



Think Automation and beyond...



IDEC FT1A SmartAXIS
Value. Versatility. The New Breed of Controllers.

Design-in More Function with Affordable FT1A PLCs





Value. Versatility. The New Breed of Controller!

The ideal solution for a variety of applications.

Presenting FT1A, the newest family of SmartAXIS controllers from the industry's original manufacturer of micro PLCs. FT1A controllers deliver affordability without compromise. Features and functions are already built in, so engineers can now enjoy more versatility and more choices for their automation needs than ever before.

Designed to give you the most bang for your buck, these simple, powerful controllers deliver an exceptional value. FT1A controllers are available with 12, 24, 40, or 48 I/O, while a 3.8-inch HMI+PLC with sophisticated features and a super-bright LCD screen is also available.

All FT1A controllers meet the highest industry standards for quality and safety. The FT1A SmartAXIS family is CE compliant, cULus listed, has ABS (Certificate of Design Assessment) and is Class 1 Division 2 rated for hazardous locations. Whatever your application requires, the FT1A SmartAXIS family has a solution!



ABS

American Bureau of Shipping

DNV

Det Norske Veritas

LR

Lloyd's Register

NK

NIPPON KAIJI KYOKAI



FT1A Touch HMI + PLC

A Breed of Its Own

The perfect combination of PLC processing and HMI monitoring and control, the 3.8-inch SmartAXIS Touch is an all-in-one touchscreen interface and logic controller. With a compact body and full complement of features, FT1A is perfect for small systems that require a graphical user interface along with versatile I/O controls at a truly affordable price.

Analog Expansion Cartridges (Transistor Output Models)

- Up to 2 analog expansion adapters can be configured on the FT1A Touch.
- Maximum combination of 2in/6out, 4in/4out, or 6in/2out analog I/O can be configured.

RS232C and RS485 ports

- Built-in RS232C, RS422/485 interface for serial communication.
- Communication with IDEC or other PLCs also supported through this serial port.

USB-A Port

Embedded USB-A port for data logging and recipe data, as well as for performing program updates.

Relay or Transistor Outputs

- Relay output type equipped with 10A contact, so no interposing relays required.
- Transistor output type equipped with 300mA per channel.

Analog Outputs (Transistor Output Models)

2 built-in 0-10VDC, 4-20mA analog outputs.

Digital, Analog and High-speed Inputs

- 8 built-in DC inputs
- 2 inputs (I6 and I7) can be configured as 0-10V DC analog inputs or 4-20mA analog inputs (transistor output models)
 - 10-bit resolution
- 4 high-speed counters
 - Up to 10kHz

Harsh Environments

- Class I, Division 2 for hazardous locations
- -20 to 55°C operating temperature (color models)



USB Mini-B

Embedded USB mini-B port for programming.

3 Bezel Colors

Available in silver, light gray and dark gray bezel.

STN Monochrome or 65K TFT Color

- 400cd/m² color
- 740cd/m² monochrome



Actual Size

IP66F (water and oil tight)
NEMA 4X (indoor) and 13

5MB Screen Editing Memory
Provides users with more flexibility and stress-free programming.

RJ45 Ethernet Port

- Supports remote Ethernet communication and Modbus TCP.
- Communication with IDEC or other PLCs also supported through the Ethernet port.

FT1A Touch Features

Control Functions

Fast Processing Speed

Basic instructions can be processed in 1850µs per 1000 steps of programming.

Data Logging

Critical data can be saved and logged into a USB memory stick then retrieved over an Ethernet connection or by removing the USB memory stick from the FT1A Touch and inserting it into a laptop or PC.

| | A | B | C | D |
|----|---------------------|-----------------------|------|---|
| 1 | Project Name | FT1A Touch Modbus RTU | 5.01 | |
| 2 | File Type | Data Log Data | | |
| 3 | Channel No. | | 1 | |
| 4 | Source | #D 0 | | |
| 5 | Sampling Method | Fixed Period | | |
| 6 | Time[Sec] | | 10 | |
| 7 | | | | |
| 8 | Sampling Time | Data001 | | |
| 9 | 06/05/2013 15:46:25 | | 10 | |
| 10 | 06/05/2013 15:46:35 | | 19 | |
| 11 | 06/05/2013 15:46:45 | | 28 | |
| 12 | 06/05/2013 15:46:55 | | 37 | |
| 13 | 06/05/2013 15:47:05 | | 46 | |
| 14 | 06/05/2013 15:47:15 | | 55 | |
| 15 | 06/05/2013 15:47:25 | | 64 | |
| 16 | 06/05/2013 15:47:35 | | 72 | |
| 17 | 06/05/2013 15:47:45 | | 80 | |
| 18 | 06/05/2013 15:47:55 | | 92 | |
| 19 | 06/05/2013 15:48:05 | | 101 | |
| 20 | 06/05/2013 15:48:15 | | 110 | |
| 21 | 06/05/2013 15:48:25 | | 119 | |
| 22 | 06/05/2013 15:48:35 | | 128 | |
| 23 | 06/05/2013 15:48:45 | | 137 | |
| 24 | 06/05/2013 15:48:55 | | 146 | |
| 25 | 06/05/2013 15:49:05 | | 155 | |

Easy Program File Transfer

Project files can be transferred between a USB memory stick and the FT1A Touch. It is a quick and convenient way for an OEM to program multiple units and for users to quickly update ladder and HMI programs.



Digital and Analog Inputs

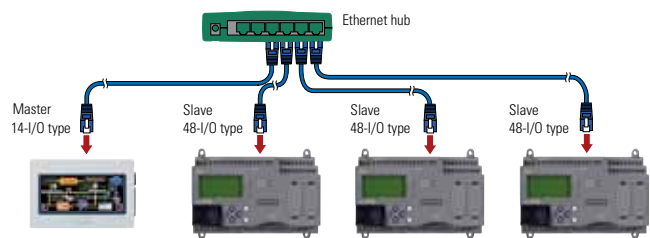
The FT1A Touch is equipped with 8 digital inputs, two of which can be configured as 0-10V DC or 4-20mA analog inputs with 10-bit resolution, reducing overall system cost.

High-speed Counters

With 8 built-in inputs, 4 can be configured as high-speed counters, with a maximum frequency (range) of 10kHz for single-phase or 5kHz for dual-phase.

Remote I/O

Up to three FT1A controllers (24, 40 and 48 I/O) can be configured as remote I/O slaves for the FT1A Touch, expanding your system's potential. A maximum of 158 I/O can be achieved.



Analog Expansion Cartridges

Using analog expansion cartridges, FT1A Touch can utilize 0-10V DC, 4-20mA, RTD and Thermocouple inputs.

PID Controls

With an improved PID algorithm and easier-to-configure dialog box, PID controls can be monitored using a single screen. Advanced PID control functions, such as auto-tuning, ARW (anti-reset windup) and bumpless transfer, are also supported.

Large Programming Memory

With 47.4KB of logic controls programming, complex PLC programs can be constructed without much restriction. And with 5MB of configuration memory for the display, a unique and professional display interface can be easily configured.

10A Relay Outputs

With 10A contact ratings on all four of the relay outputs, the FT1A Touch can be directly connected to a solenoid valve or motor, which eliminates interposing relays and reduces wiring.





65,536 TFT Color LCD

With so many color combinations, an intuitive and crisp graphical user interface can be constructed with unparalleled visibility.

Super-Bright LED

The 65K TFT color unit is rated at 400cd/m², while the monochrome unit is rated at 740cd/m². With 32 levels of brightness control, the backlight can even be adjusted according to the surrounding conditions.

Drivers for IDEC and other PLCs

FT1A Touch can easily be configured to communicate with IDEC or other PLCs such as Siemens, Automation Direct, Mitsubishi, Omron, and more.

Display Functions

Ethernet Connectivity

With the embedded RJ45 Ethernet port, FT1A project files can be remotely uploaded or downloaded over an Ethernet connection. Critical logging data can also be retrieved quickly.

Modbus TCP or RTU

The built-in Ethernet ports allow the FT1A Touch to be configured as a Client (Master) or Server (Slave) on the Modbus network. Modbus RTU (Master) is also supported. With these capabilities, FT1A Touch can communicate with other PLCs or devices using Modbus protocol.

Ladder Program and I/O status

Ladder programs can easily be monitored and controlled on the 3.8" (3.7" monochrome) display. It is a unique tool to debug the system without using WindLDR software and a PC. I/O status and any control parameter such as data register, timer, and internal relay can also be monitored and controlled.



Fast Start-up

Once power is applied to the FT1A Touch, it takes only 3 seconds for it to be fully functional. The fast start-up allows for fast, easy debugging and stress-free operation.



The Value of Our Controllers is in the Details

FT1A Controllers

FT1A controllers are designed for a range of applications that demand powerful and abundant features. Available with 12, 24, 40 and 48 I/O with and without embedded LCD/keypad, these controllers enable engineers to design cost-effective solutions.

Smart LCD Screen

The display (24 digits x 4 lines) can provide visual feedback of system status, I/O status, user configurable messages with dynamic data, bar graph, and ladder program monitor and controls.

Non-LCD Model

FT1A controllers are also available without embedded LCD/keypad. It's a cost-effective, tamper-proof solution.

USB mini-B

With the USB mini-B port, communication with FT1A controllers is extremely convenient as standard USB Type A to mini-B cables can be used.

Note: Features available on specific models.
See page 14 for selection guide.

Universal Voltages

24V DC or 100-240V AC



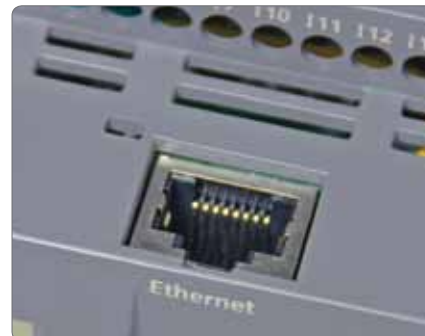
Actual Size

Memory Cartridge

The optional memory cartridge can be used to easily transfer programs from the internal ROM memory of FT1A controllers to a memory cartridge or vice versa. It's a convenient method to update the PLC program in the field.

Digital, Analog and High-speed Inputs

Inputs on the 24V DC power models can be configured as digital, 0-10V DC analog or high-speed counters. Up to 8 analog inputs with 10-bit resolution and up to 6 HSC 100kHz can be configured.



RJ45 Ethernet Port

The embedded Ethernet port on the FT1A controllers provides users with easy access for remote maintenance and communication. It also supports industry standard Modbus TCP protocol. With Ethernet Remote I/O capability, the FT1A controller's I/O can be easily expanded.

Real-Time Clock

Every FT1A controller is equipped with an embedded real-time clock for time-controlled applications. With the built-in, real-time clock, log data can also be tracked and, with just a click, daylight savings time can easily be setup.

RS232C and RS485 Ports

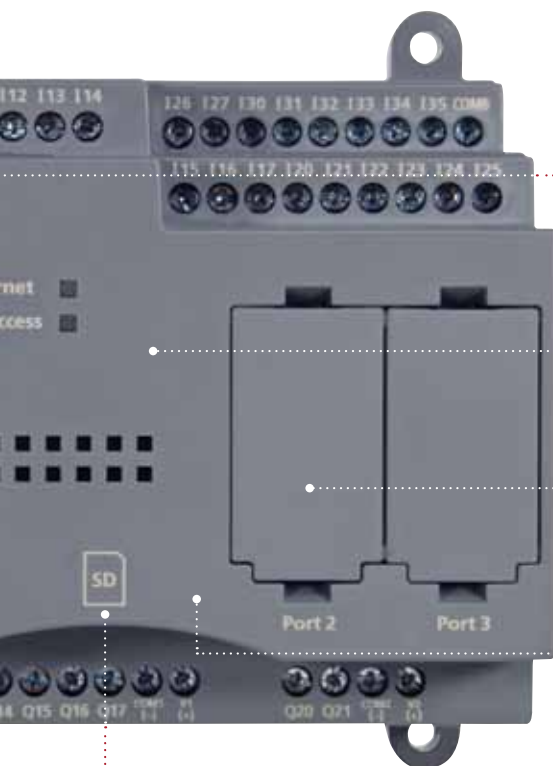
Up to two RS232C and/or RS485 communication cartridges can be plugged into the FT1A controllers to allow the PLC to communicate with other serial devices. It also supports industry standard Modbus RTU protocol.

Large Programming Memory

With up to 47.4KB (11,850 steps) of programming memory, FT1A controllers have enough memory for even complex PLC programming.

SD Memory Card

With the embedded SD memory slot, critical data can be easily logged and retrieved over Ethernet connections or simply remove the SD card and plug it into your PC.



10A Relay and High-speed Outputs

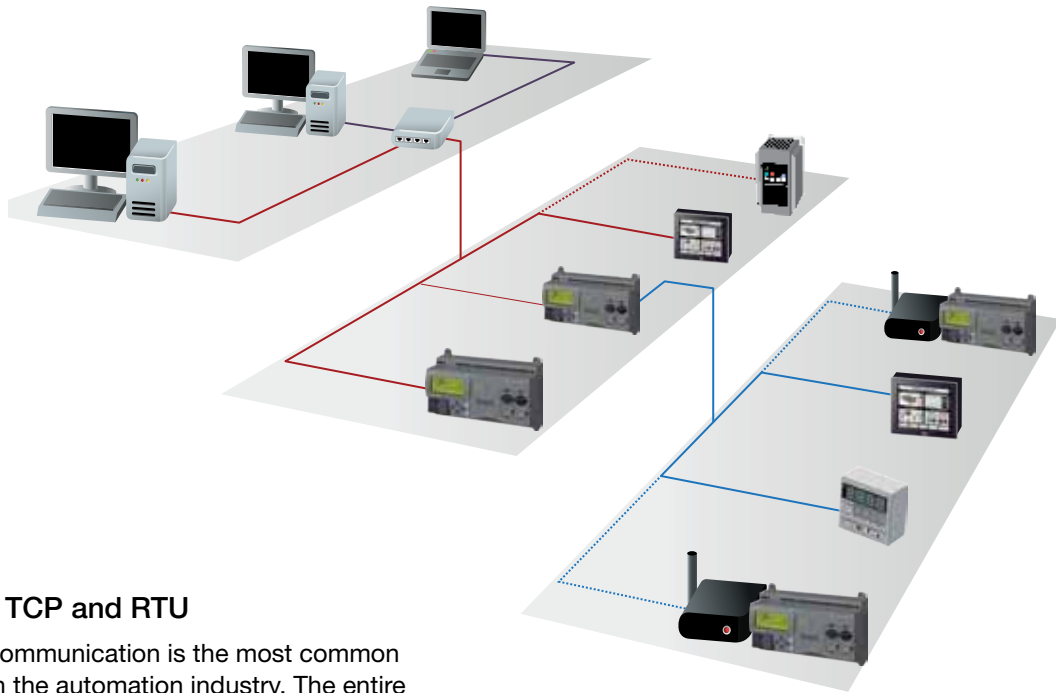
The FT1A controller with relay outputs is equipped with four 10A relay contacts. The transistor outputs model is also equipped with two 100kHz high-speed outputs for simple positioning controls. With remote I/O capability, additional outputs can easily be added.



A Closer Look at Our Feature-rich Controllers

From Connecting to Remote Access

From connectivity to remote access to visual display, FT1A leads the way with versatile, full-featured controllers. No other controllers offer such a broad range of capabilities at such a competitive price.



Modbus TCP and RTU

Modbus communication is the most common protocol in the automation industry. The entire FT1A family (except the 12 I/O CPU) supports Modbus TCP and Modbus RTU, making communication with other devices a breeze.

