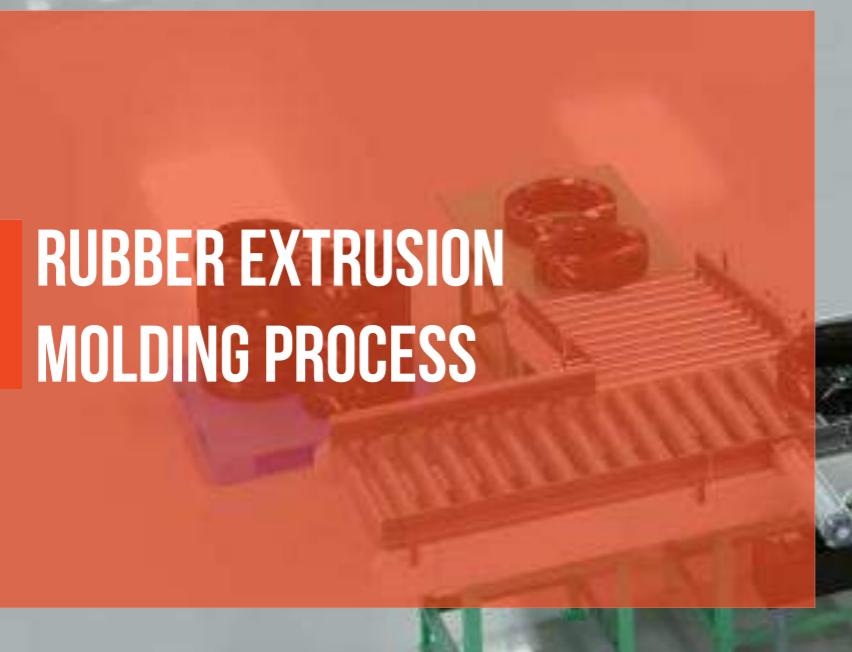




Rubber/Plastic Production Process

Application in Electric Wire Manufacturing / Plastic Container Manufacturing



RUBBER EXTRUSION MOLDING PROCESS



PLASTIC INJECTION MOLDING PROCESS

CONTENTS

-
1. Rubber Extrusion Molding
Electric Wire Manufacturing
 2. Plastic Injection Molding
Plastic Container Manufacturing

Copper Wire Stranding Process



Reel Rotation Speed Measurement During Wire Stranding Process

Inductive proximity sensors are used to detect the rotation movement of copper wire take up reels during wire stranding process.



Reel Rotation Speed Measurement During Wire Stranding Process

Digital pulse meters are used to measure and control the rotation speed of copper wire take up reels during stranding process.



Standard Rectangular Inductive Proximity Sensors PSN Series

- Excellent noise immunity with specialized sensor IC
- Operation indicator (red LED)
- Built-in surge protection circuit and overcurrent protection circuit
- IP67 protection structure (IEC standard)



High Performance Digital Pulse Meters MP5Y Series

- 16 different operation modes including frequency/revolutions/speed, cycle, passing time, etc.
- Various output options including relay triple/quintuple output, NPN/PNP open collector quintuple output, BCD dynamic output, PV transmission output (current output), RS485 communication output
- Display range: -19999 to 99999



Copper Wire Transfer and Coating Process



Copper Wire Transfer Speed Control (m/min)

Incremental rotary encoders are used to measure and control the transfer speed of copper wires from take up reels to the insulation coating extruder.



Raw Material Volume Detection During Extrusion Process

Capacitive proximity sensors are used to detect the volume of raw materials inserted in to extruders during insulation coating process.



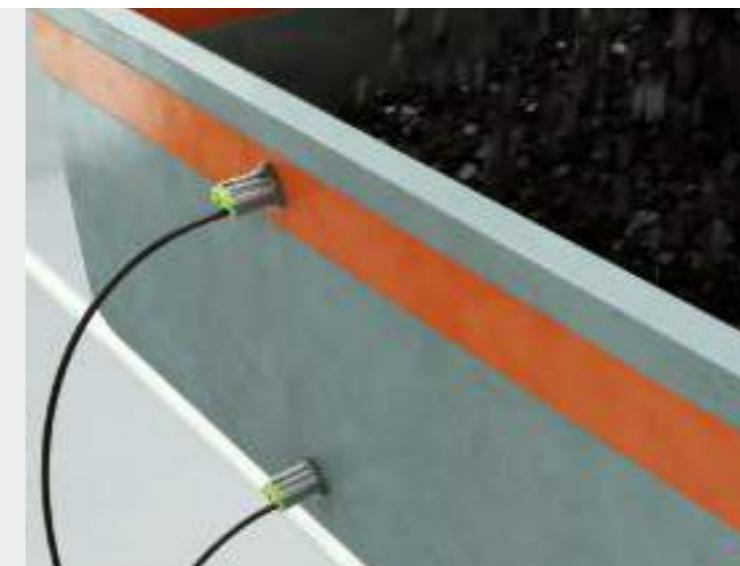
50 mm Incremental Rotary Encoders (Shaft Type)

E50S Series

- Low shaft moment of inertia
- Output types: totem pole, NPN open collector, voltage, line driver
- Power supply: 5 VDC ±5%, 12–24 VDC ±5%
- Various resolutions: 1 to 8000 pulses per revolution



CE



Cylindrical Capacitive Proximity Sensors

CR Series

- Detect various materials including metal, iron, stone, plastic, water, and grain
- Built-in sensitivity adjuster for convenient configuration
- Operation indicator (red LED)
- Ideal for level detection and position control



Wire Drying Process



Wire Drying During Insulation Process

Pressure sensors are used to control the injection pressure during wire drying process, where the coated wires are water cooled and dried.



