IDEC

Think Automation and beyond...

Design-in More Function with Affordable FT1A PLCs

12 I/O

24 I/O

40 I/O

Value. Versatility. The New Breed of Controller!

The ideal solution for a variety of applications.

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

The SmartAXIS family is 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" HMI + PLC is also available with sophisticated features and a super-bright LCD screen, Whatever your application requires, the FT1A SmartAXIS family has a solution!

CE ✓ c(UL)us LISTED

48 I/O

3.8" HMI + PLC

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.

Universal Voltages

24V DC or 100-240V AC

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.

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.
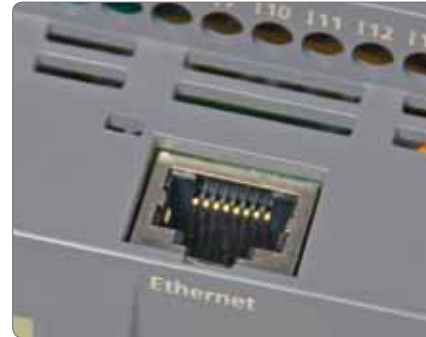
RJ45 Ethernet Port

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 48KB (11,850 steps) of programming memory, FT1A controllers have enough memory for even complex PLC programming.

SD Memory

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.

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.
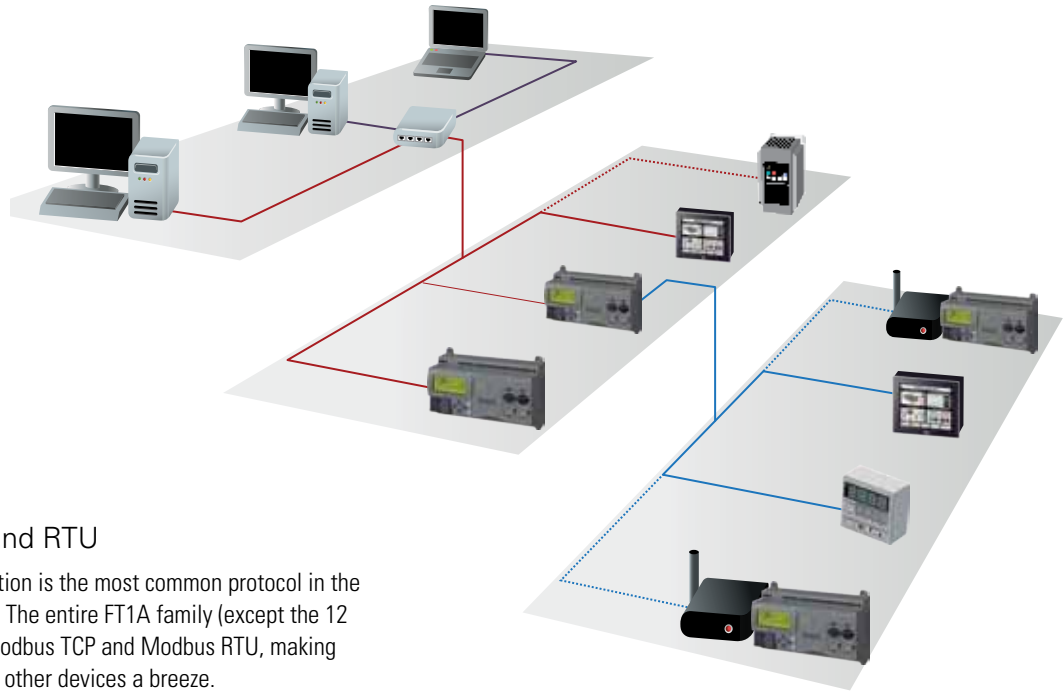
Modbus TCP and RTU

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.
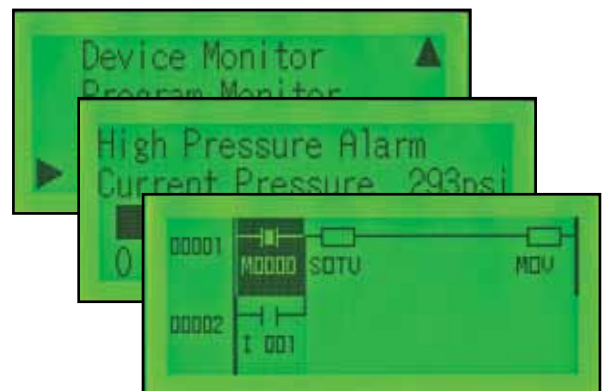
Ethernet Connectivity

