SMART 920

920 MHz band wireless communication instrument series

Lower wiring costs and increase flexibility with
920 MHz wireless communication

Wireless Data Acquisition

SMARTDAC+

The SMART 920 is a recorder and data logger with 920 MHz band wireless communication technology.
920 MHz wireless has a longer range than the 2.4 GHz band used in wireless LAN, and has greater reach around obstacles making it favorable for long-distances or highly obstructed environments.

It's easy to miss details when you don't see the wholepicture. SMART 920 allows you to see everything.

Environment

Energy

Quality

Maintenance

Product

Cost

Safety and safety

Equipment

People

Logistics

Robust communication

Mesh network

In a multihop network, when poor radio conditions result in lost a signal, the signal is automatically rerouted to the optimum connection.

Multihop communication

Less labor, less cost

Say goodbye to costly wiring.

Installation and operation made easy

Installs easily, no new network infrastructure needed. And with wireless, it's easy to move equipment around.

Office area

Production area

Laboratory area

Storage area

See the factory as a whole

With strategic use of wired and wireless you collect more data that lets you see the overall factory. For example, by linking data from the main production line with environmental data, you see the entire factory.
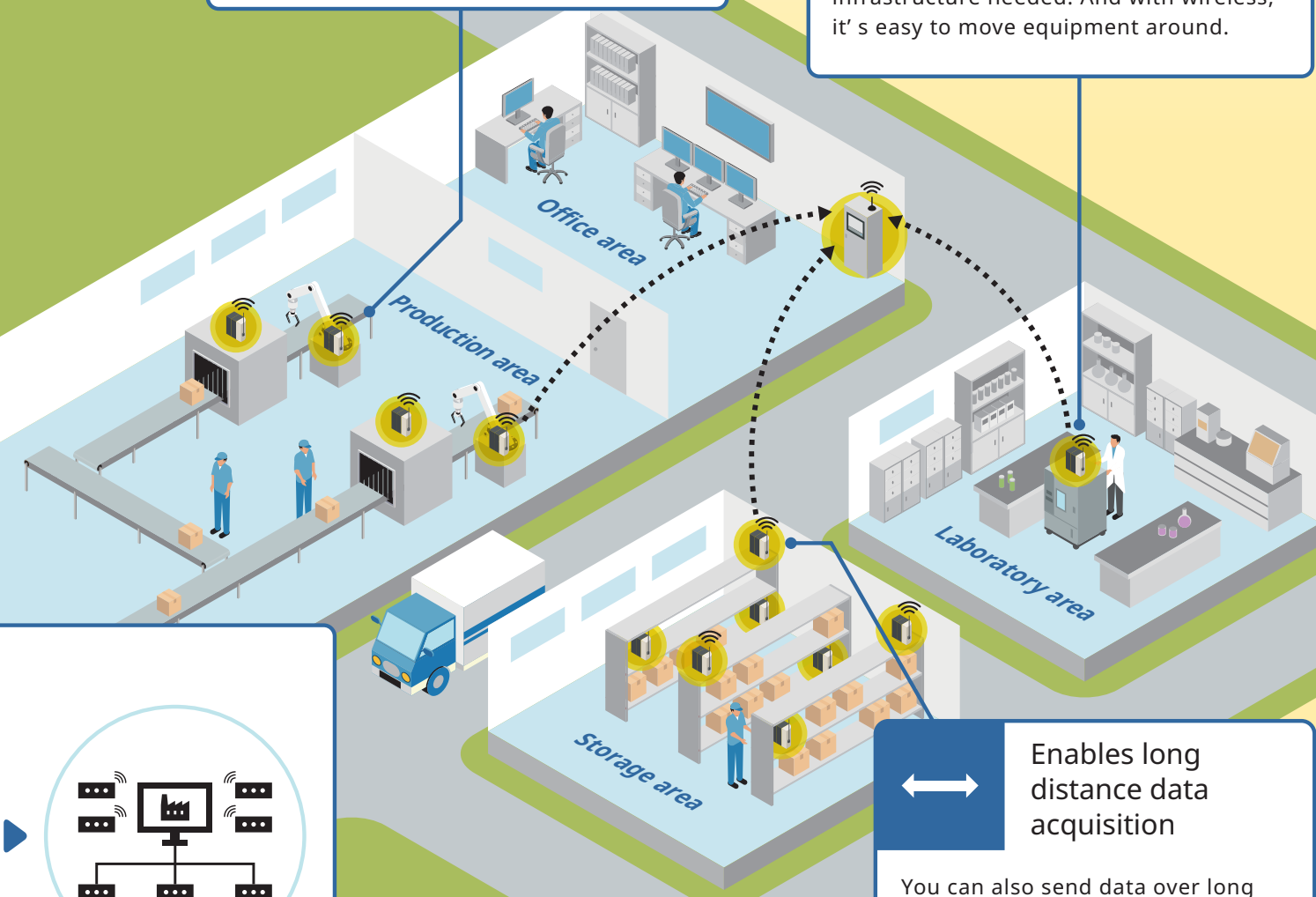
Enables long distance data acquisition

