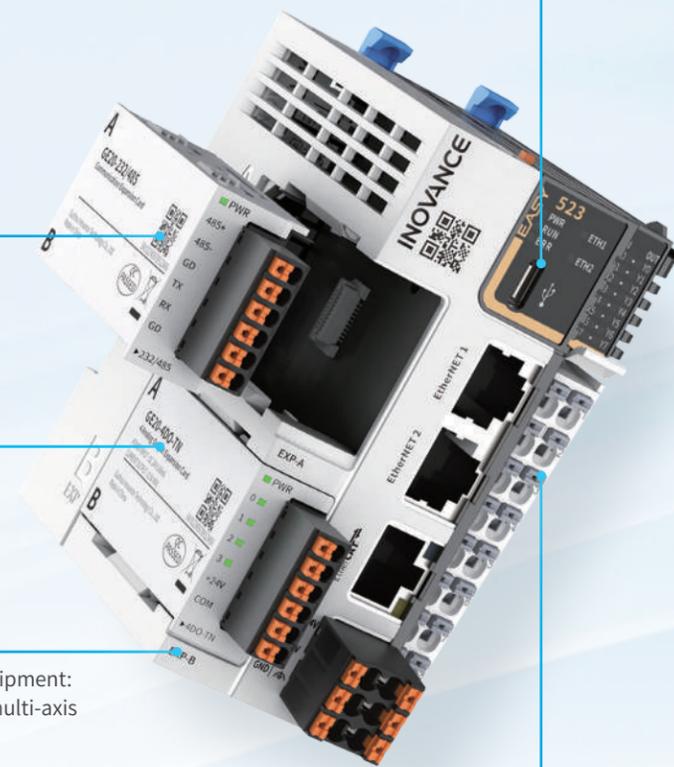
6 models

Meet the needs of automation equipment: small footprint, communication, multi-axis motion control, etc



80% higher assembly efficiency

Installation hours reduced by 80% and space saved by 2/3 thanks to the local GL20 series I/O module with push-in terminals that support vertical insertion and tool-free wiring



Easy Control



Quad-core processor

Fast instruction processing in nanoseconds



Auto-tuning PID

Integrated auto-tuning and adaptive PID algorithm allowing for quick response



32-axis high-speed bus control

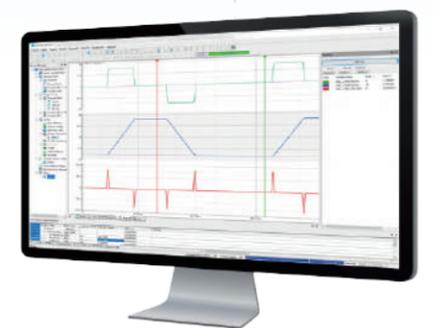
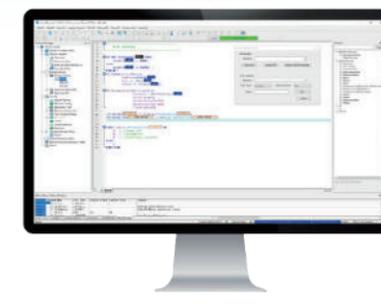
For synchronous motion and complex processes

Easy Programming

- Supports activation and deactivation of local modules/EtherCAT slaves/servo axes by means of variables;
- Supports modification of system parameters by means of program;
- One program covers multiple models, which can be selected easily on the HMI.

Supports **ST** programming, making it easy for engineers to write complex algorithms and logic.

- Supports function block encapsulation and process algorithm reuse;
- Supports automatic scanning, one-key EtherCAT slave configuration, and commissioning-free servo;
- Supports associative input and user-defined variables, which significantly improve program readability;
- Supports offline simulation with IT7000.

