Design-in More Function with Affordable FT1A PLCs

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 an ABS type approval and is Class I Division 2 rated for hazardous locations. Whatever your application requires, the FT1A SmartAXIS family has a solution!
**A Breed of Its Own**

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

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

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

**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.

**Analog Expansion Cartridge Output Models**
- Up to 2 analog expansion adapters on the FT1A Touch with 12-bit resolution.
- Maximum combination of 2in/6out analog I/O can be used.

**Analog Outputs (Transistor Output Models)**
- 2 built-in 0-10VDC, 4-20mA analog outputs.

**Harsh Environments**
- Class I, Division 2 for hazardous locations
- -20 to 55°C operating temperature (color models)
- IP66f (water and oil tight), NEMA 4X (indoor) and 13

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

**USB Mini-B**
- Embedded USB mini-B port for programming.

**Actual Size**

**3 Bezel Colors**
- Available in silver, light gray and dark gray bezel.

**STN Monochrome or 65K TFT Color**
- 400cd/m² color
- 740cd/m² monochrome

**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.

**5Bezel Colors**
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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.

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 accept 0-10V DC, 4-20mA, RTD and Thermocouple inputs, with 12 to 15-bit resolution.

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, APRW (anti-reset windup) and bumpless transfer, are also supported.

Large Programming Memory
With 47.4KB of logic controls programming memory, 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.

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.

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 be also 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/Slave) 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.

600.262.4332
www.IDEC.com/FT1A
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.

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.

Universal Voltages
24V DC or 100-240V AC

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.

800.262.4332
www.IDEC.com/FT1A
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.

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.

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.
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 IDEC PLCs and IDEC 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 IDEC 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.
### Touch Part Numbers

<table>
<thead>
<tr>
<th>Touch Part Number</th>
<th>Screen Type</th>
<th>Total I/O</th>
<th>Input Type</th>
<th>Embedded Analog Inputs</th>
<th>Embedded Analog Outputs</th>
<th>Output Type</th>
<th>Analog Expansion Cartridges</th>
<th>Power Source</th>
<th>Remote I/O Maxer</th>
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<tbody>
<tr>
<td>FT1A-M12A-W</td>
<td>Source</td>
<td>9 I/O</td>
<td>Relay</td>
<td>12 I/O (6x100kHz)</td>
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<td>Relay</td>
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<td>Relay</td>
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<td>Relay</td>
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### Touch Starter Kits

<table>
<thead>
<tr>
<th>Part Number Description</th>
<th>Touch Starter Kit</th>
<th>Touch starter sink/output type, Light bezel, USB cable, 30W PS and software</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIT-TOUCH-0100</td>
<td>FT1A Touch Starter Kit</td>
<td>Transistor sink/output type, Light bezel, USB cable, 30W PS and software</td>
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<tr>
<td>KIT-TOUCH-0200</td>
<td>FT1A Touch Starter Kit</td>
<td>Transistor sink/output type, Dark bezel, USB cable, 30W PS and software</td>
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<tr>
<td>KIT-TOUCH-0300</td>
<td>FT1A Touch Starter Kit</td>
<td>Transistor sink/output type, Silver bezel, USB cable, 30W PS and software</td>
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<td>KIT-TOUCH-0400</td>
<td>FT1A Touch Starter Kit</td>
<td>Transistor sink/output type, Light bezel, USB cable, 30W PS and software</td>
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<td>KIT-TOUCH-0500</td>
<td>FT1A Touch Starter Kit</td>
<td>Transistor sink/output type, Dark bezel, USB cable, 30W PS and software</td>
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<td>KIT-TOUCH-0600</td>
<td>FT1A Touch Starter Kit</td>
<td>Transistor sink/output type, Silver bezel, USB cable, 30W PS and software</td>
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<td>KIT-TOUCH-0700</td>
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<td>Relay output type, Light bezel, USB cable, 30W PS and software</td>
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<td>Relay output type, Dark bezel, USB cable, 30W PS and software</td>
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<td>KIT-TOUCH-0900</td>
<td>FT1A Touch Starter Kit</td>
<td>Relay output type, Silver bezel, USB cable, 30W PS and software</td>
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### Controller Accessories

