FATEK® The Brand You Can Rely on

Since 1992

P5 Series
Human Machine Interface

- High Standards of Noise Immunity and Quality
- Optional Integrated Rear Mount PLC
- Intuitive Software Environment and Aesthetic GUI
- Powerful Programming Features

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The **FATEK P5** series provides a high quality and high performance human machine interface with the option of an integrated PLC.

The P5 series represents the high quality and reliability expected in the industrial automation market today. The P5 series also allows the rear mounting of an integrated programmable controller saving space and installation costs. With its intuitive software programming environment and outstanding graphical representation, the P5 series helps create functional and elegant user interfaces.

High Noise Immunity

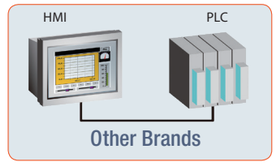
HMIs at industrial sites are often adversely affected by electrical noise from the surrounding installations. This can cause malfunction and lead to injury to persons or property. FATEK has focused on the P5's stability and robustness to provide end users with a reliable HMI product that can operate in harsh conditions.

In-built Termination Resistors for RS485/422 Ports

With RS-422/RS-485 communication networks, termination resistors are often required to improve the reliability of communications. External termination resistors can make communication wiring onsite complex. To solve this problem, the P5 provides built-in termination resistor switches. Terminating can be achieved by turning on the switch to connect to termination resistors, or turn off the switch to disconnect the resistors.

Optional Integrated PLC

The P5 series provides cableless communications to the FATEK HB1 PLC by offering a version that can be mounted onto the back of the P5 HMI. This provides more reliability and improves communication speeds with the added benefit of saving valuable space and installation costs.



vs

Intuitive Programming Software Environment

1. Toolbar & Shortcut:
Icon-based organized design, enables users to operate what they want efficiently

2. Project Explorer:
Divide functions into 3 categories, collapsible, space-saving

3. Screen List:
Screen preview allows users to access a specific screen quickly

4. Screen Workspace:
What You See Is What You Get

5. Tab Page:
Switch view effortlessly

6. Memory Address:
View the status of memory usage

7. Object List:
Trace every object that the user creates currently

8. User Toolbox:
Drag the customized object into this area, and then you can use it anytime, everywhere

9. Output Message:
Compiling result will be displayed here. Double clicking the error message leads users to review the setting directly

10. Screen Toolbar:
Adjust the proportion of the screen and simulate the displaying status of the objects

11. Ribbon Style:
Change the default color scheme from several Ribbon styles

12. Toolbox:
Wide variety of useful, elegant objects to utilize

Topic 1
Different Ribbon Style, Different Arrangement of Workspace

Office 2010 Silver

Office 2007 Blue

Windows 7 Scenic

FATEK Style

Topic 2
Use Wizard to Complete Project Setting in Three Steps

Step 1: Choose HMI Model

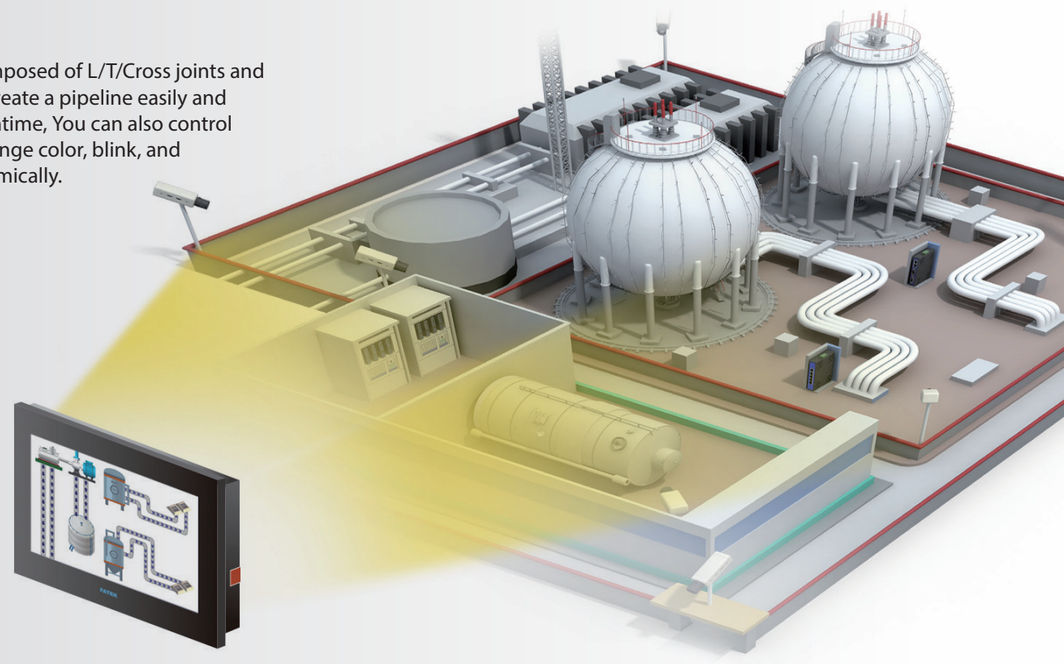
Step 2: Choose Controller

Step 3: Select Location

EasyEasy Planning and Rich Resources

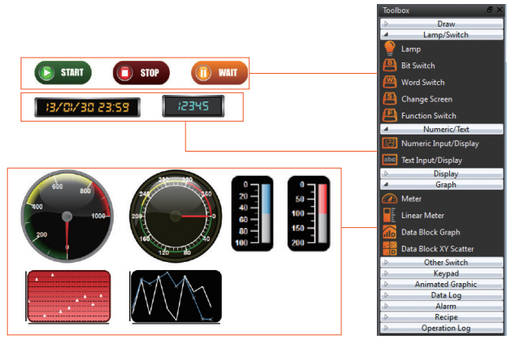
Pipe Line

A pipeline is composed of L/T/Cross joints and pipes. You can create a pipeline easily and efficiently. At runtime, You can also control a pipeline to change color, blink, and flow effect dynamically.



