



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

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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 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!



5mart AXIS





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.





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.

0	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	73		
17	06/05/2013 15:47:45	83		
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 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, ARW (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.





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/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.



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.



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.



www.IDEC.com/FT1A

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. also equipped with two 100kHz high-speed outputs for simple positioning controls. With remote I/O capability, additional outputs can easily be added.

Smart AX



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, realtime 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.



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.



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 timecontrolled 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 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.



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.

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200 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			Egror Check
(D0000) == 10)			Import
alea (1000000) == 11)			Export
1000011 = 1000031 + 1:			Options
else			Eind
[D0001] = [D0004];			Reglace
)			Hide Function List
Function List			Cursor (Ln 2, Col 1)
Category:	Function:	Format:	
Comparison Operators Logical Operators Arthmetic Operators Bit Operations Bit Functions Word Functions	f() f() else f() else f() else while() break retum switch case default	f([D0000] ++ 10) D0001] = [D0002] + 13	
if(Condition)(Statement)			Insert Format
When Condition is satisfied	I. Statement is executed.		Insert Deyjce
Script Compilgtion Output:			

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	Embedded Analog Outputs	Output Type	Analog Expansion Cartridges	Power Voltage	Remote I/O Master
	FT1A-M14KA-W									
	FT1A-M14KA-B			Source			Transistor Sink			Yes
	FT1A-M14KA-S	3.7" STN								
	FT1A-M14SA-W	(8 shades)								
	FT1A-M14SA-B			Sink			Transistor Source	Yes, up to 2 cartridges	24V DC	
	FT1A-M14SA-S		14 I/O		2pt (0-10VDC,	2pt (0-10VDC,				
	FT1A-C14KA-W		6 out)	Source	4-20mA, 10-bit Resolution)	Resolution)				
	FT1A-C14KA-B						Transistor Sink			
	FT1A-C14KA-S	3.8" TFT 65,536 colors								
	FT1A-C14SA-W			Sink						
	FT1A-C14SA-B						Transistor Source			
	FT1A-C14SA-S									
	FT1A-M12RA-W	3 7" STN								
	FT1A-M12RA-B	Monochrome								
	FT1A-M12RA-S	(8 shades)	12 I/O	0.1	2pt (0-10VDC,					
	FT1A-C12RA-W		(8 in, 4 out)	SIUK	Resolution)	_	негау	_		-
	FT1A-C12RA-B	3.8" TFT 65 536 colors								
	FT1A-C12RA-S	65,536 colors								

Touch Starter Kits

	Part Number	Description
	KIT-TOUCH-□KW	FT1A Touch Starter Kit, Transistor sink output type, Light bezel, USB cable, 30W PS and software
	KIT-TOUCH-DKB	FT1A Touch Starter Kit, Transistor sink output type, Dark bezel, USB cable, 30W PS and software
	KIT-TOUCH-□KS	FT1A Touch Starter Kit, Transistor sink output type, Silver bezel, USB cable, 30W PS and software
	KIT-TOUCH-□SW	FT1A Touch Starter Kit, Transistor source output type, Light bezel, USB cable, 30W PS and software
	KIT-TOUCH-□SB	FT1A Touch Starter Kit, Transistor source output type, Dark bezel, USB cable, 30W PS and software
	KIT-TOUCH-□SS	FT1A Touch Starter Kit, Transistor source output type, Silver bezel, USB cable, 30W PS and software
KIT-I KIT-I KIT-I KIT-I KIT-I KIT-I KIT-I	KIT-TOUCH-⊡W	FT1A Touch Starter Kit, Relay output type, Light bezel, USB cable, 30W PS and software
	KIT-TOUCH-□B	FT1A Touch Starter Kit, Relay output type, Dark bezel, USB cable, 30W PS and software
	KIT-TOUCH-□S	FT1A Touch Starter Kit, Relay output type, Silver bezel, USB cable, 30W PS and software