Ethernet Connectivity

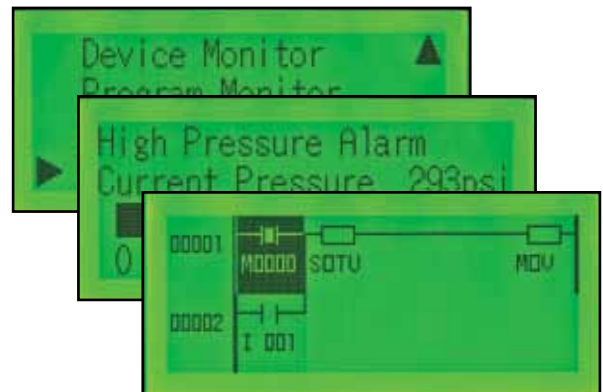
Thanks to the embedded RJ45 Ethernet port (on all models except 12 I/O), FT1A controllers can be easily accessed from remote locations. Using WindLDR software, PLC programs can be updated remotely and critical parameters monitored and controlled. Remote connectivity is a critical part of today's control environment, and FT1A controllers meet every challenge with fast, easy, and reliable Ethernet connectivity.

SD Memory Card

FT1A 40 and 48 I/O controllers are equipped with an SD memory slot for data logging. Memory cards up to 32GB are supported. Log data is time/date stamped and stored in .CSV format, making it simple to review and analyze critical system data.

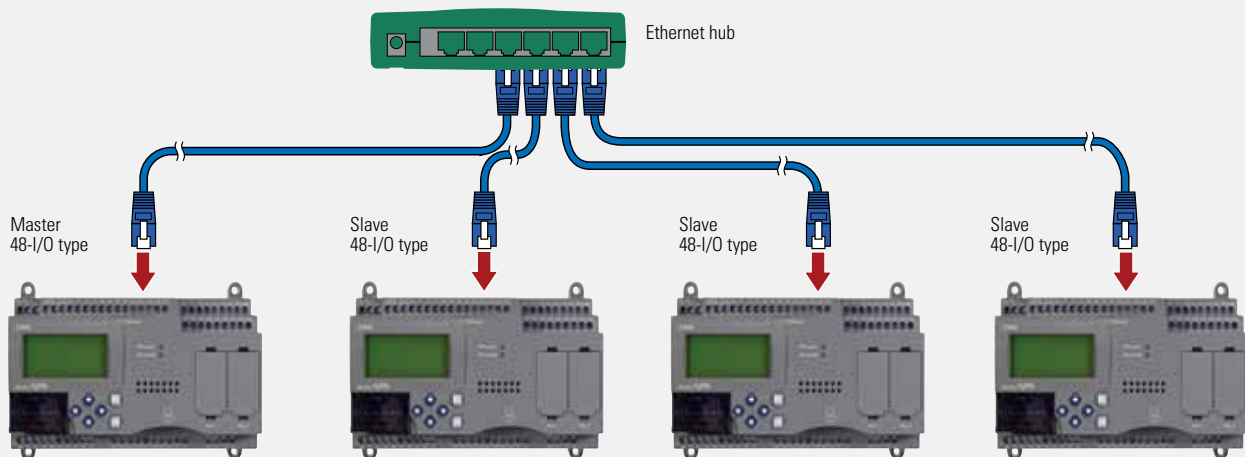
Smart LCD Display

With the embedded LCD screen, I/O status, system menus, customized dynamic messages, and bar-graph readouts can all be configured and displayed. Ladder programs can be displayed and controlled as well. You can configure up to 50 customized messages, all with dynamic values (24 digits by 4 lines max.). The backlight can be turned on or off. Scrolling and flashing are also supported.



Remote I/O

The FT1A remote I/O, available in all Ethernet-capable modules, enables you to expand the number of inputs and outputs by simply connecting separate FT1A modules via Ethernet as remote I/O slaves. The FT1A remote I/O can monitor and control a total of 192 points of I/O.



48-I/O type (master) + 48-I/O type (slave) + 48-I/O type (slave) + 48-I/O type (slave) = 192 I/O
 (30 inputs, 18 outputs) + (30 inputs, 18 outputs) + (30 inputs, 18 outputs) + (30 inputs, 18 outputs) = 120 inputs, 72 outputs

Built-in Analog Inputs

The FT1A controllers support up to 8 built-in, 0-10V DC analog inputs with 10-bit resolution, depending on the model. Having the option to configure the analog inputs on the CPU saves you time, space and money.

100kHz, High-Speed Counters and Outputs

Models with transistor outputs feature two 100kHz high-speed outputs for positioning control and all FT1A controllers are equipped with up to six 100kHz high-speed counters.

10 Amp Relay Contacts

FT1A controllers with relay outputs offer 10 Amp rated contacts. Traditional PLC relays are only rated for 2 Amps. Therefore, FT1A controllers reduce the need for, and spare you the cost of, using interposing relays.

Built-in Real Time Clock

Equipped with a real-time clock for use with any time-controlled applications, FT1A controllers have built-in support for US, Canadian, European, and Australian daylight savings time. The option for the user to configure their own custom daylight savings schedule is also available, providing the utmost in flexibility.

USB Maintenance Port

A convenient USB mini-B maintenance port is standard on all FT1A controllers, which means any standard Type A to mini-B USB cable can be used. No special cable is necessary.

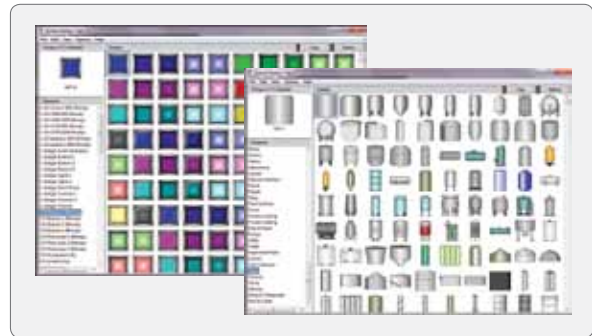
Our Automation Organizer Software is Simple and Intuitive

A Complete Automation Suite: All-in-one Configuration Software

Automation Organizer (AO) is a powerful software suite containing WindLDR PLC programming software, WindO/I-NV2 HMI configuration software, WindO/I-NV3 FT1A Touch configuration software, and WindCFG system configuration software. AO is an all-in-one automation software package for IEC PLCs and IEC HMIs. The news gets even better, because AO software upgrades are always FREE.

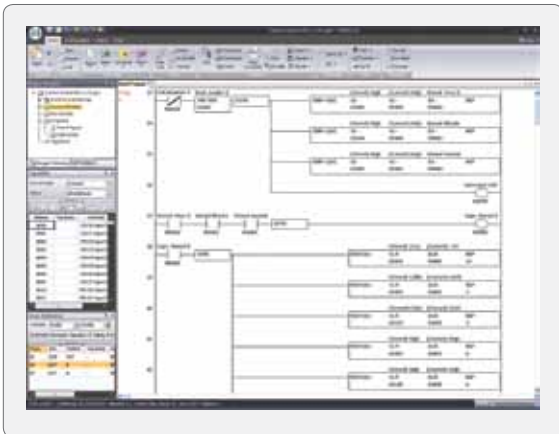
WindO/I-NV3

WindO/I-NV3 is our exclusive configuration software for the FT1A Touch. Using the same platform as WindO/I-NV2 HG HMI programming software, WindO/I-NV3 provides users with the same intuitive experience. Users can easily display alarm screens, trend and bar graphs, scrolling texts and meters. With thousands of industry-standard bitmap libraries, creating a professional interface is just a click away.



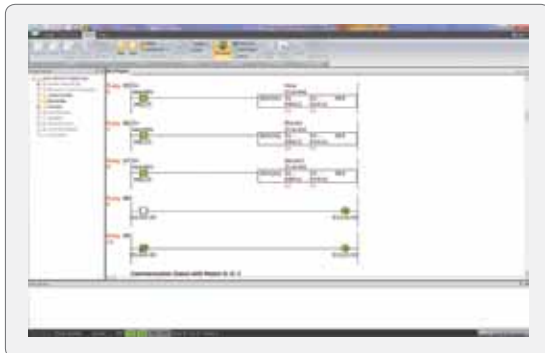
WindLDR

All IEC PLCs—including the FT1A family—are programmed with WindLDR software. This icon-driven programming tool combines logic and intuition with an incredibly easy-to-use interface. Offline simulation, I/O Force and program bookmarks are just some of the standard features you'll find in WindLDR. Newly added for FT1A are Function Block Diagram (FBD) and Script programming. Over the years, WindLDR has proven to be the most user-friendly, intuitive software available for beginners and advanced programmers alike.



Simulation Mode

WindLDR allows you to simulate ladder and Function Block Diagram (FBD) programs in FT1A. You can easily test and verify functionality of your ladder and FBD programs without having to connect any hardware.

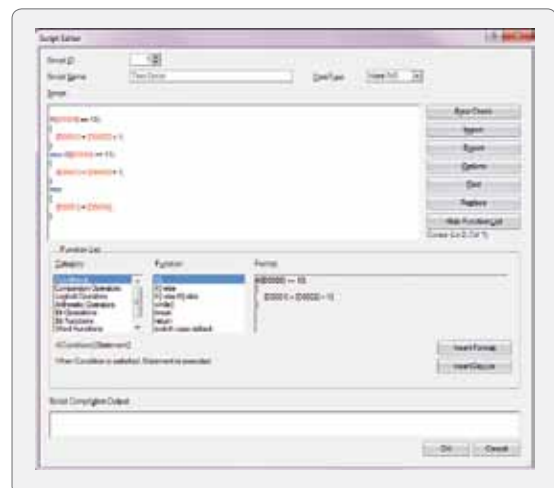


Comment Download Settings

The comment download settings allow you to choose whether to download Tag names, rung comments, custom monitor dialog boxes or file names. The biggest advantage of utilizing these settings is that once a program is retrieved from the PLC, all these important parameters will be available.

Function Block and Scripting

In addition to ladder logic, WindLDR now supports Function Block Diagram (FBD) and Script programming. With the FT1A controllers, you now have the flexibility and convenience of programming using any or all of these methods.







Free 30-Day Demo

Curious to see how an IDEC FT1A SmartAXIS controller might complement your design? Find out for yourself!

Just go to www.IDEC.com/download and download your free 30-day demo.

Selection Guide and Part Number Listing

Touch Part Numbers

| Touch | Part Number | Screen Type | Total I/O | Input Type | Embedded Analog Inputs | Output Type | Analog Expansion Cartridges | Power Voltage | Remote I/O Master | |
|---|---|--------------------------------|----------------------|------------|--|-------------------|-----------------------------|---------------|-------------------|------------------------|
|  | FT1A-M14KA-W | 3.7" STN Monochrome (8 shades) | 14 points (8/6) | Source | 2pt (0-10VDC, 4-20mA, 10-bit Resolution) | Transistor Sink | Yes, up to 2 cartridges | 24V DC | Yes | |
| | FT1A-M14KA-B | | | | | | | | | |
| | FT1A-M14KA-S | | | | | | | | | |
| | FT1A-M14SA-W | | | Sink | | Transistor Source | | | | |
| | FT1A-M14SA-B | | | | | | | | | |
| | FT1A-M14SA-S | | | | | | | | | |
|  | FT1A-C14KA-W | 3.8" TFT 65,536 colors | 14 points (8/6) | Source | 2pt (0-10VDC, 4-20mA, 10-bit Resolution) | Transistor Sink | Yes, up to 2 cartridges | 24V DC | Yes | |
| | FT1A-C14KA-B | | | | | | | | | |
| | FT1A-C14KA-S | | | | | | | | | |
| | FT1A-C14SA-W | | | Sink | | Transistor Source | | | | |
| | FT1A-C14SA-B | | | | | | | | | |
| | FT1A-C14SA-S | | | | | | | | | |
|  | FT1A-M12RA-W | 3.7" STN Monochrome (8 shades) | 12 I/O (8 in, 4 out) | Sink | 2pt (0-10VDC, 10-bit Resolution) | Relay | - | - | Yes | |
| | FT1A-M12RA-B | | | | | | | | | |
| | FT1A-M12RA-S | | | | | | | | | |
| |  | FT1A-C12RA-W | | | | | | | | 3.8" TFT 65,536 colors |
| | | FT1A-C12RA-B | | | | | | | | |
| | | FT1A-C12RA-S | | | | | | | | |

Touch Accessories

| Part Number | Description |
|--------------|---|
| FC6A-PJ2A | 2-pt 0-10V, 4-20mA Analog input cartridge |
| FC6A-PK2AV | 2-pt 0-10V Analog output cartridge |
| FC6A-PK2AW | 2-pt 4-20mA Analog output cartridge |
| FC6A-PJ2CP | 2-pt RTD, Thermocouple cartridge |
| FT9Z-1D3PN05 | FT1A Touch screen protective sheet (5 per pack) |
| FT9Z-1E3PN05 | FT1A Touch protective cover (5 per pack) |
| FT9Z-1A01 | FT1A Touch rear mount adapter |
| FT9Z-1T09 | FT1A Touch extra communication terminal block |
| FT9Z-1X03 | FT1A Touch extra power supply terminal block |
| HG9Z-4K2PN04 | FT1A Touch extra mounting brackets (4 per pack) |
| HG9Z-XU1PN05 | USB cable lock-in (5 per pack) |
| SW1A-W1C | Automation Organizer Software Suite |

Controller Accessories

| Part Number | Description |
|---------------|--|
| FT1A-PC1 | RS232C communication adapter, mini-DIN type |
| FT1A-PC2 | RS485 communication adapter, mini-DIN type |
| FT1A-PC3 | RS485 communication adapter, screw terminal type |
| FT1A-PM1 | Optional memory cartridge |
| FT9Z-PSP1PN05 | Extra direct mounting hook (5 per pack) |
| SW1A-W1C | Automation Organizer Software Suite |