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.
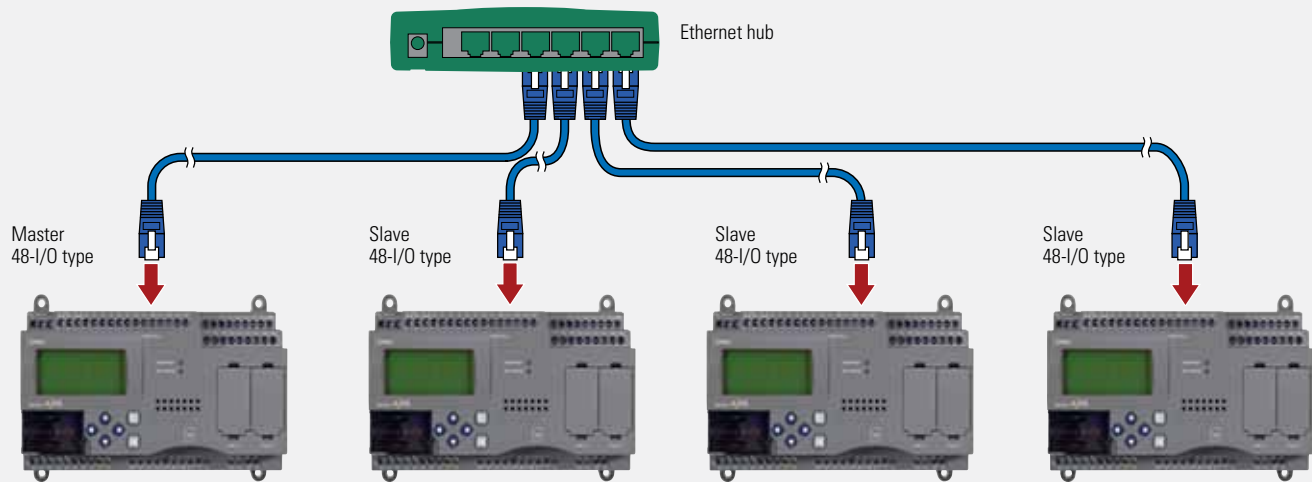
Remote I/O

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.

Ethernet hub

Master
48-I/O type

Slave
48-I/O type

Slave
48-I/O type

Slave
48-I/O type

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.

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 packed in a compact body big on features. Perfect for small systems that require a graphical user interface along with versatile I/O controls at a truly affordable price.

RS232 and RS485 ports

Built-in RS232C, RS422/485 interface for serial communication.

USB-A Port

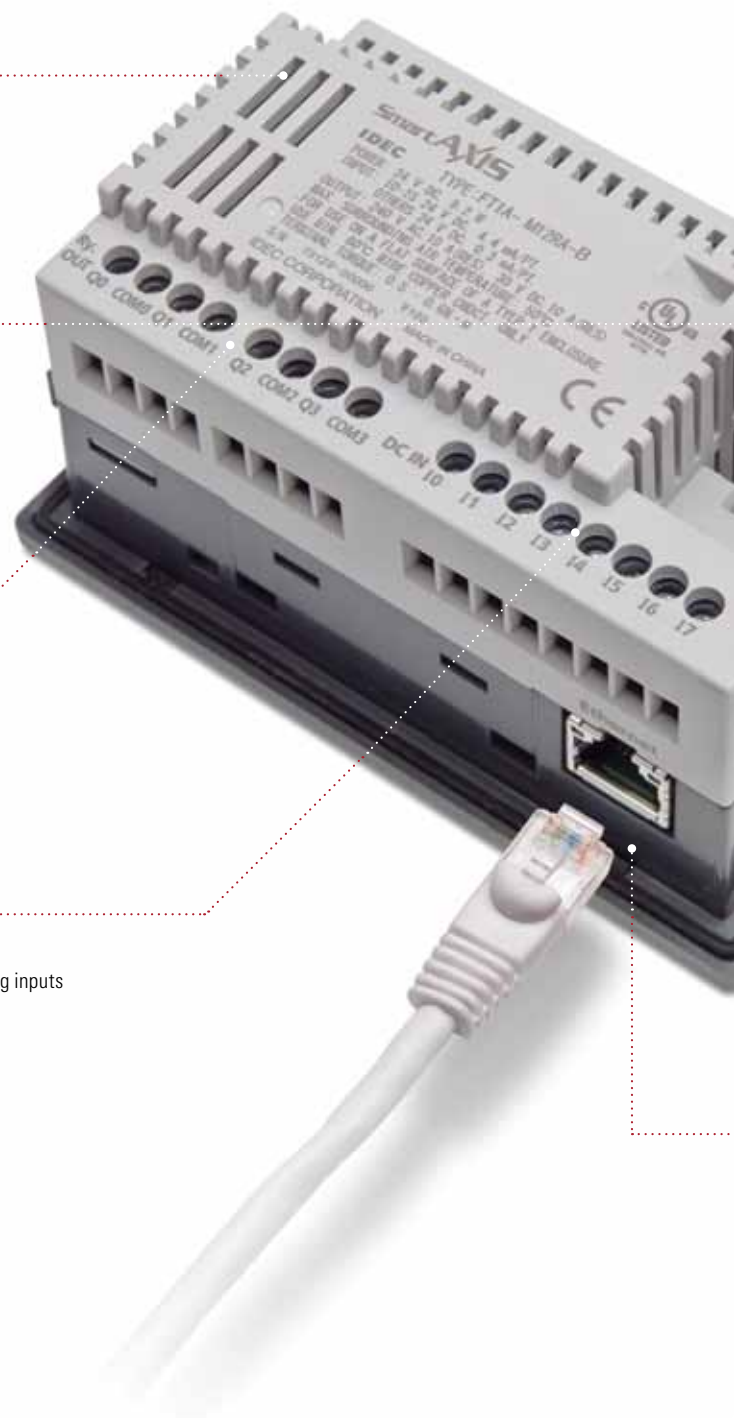Embedded USB-A port for storing project and recipe data, as well as for performing program updates.