Production Status Monitoring

Digital display units are used to monitor real time operation and production status.



Dual Digital Display Pressure Sensors

PSQ Series

- Dual display for simultaneous display of process value (PV) and setpoint value (SV)
- 3-color main (PV) display, 12-segment LCD display
- Measurement range: -100.0 to 100.0 kPa / -100 to 1000 kPa
- Analog output: voltage (1-5 VDC), current (DC 4-20 mA)
- 1:1 Copy parameter settings function



CE



Intelligent Type Digital Display Units

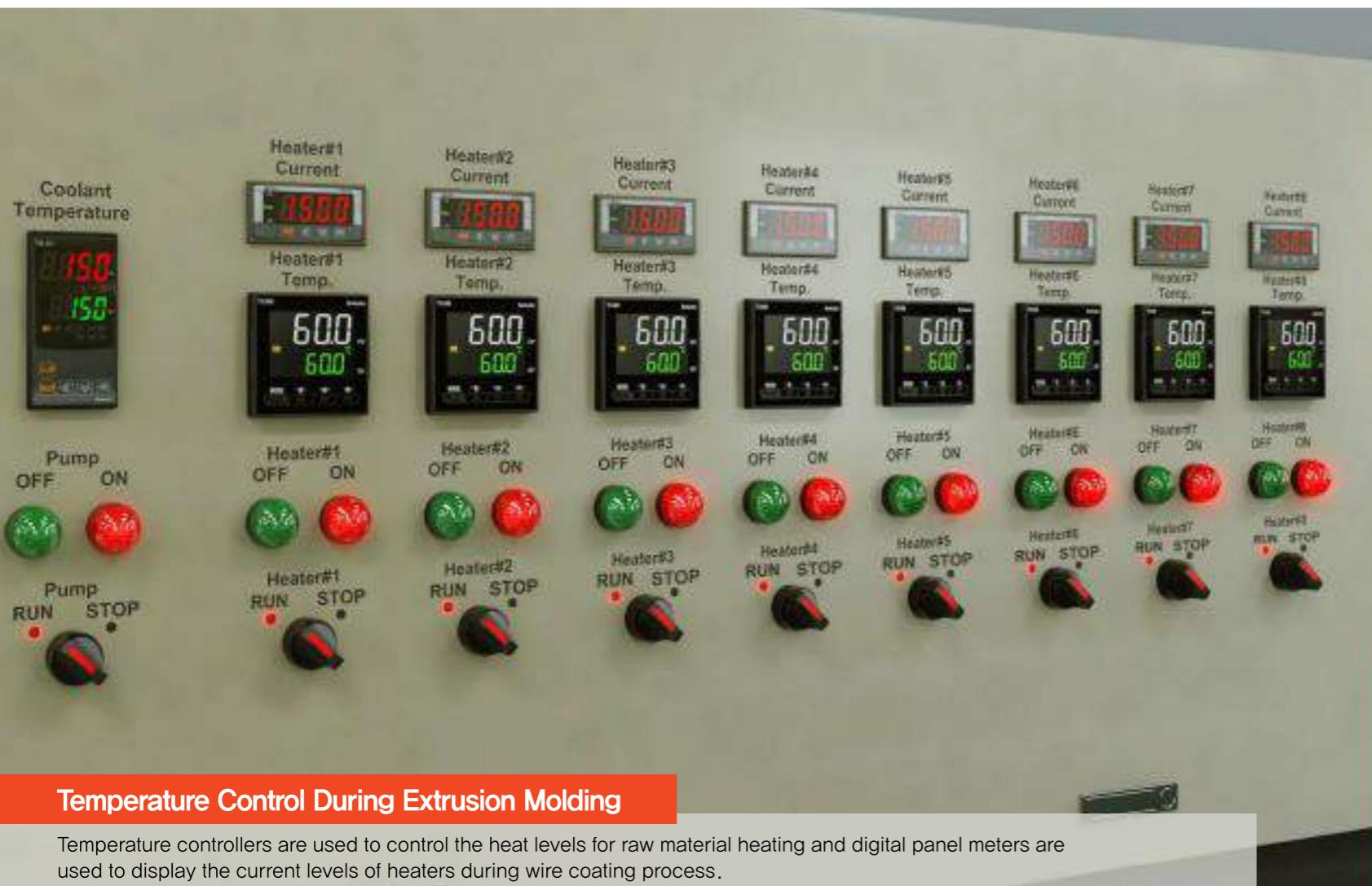
DS/DA Series

- Simple wiring without soldering
- 6 input options including serial, parallel, RS485, PT temperature sensor, etc.
- Expandable up to 24 units with multi-stage connection
- Available in various sizes: 16 mm, 22.5 mm, 40 mm, 60 mm
- Display 64 unique characters (0 to 9, A to Z, 27 symbols, period)



