

# Panasonic

## Programmable Controllers AC Servo Motors

Digest



Programmable Controller

FP7 SERIES



Programmable Display

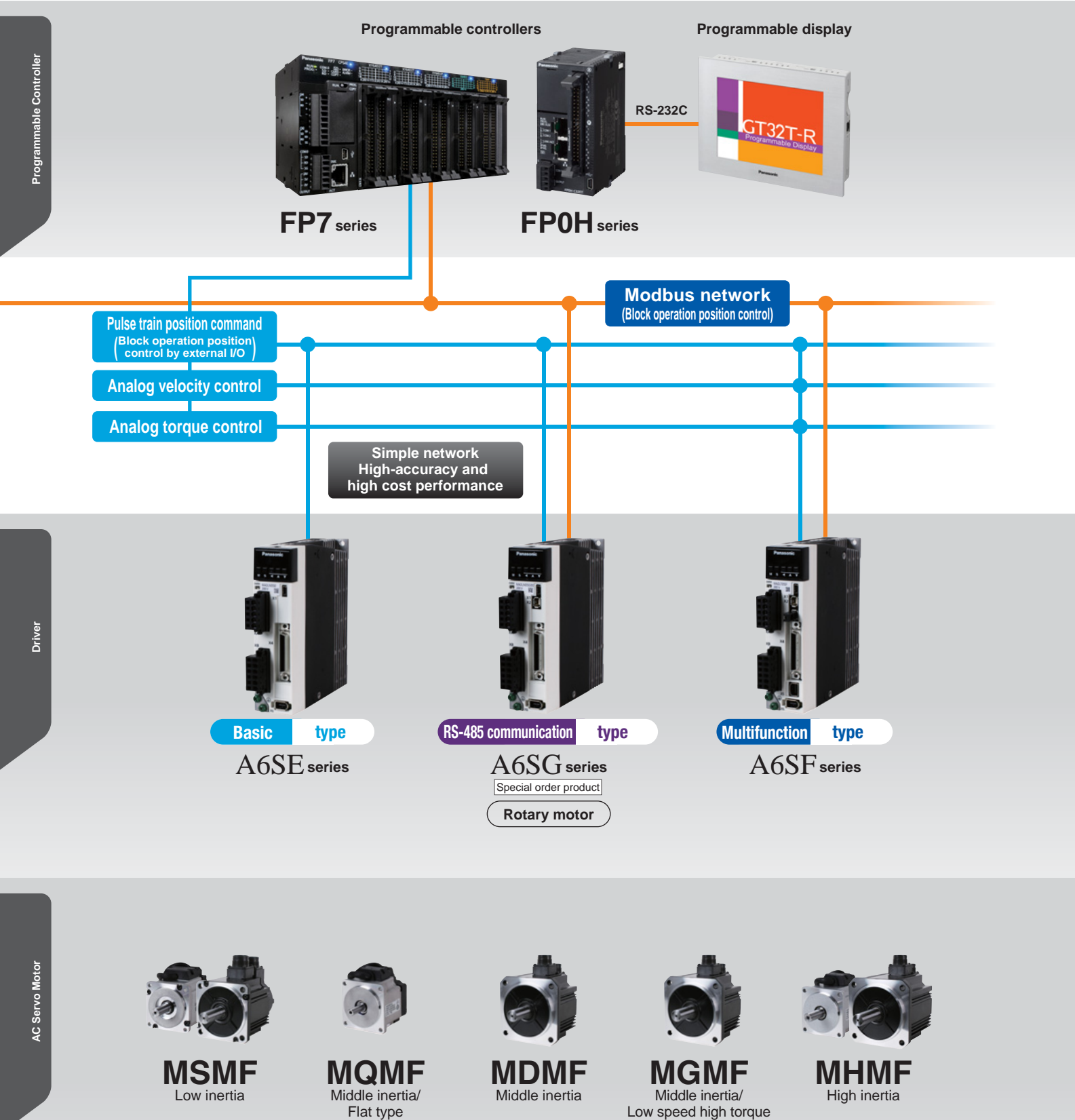
GT SERIES



AC Servo Motor

MINAS A6 Family

# Network connection that flexibly and effectively fit into



Special order product For more information, visit the website or please request to our distributors separately.

# various system configurations



Programmable controllers



FP0H series



FP-XH series

Programmable controllers



FP7 series

Programmable display



Ethernet

**RTEX**  
Realtime Express

Simple network  
Distributed control

**EtherCAT**

Open network  
Multi axis control  
and high speed



**Standard type**  
A6NE series

Rotary motor



**Multifunction type**  
A6NF series



**Standard type**  
A6NM series  
A6NL series  
Special order product

Linear / DD motor

\* The photo is A6NM series.



**Standard type**  
A6BE series

Rotary motor



**Multifunction type**  
A6BF series



**Standard type**  
A6BM series  
A6BL series  
Special order product

Linear / DD motor

\* The photo is A6BM series.