<table>
<thead>
<tr>
<th>Part Number Description</th>
<th>FT1A-PC1</th>
<th>FT1A-PC2</th>
<th>FT1A-PC3</th>
<th>FT1A-PC4</th>
<th>HSD2-AD00xA</th>
<th>HGS2-AGMCA</th>
<th>HSD2-A200A</th>
<th>HSD2-A300A</th>
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<tbody>
<tr>
<td>FT1A-PC1</td>
<td>FT100DC communication adapter, mini DIN type</td>
<td>FT100DC communication adapter, mini DIN type</td>
<td>FT100DC communication adapter, mini DIN type</td>
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<tr>
<td>FT1A-PC2</td>
<td>FT100DC communication adapter, mini DIN type</td>
<td>FT100DC communication adapter, mini DIN type</td>
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<td>FT100DC communication adapter, mini DIN type</td>
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<tr>
<td>FT1A-PC3</td>
<td>FT100DC communication adapter, mini DIN type</td>
<td>FT100DC communication adapter, mini DIN type</td>
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<tr>
<td>FT1A-PC4</td>
<td>FT100DC communication adapter, mini DIN type</td>
<td>FT100DC communication adapter, mini DIN type</td>
<td>FT100DC communication adapter, mini DIN type</td>
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<td>HGS2-AGMCA</td>
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</tbody>
</table>

### Touch Accessory

- 35” STN Monochrome (8 I/O)
- 35” STN Monochrome (8 I/O)
- 35” STN Monochrome (8 I/O)

### Controller Accessories

- Kit SMART-15: FT1A Smart Starter Kit, 15 I/O AC, USB cable and software
- Kit SMART-24: FT1A Smart Starter Kit, 24 I/O AC, USB cable and software
- Kit SMART-30: FT1A Smart Starter Kit, 30 I/O AC, USB cable and software
- Kit SMART-40: FT1A Smart Starter Kit, 40 I/O AC, USB cable and software
- Kit SMART-50: FT1A Smart Starter Kit, 50 I/O AC, USB cable and software
- Kit SMART-60: FT1A Smart Starter Kit, 60 I/O AC, USB cable and software
- Kit SMART-70: FT1A Smart Starter Kit, 70 I/O AC, USB cable and software
- Kit SMART-80: FT1A Smart Starter Kit, 80 I/O AC, USB cable and software
- Kit SMART-90: FT1A Smart Starter Kit, 90 I/O AC, USB cable and software

### Controller Starter Kits

- Kit SMART-15: FT1A Smart Starter Kit, 15 I/O AC, USB cable and software
- Kit SMART-24: FT1A Smart Starter Kit, 24 I/O AC, USB cable and software
- Kit SMART-30: FT1A Smart Starter Kit, 30 I/O AC, USB cable and software
- Kit SMART-40: FT1A Smart Starter Kit, 40 I/O AC, USB cable and software
- Kit SMART-50: FT1A Smart Starter Kit, 50 I/O AC, USB cable and software
- Kit SMART-60: FT1A Smart Starter Kit, 60 I/O AC, USB cable and software
- Kit SMART-70: FT1A Smart Starter Kit, 70 I/O AC, USB cable and software
- Kit SMART-80: FT1A Smart Starter Kit, 80 I/O AC, USB cable and software
- Kit SMART-90: FT1A Smart Starter Kit, 90 I/O AC, USB cable and software

### Contact Information

- 800.262.4332
- www.IDEC.com/FT1A
Specifications

### General Specifications

- **Rated Power Frequency**: AC power: 50 to 60Hz (47 to 63Hz)
- **Consumption**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>DC Power (12-I/O Type)</th>
<th>AC Power (24-I/O Type)</th>
<th>DC Power (48-I/O Type)</th>
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<tr>
<td>FT1A-12RA-*</td>
<td>12V/10A: 4.3W maximum</td>
<td>24V/10A: 4.8W maximum</td>
<td>48V/10A: 6.0W maximum</td>
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<tr>
<td>FT1A-24RA-*</td>
<td>24V/10A: 4.3W maximum</td>
<td>48V/10A: 4.8W maximum</td>
<td>96V/10A: 6.0W maximum</td>
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<tr>
<td>FT1A-48RA-*</td>
<td>48V/10A: 4.3W maximum</td>
<td>96V/10A: 4.8W maximum</td>
<td>192V/10A: 6.0W maximum</td>
</tr>
</tbody>
</table>

- **Operating Temperature**
  - Color display: –20 to +55°C
  - Monochrome display: 0 to +55°C
- **Inrush Current**
  - AC power: 35A maximum (Cold start with Ta=25°C, 200V AC)
  - DC power: 30A maximum (5ms maximum)
- **EMC Immunity**
  - IEC/EN 61131-2:2007 compliant
  - Between power terminal and output terminal: 2,300V AC, 5mA, 1 minute
  - Between relay output and FE terminals: 2,300V AC, 5mA, 1 minute
  - Between transistor output and FE terminals: 1,500V AC, 5mA, 1 minute
- **Dielectric Strength**
  - Between power/input and relay output terminals: 2,300V AC, 5mA, 1 minute
  - Between power/input and transistor output terminals: 1,500V AC, 5mA, 1 minute
- **Allowable Momentary Power Interruption**
  - 10ms maximum
- **Corrosion Immunity**
  - Atmosphere free from corrosive gases
- **Pollution Degree**
  - 2 (IEC 60664-1)
- **Storage Temperature**
  - –20 to +60°C (no freezing)
- **Mounting Structure**
  - DIN rail or direct mount
- **Operating Temperature**
  - Color display: –20 to +55°C
  - Monochrome display: 0 to +55°C
- **Inrush Current**
  - AC power: 50A maximum (5ms maximum)
- **EMC Immunity**
  - IEC/EN 61131-2:2007 compliant