In place of \square insert code for display type: C = color, M = monochrome

Touch Accessories

Part Number	Description
FC6A-PJ2A	2-pt 0-10V, 4-20mA Analog input cartridge
FC6A-PJ2CP	2-pt RTD, Thermocouple cartridge
FC6A-PK2AV	2-pt 0-10V Analog output cartridge
FC6A-PK2AW	2-pt 4-20mA Analog output 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)
HG9Z-XCM2A	USB programming cable
SW1A-W1C	Automation Organizer Software Suite

Controller Accessories

art Number	Description
T1A-PC1	RS232C communication adapter, mini-DIN type
T1A-PC2	RS485 communication adapter, mini-DIN type
Г1А-РСЗ	RS485 communication adapter, screw terminal type
T1A-PM1	Optional memory cartridge
F9Z-PSP1PN05	Extra direct mounting hook (5 per pack)
W1A-W1C	Automation Organizer Software Suite
G9Z-XCM2A	USB programming cable



Controller Part Numbers Part Number Power Voltage Total I/O Input Type 12 I/O CPU FT1A-H12RC 100-240V AC Contact FT1A-H12RA 12 I/O 24V DC Sink (8 in, FT1A-B12RC 100-240V AC Contact 4 out) FT1A-B12RA Sink 24V DC 24 I/O CPU FT1A-H24RC 100-240V AC Sink/Source FT1A-H24RA 24V DC Sink 24 I/O (16 in, 100-240V AC FT1A-B24RC Sink/Source 8 out) FT1A-B24RA 24V DC Sink 40 I/O CPU FT1A-H40RC 100-240V AC Sink/Source FT1A-H40RKA Source 24V DC 40 I/O FT1A-H40RSA Sink Re (24 in, FT1A-B40RC 100-240V AC 16 out) Sink/Source FT1A-B40RKA Source

48 I/O CPU



24V DC

FT1A-B40RSA

Controller Starter Kits

	Туре	Part Number	Description					
Hammer		KIT-SMART-12-□AC	SmartAXIS Starter Kit, 12 I/O AC, USB cable and software					
	12 1/0 6F0	KIT-SMART-12-DC	SmartAXIS Starter Kit, 12 I/O DC, USB cable and software					
	241/0 001	KIT-SMART-24-□AC	SmartAXIS Starter Kit, 24 I/O AC with display/keypad , USB cable and software					
	241/0610	KIT-SMART-24-DDC	SmartAXIS Starter Kit, 24 I/O DC, USB cable and software					
	40 I/O CPU	KIT-SMART-40-□AC-R	SmartAXIS Starter Kit, 40 I/O AC, USB cable and software					
		KIT-SMART-40-□DC-RK	SmartAXIS Starter Kit, 40 I/O DC, USB cable and software					
		KIT-SMART-40-□DC-RS	SmartAXIS Starter Kit, 40 I/O DC, Source outputs, USB cable, 30W PS and software					
		KIT-SMART-48-□AC-K	SmartAXIS Starter Kit, 48 I/O AC with display/keypad Sink, USB cable and software					
		KIT-SMART-48-□AC-S	SmartAXIS Starter Kit, 48 I/O AC Source outputs, USB cable and software					
	40 I/U GEU	KIT-SMART-48-□DC-K	SmartAXIS Starter Kit, 48 I/O DC Sink outputs, USB cable, 30W PS and software					
and and and a		KIT-SMART-48-DADC-S	SmartAXIS Starter Kit, 48 I/O DC Source outputs, USB cable, 30W PS and software					
In place of ⊟insert code: H -	includos displav/l	www.ad B – without displ	av/kovnad					

In place of \Box insert code: H = includes display/keypad, B = without display/keypad