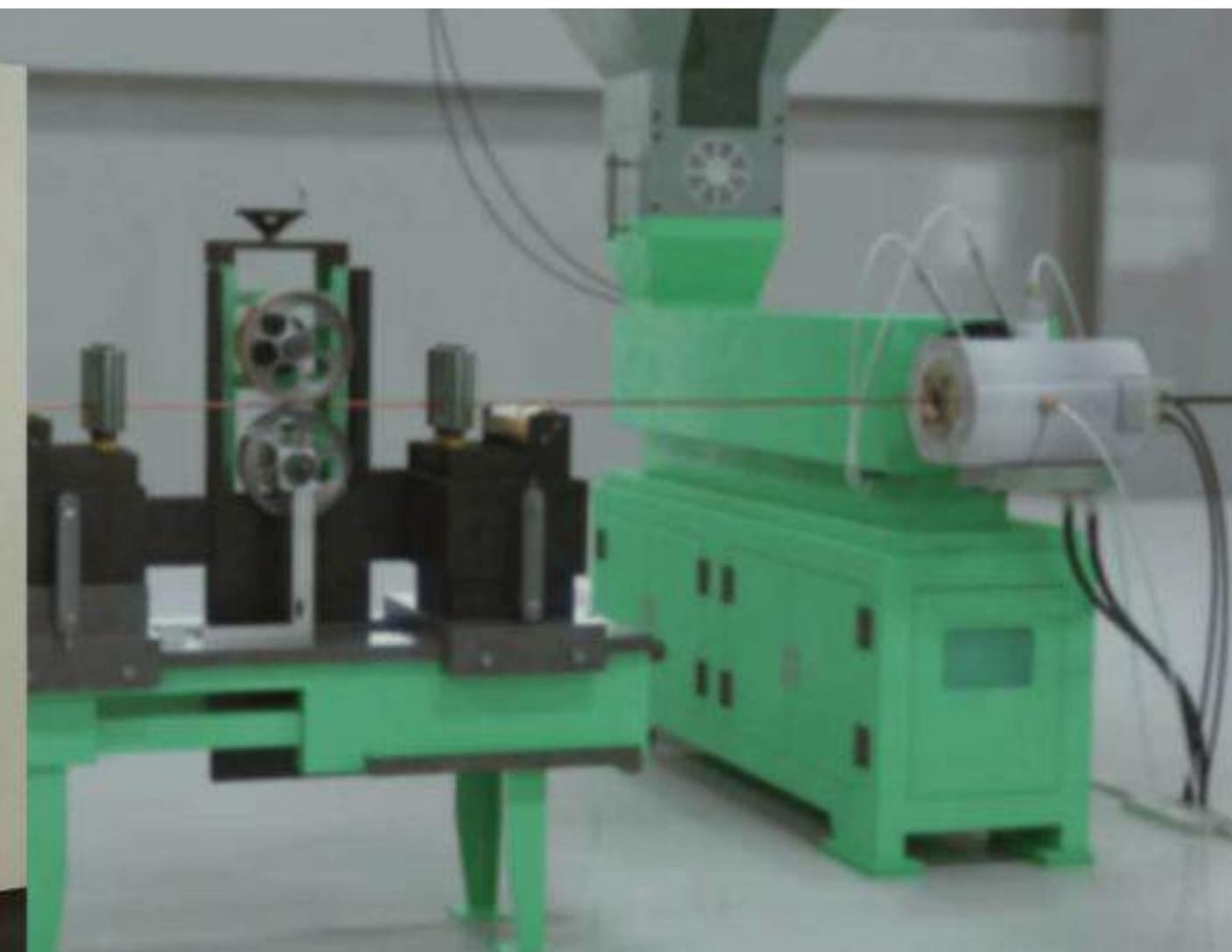
CE

Distribution Board for Wire Extrusion



Temperature Control During Extrusion Molding

Temperature controllers are used to control the heat levels for raw material heating and digital panel meters are used to display the current levels of heaters during wire coating process.



Digital Panel Meters with Diverse Input/Output Options

MT4Y Series

- Various input/output options (by model)
 - Input options: DC voltage, DC current, AC voltage, AC current
 - Output options: RS485 communication output, low speed serial output, BCD dynamic output, transmission output (DC 4–20 mA), NPN/PNP open collector output, relay contact output (default option: indicator/no output)
- Display range: -1999 to 9999
- Maximum allowed input: 500 VDC, DC 5 A, 500 VAC, AC 5 A



High Performance PID Temperature Controllers

TK Series

- 50 ms high-speed sampling rate and ±0.3% display accuracy
- Simultaneous heating and cooling control function
- SSR drive output (SSRP function) control options: ON/OFF control, cycle control, phase control
- RS485 (Modbus RTU) communication (communication output models)



LCD Display PID Temperature Controllers

TX Series

- 50 ms high-speed sampling rate and ±0.3% display accuracy
- Large LCD display with easy-to-read white PV characters
- SSR drive output (SSRP function) control options: ON/OFF control, cycle control, phase control
- RS485 (Modbus RTU) communication (communication output models)



Laser Marking and Packaging Process



Wire Laser Marking

Laser markers are used to mark wire specifications and certifications on the outer surface of wires after insulation process.



Reel Control and Monitoring / Wire Length Control

HMI graphic panels are used to set control parameters and monitor process, and digital counters are used to measure and control the length of the wires during the final manufacturing process where the wires are wound onto reels.