Controller Part Numbers

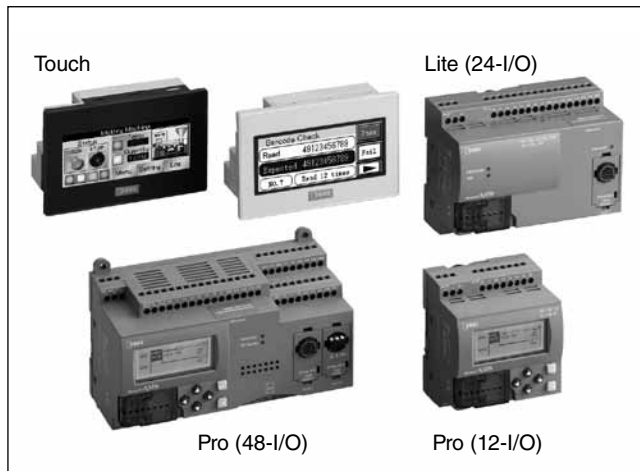
| 12 I/O CPU | Part Number | Power Voltage | Total I/O | Input Type | Output Type | Ethernet Port | Screen Type | Embedded Analog Inputs | High-Speed Counter | SD Memory Slot | RS232C, RS485 Port |
|-------------------|-------------|---------------|---------------------------|-------------|---------------------|---------------|-----------------|------------------------|--------------------|----------------|------------------------|
| | FT1A-H12RC | 100-240V AC | 12 I/O (8 in, 4 out) | Contact | Relay | — | 2.1" Monochrome | — | — | — | — |
| | FT1A-H12RA | 24V DC | | Sink | | | | 2pt, 0-10VDC, 10-bit | 4 x 100kHz | | |
| | FT1A-B12RC | 100-240V AC | | Contact | | | | — | — | | |
| | FT1A-B12RA | 24V DC | | Sink | | | | 2pt, 0-10VDC, 10-bit | 4 x 100kHz | | |
| 24 I/O CPU | | | | | | | | | | | |
| | FT1A-H24RC | 100-240V AC | 24 I/O (16 in, 8 out) | Sink/Source | Relay | Yes | 2.1" Monochrome | — | — | — | Optional Adapter |
| | FT1A-H24RA | 24V DC | | Sink | | | | 4pt, 0-10VDC, 10-bit | 6 x 100kHz | | |
| | FT1A-B24RC | 100-240V AC | | Sink/Source | | | | — | — | | |
| | FT1A-B24RA | 24V DC | | Sink | | | | 4pt, 0-10VDC, 10-bit | 6 x 100kHz | | |
| 40 I/O CPU | | | | | | | | | | | |
| | FT1A-H40RC | 100-240V AC | 40 I/O (24 in, 16 out) | Sink/Source | Relay | Yes | 2.1" Monochrome | — | — | Yes | Optional Adapters (x2) |
| | FT1A-H40RKA | 24V DC | | Source | Relay/Trans. Sink | | | 6pt, 0-10VDC, 10-bit | 6 x 100kHz | | |
| | FT1A-H40RSA | | | Sink | Relay/Trans. Source | | | | | | |
| | FT1A-B40RC | 100-240V AC | | Sink/Source | Relay | | | — | — | | |
| | FT1A-B40RKA | 24V DC | | Source | Relay/Trans. Sink | | | 6pt, 0-10VDC, 10-bit | 6 x 100kHz | | |
| | FT1A-B40RSA | | | Sink | Relay/Trans. Source | | | | | | |
| 48 I/O CPU | | | | | | | | | | | |
| | FT1A-H48SC | 100-240V AC | 48 I/O (30 in, 18 out) | Sink/Source | Transistor Source | Yes | 2.1" Monochrome | — | — | Yes | Optional Adapters (x2) |
| | FT1A-H48SA | 24V DC | | Sink | Transistor Source | | | 8pt, 0-10VDC, 10-bit | 6 x 100kHz | | |
| | FT1A-H48KC | 100-240V AC | | Sink/Source | Transistor Sink | | | — | — | | |
| | FT1A-H48KA | 24V DC | | Source | | | | 8pt, 0-10VDC, 10-bit | 6 x 100kHz | | |
| | FT1A-B48SC | 100-240V AC | | Sink/Source | Transistor Source | | | — | — | | |
| | FT1A-B48SA | 24V DC | | Sink | Transistor Source | | | 8pt, 0-10VDC, 10-bit | 6 x 100kHz | | |
| | FT1A-B48KC | 100-240V AC | | Sink/Source | Transistor Sink | | | — | — | | |
| | FT1A-B48KA | 24V DC | | Source | | | | 8pt, 0-10VDC, 10-bit | 6 x 100kHz | | |

SmartAXIS Series FT1A Controller

Powerful controller with embedded I/O.

Touch, Pro, and Lite models for flexible use in almost all applications.

- Drag & drop action of function block diagram (FBD) makes programming easy (except PID control).
- Addition of scripts to WindLDR makes it easy to manage multiple processing (55 scripts total).
- Digital/analog-compatible input available for 24V DC. Convenient for systems requiring minimal analog inputs.
- 10A output relays connect directly to small motors and solenoid valves.
- Supports communication via RS232C, RS485, and Ethernet.
- USB programming port.
- User's program can be changed with the memory cartridge (Pro/Lite) or USB memory (Touch).
- Certified for marine use (except transistor output type).



Touch (Display model)

- By integrating the control function (same functionality as Lite 12-I/O type) with a small display, a connected device is not needed. Wire and space-saving features offer the ideal solution for cost- and time-savings.
- Touch is an advanced small display with integrated control function.
- The transistor output models are suitable for applications where the durability of relay contacts is a concern.
- Connection to analog devices is possible with the transistor output model with two analog inputs (0-10V/4-20mA) and two analog outputs (0-10V/4-20mA), reducing installation space and costs.
- Installing analog cartridges on the transistor output model achieves a maximum of AI/AO: 2/6, 4/4, and 6/2 system configuration (when using two analog expansion cartridges). Adding the temperature input type cartridge enables simple PID control.
- PID control can be programmed easily and intuitively with the enhanced, proprietary dialog in WindLDR. PID monitor function greatly reduces the engineering time necessary for program debugging and system setup.
- Ethernet remote I/O master is available.
- 400cd/m² high-contrast and 65,536 color high-resolution TFT LCD provides unparalleled visibility.
- Adjustable LED brightness function.
- Monochrome STN models are equipped with a 740 cd/m² brightness LCD and backlit with a choice of 3 colors (pink, red, white), providing practically the same brightness as the color LCD models.
- Program both the Pro and Lite models using WindLDR and the Touch model using WindO/I-INV3. Our intuitive programming software that is easy even for the first-time users.

NEW



Touch (relay output)
(photo: FT1A-*12RA-B)



Touch (transistor output)
(photo: FT1A-*14SA-W with analog expansion cartridges)

Pro (LCD Model) / Lite (No LCD Model)

- Parameters such as counters and timers can be adjusted using the LCD and six operations buttons (also available on Touch).
- Monitor screens on LCD show system status and settings. "I/O status monitor" screen for monitoring I/O status "Device monitor" screen for monitoring SmartAXIS device values "Ladder Monitor" screen for monitoring the operating ladder program "Status monitor" screen: also useful for confirming protection status and scan time The states of four operation buttons can be used as digital inputs in the user programs.
- Supports positioning control with a single-phase (100 kHz)/4 point or a single-phase (100 kHz)/two-phase (50 kHz)/2 point high-speed counter input and 100 kHz/2 point pulse output. The new ARAMP instruction and enables you to program complex positioning systems easily.
- Integrated data logging function using an SD memory card. Logged data is useful for system maintenance management. (Touch: available using USB memory)
- Lite (No LCD) is available, offering more options for product selection.
- A maximum of 144 I/Os can be added using the remote I/O function with Ethernet. (Input: 90 I/O max., Output: 54 I/O max.)



Pro
(photo: FT1A-H48KC when using communication cartridge)



Lite
(photo: FT1A-B24RA when using communication cartridge)

FT1A

Touch (Display Models)

Package Quantity: 1

| Type | Power | I/O | Input | | Output | Program Size (ladder/FBD) | Interfaces | LCD | Bezel Color | Part No. | |
|-------------------|--------|-----------------|---------------------|---------------------|--|--|--|--|-------------|--------------|--------------|
| | | | Digital I/O | Analog I/O (Note 1) | | | | | | | |
| Relay Output | 24V DC | 12 points (8/4) | 6 (sink) (24V DC) | 2 | 4 points 10A relay output | Program size: 47.4/38kB Configuration memory size: 5 MB | USB-A USB-mini B RS232C RS422/485 Ethernet | STN monochrome | Light gray | FT1A-M12RA-W | |
| | | | | | | | | | Dark gray | FT1A-M12RA-B | |
| | | | | | | | | | Silver | FT1A-M12RA-S | |
| | | TFT color | Light gray | FT1A-C12RA-W | | | | | | | |
| | | | Dark gray | FT1A-C12RA-B | | | | | | | |
| | | | Silver | FT1A-C12RA-S | | | | | | | |
| Transistor Output | 24V DC | 14 points (8/6) | 6 (source) (24V DC) | 2 | 4 points Tr. sink output 2 points analog output | Program size: 47.4/38kB Configuration memory size: 5 MB | USB-A USB-mini B RS232C RS422/485 Ethernet | STN monochrome | Light gray | FT1A-M14KA-W | |
| | | | 6 (sink) (24V DC) | 2 | 4 points Tr. source output 2 points analog output | | | | Dark gray | FT1A-M14KA-B | |
| | | | 6 (source) (24V DC) | 2 | 4 points Tr. sink output 2 points analog output | | | | Silver | FT1A-M14KA-S | |
| | | | TFT color | Light gray | FT1A-M14SA-W | | | | | | |
| | | | | Dark gray | FT1A-M14SA-B | | | | | | |
| | | | | Silver | FT1A-M14SA-S | | | | | | |
| | | 14 points (8/6) | 24V DC | 6 (source) (24V DC) | 2 | 4 points Tr. sink output 2 points analog output | Program size: 47.4/38kB Configuration memory size: 5 MB | USB-A USB-mini B RS232C RS422/485 Ethernet | TFT color | Light gray | FT1A-C14KA-W |
| | | | | | | | | | | Dark gray | FT1A-C14KA-B |
| | | | | | | | | | | Silver | FT1A-C14KA-S |
| | | | | TFT color | Light gray | FT1A-C14SA-W | | | | | |
| | | | | | Dark gray | FT1A-C14SA-B | | | | | |
| | | | | | Silver | FT1A-C14SA-S | | | | | |

Pro (LCD Models)

Package Quantity: 1

| Power | I/O | Input | | Output | High-Speed Tr. Output | Program Size (ladder/FBD) | Interfaces | | | | | Part No. | |
|----------------|-------------------|--------------|---------------------|--------|---|---------------------------|-----------------|---------------|---------------------------------------|---|------------------|----------|----------------|
| | | Digital I/O | Analog I/O (Note 1) | | | | USB mini-B Port | Ethernet Port | Expansion communication port (Note 2) | | Memory Cartridge | | SD Memory Card |
| 24V DC | 12 points (8/4) | 24V DC Input | 6 | 2 | 4 points 10A relay output | 12/10 kB | × | × | × | × | × | × | FT1A-H12RA |
| | 24 points (16/8) | | 12 | 4 | 4 points 10A relay output 4 points 2A relay output | | | | | | | | FT1A-H24RA |
| | 40 points (24/16) | | 18 | 6 | 4 points 10A relay output 8 points 2A relay output 4 points Tr. sink output 4 points Tr. source output | | | | | | | | FT1A-H40RKA |
| | 48 points (30/18) | | 22 | 8 | 18 points Tr. sink output 18 points Tr. source output | | | | | | | | FT1A-H40RSA |
| | | | | | | | | | | | | | FT1A-H48KA |
| FT1A-H48SA | | | | | | | | | | | | | |
| 100 to 240V AC | 12 points (8/4) | 24V DC Input | 8 | — | 4 points 10A relay output | 12/10 kB | × | × | × | × | × | × | FT1A-H12RC |
| | 24 points (16/8) | | 16 | — | 4 points 10A relay output 4 points 2A relay output | | | | | | | | FT1A-H24RC |
| | 40 points (24/16) | | 24 | — | 4 points 10A relay output 12 points 2A relay output | | | | | | | | FT1A-H40RC |
| | 48 points (30/18) | | 30 | — | 18 points Tr. sink output 18 points Tr. source output | | | | | | | | FT1A-H48KC |
| | | | | | | | | | | | | | FT1A-H48SC |

Lite (No LCD Models)

Package Quantity: 1

| Power | I/O | Input | | Output | High-Speed Tr. Output | Program Size (ladder/FBD) | Interfaces | | | | | Part No. | |
|----------------|-------------------|--------------|---------------------|--------|---|---------------------------|-----------------|---------------|---------------------------------------|---|------------------|----------|----------------|
| | | Digital I/O | Analog I/O (Note 1) | | | | USB mini-B Port | Ethernet Port | Expansion communication port (Note 2) | | Memory Cartridge | | SD Memory Card |
| 24V DC | 12 points (8/4) | 24V DC Input | 6 | 2 | 4 points 10A relay output | 12/10 kB | × | × | × | × | × | × | FT1A-B12RA |
| | 24 points (16/8) | | 12 | 4 | 4 points 10A relay output 4 points 2A relay output | | | | | | | | FT1A-B24RA |
| | 40 points (24/16) | | 18 | 6 | 4 points 10A relay output 8 points 2A relay output 4 points Tr. sink output 4 points Tr. source output | | | | | | | | FT1A-B40RKA |
| | 48 points (30/18) | | 22 | 8 | 18 points Tr. sink output 18 points Tr. source output | | | | | | | | FT1A-B40RSA |
| | | | | | | | | | | | | | FT1A-B48KA |
| FT1A-B48SA | | | | | | | | | | | | | |
| 100 to 240V AC | 12 points (8/4) | 24V DC Input | 8 | — | 4 points 10A relay output | 12/10 kB | × | × | × | × | × | × | FT1A-B12RC |
| | 24 points (16/8) | | 16 | — | 4 points 10A relay output 4 points 2A relay output | | | | | | | | FT1A-B24RC |
| | 40 points (24/16) | | 24 | — | 4 points 10A relay output 12 points 2A relay output | | | | | | | | FT1A-B40RC |
| | 48 points (30/18) | | 30 | — | 18 points Tr. sink output 18 points Tr. source output | | | | | | | | FT1A-B48KC |
| | | | | | | | | | | | | | FT1A-B48SC |




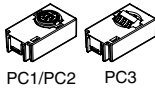
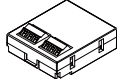
Note 1: Digital/analog-compatible input

Note 2: The following communication cartridges can be connected.

FT1A-PC1: RS232C, mini-DIN type, FT1A-PC2: RS485, mini-DIN type, FT1A-PC3: RS485, terminal block type

Options / Maintenance Parts

Options

| Name/Appearance | Applicable Model | | | Part No. (Ordering No.) | Package Quantity | Specifications | |
|---|------------------|-----|------|----------------------------|---------------------|--|--|
| | Touch | Pro | Lite | | | | |
| Application software | × | × | × | SW1A-W1C | 1 | Automation Organizer Ver. 2.0 or higher (Note 1) | |
| USB maintenance cable  | × | × | × | HG9Z-XCM42 | 1 | USB cable (length 2 m), USB-miniB | |
| Panel mount extension cable | × | — | — | HG9Z-XCE11 | 1 | USB-A port extension cable (length 1 m) | |
| | × | × | × | HG9Z-XCE21 | 1 | USB-mini B port extension cable (length 1 m) | |
| Screen protection sheet (Note 2) | × | — | — | FT9Z-1D3PN05 | 5 | | |
| Protective cover | × | — | — | FT9Z-1E3PN05 | 5 | | |
| Memory card  | — (Note 3) | × | × | HG9Z-XMS2 | 1 | SD memory card (2 GB) | |
| Memory cartridge  | — | × | × | FT1A-PM1 | 1 | Dedicated user program save memory (1 MB) | |
| Communication cartridge  | — | × | × | FT1A-PC1 | 1 | RS232C, mini-DIN type | |
| | — | × | × | FT1A-PC2 | 1 | RS485, mini-DIN type | |
| | — | × | × | FT1A-PC3 | 1 | RS485, terminal block type | |
| Analog cartridge  | × | — | — | FC6A-PJ2A | 1 | Voltage/current input (2 points) | |
| | × | — | — | FC6A-PK2AV | 1 | Voltage output (2 points) | |
| | × | — | — | FC6A-PK2AW | 1 | Current output (2 points) | |
| | × | — | — | FC6A-PJ2CP | 1 | Temperature input (2 points) | |
| Rear mount adapter | × | — | — | FT9Z-1A01 | 1 | Rear mount bracket | |
| 35-mm-wide DIN Rail | — | × | × | BAA1000PN10 | 10 | Aluminum, 1,000mm long, 200g (approx.) | |
| | — | × | × | BAP1000PN10 | 10 | Steel, 1,000mm long, 200g (approx.) | |
| DIN rail mounting bracket | — | × | × | BNL6PN10 | 10 | DIN rail bracket | |
| Touch User's Manual | Japanese | × | — | — | FT9Y-B1389 | 1 | |
| | English | × | — | — | FT9Y-B1390 | 1 | |
| Pro/Lite User's Manual | Japanese | — | × | × | FT9Y-B1377 | 1 | |
| | English | — | × | × | FT9Y-B1378 | 1 | |
| SmartAXIS Ladder Programming Manual | Japanese | × | × | × | FT9Y-B1381 | 1 | |
| | English | × | × | × | FT9Y-B1382 | 1 | |
| FBD Programming Manual | Japanese | × | × | × | FT9Y-B1385 | 1 | |
| | English | × | × | × | FT9Y-B1386 | 1 | |

Note 1: Upgrade from earlier version is possible on IDEC website.