## Slim design and position control type



E series

- Ultra-small design and pulse train command type only, DIN-rail mountable (using mounting Kit)
- Rated output: 50 W to 400 W

## DC 24 V / 48 V type Special order product



A5M/A5ML series



A5MN/A5MNL series



A5MB/A5MBL series

- DC 24 V / 48 V power supply support, ultra-compact motor and driver.
- Rated output: Flange size □20 mm □0.787 in / 10 W  
Flange size □25 mm □0.984 in / 10 W, 20 W, 30 W



## Automation Controls + Information Panasonic PLCs also control information

### Web server function

Monitor and control the **FP7** without the use of custom software. Users can check the accumulated data in the **FP7** with a browser.

### FTP server function

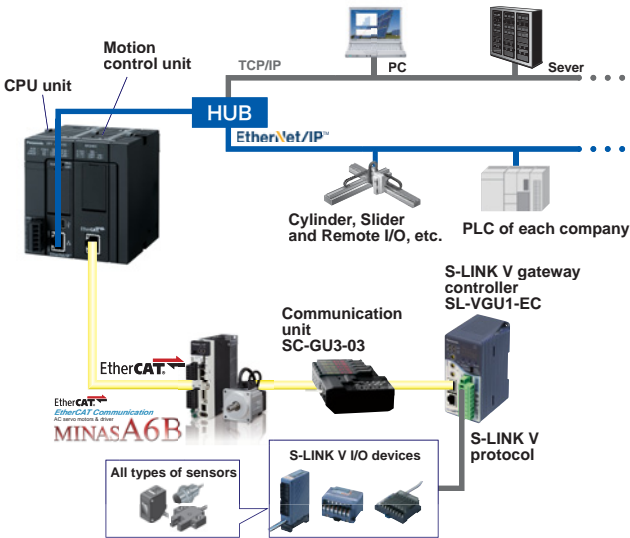
Allows the PC to read the logging data in the **FP7**'s SD memory card and to write setting values and other parameters.

### Compatible with industrial network Ethernet protocol

The **FP7** supports EtherNet/IP and EtherCAT and provides an integrated system through the control of sensors and servo motors, etc., and data transmission with high-order servers.

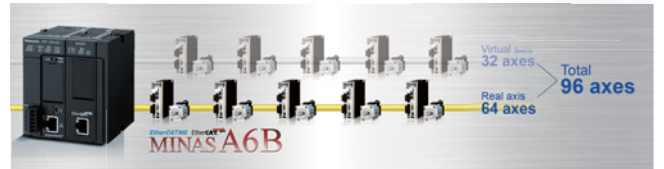
\* EtherNet/IP is a trademark of ODVA, Inc.

\* EtherCAT® is a registered trademark and patent-protected technology, licensed by Beckhoff Automation GmbH of Germany.



### Motion control of up to 64 axes in one unit

Panasonic servo motor 64 axes of MINAS A6B and 32 virtual axes. It is now easier to perform multiple axial control.



### FTP(S) client function (SSL-compatible)

The **FP7** can generate and write data files to an FTP server on a PC as well as read data files from the FTP server. The sessions use SSL, protecting IDs and passwords.

### HTTP(S) client function (SSL-compatible)

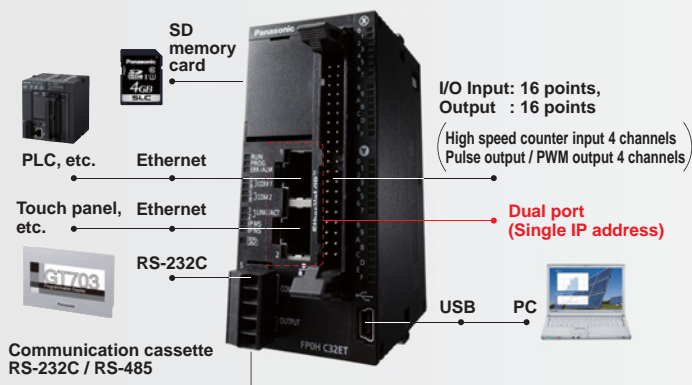
Transfer data from the **FP7** to a web server for easy viewing with a browser.

Product name	Standard program capacity	Max. program capacity	Operation speed	Ethernet function (Note)	SD memory card function	Encryption function	Part No.	
FP7 CPU units	Standard type	196 k steps	234 k steps	From 11 ns	Built-in	Built-in	—	AFP7CPS41E
		120 k steps	120 k steps	From 11 ns	Built-in	Built-in	—	AFP7CPS31E
		120 k steps	120 k steps	From 11 ns	—	Built-in	—	AFP7CPS31
	Security enhanced type	196 k steps	234 k steps	From 11 ns	Built-in	Built-in	Built-in	AFP7CPS41ES
		120 k steps	120 k steps	From 11 ns	Built-in	Built-in	Built-in	AFP7CPS31ES
		120 k steps	120 k steps	From 11 ns	—	Built-in	Built-in	AFP7CPS31S
		Best value model	64 k steps	64 k steps	From 14 ns	—	—	—

Note: When using web server function, please purchase the Ethernet function built-in type. Ethernet is a registered trademark of Fuji Xerox Co., Ltd. and Xerox Corporation.