Smart AXIS

Output Type	Ethernet Port	Screen Type	Embedded Analog Inputs	High-Speed Counter	SD Memory Slot	RS232C, RS485 Port	
Relay		2.1" Monochrome	2pt, 0-10VDC, 10-bit 4 x 100kHz				
nelay	_	_	 2pt, 0-10VDC, 10-bit	— 4 x 100kHz	_	_	
		2.1"		—			
Relay	Yes	Monochrome	4pt, 0-10VDC, 10-bit	6 x 100kHz	_	Optional	
			—	—		Adapter	
		_	4pt, 0-10VDC, 10-bit	6 x 100kHz			
Relay			—	—			
elay/Trans. Sink		2.1" Monochrome	6pt, 0-10VDC,	6 x 100kHz			
ay/Trans. Source	Ves		10-bit	O A TOORTIZ	Ves	Optional Adapters	
Relay	165	100		—	—	100	(x2)
elay/Trans. Sink		_	6pt, 0-10VDC, 10-bit	6 x 100kHz			
-,,							
			_	_			
ansistor Source		2.1″	8pt, 0-10VDC, 10-bit	6 x 100kHz			
		Monochrome	_	—			
ransistor Sink	Voc		8pt, 0-10VDC, 10-bit	6 x 100kHz	Voc	Optional Adapters	
	163		—	—	163	(x2)	
ansistor Source		_	8pt, 0-10VDC, 10-bit	6 x 100kHz			
ransistor Sink			—	—			
			8pt, 0-10VDC, 10-bit	6 x 100kHz			

Sink Rel

General Specifications

Iouch (PLC + HMI)						
Part Number	FT1A-*12RA-*	FT1A-*14KA-*/FT1A-*14SA-*				
Output	Relay output	Transistor output				
Rated Power Voltage	24	4V DC				
Allowable Voltage Range	20.4 to 28.8V D	IC (including ripple)				
Power Consumption	9.2W maximum	10.1W 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	Between power terminal and FG: 500V AC, 5mA, 1 minute, Between power terminal and output terminal: 500V AC, 5mA, 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 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 & 13 (Pa	anel front) Note 1, IP20 (Rear)				
Ground	Function	al grounding				
Protective Grounding Conductor	UL100	7 AWG16				
Vibration Resistance	5 to 8.4Hz half amplitude 3.5mm, 8.4Hz to 150Hz acceleration 9.8m/s ² (1G), 2 hours per axis on each of three mutually perpendicular axis (IEC					
Shock Resistance	147m/s², 11ms, X, Y, Z dir	rections 3 times (IEC 61131-2)				
Mounting Structure	Pane	el mount				
Weight (approx.)	300g	250g				

1. Operation not guaranteed when used with certain types of oils. 2. FT1A-*12RA-* hardware version V130 and earlier is UL, c-UL listed at 0 to +50°C.

Pro/Lite (LCD Model/No L	CD Model)	12-I/O Type	24-I/O Type	40-I/O Type	48-I/O Type				
Part Number		H12RC / H12RA B12RC / B12RA	H24RC / H24RA B24RC / B24RA	H40RC / H40RKA / H40RSA B40RC / B40RKA / B40RSA	H48KC / H48SC / H48KA / H48SA B48KC / B48SC / B48KA / B48SA				
Rated Power Voltage			AC power: 100 to 24	OV AC, DC power: 24V DC					
Allowable Voltage Range			AC power: 85 to 264V AC, DC po	wer: 20.4 to 28.8V DC (including ripple)					
Rated Power Frequency		12 1/0.1	AL power: 50	to 60Hz (47 to 63Hz)					
Power	AG Fower 12-1/U. Tova maximum, 24-1/U. 4 VA maximum, 40-1/U. 4 VA maximum, 40-1/U. 4 VA maximum, 40-1/U. 4 VA maximum 12 1/U. 4 VA maximum, 24 1/U. 4 VA maximum, 40 1/U. 7 VA maximum, 40 1/U. 7 VA maximum, 40 1/U. 5								
Allowable Momentary Po	DC Power	12-1/0.2	4.3VV Maximum, 24-i/U. 4.8VV maximu AC power: 20ms maximu		v maximum				
Dielectric Strength		AC power typ DC power typ	e: Between power/input and PE terr Between transistor output and PE Between relay output and PE terr Between power and input termin. Between power/input and transis Between power/input and relay o te: Between power/input and FE terr Between transistor output and FE Between power/input and FE terr Between power/input and transis Between power/input and relay of	ninals: 1,500V AC, 5mA, 1 minute terminals: 1,500V AC, 5mA, 1 minute ninals: 2,300V AC, 5mA, 1 minute als: 1,500V AC, 5mA, 1 minute stor output terminals: 1,500V AC, 5mA, utput terminals: 2,300V AC, 5mA, 1 min ninals: 500V AC, 5mA, 1 minute terminals: 500V AC, 5mA, 1 minute ninals: 2,300V AC, 5mA, 1 minute ninals: 2,300V AC, 5mA, 1 minute nutput terminals: 2,300V AC, 5mA, 1 minute nutput terminals: 2,300V AC, 5mA, 1 minute	1 minute nute minute nute				
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	D°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 Cond	ductor	UL1007 AWG16							
Vibration Resistance		5 to 8.4Hz half amplitude 3.5mm, 8.4Hz 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					
Maight (approx)	AC Power		12-I/0: 230g, 24-I/0: 40	0g, 40-I/O: 580g, 48-I/O: 540g					
weight (applox.)	DC Power		12-I/0: 190g, 24-I/0: 31	0g, 40-I/O: 420g, 48-I/O: 380g					