You can also send data over long distances. This allows for communication between factories and offices.
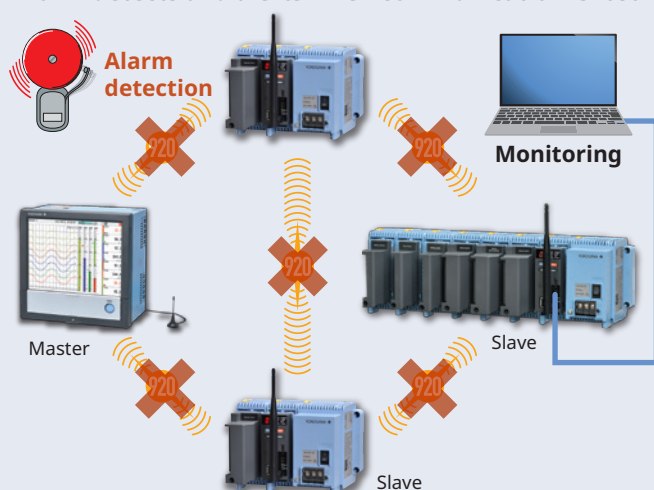
SMART 920 Features

- ◆ Flexible wireless (multihop) communication
- ◆ High speed, highly reliable, multichannel communication
- ◆ Communication disconnection alarms
- ◆ Base unit (GP20) for portable use
- ◆ Supports Part 11
- ◆ Wired and wireless connection
- ◆ Interpolates lost data (with the GX70SM)
- ◆ Battery powered, installs in a variety of locations (with the GX70SM)

Customize how you send key data

Stable wireless communication function

Slave (on site)

Master (office)

Approx. 700 m

920

Slave for distributed installation

Slave (on site)

Automatic channel switching with multi-hop technology

Automatically switches communication channels

920
920

Master

920

Slave

Up to 16 hops

Alarm detects and alerts when communication is lost

Alarm detection

920   920

Monitoring

920

Slave

Master

920   920

Slave

Supports a broad range of applications from small to multi-point

Modbus master commands: Up to 100
Communication channels: Up to 500 (large memory type)

**1 sec. or less
Up to 100 units**

Monitoring

Master

920

Slave

920

920

920
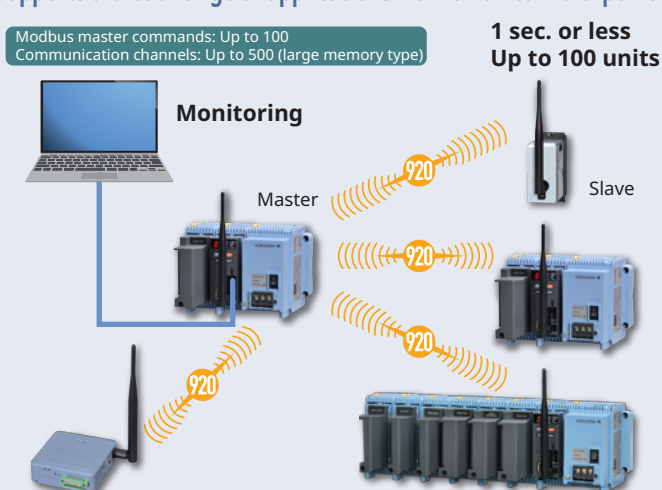
Features of the GX70SM compact, battery powered wireless input unit

● Battery powered

Scan interval of 5 minutes, 5-year battery life (varies with operating conditions), supports USB power.

● Multi input

2 ch of universal input, 1 ch of humidity measurement (option)

● Single/loop calibration

Supports traceability, and input calibration by user.

● Secure data

Wireless terminal authentication blocks unauthorized access. Encrypted communication prevents tampering and eavesdropping.