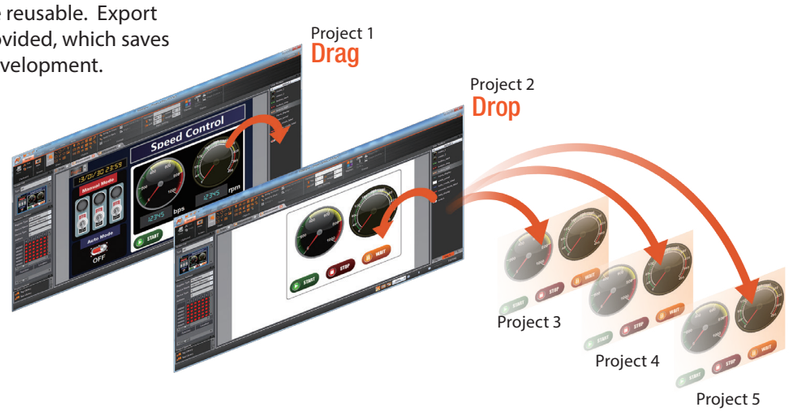
Toolbox

- Provides many useful objects like shapes, meters, charts, buttons etc.
- Utilize them from the Toolbox section to speed up the design time



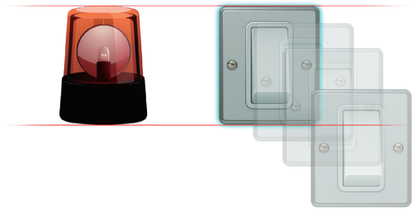
User Toolbox

Drag user-defined objects into User Toolbox section, and these objects would become reusable. Export and import functions are also provided, which saves valuable time during program development.



Automatic alignment

Support snap alignment and grid alignment functions, and assist users to design faster and more conveniently.



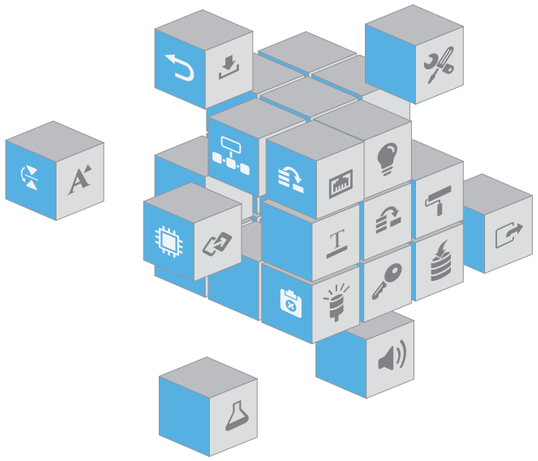
User-defined Keypad

Can customize the style of the keypad, supports unicode string input.

Resources

Support a plentiful of resource libraries that allow users to customize the content and apply it to any project applications.

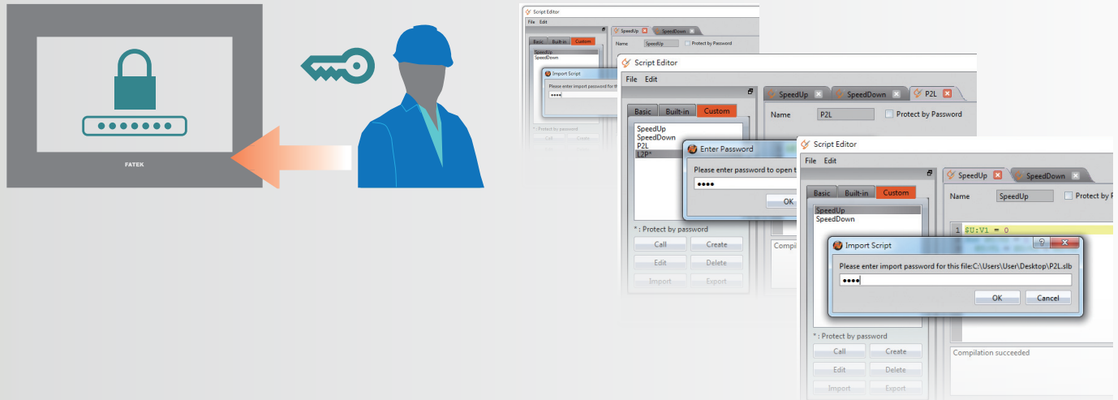
- Image Library: Thousands of industrial images to choose from, or import your own images.
- Audio Library: Use the Audio Library to play the sound you like when an alarm happens or a button is clicked.
- Font Library: The capacity of font files is minimized, thus minimizing memory usage.
- Text Library: Multi-language support satisfies your requirement of localization. You can even change the language setting dynamically at runtime.
- Tag Library: Make abstract address's text easy to be understood for system planning.

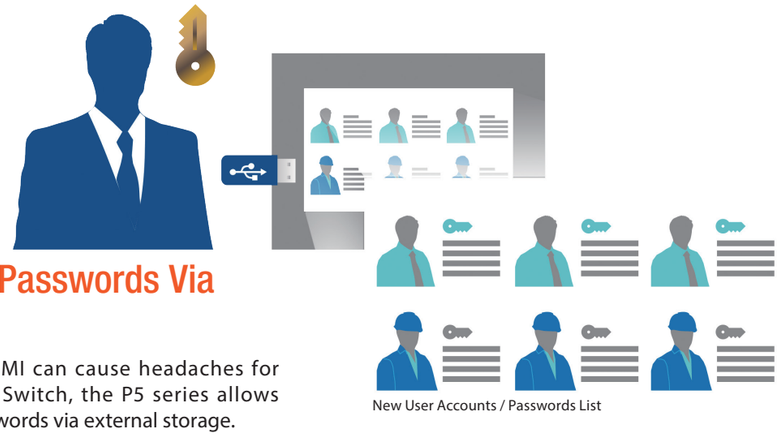


Security and Safety Control

Intellectual Property Rights Protection

- The project can be protected by the password and it requires password verification for users to edit the file.
- Password protection supports download/ upload of HMI project, system setting and update of FATEK PLC program via USB flash disk.
- Supports project to execute protection function, the customer ID on the project and HMI device must set the same to run.
- Provides HMI internal register for users to change passwords directly and customize startup screen easily.
- The script allows you to design custom functions for your customers. You can also set passwords to these custom functions, so that your customers will be requested to enter passwords when they want to use them or see the source code





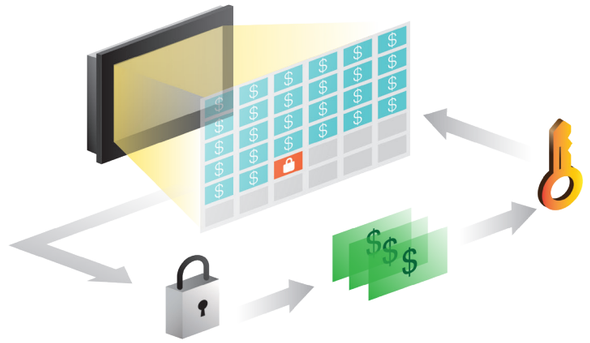
New User Accounts / Passwords List

Update User Accounts / Passwords Via External Storage

To add or edit user accounts on a HMI can cause headaches for production managers. By Function Switch, the P5 series allows users to change user accounts and passwords via external storage.

On-Off Delay

For preventing mistakes in operations, you can set minimum hold time for buttons and switches or operators have to double press the objects to execute the operation.