**Fiber Laser
Marking Machine**

ALF Series

- Laser marking on metallic and non-metallic surfaces (black marking)
- Excellent durability with long life cycle laser diode (over 100,000 hours)
- Customized options solutions for various needs
- Various outputs: 10 W, 20 W, 40 W
- Wavelength: 1080 nm, 1064 nm



**Programmable Digital
Counter/Timers
CT Series**

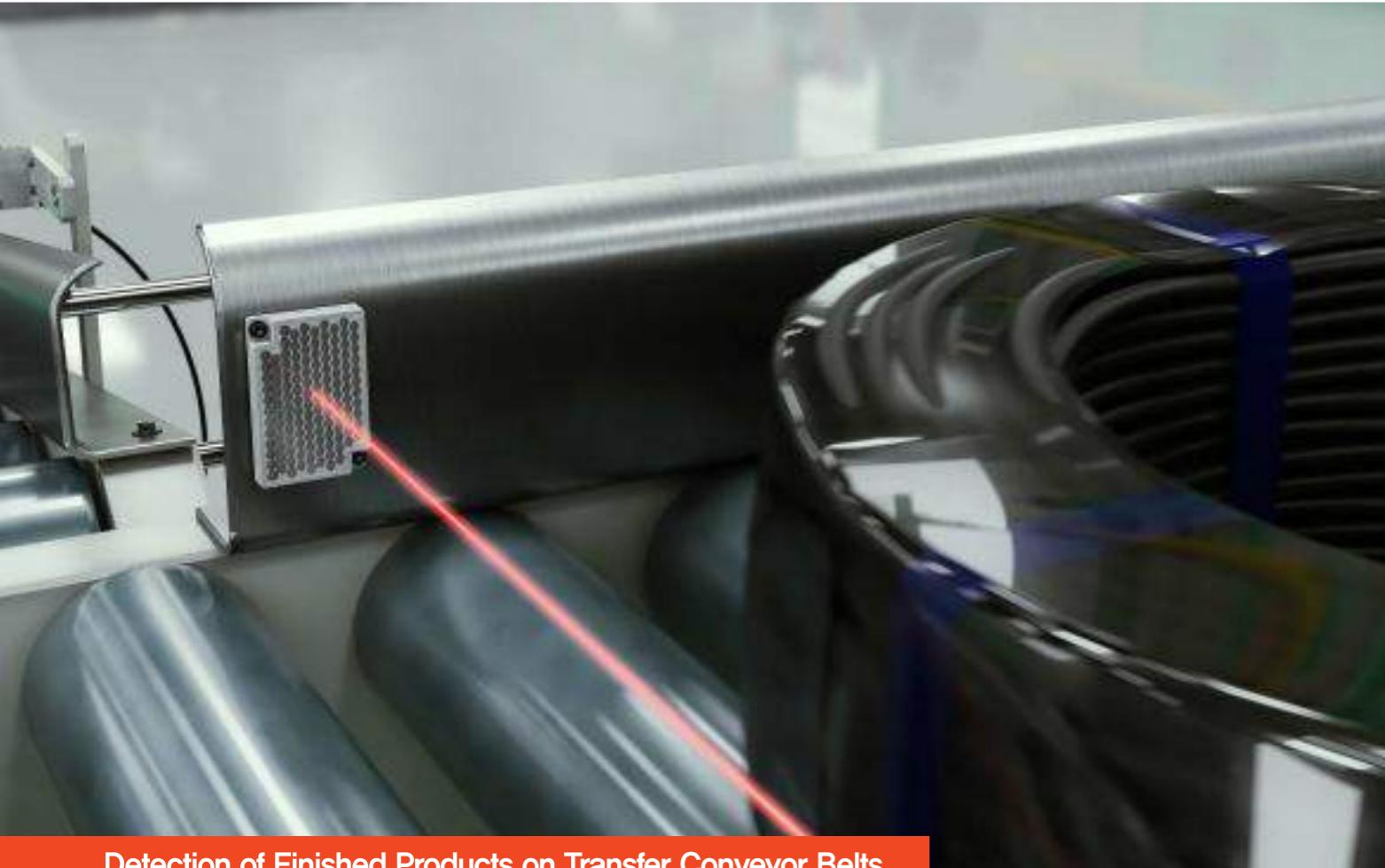
- Integrated counter/timer unit for counting and timing applications
- RS485 (Modbus RTU) communication (communication models)
- Counter Functions
- Various input/output modes (9 input modes, 11 output modes)
- Batch counting function, set count starting point (value) function
- Timer Functions
- Various output modes (11 output modes)

**5.7-Inch Monochrome
Widescreen Graphic Panels
GP-S057 Series**

- Display up to 1590 characters per screen
- Save up to 500 screen pages
- Device monitoring: control and monitor various devices
- Various communication ports
- 5.7-inch widescreen display with compact design

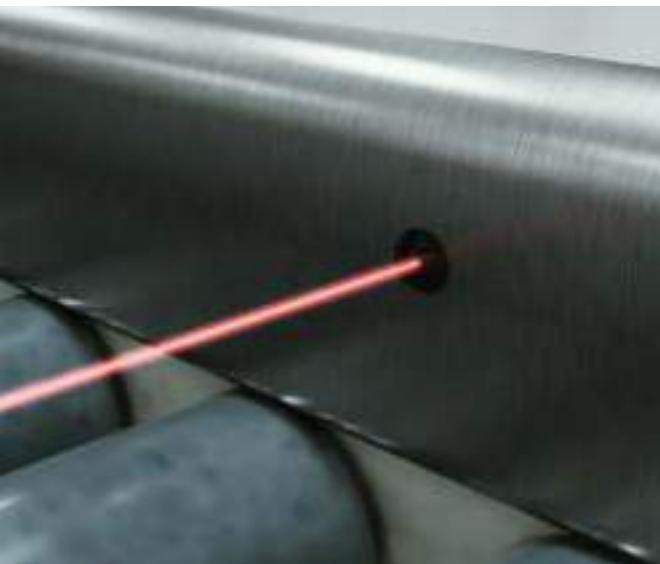


Transfer of Finished Products



Detection of Finished Products on Transfer Conveyor Belts

Photoelectric sensors are used to detect finished goods on transport and packaging conveyor belts.