## Built-in dual Ethernet ports

~ Multiple interfaces that connect with various devices ~



## Significantly improved basic performance in an ultra-compact body!

- High-speed operation processing **8x faster than conventional models!**  
Basic instruction: 10 ns to (up to 10 k steps)
- High capacity Max. 64 k steps **2x larger than conventional models!**  
Program capacity: 64 k / 40 k / 32 k / 24 k steps variable
- Data capacity: 12 k / 24 k / 32 k / 64 k steps variable

To improve productivity in an advanced small device!

Food processing machine | Packaging equipment | Inspection equipment

- Faster | Reduce production costs
- Higher capacity | Support multiple types

## Connection to various devices

- EtherNet/IP, Modbus-TCP and MC protocol compatibility\*
- Easy connection with all kinds of robots and PLCs\*
- Cassette system reduces unit cost and installation space\*

\* Only for Ethernet type

## FTP server function

Allows the PC to read the logging data in the **FP0H**'s SD memory card and to write setting values and other parameters.

## FTP(S) client function (SSL-compatible)

The **FP0H** can generate and write data files to an FTP server on a PC as well as read data files from the FTP server.

Product name		Number of I/O points	Rated voltage	Input specifications	Output specifications	Connection method	SD memory card function	Part No.
FP0H control units	Without Ethernet	Input: 16 points Output: 16 points	24 V DC	24 V DC (Polarity + / - common)	NPN transistor output: 0.3 A / 0.1 A	MIL connector	Built-in	AFP0HC32T
					PNP transistor output: 0.3 A			AFP0HC32P
	With Ethernet				NPN transistor output: 0.3 A / 0.1 A			AFP0HC32ET
					PNP transistor output: 0.3 A			AFP0HC32EP

## RTEX (Realtime Express) Outstanding real-time performance



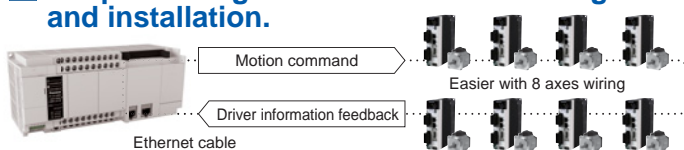
\* FP-XH M8N control units are introduced to only limited countries.

## All-in-one

- Motion control 8 axes
- General-purpose 16 inputs and outputs (Max. 338 points)
- High speed counter 4 channels
- Compatible pulser
- Serial communication Max. 5 channels
- Expandable via Ethernet communication
- Expandable analog input/output



## Simpler wiring: cuts labor time for design and installation.



## High speed network and high performance servo bring synchronous control

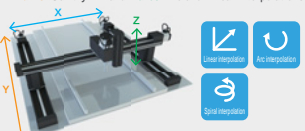
FP-XH M8N	RTEX Realtime Express Ethernet base	MINASA6N
Position (interpolation): Helical control	Ethernet base	Frequency response: 3.2 kHz
Synchronization: Gantry / Cam control	CAT5e cable	Maximum speed: 6,500 r/min.
Command update period 1 ms	Highly immune to noise	Max. pulse frequency: 4 Gpps Resolution: 23 bits

## Suitable for different applications

### Control of gantry mechanism

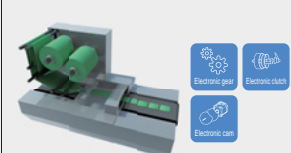
2-axis gantry control together with interpolation control enables smooth and highly accurate stage control.

Y axis: Gantry X and Z axes: Arc and Linear interpolations



### Control of cam mechanism

Preset cam operation synchronized with the main axis enables control of the rotation of the slave axis motor.



AC servo motor and driver **MINAS A6 Family**



**Small, light\*, powerful and speedy**

•Size of a typical business card (W90 mm 3.543 in x H55 mm 2.165 in)

**Panasonic**  
Servo-motors  
Motor Business Unit  
Automotive & Industrial Systems Company

Motors shorter than a business card  
MHMF type  
□60 mm □2.362 in 200 W

交流伺服马达  
珠海松下马达有限公司  
中国广东省珠海市南屏  
珠海工业国家高新技术产业开发区  
原产地: 中国

**Swifter, smarter and easier to use**

**Powered Up compact driver**

New two-degree-of-freedom control system  
Frequency response **3.2 kHz**  
Built-in filters and adjusting functions  
**PANATERM Support**  
**Modbus Support** (A6SF, A6SG Series)  
**Block operation position control** (Supports Modbus and external I/O)

**Block operation image**

Servo ON  
Operation block No. specification

Block No. 1 Execution	Block No. 10 Execution	Block No. 100 Execution
Block No. 2 Execution	Block No. 11 Execution	Block No. 200 Execution
Block No. 3 Execution	Block No. 12 Execution	Block No. 255 Execution

**Highest speed in the industry and high torque in a compact lightweight body\***

<b>Max. speed</b> 6500 r/min <b>Fast</b> (A5 Family 5000 r/min)	<b>Max. torque</b> Approx. 350 % <b>High</b> (A5 Family Approx. 300 %)	<b>Overall length</b> 675 mm 26.575 in <b>Short</b> (A5 Family 99.0 mm 3.900 in)	<b>Weight</b> 750 g <b>Light</b> (A5 Family 960 g)
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\*1: Middle and high inertia types only

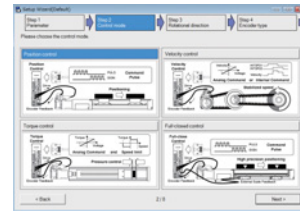
**Multifunctional software for quick adjustment support**

PANATERM set-up support software

The PANATERM set-up support software, with many added features. The PANATERM assists users in setting parameters, monitoring control conditions, setup support, and analyzing mechanical operation data on the PC screen, when installed in a commercially available personal computer, and connected to the MINAS A6 Family through the USB interface. Choose either English, Japanese, Chinese, Korean-language display.