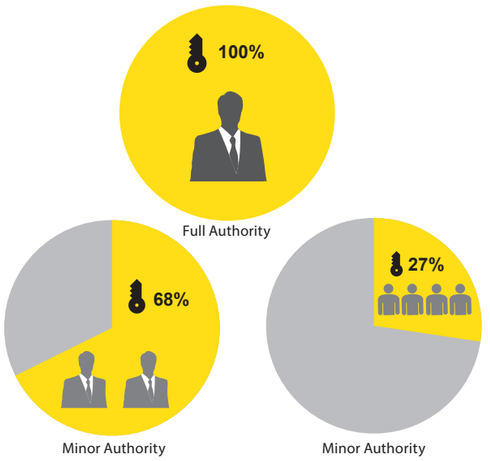
Security

Security function provides 16 access levels and 100 user accounts, and each level and user can have different passwords; import and export functions are provided, increasing flexibility and convenience.

For security control, operations for switches, buttons and inputs are banned if operators input incorrect password; objects on HMI screen can even be hidden if operators have no privilege to see the objects.

Pay by Installments

- Static mode provides up to 48 periods, and each deadline can be different intervals between each one.
- Provides runtime modify function for set up machine without re-downloading project.
- Dynamic mode does not need to decide expired date in advance.
- Just use the key and the password generator to generate a password that contains the next expiration date.



Alarm, Trend, Data Log, E-mail, Camera

Step1:

Use the Alarm function to set the threshold value for monitoring system status.

Step2:

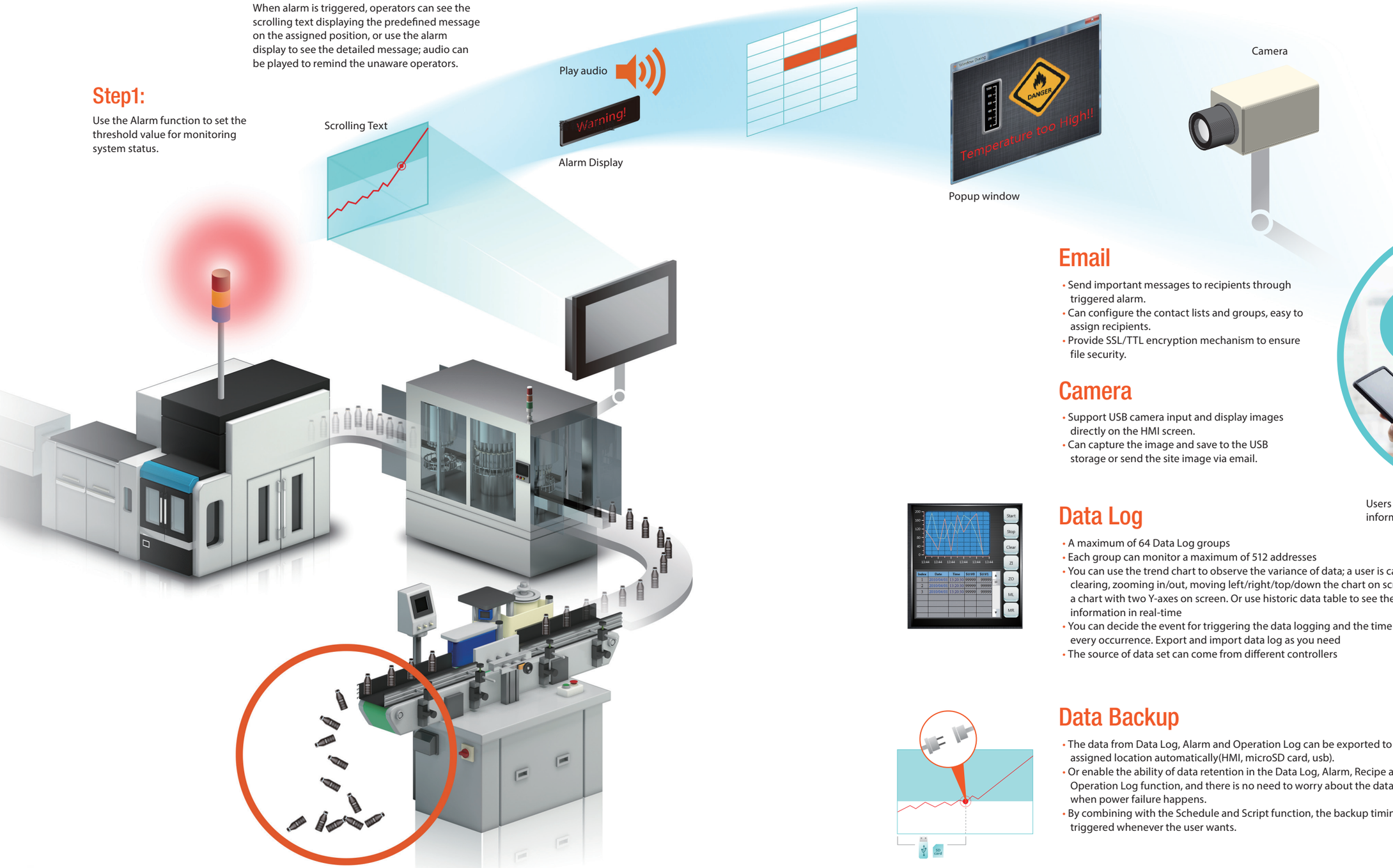
When alarm is triggered, operators can see the scrolling text displaying the predefined message on the assigned position, or use the alarm display to see the detailed message; audio can be played to remind the unaware operators.

Step3:

Pop up the child window to get a further message or for post-processing.

Step4:

User can also receive the email that attached the alarm information and the captured camera image on site. Then review the history records of Data Log and Operation Log for root cause investigation.



Email

- Send important messages to recipients through triggered alarm.
- Can configure the contact lists and groups, easy to assign recipients.
- Provide SSL/TTL encryption mechanism to ensure file security.

Users can receive emails that contain alarm information and captured images from the site.

Camera

- Support USB camera input and display images directly on the HMI screen.
- Can capture the image and save to the USB storage or send the site image via email.

Data Log

- A maximum of 64 Data Log groups
- Each group can monitor a maximum of 512 addresses
- You can use the trend chart to observe the variance of data; a user is capable of clearing, zooming in/out, moving left/right/top/down the chart on screen, creating a chart with two Y-axes on screen. Or use historic data table to see the overall information in real-time
- You can decide the event for triggering the data logging and the time interval for every occurrence. Export and import data log as you need
- The source of data set can come from different controllers

Data Backup

- The data from Data Log, Alarm and Operation Log can be exported to the assigned location automatically(HMI, microSD card, usb).
- Or enable the ability of data retention in the Data Log, Alarm, Recipe and Operation Log function, and there is no need to worry about the data loss even when power failure happens.
- By combining with the Schedule and Script function, the backup timing can be triggered whenever the user wants.