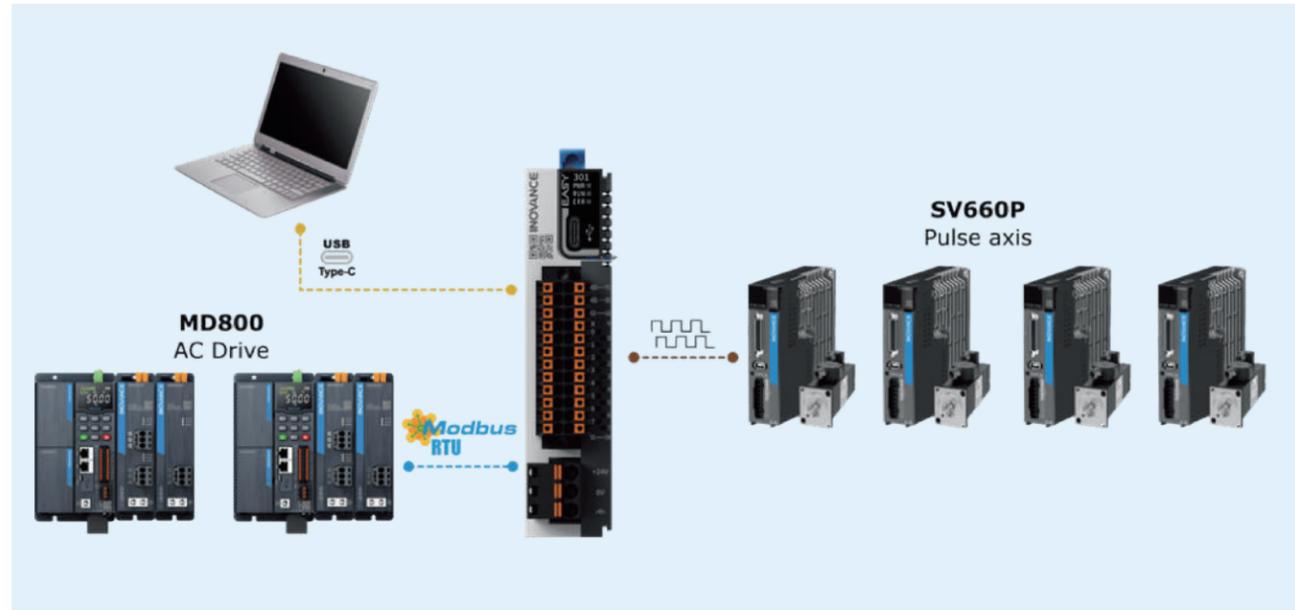


Scalable System Architecture

Multiple Configurations

Easy301

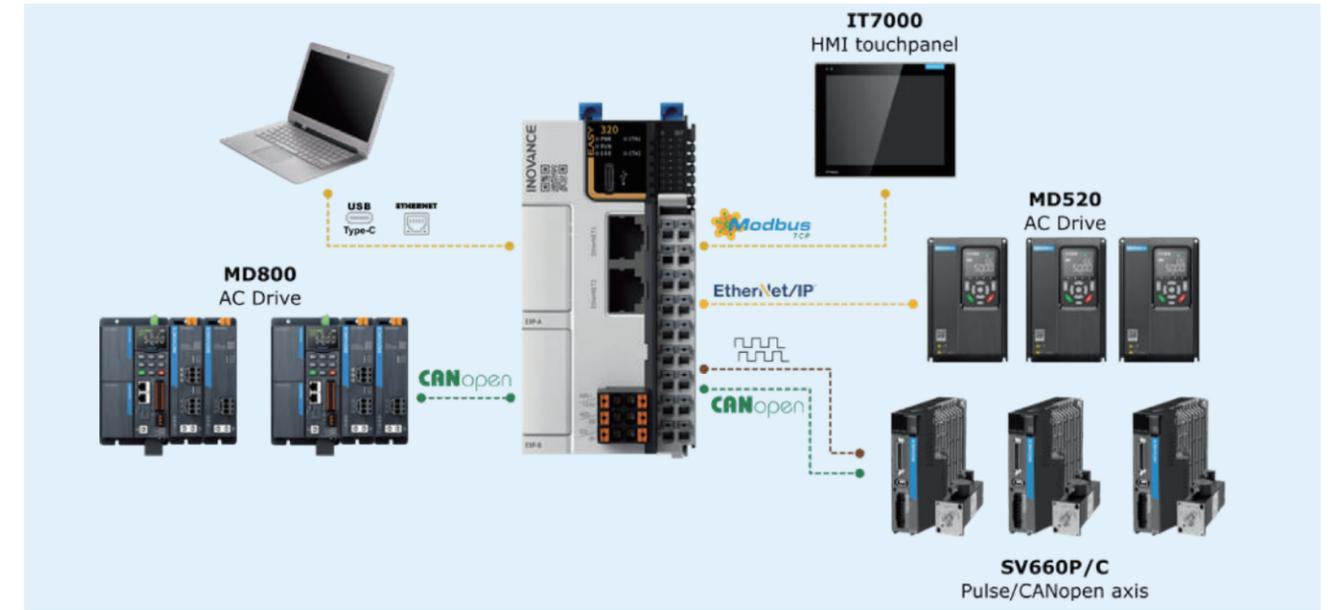
Cost effective architecture using Modbus RTU communication and/or pulses to control the drives.