**Setup wizard**

This wizard supports fundamental settings in each control mode step by step, including reading of default setting. In On-line condition, Input data related to each step can be monitored in real time.



**The fit gain function for setting Two-degree-of-freedom control**

- 1) Select the adjustment method
- 2) Load measurement
- 3) Confirming results Adjust gain to meet your needs



**Enhanced position detecting resolution enables smoother and more precise positioning.**

**Encoder**  
23 bits  
(8388608 Pulse / rotation)  
**8 times higher resolution**  
(A5 Family \*2 20 bits)

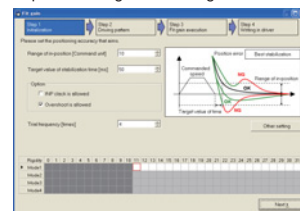
**Communication speed**  
5 Mbps  
**Improved**  
(A5 Family 2.5 Mbps)

Low vibrations High speed and high precision positioning

\*2: Incremental encoder

**Fit gain**

This function automatically searches the best suitable stiffness setting and mode and adjusts the gain once the target in-position range and setting time are set.



**Service life prediction**

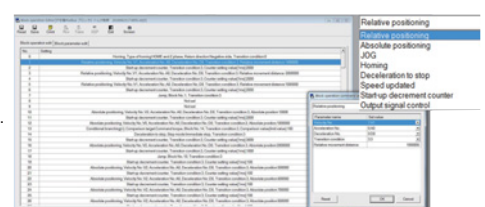
The service life prediction function considers the internal temperature for main components such as the fan and condenser. If the rated value is exceeded, an alarm is displayed. This approach prevents unexpected suspension of operation and allows for planning of systemized maintenance.

Note: The life span prediction value should be considered as a guide only.
























































Item	Value	Unit	Status
Over-temperature	110	°C	
Over-current	1.5	times	
Over-voltage	1.2	%	
Over-frequency	1.2	Hz	
Over-temperature	110	°C	
Over-current	1.5	times	
Over-voltage	1.2	%	
Over-frequency	1.2	Hz	

**Block operation**


255 block patterns can be created. Control is easy. Instruction is made to block number by Modbus or I/O signal.





**Motor line-up**


Series	MSMF Low inertia		MQMF Middle inertia/ Flat type		MDMF Middle inertia		MGMF Middle inertia/ Low speed high torque		MHMF High inertia			
Rated output		Rated rotational speed (Maximum rotational speed)		Rated rotational speed (Maximum rotational speed)		Rated rotational speed (Maximum rotational speed)		Rated rotational speed (Maximum rotational speed)		Rated rotational speed (Maximum rotational speed)		Rated rotational speed (Maximum rotational speed)
50 w												
100 w												
200 w		3000 r/min (6000 r/min)										
400 w												
750 w												
1.0 kW												
1.5 kW												
2.0 kW												
3.0 kW				3000 r/min (5000 r/min)				2000 r/min (3000 r/min)		1500 r/min (3000 r/min)		
4.0 kW												
5.0 kW												
7.5 kW								1500 r/min (3000 r/min)				1500 r/min (3000 r/min)
11 kW												
15 kW								1500 r/min (2000 r/min)				
22 kW												


<Table description>

 Flange sq. dimension (unit: mm)

 100 V specifications and 200 V specifications





 200 V specifications









 200 V specifications and 400 V specifications (400 V: Under development)

 200 V specifications and 400 V specifications (Coming soon)

\* Battery-less absolute motor (Coming soon)  
 \* For more information, please see the web site and catalog.







**Programmable display line-up**

Features	<b>Tough Environmentally-resistant Tough model</b>				
	Superior visibility even in sunlight Long life LED backlight				
Product name	<b>GT03M-E</b>	<b>GT03T-E</b>	<b>GT32M-E</b>	<b>GT32T-E</b>	
					
Power supply	24 V DC	24 V DC	24 V DC	24 V DC	
Display	Screen size	3.5 inch	3.5 inch	5.7 inch	5.7 inch
	Display type	TFT monochrome LCD	TFT color LCD	TFT monochrome LCD	TFT color LCD
	Display color	2 colors (black / white) (16-gray scale)	4,096 colors	2 colors (black / white) (16-gray scale)	4,096 colors
	Resolution	320 (W) x 240 (H)	320 (W) x 240 (H)	320 (W) x 240 (H)	320 (W) x 240 (H)
	Backlight	White LED	White LED	White LED	White LED
	Displayable characters (Note)	768 characters	768 characters	768 characters	768 characters
	Memory capacity (F-ROM)	6 Mbytes	12 Mbytes	12 Mbytes	12 Mbytes
External interface	USB port	Available (mini)	Available (mini)	Available	Available
	SD / SDHC memory card	—	Available	Available	Available