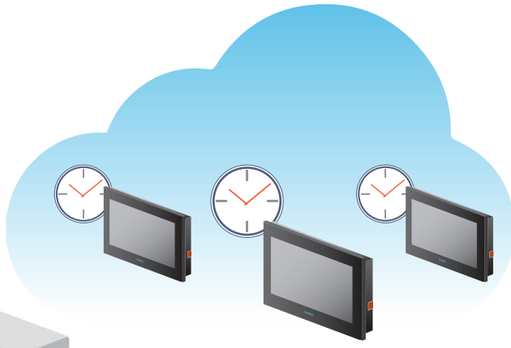
Data Transfer

Multi-Link

- PLC connected to Master HMI can be accessed by Slave HMI, Cost Reduced!
- Easy setup, speed up development.

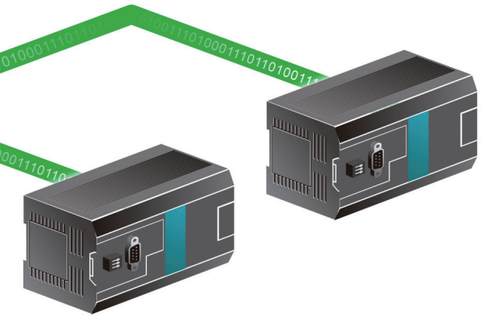
FATEK IoT and Cloud Platform

- Support FATEK IoT solution.
- Support MQTT protocol(Publisher/Subcriber/Broker) easily get in touch with major cloud platforms.



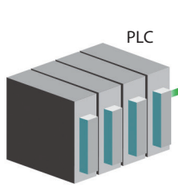
NTP

Network Time Synchronization function synchronizes the time of all HMIs, no need to worry about time delay.



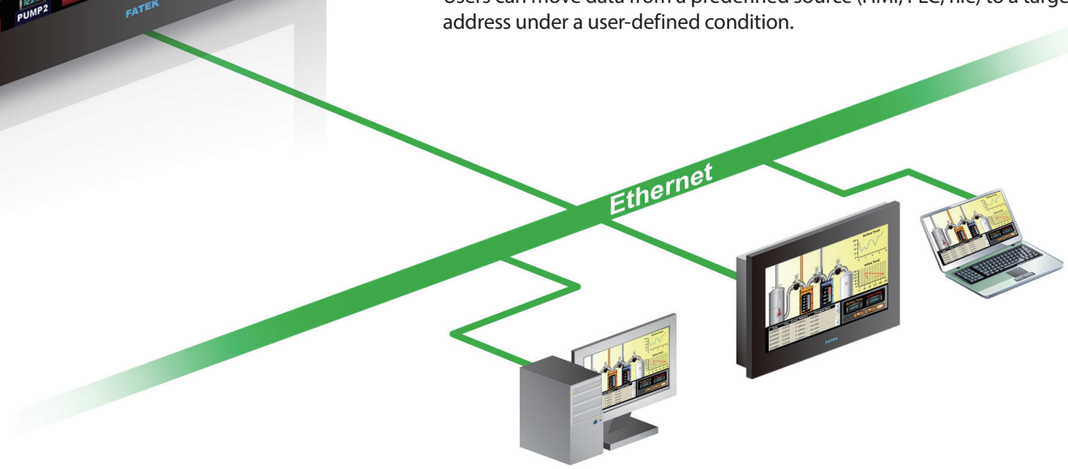
Data Transfer

This function enables the ability of communication between HMI and PLC. Users can move data from a predefined source (HMI, PLC, file) to a target address under a user-defined condition.



User-defined protocol

- With simple operation setting to customize the third-party communication transmission or return data instruction format, users can access the device data easily.
- Provide automatic input of various communication checksums, which is convenient and efficient.
- Script also supports this function to make system planning more flexible.



Modbus gateway

- Through Modbus gateway function, client can easily achieve remote monitoring and data collections with SCADA, HMI or other Modbus devices.
- Support Ethernet (Modbus TCP) and serial communication (Modbus RTU/Modbus ASCII)
- Support the data exchange between Modbus protocol and other protocols (a variety of PLCs, server, temperature controller and converter…)
- Customizable Modbus address correspondence table

Remote Monitor and Control

FTP Server

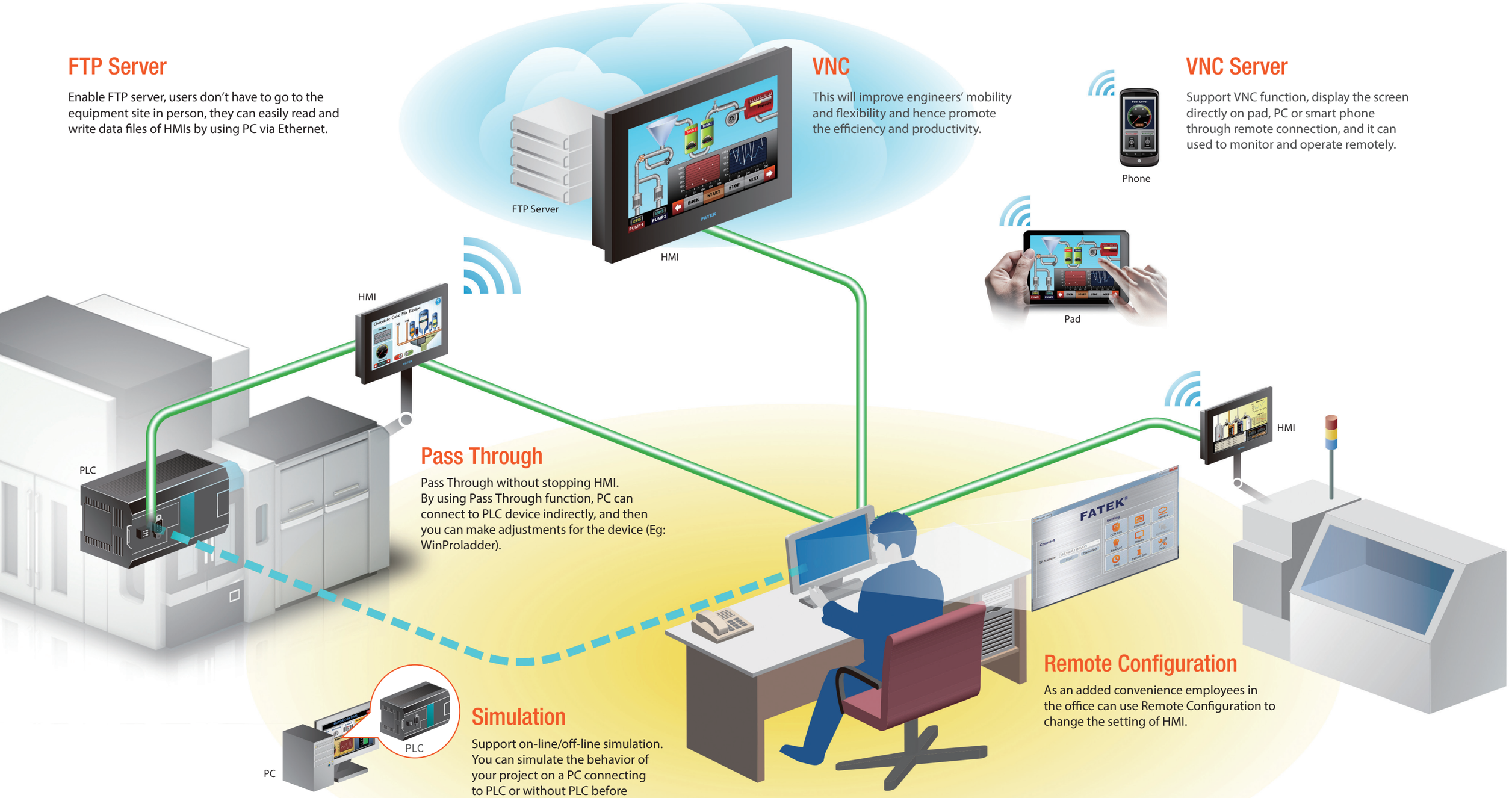
Enable FTP server, users don't have to go to the equipment site in person, they can easily read and write data files of HMIs by using PC via Ethernet.