● Linear scaling

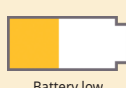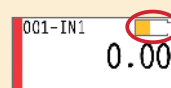You can apply linear scaling to the sensor signal and measure it.
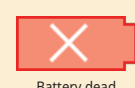
°C
%RH

NEW

Automatic warehouse temperature and humidity control

● Battery status display (GX/GP/GM master)

The battery status of the GX70SM appears in the trend, numeric, bar graph, and other monitor screens.
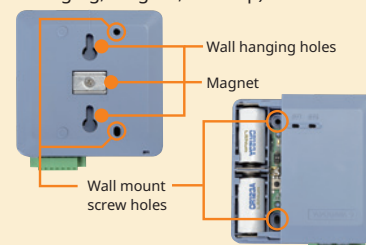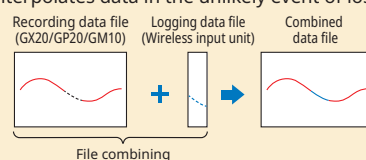
001-IN1
0.00

Battery low

Battery dead

● Installs in a variety of locations

4 installation methods (wall mount (with screws), wall hanging, magnet, desktop)

Wall hanging holes

Magnet

Wall mount screw holes

● Backup function

Saves logging data at fixed intervals (4500 data points).
Interpolates data in the unlikely event of loss.

Recording data file (GX20/GP20/GM10)   Logging data file (Wireless input unit)   Combined data file
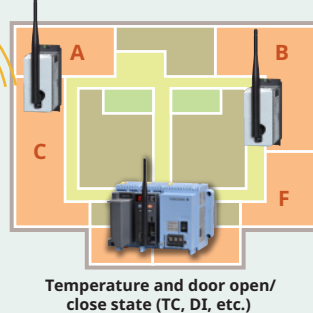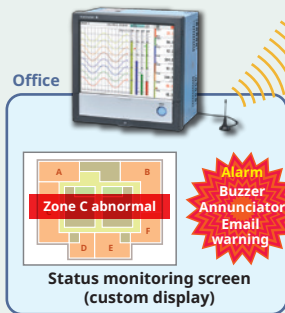
File combining

Enhances data visualization, status monitoring, remote monitoring, and other functions

Storage warehouse door state and temperature monitoring

Monitor the temperature of the warehouse and check whether the door is open right from the office. Customize your display for immediate grasp of conditions.

Storage warehouse

Handling precautions

Office

Alarm
Buzzer
Annunciator
Email warning

Zone C abnormal

Status monitoring screen (custom display)

Temperature and door open/close state (TC, DI, etc.)

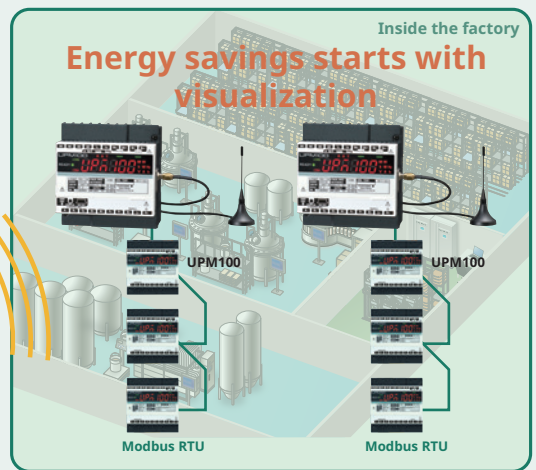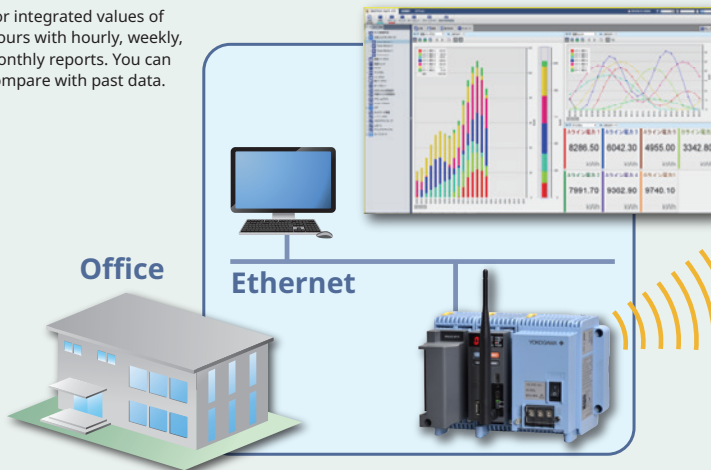## Remotely Monitor Operating Conditions

Clean room The ability to remotely monitor conditions in clean rooms is crucial in industries such as pharmaceutical/bio-tech or food and beverage.

