

UG630 Series

●General specifications

Model		UG630	
Item		AC power supply	DC power supply
Power supply	Rated voltage	100-240VAC	24VDC
	Permissible range of voltage	100-240VAC±10%	24VDC±10%
	Permissible momentary power failure	Within 20ms	Within 1ms
	Power consumption (Maximum rating)	90VA or less	40W or less
	Inrush current	For 100VAC: 15A, 10ms or less For 200VAC: 30A, 10ms or less	16A, 1ms or less
	Withstand voltage	AC external terminals to FG: 1500VAC, 1 minute	DC external terminals to FG: 500VAC, 1 minute
Insulation resistance	500VDC, 10MΩ or above		
Physical environment	Ambient temperature	0°C to +40°C	
	Storage ambient temperature	-10°C to +50°C	
	Ambient humidity	85% RH or less (Avoid condensation)	
	Solvent resistance	No cutting oil or organic solvent clung to the unit	
	Atmosphere	No corrosive gas or conductive dust	
Mechanical operating conditions	Operating altitude	Altitude 2000m or less	
	Vibration resistance	Vibration frequency: 10 to 150Hz, Acceleration: 9.8m/s ² (1G) One-way deflection: 0.075mm, X, Y, Z: 3 directions for one hour	
	Shock resistance	Pulse shape: half sine wave Peak acceleration: 147m/s ² (15G), X, Y, Z: each ±3 directions, six times each	
Electrical operating conditions	Noise immunity	Noise voltage: 1500Vp-p (pulse width 1μs, rise time: 1ns) Measured using a noise simulator	Noise voltage: 1000Vp-p (pulse width 1μs, rise time: 1ns) Measured using a noise simulator The DC power model shall also satisfy the EMC standard.
	Anti-static electricity discharge	Conforming to IEC61000-4-2, contact: 6kV, air: 8kV	
Mounting conditions	Grounding	Class-D grounding	
	Structure	Degree of protection: front panel: IP65 (using waterproof gasket) rear case: IP20 Form: in a single body Mounting method: panel flush mounting	Although the UG series has high environmental resistance characteristics equivalent to IP65F, it is expressed as IP65 herein in order to avoid confusion, as measures are required to meet the long-hour oil resistance, which is higher than the IP standard.
	Cooling system	Natural cooling	
	Material	Aluminum	
Mass (kg)	UG630H-XH1: Approx. 5.2, UG630H-XH4: Approx. 5.0		

●Display specifications

Model	UG630
Display device	TFT color LCD
Display size	15.0-inch
Display colors	32,768 colors
Resolution W x H (dots)	1024 x 768
Dot pitch W x H (mm)	0.297 x 0.297
Brightness (cd/m ²)	350
Contrast ratio	450:1
Angle of vertical visibility	+50°, -60°
Angle of horizontal visibility	±75°
Backlight	Cold cathode tube
Backlight life (average life of a tube)*1	60,000h (condition: 25°C)
Auto OFF function	Always ON, arbitrary setting
Brightness adjustment	128 levels*2
Surface sheet	Material: Polycarbonate, 0.3mm thick
POWER lamp	Lights in the normal state. Blinks on detection of an inverter error (such as turning off of the backlight).

*1 At the time when the surface brightness is down to 50% of the initial value at normal temperature of 25°C.

*2 Adjustment by a function switch or macrocommand.

●Touch panel specifications

Item	Specifications
Method	Analog resistance film type
Switch resolution	1024 (W) x 1024 (H)
Mechanical life	One million activations or more
Surface treatment	Hard-coated, anti-glare treatment 5%

●Function switch specifications

Item	Specifications
Number of switches	8
Method	Membrane switch
Mechanical life	One million activations or more

●Interface specifications

Item	Specifications
Serial interface for PLC connection (D-sub 25-pin, female)	RS-232C, RS-422/485 Start-stop (asynchronous) transmission Data length: 7, 8 bits Parity: Even, odd, none Stop bit: 1, 2 bits Baud rate: 4800, 9600, 19200, 38400, 57600, 76800, 115000bps
Serial Interface 1, 2 for screen data transfer/external connection (Modular jack, 8-pin)	RS-232C, RS-422/485 (2-wire connection) UG00P-MR, Bar code, UG00P-U2, Multi-link 2, Temperature control network/PLC 2-Way, UG-Link, etc.
USB master port (USB-A) for printer / CF card read and write interface	Type A, USB ver.1.1
USB slave port (USB-B) for screen data transfer	Type B, USB ver.1.1
Ethernet connection 100BASE-TX/10BASE-T	Compliance with IEEE802.3u (100BASE-TX)/IEEE802.3 (10BASE-T) Baud rate: 100/10Mbps Cables: 100Ω unshielded twist-pair, category 5, maximum length = 100m

●Clock and backup memory specifications

Item	Specifications
Battery specification	Coin-type lithium primary cell
Backup memory	SRAM 64KB
Backup time period	5 years (at ambient temperature 25°C)
Battery voltage drop detection	Provided (internal memory \$s167 allocated)
Calendar accuracy	±90 sec per month (at ambient temperature 25°C)

●Editor environment

Item	Specifications	
Editing method	Exclusive screen editor software	
Editing tool	Type of screen editor software	UG00S-CWV3 (Ver. 3.2.27.0 and later) / UG00S-CWV4 (Ver. 4.0.1.0 and later)
	CPU	Pentium II 450MHz or above recommended / Pentium III 800MHz or above recommended / Pentium IV 2.0GHz or above recommended
	OS	Windows98/Me/NT Ver.4.0/2000/XP*1*2
	Hard disk capacity	Free space of approx. 460 MB or more / Free space of approx. 700 MB or more
	Display	Resolution 800 x 600 or more recommended / Resolution 1024 x 768 or more recommended
	CD-ROM drive	24x speed or more recommended

*1 When installing the software in Windows NT Ver.4.0/2000/XP, do it under the authority of Administrator.

*2 The applicable OS varies with the software version. For details, refer to the section of installation in User's Manual.

●Display function specifications

Item	Specifications				
	Japanese	English/Western Europe	Chinese (traditional)	Chinese (simplified)	Korean
Display language *	ANK code	Latin1	ASCII code	ASCII code	ASCII code
Characters	1/4-size, 1-byte	ANK code	—	—	—
	2-byte 16-dot	JIS #1, 2 levels	Chinese (traditional)	Chinese (simplified)	Hangul (without Kanji)
	2-byte 32-dot	JIS #1 level	—	—	—
Character size	1/4-size: 8 x 8 dots 1-byte: 8 x 16 dots 2-byte: 16 x 16 dots or 32 x 32 dots Enlarge: W: 1 to 8 times, H: 1 to 8 times				
Number of displayable characters	1/4-size	127 characters x 96 lines			
	1-byte	127 characters x 48 lines			
	2-byte	64 characters x 48 lines			
Character properties	Display properties: Normal, reverse, blink, bold, shadow Colors: 32,768 colors + blink 16 colors				
Graphics	Lines: Line, continuous line, box, parallelogram, polygon Circles: Circle, arc, sector, ellipse, elliptical arc Others: Tile patterns				
Graphic properties	Line types: 6 (thin, thick, dot, chain, broken, two-dot chain) Tile patterns: 16 (incl. user-definable 8 patterns) Display properties: Normal, reverse, blink Colors: 32,768 colors + blink 16 colors Color selection: Foreground, background, boundary (line)				

* In addition, the following fonts are available.
Gothic, English/Western Europe (Gothic), English/Western Europe (Times), Central Europe, Cyrillic, Greek, Turkish

●Function performance specifications

Item	Specifications		
Screens	Max. 1024		
Screen memory	Flash memory: Approx. 4,992 KB (varies depending on the font)		
Switches	1024 per screen		
Switch actions	Set, reset, momentary, alternate, illuminated Simultaneous keying possible with a function switch and a switch on the display		
Lamps	Reverse, blink, exchange of graphics: 1024 per screen		
Graphs	Pie, bar, panel meter and closed area graph: No limitation within 256 KB per screen *1 Statistics and trend graphs: Max. 256 per layer *2		
	Data setting	Numerical data display	No limitation within 256 KB per screen *1
		Character display	No limitation within 256 KB per screen *1
Message display		Resolution: max. 127 characters (1-byte) No limitation within 256 KB per screen *1	
Sampling	Sampling display of buffer data (Regular time sample, bit synchronize, bit sample, relay sample, alarm function)		
Graphic library	Max. 2560		
Multi-overlaps	Max. 1024		
Data blocks	Max. 1024		
Messages	Max. 32768 lines		
Patterns	Max. 1024		
Macro blocks	Max. 1024		
Page blocks	Max. 1024		
Direct blocks	Max. 1024		
Screen blocks	Max. 1024		
Data sheets	Max. 1024		
Screen library	Max. 1024		
Temperature control network/PLC 2-Way table	Max. 32		
Time display	Provided		
Hard copy	Provided		
Buzzer	Provided, 2 sounds (short beep, long beep)		
Auto OFF function	Always ON, arbitrary setting		
Self-diagnostic function	Switch self-test function Communication parameter setting check function Communication check function		

*1 The number of setting memory is limited to 1024 per screen.