The Easy series PLC can cover anything from the simplest pulse control architecture to the most complex motion control applications using EtherCAT and Ethernet/IP

Easy320

Multiprotocol architecture using Ethernet/IP, CANopen communication and/or pulses to control the drives, and Modbus TCP with the HMI touchpanel



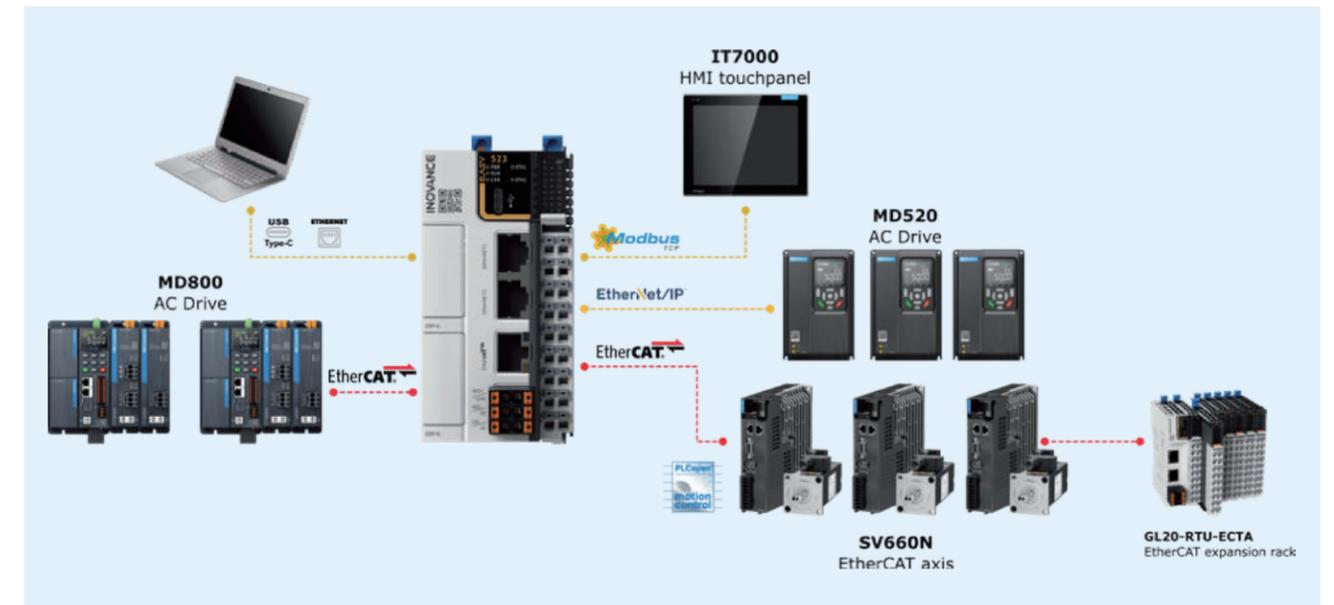
Easy302

Flexible architecture using CANopen communication and/or pulses to control the drives.