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			Т	ouch (PLC + HMI)	Pro/Lite FT1A (LCD Model/No LCD Model)							
Part Number			FT1A-* 12RA-* (Relay)	FT1A-*14KA-* (Sink) FT1A-*14SA-*(Source)	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 pr	rogram system				
Instruction Words	Basic Instr	ructions	00 to man	00 to a sec		00 to 20 a c	4	2 types	110 tumos	104 turnes	110 turnee	100 tupos
	Auvanceu	Instructions	98 types Pr	ogram size: 47.4KB	4.01	98 types	TU3 types	TUZ TYPES	TTO types	104 types	TTO types	iua types
Program Capacity			Configura	tion memory capacity: 5MB	126	B		D 11. 5 51 1	47.4KB			
User Program Stora	age Rasic Instr	ruction	Flasr 1	1 KUIVI (100,000 times) 850us/1 000 stens				Built-in Flash	1 ROM (10,000 times rewritable) 950us/1 000 steps			
Time	END Proce	essing		5msec minimum				2n	ns (Pro) / 640µs (Lite)			
Function Block Note	1	-		37 types	38 types	37 types	38 types	37 types	45 types	39 types	45 types	44 types
Function Block Pro	ogram Capa	icity	Configurat	tion memory capacity: 5MB	10k	KΒ			38KB			
No of Function	Function E	Blocks		1,000	20	0			1,000			
Blocks	Timer (T),	/ Counter (C)		200 / 200	100 /	100			200 / 200			
Processing	Basic Instr	ruction		4ms/100					1.3ms/100			
LIME	END Proce	essing	8 / 1	5ms minimum 8 / 6	g /	1		2. 16 / 8	5ms (Pro) /1ms (Lite) 24 /16		30	/ 18
Analog Input / Out	tput	utputs	2/-	2/2	2/	4 	4/-	—	6/-		8/-	
Internal Relays / S	hift Registe	rs		1024 / 128	256 /	128			1024 / 1	28		
Data Registers / S	pecial Data	Registers		2000 / 200	400 /	200			2000 / 2	00		
Adding/Reversible Counters			200	10	0			200				
Clock				200	10	Precisio	on: ±30 seco	nds/month (25°C	, typical)			
S & Backup Da	ta / Backup	Duration	In	Internal relays, shift registers, counters, data registers, clock data / Approximately 30 days (typical) at 25°C after backup battery is fully charged								
Battery / C	harging Tim	ne		Lithium secondary battery / Approximately 15 hours required to charge from 0 to 90%								
періасеар	inty		Keen data	Keep data check, power failure check, clock error check, watchdog timer check, timer/counter preset value change error check, user program syntax check, user								