10A Relay Contacts

4 built-in 10A relay contacts. Interposing relays are not required.

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
  - 10-bit resolution
- 4 high-speed counters
  - Up to 10kHz

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/m^2 color
- 740cd/m^2 monochrome

Actual Size

IP66F Protection
Front panel (water tight
and oil tight)

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

RJ45 Ethernet Port
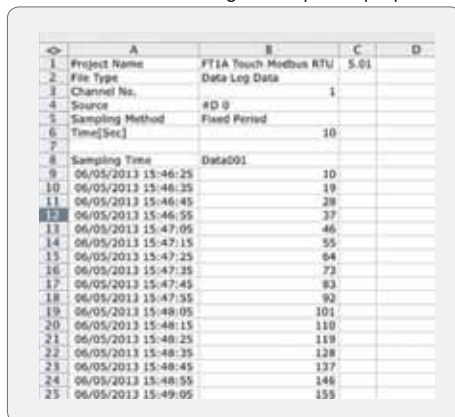Supports remote Ethernet communication
and Modbus TCP.

Control Functions

Fast Processing Speed

The processing speed of FT1A Touch is not compromised as 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. Logged data can easily be retrieved over an Ethernet connection or by removing the USB memory stick from the FT1A Touch and inserting it into your laptop or PC.

Easy Program File Transfer

Project files can be easily 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.

Easy data transfer
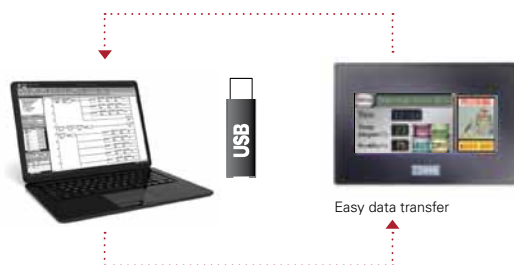
Digital and Analog Inputs

The FT1A Touch is equipped with 8 digital inputs, two of which can be configured as 0-10V DC analog inputs with 10-bit resolution. The built-in analog inputs can reduce 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.

Large Programming Memory

FT1A Touch is equipped with abundant memory capacity. With 48KB 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.

Display Functions

Ethernet Connectivity

With the embedded RJ45 Ethernet port, FT1A project files can be remotely uploaded or downloaded over 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

PLC 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 PLC 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.

65,536 TFT Color LCD

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

Super-Bright LED

FT1A Touch is one of the brightest compact displays. The 65K TFT color unit is rated at 400cd/m^2 and the monochrome unit is rated at 740cd/m^2. With 32 levels of brightness control, the backlight can be adjusted according to the surrounding conditions.

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 OI touchscreen 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 OI touchscreens. 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 Touchscreen 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.
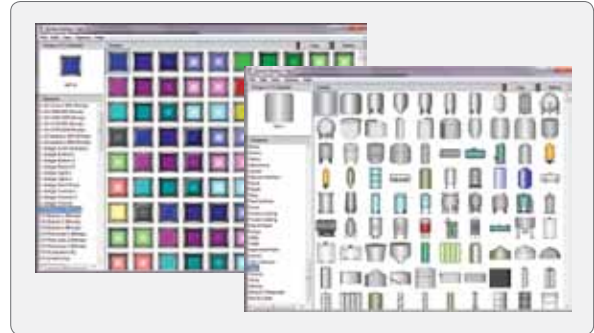
WindLDR