*2 Four layers per screen (base + 3 overlaps)

UG630 Series

●General specifications

Item		Model		UG330		UG430		UG530	
				DC power supply		AC power supply		DC power supply	
Power supply	Rated voltage	24VDC		100-240VAC		24VDC		100-240VAC	
	Permissible range of voltage	24VDC±10%		100-240VAC±10%		24VDC±10%		100-240VAC±10%	
	Permissible momentary power failure	Within 1ms		Within 20ms		Within 1ms		Within 20ms	
	Power consumption (Maximum rating)	UG330H-S 15W or less	UG330H-V 22W or less	60VA or less		30W or less		60VA or less	
	Inrush current	25A, 0.7ms		For 100VAC: 16A, 6ms For 200VAC: 32A, 7ms		30A, 1ms		For 100VAC: 16A, 6ms For 200VAC: 32A, 7ms	
	Withstand voltage	DC external terminals to FG: 500VAC, 1 minute		AC external terminals to FG: 1500VAC, 1 minute		DC external terminals to FG: 500VAC, 1 minute		AC external terminals to FG: 1500VAC, 1 minute	
Insulation resistance		500VDC, 10MΩ or above							
Ambient temperature		0°C to +50°C							
Storage ambient temperature		-10°C to +60°C							
Ambient humidity		85% RH or less (Avoid condensation)							
Solvent resistance		No cutting oil or organic solvent clung to the unit							
Atmosphere		No corrosive gas or conductive dust							
Operating altitude		Altitude 2000m or less							
Mechanical operating conditions	Vibration resistance	Vibration frequency: 10 to 150Hz, Acceleration: 9.8m/s ² One-way deflection: 0.075mm, X, Y, Z: 3 directions for one hour							
	Shock resistance	Pulse shape: half sine wave Peak acceleration: 147m/s ² , X, Y, Z: each ±3 directions, six times each							
Electrical operating conditions	Noise immunity	1500Vp-p (pulse width 1μs, rise time: 1ns)							
	Anti-static electricity discharge	Conforming to IEC61000-4-2, contact: 6kV, air: 8kV							
Mounting conditions	Grounding	Grounding resistance: less than 100Ω							
	Structure	Degree of protection: front panel: IP65 (using waterproof gasket) rear case: IP20 Form: in a single body Mounting method: panel flush mounting				Although the UG series has high environmental resistance characteristics equivalent to IP65F, it is expressed as IP65 herein in order to avoid confusion, as measures are required to meet the long-hour oil resistance, which is higher than the IP standard.			
	Cooling system	Natural cooling							
	Mass (kg)	Approx. 1.5		Approx. 2.4		Approx. 2.7			
Case color		Black (Munsell N2.0)							
Case material		PC/ABS resin							

●Display specifications

Item	Model	UG330H-SS	UG330H-VH,VS	UG430H-SS	UG430H-TH,TS	UG430H-VH,VS	UG530H-VH,VS
Display device		STN color LCD		TFT color LCD			
Display size		7.7-inch	8.4-inch	10.4-inch			12.1-inch
Display colors		128 colors +16-color blinks	32,768 colors +16-color blinks	128 colors +16-color blinks	32,768 colors +16-color blinks		
Resolution W x H (dots)		640 x 480	800 x 600	640 x 480		800 x 600	
Dot pitch W x H (mm)		0.246 x 0.246	0.213 x 0.213	0.33 x 0.33		0.264 x 0.264	0.3075 x 0.3075
Brightness (cd/m ²)		200	350	220	350	280	350
Contrast ratio		25:1	250:1	350:1	300:1	300:1	350:1
Angle of vertical visibility		+40°, -30°	+35°, -55°	+30°, -20°	+45°, -55°	+35°, -45°	+40°, -45°
Angle of horizontal visibility		±50°	±50°	±45°	±70°	±50°	±55°
Backlight		Cold cathode fluorescent lamp					
Average backlight life *1		Approx. 40,000h	Approx. 50,000h				
Backlight auto OFF function		Always ON, arbitrary setting					
Contrast adjustment		Provided *2	Not provided				
Brightness adjustment		Not provided	128 levels *2				
Surface sheet		Material: Polycarbonate, 0.3mm thick					
POWER lamp		ON when the power is supplied					

*1 At the time when the surface brightness is down to 50% of the initial value at normal temperature of 25°C.

*2 Adjustment by a function switch or macrocommand.

●Touch panel specifications

Item	Specifications
Method	Analog resistance film type
Switch resolution	1024 (W) x 1024 (H)
Mechanical life	One million activations or more
Surface treatment	Hard-coated, anti-glare treatment 5%

●Function switch specifications

Item	Specifications
Number of switches	8
Method	Digital resistance film type
Mechanical life	One million activations or more

●General specifications (Separated type POD *)

Item	Type	UG430H-VH1B	UG430H-VH4B
		AC power supply	DC power supply
Power supply	Rated voltage	100-240VAC	24VDC
	Permissible range of voltage	100-240VAC±10%	24VDC±10%
	Permissible momentary power failure	Within 20ms	Within 1ms
	Power consumption (Maximum rating)	40VA or less	12W or less
	Inrush current	For 100VAC: 16A, 6ms For 200VAC: 32A, 7ms	30A, 1ms
	Withstand voltage	AC external terminals to FG: 1500VAC, 1 minute	DC external terminals to FG: 500VAC, 1 minute
	Insulation resistance	500VDC, 10MΩ or above	
Physical environment	Ambient temperature	0°C to +50°C	
	Storage ambient temperature	-10°C to +60°C	
	Ambient humidity	85% RH or less (Avoid condensation)	
	Solvent resistance	No cutting oil or organic solvent clung to the unit	
	Atmosphere	No corrosive gas or conductive dust	
Mechanical operating conditions	Vibration resistance	Vibration frequency: 10 to 150Hz, Acceleration: 9.8m/s ² Single amplitude: 0.075mm, X, Y, Z: 3 directions for one hour	
	Shock resistance	Pulse shape: half sine wave Peak acceleration: 147m/s ² , X, Y, Z: 3 directions six times each	
Electrical operating conditions	Noise immunity	1500Vp-p (pulse width 1μs, rise time: 1ns)	
	Anti-static electricity discharge	Conforming to IEC61000-4-2, contact: 6kV, air: 8kV	
Mounting conditions	Grounding	Grounding resistance: less than 100Ω	
	Structure	Degree of protection: rear case: IP20 Form: in a single body Mounting method: Panel flush mounting	
	Cooling system	Natural cooling	
	Mass (kg)	Unit: approx. 1.6	
	Dimensions W x H x D (mm)	Main unit only: 315 x 214.6 x 51.7 When option unit UG30A-ROS is installed: 315 x 214.6 x 72.7	
Case color	Black (Munsell N2.0)		
Case material	PC/PS resin		

* The UG430H-VH□B does not have a monitor.

To display its screen, the optional UG30A-ROS and a commercially available display monitor unit are necessary.

●Interface specifications

Item	Specifications
Serial interface for PLC connection (D-sub 25-pin, female)	RS-232C, RS-422/485 Start-stop (asynchronous) transmission Data length: 7, 8 bits Parity: Even, odd, none Stop bit: 1, 2 bits Baud rate: 4800, 9600, 19200, 38400, 57600, 76800, 115200bps
Serial Interface 1, 2 for screen data transfer/external connection (Modular jack, 8-pin)	RS-232C, RS-422/485 (2-wire connection) UG00P-MR, Bar code, UG00P-U2, Multi-link 2, Temperature control network/PLC 2-Way, UG-Link, etc.
Printer interface	Compliance with Centronics, half-pitch 20-pin PR201, ESC/P-J84, ESC/P super function, ESC/P24-J84 CBM292/293 printer * Bar code printer MR400 EPSON printer: PM series
CF card interface	Compliance with CompactFlash™
Ethernet connection 100BASE-TX/10BASE-T (Standard with high-performance type only)	Compliance with IEEE802.3u/IEEE802.3 Baud rate: 100/10Mbps Cables: 100Ω unshielded twist-pair, category 5, maximum length = 100m

* The CBM292/293 printer cannot print the screen hard copy.

