



## **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

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

With its aesthetically pleasing high-gloss piano black finish, 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.

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# High Noise Immunity

HMI's 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.

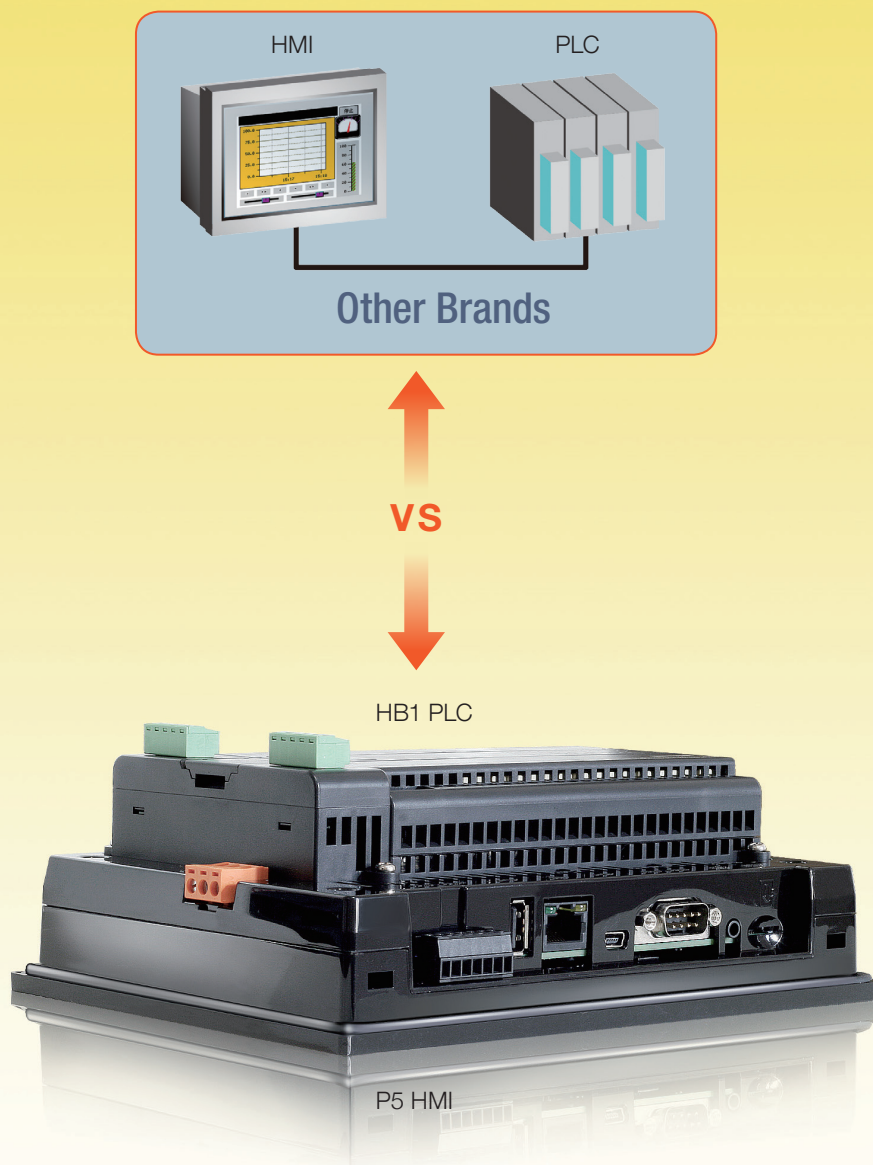




## Optional Integrated PLC\*1

The P5 series provides cableless communications to the FATEK B1 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.

\*1 : Not supported by 4.3" models



# In-built Termination Resistors for RS485/422 Ports

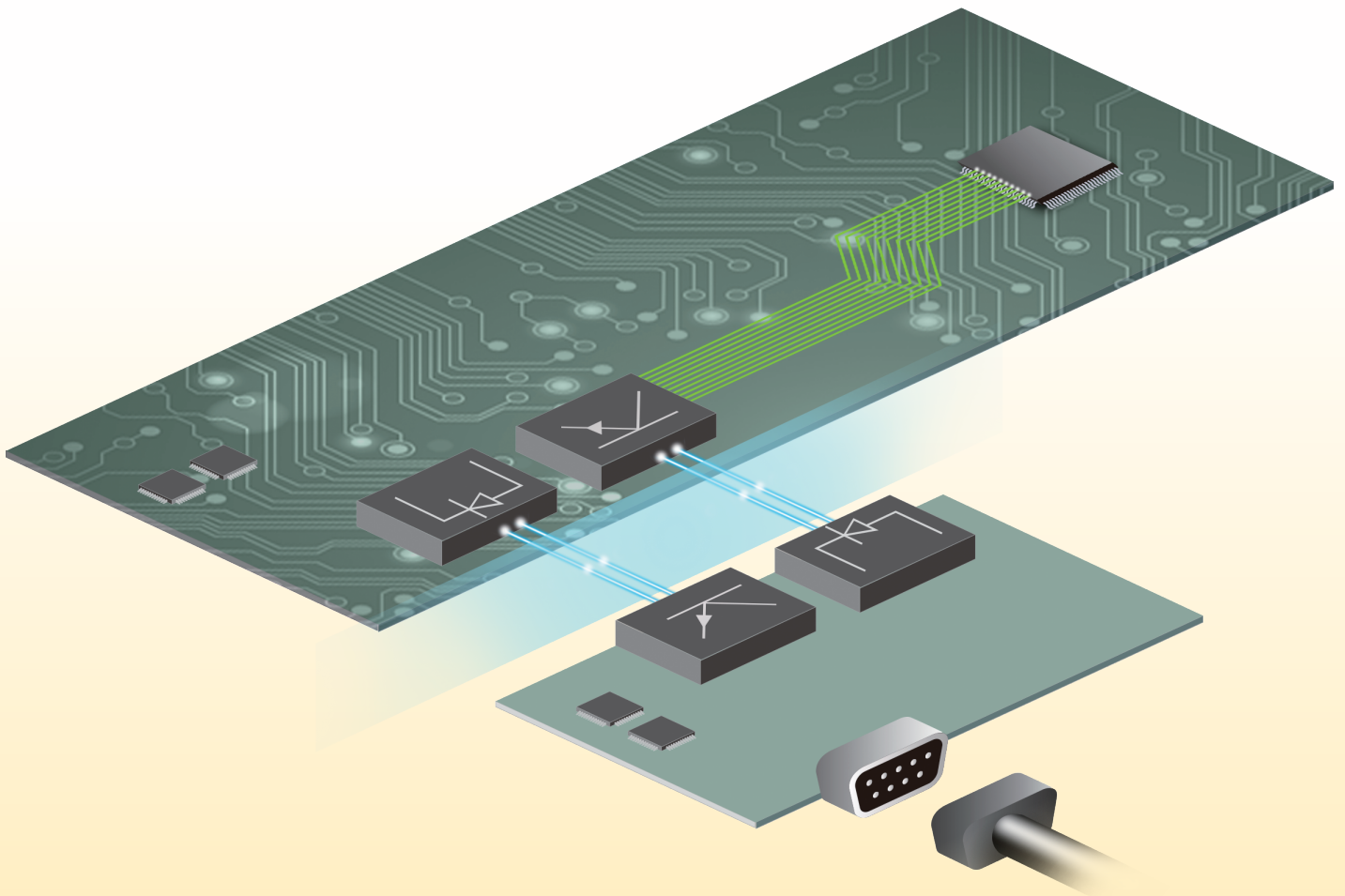
With RS-422/RS-485 communication networks, termination resistors are often required to improve the reliability of communications. External termination resistors can make communication wiring onsite complex. To solve this problem, the P5 provides built-in termination resistor switches. Terminating can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



# Isolated Communication Ports<sup>\*2</sup>

HMIs are used to communicate with various devices, such as PLCs, Motion Controllers and Inverters. If the connected devices locate at the different voltage levels, a ground potential difference would occur and could cause communication errors or damage to the devices. The P5 HMI provides isolated serial communication ports to protect the internal circuit from any voltage difference of the ground.