Easy523

Powerful motion control architecture using realtime EtherCAT communication and Ethernet/IP to control the drives, and Modbus TCP with the HMI touchpanel



Selection hart

| Model | Easy301-*****-INT | Easy302-*****-INT | Easy320-*****-INT | | Easy521-*****-INT | Easy522-*****-INT | Easy523-*****-INT | | | |
|------------------------------|---|--|--|--|--|--|---|--|--------|--|
| Appearance |  |  |  | |  |  |  | | | |
| Certification | 0808TN | CE  | 0808TN | CE     | 0808TN | CE     | 0808TN | CE     | 0808TN | CE     |
| | | | | 0808TP | CE | 0808TP | CE | 0808TP | CE | 0808TP |
| Dimensions (W×H×D) | 24mm×100mm×83mm | 40mm×100mm×83mm | 53mm×100mm×80mm | | 53mm×100mm×80mm | | | | | |
| CPU | CORTEX A7 1200MHz | | | | 8 pulse control axis+EtherCAT axis | 16 pulse control axis+EtherCAT axis | 32 pulse control axis+EtherCAT axis | | | |
| Transistor output type | NPN & PNP | | | | NPN & PNP | | | | | |
| Motion axis | 4 pulse control axis | 5 pulse control axis | | | 8 pulse control axis+EtherCAT axis | 16 pulse control axis+EtherCAT axis | 32 pulse control axis+EtherCAT axis | | | |
| Expansion I/O modules (GL20) | 8 | 16 | | | 16 | | | | | |
| Expansion slots (GE20) | / | 2, support communication/digital IO/analog IO/TF card/RTC | | | 2, support communication/digital IO/analog IO/TF card/RTC | | | | | |
| Ethernet | / | 2 ports Modbus TCP up to 32 slaves Ethernet/IP scanner/adaptor | | | 2 ports Modbus TCP up to 32 slaves Ethernet/IP scanner/adaptor | | | | | |
| EtherCAT | | / | | | 1 ports, up to 72 slaves | | | | | |
| Serial communication | 1×RS485+1×RS232 Support free protocol, Modbus RTU/ASC up to 16 slaves | 1×RS485+1×RS232 Support 1×RS232/485 expansion Support free protocol, Modbus RTU/ASC 16 slaves (recommended) | 1×RS485 Support 2×RS232/485 expansion Support free protocol, Modbus RTU/ASC 16 slaves (recommended) | | 1×RS485 Support 2×RS232/485 expansion Support free protocol, Modbus RTU/ASC 16 slaves (recommended) | | | | | |
| CAN communication | / | 1 (requires expansion card), supports CANlink/CANopen master/slave (up to 62 slaves) | | | 1 (requires expansion card), supports CANlink/CANopen master/slave (up to 62 slaves) | | | | | |
| Program storage | 128K step | | | | 200K step | | | | | |
| Data storage | 1 Mbyte (128 KB non-volatile) 150 KB soft element, non-volatile after No.1000 | | | | 2 Mbyte (128 KB non-volatile) 150 KB soft element, non-volatile after No.1000 | | | | | |
| Instruction execution time | 20K step/ 2 ms | | | | 20K step/ 1.6ms | | | | | |
| Encoder axis | 4 channel encoder axis (8 × high speed inputs, up to 200kHz) | | | | 4 channel encoder axis (8 × high speed inputs, up to 200kHz) | | | | | |
| Built-in I/Os | 8 inputs / 8 outputs | | | | 8 inputs / 8 outputs | | | | | |
| Program language | LD, SFC, ST, FB/FC (supports encryption functionality) | | | | LD, SFC, ST, FB/FC (supports encryption functionality) | | | | | |
| Bit command execution time | 0.144 μs | | | | 0.113 μs | | | | | |
| Word command execution time | 0.496 μs | | | | 0.384 μs | | | | | |
| Float command execution time | 0.496 μs | | | | 0.384 μs | | | | | |
| Arithmetic (average) | 0.851 μs | | | | 0.677 μs | | | | | |
| Rated power input | 24V DC±10% (21.6V DC to 26.4V DC), 1 A (maximum value at 24 V) | | | | 24V DC±10% (21.6V DC to 26.4V DC), 1 A (maximum value at 24 V) | | | | | |
| Other interfaces | Type-C | Type-C, TF card (requires TF card expansion module) | | | Type-C, TF card (requires TF card expansion module) | | | | | |
| Other descriptions | / | CAM, gear, and interpolation supported | | | CAM, gear, and interpolation supported | | | | | |