Self-Diagnostic Functions			Noop dat	program ex	xecution chec	ck, system	error check,	memory cartridge	e transfer error check (Pr	o/Lite only)	gram syntax c	, 100K, 100F
Input Filter				1	No filter, 3	to 15ms (sele	ectable in increm	ents of 1ms)				
Catch Input / Interrupt Input			4/4	4 /	4			6/6				
Maximum Counting Frequency	im Single/two-phase g Selectable icy s Single-phase		1 (5kHz, m	ultiple 2/4, single phase not available)	2 Note 2	—	2 Note 2	—	2 Note 2	—	2 Note 2	—
				4 (x 10kHz)	2 (x	_	4 (x	_	4 (x 100kHz)		4 (x	_
				100kHz)		100kHz) 0 to 4.294.	967.295 (32 bits)	(A FOORTE)		100kHz)		
Operation	Mode					Rotary e	ncoder mode	e and adding cour	nter mode			
	Points			2 0 to 10V DC (voltage input)	2	None	4	None	6	None	8	None
Analog Voltage	Input Range Input Impedance		0 to 10V DC	/4 to 20mA (current input)					0 to 10V DC			
Inputs			78k Ω 78k Ω (voltage input) / 250 Ω (current input)		78kΩ							
	Digital Re	solution			0 to 1,000 (10 bits)							
Output Type			10A Relay	Transistor		10A	Relay Note 6		10A Relay Note 6 /Transistor	10A Relay Note 6	Tran	isistor
	Built-i	in Points	_	2					, manolocor			
Analog Output	Outpu	ut Range	_	0 to 10V DC (voltage output) /4 to 20mA (current output)					_			
	Digital Resoltuion		_	0 to 1,000 (10 bits)								
	No. of			_	_	—	_	_	2	—		2
	100 kHz	Function		_	_	_	_	_	PULS, PWM, RAMP,	_	PULS	, PWM,
Pulse Outputs		No. of							ARAIVIP, ZRIN		Kaivip, Ai	
	5 kHz	Outputs		—		_	_	_			DUILO	
	Output Va	FUNCTION		_		_	_	24V DC	PULS, PVVIVI	24V DC	PUL3	24V DC
External Output	Output Vo	nage		_	_	_	_	(+10%,-15%)	_	(+10%, -15%)	_	(+10%, -15%)
Power Supply for Sensor	Overload [Detection		_	_	_	_	Zounia Not Available		Not Available	_	Not Available
	Insulation			_	_	_	_	Internal Circuit	_	Internal Circuit	—	Internal Circuit
USB-mini B Note 3				X	Х			Х	Х			Х
USB-A Note 3 BS232C Note 3				X		-	\ \	V Note 4	v Note 4	1	- V	Note 4
RS485/422 Note 3				X	_	-)	Note 4	X Note 4	1	X	Note 4
Ethernet				Х		-		Х	Х			Х
Expansion Commun	nication	Port 2		—	_	-		Х	Х			X
Memory Cartridge		Port 3		_	Y	-		X	X			X
SD Memory Card				_		-		_	X Note 5	5	X	Note 5
Analog Cartridge	Number o	f Ports	—	4					—			
interrace	Connecta	ble Cards	—	2					—			