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.
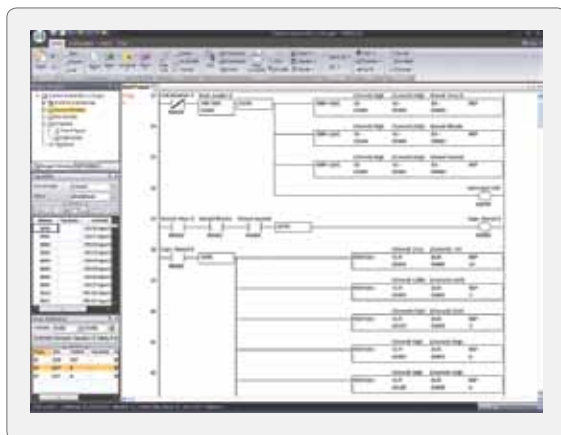
Simulation Mode

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.
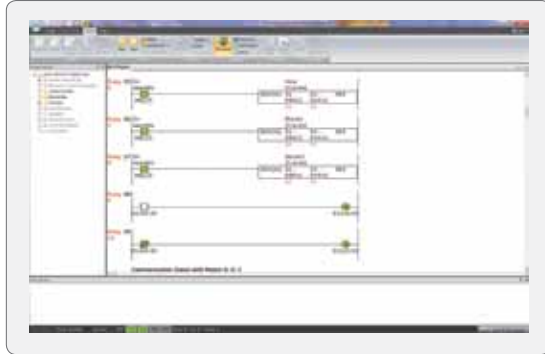
Comment Download Settings

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.
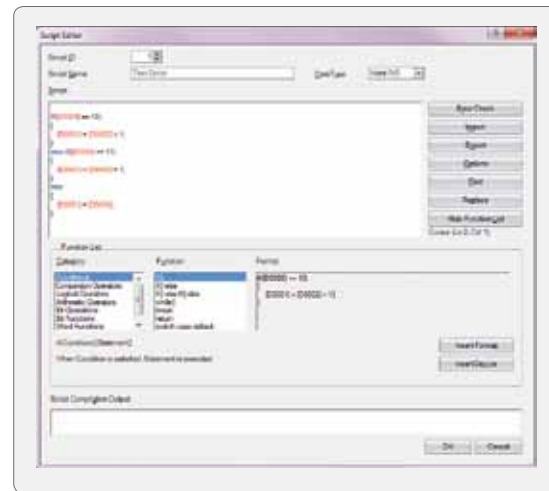
Free 30-Day Demo

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

Selection Guide and Part Number Listing

Products

Touch	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-M12RA-W	24V DC	12 I/O (8 in, 4 out)	Sink	Relay	Yes	3.7" STN Monochrome (8 shades)	2pt, 0-10V DC, 10-bit Resolution	4 x 10kHz	—	Yes
	FT1A-M12RA-B										
	FT1A-M12RA-S										
	FT1A-C12RA-W						3.8" TFT 65,536 colors				
	FT1A-C12RA-B										
	FT1A-C12RA-S										
12 I/O CPU											
	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				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				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		