GE20 Series Expansion Card

The GE20 series expansion cards include nine types, covering digital I/O and analog I/O and their combinations, as well as serial communication, clock expansion, and TF card expansion. These cards can precisely suit your needs while saving space. They are compatible with the Easy series compact PLCs, which can support up to two expansion cards.

| Product Model | Description | Slot | Certification |
|----------------------|---|------|---------------|
| GE20-4DO-TN-INT | Supports 4-channel SINK transistor output | A/B | CE UK CA |
| GE20-4DI-INT | Supports 4-channel digital input | A/B | CE UK CA |
| GE20-2AD1DA-V-INT | Supports 2-channel analog current/voltage input and 1-channel analog voltage output | A/B | CE UK CA |
| GE20-2AD1DA-I-INT | Supports 2-channel analog current/voltage input and 1-channel analog current output | A/B | CE UK CA |
| GE20-232/485-RTC-INT | Supports RTC clock and one RS485 or RS232 channel | B | CE UK CA |
| GE20-232/485-INT | Supports one RS485 or RS232 channel | A/B | CE UK CA |
| GE20-RTC-INT | Supports RTC clock | B | CE UK CA |
| GE20-TF-INT | Supports user program upgrade and firmware upgrade | B | CE UK CA |
| GE20-CAN-485-INT | Supports CAN and RS485 communication | A | CE UK CA |
| GE20-TF-RTC-INT | Support TF expansion integrated RTC clock | B | CE UK CA |

Communication expansion cards

| Item | GE20-232/485-RTC-INT | GE20-232/485-INT | GE20-CAN-485-INT |
|---------------------------------|---|---|---|
| Appearance |  |  |  |
| Description | Supports RTC clock and one RS485 or RS232 channel | Supports one RS485 or RS232 channel | Supports CAN and RS485 communication |
| Slot | B | A/B | A |
| IP rating | IP20 | IP20 | IP20 |
| Ambient temperature | -20°C to +55°C | -20°C to +55°C | -20°C to +55°C |
| RS485/RS232 | 1 | 1 | 1 |
| Termination resistor | Supported; set through DIP switch | Supported; set through DIP switch | No termination resistor for RS485 Built-in termination resistor for CAN |
| Communication capability | Up to 31 slaves in RS485, with a distance of less than 3 m between adjacent slaves | Up to 31 slaves in RS485, with a distance of less than 3 m between adjacent slaves | Up to 31 slaves in RS485, with a distance of less than 3 m between adjacent slaves Up to 63 slaves in CAN |
| Baud rate of RS485/RS232 | 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps | 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps | 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps |
| Baud rate of CAN | / | / | 1000 kbps: distance < 20 m 500 kbps: distance < 80 m 250 kbps: distance < 150 m 125 kbps: distance < 300 m 100 kbps: distance < 500 m 50 kbps: distance < 1000 m |
| Clock accuracy | 120 sec/month | / | / |
| Clock format | YYYY/MM/DD/HH/MM/SS | / | / |
| Built-in battery specifications | CR2302, 3-year life cycle, removable | / | / |

Digital expansion cards

| Item | GE20-4DO-TN-INT | Item | GE20-4DI-INT |
|---------------------------------------|---|----------------------|---|
| Appearance |  | Appearance |  |
| Description | Supports 4-channel SINK transistor output | Description | Supports 4-channel digital input |
| Slot | A/B | Slot | A/B |
| IP rating | IP20 | IP rating | IP20 |
| Ambient temperature | -20°C to +55°C | Ambient temperature | -20°C to +55°C |
| Output type | Digital transistor output | Input type | Digital input |
| Output mode | SINK | Input mode | SINK/SOURCE |
| Channels | 4 | Channels | 4 |
| Output voltage class (resistive load) | 24V DC (20.4V DC to 26.4V DC) | Input voltage class | 24V DC ±10% (21.6V DC to 26.4V DC) |
| Output voltage class (inductive load) | 0.5 A/point; 1 A/common terminal | Input current at ON | > 3.5 mA |
| Output voltage class (lamp load) | 6 W/24V DC (total) | Input current at OFF | < 1.5 mA |
| Hardware response time (ON/OFF) | 1 W/24V DC (total) | Input response time | Approx. 15 ms (hardware RC filter time) |
| Leakage current at OFF | < 10 μA | ON voltage | ≥ 15V DC |
| Switching frequency | 100 Hz for resistive load; 0.5 Hz for inductive load; 10 Hz for lamp load | OFF voltage | ≤ 5V DC |
| Isolation | Photocoupler isolation | Software filter time | Not supported |
| Protection | Surge suppression | Isolation | Photocoupler isolation |