The following manuals in PDF can be downloaded from <http://www.idec.com/language>.

FT1A SmartAXIS Touch User's Manual (English, Japanese, Simplified Chinese)

FT1A SmartAXIS Pro/Lite User's Manual (English, German, Japanese, Simplified Chinese)

FT1A SmartAXIS Ladder Programming Manual (English, German, Japanese, Simplified Chinese)

FT1A SmartAXIS FBD Programming Manual (English, German, Japanese, Simplified Chinese)

Note 2: UV resistance material is used. However, resistance against direct sunlight in outdoor usage is not guaranteed.






Note 3: Use commercially-available USB memory to store project data, log data, and recipe file of Touch models.

Note 4: Can be used for 40-I/O and 48-I/O types. Note that user programs cannot be stored or read using an SD memory card. If necessary, use a memory cartridge.

Note 5: Cannot be used for expansion with 12-I/O type. Not isolated from internal circuits.

Note 6: Cannot be used for expansion with relay output type.

Maintenance Parts

| Name | Applicable Model | | | Part No. (Ordering No.) | Package Quantity | Specification |
|--|------------------|-----|------|----------------------------|---------------------|---|
| | Touch | Pro | Lite | | | |
| Communication Interface plug  | × | — | — | FT9Z-1T09 | 1 | For communication ports (black) One supplied with Touch |
| Power supply plug  | × | — | — | FT9Z-1X03 | 1 | For power supply terminals (black) One supplied with Touch |
| Mounting bracket  | × | — | — | HG9Z-4K2PN04 | 4 | Two sets Two supplied with Touch |
| USB cable lock pin  | × | — | — | HG9Z-XU1PN05 | 5 | Used when using the USB cable on a regular basis Two supplied with Touch |
| Direct mounting hook  | — | × | × | FT9Z-PSP1PN05 | 5 | Direct mounting hook for Pro/Lite One set supplied with Pro/Lite |

General Specifications

Touch (Display Model)

| Part No. | FT1A-*12RA-* | FT1A-*14KA-* / FT1A-*14SA-* |
|--|---|--|
| Output | Relay output | Transistor output |
| Rated Power Voltage/ Power Supply Isolation | 24V DC/Not isolated | |
| Allowable Voltage Range | 20.4 to 28.8V DC (including ripple) | |
| Power Consumption | 9.2W maximum | 11W maximum |
| Allowable Momentary Power Interruption | 10 ms maximum | |
| Dielectric Strength | 1. Between power terminal and FE terminal: 500V AC, 5 mA, 1 minute 2. Between power terminal and output terminal: 2,300V AC, 5 mA, 1 minute | 1. Between power terminal and FE terminal: 500V AC, 5 mA, 1 minute 2. Between power terminal and output terminal: 500V AC, 5 mA, 1 minute |
| EMC Immunity | IEC/EN 61131-2:2007 compliant | |
| Inrush Current | 50A maximum (5ms maximum) | |
| Operating Temperature | Color display: -20 to +55°C, Monochrome display: 0 to +55°C (Note 1) (Note 2) | |
| Storage Temperature | -20 to +60°C (no freezing) | |
| Relative Humidity | 10 to 95% RH (no condensation) | |
| Pollution Degree | 2 (IEC 60664-1) | |
| Corrosion Immunity | Atmosphere free from corrosive gases | |
| Degree of Protection | IP66F TYPE 4X TYPE 13 (Panel front) (Note 3), IP20 (Rear) | |
| Ground | Functional grounding | |
| Protective grounding conductor | UL1007 AWG16 | |
| Vibration Resistance | 5 to 8.4 Hz half amplitude 3.5 mm, 8.4 to 150 Hz, acceleration 9.8 m/s ² (1G), 2 hours per axis on each of three mutually perpendicular axis (IEC 61131-2) | |
| Shock Resistance | 147 m/s ² , 11 ms, X, Y, Z directions 3 times (IEC 61131-2) | |
| Mounting Structure | Panel mount | |
| Weight (approx.) | 300g | 250g |

Note 1: FT1A-*12RA-* hardware version V130 (indicated on hardware) and earlier is UL, c-UL listed at 50°C (maximum operating temperature).

Note 2: See SmartAXIS Touch User's Manual FT9Y-B1390(2) for I/O derating.

Note 3: Operation not guaranteed when used with certain types of oils.

Pro/Lite (LCD Model/No LCD Model)

| Part No. | Pro/Lite | | | |
|--|---|---|---|---|
| | 12-I/O Type H12RA H12RC B12RA B12RC | 24-I/O Type H24RA H24RC B24RA B24RC | 40-I/O Type H40RKA H40RSA H40RC B40RKA B40RSA B40RC | 48-I/O Type H48KA H48SA H48KC H48SC B48KA B48SA B48KC B48SC |
| Rated Power Voltage/ Power Supply Isolation | AC power: 100 to 240V AC/Isolation with transformer DC power: 24V DC/Not isolated | | | |
| Allowable Voltage Range | AC power: 85 to 264V AC DC power: 20.4 to 28.8V DC (including ripple) | | | |
| Rated Power Frequency | AC power: 50 to 60 Hz (47 to 63 Hz) | | | |
| Power Consumption | AC power | 12-I/O: 18 VA maximum, 24-I/O: 41 VA maximum, 40-I/O: 48VA maximum, 48-I/O: 43 VA maximum | | |
| | DC power | 12-I/O: 4.3W maximum, 24-I/O: 4.8W maximum, 40-I/O: 7.9W maximum, 48-I/O: 6.0W maximum | | |
| Allowable Momentary Power Interruption | AC power: 20 ms maximum, DC power: 10 ms maximum | | | |
| Dielectric Strength | AC power type: Between power/input and PE terminals: 1,500V AC, 5mA, 1 minute Between transistor output and PE terminals: 1,500V AC, 5mA, 1 minute Between relay output and PE terminals: 2,300V AC, 5mA, 1 minute Between power and input terminals: 1,500V AC, 5mA, 1 minute Between power/input and transistor output terminals: 1,500V AC, 5mA, 1 minute Between power/input and relay output terminals: 2,300V AC, 5mA, 1 minute DC power type: Between power/input and FE terminals: 500V AC, 5mA, 1 minute Between transistor output and FE terminals: 500V AC, 5mA, 1 minute Between relay output and FE terminals: 2,300V AC, 5mA, 1 minute Between power/input and transistor output terminals: 500V AC, 5mA, 1 minute Between power/input and relay output terminals: 2,300V AC, 5mA, 1 minute | | | |
| EMC Immunity | IEC/EN 61131-2:2007 compliant | | | |
| Inrush Current | AC power: 35A maximum (Cold start with Ta=-25°C, 200V AC) DC power: 30A maximum (5ms maximum) | | | |
| Operating Temperature | 0 to +55°C (Note) | | | |
| Storage Temperature | -25 to +70°C (no freezing) | | | |
| Relative Humidity | 10 to 95% RH (no condensation) | | | |
| Pollution Degree | 2 (IEC 60664-1) | | | |
| Corrosion Immunity | Atmosphere free from corrosive gases | | | |
| Degree of Protection | IP20 (IEC 60529) | | | |
| Ground | D-type ground (Class 3 ground) | | | |
| Protective grounding conductor | UL1007 AWG16 | | | |
| Vibration Resistance | 5 to 8.4 Hz half amplitude 3.5 mm, 8.4 to 150 Hz, acceleration 9.8 m/s ² (1G), 2 hours per axis on each of three mutually perpendicular axis (IEC 61131-2) | | | |
| Shock Resistance | 147 m/s ² , 11 ms, X, Y, Z directions 3 times (IEC 61131-2) | | | |
| Mounting Structure | DIN rail or direct mount | | | |
| Weight (approx.) | AC power | 12-I/O: 230g, 24-I/O: 400g, 40-I/O: 580g, 48-I/O: 540g | | |
| | DC power | 12-I/O: 190g, 24-I/O: 310g, 40-I/O: 420g, 48-I/O: 380g | | |

Note: Hardware version V110 (indicated on hardware) is UL, c-UL Listed at 50°C (maximum operating temperature).

Function Specifications (Touch)

| Part No. | Touch | | |
|---|--|---|---|
| | FT1A-*12RA-* | FT1A-*14KA-* | FT1A-*14SA-* |
| Control System | Stored program system | | |
| Ladder Program | Instruction Words | Basic Instructions | 42 types |
| | | Advanced Instructions | 98 types |
| | Program Capacity | Program size: 47.4 kB, Configuration memory capacity: 5 MB | |
| | Processing Time | Basic Instruction | 1850μs/1,000 steps |
| END Processing | | 5 msec minimum | |
| FBD | FB | 37 types | |
| | Program Capacity | Program size: 38kB, Configuration memory capacity: 5MB | |
| | No. of FB | FB (Note 1) | 1,000 |
| | | Timer (T) | 200 |
| | | Counter (C) | 200 |
| Processing Time | Basic Instruction | 4ms/100 | |
| | END Processing | 5ms minimum | |
| User Program Storage | Flash ROM (100,000 times) | | |
| I/O Points | Inputs | 8 (V3.90 or above: 90 max. can be added with remote I/O master function) | 8 (90 max. can be added with remote I/O master function) |
| | Outputs | 4 (V3.90 or above: 54 max. can be added with remote I/O master function) | 4 (54 max. can be added with remote I/O master function) |
| Analog Input | 2 (V3.90 or above: 24 max. can be added with remote I/O master function) | | 2 (4 max. can be added with analog cartridge, and 24 max. can be added with remote master function) |
| Analog Output | — | | 2 (4 max. can be added with analog cartridge) |
| Internal Relays | 1,024 | | |
| Shift Registers | 128 | | |
| Data Registers | 2000 | | |
| Special Data Registers | 200 | | |
| Counters | 200 | | |
| Timer (1ms, 10 ms, 100 ms, 1s) | 200 | | |
| Clock | Precision: ±30 seconds/month (25°C, typical) | | |
| RAM Backup | Backup Data | Internal relays, shift registers, counters, data registers, clock data | |
| | Backup Duration | Approximately 30 days (typical) at 25°C after backup battery is fully charged | |
| | Battery | Lithium secondary battery | |
| | Charging Time | Approximately 15 hours required to charge from 0 to 90% | |
| | Replaceability | Not possible | |
| Self-Diagnostic Functions | Keep data check, power failure check, watchdog timer check, timer/counter preset value change error check, user program syntax check, user program execution check | | |
| Input Filter | No filter, 3 to 15 ms (selectable in increments of 1 ms) | | |
| Catch Input/Interrupt Input | 4/4 | | |
| High-speed Counter | Maximum Counting Frequency and Points | Single/two-phase selectable | 1 (5 kHz, multiple 2/4, single-phase cannot be used) |
| | | Single-phase | 4 (x 10 kHz) |
| | Counting Range | 0 to 4,294,967,295 (32 bits) | |
| | Operation Mode | Rotary encoder mode and adding counter mode | |
| Analog Voltage Inputs | Built-in Points | 2 | |
| | Input Range | 0 to 10V DC | 0 to 10V DC (voltage input) / 4 to 20 mA (current input) |
| | Input Impedance | 78 kΩ | 78 kΩ (voltage input) / 250 Ω (current input) |
| | Digital Resolution | 0 to 1,000 (10 bits) | |
| Number of Relay Outputs | 10A relay: 4 | | — |
| Number of Transistor Outputs | — | | 4 (sink) 4 (source) |
| Analog Output | Built-in Points | — | |
| | Output Range | — | |
| | Digital Resolution | — | |
| Pulse Outputs | 100 kHz | No. of outputs | — |
| | | Function | — |
| | 5 kHz | No. of outputs | — |
| | | Function | — |
| External Output Power Supply for Sensor | Output Voltage | — | |
| | Output Current | — | |
| | Overload Detection | — | |
| | Insulation | — | |
| USB-mini B (Note 2) | × | | |
| USB-A (Note 2) | × | | |
| RS232C (Note 2) | × | | |
| RS485/422 (Note 2) | × | | |
| Ethernet | × | | |
| Expansion Communication Ports | Port 2 | — | |
| | Port 3 | — | |
| Memory Cartridge | — | | |
| SD Memory Card | — | | |
| Analog Cartridge Interface | Number of Ports | — | |
| | Connectable Cards | — | |
| | | 2 | |
| | | 4 (FC6A-PJ2A, FC6A-PK2AV, FC6A-PK2AW, FC6A-PJ2CP) | |

Note 1: Except for timer, counter, input FB, and output FB.
 Note 2: Not isolated from internal circuits.

Function Specifications (Pro/Lite)