Features	<b>High image quality model</b>		<b>General-purpose model</b>			
	Outstanding image quality Built-in Ethernet port		High-contrast monochrome LCD LED backlight, Three-color indication	Half-QVGA LCD LED backlight, Three-color indication		
Product name	<b>GT703M / GT703G</b>	<b>GT704M / GT704G</b>	<b>GT02M / GT02G</b>	<b>GT12M / GT12G</b>		
	 <b>GT703M</b>	 <b>GT704M</b>	 <b>GT02M</b>	 <b>GT12M</b>		
	 <b>GT703G</b>	 <b>GT704G</b>	 <b>GT02G</b>	 <b>GT12G</b>		
Power supply	5 V DC / 24 V DC		24 V DC	5 V DC / 24 V DC		
Display	Screen size	3.8 inch		4.6 inch		
	Display type	TFT monochrome LCD		TFT monochrome LCD		
	Display color	2 colors (black / white) (64-gray scale)		2 colors (black / white) (64-gray scale)		
	Resolution	480 (W) x 192 (H)		640 (W) x 240 (H)		
	Backlight	<b>GT703M</b> : 3-color LED (white / pink / red) <b>GT703G</b> : 3-color LED (green / orange / red)	<b>GT704M</b> : 3-color LED (white / pink / red) <b>GT704G</b> : 3-color LED (green / orange / red)	<b>GT02M</b> : 3-color LED (white / pink / red) <b>GT02G</b> : 3-color LED (green / orange / red)	<b>GT12M</b> : 3-color LED (white / pink / red) <b>GT12G</b> : 3-color LED (green / orange / red)	
	Displayable characters (Note)	912 characters		1,536 characters		
	Memory capacity (F-ROM)	16 Mbytes		2 Mbytes		
External interface	USB port	Available (mini)		Available (mini)		
	SD / SDHC memory card	Available		Available <small>AIG02MQ2*D and AIG02GQ2*D only</small>		

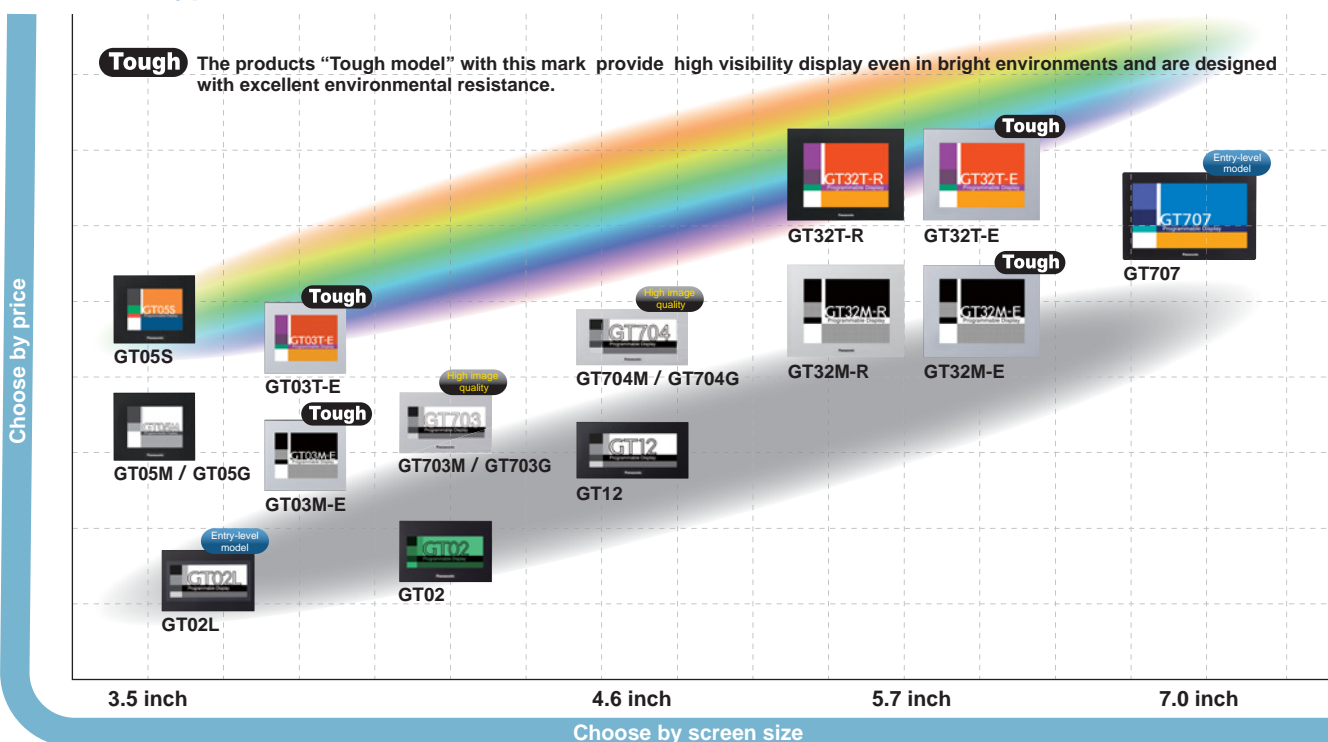
Note: With the 10-dot font.