VNC

This will improve engineers' mobility and flexibility and hence promote the efficiency and productivity.

VNC Server

Support VNC function, display the screen directly on pad, PC or smart phone through remote connection, and it can used to monitor and operate remotely.



Pass Through

Pass Through without stopping HMI.
By using Pass Through function, PC can connect to PLC device indirectly, and then you can make adjustments for the device (Eg: WinProladder).

Simulation

Support on-line/off-line simulation. You can simulate the behavior of your project on a PC connecting to PLC or without PLC before downloading it to HMI.

Remote Configuration

As an added convenience employees in the office can use Remote Configuration to change the setting of HMI.

Integrated HMI + PLC

FATEK HMI and PLC solution is highly integrated system. The hardware has high noise immunity. The internal communication is optimized and use highest speed baudrate. There are many useful and powerful PLC software features built-in HMI. It helps user to maintain the system conveniently and quickly.

On-line Monitoring PLC Ladder Program

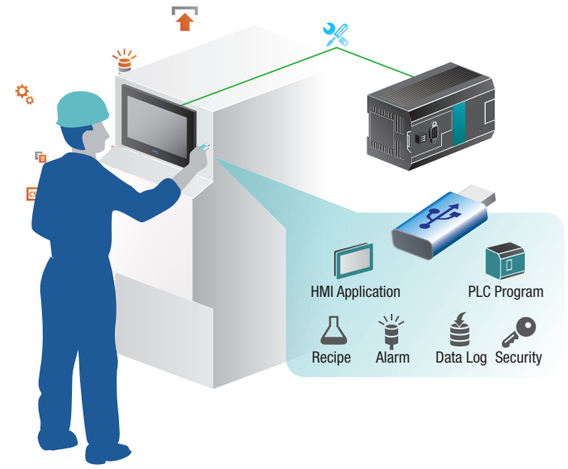
The PLC ladder program is displayed on the screen. Engineers can check machine status and find errors quickly.

Import Tags from WinProladder Project

Engineers can import tags from the WinProladder projects when they develop HMI projects. This avoids repetitive typing of tags information, thus greatly saving engineering time and improving work efficiency.

USB Flash Drive Maintenance

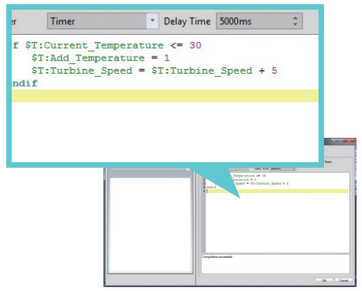
- Site personnel need not use PC to maintain the equipment. He can just use usb flash drive to upgrade PLC ladder program and HMI application.
- In addition to this, user also can access datalog and alarm data, modify recipe parameters, and change security password by using usb flash drive.



Powerful Programming Features

Script

- User can flexibly use Script to complete a complex task that cannot easily be accomplished with general objects. The Script functions include logical judgments, numerical computations, loop executions, string manipulation, communications between devices etc.
- Support user-defined functions, which can be imported and exported for the usage of future project designs, making it time-saving and adding flexibility
- Real-time display compiling result by which the user can correct contents immediately
- Provide password protection for engineers to protect their intellectual property



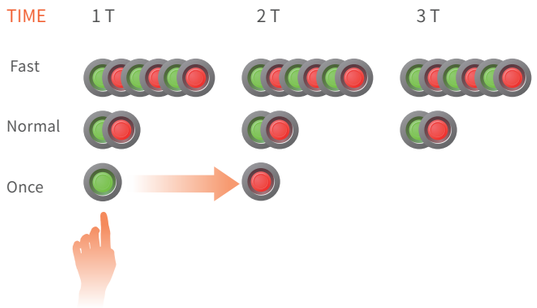
Recipe

- With Recipe function, you can store a set of verified data in HMI, and download to PLC whenever necessary
- The recipe data can be from a csv file, so operators do not need to enter parameters manually
- A built-in recipe editor for users to edit the contents
- Useful Recipe objects for users to choose from
- Add/Edit recipe at runtime