| Part No. | | | Pro/Lite FT1A- | | | | | | | | |
|---|---------------------------------------|-----------------------------|--|----------------|-----------------------------------|---------------------|--------------------------------------|---------------------|----------------------------------|----------------------------------|--|
| | | | H12RA B12RA | H12RC B12RC | H24RA B24RA | H24RC B24RC | H40RKA H40RSA B40RKA B40RSA | H40RC B40RC | H48KA H48SA B48KA B48SA | H48KC H48SC B48KC B48SC | |
| Control System | | | Stored program system | | | | | | | | |
| Ladder Program | Instruction Words | Basic Instructions | 42 types | | | | | | | | |
| | | Advanced Instructions | 99 types | 98 types | 103 types | 102 types | 110 types | 104 types | 110 types | 109 types | |
| | Program Capacity | | 12 kB (3000 steps equivalent) | | 47.4 kB (11,850 steps equivalent) | | | | | | |
| | Processing Time | Basic Instruction | 950 μs/1,000 steps | | | | | | | | |
| END Processing | | 2 ms (Pro) / 640 μs (Lite) | | | | | | | | | |
| FBD | FB | | 38 types | 37 types | 38 types | 37 types | 45 types | 39 types | 45 types | 44 types | |
| | Program Capacity | | 10kB | | 38kB | | | | | | |
| | No. of FB | FB (Note 1) | 200 | | 1,000 | | | | | | |
| | | Timer (T) | 100 | | 200 | | | | | | |
| | | Counter (C) | 100 | | 200 | | | | | | |
| | Processing Time | Basic Instruction | 1.3ms/100 | | | | | | | | |
| END Processing | | 2.5ms (Pro)/1ms (Lite) | | | | | | | | | |
| User Program Storage | | | Flash ROM (10,000 times) | | | | | | | | |
| I/O Points | Inputs | | 8 | | 16 | | 24 | | 30 | | |
| | Outputs | | 4 | | 8 | | 16 | | 18 | | |
| Internal Relays | | | 256 | | 1,024 | | | | | | |
| Shift Registers | | | 128 | | 128 | | | | | | |
| Data Registers | | | 400 | | 2000 | | | | | | |
| Special Data Registers | | | 200 | | 200 | | | | | | |
| Adding/Reversible Counters | | | 100 | | 200 | | | | | | |
| Timer (1ms, 10 ms, 10 ms, 1s) | | | 100 | | 200 | | | | | | |
| Clock | | | Precision: ±30 seconds/month (25°C, typical) | | | | | | | | |
| RAM Backup | Backup Data | | Internal relays, shift registers, counters, data registers, clock data | | | | | | | | |
| | Backup Duration | | Approximately 30 days (typical) at 25°C after backup battery is fully charged | | | | | | | | |
| | Battery | | Lithium secondary battery | | | | | | | | |
| | Charging Time | | Approximately 15 hours required to charge from 0 to 90% | | | | | | | | |
| | Replaceability | | Not possible | | | | | | | | |
| Self-Diagnostic Functions | | | Keep data check, power failure check, clock error check, watchdog timer check, timer/counter preset value change error check, user program syntax check, user program execution check, system error check, memory cartridge transfer error check | | | | | | | | |
| Input Filter | | | No filter, 3 to 15 ms (selectable in increments of 1 ms) | | | | | | | | |
| Catch Input/Interrupt Input | | | 4/4 | | 6/6 | | | | | | |
| High-speed Counter | Maximum Counting Frequency and Points | Single/two-phase selectable | 2 (Note 2) | — | 2 (Note 2) | — | 2 (Note 2) | — | 2 (Note 2) | — | |
| | | Single-phase | 2 (x 100 kHz) | — | 4 (x 100 kHz) | — | 4 (x 100 kHz) | — | 4 (x 100 kHz) | — | |
| | Counting Range | | 0 to 4,294,967,295 (32 bits) | | | | | | | | |
| Operation Mode | | | Rotary encoder mode and adding counter mode | | | | | | | | |
| Analog Voltage Inputs | Points | | 2 | None | 4 | None | 6 | None | 8 | None | |
| | Input Range | | 0 to 10V DC | | | | | | | | |
| | Input Impedance | | 78 kΩ | | | | | | | | |
| | Digital Resolution | | 0 to 1,000 (10 bits) | | | | | | | | |
| Pulse Outputs | 100 kHz | No. of outputs | — | — | — | — | 2 | — | 2 | | |
| | | Function | — | — | — | — | PULS, PWM, RAMP, ARAMP, ZRN | — | PULS, PWM, RAMP, ARAMP, ZRN | | |
| | 5 kHz | No. of outputs | — | — | — | — | 2 | — | 2 | | |
| | | Function | — | — | — | — | PULS, PWM | — | PULS, PWM | | |
| External Output Power Supply for Sensor | Output Voltage | | — | — | — | 24V DC (+10%, -15%) | — | 24V DC (+10%, -15%) | — | 24V DC (+10%, -15%) | |
| | Output Current | | — | — | — | 250 mA | — | 300 mA | — | 300 mA | |
| | Overload Detection | | — | — | — | Impossible | — | Impossible | — | Impossible | |
| | Insulation | | — | — | — | Internal Circuit | — | Internal Circuit | — | Internal Circuit | |
| USB-mini B (Note 3) | | | × | | × | | × | | × | | |
| USB-A (Note 3) | | | — | | — | | — | | — | | |
| RS232C (Note 3) | | | — | | × (Note 4) | | × (Note 4) | | × (Note 4) | | |
| RS485 (Note 3) | | | — | | × (Note 4) | | × (Note 4) | | × (Note 4) | | |
| Ethernet | | | — | | × | | × | | × | | |
| Expansion Communication Ports | Port 2 | | — | | × | | × | | × | | |
| | Port 3 | | — | | — | | × | | × | | |
| Memory Cartridge | | | × | | × | | × | | × | | |
| SD Memory Card | | | — | | — | | × (Note 5) | | × (Note 5) | | |

Note 1: Except for timer, counter, input FB, and output FB. Note 2: 100 kHz when single-phase, 50 kHz when two-phase, multiple 2.4
 Note 3: Not isolated from internal circuits. Note 4: When communication cartridge is installed.
 Note 5: The maximum capacity is 32 GB. DLOG/FB and TRACE/FB instructions are used to write data. For details, see page 32.

Display Specifications

Touch/Pro (Display Model/Built-in LCD)

| Part No. | Touch | | Pro |
|-------------------------|--|--|-------------------------------------|
| Display Element | TFT color LCD | STN monochrome LCD | STN monochrome LCD |
| Colors/Shades | 65,536 colors | Monochrome 8 shades | Monochrome |
| Effective Display Area | 88.92 W x 37.05 H mm | 87.59 W x 35.49 H mm | 47.98 W x 18.22 H mm |
| Display Resolution | 240 W x 100 H pixels | | 192 W x 64 H pixels |
| View Angle | Left/right 40°, top 20°, bottom 60° | Left/right/top/bottom: 45° | Left/right 30°, top 20°, bottom 40° |
| Contrast Adjustment | Not possible | 32 levels | Not possible |
| Backlight | LED | LED (white, red, pink) | LED (green) |
| Backlight Life | 50,000 hours (Note 1) | | — |
| Brightness | 400 cd/m ² (Note 2) | 740 cd/m ² (Note 2) | 45 cd/m ² |
| Brightness Adjustment | 32 levels | | Not possible |
| Backlight Control | Auto off function | | On/off |
| Backlight Replacement | Not possible | | |
| Display Character Size | 1/4 Size | 8 x 8 pixels [JIS 8-bit code, ISO 8859-1 (Western European languages), ANSI 1250 (central Europe)], ANSI 1257 (Baltic), ANSI 1251 (Cyrillic) | |
| | 1/2 Size | 8 x 16 pixels [JIS 8-bit code, ISO 8859-1 (Western European languages), ANSI 1250 (central Europe)], ANSI 1257 (Baltic), ANSI 1251 (Cyrillic) | |
| | | 16 x 32 pixels, 24 x 48 pixels, 32 x 64 pixels (Western European languages: ISO 8859-1) | |
| | Full Size | 16 x 16 pixels (Japanese JIS first and second level characters, simplified Chinese, traditional Chinese, Korean) | |
| Double Size | 32 x 32 pixels (Japanese JIS first level characters, Mincho font) | | |
| No. of Characters | 1/4 Size | 30 characters x 12 lines/screen | |
| | 1/2 Size | 30 characters x 6 lines/screen | |
| | Full Size | 15 characters x 6 lines/screen | |
| | Double Size | 7 characters x 3 lines/screen | |
| Character Magnification | 0.5x, 1x, 2x, 3x, 4x, 5x, 6x, 7x, 8x vertically and horizontally | | — |
| Character Attributes | Blink, reverse, bold, shadowed (blink is 1 sec or 0.5 sec) | | Blink, reverse |
| Graphics | Line, polyline, polygon, rectangle, circle, ellipse, arc, pie, equilateral polygons (3, 4, 5, 6, 8), fill, picture | | — |
| Window Display | 3 popup screens + 1 system screen | | — |

Note 1: The backlight life refers to the time until the brightness reduces by half after use at 25°C.

Note 2: Brightness of LCD only (monochrome LCD: when lit white).

Operation Specifications

Touch/Pro (Display/LCD Models)

| Part No. | Touch | Pro |
|----------------------|---|-------------------|
| Switching Element | Analog resistive membrane (touch panel) | Rubber switches |
| Operating Force | 0.2 to 2.5N | 2.0 N minimum |
| Mechanical Life | 1 million operations | 10,000 operations |
| Acknowledgment Sound | Electric Buzzer | Not provided |
| Multiple Press | Not possible | Possible |

HMI Function Specifications (Touch)

| | |
|-----------|---|
| Functions | Drawings, bit button, word button, goto screen button, key button, multi-button, keypad, selector switch, potentiometer, numerical input, character input, pilot lamp, picture display, message display, message switching display, alarm list display, alarm log display, numerical display, bar chart, line chart, pie chart, meter, calendar, bit write command, word write command, goto screen command, timer, script command, multi-command, system area, start time, Auto Backlight OFF, O/I Link, user communication, maintenance communication, DM Link Communication, PLC Link Communication (Note 1), alarm log, data log, operation log, data storage area, preventive maintenance, recipe, text group, global script, user account, project data transfer using external memory, downloading logged data in external memory, USB auto-run function |
|-----------|---|

Note 1: The up-to-date information on the connectable PLC can be obtained from <http://www.idec.com/language>.

Input Specifications (Touch/Pro/Lite)

| Part No. | | Touch | | | Pro/Lite FT1A- | | | | | | | | | | | |
|-----------------------------|---------------------------------------|---|---|--------|--|--|-----------------------------------|---------------------|-----------------------------------|---------------------|----------------------|----------------|----------------|----------------|----------------|--|
| | | *12RA* | *14KA* | *14SA* | H12RA B12RA | H12RC B12RA | H24RA B24RA | H24RC B24RC | H40RKA B40RKA | H40RSA B40RSA | H40RC B40RC | H48KA B48KA | H48SA B48SA | H48KC B48KC | H48SC B48SC | |
| Digital Input | Input Points | 6 | | | 6 | 8 | 12 | 16 | 18 | | 24 | 22 | | 30 | | |
| | Input Type | Sink | Source | Sink | Sink | No-voltage (with contact) | Sink | Sink/ Source | Source | Sink | Sink/ Source | Source | Sink | Sink/Source | | |
| | Input Voltage Range | 0 to 28.8V DC | | | | | | | | | | | | | | |
| | Rated Input Current | 4.4 mA | 5.2 mA | 4.4 mA | No-voltage type and sink/source type: 5.3 mA, sink type: 4.4 mA, source type: 5.2 mA | | | | | | | | | | | |
| | Input Impedance | 5.5 kΩ | 4.7 kΩ | 5.5 kΩ | No-voltage type and sink/source type: 4.3 kΩ, sink type: 5.5 kΩ, source type: 4.7 kΩ | | | | | | | | | | | |
| | Input Delay Time | OFF → ON | 2.5 μs + soft filter setting | | | 40 μs + filter value (high-speed input section: 2.5 μs + soft filter value) | | | | | | | | | | |
| | | ON → OFF | 5 μs + soft filter setting | | | 150 μs + filter value (high-speed input section: 5 μs + soft filter value) | | | | | | | | | | |
| | Isolation | Between input terminals | Not isolated | | | Not isolated | | | | | | | | | | |
| | | Internal circuit | Not isolated | | | No-voltage type and sink/source type: photocoupler isolated, sink type and source type: not isolated | | | | | | | | | | |
| | Input Type | Type 1 (IEC 61131-2) | | | | | | | | | | | | | | |
| | External Load for I/O Interconnection | Not needed | | | | | | | | | | | | | | |
| | Operating Level | OFF voltage | Sink type: 5V DC max. Source type: 15V DC min. | | | No-voltage type: 18 kΩ min., sink/source type and sink type: 5 VDC max., source type: 15 VDC min. | | | | | | | | | | |
| | | ON voltage | Sink type: 15V DC min. Source type: 5V DC max. | | | No-voltage type: 2 kΩ max., sink/source type and sink type: 15 VDC min., source type: 5 VDC max. | | | | | | | | | | |
| | | OFF current | Sink type: 0.9 mA max. Source type: -1.0 mA min. | | | No-voltage type and sink/source type: 1.1 mA max., sink type: 0.9 mA max., source type: -1.0 mA min. | | | | | | | | | | |
| | | ON current | Sink type: 2.7 mA min. Source type: -3.0 mA max. | | | No-voltage type and sink/source type: 3.0 mA min., sink type: 2.7 mA min., source type: -3.0 mA max. | | | | | | | | | | |
| Analog Input | Input Points | 2 | | | 2 | 4 | 6 | 8 | | | | | | | | |
| | Input Type | Voltage input | Voltage/Current input | | Voltage input | Voltage input | Voltage input | | Voltage input | | | | | | | |
| | Input Range | 0 to 10.0 VDC | 0 to 10.0 VDC / 4 to 20 mA | | 0 to 10.0V DC | 0 to 10.0V DC | 0 to 10.0V DC | | 0 to 10.0V DC | | | | | | | |
| | Sampling Duration Time | 2 ms maximum | | | 2 ms maximum | 2 ms maximum | 2 ms maximum | | 2 ms maximum | | | | | | | |
| | Total Input System Transfer Time | 3 ms + sampling time + scan time | 3 ms + sampling time + scan time (voltage input) 12 ms + sampling time + scan time (current input) | | 2 ms + filtering time + scan time | 2 ms + filtering time + scan time | 2 ms + filtering time + scan time | | 2 ms + filtering time + scan time | | | | | | | |
| | Digital Resolution | 0 to 1,000 (10 bits) | | | 0 to 1,000 (10 bits) | — | 0 to 1,000 (10 bits) | — | 0 to 1,000 (10 bits) | — | 0 to 1,000 (10 bits) | | | | | |
| | Input Error | 25°C | ±3% of full scale | | | ±1.5% of full scale | ±1.5% of full scale | ±1.5% of full scale | | ±1.5% of full scale | | | | | | |
| | | Total | ±5% of full scale | | | ±5% of full scale | ±5% of full scale | ±5% of full scale | | ±5% of full scale | | | | | | |
| | Isolation | Between input terminals | Not isolated | | | Not isolated | Not isolated | Not isolated | | Not isolated | | | | | | |
| | | Internal circuit | Not isolated | | | Not isolated | Not isolated | Not isolated | | Not isolated | | | | | | |
| When used as digital input | Digital I/O | Type 1 (not conforming to IEC 61131-2 digital I/O type) | | | | | | | | | | | | | | |
| | Operation Level | OFF voltage: 5V maximum | | | | | | | | | | | | | | |
| | | ON voltage: 15V minimum | | | | | | | | | | | | | | |
| | | OFF current: 0.06 mA maximum | | | | | | | | | | | | | | |
| ON current: 0.20 mA minimum | | | | | | | | | | | | | | | | |
| External Power for Input | Input Voltage Range | — | | | — | — | 20.4 to 26.4V DC | — | 20.4 to 26.4V DC | — | 20.4 to 26.4V DC | | | | | |
| | Output Current Capacity | — | | | — | — | 250 mA | — | 300 mA | — | 300 mA | | | | | |

Output Specifications (Touch)

| Part No. | | | Touch FT1A- | | | |
|----------------------------|--|--|--|---|---------|--|
| | | | *12RA-* | *14KA-* | *14SA-* | |
| Transistor Output | Output Points | Transistor Sink Output | — | 4 | — | |
| | | Transistor Source Output | | — | 4 | |
| | Rated Load Voltage | | | 24V DC | | |
| | Input Voltage Range | | | 20.4 to 28.8V DC | | |
| | Maximum Load Current | 1 point | | 0.3A maximum | | |
| | | 1 common | | 1A maximum | | |
| | Voltage Drop (ON Voltage) | | | 1V maximum (voltage between COM and output terminals when output is ON) | | |
| | Inrush Current | | | 1A | | |
| | Leakage Current | | | 0.1 mA maximum | | |
| | Clamping Voltage | | | 39V ± 1V | | |
| | Maximum Lamp Load | | | 8 W maximum | | |
| | Inductive Load | | | L/R = 10 ms (28.8V DC, 1 Hz) | | |
| | External Current Draw | | | 100 mA maximum, 24V DC | | |
| | Isolation | Between output terminal and internal circuit | | Photocoupler isolated | | |
| | | Between output terminals | | Not isolated | | |
| Output Delay | OFF → ON | 100µS max. | | | | |
| | ON → OFF | 200µS max. | | | | |
| 10A relay | Output Points | | 4 | — | — | |
| | Output Type | | 1a contact | — | — | |
| | Rated Load Current | | 240V AC 10A, 30V DC 10A | — | — | |
| | Minimum Switching Load | | 10 mA/5V DC (reference value) | — | — | |
| | Initial Contact Resistance | | 100 mΩ maximum (1A, at 6V DC) | — | — | |
| 2A relay | Output Points | | — | — | — | |
| | Output Points per Common Line | COM4 | | | | |
| | | COM5 | | | | |
| | | COM6 | | | | |
| | Output Type | | | | | |
| | Maximum Load Current | 1 point | | | | |
| 1 common | | | | | | |
| Minimum Switching Load | | | | | | |
| Initial Contact Resistance | | | | | | |
| Relay Output Common | Electrical Life | | 100,000 operations minimum (resistive load 1,800 operations/h) | — | — | |
| | Mechanical Life | | 20 million operations minimum (no load 18,000 operations/h) | — | — | |
| | Dielectric Strength | Between output terminal and internal circuit | 2,300V AC, 1 minute | — | — | |
| | | Between output terminals (between COMs) | 2,300V AC, 1 minute | — | — | |
| Analog Output | Output Points | | 2 | | | |
| | Analog Output Signal Type | | Voltage/Current output (Selectable) | | | |
| | Analog Output Range | | 0 to 10V DC / 4 to 20mA | | | |
| | Load Impedance | | 2kΩ min (voltage input) / 500 Ω max (current input) | | | |
| | Applicable Load Type | | Resistive Load | | | |
| | Maximum Deviation at 25°C | | ±0.3% of full scale | | | |
| | Temperature Coefficient | | ±0.02%/°C of full scale | | | |
| | Repeatability After Stabilization Time | | ±0.4% of full scale | | | |
| | Non-linearity | | ±0.01% of full scale | | | |
| | Output Ripple | | 30mV max. (spike noise not included) | | | |
| | Overshoot | | 0% (Note 2) | | | |
| | Total Error | | ±1.0% of full scale including ripple | | | |
| | Effect of Improper Output Connection | | No damage | | | |
| | Digital Resolution | | 0 to 1,000 (10 bits) | | | |
| | Output Value of LSB | | 10mV (0-10V) / 16µA (4-20mA) | | | |
| | Monotonicity | | Yes | | | |
| Current loop open | | Not detectable | | | | |

Note 1: High-speed output terminal (100 kHz pulse output terminal): 5 µs max. Normal output terminal (including 5kHz pulse output terminal): 100 µs max.
 Note 2: Overshoot may occur under light load conditions. Overshoot can be suppressed by inserting a damping resistor. Damping resistor value: approx. 150Ω including the input impedance.