Features	General-purpose model				Entry-level model		
	QVGA LCD Color / monochrome display		High brightness, TFT LCD Long life LED backlight		7 inch, Long life LED backlight 65,536 colors TFT color LCD	Easily! White LED backlight	
Product name	GT05M / GT05G	GT05S	GT32M-R	GT32T-R	GT707	GT02L	
							
Power supply	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	5 V DC	
Display	Screen size	3.5 inch	3.5 inch	5.7 inch	5.7 inch	7 inch widescreen	3.7 inch
	Display type	TFT monochrome LCD	TFT color LCD	TFT monochrome LCD	TFT color LCD	TFT color LCD	STN monochrome LCD
	Display color	2 colors (black / white)	4,096 colors	2 colors (black / white) (16-gray scale)	4,096 colors	65,536 colors	2 colors (black / white)
	Resolution	320 (W) x 240 (H)	320 (W) x 240 (H)	320 (W) x 240 (H)	320 (W) x 240 (H)	800 (W) x 480 (H)	160 (W) x 64 (H)
	Backlight	<b>GT05M:</b> 3-color LED (white / pink / red) <b>GT05G:</b> 3-color LED (green / orange / red)	White LED	White LED	White LED	White LED	White LED
	Displayable characters (Note)	768 characters	768 characters	768 characters	768 characters	600 characters	96 characters
	Memory capacity (F-ROM)	2 Mbytes	12 Mbytes	12 Mbytes	12 Mbytes	76 Mbytes	704 kbytes
External interface	USB port	Available	Available	Available	Available	Available (mini)	Available (mini)
	SD / SDHC memory card	Available	Available	Available	Available	Available	—

Note: With the 10-dot font (For **GT707**: 32-dot font)

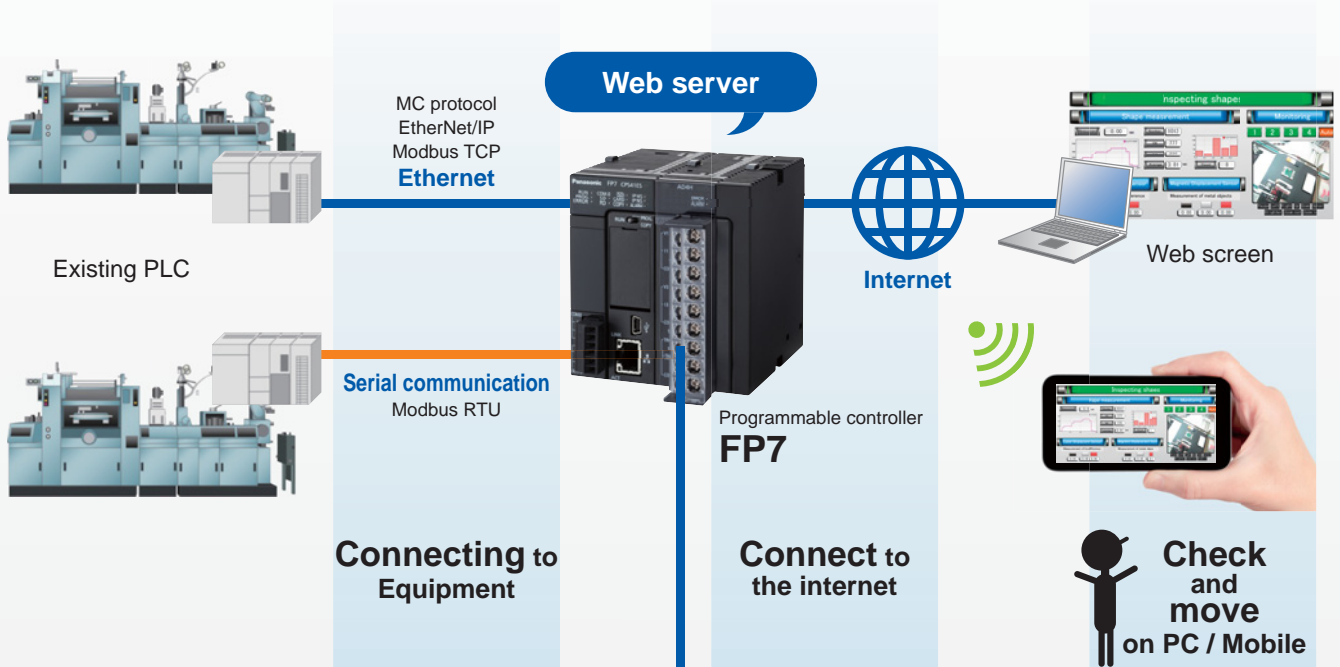
**Product types** Choose what you are looking for by screen size and price.