Clean room

Monitoring room

Modbus RTU

With serial gateway function
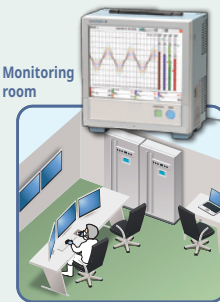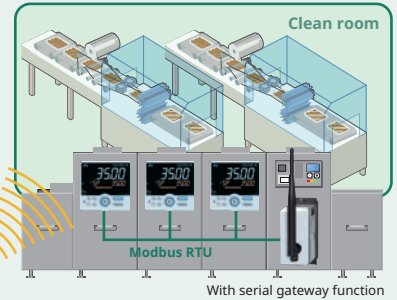
- No wiring needed
- Easy to add instruments
- Decreased frequency of entry

Air shower ...and other benefits

Energy Monitoring

Monitor integrated values of watt hours with hourly, weekly, and monthly reports. You can also compare with past data.

Office

Ethernet

Energy savings starts with visualization

Inside the factory

UPM100

UPM100

Modbus RTU

Modbus RTU

Wirelessly connects to PLCs

Visualize data from places without power

Clean room temperature and humidity control
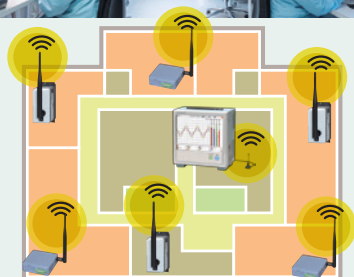
GX70SM

The GX70SM wireless input unit is battery powered, has a built-in humidity sensor, and supports user-calibration.

Also supports US FDA 21CFR Part 11

Part 11

FDA 21 CFR PART 11

Improve the factory working environment

GX70SM

Superior response to sharp temperature changes.
Contributes to temperature and humidity control, and helps prevent heatstroke.

Select from the lineup according to your installation needs

As a parent device... GX20 GP20 GM10

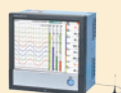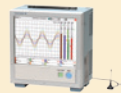A 920 MHz wireless communication parent device can easily acquire and record data wirelessly from child devices.

As a relay... GM10 UT32A UPM100

Comes with relay functionality.

As a child device... GX70SM GM10 UT32A UPM100

Wirelessly transmits measured data to a parent device or relay. Wall mount, desktop, and other space-saving installation options available. (GX70SM)
Multi-function I/O device for wireless monitoring (PID control or ladder program computation function, and a serial gateway function). (UT32A)

GX20 Model and Suffix code

Model	Suffix Code	Optional code	Description
GX20			Paperless recorder (Panel mount type, Large display) [*1]
Type	-1		Standard (Max. measurement channels: 100 ch)
	-2		Large memory (Max. measurement channels: 500 ch)
Display language	E		English, degF, DST (summer/winter time) [*2]
Optional features		/AH	Aerospace heat treatment
		/AS	Advanced security function (Part 11)
		/BC	Black cover
		/BT	Multi-batch function
		/C2	RS-232 [*3]
		/C3	RS-422/485 [*3]
		/CG	Custom display [*4]
		/D5	VGA output
		/E1	EtherNet/IP communication (PLC communication protocol)
		/E2	WT communication [*5]
		/E3	OPC-UA server
		/E4	SLMP communication (Mitsubishi PLC)
		/FL	Fail output, 1 point
		/LG	Log scale
		/MT	Mathematical function (with report function) [*6][*7]
		/MC	Communication channel function [*8]
		/P1	24 V DC/AC power supply
		/PG	Program control function
		/UH	USB interface (Host 2 ports)
		/CM3	920 MHz wireless communication (master function) [*3][*8]

*1 To connect an expandable I/O, GM sub unit, you will need one expansion module for the GX.
*2 The Display language is selectable.
To confirm the current available languages, please visit the following website.
URL: http://www.yokogawa.com/ns/language/
*3 /C2, /C3 and /CM3 cannot be specified together.
*4 Creating custom displays requires DXA170 DAQStudio (sold separately). (GX does not have a creation function.)
*5 /MC option must be separately specified when the WT communication is selected.
*6 Optional code /MT (MATH) required if using the GX90XD's or GX90WD's pulse input.
*7 The /MT option (computation) is required to perform pulse integration on GX90XP pulse input modules.
*8 The /MC option is required at the same time.