Analog Expansion Cartridge Specifications (FC6A-P)

Specifications

| Part No. | FC6A-PJ2A | FC6A-PJ2CP | FC6A-PK2AV | FC6A-PK2AW |
|------------------------|--------------------------------------|-------------------|--------------------------|---------------------------|
| Type | Voltage/Current Input | Temperature Input | Voltage Output | Current Output |
| Number of Input/Output | 2 | 2 | 2 | 2 |
| Rated Voltage | 5.0V, 3.3V (supplied from the Touch) | | | |
| Consumption Current | 5.0V: – 3.3V: 30mA | | 5.0V: 70mA 3.3V: 30mA | 5.0V: 185mA 3.3V: 30mA |
| Weight | 15g | | | |

Input Specifications

| Part No. | FC6A-PJ2A | | FC6A-PJ2CP | | |
|---|---|---|--|---|--|
| Input Type | Voltage Input | Current Input | Resistance Thermometer | Thermocouple | |
| Input Range | 0 to 10V DC | 4 to 20mA DC 0 to 20mA DC | Pt100: –200 to +850°C Pt1000: –200 to +600°C Ni100: –60 to +180°C Ni1000: –60 to +180°C 3-wire RTD | K: –200 to 1300°C J: –200 to 1000°C R: 0 to 1760°C S: 0 to 1760°C B: 0 to 1820°C E: –200 to 800°C T: –200 to 400°C N: –200 to 1300°C C: 0 to 2315°C | |
| Input Impedance | 1MΩ min. | 250Ω max. | 1MΩ min. | | |
| Allowable Conductor Resistance | — | | 10Ω max. | — | |
| Input Detection Current | — | | Typ: 0.2mA, 10mA max. | — | |
| AD Conversion | Sample Duration Time | 10ms | 250ms | | |
| | Sample Interval | 20ms | 500ms | | |
| | Total Input System Transfer Time | 20ms + 1 scan | | 500ms + 1 scan | |
| | Type of Input | Single-ended input | | | |
| | Operating Mode | Self-scan | | | |
| Conversion Method | SAR | | | | |
| Input Error | Maximum Error at 25°C | ±0.1% of full scale | ±0.1% of full scale | ±0.1% of full scale Cold junction compensation accuracy ±4.0°C or less Exceptions R, S thermocouple error: ±6.0°C (0 to 200°C range only) B thermocouple error: Not guaranteed (0 to 300°C range only) K, J, E, T, N thermocouple error: ±0.4% of full scale (0°C or lower range only) | |
| | Temperature Coefficient | ±0.02%/°C of full scale | | | |
| | Reproducibility After Stabilization Time | ±0.5% of full scale | | | |
| | Non-linearity | ±0.01% of full scale | | | |
| | Maximum Error | ±1.0% of full scale | | | |
| | Digital Resolution | 4096 (12 bits) | | Pt100: 10,500 (14 bits) Pt1000: 8000 (13 bits) Ni100: 2400 (12 bits) Ni1000: 2400 (12 bits) | K: 15,000 (14 bits) J: 12,000 (14 bits) R: 17,600 (15 bits) S: 17,600 (15 bits) B: 18,200 (15 bits) E: 10,000 (14 bits) T: 6,000 (13 bits) N: 15,000 (14 bits) C: 23,150 (15 bits) |
| Data | LSB Input Value | 2.44mV (0 to 10V DC) 4.88μA (DC0 to 20mA) 3.91μA (DC4 to 20mA) | 0.1°C 0.18°F | | |
| | Data Format in Application | Can be arbitrarily set for each channel in the range of –32,768 to 32,773 | | | |
| | Monotonicity | Yes | | | |
| Noise Resistance | Maximum Temporary Deviation during Electrical Noise Tests | ±4.0% of full scale | | | |
| | Recommended Cable | Shielded twisted pair | Twisted pair | | |
| | Crosstalk | 1LSB max. | | | |
| Isolation | None | | | | |
| Effect When Input is Incorrectly Wired | No damage | | | | |
| Maximum Allowable Constant Load (non-destructive) | 13V DC | 40mA | 13V DC | | |
| Input Type Modification | Software programming | | | | |
| Calibration to Maintain Rated Accuracy | Impossible | | | | |

Output Specifications

| Part No. | FC6A-PK2AV | FC6A-PK2AW |
|--|---|---|
| Type | Voltage Output | Current Output |
| Output Type | Voltage Output Current Output | — 4 to 20mA DC |
| Load | Impedance | 2kΩ min. |
| | Load Type | 500 kΩ max. |
| D/A Conversion | Cycle Time | 20ms |
| | Settling Time | 40ms max. |
| | Total Output System Transfer Type | 40ms+1 scan |
| Output error | Maximum Error at 25°C | ±0.3% of full scale |
| | Temperature Coefficient | ±0.02%/°C of full scale |
| | Reproducibility after Stabilization Time | ±0.4% of full scale |
| | Non-linearity | ±0.01% of full scale |
| | Output Ripple | 30mV max. |
| | Overshoot | 0% |
| Data | Maximum Error | ±1.0% of full scale |
| | Effect of Improper Output Terminal Connection | No damage |
| | Digital Resolution | 4096 (12 bits) |
| | LSB Output Value | 2.44mV (0 to 10V) 3.91μA (4 to 20mA) |
| Noise Resistance | Data Format in Application | 0 to 4095 (0 to 10V) 0 to 4095 (4 to 20mA) |
| | Monotonicity | Yes |
| | Open Current Loop | — Cannot be detected |
| Isolation | Maximum Temporary Deviation during Electrical Noise Tests | ±4.0 of full scale |
| | Recommended Cable | Shielded twisted pair |
| | Crosstalk | 1 LSB max. |
| Calibration to Maintain Rated Accuracy | Impossible | |
| Selection of Output Signal Type | Voltage output only | Current output only |

Applicable Wire

| Cartridge Part No. | FC6A-PJ2A | FC6A-PJ2CP | FC6A-PK2AV | FC6A-PK2AW |
|--------------------|--|---|--|------------|
| Applicable Wire | 0.3mm ² (AWG22) shielded twisted pair | 0.3mm ² (AWG22) twisted pair | 0.3mm ² (AWG22) shielded twisted pair | |

Recommended Ferrule

| Phoenix Contact Part No. | Order No. | Package Quantity |
|--------------------------|-----------|------------------|
| AI 0.25-8YE | 3203037 | 100 |

Tools

| Tool | Phoenix Contact Part No. | Order No. | Package Quantity |
|-----------------|--------------------------|-----------|------------------|
| Crimping pliers | CRIMPFOX ZA3 | 1201882 | 1 |
| Screwdriver | SZS 0.4×2.5 | 1205037 | 10 |

Order ferrule and tools to Phoenix Contact.

Mounting Hole Layout

Touch

Pro/Lite

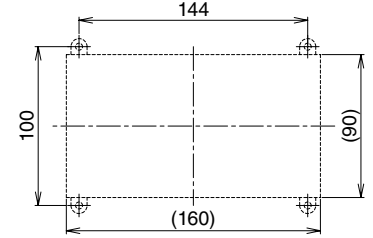
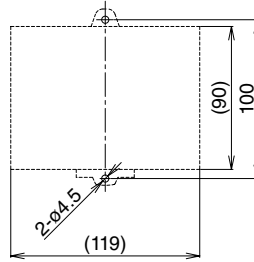
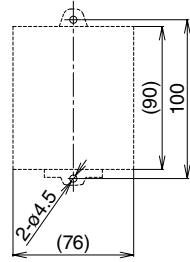
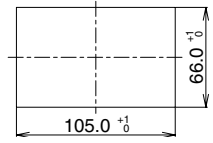
FT1A-*12RA-*

FT1A-*12**

FT1A-*24**

FT1A-*40**/FT1A-*48**

FT1A-*14*A-*

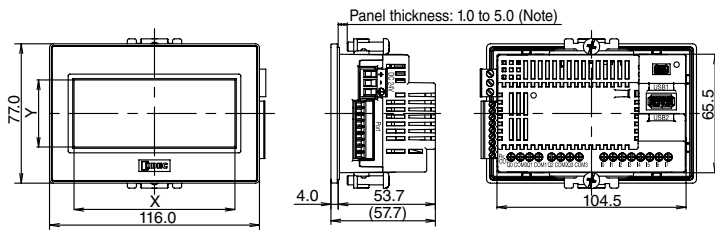


All dimensions in mm.

Dimensions

Touch (Display Model) / Relay Output Model (FT1A-12RA-*)

When using mounting bracket (HG9Z-4K2PN04)

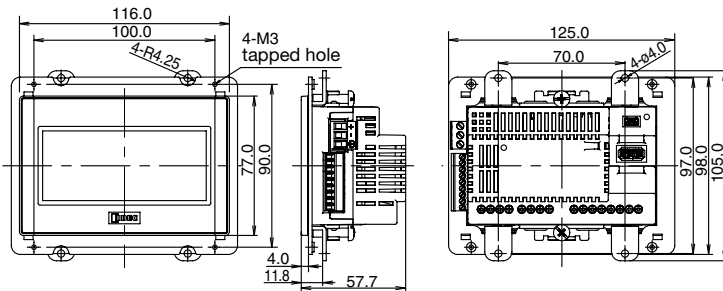


Note: Waterproof characteristic may not be obtained depending on the panel material and size.

LCD Active Area

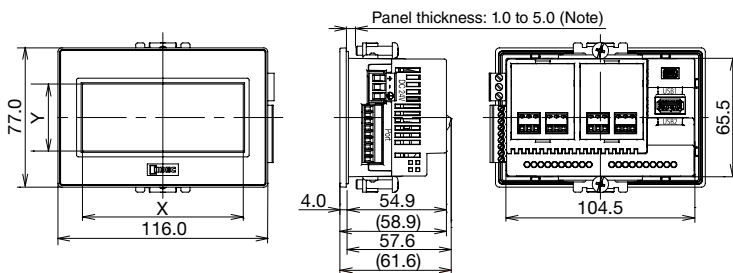
| LCD Type | X | Y |
|----------|-------|-------|
| TFT | 88.92 | 37.05 |
| STN | 87.59 | 35.49 |

When using rear mount adapter (FT9Z-1A01)

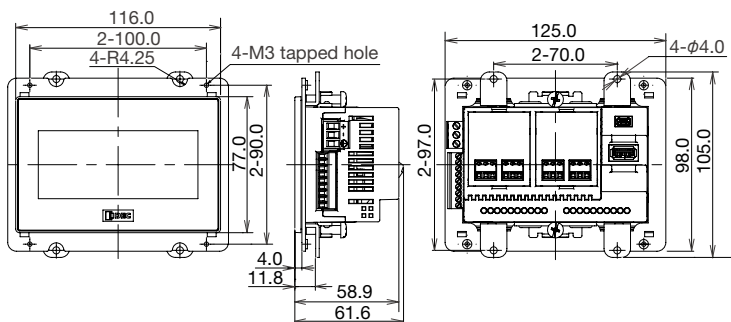


Touch (Display Model) / Transistor Output Model (FT1A-14KA-* / FT1A-14SA-*)

When using mounting bracket (HG9Z-4K2PN04)



When using rear mount adapter (FT9Z-1A01)

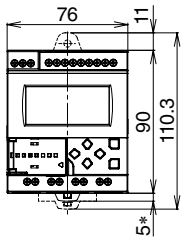


All dimensions in mm.

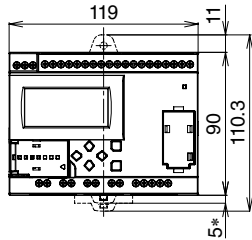
SmartAXIS Series FT1A Controller

Pro (LCD Model)

FT1A-H12*A/*C

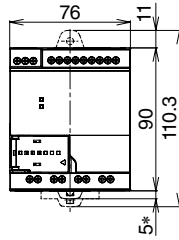


FT1A-H24*A/*C

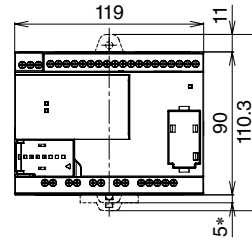


Lite (No LCD Model)

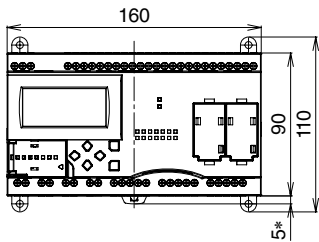
FT1A-B12*A/*C



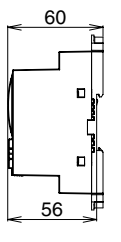
FT1A-B24*A/*C



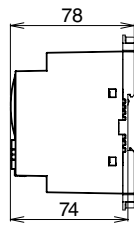
FT1A-H40*A/*C



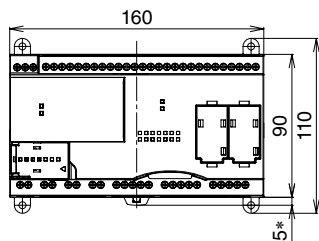
FT1A-H**A



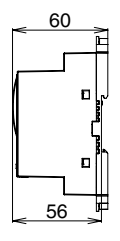
FT1A-H**C



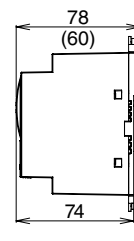
FT1A-B40*A/*C



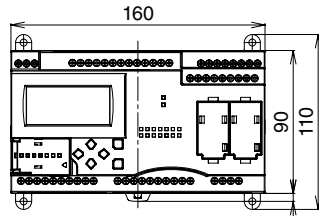
FT1A-B**A



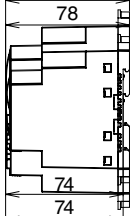
FT1A-B**C



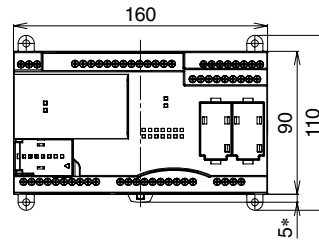
FT1A-H48*A/*C



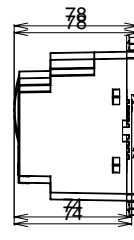
FT1A-H48*A/*C



FT1A-B48*A/*C



FT1A-B48*A/*C



Note: 9.3 mm when the clamp is pulled out.