Starter Kits

	Type	Part Number	Description
	Touch	KIT-TOUCH-MW	SmartAXIS Touch Starter Kit, Monochrome Light bezel, USB cable, 30W PS and software
		KIT-TOUCH-MB	SmartAXIS Touch Starter Kit, Monochrome Dark bezel, USB cable, 30W PS and software
		KIT-TOUCH-MS	SmartAXIS Touch Starter Kit, Monochrome Silver bezel, USB cable, 30W PS and software
		KIT-TOUCH-CW	SmartAXIS Touch Starter Kit, 65K color TFT Light bezel, USB cable, 30W PS and software
		KIT-TOUCH-CB	SmartAXIS Touch Starter Kit, 65K color TFT Dark bezel, USB cable, 30W PS and software
		KIT-TOUCH-CS	SmartAXIS Touch Starter Kit, 65K color TFT Silver bezel, USB cable, 30W PS and software
	12 I/O CPU	KIT-SMART-12-HAC	SmartAXIS Starter Kit, 12 I/O AC with display/keypad , USB cable and software
		KIT-SMART-12-BAC	SmartAXIS Starter Kit, 12 I/O AC, USB cable and software
		KIT-SMART-12-HDC	SmartAXIS Starter Kit, 12 I/O DC with display/keypad, USB cable, 30W PS and software
		KIT-SMART-12-BDC	SmartAXIS Starter Kit, 12 I/O DC, USB cable, 30W PS and software
	24 I/O CPU	KIT-SMART-24-HAC	SmartAXIS Starter Kit, 24 I/O AC with display/keypad , USB cable and software
		KIT-SMART-24-BAC	SmartAXIS Starter Kit, 24 I/O AC, USB cable and software
		KIT-SMART-24-HDC	SmartAXIS Starter Kit, 24 I/O DC with display/keypad, USB cable, 30W PS and software
		KIT-SMART-24-BDC	SmartAXIS Starter Kit, 24 I/O DC, USB cable, 30W PS and software
	40 I/O CPU	KIT-SMART-40-HAC-R	SmartAXIS Starter Kit, 40 I/O AC with display/keypad, USB cable and software
		KIT-SMART-40-BAC-R	SmartAXIS Starter Kit, 40 I/O AC, USB cable and software
		KIT-SMART-40-HDC-RK	SmartAXIS Starter Kit, 40 I/O DC with display/keypad Sink, USB cable, 30W PS and software
		KIT-SMART-40-HDC-RS	SmartAXIS Starter Kit, 40 I/O DC with display/keypad Source, USB cable, 30W PS and software
		KIT-SMART-40-BDC-RK	SmartAXIS Starter Kit, 40 I/O DC Sink outputs, USB cable, 30W PS and software
		KIT-SMART-40-BDC-RS	SmartAXIS Starter Kit, 40 I/O DC Source outputs, USB cable, 30W PS and software
	48 I/O CPU	KIT-SMART-48-HAC-K	SmartAXIS Starter Kit, 48 I/O AC with display/keypad Sink, USB cable and software
		KIT-SMART-48-BAC-K	SmartAXIS Starter Kit, 48 I/O AC Sink outputs, USB cable and software
		KIT-SMART-48-HAC-S	SmartAXIS Starter Kit, 48 I/O AC with display/keypad Source, USB cable and software
		KIT-SMART-48-BAC-S	SmartAXIS Starter Kit, 48 I/O AC Source outputs, USB cable and software
		KIT-SMART-48-HDC-K	SmartAXIS Starter Kit, 48 I/O DC with display/keypad Sink, USB cable, 30W PS and software
		KIT-SMART-48-BDC-K	SmartAXIS Starter Kit, 48 I/O DC Sink outputs, USB cable, 30W PS and software
		KIT-SMART-48-HDC-S	SmartAXIS Starter Kit, 48 I/O DC with display/keypad Source, USB cable, 30W PS and software
		KIT-SMART-48-BDC-S	SmartAXIS Starter Kit, 48 I/O DC Source outputs, USB cable, 30W PS and software

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)
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)
HG9Z-XCM2A	USB programming cable
SW1A-W1C	Automation Organizer Software Suite

Specifications

General Specifications

Touch (Display Model)	
Part Number	FT1A-*12RA-*
Rated Power Voltage	24V DC
Allowable Voltage Range	20.4 to 28.8V DC (including ripple)
Power Consumption	9.2W maximum
Allowable Momentary Power Interruption	10ms maximum
Dielectric Strength	Between power terminal and FG: 500V AC, 5mA, 1 minute, Between power terminal and output terminal: 2,300V AC, 5mA, 1 minute
EMC Immunity	IEC/EN 61131-2:2007 compliant
Inrush Current	50A maximum (5ms maximum)
Operating Temperature	0 to +50°C
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 (Panel front), IP20 (Rear)
Ground	Functional grounding
Protective Grounding Conductor	AWG16
Vibration Resistance	5 to 8.4Hz half amplitude 3.5mm, 8.4 to 150Hz, Acceleration 9.8m/s^2 (1G) 2 hours per axis on each of three mutually perpendicular axis (IEC 61131-2)
Shock Resistance	147m/s^2, 11ms, X, Y, Z directions 3 times (IEC 61131-2)
Mounting Structure	Panel mount
Weight (approx.)	300g

Operation not guaranteed when used with certain types of oils.

Pro/Lite (LCD Model/No LCD Model)					
Part Number		12-I/O Type H12RC H12RA B12RC B12RA	24-I/O Type H24RC H24RA B24RC B24RA	40-I/O Type H40RC H40RKA H40RSA B40RC B40RKA B40RSA	48-I/O Type H48KC H48SC H48KA H48SA B48KC B48SC B48KA B48SA
Rated Power Voltage		AC power: 100 to 240V AC, DC power: 24V DC			
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 60Hz (47 to 63Hz)			
Power Consumption	AC Power	12-I/O: 18VA maximum, 24-I/O: 41VA maximum, 40-I/O: 48VA maximum, 48-I/O: 43VA 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: 20ms maximum; DC power: 10ms maximum			
Dielectric Strength		AC power type: Between power/input and PE terminals: 1,500V AC, 1 minute Between transistor output and PE terminals: 1,500V AC, 1 minute Between relay output and PE terminals: 2,300V AC, 1 minute Between power and input terminals: 1,500V AC, 1 minute Between power/input and transistor output terminals: 1,500V AC, 1 minute Between power/input and relay output terminals: 2,300V AC, 1 minute DC power type: Between power/input and FE terminals: 500V AC, 1 minute Between transistor output and FE terminals: 500V AC, 1 minute Between relay output and FE terminals: 2,300V AC, 1 minute Between power/input and transistor output terminals: 500V AC, 1 minute Between power/input and relay output terminals: 2,300V AC, 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 1]			
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 8.4Hz half amplitude 3.5mm, 8.4 to 150Hz, Acceleration 9.8m/s^2 (1G) 2 hours per axis on each of three mutually perpendicular axis (IEC 61131-2)			
Shock Resistance		147m/s^2, 11ms, 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			