Cylindrical Photoelectric Sensors

BR Series

- Long sensing distance: 20 m (through-beam type)
- Mutual interference prevention function (except through-beam, BGS reflective type)
- Excellent noise immunity with digital signal processing
- High-speed response time under 1 ms
- Sensitivity adjuster (except through-beam type)
- IP66 protection structure (IEC standard)
- Through-beam type, retroreflective type, diffuse reflective type, narrow beam reflective type



CE



Compact High Performance Photoelectric Sensors

BJ Series

- Long sensing distance: 15 m (through-beam type)
- Mutual interference prevention function (except BGS reflective type)
- Excellent noise immunity and minimal influence from ambient light
- Sensitivity adjuster (except BJJ3-DDT)
- IP65 protection structure (IEC standard)
 - ※ IP67 for BJ-C connector types
- BGS reflective type, transparent glass sensing type, micro spot type, long distance type



CE

Raw Material Feeding and Container Transport Process



Raw Material Volume Detection in Plastic Injection Molding Machines

Capacitive proximity sensors are used to detect the volume of raw material inserted to hoppers during injection molding process.



Cylindrical Capacitive Proximity Sensors CR Series



- Detect various materials including metal, iron, stone, plastic, water, and grain
- Built-in sensitivity adjuster for convenient configuration
- Operation indicator (red LED)
- Ideal for level detection and position control

7-Inch Widescreen Color LCD Graphic Panels GP-S070 Series



- 7-inch widescreen true color analog touchscreen LCD display
- Data logger function: store and backup data from control devices
- Device monitoring: control and monitor various devices connected via communication ports
- Monitor multiple addresses and multiple channels simultaneously

40 mm Incremental Rotary Encoders (Shaft Type) E40 Series



- Low shaft moment of inertia
- Output types: totem pole, NPN open collector, voltage, line driver
- Power supply: 5 VDC ±5%, 12–24 VDC ±5%
- Various resolutions: 1 to 5000 pulses per revolution

Distribution Board for Injection Molding Machine and Product Inspection



Temperature Control During Plastic Injection Molding

Temperature controllers and solid state relays are used for precise PID temperature control of injection molding heaters. Interface terminal blocks offer convenient wiring and maintenance in distribution boards.



Product Quality / Defect Inspection

Vision sensors are used to identify defect products during quality inspection process by checking the product shape, edge, angle, etc.

Modular Multi-Channel PID Temperature Controllers



TM Series

- Multi-channel (4-channel: TM4 / 2-channel: TM2) input and output control
- High-speed sampling cycle (4-channel: 100 ms / 2-channel: 50 ms)
- Expandable up to 31 units (124-channels / 62-channels) using expansion connectors
- Simultaneous heating and cooling control function
- RS485 (Modbus RTU) communication

Quick Connect Interface Terminal Blocks (Screwless Push-In Type)



AFL Series

- Screwless push-in type connection for simple and easy connection
- Slim and compact design with 5 mm terminal pitch
- Ideal for connector type for PLCs and dedicated controller I/O
- DIN rail mount and screw mount methods
- Two mounting hole types and sizes
- Alarm function (overheating)
- High dielectric strength: 4000 VAC (select models)
- Rated input voltage: 4–30 VDC, 24 VAC, 90–240 VAC
- Rated load voltage: 24–240 VAC, 48–480 VAC
- Rated load current: 15 A, 30 A, 40 A, 50 A, 75 A



Vision Sensors

VG Series



- Vision sensors with integrated LED lighting
- Global shutter method for accurate image capturing with minimal motion blur
- Various inspection functions: alignment, brightness, contrast, area, edge, etc.
- Set up to 32 separate workgroups (64 inspection points per workgroup)
- Save data to FTP servers



Photoelectric Sensors

Series	Sensing Type	Sensing Distance	Sensing Target	Light Source	Response Time	Power Supply	Current Consumption	Sensitivity Adjustment	Operation Mode
Compact, Long Sensing Distance, Built-in Amplifier Type Photoelectric Sensor BJ Series <Cable type> 	Through-beam type	15m	Opaque material of min. Ø12mm	Infrared LED (850nm)	Max. 1ms	12-24VDC=	Emitter/Receiver : Max. 20mA	Sensitivity adjuster	Light ON/Dark ON (set by switch)
		10m	Opaque material of min. Ø12mm	Red LED (660nm)					
		7m	Opaque material of min. Ø8mm	Red LED (650nm)					
	Retroreflective type (built-in polarizing filter)	3m (MS-2A)	Opaque material of min. Ø75mm	Red LED (660nm)	Max. 1ms	12-24VDC=	Max. 30mA	Sensitivity adjuster	Light ON/Dark ON (set by switch)
		1m	Opaque, Translucent material	Infrared LED (850nm)					
		300mm	Opaque, Translucent material	Red LED (660nm)					
		100mm	Opaque, Translucent material	Infrared LED (850nm)					
		30mm	Opaque, Translucent material	Infrared LED (850nm)					
	BGS reflective type	10 to 30mm	Opaque, Translucent material	Red LED (660nm)	Max. 1.5ms	12-24VDC=	Max. 30mA	Sensitivity adjuster	Light ON/Dark ON (set by switch)
		10 to 50mm	Opaque, Translucent material	Red LED (660nm)					
Through-beam type/ Retroreflective type/ Diffuse reflective type/ BGS reflective type/ Narrow beam reflective type : W10.6×H32×L20mm	Narrow beam reflective type	30 to 70mm	Opaque, Translucent material (min. sensing target: min. Ø0.2mm (copper wire))	Red LED (650nm)	Max. 1.5ms	12-24VDC=	Max. 30mA	Sensitivity adjuster	Light ON/Dark ON (set by switch)
		70 to 130mm	Opaque, Translucent material (min. sensing target: min. Ø0.2mm (copper wire))	Red LED (650nm)					