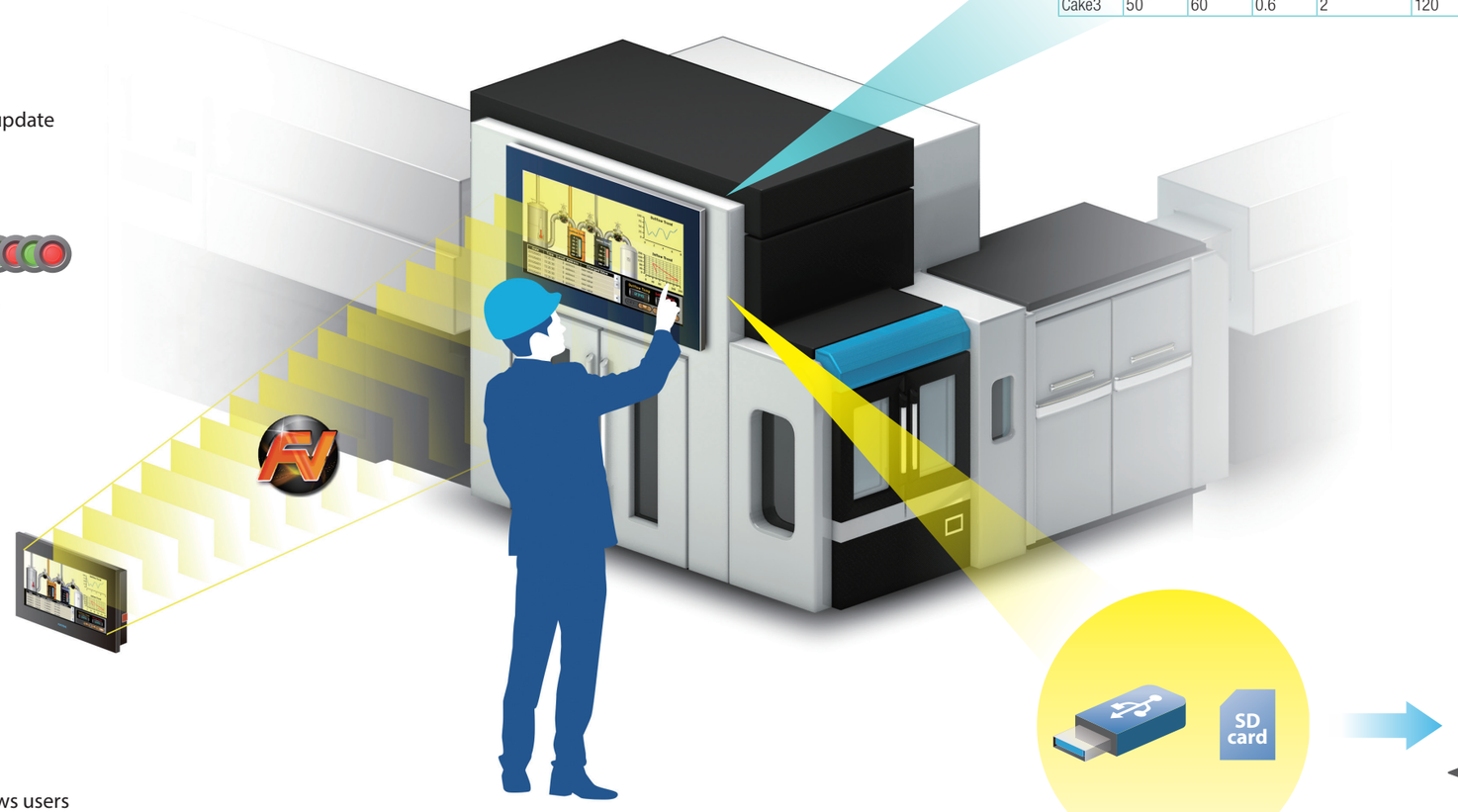
	Milk	Water	Butter	Chocolate	Flour	Yeast	Egg
Cake1	50	75	1.3	2	100	0.1	2.4
Cake2	40	100	0.7	1	200	0.05	1.2
Cake3	50	60	0.6	2	120	0.13	0.8

Fast Update

Provides users in different situations to select the update speed to get the latest data.

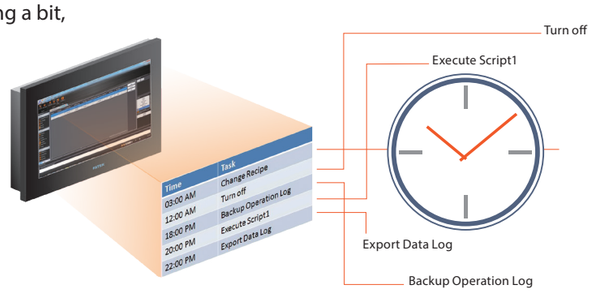


It will update when it was triggered or the screen has changed.



Schedule

Up to 64 schedules could be set. This function allows users to trigger event at a predefined time, or change schedule date at runtime. The event includes setting/resetting a bit, writing a word and executing script.



Print function

- The project image can be printed and stored in to HMI, SD cards, and USB storage devices.
- The image range is selectable, and the image can also be rotated and reversed.
- User can use Function Switch or a Script to print out the screen image, and also can cancel your printing if needed while the printing is under progress.

Specification

Spec. \ Model	P5043SA	P5043NA	P5070SA	P5070NA	P5070ZA
Display	Panel Type	TFT LCD, 16.7M Colors				
	Panel Size	4.3" (16:9)		7.0" (16:9)		
	Resolution	480 X 272		800 X 480		
	Contrast Ratio	500		500		
	Backlight	LED, 500nits		LED, 400nits		
	Backlight Life Time	30,000 Hrs.				
	LCD Viewing Angle (T/B/L/R)	50/70/70/70		70/50/70/70		
Touch	Type	4-wire Resistive Film				
	Accuracy	X axis+/-2%; Y axis +/-2%				
System	CPU	32 bit RISC Cortex 600MHz				
	Flash	256MB		256MB		
	RAM	128MB		128MB		
	RTC	Built-in				
I/O Port	Serial 1	Connector: D-Sub 9-Pin COM1: RS-232 COM2: RS-422/485 COM3: RS-485		Connector: D-Sub 9-Pin COM1: RS-232		
	Serial 2	---		Connector: Pluggable Terminal Block COM3:RS-422/485 COM4:RS-485		
	Ethernet	---	10M/100M	---	10M/100M	10M/100M
	USB	USB2.0 Type-A (Host)x1 USB2.0 Type mini-B (Device)x1				
	Micro-SD Slot	---	---	---	---	Yes
	Audio	---	---	---	---	Yes
	Termination Switch	Yes (RS-422/485)				
I/O Extension	PLC Extension	HB1 main units (10/14MB Series)		HB1 main units + B1 extension modules		
	HMI Extension	Yes				
Power	Power Input	24VDC±20% (Isolated Power)				
	Isolation Resistance	50MΩ at 500VDC				
	Power Consumption	9.58W	10.08W	11.48W	11.98W	12.48W
Environment	Protection Structure	Front Panel: IP65				
	PCB Coating	Yes				
	Operating Temp.	0 ~ 50 C				
	Storage Temp.	-20 ~ 60 C				
	Relative Humidity	10% ~ 90%@40° C (non-condensing)				
	Withstand Voltage	AC500V/ 20mA/ 1Min. (between charger & FG terminals)				
	Vibration Endurance	5 to 9Hz Half-amplitude: 3.5mm 9 to 150 Hz Constant Acceleration: 19.6m/s2 (2G) 3 directions of X, Y, Z: 10times (IEC61131-2 complaints)				
Enclosure		Plastic		Plastic		
Dimension/ Weight	Cut-out	118.5 x 92.5 (mm)		191.5 x 137.5 (mm)		
	W x H x D	128.0 x 102.0 x 36.4 (mm)		201.0 x 147.0 x 38.3 (mm)		
	Weight	215 (g)	235 (g)	610 (g)	630 (g)	650 (g)
Certification		CE, UL				