*\*2 : Not supported by 4.3" models*





# 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:

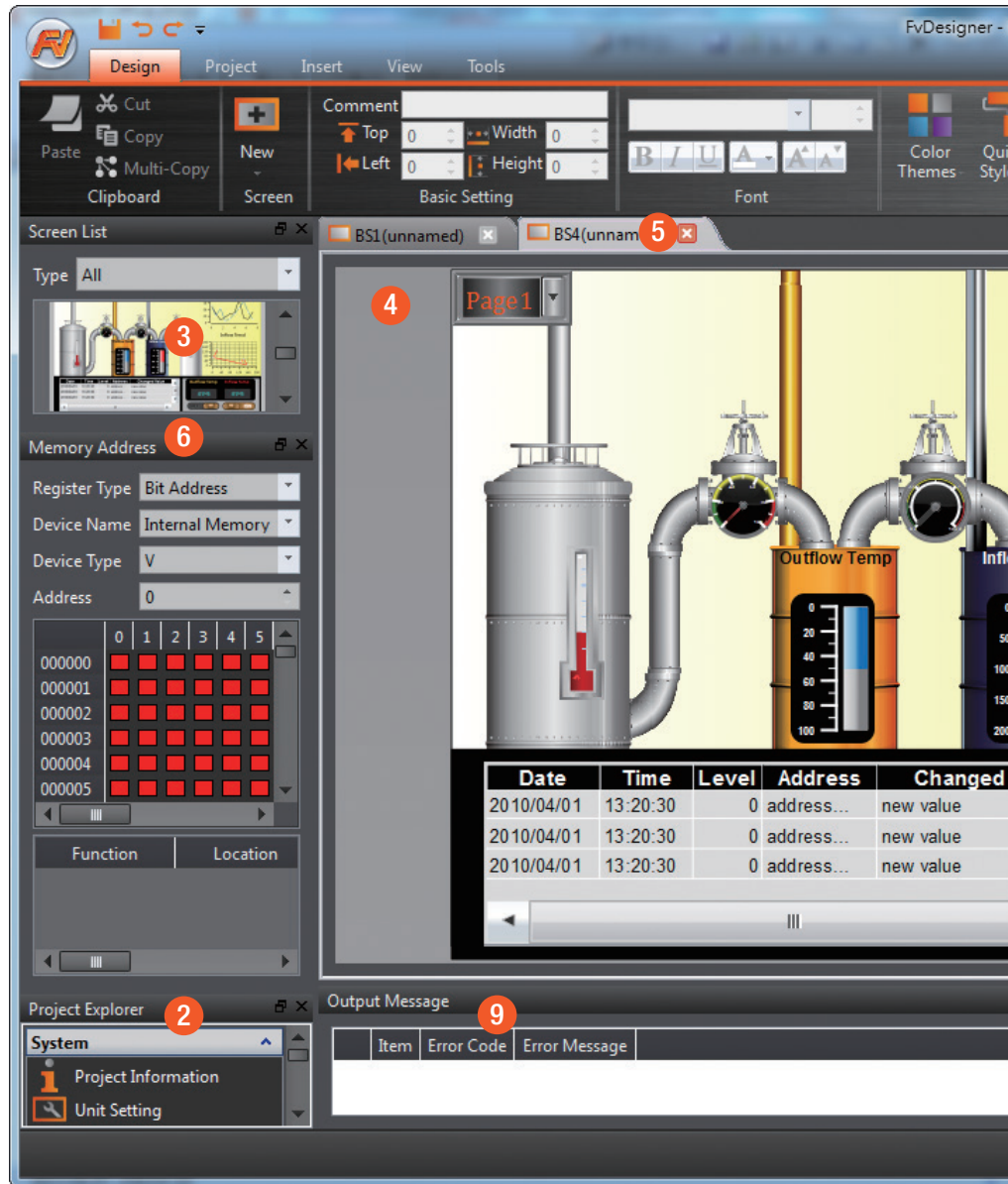
What You See Is What You Get

## 5. Tab Page:

Switch view effortlessly

## 6. Memory Address:

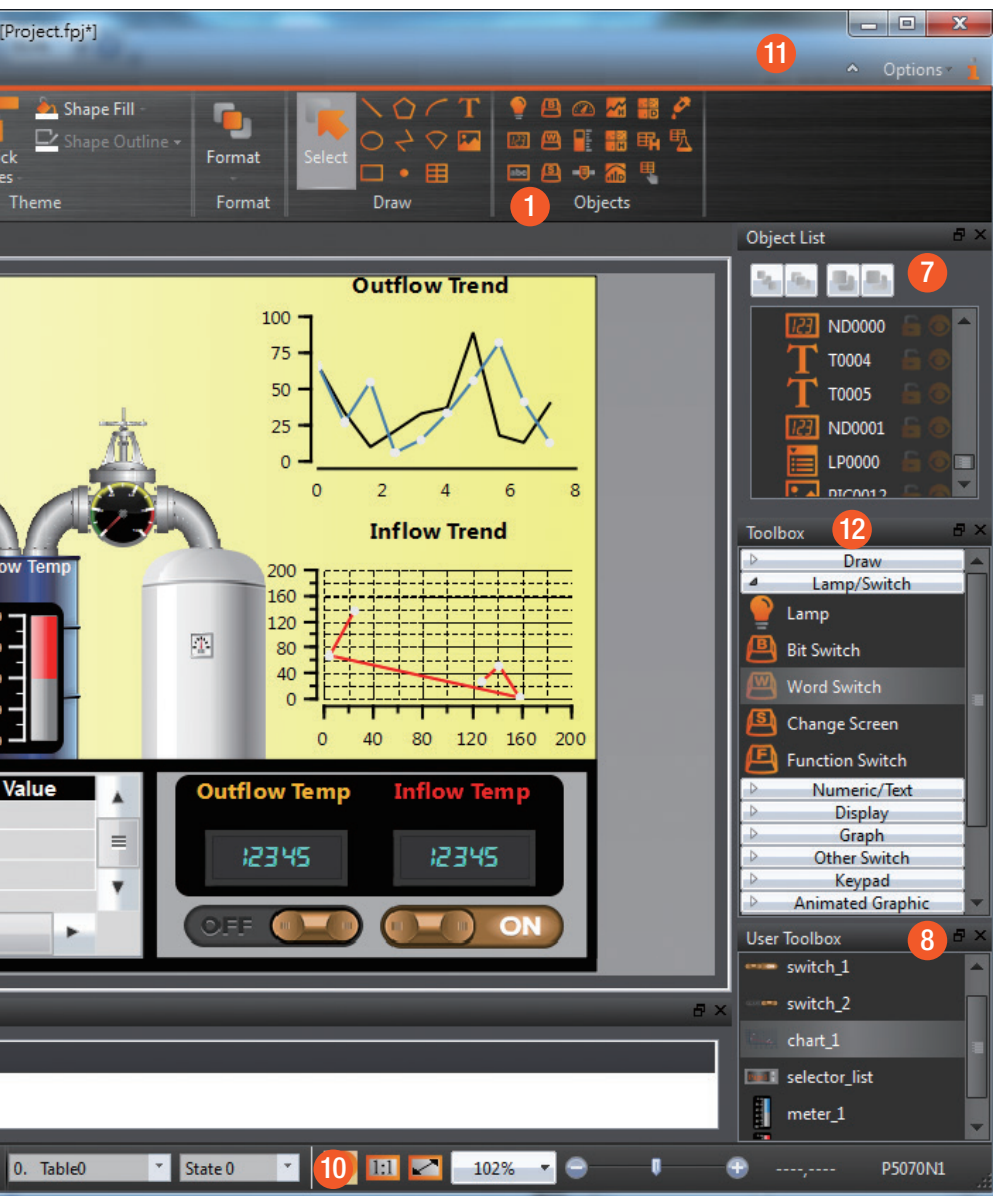
View the status of memory usage



## Topic 1

### Different Ribbon Style, Different Arrangement of Workspace





### 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 2

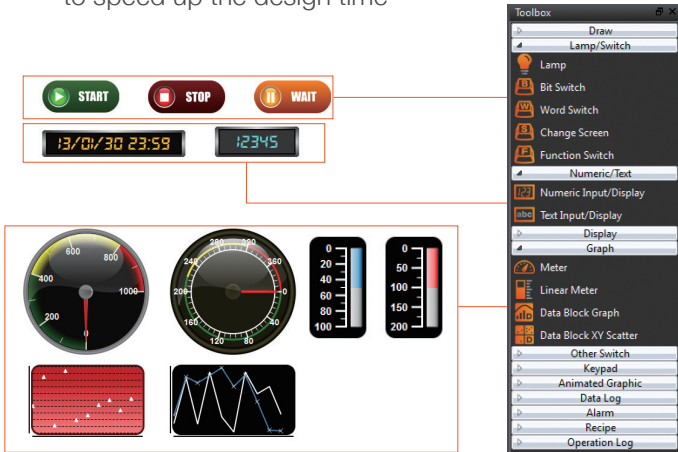
### Use Wizard to Complete Project Setting in Three Steps