Series	Sensing Type	Sensing Distance	Sensing Target	Light Source	Response Time	Power Supply	Current Consumption and Power Consumption	Sensitivity Adjustment	Operation Mode
Cylindrical Type Photoelectric Sensor BR Series <Cable type> 	Through-beam type	4m	Opaque material of min. Ø15mm	Infrared LED (850nm)	Max. 1ms	12-24VDC=	Emitter/Receiver : Max. 45mA	—	Dark ON
		20m	Opaque material of min. Ø15mm	Infrared LED (850nm)					Light ON
	Retroreflective type	3m (MS-2)	Opaque material of min. Ø60mm	Red LED (660nm)	Max. 1ms	12-24VDC=	Max. 45mA	Sensitivity adjuster	Light ON/Dark ON (set by control wire)
		100mm	Opaque, Translucent material	Infrared LED (940nm)					Light ON/Dark ON (set by control wire)
	Diffuse reflective type	400mm	Opaque, Translucent material	Infrared LED (850nm)	Max. 1ms	12-24VDC=	Max. 45mA	Sensitivity adjuster	Light ON/Dark ON (set by control wire)
		200mm	Opaque, Translucent material	Infrared LED (850nm)					Light ON/Dark ON (set by control wire)

Control Output	Timer Function	Connection	Environment		Protection Structure	Approval	Model
			Ambient Illumination	Ambient Temperature			
■: Type No-mark: NPN open collector P: PNP open collector	—	Cable type (Ø3.5, 2m)	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx (received illumination)	-25 to 55°C	IP65 (connector type: IP67)	CE	BJ15M-TDT-■
		Connector type (M8)					BJ15M-TDT-C-■
		Cable type (Ø3.5, 2m)					BJ10M-TDT-■
		Connector type (M8)					BJ10M-TDT-C-■
		Cable type (Ø3.5, 2m)					BJ7M-TDT-■
■: Type No-mark: NPN open collector P: PNP open collector	—	Cable type (Ø3.5, 2m)	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx (received illumination)	-25 to 55°C	IP65 (connector type: IP67)	CE	BJ3M-PDT-■
		Connector type (M8)					BJ3M-PDT-C-■
		Cable type (Ø3.5, 2m)					BJ1M-DDT-■
■: Type No-mark: NPN open collector P: PNP open collector	—	Cable type (Ø3.5, 2m)	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx (received illumination)	-25 to 55°C	IP65 (connector type: IP67)	CE	BJ1M-DDT-C-■
		Connector type (M8)					BJ300-DDT-■
		Cable type (Ø3.5, 2m)					BJ300-DDT-C-■
		Connector type (M8)					BJ100-DDT-■
		Cable type (Ø3.5, 2m)					BJ100-DDT-C-■
		NPN open collector					BJG30-DDT
■: Type No-mark: NPN open collector P: PNP open collector	—	Cable type (Ø3.5, 2m)	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx (received illumination)	-25 to 55°C	IP65	CE	BJ30-BDT-■
		Connector type (M8)					BJ50-BDT-■
■: Type No-mark: NPN open collector P: PNP open collector	—	Cable type (Ø3.5, 2m)	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx (received illumination)	-25 to 55°C	IP65	CE	BJN50-NDT-■
		Connector type (M8)					BJN100-NDT-■
Control Output	Timer Function	Connection	Environment		Protection Structure	Approval	Model
			Ambient Illumination	Ambient Temperature			
			Cable type (Ø5, 2m)	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx (received illumination)	-10 to 60°C	IP66	CE
			Connector type (M12)				
			Cable type (Ø5, 2m)				
			Connector type (M12)				
			Cable type (Ø5, 2m)	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx (received illumination)	-10 to 60°C	IP67	CE
			Connector type (M12)				
			Cable type (Ø5, 2m)				
			Connector type (M12)				
			Cable type (Ø5, 2m)	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx (received illumination)	-10 to 60°C	IP66	CE
			Connector type (M12)				
■: Type No-mark: NPN open collector P: PNP open collector	—	Cable type (Ø5, 2m)	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx (received illumination)	-10 to 60°C	IP66	CE	BR4M-TDTD-■
		Connector type (M12)					BR4M-TDTD-C-■
■: Type No-mark: NPN open collector P: PNP open collector	—	Cable type (Ø5, 2m)	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx (received illumination)	-10 to 60°C	IP66	CE	BR4M-TDTL-■
		Connector type (M12)					BR4M-TDTL-C-■
■: Type No-mark: NPN open collector P: PNP open collector	—	Cable type (Ø5, 2m)	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx (received illumination)	-10 to 60°C	IP67	CE	BR20M-TDTD-■
		Connector type (M12)					BR20M-TDTD-C-■
■: Type No-mark: NPN open collector P: PNP open collector	—	Cable type (Ø5, 2m)					