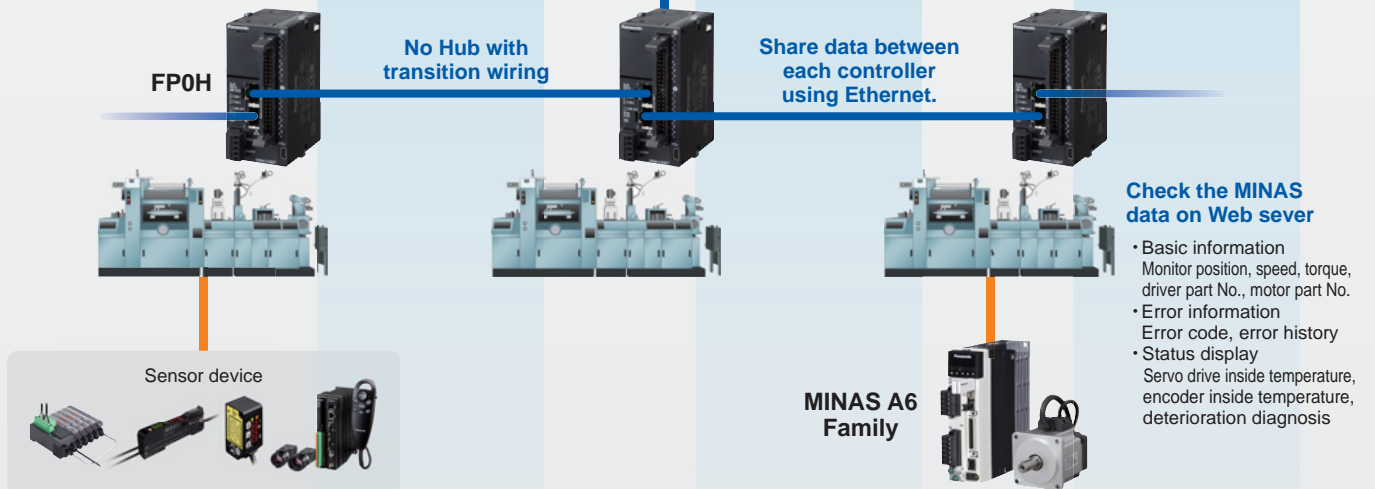
# IoT solution

## Simply connect FP7 to existing PLC. Start implementing IoT easily.

Publish existing PLC data using Web server (home page) built in the FP7 Programmable controller.  
You can now easily view data of existing equipment without having to use cloud server, etc.

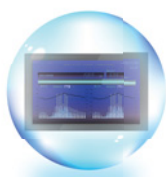


\* Ethernet is a registered trademark of Fuji Xerox Co., Ltd. and Xerox Corporation in the U.S.



# EnerVisualizeR

**Present**



**"Digital Signage"**

- Enables your company to intuitively share common understanding on your energy usage, which helps you all unite to reduce energy consumption.
- Display of energy-saving status on "Digital Signage".

**Monitor**



**Real-time monitoring and short-cycle graph**

- Shows the real-time data of factory operation.
- Displays graphs of your choice even as short as one second.
- Good analysis method of short-term operation status, which helps you cut down energy waste even further.

**Share & Analyze**



**Data summary for sharing, and analysis**

- Gives totals, averages, graphs and tables of collected raw data.
- Client-server network: Perfect not only to share data but also to individually create the graphs, tables or customized reports.