# Usability

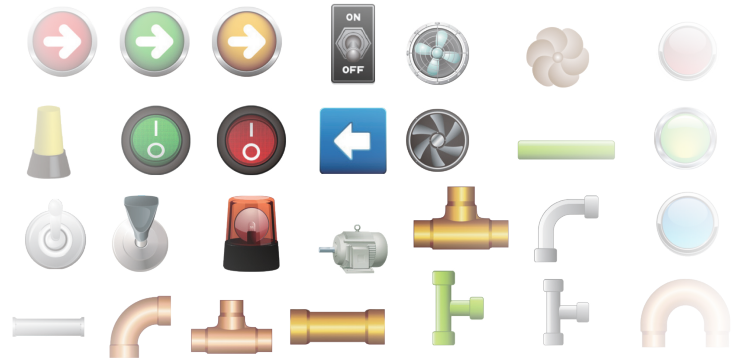
## Toolbox

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



## Image Library

Thousands of industrial images to choose from, or import your own images.



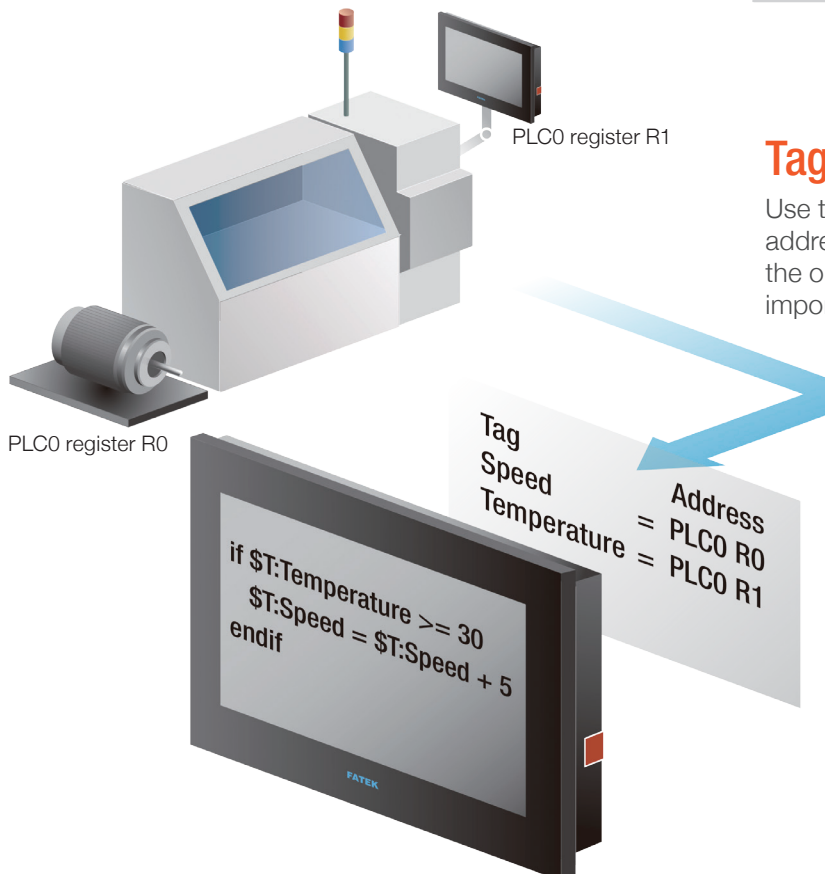
## Audio Library

Use the Audio Library to play the sound you like when an alarm happens or a button is clicked.



## Tag Library

Use the Tag Library to make controller addressing function easy to identify in the objects created. Tag libraries can be imported and exported as CSV files.





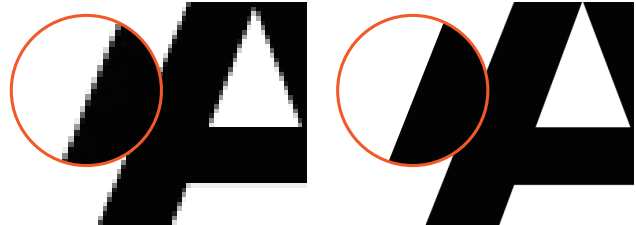
## Keypad

You can customize your own style of keypad.



## Font

- TrueType font is supported. The font can be scalable and anti-aliasing
- The capacity of font files is minimized, thus minimizing memory usage



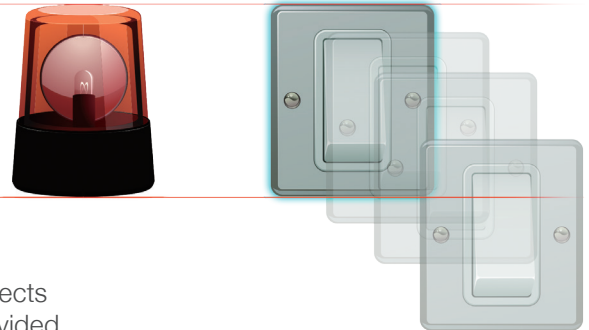
## Text Library

Multi-language support satisfies your requirement of localization. You can even change the language setting dynamically at runtime.



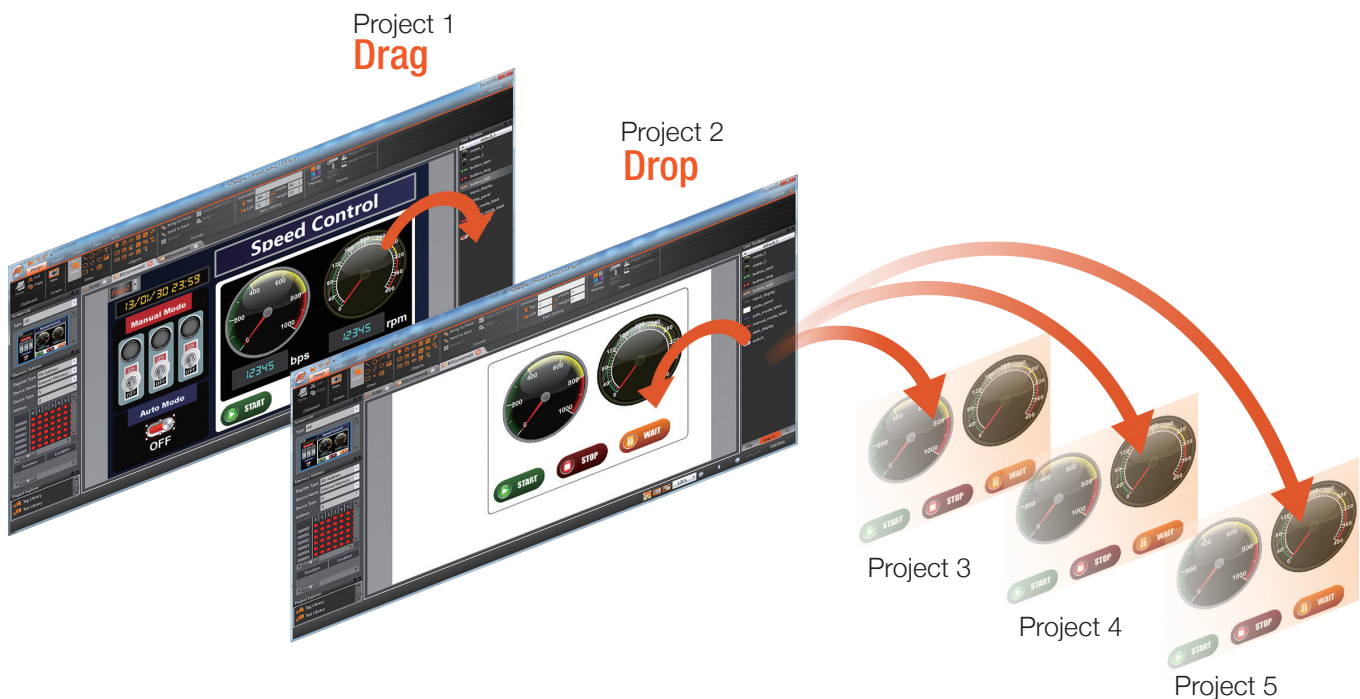
## Auto-alignment

Auto-alignment helps users to organize the screen layout easily. Furthermore, the gridlines can be shown or hidden to make the screen workspace clear to see.