●Clock and backup memory specifications

Item	Specifications
Battery specification	Coin-type lithium primary cell
Backup memory	SRAM 64KB
Backup time period	5 years (at ambient temperature 25°C)
Battery voltage drop detection	Provided (internal memory allocated)
Calendar accuracy	±90 sec per month (at ambient temperature 25°C)

●Editor environment

Item	Specifications		
Editing method	Exclusive screen editor software		
Editing tool	Type of screen editor software	UG00S-CWV3 (Ver. 3.2.27.0 and later)	UG00S-CWV4 (Ver. 4.0.1.0 and later)
	CPU	Pentium II 450MHz or above recommended	Pentium III 800MHz or above (Pentium IV 2.0GHz or above recommended)
	OS	Windows98/Me/NT Ver.4.0/2000/XP*1*2	
	Hard disk capacity	Free space of approx. 460 MB or more	Free space of approx. 700 MB or more
	Display	Resolution 800 x 600 or more recommended	Resolution 1024 x 768 or more recommended
	CD-ROM drive	24x speed or more recommended	

*1 When installing the software in Windows NT Ver.4.0/2000/XP, do it under the authority of Administrator.
*2 The applicable OS varies with the software version. For details, refer to the section of installation in User's Manual.

●Display function specifications

Item	Specifications					
Display language *	Japanese	English/Western Europe	Chinese (traditional)	Chinese (simplified)	Korean	
Characters	1/4-size, 1-byte	ANK code	Latin1	ASCII code	ASCII code	ASCII code
	2-byte 16-dot	JIS #1, 2 levels	—	Chinese (traditional)	Chinese (simplified)	Hangul (without Kanji)
	2-byte 32-dot	JIS #1 level	—	—	—	—
Character size	1/4-size: 8 x 8 dots 1-byte: 8 x 16 dots 2-byte: 16 x 16 dots or 32 x 32 dots Enlarge: W: 1 to 8 times, H: 1 to 8 times					
Number of displayable characters	Resolution	640 x 480		800 x 600		
	1/4-size	80 characters x 60 lines		100 characters x 75 lines		
	1-byte	80 characters x 30 lines		100 characters x 37 lines		
2-byte	40 characters x 30 lines		50 characters x 37 lines			
Character properties	Display properties: Normal, reverse, blink, bold, shadow Colors: 32,768 colors + blink 16 colors (UG330H-SS, UG430H-SS: 128 colors + blink 16 colors)					
Graphics	Lines: Line, continuous line, box, parallelogram, polygon Circles: Circle, arc, sector, ellipse, elliptical arc Others: Tile patterns					
Graphic properties	Line types: 6 (thin, thick, dot, chain, broken, two-dot chain) Tile patterns: 16 (incl. user-definable 8 patterns) Display properties: Normal, reverse, blink Colors: 32,768 colors + blink 16 colors (UG330H-SS, UG430H-SS: 128 colors + blink 16 colors) Color selection: Foreground, background, boundary (line)					

* In addition, the following fonts are available. Gothic, English/Western Europe (Gothic), English/Western Europe (Times), Central Europe, Cyrillic, Greek, Turkish

●Function performance specifications

Item	Specifications	
Screens	Max. 1024	
Screen memory	Flash memory: Approx. 4,992 KB (varies depending on the font)	
Switches	768 per screen	
Switch actions	Set, reset, momentary, alternate, illuminated Simultaneous keying possible with a function switch and a switch on the display	
Lamps	Reverse, blink, exchange of graphics: 768 per screen	
Graphs	Pie, bar, panel meter and closed area graph: No limitation within 256 KB per screen *1 Statistics and trend graphs: Max. 256 per layer *2	
	Data setting	Numerical data display: No limitation within 256 KB per screen *1
		Character display: No limitation within 256 KB per screen *1
Message display	Resolution: 640 x 480: max. 80 characters (1-byte) 800 x 600: max. 100 characters (1-byte) No limitation within 256 KB per screen *1	
Sampling	Sampling display of buffer data (Regular time sample, bit synchronize, bit sample, relay sample, alarm function)	
Graphic library	Max. 2560	
Multi-overlaps	Max. 1024	
Data blocks	Max. 1024	
Messages	Max. 32768 lines	
Patterns	Max. 1024	
Macro blocks	Max. 1024	
Page blocks	Max. 1024	
Direct blocks	Max. 1024	
Screen blocks	Max. 1024	
Data sheets	Max. 1024	
Screen library	Max. 1024	
Animation (Frames)	Max. 1024	
Temperature control network/PLC 2-Way table	Max. 32	
Time display	Time display function: provided	
Hard copy	Screen hard copy function: provided	
Buzzer	Buzzer: provided, 2 sounds (short beep, long beep)	
Auto OFF function	Always ON, arbitrary setting	
Self-diagnostic function	Switch self-test function	
	Communication parameter setting check function Communication check function	

*1 The number of setting memory is limited to 1024 per screen.

*2 Four layers per screen (base + 3 overlaps)

UG230 Series

●General specifications

Item		Model	UG230
Power supply	Rated voltage		24VDC
	Permissible range of voltage		24VDC±10%
	Permissible momentary power failure		Within 1ms
	Power consumption (Maximum rating)		16W or less
	Inrush current		20A or less (with a rise time 0.1ms)
	Withstand voltage		DC external terminals to FG: 500VAC, 1 minute
Insulation resistance			500VDC, 10MΩ or above
Physical environment	Ambient temperature		0°C to +50°C *
	Storage ambient temperature		-10°C to +60°C
	Ambient humidity		85% RH or less (Avoid condensation)
	Solvent resistance		No cutting oil or organic solvent clung to the unit
	Atmosphere		No corrosive gas or conductive dust
	Operating altitude		Altitude 2000m or less
Mechanical operating conditions	Vibration resistance		Vibration frequency: 10 to 150Hz, Acceleration: 9.8m/s ² One-way deflection: 0.075mm, X, Y, Z: 3 directions for one hour
	Shock resistance		Pulse shape: half sine wave Peak acceleration: 147m/s ² , X, Y, Z: 3 directions, six times each
Electrical operating conditions	Noise immunity		1000Vp-p (pulse width 1μs, rise time: 1ns)
	Anti-static electricity discharge		Conforming to IEC61000-4-2, contact: 6kV, air: 8kV
Mounting conditions	Grounding		Grounding resistance: less than 100Ω
	Structure	Degree of protection: front panel: IP65 (using waterproof gasket) rear case: IP20 Form: in a single body Mounting method: panel flush mounting	Although the UG series has high environmental resistance characteristics equivalent to IP65F, it is expressed as IP65 herein in order to avoid confusion, as measures are required to meet the long-hour oil resistance, which is higher than the IP standard.
	Cooling system		Natural cooling
	Mass		Unit only: approx. 680g, with UG230A-DCL installed: approx. 820g
Case color			Black (Munsell N2.0)
Case material			PC/PS resin

* As for UG230H-SS and UG230H-LS, the display quality might deteriorate and the contrast be weakened when operated for a long period of time at ambient temperature 40 to 50°C.

●Display specifications

Item	Model	UG230H-LS	UG230H-SS	UG230H-TS
Display device		Monochrome LCD	STN color LCD	TFT color LCD
Display size		5.7-inch		
Colors		Monochrome, 8 gradations + blinks	32,768 colors +16-color blinks	
Resolution W x H (dots)		320 x 240		
Dot pitch W x H (mm)		0.36 x 0.36		
Brightness (cd/m ²)		220	160	350
Contrast ratio		5:1	30:1	60:1
Angle of vertical visibility		+20°, -40°	+20°, -35°	+65°, -40°
Angle of horizontal visibility		±45°	±50°	±65°
Backlight		Cold cathode fluorescent lamp		
Average backlight life *1		Approx. 58,000h	Approx. 54,000h	Approx. 50,000h
Backlight auto OFF function		Always ON, arbitrary setting		
Contrast adjustment		Provided *2		Not provided
Brightness adjustment		Not provided		128 levels *2
Surface sheet		Material: Polycarbonate, 0.3mm thick		
POWER lamp		ON (green) when the power is supplied. ON (orange) when the voltage of the battery connected has become low.		

*1 At the time when the surface brightness is down to 50% of the initial value at normal temperature of 25°C.

*2 Adjustment by a function switch or macrocommand.