1. FT1A Version V110 are UL, c-UL Listed at 0 to +55°C.

Item		Touch (Display Model) — FT1A-* 12RA-*	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								
Instruction Words	Basic Instructions	42 types								
Instruction Words	Advanced Instructions	97 types	99 types	99 types	107 types	107 types	DC power type: 125 types, AC power type: 111 types			
Program Capacity		Program size: 48KB Configuration memory capacity: 5MB	12KB	48KB						
User Program Storage		Flash ROM (100,000 times)	Built-in Flash ROM (10,000 times rewritable)							
Processing Time	Basic Instruction	1850µs/1000 steps	950µs/1000 steps							
Processing Time	END Processing	5ms minimum	2 ms (Pro) /640 µs (Lite)							
I/O Points	Inputs	8	8	8	16	16	24	24	30	30
I/O Points	Outputs	4	4	4	8	8	16	16	18	18
Internal Relays		1024	256	256	1024	1024	1024	1024	1024	1024
Shift Registers		128	128	128	128	128	128	128	128	128
Data Registers		2000	400	400	2000	2000	2000	2000	2000	2000
Special Data Registers		200	200	200	200	200	200	200	200	200
Adding/Reversible Counters		200	100	100	200	200	200	200	200	200
Timer (1ms, 10ms, 10ms, 1s)		200	100	100	200	200	200	200	200	200
Clock		Precision: ±30 seconds/month (25°C, typical)								
RAM Backup	Backup Data	Internal relays, shift registers, counters, data registers, clock data								
RAM Backup	Backup Duration	Approximately 30 days (typical) at 25°C after backup battery is fully charged								
RAM Backup	Battery	Lithium secondary battery								
RAM Backup	Charging Time	Approximately 15 hours required to charge from 0 to 90%								
RAM Backup	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 (Pro/Lite only)								
Input Filter		No filter, 3 to 15ms (selectable in increments of 1ms)								
Catch Input/Interrupt Input		4/4	4/4	4/4	6/6	6/6	6/6	6/6	6/6	6/6
High-speed Counter — Maximum Counting Frequency & Points	Single/two-phase Selectable	1 (5kHz, multiple 2/4, single phase not available)	2 (100kHz /50kHz) [1]	—	2 (100kHz /50kHz) [1]	—	2 (100kHz /50kHz) [1]	—	2 (100kHz /50kHz) [1]	—
High-speed Counter	Single-phase	4 (x 10kHz)	2 (x 100kHz)	—	4 (x 100kHz)	—	4 (x 100kHz)	—	4 (x 100kHz)	—
High-speed Counter	Counting Range	0 to 4,294,967,295 (32 bits)								
High-speed Counter	Operation Mode	Rotary encoder mode and adding counter mode								
Analog Voltage Inputs	Points	2	2	None	4	None	6	None	8	None
Analog Voltage Inputs	Input Range	0 to 10V DC								
Analog Voltage Inputs	Input Impedance	78 kΩ								
Analog Voltage Inputs	Digital Resolution	10-bit (0 to 1000)								
Pulse Outputs — 100 kHz	No. of Outputs	—	—	—	—	—	—	2	—	2
Pulse Outputs — 100 kHz	Function	—	—	—	—	—	—	PULS, PWM, RAMP, ARAMP, ZRN	—	PULS, PWM, RAMP, ARAMP, ZRN
Pulse Outputs — 5 kHz	No. of Outputs	—	—	—	—	—	—	2	—	2
Pulse Outputs — 5 kHz	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%)
External Output Power Supply for Sensor	Output Current	—	—	—	—	250mA	—	300mA	—	300mA
External Output Power Supply for Sensor	Overload Detection	—	—	—	—	Not Available	—	Not Available	—	Not Available
External Output Power Supply for Sensor	Insulation	—	—	—	—	Internal Circuit	—	Internal Circuit	—	Internal Circuit
USB-mini B		X	X	X	X	X	X	X	X	X
USB-A		X	—	—	—	—	—	—	—	—
RS232C		X	—	—	—	X [2]	—	X [2]	—	X [2]
RS485/422		X	—	—	—	X [2]	—	X [2]	—	X [2]
Ethernet		X	—	—	—	X	—	X	—	X
Expansion Communication Ports	Port 2	—	—	—	—	X	—	X	—	X
Expansion Communication Ports	Port 3	—	—	—	—	—	—	X	—	X
Memory Cartridge		—	X	X	X	X	X	X	X	X
SD Memory Card		—	—	—	—	—	—	X [3]	—	X [3]