## User Toolbox

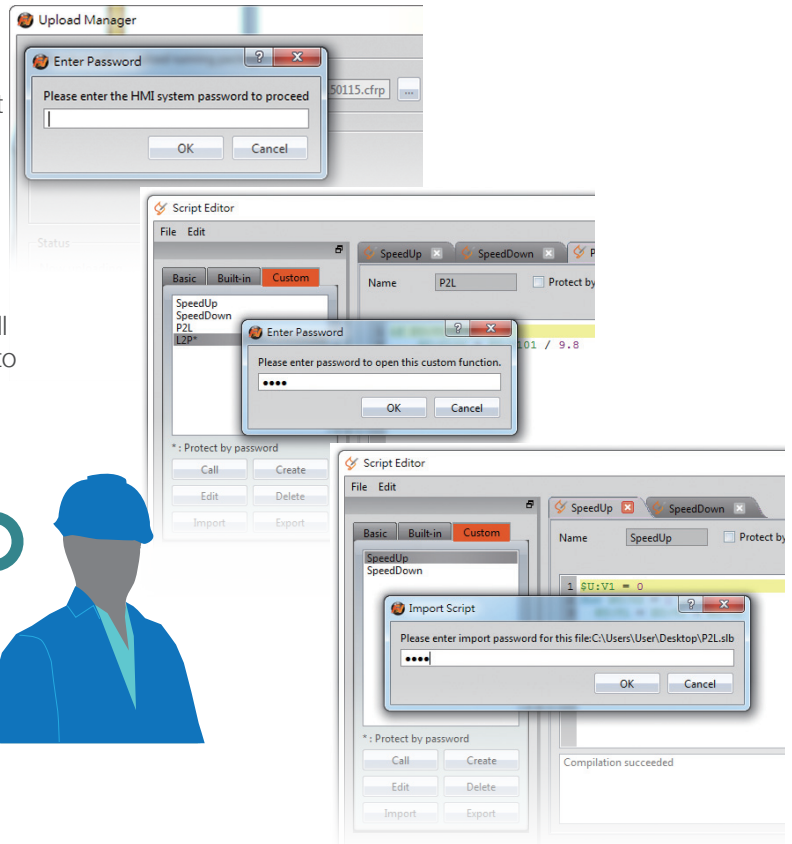
Drag user-defined objects into User Toolbox section, and these objects would become reusable. Export and import functions are also provided, which saves valuable time during program development.



# Security and Safety Control

## Proprietary Rights Protection

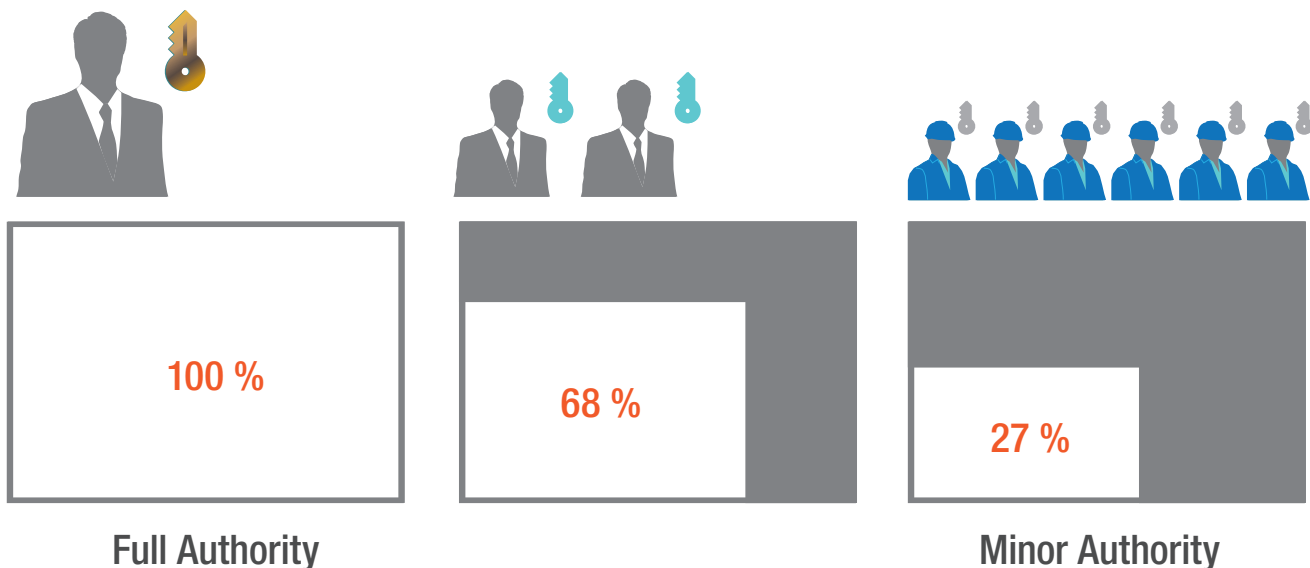
- You can set password for project protection; you need to enter project password to open the project
- Project downloading, uploading and system configuration are prohibited unless users input system password
- The script allows you to design custom functions for your customers. You can also set passwords 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



## Security

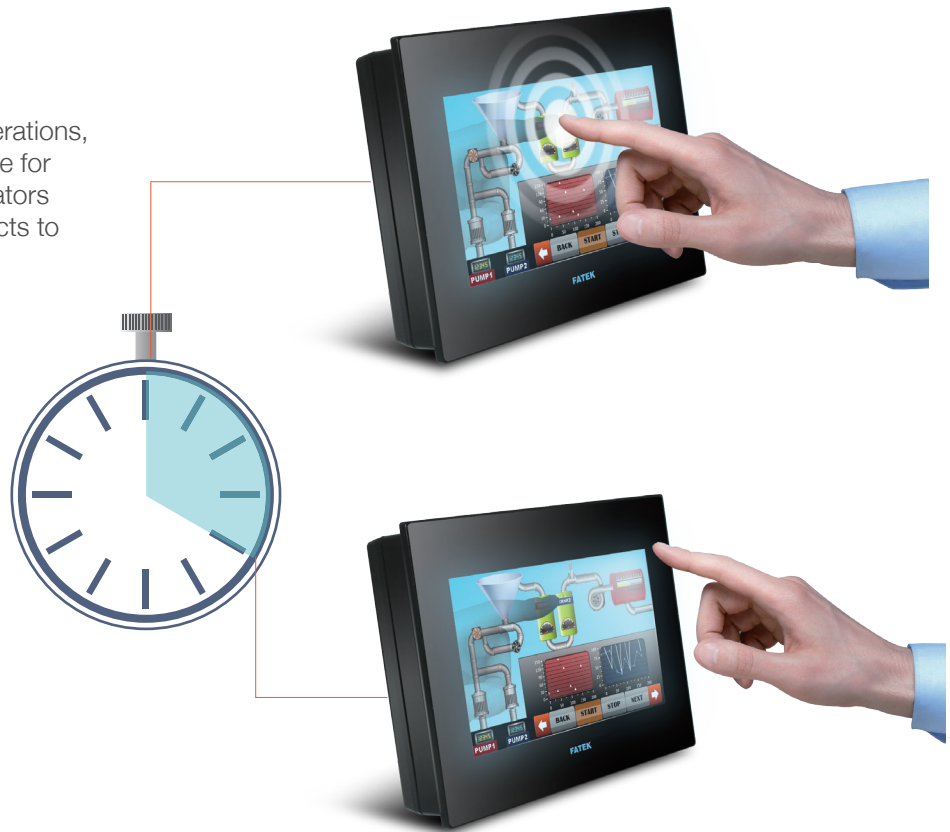
Security function provides 16 access levels and 100 user accounts, and each level and user can have different passwords; import and export functions are provided, increasing flexibility and convenience.