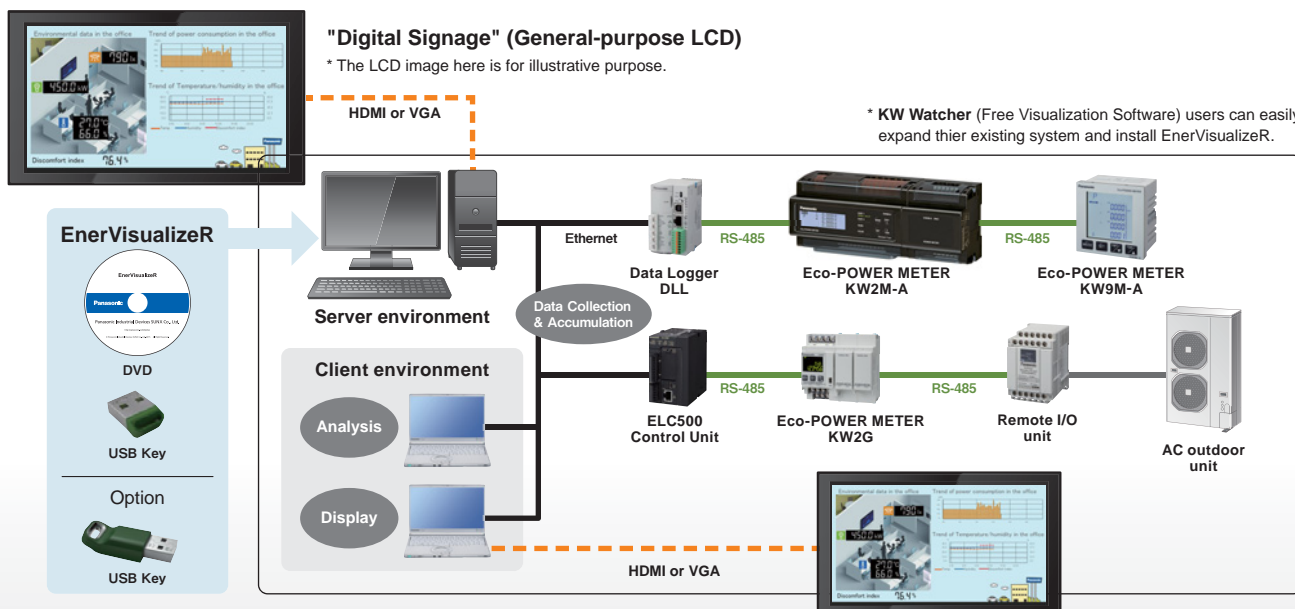
**Organize**



**Customized reports**

- Saves your time to record the collected data.
- Gives you easy to understand reports regularly: daily, weekly or monthly.
- Freely designable layout in a Microsoft®Excel® format.

**System configuration**



# SOFTWARE

Programmable Controller

## Control FPWIN GR7



Save time on programming with user-friendly software

Configuration, editing programming, searching, monitoring, debugging, security, etc. PLC programming demands a lot of time and effort. Many programmers get hung up on trying out different configurations, consulting the manual, and re-writing repetitive code blocks. The **Control FPWIN GR7** programming software is designed to eliminate these inefficiencies and minimize programming complexity.

Programmable Controller

## Control FPWIN Pro7



Programming software of PLC open certification corresponds to FP7.

**Control FPWIN Pro** is the Panasonic programming software developed according to the international standard IEC 61131-3 (for Windows® XP / Vista / 7 / 8 / 10).

- **Control FPWIN Pro** is the universal software for all Panasonic PLC's
- Programs written in **Control FPWIN Pro 6** or earlier versions will run with **Control FPWIN Pro 7**
- Programs are compatible across **FP** series PLCs, e.g. **FP0R** will run with minor adjustments on **FPΣ** (Sigma) and **FP7** PLCs
- **Control FPWIN Pro 7** offer the same flexible choice of editors and allow you to select the programming language you are most familiar with.

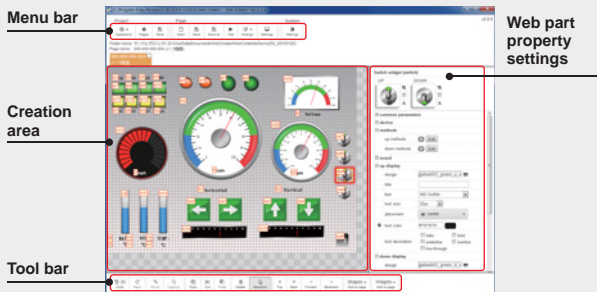
\* Windows, Windows XP, Vista, 7, 8 and 10 are trademarks or registered trademarks of Microsoft Corporation in the United States and other countries.

Programmable Controller

## Control Web Creator

You are a Web content creator from now on.

This is a graphics creation tool that allows you to easily design Web content that is published by the **FP7** or **ELC500**. You can creatively design content by arranging Web parts such as switches, lamps and meters on the screen and then setting the properties. Your content will be linked to information in the PLC without needing any knowledge of HTML.



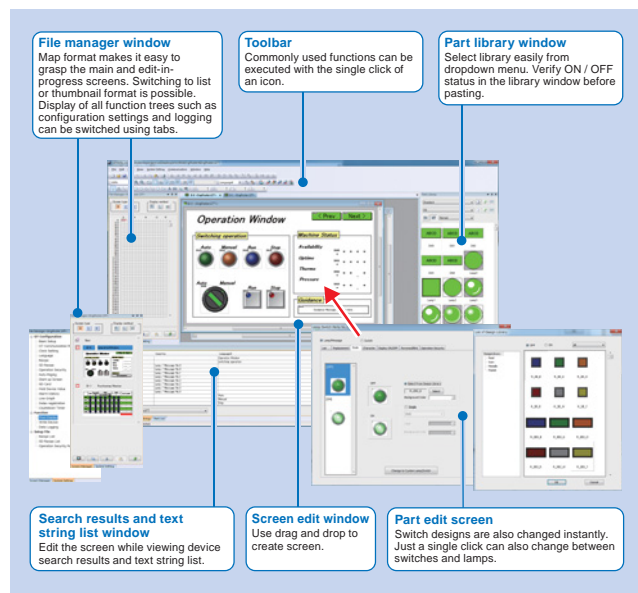
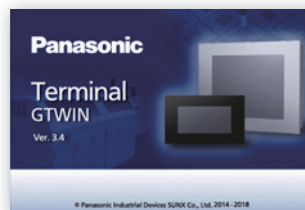
Abundant Web part library



- Same style of operation as the program display image creation tool
- Parts can be arranged by dragging and dropping.
- Detailed part settings are easy using properties.
- Parts don't lose quality when enlarged or reduced, and you can color them as desired.
- Images can be pasted in.

Programmable Display

## Terminal GTWIN Ver.3



Please contact .....

# Panasonic Corporation

Electromechanical Control Business Division  
 ■ 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8506, Japan  
[industrial.panasonic.com/ac/e/](http://industrial.panasonic.com/ac/e/)



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