Digital expansion cards

| Item | GE20-RTC-INT | GE20-TF-INT | GE20-TF-RTC-INT |
|---------------------------------|---|---|---|
| Appearance |  |  |  |
| Description | Supports RTC clock | Supports user program upgrade and firmware upgrade | Supports user program upgrade and firmware upgrade |
| Slot | B | B | B |
| IP rating | IP20 | IP20 | IP20 |
| Ambient temperature | -20°C to +55°C | -20°C to +55°C | -20°C to +55°C |
| Communication interface | I ² C | SDIO | I ² C (for RTC) /SDIO (for TF) |
| Clock accuracy | 120 sec/month | - | 120 sec/month |
| Clock format | YYYY/MM/DD/HH/MM/SS | - | YYYY/MM/DD/HH/MM/SS |
| Built-in battery specifications | CR2302, 5-year life cycle, removable | - | 3-year life cycle, removable |
| SD card capacity | - | Up to 32 GB | Up to 32 GB |
| SD card type | - | TransFlash (Micro SD) | TransFlash (Micro SD) |

Analog Expansion Cards

| Item | GE20-2AD1DA-V-INT | GE20-2AD1DA-I-INT |
|--|---|---|
| Appearance |  |  |
| Description | Supports 2-channel analog current/voltage input and 1-channel analog voltage output | Supports 2-channel analog current/voltage input and 1-channel analog current output |
| Slot | A/B | A/B |
| IP rating | IP20 | IP20 |
| Ambient temperature | -20°C to +55°C | -20°C to +55°C |
| Input type | Analog input | Analog input |
| Input mode | Current/Voltage | Current/Voltage |
| Input channels | 2 | 2 |
| Resolution | 12-bit | 12-bit |
| Conversion time | 6 ms/channel | 6 ms/channel |
| Input range | 0 V to 10 V; 0 mA to 20 mA | 0 V to 10 V; 0 mA to 20 mA |
| Current input impedance | 250 Ω | 250 Ω |
| Input accuracy (25°C) | Voltage: ±1%; current: ±1% (full range) | Voltage: ±1%; current: ±1% (full range) |
| Input accuracy (full temperature range) | Voltage: ±3%; current: ±3% (full range) | Voltage: ±3%; current: ±3% (full range) |
| Digital input | 0 to 20000 | 0 to 20000 |
| Output type | Analog output | Analog output |
| Output mode | Voltage | Current |
| Output channels | 1 | 1 |
| Resolution | 12-bit | 12-bit |
| Conversion time | 1 ms/channel | 1 ms/channel |
| Voltage output range | 0 V to 10 V | 0 mA to 20 mA |
| Voltage output load | > 2 kΩ | 0 Ω to 500 Ω |
| Voltage output accuracy (25°C) | ±1% (full range) | ±1% (full range) |
| Voltage output accuracy (full temperature range) | ±5% (full range) | ±5% (full range) |
| Digital output | 0 to 20000 | 0 to 20000 |

GL20 Series I/O Modules

The GL20 series I/O modules, introduced by Inovance, represent the next generation of modules designed for common bus networks. With an ultra-slim profile of as thin as 12 mm, they achieve as fast response as in microseconds, along with a flexible I/O system and a stable structural design.

The GL20 series I/O modules are designed and continuously improved with the needs of various industries in mind. They have many variants and offer abundant input and output channels, providing extensive customization options for costumers.

More than "slim"



Applicable to either bus coupler or CPU.