●Touch panel specifications

Item	Specifications
Method	Analog resistance film type, matrix resistance film type
Switch resolution	Analog: 1024 (W) x 1024 (H) Matrix: 20 (W) x 12 (H)
Mechanical life	One million activations or more
Surface treatment	Hard-coated, anti-glare treatment 5%

●Function switch specifications

Item	Specifications
Number of switches	6
Method	Digital resistance film
Mechanical life	One million activations or more

●Interface specifications

Item	Specifications
Serial interface for screen data transfer/external connection (Modular jack, 8-pin: MJ1)	RS-232C, RS-422/485 (2-wire connection) UG00P-MR, Bar code, UG00P-U2, Multi-link 2, Temperature control network/PLC 2-Way, UG-link, etc.
Serial interface for PLC connection (Modular jack, 8-pin: MJ2)	RS-232C, RS-422/485 Asynchronous transmission Data length: 7, 8 bits Parity: Even, odd, none Stop bit: 1, 2 bits Baud Rate: 4800, 9600, 19200, 38400, 57600, 76800, 115200bps
Printer/CF card reader connection USB master port (USB-A)	Type A, USB Ver. 1.1
Screen data transfer USB slave port (USB-B)	Type B, USB Ver. 1.1

●Clock and backup memory specifications

Item	Specifications
Battery specification	Coin-type lithium primary cell
Backup memory	SRAM 128 KB
Backup time period	5 years (at ambient temperature 25°C)
Battery voltage drop detection	Provided (internal memory allocated)
Calendar accuracy	±90 sec per month (at ambient temperature 25°C)

●Editor environment

Item	Specifications	
Editing method	Exclusive screen editor software	
Editing tool	Type of screen editor software	UG00S-CWV3 (Ver. 3.2.27.0 and later) UG00S-CWV4 (Ver. 4.0.1.0 and later)
	CPU	Pentium II 450MHz or above recommended Pentium III 800MHz or above (Pentium IV 2.0GHz or above recommended)
	OS	Windows98/Me/NT Ver.4.0/2000/XP**2
	Hard disk capacity	Free space of approx. 460 MB or more Free space of approx. 700 MB or more
	Display	Resolution 800 x 600 or more recommended Resolution 1024 x 768 or more recommended
	CD-ROM drive	24x speed or more recommended

*1 When installing the software in Windows NT Ver.4.0/2000/XP, do it under the authority of Administrator.

*2 The applicable OS varies with the software version.
For details, refer to the section of installation in User's Manual.

●Display function specifications

Item	Specifications					
Display language *	Japanese	English/Western Europe	Chinese (traditional)	Chinese (simplified)	Korean	
	1/4-size, 1-byte	ANK code	Latin1	ASCII code	ASCII code	ASCII code
	2-byte 16-dot	JIS #1, 2 levels	—	Chinese (traditional)	Chinese (simplified)	Hangul (without Kanji)
	2-byte 32-dot	JIS #1 level	—	—	—	
Character size	1/4-size: 8 x 8 dots 1-byte: 8 x 16 dots 2-byte: 16 x 16 dots or 32 x 32 dots Enlarge: W: 1 to 8 times, H: 1 to 8 times					
Number of displayable characters	Resolution	320 x 240				
	1/4-size	40 characters x 30 lines				
	1-byte	40 characters x 15 lines				
	2-byte	20 characters x 15 lines				
Characters properties	Display properties: Normal, reverse, blink, bold, shadow Colors: 32,768 colors + blink 16 colors / monochrome 8 gradations + blink					
Graphics	Lines: Line, continuous line, box, parallelogram, polygon Circles: Circle, arc, sector, ellipse, elliptical arc Others: Tile patterns					
Graphic properties	Line types: 6 (thin, thick, dot, chain, broken, two-dot chain) Tile patterns: 16 (incl. user-definable 8 patterns) Display properties: Normal, reverse, blink Colors: 32,768 colors + blink 16 colors / monochrome 8 gradations + blink Color selection: Foreground, background, boundary (line)					

* In addition, the following fonts are available. Gothic, English/Western Europe (Gothic), English/Western Europe (Times), Central Europe, Cyrillic, Greek, Turkish

●Function performance specifications

Item	Specifications	
Screens	Max. 1024	
Screen memory	Flash memory: Approx. 1,472 KB (varies depending on the font)	
Switches	192 per screen	
Switch actions	Set, reset, momentary, alternate, illuminated Simultaneous keying possible with a function switch and a switch on the display (For the matrix type, simultaneous keying possible with two switches on the display)	
Lamps	Reverse, blink, exchange of graphics, 192 per screen	
Graphs	Pie, bar, panel meter and closed area graph: No limitation within 256 KB per screen *1 Statistics and trend graphs: Max. 256 per layer *2	
Data setting	Numerical data display	No limitation within 256 KB per screen *1
	Character display	No limitation within 256 KB per screen *1
	Message display	Resolution: Max. 40 1-byte characters No limitation within 256 KB per screen *1
Sampling	Sampling display of buffer data (Regular time sample, bit synchronize, bit sample, relay sample, alarm function)	
Graphic library	Max. 2560	
Multi-overlaps	Max. 1024	
Data blocks	Max. 1024	
Messages	Max. 32768 lines	
Patterns	Max. 1024	
Macro blocks	Max. 1024	
Page blocks	Max. 1024	
Direct blocks	Max. 1024	
Screen blocks	Max. 1024	
Data sheets	Max. 1024	
Screen library	Max. 1024	
Temperature control network/PLC 2-Way table	Max. 32	
Time display	Time display function: provided	
Hard copy	Screen hard copy function: provided	
Buzzer	Buzzer: provided, 2 sounds (short beep, long beep)	
Auto OFF function	Always ON, arbitrary setting	
Self-diagnostic function	Switch self-test function Communication parameter setting check function Communication check function	

*1 The number of setting memory is limited to 256 per screen.

*2 Four layers per screen (base + 3 overlaps)

Simple POD

●General specifications

Item	Model	Simple POD	
Power supply	Rated voltage	24VDC	
	Permissible range of voltage	24VDC±10% *1	
	Permissible momentary power failure	Within 1ms	
	Power consumption (Maximum rating)	10W or less	
	Inrush current	10A, 1ms	
Physical environment	Ambient temperature	0°C to +50°C *2	
	Storage ambient temperature	-10°C to +60°C	
	Ambient humidity	85% RH or less (Avoid condensation)	
	Solvent resistance	No cutting oil or organic solvent clung to the unit	
	Atmosphere	No corrosive gas or conductive dust	
Operating altitude	Altitude 2000m or less		
Mechanical operating conditions	Vibration resistance	Vibration frequency: 10 to 150Hz, Acceleration: 9.8m/s ² One-way deflection: 0.075mm, X, Y, Z: 3 directions for one hour	
	Shock resistance	Pulse shape: half sine wave Peak acceleration: 147m/s ² , X, Y, Z: 3 directions, six times each	
Electrical operating conditions	Noise immunity	1000Vp-p (pulse width 1μs, rise time: 1ns)	
	Anti-static electricity discharge	Conforming to IEC61000-4-2, contact: 6kV, air: 8kV	
Mounting conditions	Grounding	Grounding resistance: less than 100Ω	
	Structure	Degree of protection: front panel: IP65 (using waterproof gasket) rear case: IP20 Form: in a single body Mounting method: panel flush mounting	Although the UG series has high environmental resistance characteristics equivalent to IP65F, it is expressed as IP65 herein in order to avoid confusion, as measures are required to meet the long-hour oil resistance, which is higher than the IP standard.
	Cooling system	Natural cooling	
	Mass	Unit only: approx. 800g	
	Case color	Black (Munsell N2.0)	
Case material	PC/PS resin		

*1 The Simple POD has no electrical insulation between the 0V terminal for 24V class the input power supply and the 0V for the internal voltage (SG) including the communication circuit (non-insulated power system adopted). Take this into account in system design.

*2 The POD display quality might deteriorate and the contrast be weakened when operated for a long period of time at ambient temperature 40 to 50°C.

●Display specifications

Item	Model	UG221H-LE, LR	UG221H-SR
Display device		Monochrome LCD	STN color LCD
Display size		5.7-inch	
Colors		Monochrome 8 gradations + blinks	16 colors + blinks
Resolution W x H (dots)		320 x 240	
Dot pitch W x H (mm)		0.36 x 0.36	
Brightness (cd/m ²)		220	160
Contrast ratio		10:1	55:1
Angle of vertical visibility		-40°, +20°	
Angle of horizontal visibility		±45°	
Backlight		Cold cathode fluorescent lamp	
Average backlight life *1		Approx. 50,000h	Approx. 54,000h
Backlight auto OFF function		Always ON, arbitrary setting	
Contrast adjustment		Provided *2	
Brightness adjustment		4 levels *3	
Surface sheet		Material: PET (188μm)	
POWER lamp		ON when the power is supplied	

*1 At the time when the surface brightness is down to 50% of the initial value at normal temperature of 25°C.