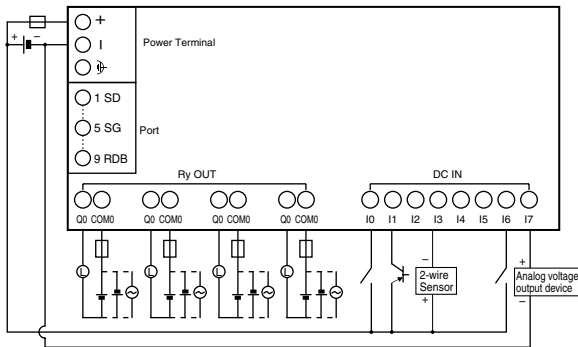
Note: 9.3 mm when the clamp is pulled out.

Terminal Arrangement and I/O Wiring Diagram Examples

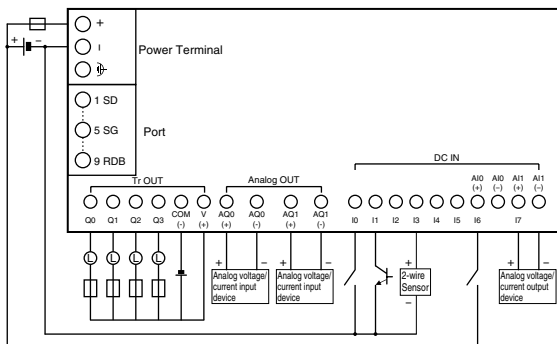
Touch (Display Model)

FT1A-*12RA-*

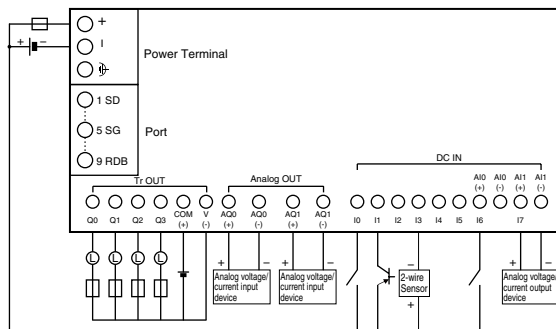
For terminal arrangement and I/O wiring diagram, see User's Manual.



FT1A-*14KA-*



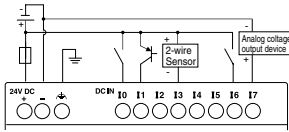
FT1A-*14SA-*



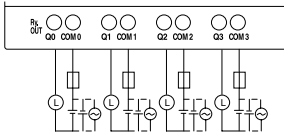
Pro/Lite (LCD/No LCD Models)

FT1A-*12RA

Input Side

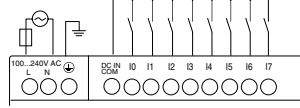


Output Side

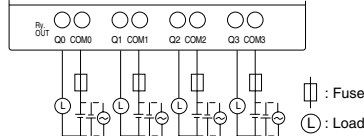


FT1A-*12RC

Input Side



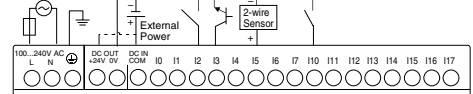
Output Side



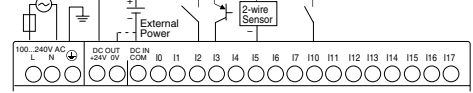
FT1A-*24RC (①)

Input Side (sink/source)

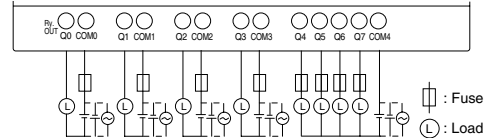
Source Input



Sink Input



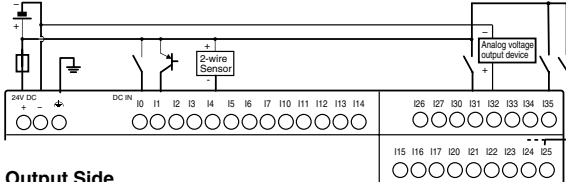
Output Side



FT1A-*48SA (②)

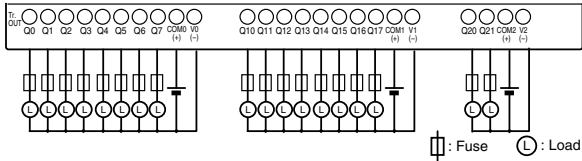
Input Side

Sink Input



Output Side

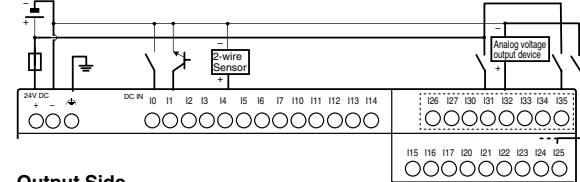
Source Output



FT1A-*48KA (③)

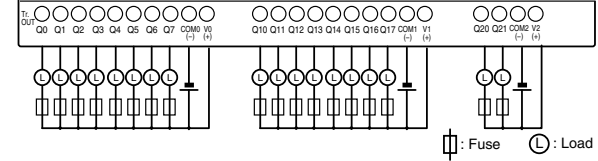
Input Side

Source Input (Analog/Digital Shared Input is Sink Input)



Output Side

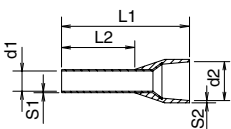
Sink Output



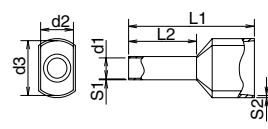
See ① for FT1A-*40RC, ① and ② for FT1A-*40RSA, and ① and ③ for FT1A-*40RKA.

Recommended Ferrules for Touch/Pro/Lite Terminals

For 1-wire connection



For 2-wire connection



Dimensions in mm.

| | Cross Section (mm ²) | AWG | Phoenix Contact Part No. | Touch | | | | Pro/Lite | | L1 | L2 | d1 | S1 | d2 | d3 | S2 |
|-------------------|----------------------------------|-----|--------------------------|--------------|------------------|--------------------|-------------------------|--------------|------|------|------|------|------|-----|------|------|
| | | | | Power Supply | Serial Interface | I/O | | Power Supply | I/O | | | | | | | |
| | | | | | | Relay Output Model | Transistor Output Model | | | | | | | | | |
| 1-wire connection | 0.25 | 24 | AI0.25-8YE | | | | | × | 12.5 | 8.0 | 0.8 | 0.15 | 1.8 | | 0.25 | |
| | 0.34 | 22 | AI0.34-8TQ | × | × | × | × | | 12.5 | 8.0 | 0.8 | 0.15 | 2.0 | | 0.25 | |
| | 0.5 | 20 | AI0.5-8WH | × | × | × | × | — | 14.0 | 8.0 | 1.1 | 0.15 | 2.5 | | 0.25 | |
| | 0.75 | 18 | AI0.75-8GY | × | | × | | | 14.0 | 8.0 | 1.3 | 0.15 | 2.8 | | 0.25 | |
| | 1.0 | | AI1-8RD | × | | — | | × | 14.0 | 8.0 | 1.5 | 0.15 | 3.0 | | 0.3 | |
| | | | AI1-10RD | — | | × | — | | — | 16.0 | 10.0 | 1.5 | 0.15 | 3.0 | | 0.3 |
| | | 1.5 | 16 | AI1.5-8BK | × | | — | | × | 14.0 | 8.0 | 1.8 | 0.15 | 3.4 | | 0.3 |
| | | | AI1.5-10BK | — | | × | | — | 18.0 | 10.0 | 1.8 | 0.15 | 3.4 | | 0.3 | |
| 2-wire connection | 0.5 | 20 | AI-TWIN2x0.5-8WH | × | × | — | × | — | 15.0 | 8.0 | 1.5 | 0.15 | 2.5 | 4.6 | 0.25 | |
| | 0.75 | 18 | AI-TWIN2x0.75-8GY | × | | — | — | × | 15.0 | 8.0 | 1.8 | 0.15 | 2.8 | 5.2 | 0.25 | |
| | | | AI-TWIN2x0.75-10GY | — | | × | — | — | — | 17.0 | 10.0 | 1.8 | 0.15 | 2.8 | 5.2 | 0.25 |
| Screwdriver | | | SZS 0.6x3.5 | × | — | × | — | × | | | | | | | | |
| | | | SZS 0.4x2.5 | — | × | — | × | — | | | | | | | | |

Note: Crimping pliers - Phoenix Contact part number CRIMPFOX ZA3 (12101882)

Instructions

Basic Instructions (Touch/Pro/Lite)

| Instructions | Function |
|--------------|--|
| LOD | Stores intermediate results and reads contact status |
| LODN | Stores intermediate results and reads inverted contact status |
| AND | Series connection of NO contact |
| ANDN | Series connection of NC contact |
| OR | Parallel connection of NO contact |
| ORN | Parallel connection of NC contact |
| ANDL0D | Series connection of circuit blocks |
| ORL0D | Parallel connection of circuit blocks |
| BPS | Saves the result of bit logical operation temporarily |
| BRD | Reads the result of bit logical operation which was saved temporarily |
| BPP | Restores the result of bit logical operation which was saved temporarily |
| OUT | Outputs the result of bit logical operation |
| OUTN | Output the inverted result of bit logical operation |
| SET | Sets output, internal relay, or shift register bit |
| RST | Resets output, internal relay, or shift register bit |
| TMS | Subtracting 1-ms on-delay timer (0 to 65.535 sec) |
| TMH | Subtracting 10-ms on-delay timer (0 to 655.35 sec) |
| TIM | Subtracting 100-ms on-delay timer (0 to 6553.5 sec) |
| TML | Subtracting 1-sec on-delay timer (0 to 65535 sec) |
| TMSO | Subtracting 1-ms off-delay timer (0 to 65.535 sec) |
| TMHO | Subtracting 10-ms off-delay timer (0 to 655.35 sec) |
| TIMO | Subtracting 100-ms off-delay timer (0 to 6553.5 sec) |
| TMLO | Subtracting 1-sec off-delay timer (0 to 65535 sec) |
| CNT | Adding counter (0 to 65,535) |
| CNTD | Double-word adding counter (0 to 4,294,967,295) |
| CDP | Dual pulse reversible counter (0 to 65,535) |
| CDPD | Double-word dual pulse reversible counter (0 to 4,294,967,295) |
| CUD | Up/down selection reversible counter (0 to 65,535) |
| CUDD | Double-word up/down selection reversible counter (0 to 4,294,967,295) |
| CC= | Equal to comparison of counter current value |
| CC≥ | Greater than or equal to comparison of counter current value |
| DC= | Equal to comparison of data register value |
| DC≥ | Greater than or equal to comparison of data register value |
| SFR | Forward shift register |
| SFRN | Reverse shift register |
| SOTU | Rising-edge differentiation output |
| SOTD | Falling-edge differentiation output |
| JMP | Jumps a designated program area |
| JEND | Ends a jump instruction |
| MCS | Starts a master control |
| MCR | Ends a master control |
| END | Ends a program |

Advanced Instructions (Touch/Pro/Lite)

| Instructions | Name |
|--------------|---|
| NOP | No Operation |
| MOV | Move |
| MOVN | Move Not |
| IMOV | Indirect Move |
| IMOVN | Indirect Move Not |
| IBMV | Indirect Bit Move |
| IBMVN | Indirect Bit Move Not |
| BMOV | Block Move |
| NSET | N Data Set |
| NRS | N Data Repeat Set |
| XCHG | Exchange |
| TCCST | Timer/Counter Current Value Store |
| CMP= | Compare Equal To |
| CMP<> | Compare Unequal To |
| CMP< | Compare Less Than |
| CMP> | Compare Greater Than |
| CMP<= | Compare Less Than or Equal To |
| CMP>= | Compare Greater Than or Equal To |
| ICMP>= | Interval Compare Greater Than or Equal to |
| LC= | Load Compare Equal To |
| LC<> | Load Compare Unequal To |
| LC< | Load Compare Less Than |
| LC> | Load Compare Greater Than |
| LC<= | Load Compare Less Than or Equal To |
| LC>= | Load Compare Greater Than or Equal To |
| ADD | Addition |
| SUB | Subtraction |
| MUL | Multiplication |
| DIV | Division |
| INC | Increment |
| ADD | Addition |
| SUB | Subtraction |
| MUL | Multiplication |
| DIV | Division |
| INC | Increment |
| DEC | Decrement |
| ROOT | Root |
| SUM | Sum |
| RAD | Degree to Radian |
| DEG | Radian to Degree |
| SIN | Sine |
| COS | Cosine |
| TAN | Tangent |
| ASIN | Arc Sine |
| ACOS | Arc Cosine |
| ATAN | Arc Tangent |
| LOGE | Natural Logarithm |
| LOG10 | Common Logarithm |
| EXP | Exponent |
| POW | Power |
| ANDW | AND Word |
| ORW | OR Word |
| XORW | Exclusive OR Word |
| SFTL | Shift Left |
| SFTR | Shift Right |
| BCDLS | BCD Left Shift |
| WSFT | Word Shift |
| ROTL | Rotate Left |
| ROTR | Rotate Right |

Advanced Instructions (Touch/Pro/Lite continued)

| Instructions | Name |
|-----------------|----------------------------|
| HTOB | Hex to BCD |
| BTOH | BCD to Hex |
| HTOA | Hex to ASCII |
| ATOH | ASCII to Hex |
| BTOA | BCD to ASCII |
| ATOB | ASCII to BCD |
| ENCO | Encode |
| DECO | Decode |
| BCNT | Bit Count |
| ALT | Alternate Output |
| CVDT | Convert Data Type |
| DTDV | Data Divide |
| DTCB | Data Combine |
| SWAP | Data Swap |
| TXDn (Note 1) | Transmit |
| RXDn (Note 1) | Receive |
| ETXDn (Note 1) | Transmit over Ethernet |
| ERXDn (Note 1) | Receive over Ethernet |
| LABEL | Label |
| LJMP | Label Jump |
| LCAL | Label Call |
| LRET | Label Return |
| DJNZ | Decrement Jump Non-zero |
| MSG (Note 2) | Message |
| IOREF | I/O Refresh |
| HSCRf (Note 3) | High-speed Counter Refresh |
| WEEK | Week Timer |
| YEAR | Yearly Timer |
| TADD | Time Addition |
| TSUB | Time Subtraction |
| HOUR | Hour Meter |
| HTOS | HMS to Sec |
| STOH | Sec to HMS |
| DTML | 1-sec Dual Timer |
| DTIM | 100-ms Dual Timer |
| DTMH | 10-ms Dual Timer |
| DTMS | 1-ms Dual Timer |
| TTIM | Teaching Timer |
| PULSn (Note 4) | Pulse Output |
| PWMn (Note 4) | Pulse Width Modulation |
| RAMPn (Note 4) | Ramp Pulse Output |
| ZRNn (Note 4) | Zero Return |
| ARAMPn (Note 4) | Advanced Ramp |
| DI | Disable Interrupt |
| EI | Enable Interrupt |
| XYFS | XY Format Set |
| CVXTY | Convert X to Y |
| CVYTX | Convert Y to X |
| PID (Note 5) | Perform PID control |
| AVRG | Average |
| FIFO | FIFO Format |
| FIEX | First-In Execute |
| FOEX | First-Out Execute |
| NDSRC | N Data Search |
| SCRPT | Script |
| DLOG (Note 6) | Data Logging |
| TRACE (Note 6) | Data Trace |