### I/O Specifications

- **Inputs**
  - Analogue Voltage
  - 0 to 10V DC
- **Outputs**
  - Single-phase 4 (x 10kHz)
- **Communication**
  - Ethernet
  - RS485/422
- **Ports**
  - USB-mini B

### Touch (PLC + HMI)

- **Part Number**
  - FT1A-12RA-* / FT1A-24RA-* / FT1A-48RA-* (Sinking)
- **Program Memory**
  - Program size: 47.4KB
- **Function Block**
  - 98 types
- **Advanced Instructions**
  - 58 types
- **Basic Instructions**
  - 58 types
- **Advanced Functions**
  - 104 types

### Control System

- **Control System**
  - Stored program system
- **Instruction**
  - Control System
  - Stored program system
- **Analog Output**
  - Single-phase 4 (x 10kHz)
- **Analog Input / Output**
  - 2 / – 2 / 2
- **Programming Software**
  - SmartAXIS

- **Operation Mode**
  - Rotary encoder mode and adding counter mode

- **Installation**
  - Wall mount:
    - For wall or other horizontal surface
    - Wall mount: 300g

### Technical Specifications

- **Weight**
  - 250g

### Program Memory

- **Program Memory**
  - Program size: 38KB

### Error Handling

- **Error Handling**
  - Error handling: 32 types

### I/O Specifications

- **I/O Points**
  - Inputs / Outputs: 8 / 4

### Memory Specifications

- **Configuration Memory**
  - FT1A-12RA-*: 38KB
  - FT1A-24RA-*: 47.4KB
  - FT1A-48RA-*: 79KB

### Network Specifications

- **Network**
  - Ethernet

### Safety Specifications

- **Safety Specifications**
  - Safety level: 3 (IEC 61131-2)

### Power Specifications

- **Rated Power Frequency**: AC power: 50 to 60Hz (47 to 63Hz)

### Electrical Specifications

- **Electrical Specifications**
  - AC power: 18VA maximum
  - DC power: 4.3W maximum

### Environmental Specifications

- **Environmental Specifications**
  - Operating Temperature: 0 to +55°C
  - Inrush Current: 30A maximum

### Physical Specifications

- **Dimensions**
  - H x W x D: 42 x 64 x 26mm

### Compliance Specifications

- **Standards**
  - CE, UL, C-UL, EN 61131-2:2007

### Configuration Memory

- **Configuration Memory**
  - FT1A-12RA-*: 38KB
  - FT1A-24RA-*: 47.4KB
  - FT1A-48RA-*: 79KB

### Memory Card Specifications

- **Memory Card**
  - Capacity: 5MB

### Effective Frequency

- **Effective Frequency**
  - 47kHz

### Data Specifications

- **Data Specifications**
  - 2,300KB

### Environmental Conditions

- **Environmental Conditions**
  - Operating Temperature: 0 to +55°C

### Overload Protection

- **Overload Protection**
  - Not possible

### Battery Specifications

- **Battery Specifications**
  - Lithium secondary battery
  - Approximately 15 hours required to charge from 0 to 80%
### Display Specifications

**Touch/Pro (PLC + HMI) (Built-in LCD)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Touch</th>
<th>Pro (Built-in LCD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Element</td>
<td>TFT color LCD</td>
<td>STN monochrome LCD</td>
</tr>
<tr>
<td>Colors</td>
<td>65,536 colors</td>
<td>Monochrome</td>
</tr>
<tr>
<td>Effective Display Area</td>
<td>88.92 x 50.85 mm</td>
<td>102 x 50.85 mm</td>
</tr>
<tr>
<td>Display Resolution</td>
<td>240 x 160 H pixels</td>
<td>192 x 64 H pixels</td>
</tr>
<tr>
<td>View Angle</td>
<td>Left: 90°, top: 60°, right: 45°</td>
<td>Left: 90°, top: 60°, right: 45°</td>
</tr>
<tr>
<td>Contrast Adjustment</td>
<td>Not Available</td>
<td>32 levels</td>
</tr>
<tr>
<td>Backlight</td>
<td>NOT Available</td>
<td>LED (white, red, pink)</td>
</tr>
<tr>
<td>Backlight Life</td>
<td>50,000 hours</td>
<td>40,000 hours</td>
</tr>
<tr>
<td>Brightness</td>
<td>400cd/m²</td>
<td>70cd/m²</td>
</tr>
<tr>
<td>Brightness Adjustment</td>
<td>32 levels</td>
<td>NOT Available</td>
</tr>
</tbody>
</table>