*2 Adjustment by a function switch or macrocommand.

*3 Adjustment by macrocommand.

●Touch panel specifications

Item	Specifications
Method	Analog resistance film type
Switch resolution	1024 (W) x 1024 (H)
Mechanical life	One million activations or more
Surface treatment	Hard-coated, anti-glare treatment 5%

●Function switch specifications

Item	Specifications
Number of switches	6
Method	Digital resistance film
Mechanical life	One million activations or more

●Interface specifications

Item	Specifications
Serial interface for PLC connection (D-sub 25-pin, female)	RS-232C, RS-422/485 Asynchronous transmission Data length: 7, 8 bits Parity: Even, odd, none Stop bit: 1, 2 bits Baud rate: 4800, 9600, 19200, 38400, 57600bps
Serial interface 1 for screen data transfer/external connection (Modular jack, 8-pin)	RS-232C, RS-422/485 (2-wire connection) UG00P-MR, Bar code, UG00P-U2, Multi-link 2, Temperature control network/PLC 2-Way, UG-Link, etc.

●Clock and backup memory specifications

Item	Specifications
Battery specification	Coin-type lithium primary cell
Backup memory	SRAM 128 KB
Backup time period	5 years (at ambient temperature 25°C)
Battery voltage drop detection	Provided (internal memory allocated)
Calendar accuracy	±90 sec per month (at ambient temperature 25°C)

●Editor environment

Item	Specifications	
Editing method	Exclusive screen editor software	
Type of screen editor software	UG00S-CWV3 (Ver. 3.2.27.0 and later)	UG00S-CWV4 (Ver. 4.0.1.0 and later)
CPU	Pentium II 450MHz or above recommended	Pentium III 800MHz or above or Pentium IV 2.0GHz or above recommended
OS	Windows98/Me/NT Ver.4.0/2000/XP**2	
Hard disk capacity	Free space of approx. 460 MB or more	Free space of approx. 700 MB or more
Display	Resolution 800 x 600 or more recommended	Resolution 1024 x 768 or more recommended
CD-ROM drive	24x speed or more recommended	

*1 When installing the software in Windows NT Ver.4.0/2000/XP, do it under the authority of Administrator.

*2 The applicable OS varies with the software version.
For details, refer to the section of installation in User's Manual.

●Display function specifications

Item	Specifications				
Display language *	Japanese	English/Western Europe	Chinese (traditional)	Chinese (simplified)	Korean
1/4-size, 1-byte	ANK code	Latin1	ASCII code	ASCII code	ASCII code
2-byte 16-dot	JIS #1, 2 levels	—	Chinese (traditional)	Chinese (simplified)	Hangul (without Karji)
2-byte 32-dot	JIS #1 level	—	—	—	—
Character size	1/4-size: 8 x 8 dots 1-byte: 8 x 16 dots 2-byte: 16 x 16 dots or 32 x 32 dots Enlarge: W: 1 to 8 times, H: 1 to 8 times				
Number of displayable characters	1/4-size	40 characters x 30 lines			
	1-byte	40 characters x 15 lines			
	2-byte	20 characters x 15 lines			
Characters properties	Display properties: Normal, reverse, blink, bold, shadow Colors: UG221H-SR: 16 colors + blink, UG221H-L□: Monochrome 8-gradation + blink				
Graphics	Lines: Line, continuous line, box, parallelogram, polygon Circles: Circle, arc, sector, ellipse, elliptical arc Others: Tile patterns				
Graphic properties	Line types: 6 (thin, thick, dot, chain, broken, two-dot chain) Tile patterns: 16 (incl. user-definable 8 patterns) Display properties: Normal, reverse, blink Colors: UG221H-SR: 16 colors + blink UG221H-Lx: Monochrome 8-grade + blink Color selection: Foreground, background, boundary (line)				

* In addition, the following fonts are available. Gothic, English/Western Europe (Gothic), English/Western Europe (Times), Central Europe, Cyrillic, Greek, Turkish

●Function performance specifications

Item	Specifications	
Screens	Max. 1024	
Screen memory	Flash memory: Approx. 760 KB (varies depending on the font)	
Switches	192 per screen	
Switch actions	Set, reset, momentary, alternate, illuminated (Simultaneous keying possible with a function switch and a switch on the display)	
Lamps	Reverse, blink, exchange of graphics, 192 per screen	
Graphs	Pie, bar, panel meter and closed area graph: No limitation within 128 KB per screen *1 Statistics and trend graphs: Max. 256 per layer *2	
	Numerical data display	No limitation within 128 KB per screen *1
	Character display	No limitation within 128 KB per screen *1
Data setting	Message display	Resolution: Max. 40 characters (1-byte) No limitation within 128 KB per screen *1
	Sampling	Sampling display of buffer data (Regular time sample, bit synchronize, bit sample, relay sample, alarm function)
Graphic library	Max. 2560	
Multi-overlaps	Max. 1024	
Data blocks	Max. 1024	
Messages	Max. 6144 lines	
Patterns	Max. 1024	
Macro blocks	Max. 1024	
Page blocks	Max. 1024	
Direct blocks	Max. 1024	
Screen blocks	Max. 1024	
Screen library	Max. 1024	
Temperature control network/PLC 2-Way table	Max. 32	
Time display	Time display function: provided	
Buzzer	Buzzer: provided, 2 sounds (short beep, long beep)	
Auto OFF function	Always ON, arbitrary setting	
Self-diagnostic function	Switch self-test function Communication parameter setting check function Communication check function	

*1 The number of setting memory is limited to 256 per screen.

*2 Four layers per screen (base + 3 overlaps)

UG221 Series

●General specifications

Item	Model	UG221	
Power supply	Rated voltage	24VDC	
	Permissible range of voltage	24VDC±10%	
	Permissible momentary power failure	Within 10ms	
	Power consumption (Maximum rating)	10W or less	
	Inrush current	10A, 1ms	
	Withstand voltage	DC external terminals to FG : 500VAC for 1min	
Insulation resistance		500VDC, 10MΩ or more	
Physical environment	Ambient temperature	0°C to +50°C	
	Storage ambient temperature	-10°C to +60°C	
	Ambient humidity	85% RH or less (Avoid condensation)	
	Solvent resistance	No cutting oil or no organic solvent to clung to the unit	
	Atmosphere	No corrosive gas or conductive dust	
	Operating altitude	Altitude 2000m or less	
Mechanical operating conditions	Vibration resistance	Vibration frequency: 10 to 150Hz, Acceleration: 9.8m/s ² , 3 directions of X, Y and Z for one hour	
	Shock resistance	Pulse shape: half sine wave, Peak acceleration: 147m/s ² , 3 directions of X, Y and Z, six times each	
Electrical operating conditions	Noise immunity	1500Vp-p (noise width: 1μs)	
	Anti-static electricity discharge	Conforming to IEC61000-4-2, contact: 6kV , Air: 8kV	
Mounting conditions	Grounding	Grounding resistance: less than 100Ω	
	Structure	Degree of protection: front panel: IP65 (when using gasket) rear panel: IP20 Form: in a single body Mounting method: panel flush mounting	Although the UG series has high environmental resistance characteristics equivalent to IP65F, it is expressed as IP65 herein in order to avoid confusion, as measures are required to meet the long-hour oil resistance, which is higher than the IP standard.
	Cooling system	Natural cooling	
	Mass	Approx. 0.8kg	
	Case color	Black (Munsell N2.0)	
Case material	PC/PS resin		

*1 Including 4mm, the size of boss for communication unit.

●Display specifications

Item	Model	UG221H-LC	UG221H-SC	UG221H-TC
Display device		Monochrome LCD	STN color LCD	TFT color LCD
Display size		5.7-inch		
Color		Monochrome 8 gradations + blinks	16 colors + blinks	
Resolution W x H (dots)		320 x 240		
Dot pitch W x H (mm)		0.36 x 0.36		
Effective display area W x H (mm)		115.2 x 86.4		
Backlight		Cold cathode fluorescent lamp		
Contrast adjustment		Provided *1	By function switches	Not provided
Backlight average life *2		Approx. 50,000h		
POWER lamp		ON when the power is supplied.		