1. 100kHZ when single-phase, 50kHz when two-phase multiple 2.4. 2. When communication cartridge is installed. 3. The maximum capacity is 32 GB. DLOG and TRACE instructions are used to write data.

Specifications

Display Specifications

Touch/Pro (Display Model/Built-In LCD)			
Model	**Touch**		**Pro (Built-in LCD)**
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 Available	32 levels	Not Available
Backlight	LED	LED (white, red, pink)	LED (green)
Backlight Life	50,000 hours [Note 1]		—
Brightness	400cd/m² [Note 2]	740cd/m² [Note 2]	45cd/m² [Note 2]
Brightness Adjustment	32 levels		Not Available
Backlight Control	On/off		
Backlight Replacement	Not Available		
Display Character Size — 1/4 Size	8 x 8 pixels (Japanese Katakana, JIS 8-bit code, ISO 8859-1 [Latin 1], ANSI 1250 [Central Europe]), ANSI 1257 (Baltic), ANSI 1251 (Cyrillic)		—
Display Character Size — 1/2 Size	8 x 16 pixels (Japanese Katakana, JIS 8-bit code, ISO 8859-1 [Latin 1], ANSI 1250 [Central Europe]), ANSI 1257 (Baltic), ANSI 1251 (Cyrillic)		8 x 16 pixels Japanese Katakana, JIS 8-bit code, ISO 8859-1 (Latin 1), ANSI 1251 (Cyrillic)
Display Character Size — 1/2 Size	16 x 32 pixels, 24 x 48 pixels, 32 x 64 pixels (Western European languages: ISO 8859-1)		—
Display Character Size — Full Size	16 x 16 pixels (Japanese JIS first and second level characters, simplified Chinese, traditional Chinese, Korean)		16 x 16 pixels (Japanese JIS first level characters, Chinese)
Display Character Size — 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		—
No. of Characters — 1/2 Size	30 characters x 6 lines/screen		24 characters x 4 lines
No. of Characters — Full Size	15 characters x 6 lines/screen		12 characters x 4 lines
No. of Characters — 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 or 0.5sec)		Blink, reverse
Graphics	Line, polyline, polygon, rectangle, circle, ellipse, arc, pie, equilateral polygons (3, 4, 5, 6, 8), fill, picture		—
Window Display	3 pop-up screens + 1 system screen		—

1. The backlight life refers to the time until the brightness reduces by half after use at 25°C.
2. Brightness of LCD only (monochrome LCD: when lit white).

Operation Specifications

Touch/Pro (Display/LCD Models)		
Model	**Touch**	**Pro (Built-in LCD)**
Switching Element	Analog resistive membrane (touch panel)	Rubber switches
Operating Force	0.2 to 2.5N	2.0N minimum
Mechanical Life	1 million operations	10,000 operations
Acknowledgment Sound	Electric Buzzer	Not provided
Multiple Press	Not possible	Possible

Touch (Display Model)
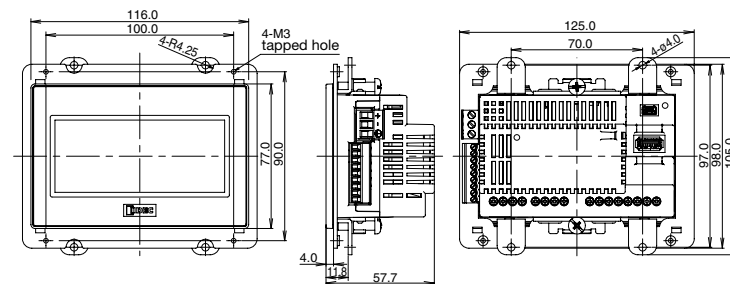
When using mounting bracket (HG9Z-4K2PN04)

Panel thickness: 1.0 to 5.0 (Note)
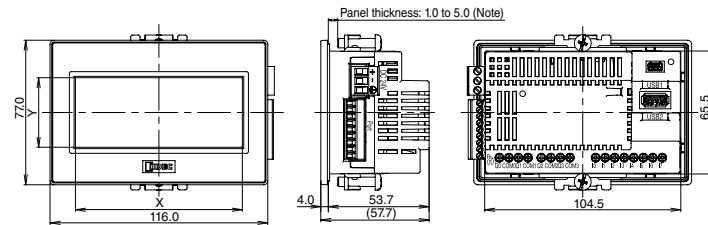
LCD Active Area

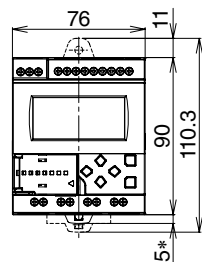| LCD Type	X	Y
TFT	88.92	37.05
STN	87.59	35.49

Note: Waterproof characteristics depend on panel material and size.