1. Except for timer, counter, input Function Block, and output Function Block. 2. 100kHZ when single-phase, 50kHz when two-phase multiple 2.4. 3. Not isolcated from internal circuits. 4. When communication cartridge is installed. 5. The maximum capacity is 32 GB. DLOG and TRACE instructions are used to write data. 6. First four outputs are 10A. Remaning are 2A.

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Specifications

Display Specifications

Touch/Pro (PLC + HMI/Built-In LCD)						
Model		Tou	Pro (Built-in LCD)			
Display Element		TFT color LCD	STN monochrome LCD	STN monochrome LCD		
Colo	rs/Shades	65,536 colors	Monochrome 8 shades	Monochrome		
Effe	ctive 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		
Disp	lay Resolution	240 W x 10	192 W x 64 H pixels			
Viev	v 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		
Bacl	klight	LED	LED (white, red, pink)	LED (green)		
Bacl	klight Life	50,000 ho	—			
Brightness		400cd/m ² Note 2	740cd/m ^{2 Note 2}	45cd/m ^{2 Note 2}		
Brightness Adjustment		32 lev	Not Available			
Backlight Control		On/off				
Backlight Replacement						
Display Character Size	1/4 Size	8 x 8 pixels (Japanese Ka ISO 8859-1 [Latin 1], ANSI ANSI 1257 (Baltic), A	—			
	1/2 Size	8 x 16 pixels (Japanese K ISO 8859-1 [Latin 1], ANSI ANSI 1257 (Baltic), A	8 x 16 pixels Japanese Katakana, JIS 8-bit code, ISO 8859-1 (Latin 1), ANSI 1251 (Cyrillic)			
		16 x 32 pixels, 24 x 48 (Western European Ian	—			
	Full Size	16 x 16 pixels (Japanese JIS firs simplified Chinese, tradit	16 x 16 pixels (Japanese JIS first level characters, Chinese)			
	Double Size	32 x 32 pixels (Japanese JIS first	—			
ters	1/4 Size	30 characters x 12 lines/screen		—		
aract	1/2 Size	30 characters x 6 lines/screen		24 characters x 4 lines		
of CI	Full Size	15 characters x	12 characters x 4 lines			
No.	Double Size	7 characters x 3 lines/screen		—		
Character Magnification		0.5x, 1x, 2x, 3x, 4x, 5x, 6x, 7x, 8	_			
Character Attributes		Blink, reverse, bo (blink is 1 c	Blink, reverse			
Graphics		Line, polyline, polygon, rectangle, c polygons (3, 4, 5, 6	—			
Window Display		3 pop-up screens +	_			
A THE REPORT OF A REPORT OF						

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

Operation Specifications

Touch/Pro (PLC + HMI/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				

Analog Cartridge Specifications (Touch Transistor Output Model)

Part No.	FC6A-PJ2A	FC6A-PJ2CP	FC6A-PK2AV	FC6A-PK2AW		
Туре	Voltage/Current Input	Temperature Input	Voltage Output	Current Output		
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