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.



## 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.



## 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.





# Alarm, Trend and Data Log

## Alarm

### Step1:

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

### Step2:

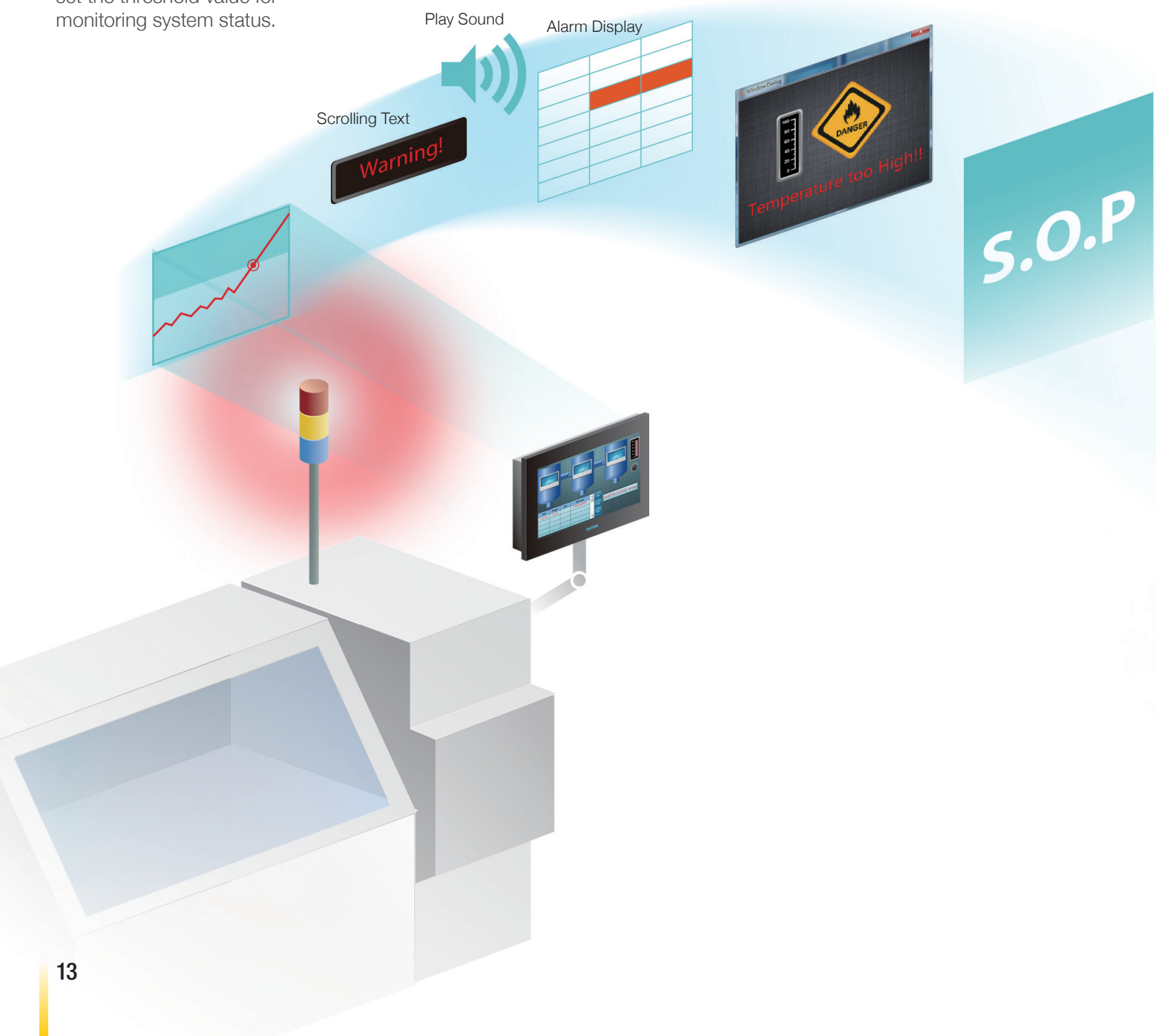
When alarm is triggered, operators can see the scrolling text displaying the predefined message on the assigned position, or use the alarm display to see the detailed message; audio can be played to remind the unaware operators.

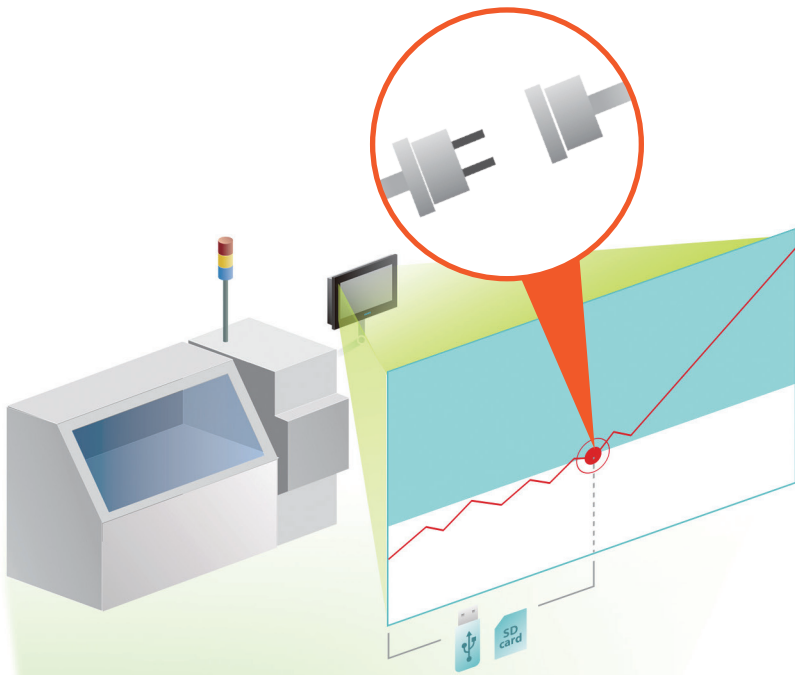
### Step3:

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

### Step4:

Review the history records of Data Log and Operation Log for root cause investigation.





## 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.

## Operation Log

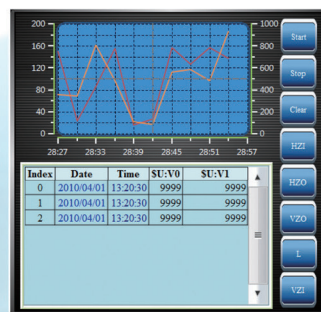
Use Operation Log to pinpoint the root cause if a breakdown happens in the factory.

Number	Date	Time	User	Message
1	2014/10/29	16:32:18	Tom	Press Bit Switch
2	2014/10/29	16:32:19	Tom	Press Word Switch
3	2014/10/29	16:32:22	Tom	Numerical Display Value Changed
4	2014/10/29	16:33:26		Project Starts
5	2014/10/29	16:33:56	Tom	Slider Value Changed
6	2014/10/29	16:33:58	Tom	Press Step Switch
7	2014/10/29	16:34:00	Tom	Text Display Text Changed
8	2014/10/29	16:37:08		Project Starts

Operation Viewer

Enable Operation Log in your project, and then the messages of object operation, communication error, project starting and ending will be displayed on Operation Viewer. The records can be exported to a csv file automatically.