Proximity Sensors

Series	Wire Type and Power	Sensing Side Size	Sensing Distance	Standard Sensing Target	Response Frequency	Current Specification
Rectangular, Standard Type Proximity Sensor PS/PSN Series	AC 2-wire type 100-240VAC	Frame size 25mm	5mm	25×25×1mm (iron)	20Hz	Leakage current : Max. 2.5mA
			10mm	30×30×1mm (iron)	20Hz	Leakage current : Max. 2.5mA
			15mm	45×45×1mm (iron)	20Hz	Leakage current : Max. 2.5mA
		Frame size 40mm	20mm	60×60×1mm (iron)	20Hz	Leakage current : Max. 2.5mA
	DC 2-wire type 12-24VDC	Frame size 17mm	5mm	18×18×1mm (iron)	700Hz	Leakage current : Max. 0.6mA
		Frame size 12mm	4mm	12×12×1mm (iron)	500Hz	Current consumption : Max. 10mA
			5mm	18×18×1mm (iron)	700Hz	Current consumption : Max. 10mA
		Frame size 17mm	8mm	25×25×1mm (iron)	200Hz	Current consumption : Max. 10mA
			5mm	25×25×1mm (iron)	300Hz	Current consumption : Max. 10mA
		Frame size 30mm	10mm	30×30×1mm (iron)	250Hz	Current consumption : Max. 10mA
			15mm	45×45×1mm (iron)	200Hz	Current consumption : Max. 10mA
		Frame size 40mm	20mm	60×60×1mm (iron)	100Hz	Current consumption : Max. 10mA
		Frame size 50mm	30mm	90×90×1mm (iron)	50Hz	Current consumption : Max. 10mA



Series	Wire Type and Power	Sensing Side Diameter	Sensing Distance	Standard Sensing Target	Response Frequency	Current Specification
Cylindrical, Capacitive Type Proximity Sensor CR Series	AC 2-wire type 100-240VAC==	M18	8mm	50×50×1mm (iron)	20Hz	Leakage current : Max. 2.2mA
		M30	15mm	50×50×1mm (iron)	20Hz	Leakage current : Max. 2.2mA
	DC 3-wire type 12-24VDC==	M18	8mm	50×50×1mm (iron)	50Hz	Current consumption : Max. 15mA
		M30	15mm	50×50×1mm (iron)	50Hz	Current consumption : Max. 15mA



Control Output	Sensing Method	Materials	Ambient Temperature	Protection Structure	Approval	Different Frequency	Model
□ Type O: N.O. / C: N.C.	Standard type (front sensing type)	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN25-5A□
□ Type O: N.O. / C: N.C.	Standard type (front sensing type)	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN30-10A□
□ Type O: N.O. / C: N.C.	Standard type (front sensing type)	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN30-15A□
□ Type O: N.O. / C: N.C.	Standard type (front sensing type)	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN40-20A□
□ Type O: N.O. / C: N.C.	■ Type No-mark: Standard type (front sensing type) U: Upper sensing type	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSNT17-5D□■
NPN N.O.	■ Type No-mark: Standard type (front sensing type) U: Upper sensing type	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PS12-4DN■
PNP N.O.	■ Type No-mark: Standard type (front sensing type) U: Upper sensing type	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PS12-4DP■
NPN N.C.	■ Type No-mark: Standard type (front sensing type) U: Upper sensing type	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PS12-4DN2■
□ Type N: NPN N.O. / N2: NPN N.C.	Standard type (front sensing type)	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN17-5D□
□ Type N: NPN N.O. / N2: NPN N.C.	Upper sensing type	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN17-5D□U
NPN N.O.	Standard type (front sensing type)	Heat-resistant ABS	-25 to 70°C	IP67	CE	●	PSN17-5DN-F
□ Type P: PNP N.O. / P2: PNP N.C.	■ Type No-mark: Standard type (front sensing type) U: Upper sensing type	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN17-5D□■
□ Type N: NPN N.O. / N2: NPN N.C. P: PNP N.O. / P2: PNP N.C.	■ Type No-mark: Standard type (front sensing type) U: Upper sensing type	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN17-8D□■
□ Type N: NPN N.O. / N2: NPN N.C. P: PNP N.O. / P2: PNP N.C.	■ Type No-mark: Standard type (front sensing type) U: Upper sensing type	Heat-resistant ABS	-25 to 70°C	IP67	CE	●	PSN17-8D□■-F
PNP N.O.	■ Type No-mark: Standard type (front sensing type) U: Upper sensing type	Heat-resistant ABS	-25 to 70°C	IP67	CE	●	PSN17-8DP■-F
□ Type N: NPN N.O. / N2: NPN N.C. P: PNP N.O. / P2: PNP N.C.	Standard type (front sensing type)	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN25-5D□
□ Type N: NPN N.O. / N2: NPN N.C. P: PNP N.O. / P2: PNP N.C.	Standard type (front sensing type)	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN30-10D□
□ Type N: NPN N.O. / N2: NPN N.C. P: PNP N.O. / P2: PNP N.C.	Standard type (front sensing type)	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN30-15D□
□ Type N: NPN N.O. / N2: NPN N.C. P: PNP N.O. / P2: PNP N.C.	Standard type (front sensing type)	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PSN40-20D□
□ Type N: NPN N.O. / N2: NPN N.C. P: PNP N.O. / P2: PNP N.C.	Upper sensing type	Heat-resistant ABS	-25 to 70°C	IP67	CE	—	PS50-30D□