Note 1: Pro/Lite 24-I/O, 40-I/O, 48-I/O type only

Note 2: Pro only


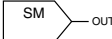
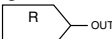
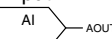
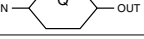
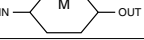

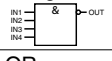
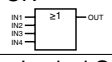
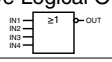
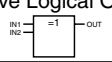
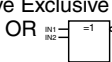
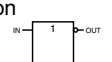
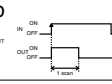
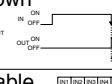
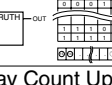

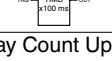


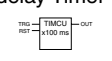

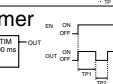
Note 3: Touch, Pro/Lite DC power type only

Note 4: Pro/Lite 40-I/O DC type and 48-I/O AC/DC type only

Note 5: Touch transistor output model only (FT1A-*14SA / FT1A-*14KA)

Note 6: Pro/Lite 40-I/O, 48-I/O only

Function Blocks

| Type | Symbol | Name and Diagram | Function |
|-------------------|--------|--|--|
| Input | I | Digital Input  | Inputs ON/OFF information from an external to the SmartAXIS. |
| | SM | Special Internal Relay  | Special internal relays can be used as bit inputs for FBs in the SmartAXIS. Special function is allocated to each special internal relay. |
| | R | Shift Register  | Outputs ON/OFF state of a shift register device. |
| | AI | Analog Input  | The analog input values (0 to 10V DC) for the analog input terminals are converted to digital values (0 to 1,000) and output. With the analog input linear conversion function, the analog input value can be linearly conversion within a range of -32,768 to 32,767. |
| Output | Q | Digital Output  | Outputs ON/OFF information from the SmartAXIS to an external device. |
| | M | Internal Relay  | A bit unit FB used internally by the SmartAXIS. |
| Logical Operation | AND | Logical AND  | Implements logical AND for a maximum of four input signals (ON/OFF) and outputs the result. |
| | NAND | Negative Logical AND  | Implements negative logical AND for a maximum of four input signals (ON/OFF) and outputs the result. |
| | OR | Logical OR  | Implements logical OR for a maximum of four input signals (ON/ OFF) and outputs the result. |
| | NOR | Negative Logical OR  | Implements negative logical OR for a maximum of four input signals (ON/OFF) and outputs the result. |
| | XOR | Exclusive Logical OR  | Implements exclusive logical OR for a maximum of two input signals (ON/OFF) and outputs the result. |
| | NXOR | Negative Exclusive Logical OR  | Implements negative exclusive logical OR for a maximum of two input signals (ON/ OFF) and outputs the result. |
| | NOT | Negation  | Outputs the result of negating the input signal (ON/OFF). |
| | SOTU | Shot up  | Turns on the output for one scan when the input signal turns from off to on. |
| | SOTD | Shot down  | Turns on the output for one scan when the input signal turns from on to off. |
| | TRUTH | Truth Table  | A truth table for the output can be configured corresponding to the 16 patterns combination of the four input signals, and TRUTH FB outputs the result according to the table. |
| Timer | TIMU | On-delay Count Up Timer  | After the execution input turns on, the output turns on when the on-delay time elapses. The current value is incremented from zero to the preset value. |
| | TIMD | On-delay Count Down Timer  | After the execution input turns on, the output turns on when the on-delay time elapses. The current value is decremented from the preset value to zero. |
| | TIMOU | Off-delay Count Up Timer  | When the execution input turns on, the output turns on. After the execution input turns off, the output turns off when the off-delay time elapses. The current value is incremented from zero to the preset value. |
| | TIMOD | Off-delay Count Down Timer  | When the execution input turns on, the output turns on. After the execution input turns off, the output turns off when the off-delay time elapses. The current value is decremented from the preset values to zero. |
| | TIMCU | On/off-delay Timer  | After the execution input turns on, the output turns on when the on-delay time elapses. After the execution input turns off, the output turns off when the off-delay time elapses. |
| | SPULS | Single Shot Pulse  | After the execution input turns on, the output turns on for the configured time period. |
| | DTIM | Dual Timer  | The output is turned on and off according to the configured ON and OFF time. |

| | | | |
|-----------------------|-------|--|--|
| Timer | RPULS | | The output is turned on for the length of random time within the configured range of time. |
| Counter | CNT | | When the clock input is turned on, the current value is incremented by one. The output turns on when the current value reaches the preset value. |
| | CUD | | When the clock input is turned on, the current value is incremented or decremented by one according to the up/down selection input. The current value is compared with ON/OFF thresholds. The output turns on or off according to the comparison result. |
| | HOUR | | Accumulates the ON duration of the execution input in hours, minutes, and seconds. The output turns on when the accumulated time reaches the configured time. |
| Shift Register | SFR | | When the execution input turns on, the shift registers are shifted to the specified shift direction. |
| Data Comparison | CMP | | Two inputs values are compared and the output turns on or off according to the comparison result. |
| | STTG | | The comparison input value and the ON/OFF thresholds are compared and the output turns on or off according to the comparison result. |
| | RCMP | | The comparison input value and the upper/lower limits are compared and the output turns on or off according to the comparison result. |
| Data Conversion | ALT | | Sets/resets the output. |
| Week Programmer | WEEK | | Compares the specified day of the week, ON time, and OFF time with the current time and outputs the result. |
| | YEAR | | Compares the specified date with the current date and outputs the result. |
| Interface (Note 1) | MSG | | Displays data such as text and device values on the LCD on the SmartAXIS Pro. |
| Pulse (Note 2) | PULS | | Outputs pulses at the specified frequency. |
| | PWM | | Outputs pulses at the specified frequency and duty cycle. |
| | RAMP | | Outputs pulses with the frequency change function. |
| | ZRN | | Outputs pulses with the different pulse frequency corresponding to the on/off state of a deceleration signal. |
| | ARAMP | | Output pulses with the frequency change function according to the settings configured in the frequency table. |
| Data Logging (Note 3) | DLOG | | Saves the values of the specified devices in the specified data format as a CSV file to the SD memory card. |
| | TRACE | | Saves the values of the previous number of scans for the specified device in the specified data format as a CSV file to the SD memory card. |
| Script | SCRPT | | Enables you to program complicated processing with the script language that supports conditional branching, logical operations, arithmetic operations, and functions. |
| Special | HSC | | Operates the high-speed counter configured in the function area settings. Turns on/off the high-speed counter gate input/reset input/clear input. |
| | RSFF | | When the set input turns on, the output turns on and keeps on. When the reset input turns on, the output turns off. |

Note 1: Pro only

Note 3: Pro/Lite 40-I/O, 48-I/O only

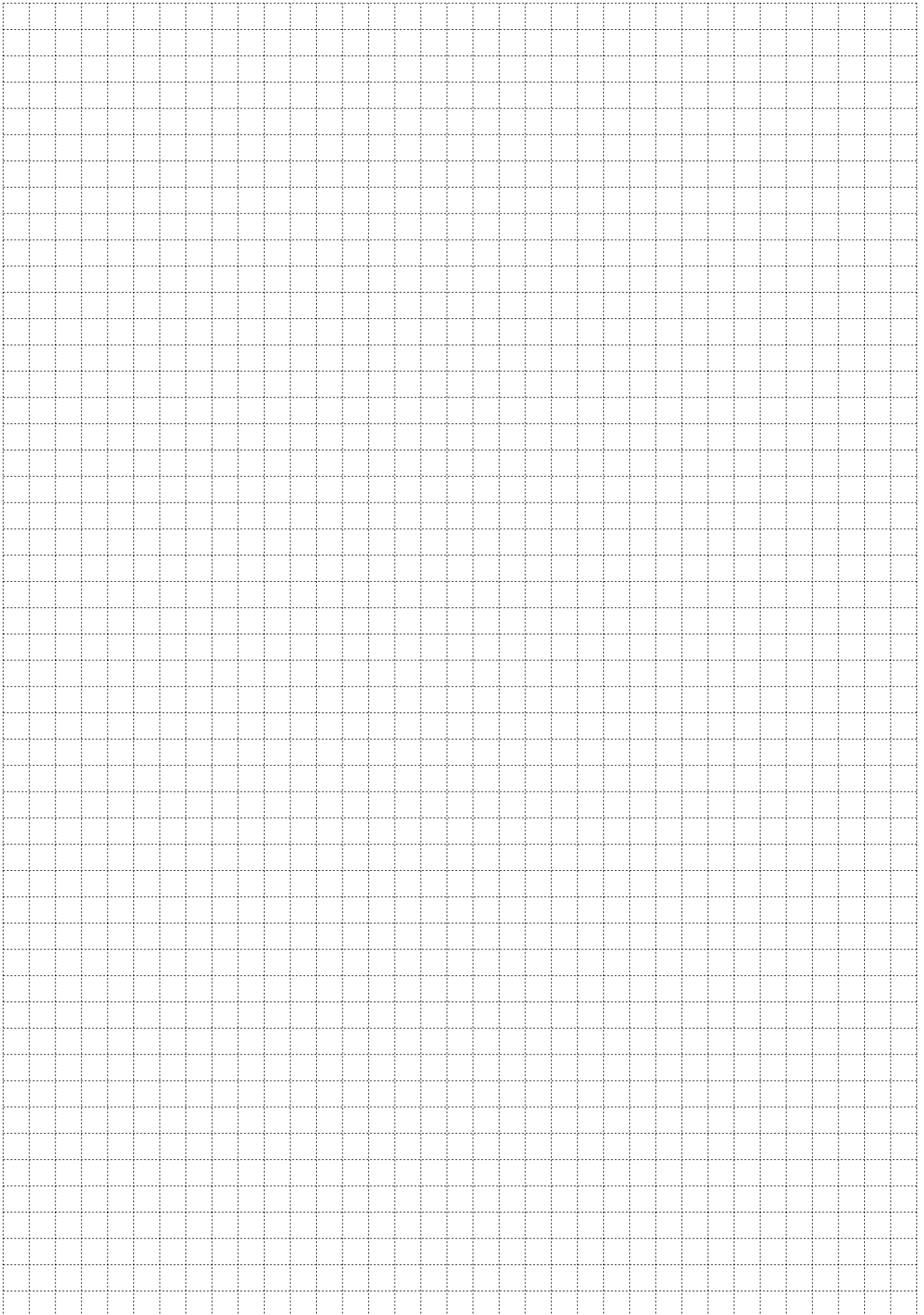
Note 2: Pro/Lite 40-I/O DC type and 48-I/O AC/DC type only

Note 4: Touch, Pro/Lite DC power type only

Scripts

| Type | Format | Description |
|--|--|--|
| Control statements | if | if ((Cond. expr.)) (Exe. line); |
| | if else | if ((Cond. expr.)) (Exe. line1); else (Exe. line2); |
| | if else if else | if ((Cond. expr1.)) (Exe. line1); else if ((Cond. expr2.)) (Exe. line2); else (Exe. line3); |
| | switch case default | switch (Cond. expr.) {case constant 1: (Cond. expr1.);break; case constant2: (Cond. expr2.); break; default: (Cond. expr3.);break;} |
| | while | while ((Cond. expr.)) (Exe. line); |
| | break | break; |
| | return | return; |
| Relational operator | ==, !=, <, >, <=, >= | Two values are compared. |
| Logical operator | &&, , ! | Logical operation of two values (AND, OR, NOT). |
| Arithmetic operator | +, -, *, /, %, = | Addition, subtraction, multiplication, division, remainder, assignment |
| Bit operator | &, , ^, ~, <<, >> | Logical product (AND), logical sum (OR), exclusive logical sum (XOR), reverse, shift left, shift right |
| Bit function | Bit set | SET (a); |
| | Bit reset | RST (a); |
| | Bit reverse | REV (a); |
| Arithmetic operation | Maximum value | MAX(a, b, c) |
| | Minimum value | MIN(a, b, c) |
| | Exponential function | EXP(a) |
| | Natural logarithm | LOGE(a) |
| | Common logarithm | LOG10(a) |
| | Exponentiation | POW(a, b) |
| | Square root | ROOT(a) |
| | Sine | SIN(a) |
| | Cosine | COS(a) |
| | Tangent | TAN(a) |
| | Arcsine | ASIN(a) |
| | Arccosine | ACOS(a) |
| | Arctangent | ATAN(a); |
| | Conversion from angle to radian | RAD(a); |
| Conversion from radian to angle | DEG(a); | |
| Data type conversion | Conversion from BCD to Binary | BCD2BIN(a) |
| | Conversion from binary to BCD | BIN2BCD(a) |
| | Conversion from float32 to binary | FLOAT2BIN(a) |
| | Conversion from binary to float32 | BIN2FLOAT(a) |
| | Conversion from decimal to string character | DEC2ASCII(a, b) |
| | Conversion from string character to decimal | ASCII2DEC(a) |
| | Data comparison | MEMCMP(a, b, c) |
| | Data copy | MEMCPY(a, b, c) |
| | Character string copy | STRCUT(a, b, c, d) |
| | Character number count | STRLEN(a) |
| Character string operation | Character string concatenation | STRCAT(a, b) |
| | Character string search | STRSTR(a, b) |
| | Drawing of straight line | LINE(a, b, c, d) |
| | Drawing of rectangle | RECTANGLE(a, b, c, d) |
| Draw (Note 1) | Drawing of circle and ellipse | CIRCLE(a, b, c, d) |
| | Offset | OFFSET(a, b) |
| Bit device ↔ word device Cross Operator Functions (Note 2) | Bit device (1 word length) to bit device (1 word length) | BITS2BITS(a, b) |
| | Bit device (1 word length) to Word device | BITS2WORD(a, b) |
| | Word device to bit device (1 word length) | WORD2BITS(a, b) |

Note 1: Touch (WindO/I-NV3) only Note 2: Pro/Lite (WindLDR)



HG Series Operator Interface

SmartAXIS Pro/Lite can be connected to IDEC's HG series operator interface for powerful expressivity and rich information!



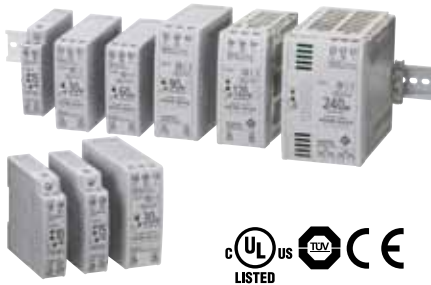
- Excellent visibility achieved by super-bright LED backlight. 600 cd/m² (8.4-inch), 700 cd/m² (10.4-inch), 550 cd/m² (12.1-inch), 800 cd/m² (5.7-inch)
- High-resolution SVGA (800 × 600 pixels) and 65,536 colors provides high-quality display.
- More than 7,000 graphic images available in the image library.
- A maximum of four expansion MicroSmart I/O modules can be mounted.

- Multimedia models with video and audio record and play back high quality images.
- Fast-speed 400 MHz CPU and unique software technology shorten startup time.
- IP66 (front part when mounted) (IEC 60529)

Switching Power Supplies

PS5R-S

- Slim size DIN rail mount switching power supplies with finger-safe terminals
- Universal input. Wide power range: 10W, 15W, 30W, 60W, 90W, 120W, and 240W.
- DIN rail mounting. Optional mounting bracket is available for panel surface mount.
- IP20 (IEC 60529)



PS6R

- High-power and space-saving.
- 93% efficiency reduces running costs.
- Input voltage: 100 to 240V AC (voltage range: 85 to 264V AC/110 to 350V DC)
- The terminals are captive spring-up screws. Ring or fork terminals can be used.
- Finger-safe construction prevents electric shocks.
- Panel mounting bracket and side-mounting panel mounting bracket. Can be attached to a DIN rail or directly to a panel surface.
- IP20 (IEC 60529)



Specifications and other descriptions in this brochure are subject to change without notice.



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