## Data Log

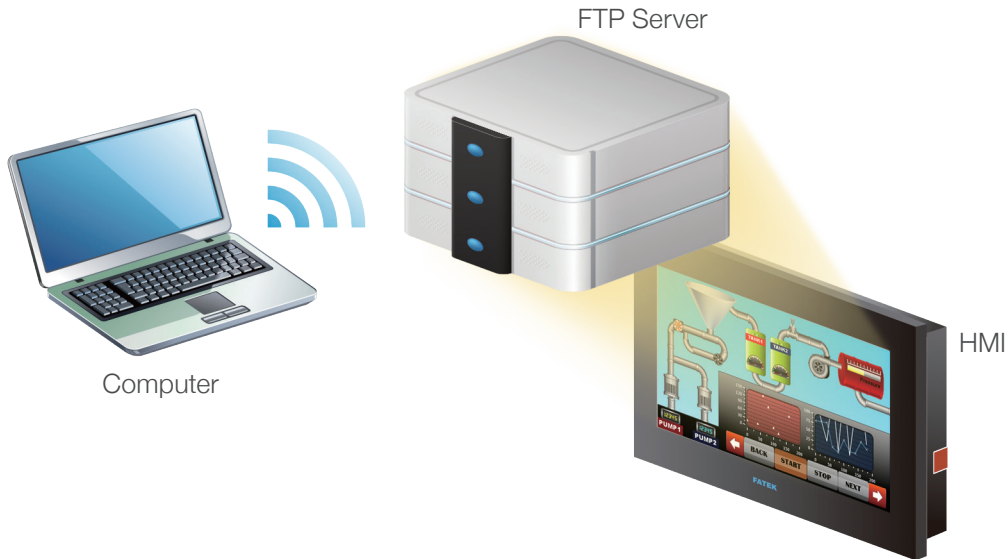


- A maximum of 64 Data Log groups
- Each group can monitor a maximum of 512 addresses
- You can use the trend chart to observe the variance of data; a user is capable of clearing, zooming in/out, moving left/right/top/down the chart on screen, creating a chart with two Y-axes on screen. Or use historic 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

# Remote Monitor and Control

## FTP Server

By enabling FTP server on P5 series, you can send and retrieve files between a P5 and a computer. You don't have to enter the factory to access the storage device for file processing.



## VNC Server

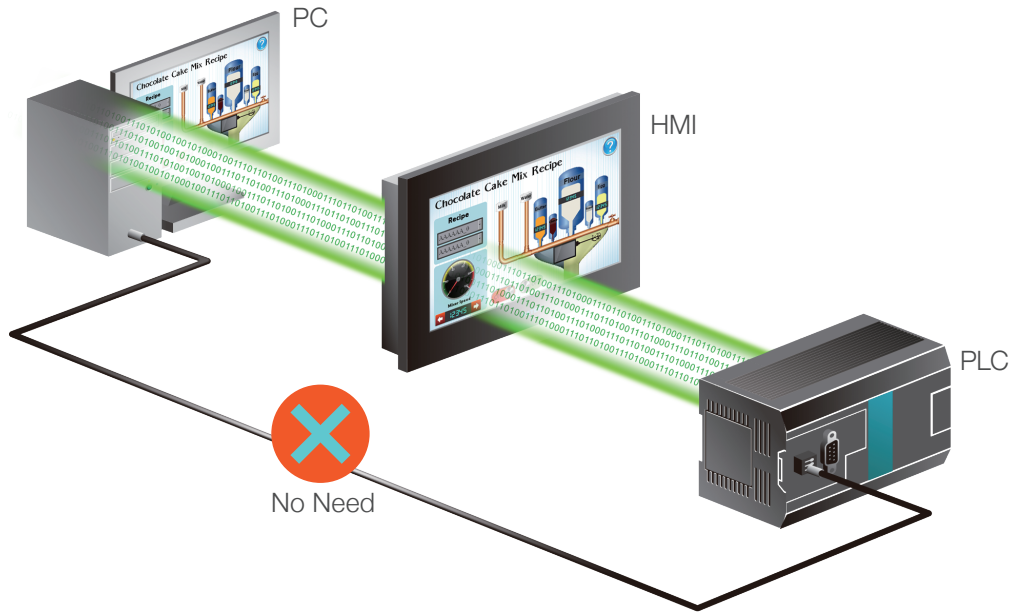
The P5 series supports VNC Server function. Therefore, tablets, personal computers or smart phones can connect to P5 and be used to operate the HMI remotely.





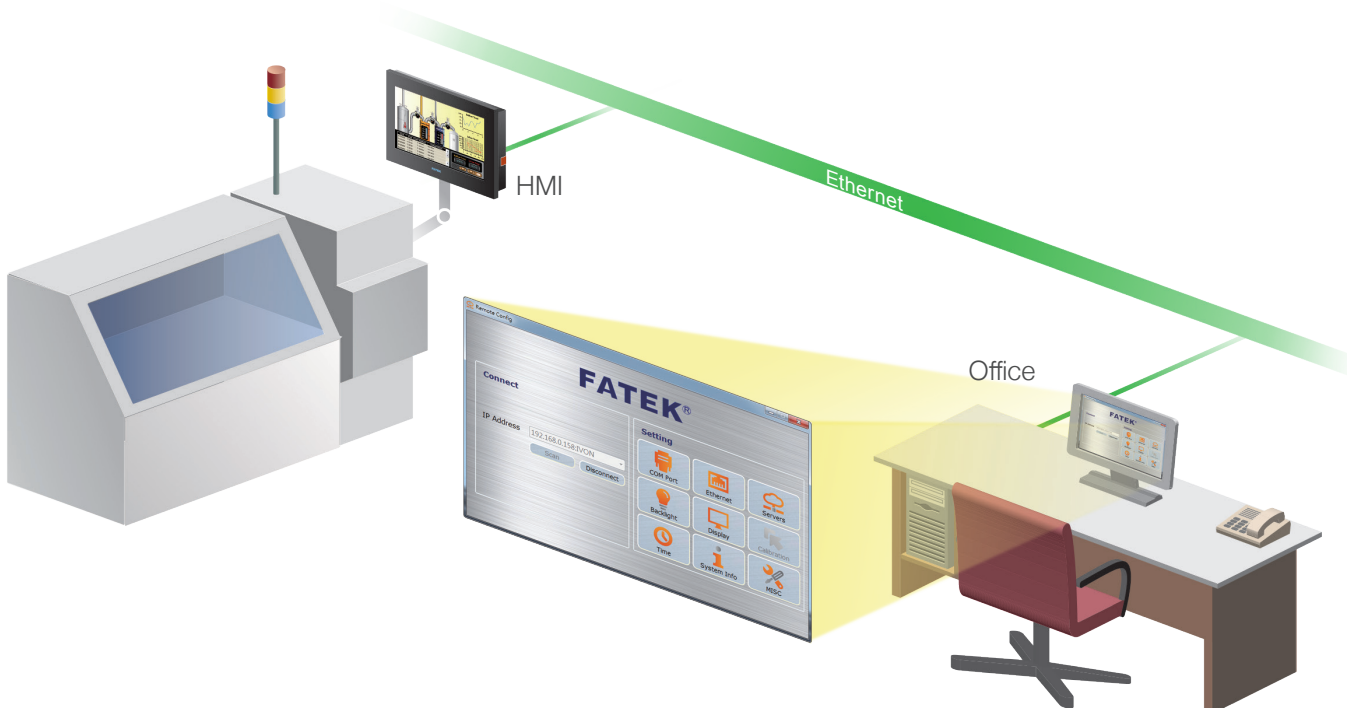
## Pass Through

By using Pass Through function, PC can connect to PLC device indirectly, and then you can make adjustments for the device (Eg: WinProLadder).



## Remote Configuration

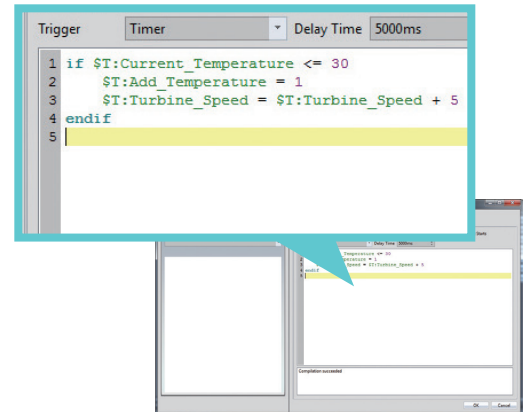
As an added convenience employees in the office can use Remote Configuration to change the setting of HMI.