*1 Adjustable with function switches.

*2 At the time when the surface brightness is down to 50% of the initial value at normal temperature of 25°C.

●Touch panel specifications

Item	Specifications
Method	Analog resistance film type, matrix resistance film type
Switch resolution	Analog: 1024 (W) x 1024 (H) Matrix: 20 (W) x 12 (H)
Mechanical life	One million activations or more
Surface treatment	Hard-coated, anti-glare treatment 5%

●Function switch specifications

Item	Specifications
Number of switches	6
Type of switch	Pressure sensitive switches
Mechanical life	One million activations or more

●Interface specifications

Item	Specifications
Serial interface for PLC connection (D-sub 25-pin, female)	RS-232C, RS-422/485 Asynchronous transmission Data length: 7, 8 bits Parity: Even, odd, none Stop bit: 1, 2 bits Baud rate: 4800, 9600, 19200, 38400, 57600bps
Serial interface 1, 2 for screen data transfer/external connection (Modular jack, 8-pin)	RS-232C, RS-422/485 (2-wire connection) UG00P-MR, Bar code, UG00P-U2, Multi-link 2, UG-Link, Temperature control network, Modbus slave communication, serial printer
Printer interface	Compliance with Centronics, half-pitch 36-pin, (for PC-98x1) NEC : PR201 EPSON : ESC/P-J84, ESC/P super function, ESC-P24-J84, CBM292/293 printer (The screen hard copy cannot be printed out.)

●Editor environment

Item	Specifications		
Editing method	Exclusive screen editor software		
Editing tool	Type of screen editor software	UG00S-CWV3 (Ver. 3.2.27.0 and later)	UG00S-CWV4 (Ver. 4.0.1.0 and later)
	CPU	Pentium II 450MHz or above recommended	Pentium III 800MHz or above recommended <small>(Pentium IV 2.0GHz or above recommended)</small>
	OS	Windows98/Me/NT Ver.4.0/2000/XP*1*2	
	Hard disk capacity	Free space of approx. 460 MB or more	Free space of approx. 700 MB or more
	Display	Resolution 800 x 600 or more recommended	Resolution 1024 x 768 or more recommended
CD-ROM drive	24x speed or more recommended		

*1 When installing the software in Windows NT Ver.4.0/2000/XP, do it under the authority of Administrator.

*2 The applicable OS varies with the software version.
For details, refer to the section of installation in User's Manual.

●Display function specifications

Item	Specifications
Display language *	Japanese English/Western Europe Chinese (traditional) Chinese (simplified) Korean
Characters	1/4-size, 1-byte ANK code Latin1 ASCII code ASCII code ASCII code
	2-byte (16-dot) JIS #1, 2 levels - Chinese (traditional) Chinese (simplified) Hangul (without Hanja)
	2-byte (32-dot) JIS #1 level - - - -
Character size	1/4-size: 8 x 8 dots 1-byte: 8 x 16 dots 2-byte: 16 x 16 dots or 32 x 32 dots Enlarge: W: 1 to 8 times, H: 1 to 8 times
Number of displayable characters	Resolution 320 x 240
	1/4-size 40 characters x 30 lines
	1-byte 40 characters x 15 lines
	2-byte 20 characters x 15 lines
Character properties	Display property: normal, reverse, blinking, bold, shadow Color: 16 colors + blinking/monochrome 8-gradation + blinking
Graphics	Lines: Line, continuous line, box, parallelogram, polygon Circles: Circle, arc, sector, ellipse, elliptical arc Others: Tile patterns
Graphic properties	Line types: 6 (thin, thick, dot, chain, broken, two-dot chain) Tile patterns: 16 (incl. user-definable 8 patterns) Display properties: Normal, reverse, blinking Display color: 16 colors + blinking/monochrome 8-gradation + blinking Color selection: Foreground, background, boundary (line)

* Refer to the User's Manual <Function> (FEH376) for (Gothic) fonts.

●Function performance specifications

Item	Specifications	
Screens	Max. 1024	
Screen memory	FP-ROM (flash memory): Approx. 760 KB (varies depending on the font)	
Switches	192 per screen	
Switch actions	Set, reset, momentary, alternate Simultaneous keying possible with a function switch and a switch on the display (For the matrix type, simultaneous keying possible with two switches on the display)	
Lamps	Reverse, blink, exchange of graphics: 192 per screen	
Graphs	Pie, bar, panel meter and closed area graph: No limitation: within 128 KB per screen *2 Statistics and trend graphs: Max. 256 per layer *1	
Data setting	Numerical data display	No limitation within 128 KB per screen *2
	Character display	No limitation within 128 KB per screen *2
	Message display	Resolution: 320 x 240: Max. 40 characters (1-byte) 640 x 480: Max. 80 characters (1-byte) 800 x 600: Max. 100 characters (1-byte) No limitation within 128 KB per screen *2
Sampling	Sampling display of buffer data (Regular time sample, bit synchronize, bit sample, relay sample, alarm function)	
Graphic library	Max. 2560	
Multi-overlaps	Max. 1024	
Data blocks	Max. 1024	
Messages	Max. 6144 lines	
Patterns	Max. 1024	
Macro blocks	Max. 1024	
Page blocks	Max. 1024	
Direct blocks	Max. 1024	
Screen blocks	Max. 1024	
Temperature control network table	Max. 32	
Time display	Provided	
Hard copy	Screen hard copy function: Provided	
Buzzer	provided, 2 types (short beep and long beep)	
Auto OFF function	Always ON, arbitrary setting	
Self-diagnostic function	Switch self-test function Communication parameter setting check function Communication check function	

*1 Four layers per screen (base + 3 overlaps)

*2 For the memory setting limit, refer to the User's Manual <Function> (FEH376).

Handy POD

●General specifications

Item	Model	UG320HD
Power supply	Rated voltage	24VDC
	Permissible range of voltage	24VDC±10%
	Permissible momentary power failure	Within 10ms (24VDC)
	Power consumption	20W or less
	Inrush current	13A, 2ms
	Withstand voltage	DC external terminals to FG: 500VAC, 1min.
Insulation resistance		500VDC, 10MΩ or above
Physical environment	Ambient temperature	0°C to +50°C
	Storage ambient temperature	-10°C to +60°C
	Ambient humidity	85% RH or less (Avoid condensation)
	Solvent resistance	No cutting oil or no organic solvent clung to the unit
	Atmosphere	No corrosive gas or conductive dust
	Operating altitude	Altitude 2000m or less
Mechanical operating conditions	Vibration resistance	Vibration frequency: 10 to 150Hz, Acceleration: 9.8m/s ² , 3 directions of X, Y and Z: one hour each
	Shock resistance	Pulse shape: Half sine wave, Peak acceleration: 147m/s ² , 3 directions of X, Y and Z, six times each
Electrical operating conditions	Noise immunity	1000Vp-p, noise width 1μs
	Anti-static electricity discharge	Compliance with IEC61000-4-2, contact 6kV, air 8kV
Mounting conditions	Grounding	Grounding resistance: less than 100Ω
	Structure	Degree of protection: IP65 where the I/F cover is mounted (UG320HD-SC4x3 excluded) Although the UG series has high environmental resistance characteristics equivalent to IP65F, it is expressed as IP65 herein in order to avoid confusion, as measures are required to meet the long-hour oil resistance, which is higher than the IP standard. Form: in a single body Mounting method: Portable, wall mounting, desktop
	Cooling system	Natural cooling
	Mass	Approx. 1.2kg
	Dimensions W x H x D (mm)	259 x 232 x 47 (excluding emergency stop switch)
Case color	Black (Munsell N2.0)	
Case material	PC/ABS resin	

●Display specifications

Item	Model	UG320HD
Display device		STN color LCD
Display size		7.7-inch
Display colors		128 colors + blinking 16 colors
Resolution W x H (dots)		640 x 480
Dot pitch W x H (mm)		0.246 x 0.246
Backlight		Cold cathode fluorescent lamp
Backlight life *		Approx. 40,000h
Backlight auto OFF function		Always ON, arbitrary setting
Contrast adjustment		Adjustable by function switches
POWER lamp		ON when the power is supplied.
ENB lamp		ON when screen operation is possible
Surface sheet		Material: PET (188μm)

* At the time when the surface brightness is down to 50% of the initial value at normal temperature of 25°C.