mpu	input Specifications				Output Specifications					
Part No.		FC6A-PJ2A		FC6A-PJ2CP		Part No.		PC6A-PK2AV	FC6A-PK2AW	
Input Type		Voltogo Input	Current Input	Resistance	Thormocounto	Туре		Voltage Output	Current Output	
		voitage input	Current input	Thermometer	merniocoupie	put pe	Voltage Output	0 to 10V DC	—	
				K: -200 to 1300°C	Typ	Current Output	—	4 to 20mA DC		
				Pt100: –200 to +850°C Pt1000: –200 to +600°C	J: -200 to 1000°C R: 0 to 1760°C S: 0 to 1760°C	Load	Impedance	2kΩ min.	500kΩ max.	
		A to 20m A DC	Load Type				Resistance Load			
Input Range		0 to 10V DC 0 to 20mA DC	Ni100: –60 to +180°C Ni1000: –60 to +180°C 3-wire RTD	B: 0 to 1820°C E: -200 to 800°C T: -200 to 800°C	ы	Cycle Time	20ms			
)/A /ersi	Settling Time	40ms max.	20ms max.		
				N: –200 to 1300°C C: 0 to 2315°C	Conv	Total Output System Transfer Type	60ms+1 scan	40ms+1 scan		
Input Im	npedance	1MΩ min.	250Ω max.	1MΩ m	iin.		Maximum Error at	±0.3% 0	f full scale	
Allowab	ole Conductor Resistance		_	10Ωmax	_		25'0			
Input De	etection Current		—	Typ: 0.2mA, 1.0mA max.	—		Coefficient	±0.02%/°C	of full scale	
	Sample Duration Time	1	Oms	250m	IS	5	Reproducibility after	+0.4% o	f full scale	
u	Sample Interval	2	Oms	500m	IS	Erro	Stabbilization Time	±0.4 /6 0		
/ersi	Total Input System	20ms	+ 1 scan	500ms + 1	500ms + 1 scan		Non-linearity	±0.01% of full scale		
Conv	Type of Ipput		Single			Output hippie	3UMV max.			
٩	Operating Made		Single-e	f Soon			Maximum Error	+1.0% 0	0% +1.0% of full scale	
4	Operating Mothed		301	I-OUdii	Effect of Imprope					
	Conversion Method		3	+0.1% of full scale Cold in	inction compensation		Output Terminal	No d	No damage	
	Maximum Error at ±0.1% of full scale ±0.1% of full scal		±0.1% of full scale	accuracy ±4.0°C or less. Exceptions R. S thermocouple error: ±6.0°C (0 to200°C		Digital Resolution	4096 increm	emts (12 bits)		
		±0.1% of full scale		range only) B thermosouple error:			LSB Output Value	2.44mV (0 to10V)	3.91µA (4 to 20mA)	
Error			Not guaranteed (0 to 300°C range only) K, J, E, T, N thermocouple error:		Data	Data Format in Application	0 to 4095	5 (0 to 10V)		
nput	Tomporaturo Coofficient		±0.4% of full scale (0°C or lower range only)			Monotonicity	Y	′es		
_	Reproducibility After		±0.02 /0/ C				Open Current Loop	-	Cannot be detected	
	Stabilization Time	±0.5% of full scale			JCe	Maximum Temporary Deviation During	±4.0 full	scale max.		
	Non-liniarity	\pm 0.01% of full scale				Electrical Noise Tests				
	Maximum Error		±1.0% o	f full scale	K. 1E 000 (14 bit)	Res	Recommended Cable	Shieleded	twisted pair	
					K: 15,000 (14 bit) J: 12,000 (14 bit) R: 17,600 (15 bit) S: 17,600 (15 bit) B: 18,200 (15 bit) E: 10,000 (14 bit) T: 6,000 (14 bit)	lealatio	Grosstalk	I LSI	B max.	
			Pt100: 10,500 (14bit) Pt1000: 8000 (13 bit) Ni100: 2400 (12 bit) Ni1000: 2400 (12bit)	Calibrati		ion to Maintain Bated				
	Digital Resolution 4096 increments (12 bit)			ments (12 bit)		Accurac	y	Impo	ossible	
						Selectio	n of Output Signal Type	Voltage output only	Current output only	
Data				N: 15,000 (14 bit) C: 23,150 (15 bit)		Applicable Wire				
	LSB Input Value	2.44mV (0 to 10V DC	4.88µA (DC0 to 20mA) 3.91µA (DC4 to 20mA)	0.1°0 0.18°	C F	Cartrido	J ^e FC6A-PJ2A FC6	A-PJ2CP FC6A-PK	2AV FC6A-PK2AW	
	Data Format in	Can be arbitrarily set for each channel in the range of $-32,768$ to $32,773$			Part No	. 0.2				
	Monotonicity					Applicable (A)	0.3mm ² 0	0.3mm ² 0.3mm ²	0.3mm ² (AWG22) shielded	
	Maximum Temporary	165			Wire	shielded (A	cable	twisted pair		
oise stance	Deviation During Electrcal Noise Tests	±4.0% full scale max.				twisted pair				
Resi	Recommended Cable	Shielded twisted pair								
	Crosstalk	1LSB max.								
Isolation			N	lone						
Effect When Input is Incorrectly Wired			No d	lamage						
Maximum Allowable Constant Load (non-destructive)		13V DC	40mA	13V D	C					
Input Type Modification			Software	programming						
Calibration to Maintain Rated Accuracy			Impo	ossible						





Output Specifications

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