# 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

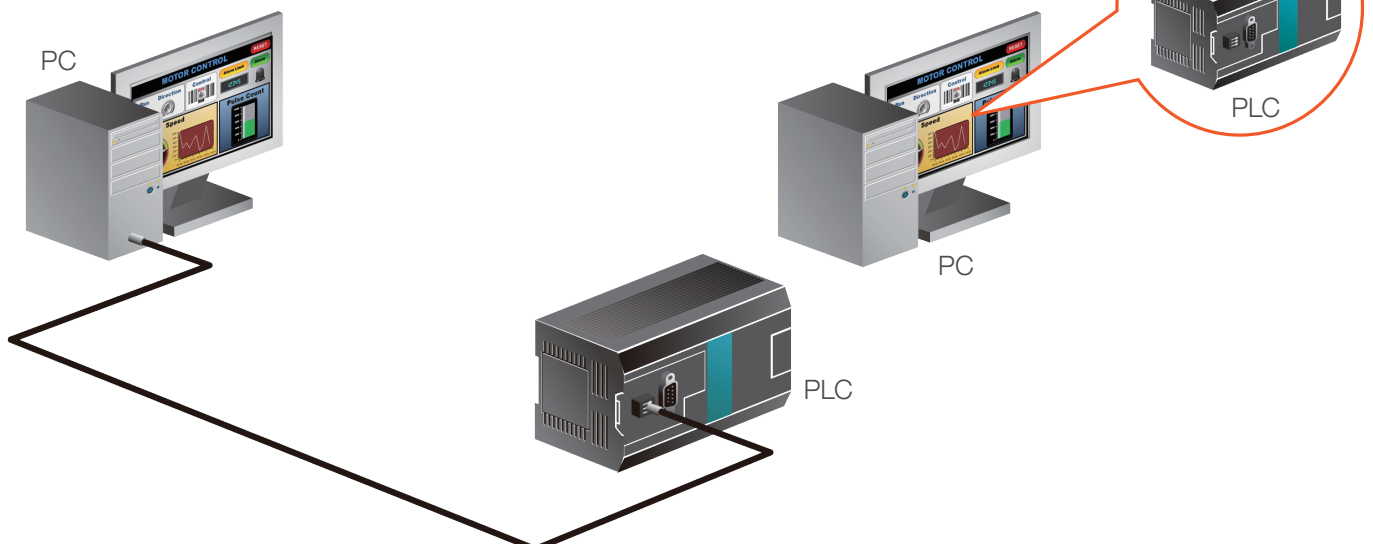
- With Recipe function, you can store a set of verified data in HMI, and download to PLC whenever necessary
- The recipe data can be from a csv file, so operators do not need to enter parameters manually
- A built-in recipe editor for users to edit the contents
- Useful Recipe objects for users to choose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



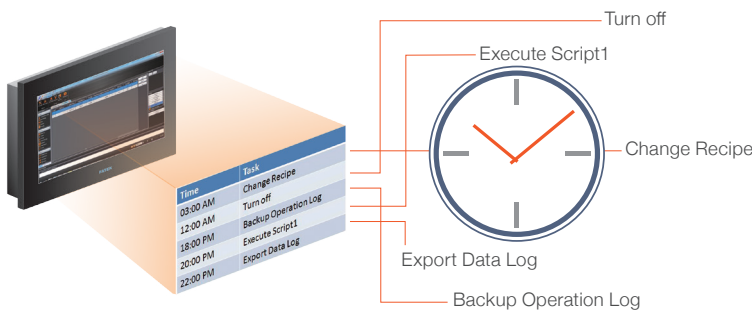
## Simulation

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.



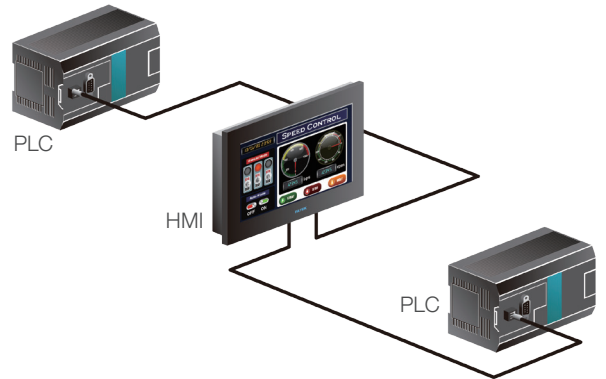
## Schedule

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.



## Data Transfer

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



## Import Tags from WinProLadder Project\*3

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.



## On-line Monitoring PLC Ladder Program\*4

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



\*3 : Scheduled in July 2015

\*4 : Scheduled in December 2015



# Specification



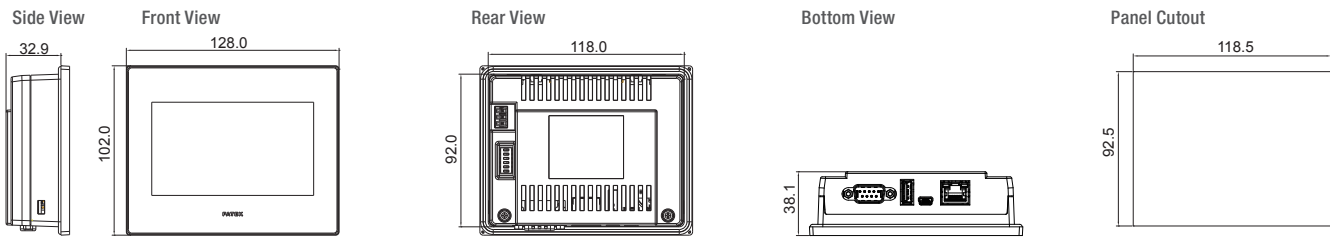
Model		P5043S	P5043N
Display	Display Type	TFT LCD, 16.7M Colors	
	Display Size	4.3" (16:9)	
	Resolution	480 X 272	
	Backlight	LED, 500nits	
	Backlight Life	30,000 Hrs.	
Touch	Type	4-wire Resistive Film	
Backup Memory	Non-volatile Memory	120KB	
	Non-real time NV Memory	12MB	
Internal User Storage		64MB	
Project Memory		32MB	
Real-time Clock		Built-in	
I/O Port	Serial 1	Connector: D-Sub 9-Pin COM1: RS-232 (2W) COM2: RS-422/485 COM3: RS-485	
	Serial 2	---	
	LAN	---	10M/100M
	USB	USB2.0 Type-A (Host)x1 USB2.0 Type mini-B (Device)x1	
	microSD	---	---
	Audio	---	---
	PLC Extension	---	
	Termination Switch	Yes (For RS-422/485)	
Power	Power Input	24Vdc±20% (Isolated Power)	
	Consumption	0.35A	
	Insulation	50MΩ at 500VDC	
Environment	Protection Structure	Front Panel: IP65 / Rear Case: IP20	
	Operating Temp.	0 ~ 50°C	
	Storage Temp.	-20 ~ 60°C	
	Relative Humidity	10%~90%@ 40°C (non-condensing)	
	Withstand Voltage	AC500V/20mA/1 Min. (between charger & FG terminals)	
	Vibration	5 to 9Hz Half-amplitude: 3.5mm 9 to 150 Hz Constant Acceleration: 19.6m/s <sup>2</sup> (2G) 3 directions of X, Y, Z: 10times (IEC61131-2 complaints)	
	Noise Suppression	1000Vp-p, width 1us, rising time 1ns	
	Grounding Resistance	Below 100Ω	
Dimension / Weight	Cut-out	118.5 x 92.5 (mm)	
	W x H x D	128.0 x 102.0 x 38.1 (mm)	
	Weight	215 (g)	235 (g)
Certification		CE, UL	