GP20 Model and Suffix code

Model	Suffix Code	Optional code	Description
GP20			Paperless recorder (Panel mount type, Large display) [*1]
Type	-1		Standard (Max. measurement channels: 100 ch)
	-2		Large memory (Max. measurement channels: 500 ch)
Display language	E		English, degF, DST (summer/winter time) [*2]
Power supply	1		100 V AC, 240 V AC
Power cord	F		Power cord VDE standard
Optional features		/AH	Aerospace heat treatment
		/AS	Advanced security function (Part 11)
		/BT	Multi-batch function
		/C2	RS-232 [*3]
		/C3	RS-422/485 [*3]
		/CG	Custom display [*4]
		/D5	VGA output
		/E1	EtherNet/IP communication (PLC communication protocol)
		/E2	WT communication [*5]
		/E3	OPC-UA server
		/E4	SLMP communication (Mitsubishi PLC)
		/FL	Fail output, 1 point
		/LG	Log scale
		/MT	Mathematical function (with report function) [*6][*7]
		/MC	Communication channel function [*8]
		/PG	Program control function
		/UH	USB interface (Host 2 ports)
		/CM3	920 MHz wireless communication (master function) [*3][*8]

*1 To connect an expandable I/O, GM sub unit, you will need one expansion module for the GP.
*2 The Display language is selectable.
To confirm the current available languages, please visit the following website.
URL: http://www.yokogawa.com/ns/language/
*3 /C2, /C3 and /CM3 cannot be specified together.
*4 Creating custom displays requires DXA170 DAQStudio (sold separately). (GX does not have a creation function.)
*5 /MC option must be separately specified when the WT communication is selected.
*6 Optional code /MT (MATH) required if using the GX90XD's or GX90WD's pulse input.
*7 The /MT option (computation) is required to perform pulse integration on GX90XP pulse input modules.
*8 The /MC option is required at the same time.

I/O module

The SMARTDAC+ GX/GP/GM I/O is modular for easy scalability.
For the GX90☐☐I/O modules, GX60 expansion unit, GX90EX expansion modules, GM90MB moule base, add-ons and accessories, see the GX/GP or GM catalogs. GX/GP catalogs No.: Bulletin 04L51B01-01EN
GM catalogs No.: Bulletin 04L55B01-01EN

GM10 Model and Suffix code

Model	Suffix code	Optional code	Description
GM10			Data Acquisition Module for SMARTDAC+ GM
Type	-1		Standard (Max. measurement channels: 100 ch)
	-2		Large memory (Max. measurement channels: 500 ch)
Area	E		General
–		0	Always zero
Optional features		/AH	Aerospace heat treatment
		/AS	Advanced security function
		/BT	Multi-batch function
		/C3	RS-422/485 [*1]
		/C8	Bluetooth
		/E1	EtherNet/IP communication (PLC communication protocol)
		/E2	WT communication [*2]
		/E3	OPC-UA sever
		/E4	SLMP communication (Mitsubishi PLC)
		/MT	Mathematical function (with report function) [*3][*4]
		/MC	Communication channel function [*5]
		/LG	Log scale
		/PG	Program control function
		/CM3	920 MHz wireless communication (master function) [*1][*5]
		/CS3	920 MHz wireless communication (slave function) [*1][*5]
		/WH	Integration bar graph function [*6]

*1 /C3, /CM3 and /CS3 cannot be specified together.
*2 Communication channel function (/MC option) must be specified at the same time with WT communication.
*3 Optional code /MT (MATH) required if using the GX90XD's or GX90WD's pulse input.
*4 Optional code /MT (MATH) required if using the GX90XP's pulse integration.
*5 The /MC option is required at the same time.
*6 The /MC and /MT options are required at the same time.

GM90PS Model and Suffix code

For 100–240 VAC power (inlet), GM90PS-1N1□0/W3
For 100–240 VAC power (M4 screw), GM90PS-1N1W0/W3
For 12 -28 VDC power (M4 screw), GM90PS-1N2W0/W3
* If you specify /WH option for the GM10, you must also specify /WH option for the GM90PS.