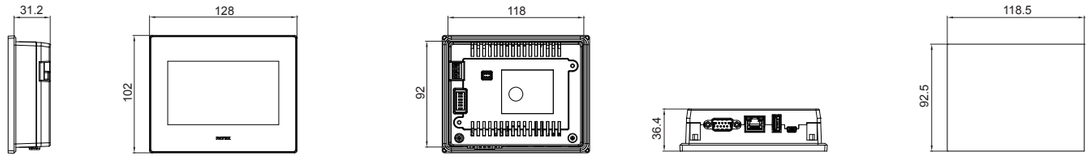
P5101SA	P5101NA	P5101ZA	P5102S	P5102N	P5102N1	P5150NH
TFT LCD, 16.7M Colors						TFT LCD, 16.2M Colors
10.1" (16:9)			10.2" (16:9)			15.0"(4:3)
1024x600			800 X 480			1024 X 768
450			300			700
LED, 300 nits			LED, 350 nits			LED, 300nits
25,000 Hrs.			30,000 Hrs.			50,000 Hrs.
50/20/55/55			65/45/65/65			70/70/80/80
4-wire Resistive Film						
X axis+/-2%; Y axis +/-2%						
32 bit RISC Cortex 600MHz						32 bit RISC Cortex 1GHz
256MB						256MB
128MB						256MB
Built-in						
Connector: D-Sub 9-pin COM1: RS-232			Connector: D-Sub 9-Pin COM1: RS-232			Connector: D-Sub 9-Pin COM1: RS-232
Connector: Pluggable Terminal Block COM3: RS-422/485 COM4: RS-485			Connector: Pluggable Terminal Block COM3:RS-422/485 (Isolation) COM4:RS-485 (Isolation)			Connector: Pluggable Terminal Block COM3: RS-422/485 COM4: RS-485
---	10M/100M	10M/100M	---	10M/100M	10M/100M	10M/100M
USB2.0 Type-A (Host)x1 USB2.0 Type mini-B (Device)x1						
---	---	Yes	---	---	Yes	Yes
---	---	Yes	---	---	Yes	Yes
Yes (RS-422/485)						
HB1 main units + B1 extension modules			HB1* main units + B1 extension modules			HB1 main units + B1 extension modules
Yes			---			Yes
24VDC±20% (Isolated Power)						
50MΩ at 500VDC						
11.58W	12.08W	12.58W	8.9W	9.4W	9.9W	20W
Front Panel: IP65						
Yes						
0 ~ 50 C						
-20 ~ 60 C						
10% ~ 90%@40° C (non-condensing)						
AC500V/ 20mA/ 1Min. (between charger & FG terminals)						
5 to 9Hz Half-amplitude: 3.5mm 9 to 150 Hz Constant Acceleration: 19.6m/s2 (2G) 3 directions of X, Y, Z: 10times (IEC61131-2 complaints)						
Plastic			Plastic			Aluminum
259.5 x 201.5 (mm)			259.5 x 201.5 (mm)			350.5x277.5 (mm)
271.5 x 213.5 x 44.9 (mm)			271.5 x 213.5 x 44.9 (mm)			365x292x54.7 (mm)
1340 (g)	1360 (g)	1380 (g)	1340 (g)	1360 (g)	1380 (g)	2950 (g)
CE, UL						

* HB1-__MB ◇ 25-D24S (Former generation)

Dimensions

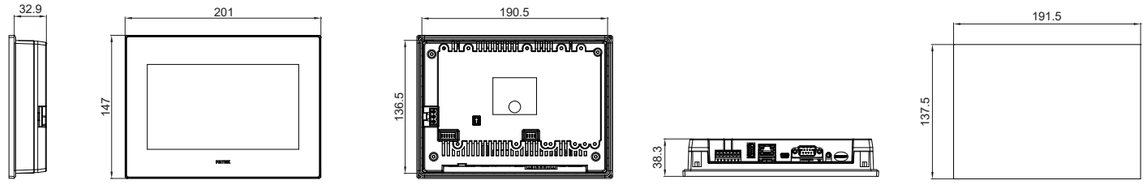
P5043

Side View | Front View | Rear View | Bottom View | Panel Cutout



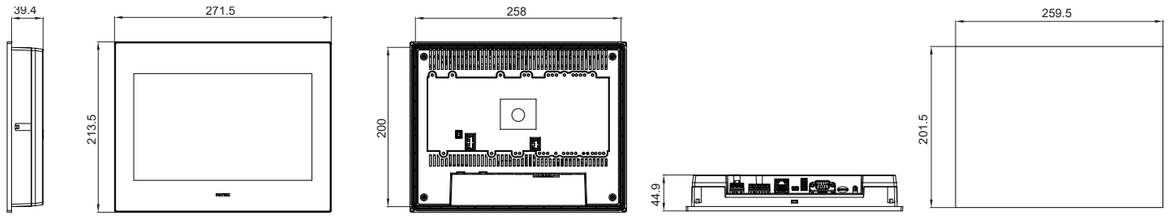
P5070

Side View | Front View | Rear View | Bottom View | Panel Cutout



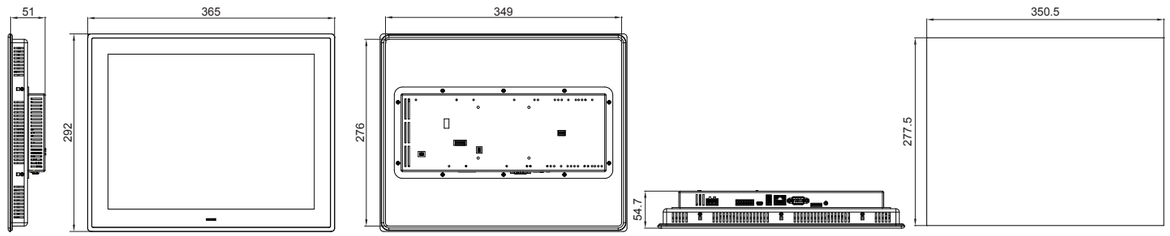
P5101/P5102

Side View | Front View | Rear View | Bottom View | Panel Cutout



P5150

Side View | Front View | Rear View | Bottom View | Panel Cutout



P5 Accessories

Item Name	Model	Description
Nameplate	P5NP043	Nameplate for P5043SA/NA
	P5NP070	Nameplate for P5070SA/NA/ZA
	P5NP102	Nameplate for P5102S/N/N1/VS
	P5NP150	Nameplate for P5150NH
USB 1.8m download cable	USBA-MINIB-180	1.8m USB mini B type to USB A type download cable
Communication Cable	FBs-232P0-9FR-200	Mini-DIN 4M to DB9F 90° communication cable, (FBs main unit Port 0 RS232 connect to DB9M), Length 200cm
Connector	P5CC070	7-pin screw terminal block
	P5PC070	7-pin spring terminal block
	HMPC043	Power Connector for P5043SA/NA
	HMPC070	Power Connector for P5070SA/NA/ZA, P5101SA/NA/ZA, P5102S/N/N1 and P5150NH