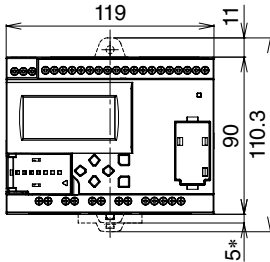When using rear mount adapter (FT9Z-1A01)

4-M3 tapped hole

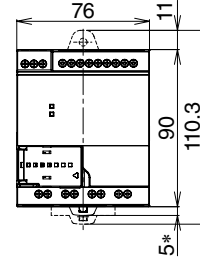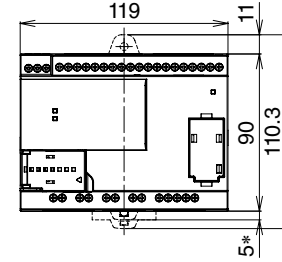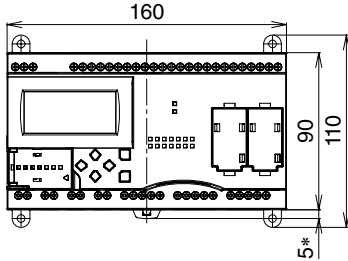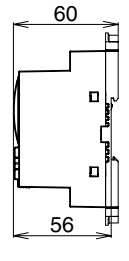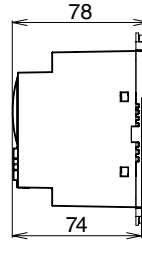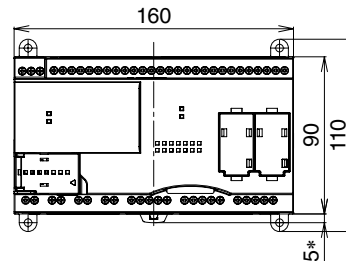## Pro (LCD Model)

FT1A-H12*A/*C   FT1A-H24*A/*C

FT1A-H40*A/*C   FT1A-H***A   FT1A-H***C

FT1A-H48*A/*C

Note: 9.3 mm when the clamp is pulled out.

Lite (No LCD Model)

FT1A-B12*A/*C   FT1A-B24*A/*C
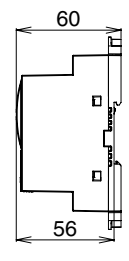
FT1A-B40*A/*C   FT1A-B***A   FT1A-B***C
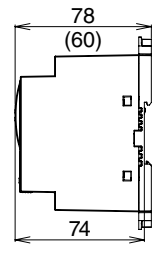
FT1A-B48*A/*C
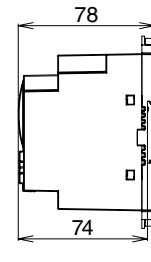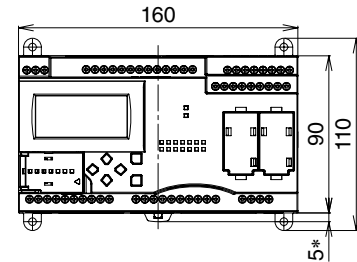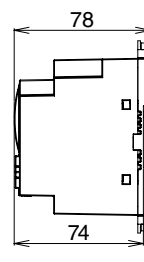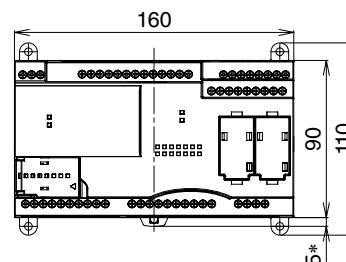
Note: 9.3 mm when the clamp is pulled out.

Exceeding Industry Standards

At IDEC, we continuously strive to exceed industry standards in safety and quality, protecting our customers while safeguarding valuable equipment. We develop all our products with innovative and reliable designs, and then test to ensure they go beyond industry safety standards by enforcing the strictest quality control in the market. From our E-stops with unique safe break action, to our "dead man," grip switches that guarantee safe and stress-free operation every time, IDEC products are unbeatable when it comes to performance and dependability.

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