●Touch panel specifications

Item	Specifications
Method	Analog resistance film type
Switch resolution	1024 (W) x 1024 (H)
Mechanical life	One million activations or more
Surface treatment	Hard-coated, anti-glare treatment 5%

●Emergency switch specifications

Item	Specifications
Number of switches	1
Method	Push-lock type (2NC contact, common)
Mechanical life	Min. 100,000 cycles
Rating	Rated operational voltage: 24V, at resistive load: 1.0A

●Function switch specifications

Item	Specifications
Number of switches	12 (4 for direct external output)
Method	Membrane switch
Mechanical life	Min. 1,000,000 cycles

●Deadman switch specifications

Item	Specifications
Number of switches	1
Method	Momentary switch (1NO contact)
Mechanical life	Min. 1,000,000 cycles

●3-position switch specifications (Option)

Item	Specifications
Number of switches	1
Method	1NO contact (double-break, slow action)
Mechanical life	Min. 1,000,000 cycles (for 1P→2P→1P action) Min. 100,000 cycles (for 1P→2P→3P action)
Operating pressure (reference value)	Required force to directly operate circuit action: Min. 30N

●Key switch specifications (Option)

Item	Specifications
Number of switches	1
Number of contacts	1NO contact
Mechanical life	Min. 250,000 cycles
Electrical life	Min. 100,000 cycles (Switching frequency: 1200 cycles/hour)
Rating	Rated operational voltage: 24V, at resistive load: 1.0A

●Interface Specifications

Item	Specifications
Multistage terminal board (TB1) • PLC connection • Power supply • External output	RS-232C, RS-422/485 Start-stop (asynchronous) transmission Data length: 7, 8 bits Parity: Even, odd, none Stop bit: 1, 2 bits Baud rate: 4800, 9600, 19200, 38400, 57600, 76800, 115200bps
Modular jack, 8-pin (MJ1) • Screen data transfer • UG-Link • Bar code	RS-232C Data length: 7, 8 bits Parity: Even, odd, none Stop bit: 1, 2 bits Baud rate: 2400, 9600, 19200, 38400, 57600, 115200bps
* An I/F cover and wall mounting bracket not applicable	

●Editor environment

Item	Specifications	
Editing method	Exclusive screen editor software	
Editing tool	Type of screen editor software	UG00S-CWV3 (Ver. 3.2.27.0 and later) UG00S-CWV4 (Ver. 4.0.1.0 and later)
	CPU	Pentium II 450MHz or above recommended Pentium III 800MHz or above (Pentium IV 2.0GHz or above recommended)
	OS	Windows98/Me/NT Ver.4.0/2000/XP*1*2
	Hard disk capacity	Free space of approx. 460 MB or more Free space of approx. 700 MB or more
	Display	Resolution 800 x 600 or more recommended Resolution 1024 x 768 or more recommended
	CD-ROM drive	24x speed or more recommended

*1 When installing the software in Windows NT Ver.4.0/2000/XP, do it under the authority of Administrator.
*2 The applicable OS varies with the software version. For details, refer to the section of installation in User's Manual.

●Display specifications

Item	Specifications				
Display language *	Japanese	English/Western Europe	Chinese (traditional)	Chinese (Simplified)	Korean
	1/4-size, 1-byte	ANK code	ASCII code	ASCII code	ASCII code
	2-byte (16-dot)	JIS #1, 2 levels	ASCII code	Chinese (traditional)	Chinese (simplified)
Character size	2-byte (32-dot)	JIS #1 level	ASCII code	—	—
	1/4-size: 8 x 8 dots 1-byte: 8 x 16 dots 2-byte: 16 x 16 dots or 32 x 32 dots Enlarge: W: 1 to 8 times, H: 1 to 8 times				
	Resolution: 640 x 480				
Number of displayable characters	1/4-size: 80 characters x 60 lines				
	1-byte: 80 characters x 30 lines				
	2-byte: 40 characters x 30 lines				
Character property	Display property: normal, reverse, blinking, bold, shadow Color: 128 colors + blinking 16 colors				
Graphics	Lines: line, continuous line, box, parallelogram, polygon Circles: circle, arc, sector, ellipse, elliptical arc Others: tile patterns				
Graphics properties	Line types: 6 (thin, thick, dot, chain, broken, two-dot chain) Tile patterns: 16 (incl. user-definable 8 patterns) Display property: normal, reverse, blinking Display color: 128 colors + blinking 16 colors Color selection: foreground, background, boundaries (line)				

* Refer to the User's Manual <Function> (FEH375) for (Gothic) fonts.

●Function performance specifications

Item	Specifications	
Screens	Max. 1024	
Screen memory	FP-ROM (flash memory), Approx. 2,760 KB (varies depending on the font)	
Switches	768 per screen	
Switch actions	Set, reset, momentary, alternate, illuminated Simultaneous keying possible with a function switch and a switch on the display	
Lamps	Reverse, blinking, exchange of graphics: 768 per screen	
Graphs	Pie, bar, panel meter and closed area graph: No limitation within 128 KB per screen *2 Statistics and trend graphs: Max. 256 per layer *1	
	Data setting	Numerical data display: No limitation within 128 KB per screen *2
		Character display: No limitation within 128 KB per screen *2
Message display: Resolution: 640 x 480: Max. 80 characters (1-byte) No limitation within 128 KB per screen *2		
Sampling	Sampling display of buffer data (regular time sample, bit synchronize, bit sample, relay sample, alarm function)	
Graphic libraries	Max. 2560	
Multi-overlaps	Max. 1024	
Data blocks	Max. 1024	
Messages	Max. 6144 lines	
Patterns	Max. 1024	
Macro blocks	Max. 1024	
Page blocks	Max. 1024	
Direct blocks	Max. 1024	
Screen blocks	Max. 1024	
Calendar	Time display function: provided	
Buzzer	provided, 2 sounds (short beep, long beep)	
Backlight auto OFF function	Always ON, arbitrary setting	
Self-diagnostic function	Switch self-test function	
	Communication parameter setting check function	
	Communication check function	

*1 Four layers per screen (base + 3 overlaps)

*2 For the memory setting limit, refer to the User's Manual <Operation> (FEH375).

Communication Unit

●OPCN-1 communication unit (UG03I-J)

Item	Specification
Transmission method	Half-duplex, synchronous system
Transmission rate/ Transmission distance (switchable) *1	125kbps/1000m, 250kbps/800m 500kbps/480m, 1Mbps/240m
No. of connected stations *2	1 to 31 (max.)
Connection method	M3.5 screw terminal block
Applicable cable	Twisted-pair cable with shielding
Transmission content	GET/PUT service, I/O service
Station No.	01 to 7F (Rotary switch)

Notes: PLCs and interface units for connection with the OPCN-1 communication unit are as follows:

- OPCN-1 interface master module (NP1J-JP1) for Fuji MICREX-SX SPH
- OPCN-1 interface master module (NJ-JPCN-1) for Fuji FLEX-PC NJ series
- JPCN-1 interface master module (AJ71J92-S3, A1SJ71J92-S3) for Mitsubishi MELSEC A series
- J-NET module (LWE580, LQE040) for Hitachi HIDIC-S10 α series, S10min
- JPCN unit (C200HW-JRM21) for Omron SYSMAC C200H series

*1 The transmission distance indicates an example when Furukawa-made cable (KPEV-SB 1.25mm²) is used. Note that the length may change depending on the cable characteristics.

*2 The number of PODs that can be connected varies depending on such factors as application and PLC. When connecting three or more PODs (including message communication devices) to a single PLC, use I/O communication to connect the PODs to the PLC.

●SX bus communication unit (UG03I-S, UG230I-S)

Item	Specification
Transmission line	Dedicated cable *1 (total length 25m)
No. of connected stations	No. of PODs connected via SX bus in same configuration: 8
Transmission rate	25Mbps
PLC connecting range	CPUs in same configuration

*1 For connection, use the following SX bus extension cable.

Type	Cable length (unit: mm)	For UG03I-S, mount the ferrite core that is supplied with the SX bus cable.
NP1C-P3	300	
NP1C-P6	600	
NP1C-P8	800	
NP1C-02	2,000	
NP1C-05	5,000	
NP1C-10	10,000	
NP1C-25	25,000	

●Ethernet (FL-net) communication unit (UG03I-E2)

Item	Specification		
	AU1		10BASE-T
Transmission rate	10Mbps		
Transmission method	Base band		
Transmission protocol (FL-net)	FA-link protocol		
Max. network length or max. node distance	2500m (5 segments)	925m (5 segments)	500m (HUB: 4 stages)
Max. segment length	500m	185m	100m between node and HUB
Max. number of nodes per system	254 stations (not via router)		
Max. number of nodes	100 units/segment	30 units/segment	2 units/segment
Min. node distance	2.5m	0.5m	None
Connecting cable	Ethernet Coaxial cable (50 Ω)	RG58A/U, RG58C/U Coaxial cable (50 Ω)	UTP (Twisted-pair cable without shielding) 22-26AWG

Note: With UG03I-E2, Ethernet and FL-net communication is possible.