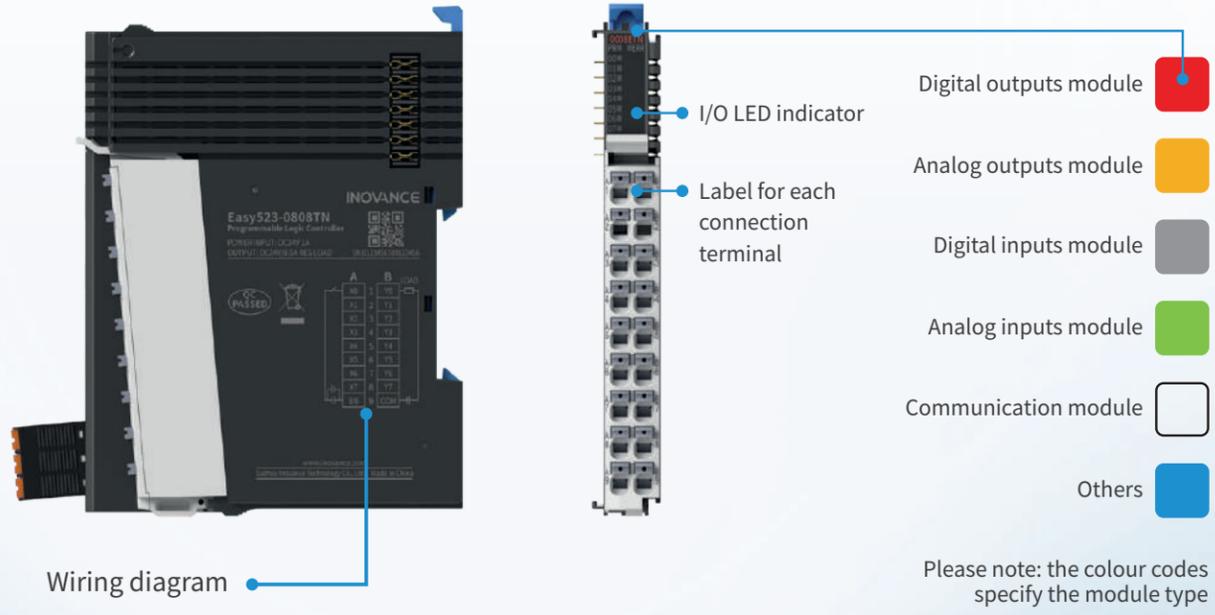


Ultra-slim I/O module as thin as 12mm, for fast installation and replacement.



D-BUS connectors, outperforming traditional surface-mounted connectors by enhanced stability and ten-year lifespan that minimizes downtime