#### Backlight

- **Backlight Life**: 50,000 hours
- **Brightness**: 400cd/m²
- **Brightness Adjustment**: 32 levels

### Analog Cartridge Specifications (Touch Transistor Output Model)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>FC6A-PJ2A</th>
<th>FC6A-PJ2CP</th>
<th>FC6A-PK2AV</th>
<th>FC6A-PK2AW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Voltage/Current Input</td>
<td>Temperature Input</td>
<td>Voltage Output</td>
<td>Current Output</td>
</tr>
<tr>
<td>Rated Voltage</td>
<td>5.0V</td>
<td>3.3V</td>
<td>3.3V to 20mA</td>
<td>3.3V to 20mA</td>
</tr>
<tr>
<td>Consumption Current</td>
<td>5.0V</td>
<td>3.0V</td>
<td>70mA</td>
<td>70mA</td>
</tr>
<tr>
<td>Weight</td>
<td>15g</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Input Specifications

<table>
<thead>
<tr>
<th>Part No.</th>
<th>FC6A-PJ2A</th>
<th>FC6A-PJ2CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Input</td>
<td>0 to 10V DC</td>
<td>0 to 10V DC</td>
</tr>
<tr>
<td>Current Input</td>
<td>4 to 20mA DC</td>
<td>4 to 20mA DC</td>
</tr>
<tr>
<td>Resistance Thermometer</td>
<td>±0.1% of full scale</td>
<td>±0.1% of full scale</td>
</tr>
<tr>
<td>Thermocouple</td>
<td>–40°C to 1200°C</td>
<td>–15°C to 1200°C</td>
</tr>
</tbody>
</table>

#### Input Amplifier

- **Input Impedance**: 1MΩ min. to 250MΩ max. (1MΩ max.)
- **Sample Duration Time**: 10ms
- **Sample Interval**: 20ms + 1 scan
- **Maximum Error at Stabilization Time**: ±0.5% of full scale
- **Reproducibility after Stabilization**: ±0.4% of full scale
- **Effect of Improper Application**: No damage
- **Isolation**: None

#### Output Specifications

<table>
<thead>
<tr>
<th>Part No.</th>
<th>FC6A-PJK2AV</th>
<th>FC6A-PK2AW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Output</td>
<td>0 to 10V DC</td>
<td>0 to 10V DC</td>
</tr>
<tr>
<td>Current Output</td>
<td>4 to 20mA DC</td>
<td>4 to 20mA DC</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.1% of full scale</td>
<td>±0.1% of full scale</td>
</tr>
<tr>
<td>Temperature Coefficient</td>
<td>±0.05°C/°C of full scale</td>
<td>±0.05°C/°C of full scale</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.05% of full scale</td>
<td>±0.05% of full scale</td>
</tr>
<tr>
<td>Cycle Time</td>
<td>20ms</td>
<td>20ms</td>
</tr>
<tr>
<td>Duty Cycle</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>

### Applicable Wire

- **Application Cartridge Part No.**: FC6A-PJ2A (0.3 to 0.5mm²)
- **Type**: AWG22 or AWG24 (0.3 to 0.5mm²)
- **Application Cartridge Part No.**: FC6A-PJ2CP (0.3 to 0.5mm²)
- **Type**: AWG22 or AWG24 (0.3 to 0.5mm²)
- **Application Cartridge Part No.**: FC6A-PK2AV (0.3 to 0.5mm²)
- **Type**: AWG22 or AWG24 (0.3 to 0.5mm²)
- **Application Cartridge Part No.**: FC6A-PK2AW (0.3 to 0.5mm²)
- **Type**: AWG22 or AWG24 (0.3 to 0.5mm²)

### Operation Specifications

<table>
<thead>
<tr>
<th>Touch/Pro (PLC + HMI/ LCD Modules)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>Touch/Pro Element</td>
</tr>
<tr>
<td>Operating Force</td>
</tr>
<tr>
<td>Mechanical Life</td>
</tr>
<tr>
<td>Acknowledgment Sound</td>
</tr>
<tr>
<td>Multiple Press</td>
</tr>
</tbody>
</table>

---

1. The value of this parameter is the time until the brightness reduces by half after use at 25°C.
2. Brightness of LCD only (transmissive LCD when white).
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