●DeviceNet communication unit (UG03I-D)

Item	Specification				
Vendor ID	319				
Product code	7521 (HEX)				
Connector type	Screw connector				
Input/Output specifications	Conforms to the DeviceNet protocol				
Max. number of connected stations	63				
Transmission rate	125k/250k/500kbps (changeable with the dip switch)				
Transmission distance	Transmission rate	Max. network length THICK cable	Branch line length	Total branch line length	
	125kbps	500m	100m	6m	156m
	250kbps	250m	100m	6m	78m
	500kbps	100m	100m	6m	39m
Communication function	I/O messages: Polling				

●T-link communication unit (UG03I-T,UG230I-T)

Item	Specification
Transmission method	Half-duplex serial transmission 1:N (polling/selecting)
Transmission rate	500kbps
Transmission distance *1	1km
No. of connected stations *2	1 to 32 (max.)
Connection method	M3.5 screw terminal
Applicable cable	Twisted-pair cable with shielding
Number of words occupied	2, 4, 8, 16, 64 words (by setting)
Station No.	00 to 98 (hardware switch)

*1 For cable types, see User Manual <T-Link Communications> (FEH356).

*2 The number of PODs that can be connected varies depending on such factors as application and PLC. When connecting four or more PODs (including message communication devices) to a single PLC, use I/O communication to connect the PODs to the PLC.

●PROFIBUS-DP communication unit (UG03I-P)

Item	Specification
No. of connected stations	Slave stations: 125 (max.)
Station No. setting range	1 to 125 (set by the editor)
Type of transmission line	Bus structure (multi-drop)
Transmission line *1	Bus transmission line: twisted-pair cable with shielding (Total length depends on transmission rate.)
Transmission method	Half-duplex, serial transmission conforming to EIA RS-485
Communication setting	Data length: 8 bits Parity: Even Stop bit: 1
Transmission rate (bps)	9600 19200 93750 187500 500000 1.5M 12M
Transmission distance (m)	1200 1200 1200 1000 400 200 100
Coding scheme	NRZ (Non Return to Zero) system
Occupied input/output points	Input/output: 1 to 48 words (32/64/96 bytes are selected from the editor)

Note: When connecting with the PROFIBUS-DP communication unit, use Siemens SIMATIC S7 series PLC.

*1 For cable types, see User Manual <PROFIBUS Communications> (FEH368).

●CC-Link communication unit (UG03I-C)

Item	Specification
Transmission rate/ Max. transmission distance *1	156kbps/1200m, 625kbps/600m, 2.5Mbps/200m, 5Mbps/150m, 10Mbps/100m
Maximum No. of connected stations *2	26 (intelligent device stations)
No. of occupied stations	1 or 4 (changeable with the DIP switch)
Transmission method	Polling system
Synchronization	Frame synchronization system
Coding scheme	NRZI (Non Return to Zero Inverted) system
Type of transmission line	Bus (RS-485)
Transmission format	Conforms to HDLC
Error control system	CRC
Connecting cable *3	Twisted-pair cable with shielding

Notes: PLCs and interface units for connection with CC-Link communication unit are as follows:

- CC-Link interface master-local unit (AJ61BT11, A1SJ61BT11) for Mitsubishi MELSEC A series.
- CC-Link interface master-local unit (AJ61QBT11, A1SJ61QT11) for MELSEC QnA

*1 Irrespective of transmission rate setting, 2m or longer cable length is necessary between the POD and adjacent stations.

*2 The number of PODs that can be connected varies depending on such factors as application and PLC. When connecting four or more PODs (including message communication devices) to a single PLC, use I/O communication to connect the PODs to the PLC.

*3 For cable types, see User Manual <CC-Link Communications> (FEH355).

Option and Extension Units

●Video input unit (UG00A-VIS, UG30A-VIS)

Video display specifications

Item	Specification	
Type	UG00A-VIS	UG30A-VIS
Model	UG630	UG530 UG430 UG330
Display colors	16,777,216 colors	32,768 colors
Input channel	4 channels	
Video signal system	NTSC system, PAL system	
Video input	1.0Vp-p, 75Ω unbalanced	
Display size	640 x 480, 640 x 240, 320 x 240, 160 x 120	
Color adjustment	Contrast (32 gradations) Brightness (32 gradations) Color gain (32 gradations)	

Audio specifications

Item	Specification	
Type	UG00A-VIS	UG30A-VIS
Model	UG630	UG530 UG430 UG330
Audio file (WAV file) format	PCM system Sampling rate: 16/8 kHz, quantization bit: 16/8 bits Stereo/monaural	PCM system Sampling rate: 8 kHz, quantization bit: 8 bits Monaural
Audio output voltage	2.8Vp-p	1.0Vp-p
Audio output connector	3.5mm dia. stereo mini-jack	
Connected amplifier	Input impedance: 10kΩ or more	

●RGB input unit (UG00A-RIS, UG30A-RIS)

Input signal specifications

Item	Specification	
Type	UG00A-RIS	UG30A-RIS
Model	UG630	UG530 UG430 UG330
Input method	Analog RGB	
Input channel	1 channel	
Output signal	Analog, 0.5 - 1.0Vp-p positive	Analog, 0.7 - 0.8Vp-p positive
Synchronous signal	TTL level (positive/negative)	
Display colors	65,536 colors	32,768 colors

Audio specifications

Item	Specification	
Type	UG00A-VIS	UG30A-VIS
Model	UG630	UG530 UG430 UG330
Audio file (WAV file) format	PCM system Sampling rate: 16/8 kHz, quantization bit: 16/8 bits Stereo/monaural	PCM system Sampling rate: 8 kHz, quantization bit: 8 bits Monaural
Audio output voltage	2.8Vp-p	1.0Vp-p
Audio output connector	3.5mm dia. stereo mini-jack	
Connected amplifier	Input impedance: 10kΩ or more	

●RGB output unit (UG00A-ROS, UG30A-ROS)

Output signal specifications

Item	Specification		
Type	UG00A-ROS	UG30A-ROS	
Model	UG630	UG530 UG430H-V UG330H-V	UG430H-T
Input method	Analog RGB		
Input channel	1 channel		
Output signal	0.78Vp-p/75Ω	0.7Vp-p/75Ω	
Synchronous signal	HSYNC, VSYNC: TTL level		
Display dots	1024 x 768	800 x 600	640 x 480
Display colors	32,768 colors		
Horizontal sync frequency	48.4kHz	38.0kHz	30.4kHz
Vertical sync frequency	60kHz		58kHz
Interlace	None		

Audio specifications

Item	Specification	
Type	UG00A-VIS	UG30A-VIS
Model	UG630	UG530 UG430 UG330
Audio file (WAV file) format	PCM system Sampling rate: 16/8 kHz, quantization bit: 16/8 bits Stereo/monaural	PCM system Sampling rate: 8 kHz, quantization bit: 8 bits Monaural
Audio output voltage	2.8Vp-p	1.0Vp-p
Audio output connector	3.5mm dia. stereo mini-jack	
Connected amplifier	Input impedance: 10kΩ or more	

●Audio output unit (UG00A-SUD, UG30A-SUD)

Audio specifications

Item	Specification	
Type	UG00A-VIS	UG30A-VIS
Model	UG630	UG530 UG430 UG330
Audio file (WAV file) format	PCM system Sampling rate: 16/8 kHz, quantization bit: 16/8 bits Stereo/monaural	PCM system Sampling rate: 8 kHz, quantization bit: 8 bits Monaural
Audio output voltage	2.8Vp-p	1.0Vp-p
Audio output connector	3.5mm dia. stereo mini-jack	
Connected amplifier	Input impedance: 10kΩ or more	

●Extension unit for UG230 (UG230A-DCL)

Specifications

Item	Specification
Application	Ethernet 100BASE-TX/10BASE-T, CF card interface, PLC communication port (D-sub 25-pin)
Power source	5VDC (supplied from POD)
Ambient temperature	0 to 50°C
Storage temperature	-10 to 60°C
Relative humidity	85% RH or less (Avoid condensation)
Atmosphere	Free from corrosive gas or conductive dust
Outside dimensions (W x H x D)	102.7 x 128.8 x 21.5mm