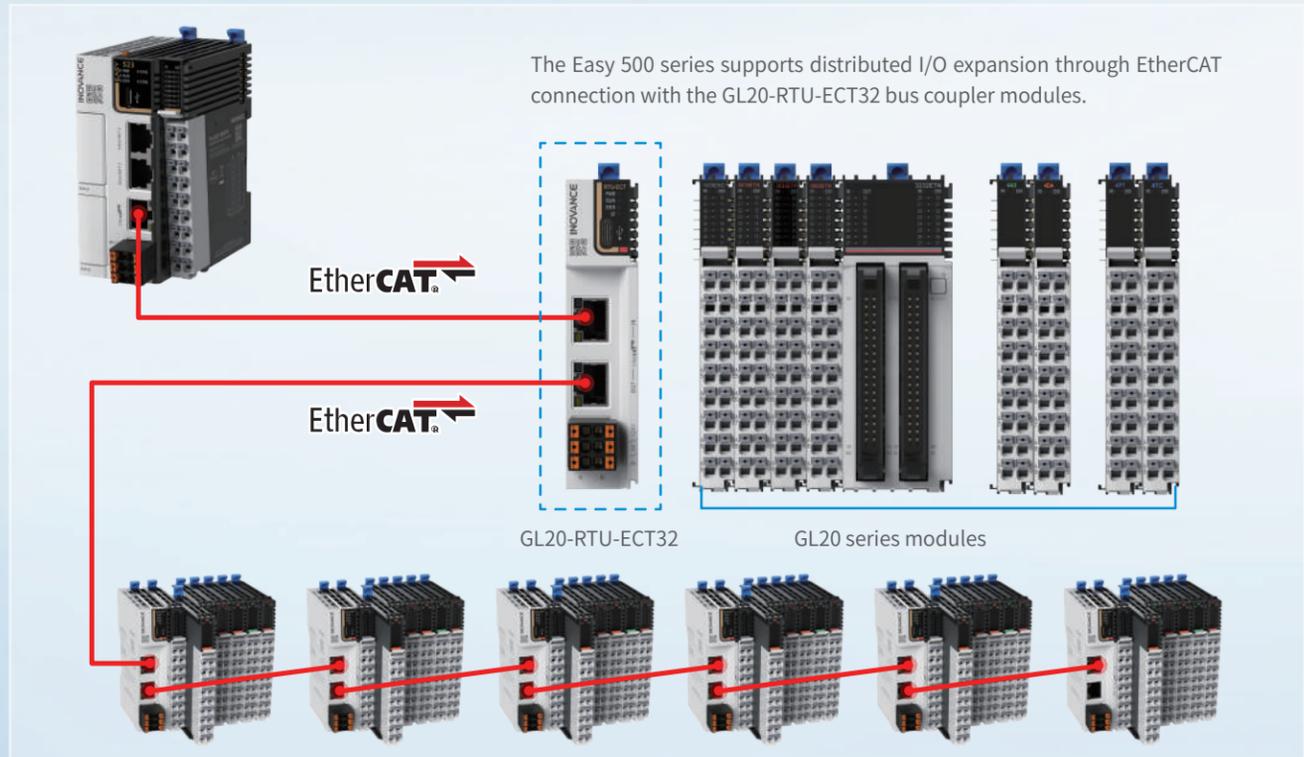
GL20 Series I/O Module Overview



Next-generation GL-LINK local bus, boosting speed to 100 Mbps

Thickness reduced to 12 mm, 2/3 cabinet space saved

D-BUS design, clamped on both sides, more stable than surface-mounted designs



| Product Model | Description | Product Model | Description |
|--------------------|---|------------------|---|
| GL20-RTU-ECT32-INT | EtherCAT slave bus coupler. Up to 16 expansion modules can be added | GL20-0008ETP-INT | 8× source (PNP) transistor outputs module. Response time 100 μs |
| GL20-1600END-INT | 16× source (PNP)/sink (NPN) digital inputs module. Input filter from 0.25 ms to 32 ms | GL20-0008ER-INT | 8× relay outputs module. Response time 15 ms |
| GL20-0016ETN-INT | 16× sink (NPN) transistor outputs module. Response time 100 μs | GL20-0800END-INT | 8× source (PNP)/sink (NPN) digital inputs module. Input filter from 0.25 ms to 32 ms |
| GL20-0016ETP-INT | 16× source (PNP) transistor outputs module. Response time 100 μs | GL20-4PT-INT | 4× channel thermal resistance inputs temperature detection module (Pt100, Pt500, Pt1000, Cu100, KTY84, NTC5K, NTC10K) |
| GL20-4AD-INT | 4× analog inputs module (resolution 16 bits, sampling time 250 μs) | GL20-3232ETN-INT | 32× source (PNP)/sink (NPN) digital inputs and 32× sink (NPN) transistor outputs module. Response time 100 μs. Input filter from 0.25 ms to 32 ms |
| GL20-4DA-INT | 4× analog outputs module (resolution 16 bits, sampling time 250 μs) | GL20-0032ETN-INT | 32× sink (NPN) transistor outputs module. Response time 100 μs |
| GL20-0808ETN-INT | 8× source (PNP)/sink (NPN) digital inputs and 8× sink (NPN) transistor outputs module. Response time 100 μs. Input filter from 0.25 ms to 32 ms | GL20-3200END-INT | 32× source (PNP)/sink (NPN) digital inputs module. Input filter from 0.25 ms to 32 ms |
| GL20-0008ETN-INT | 8× sink (NPN) transistor outputs module. Response time 100 μs | GL20-4TC-INT | 4× channel thermocouple inputs temperature detection module (thermocouple type: B,E,N,J,K,R,S,T) |

More modules are coming..