HB1 & B1 Options

Item Name		Model	Specifications
Main Units	HB1 main units*	HB1-10MB ◇ 25-D24SA	6 point 24VDC digital input(4 points 50KHz, 2 points total 5KHz), 4 point relay output or transistor output(2 points 50KHz), build-in HMI port(back)+RS232+RS485 communication ports, left side is expandable 1-2 modules, right side is expandable up to 128 I/O points, built-in RTC and with detachable terminal block
		HB1-14MB ◇ 25-D24SA	8 point 24VDC digital input(4 points 50KHz, 4 points total 5KHz), 6 point relay output or transistor output(2 points 50KHz), build-in HMI port(back)+RS232+RS485 communication ports, left side is expandable 1-2 modules, right side is expandable up to 128 I/O points, built-in RTC and with detachable terminal block
		HB1-20MB ◇ 25-D24SA	12 point 24VDC digital input(6 points 50KHz, 6 points total 5KHz), 8 point relay output or transistor output(4points 50KHZ), build-in HMI port(back)+RS232+RS485 communication ports, left side is expandable 1-2 modules, right side is expandable up to 128 I/O points, built-in RTC and with detachable terminal block
		HB1-24MB ◇ 25-D24SA	14 point 24VDC digital input(8 points 50KHz, 6 points total 5KHz), 10 point relay output or transistor output(4points 50KHZ), build-in HMI port(back)+RS232+RS485 communication ports, left side is expandable 1-2 modules, right side is expandable up to 128 I/O points, built-in RTC and with detachable terminal block
		HB1-32MB ◇ 25-D24SA	20 point 24VDC digital input(8 points 50KHz, 8 points total 5KHz), 12 point relay output or transistor output(6 points 50KHZ), build-in HMI port(back)+RS232+RS485 communication ports, left side is expandable 1-2 modules, right side is expandable up to 128 I/O points, built-in RTC and with detachable terminal block
		HB1-40MB ◇ 25-D24SA	24 point 24VDC digital input(8 points 50KHz, 8 points total 5KHz), 16 point relay output or transistor output(6 points 50KHZ), build-in HMI port(back)+RS232+RS485 communication ports, left side is expandable 1-2 modules, right side is expandable up to 128 I/O points, built-in RTC and with detachable terminal block
		HB1-60MB ◇ 25-D24SA	36 point 24VDC digital input(8 points 50KHz, 8 points total 5KHz), 24 point relay output or transistor output(8 points 50KHZ), build-in HMI port(back)+RS232+RS485 communication ports, left side is expandable 1-2 modules, right side is expandable up to 128 I/O points, built-in RTC and with detachable terminal block
Right Side Expansion Modules	DIO Expansion Modules	B1-4Y ◇ S	4 points relay or transistor output
		B1-8XS	8 points 24VDC digital input
		B1-8Y ◇ S	8 points relay or transistor output
		B1-8XY ◇ S	4 points 24VDC digital input, 4 points relay or transistor output
		B1-16XS	16 points 24VDC digital input
		B1-16Y ◇ S	16 points relay or transistor output
		B1-16XY ◇ S	8 points 24VDC digital input, 8 points relay or transistor output
		B1-24XY ◇ S	14 points 24VDC digital input, 10 points relay or transistor output
		B1-40XY ◇ S	24 points 24VDC digital input, 16 points relay or transistor output
		B1-60XY ◇ S	36 points 24VDC digital input, 24 points relay or transistor output
	AIO Modules	B1-2DAS	Non-Isolated 2 channels, 12-bit analog output module(-10~10V, 0~10V or -20~20mA, 0~20mA)
		B1-6ADS	Non-Isolated 6 channels, 12-bit analog input module (-10~10V, 0~10V or -20~20mA, 0~20mA)
Left Side Expansion Modules	AIO Modules	B1-L2DAS	2 channels, 12-bit analog output module (0~10V or 0~20mA)
		B1-L4ADS	4 channels, 12-bit analog input module (0~10V or 0~20mA)
		B1-L2A2DS	2 channels, 12-bit analog input + 1 channel, 12-bit analog output combo analog module (0~10V or 0~20mA)
		B1-L4NTCS	4 channels, NTC temperature input module, 12-bit resolution , measuring range 100Ω~100KΩ
	Communication Modules	B1-CM2S	1 port RS232(Port4) communication module
		B1-CM5S	1 port RS485(Port4) communication module
		B1-CM22S	2 ports RS232 communication module
		B1-CM55S	2 ports RS485 communication module
		B1-CM25S	1 port RS232(Port1) + 1 port RS485(Port2) communication module
HB1 & B1 Peripherals	General Purpose Communication Converters	FBs-CM25C	General purpose RS232 to RS485/RS422 communication interface converter with photocouple isolation
		FBs-CM5R	General purpose RS485 repeater with photocouple isolation
		FBs-CM5H	General purpose 4 ports RS485 HUB with photocouple isolation, RS485 can be connected as star connection
	Bluetooth Communication Module	FBs-B2C	Bluetooth Module for PLC Main Unit Port 0
	USB Communication Converter	FBs-U2C-MD-180	Communication converter cable with standard USB AM connector to RS232 Mini-DIN 4M connector (used in standard PC USB to FBs main unit Port0 RS232), length 180cm
	Communication Cable	FBs-232P0-9F-150	Mini-DIN 4M to DB9F communication cable (FBs main unit Port 0 RS232 connect to standard DB9M), length 150cm
		FBs-232P0-9M-400	Mini-DIN 4M to DB9M communication cable (FBs main unit Port 0 RS232 connect to standard DB9F), length 400cm
		FBs-232P0-MD-200	Mini-DIN 4M to Mini-DIN 4M communication cable (FBs main unit Port 0 RS232 connect to FBs-PEP/PEPR), length 200cm
		FBs-232P0-MDR-200	Mini-DIN 4M to 90° Mini-DIN 4MM communication cable(FBs main unit Port0 RS232 connect to FBs-PEP/PEPR), length 200cm

◇ : R - Relay output, T - Transistor Sink(NPN) output, J - Source (PNP) output

*HB1 must back mount on FATEK HMI for use