UT32A Model and Suffix code

UT32A-00C-11-00/MDL
Optional suffix codes : /DC, /CT, /CV
* For details on the UT32A, see the UT32A (DIN rail type) general specifications (GS05P01C81-01EN).

Ordering requirements
* Specify either the GX20/GP20 or GM10 as the master.
* Specify the GM10 or UT32A as the slave or repeater device.
* Specify the GX70SM as the slave device.
* Specify a sleeve or rooftop antenna for the wireless antenna.

GX70SM Model and Suffix code

Model	Suffix code	Optional code	Description
GX70SM			Wireless Input Unit
Number of channels	-02		2 channels
Type	-L0		Universal input, scanner type (isolation between channels)
–	N		Always N
Terminal type	-C		Clamp terminal
Area	K		For Korea, KC Mark Approval
Option		/RH	Built-in humidity sensor, 1 channel

Standard Accessories: Manual, Magnet, Screw
* Batteries are not included. Please obtain them separately (recommended battery anufacturer:Panasonic)

UPM100 Model and Suffix code

Model	Suffix Code						Description
UPM100	-x	x	x	x	-2	0	Universal Power Monitor
Phase and Wire Type	-1						Single-phase 2-wire
	-2						Single-phase 3-wire
	-3						Three-phase 3-wire
	-4						Three-phase 4-wire
Rated Input Voltage and Current		3					220 V/1 A AC (phase voltage 127 V AC for three-phase 4-wire)[*1]
		4					220 V/5 A AC (phase voltage 127 V AC for three-phase 4-wire)[*1]
		5					440 V/1 A AC (phase voltage 277 V AC for three-phase 4-wire)
		6					440 V/5 A AC (phase voltage 277 V AC for three-phase 4-wire)
Output Function			0				Without display function, without pulse output
			1				With display function, without pulse output
			2				Without display function, with pulse output
			3				With display function, with pulse output
Optional Communication Function				0			None (RS-485 is provided as standard)
				C			Wireless communication (with serial gateway function)[*2]
Optional Measuring Function					0		Integral resolution kWh
					1		Integral resolution kWh / power factor
					2		Integral resolution kWh[*3] / reactive power, integrated reactive power
					3		Integral resolution kWh[*3] / power factor, reactive power, integrated reactive power
					4		Integral resolution Wh
					5		Integral resolution Wh / power factor
					6		Integral resolution Wh[*3] / reactive power, integrated reactive power
					7		Integral resolution Wh[*3] / power factor , reactive power, integrated reactive power
Power Supply					-2		85 to 264 V AC 50/60 Hz
Fixed Code						0	Always "0"

*1 200 V AC (100 V + 100 V) for single-phase 3-wire
*2 Wireless communication option can only be used in the Republic of Korea.
*3 The unit is kvar or var when reactive power is selected.

Accessories

Sleeve antenna
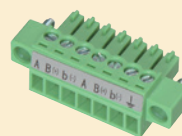(Part no. : A1061ER)

Used when installing with the main unit, such as inside the casing. For indoor use. Applicable model; GX20/GP20, GM10, GX70SM, UT32A

Rooftop antenna
(Part no. : A1062ER)

For use when installing separately from the main unit. Can be used outdoors. Applicable model; GX20/GP20, GM10, GX70SM, UT32A, UPM100

Input terminal block
(Part no. : A2226JT)

The input terminals on the GX70SM wireless input unit.

Wall Mount Bracket for UT32A
(Model: UTAP005)

Use for wall-mounting the UT32A.

Notes on 920 MHz Wireless Communication

This equipment is designed for use in the Republic of Korea only and cannot be used in any other country.

- Communication may not be possible in the following locations due to radio signal reflection.
  - Where strong magnetic field, static electricity, or radio interference occurs
  - Rooms with metallic walls (including concrete containing metal reinforcement material), inside cabinets, etc.
- If another wireless device using the same radio frequency band as this product is present in the communication area of this product, data rate degradation or communication errors may occur, preventing normal communication.
- This product has obtained KC marking. As such, the following acts may be punishable by law.
  - Disassembling or altering the product
  - Removing the certification label
  - Using an antenna other than the specified option
- Because this product uses radio signals, bear in mind that communication may be intercepted by third parties.

Synaptic Business Automation creates sustainable value by connecting everything in our customers' organization. To realize this, Yokogawa integrates its business and domain knowledge with digital automation technologies, and co-innovates with customers to drive their business process transformation.

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