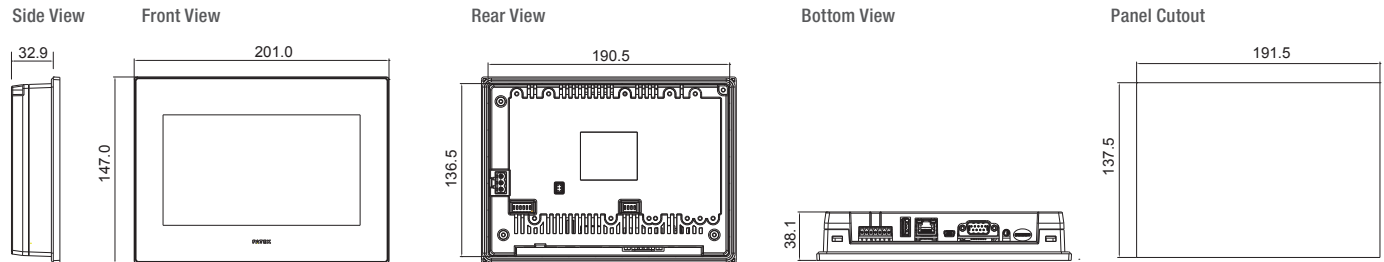
P5070S	P5070N	P5070N1	P5102S	P5102N	P5102N1
TFT LCD, 16.7M Colors					
7.0" (16:9)			10.2" (16:9)		
800 X 480			800 X 480		
LED, 400nits			LED, 350nits		
30,000 Hrs.					
4-wire Resistive Film					
120KB					
12MB					
64MB					
32MB					
Built-in					
Connector: D-Sub 9-Pin COM1: RS-232 (4W)					
Connector: Pluggable Terminal Block COM3: RS-422/485 (Isolation) COM4: RS-485 (Isolation)					
---	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
HB1 main units + B1 extension modules					
Yes (For RS-422/485)					
24Vdc±20% (Isolated Power)					
0.4A@24V			0.42A@24V		
50MΩ at 500VDC					
Front Panel: IP65 / Rear Case: IP20					
0 ~ 50°C					
-20 ~ 60°C					
10%~90%@ 40°C (non-condensing)					
AC500V/20mA/1 Min. (between charger & FG terminals)					
5 to 9Hz Half-amplitude: 3.5mm					
9 to 150 Hz Constant Acceleration: 19.6m/s <sup>2</sup> (2G)					
3 directions of X, Y, Z: 10times (IEC61131-2 complaints)					
1000Vp-p, width 1us, rising time 1ns					
Below 100Ω					
191.5 x 137.5 (mm)			259.5 x 201.5 (mm)		
201.0 x 147.0 x 38.1 (mm)			271.5 x 213.5 x 44.6 (mm)		
610 (g)	630 (g)	650 (g)	1340 (g)	1360 (g)	1380 (g)
CE, UL					

# Dimensions

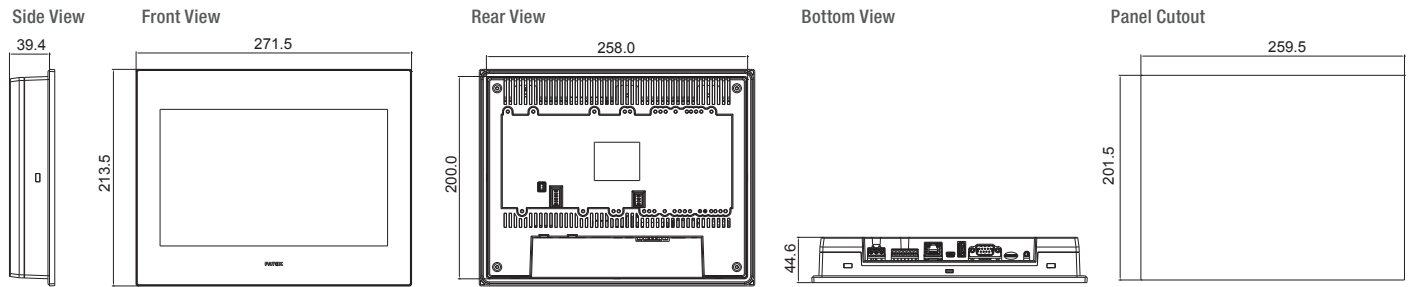
## P5043



## P5070



## P5102



# P5 Accessories

Screen protector: [HMSP070](#)

USB 1.8m download cable: [USBA-MINB-180](#)

7-pin spring terminal block: [P5PC070](#)



Item Name	Model	Description
Screen protector	<a href="#">HMSP043</a>	Screen protector for P5043S/N
	<a href="#">HMSP070</a>	Screen protector for P5070S/N/N1
	<a href="#">HMSP102</a>	Screen protector for P5102S/N/N1
USB 1.8m download cable	<a href="#">USBA-MINB-180</a>	1.8m USB mini B type to USB A type download cable
Connector	<a href="#">P5CC070</a>	7-pin screw terminal block
	<a href="#">P5PC070</a>	7-pin spring terminal block
	<a href="#">HMPC070</a>	Power Connector for P5070S/N/N1, P5102S/N/N1
	<a href="#">HMPC043</a>	Power Connector for P5043S/N



# HB1 & B1 Options

Item Name		Model	Specifications
Main Units	HB1 main units	HB1-10M ◇ 25-D24S	6 points 24VDC digital input (4 points 50KHz, 2 points total 5KHz), 4 points relay output or transistor output (2 points 50KHz), built-in 1-2 communication ports, left side is expandable 0-2 modules, right side is expandable up to 80 I/O points
		HB1-14M ◇ 25-D24S	8 points 24VDC digital input (4 points 50KHz, 4 points total 5KHz), 6 points relay output or transistor output (2 points 50KHz), built-in 1-2 communication ports, left side is expandable 0-2 modules, right side is expandable up to 80 I/O points
		HB1-20M ◇ 25-D24S	12 points 24VDC digital input (6 points 50KHz, 6 points total 5KHz), 8 points relay output or transistor output (4 points 50KHz), built-in 1-2 communication ports, left side is expandable 0-2 modules, right side is expandable up to 80 I/O points
		HB1-24M ◇ 25-D24S	14 points 24VDC digital input (8 points 50KHz, 6 points total 5KHz), 10 points relay output or transistor output (4 points 50KHz), built-in 1-2 communication ports, left side is expandable 0-2 modules, right side is expandable up to 80 I/O points
		HB1-32M ◇ 25-D24S	20 points 24VDC digital input (8 points 50KHz, 8 points total 5KHz), 12 points relay output or transistor output (6 points 50KHz), built-in 1-2 communication ports, left side is expandable 0-2 modules, right side is expandable up to 80 I/O points
		HB1-40M ◇ 25-D24S	24 points 24VDC digital input (8 points 50KHz, 8 points total 5KHz), 16 points relay output or transistor output (6 points 50KHz), built-in 1-2 communication ports, left side is expandable 0-2 modules, right side is expandable up to 80 I/O points
Right Side Expansion Modules	DIO Expansion Modules	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
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(Port3)+1 port RS485(Port4) communication module
		B1-CM25S	1 port RS232(Port3)+1 port RS485(Port4) communication module
HB1 and B1 Peripheral and Accessory	Memory Pack	FBs-PACK	B1/B1z/FBs-PLC program memory pack with 20K Words program, 20K Words register, write protection switch
	PWMDA Module	PWMDA	10-bit single channel pulse width modulation (PWM) 0~10V analog output (AO) module
	Programming Devices	FP-08	B1/B1z/FBs-Series PLC handheld programmer
		Winproladder	FATEK-PLC Winproladder Programming software
	Simple HMI	FBs-PEP/PEPR	Multi characters with graphics-based Parameter Entry Panel, built-in RFID Read/Write module with PEPR
		FBs-DAP-B/BR	16 x 2 LCD character display, 20 keys keyboard, 24VDC power supply, RS485 comm. port, built-in RFID Read/Write module with BR
		FBs-DAP-C/CR	16 x 2 LCD character display, 20 keys keyboard, 5VDC power supply, RS232 comm. port, built-in RFID Read/Write module with CR
	RFID Card	CARD-H	Read/Write wireless card (for FBs-DAP-BR/CR and FBs-PEPR)
	General Purpose Communication Converter	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
		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

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