Control Output	Materials	Ambient Temperature	Protection Structure	Approval	Model
□ Type O: N.O. / C: N.C.	PA6	-25 to 70°C	IP66	—	CR18-8A□
□ Type O: N.O. / C: N.C.	Brass (nickel plated)	-25 to 70°C	IP65	—	CR30-15A□
□ Type N: NPN N.O. / N2: NPN N.C. P: PNP N.O.	PA6	-25 to 70°C	IP66	—	CR18-8D□
□ Type N: NPN N.O. / N2: NPN N.C. P: PNP N.O.	Brass (nickel plated)	-25 to 70°C	IP65	—	CR30-15D□

Pressure Sensors / Rotary Encoders

Series	Applicable Fluid	Pressure Port Direction	Pressure Port	Connection	Pressure Type	Rated Pressure Range	Display Pressure Unit
Pneumatic, Square, Connector Type, Dual LCD Display Digital Pressure Sensor PSQ Series 	Air, Non-corro- sive gas	Rear fitting	Rc1/8	Connector type (connector type cable : 2m)	Compound pressure	-100.0 to 100.0kPa	MPa, kPa, kgf/cm ² , bar, psi, mmHg, inHg, mmH ₂ O
						-100 to 1,000kPa	
						-100.0 to 100.0kPa	MPa, kPa, kgf/cm ² , bar, psi, mmHg, inHg, mmH ₂ O
						-100 to 1,000kPa	MPa, kPa, kgf/cm ² , bar, psi, mmHg, inHg, mmH ₂ O

※ Sold separately: Front cover (PSO-P01), Panel bracket (PSO-B02), M5 gender (PSO-Z01)

Series	Applicable Fluid	Pressure Port Direction	Pressure Port	Connection	Pressure Type	Rated Pressure Range	Display Pressure Unit
Fluid, Square, Cable Type Dual LCD Display Digital Pressure Sensor PSQ Series 	Air, Non-corro- sive gas and fluid that will not corrode Stainless steel 316L	Rear fitting	R1/8	Cable type (cable type cable: 3m)	Compound pressure	-100.0 to 100.0kPa	MPa, kPa, kgf/cm ² , bar, psi, mmHg, inHg, mmH ₂ O
						-100 to 1,000kPa	
						-100.0 to 100.0kPa	MPa, kPa, kgf/cm ² , bar, psi, mmHg, inHg, mmH ₂ O
						-100 to 1,000kPa	MPa, kPa, kgf/cm ² , bar, psi, mmHg, inHg, mmH ₂ O

※ Sold separately: Front cover (PSO-P01), Panel bracket (PSO-B02)

Series	Shaft Outer Diameter	Max. Response Frequency	Max. Allowable Revolution	Starting Torque	Resolution (□: Type)			
					To 50	To 250	To 1000	To 5000
Incremental, Ø40mm, Shaft Type Rotary Encoder E40S Series 	□: Type 6: Ø6mm 8: Ø8mm	300kHz	5000rpm	Max. 40gf·cm (max. 0.00392N·m)	1, 2, 5, 12	—	—	—
					10, 15, 20, 23, 25, 30, 35, 40, 45, 50	60, 75, 100, 120, 125, 150, 192, 200, 240, 250	256, 300, 360, 400, 500, 512, 600, 800, 1000	1024, 1200, 1500, 1800, 2000, 2048, 2500, 3000, 3600, 5000

Control Output	Option Input/Output	Power Supply	Current Consumption	Protection Structure	Approval	Model
Select one at parameter setting NPN open collector output PNP open collector output	—	12-24VDC=	Max. 50mA	IP40	CE	PSQ-C01C-Rc1/8
		12-24VDC=	Max. 50mA	IP40	CE	PSQ-C1C-Rc1/8
Select one at parameter setting Voltage (1-5VDC=) output NPN open collector output PNP open collector output	Select one at parameter setting Voltage (1-5VDC=) output Current (DC4-20mA) output AUTO SHIFT, REMOTE ZERO, HOLD input	12-24VDC=	Max. 50mA (current output : Max. 70mA)	IP40	CE	PSQ-C01CU-Rc1/8
		12-24VDC=	IP40	CE	PSQ-C1CU-Rc1/8	

Control Output	Option Input/Output	Power Supply	Current Consumption	Protection Structure	Approval	Model
Select one at parameter setting NPN open collector output PNP open collector output	—	12-24VDC=	Max. 50mA	IP65	CE	PSQ-BC01-R1/8
		12-24VDC=	Max. 50mA	IP65	CE	PSQ-BC1-R1/8
Select one at parameter setting Voltage (1-5VDC=) output NPN open collector output PNP open collector output	Select one at parameter setting Voltage (1-5VDC=) output Current (DC4-20mA) output AUTO SHIFT, REMOTE ZERO, HOLD input	12-24VDC=	Max. 50mA (current output : Max. 70mA)	IP65	CE	PSQ-BC01U-R1/8
		12-24VDC=	IP65	CE	PSQ-BC1U-R1/8	

Output Phase	Control Output	Power Supply	Connection	Protection Structure	Approval	Model
A, B	■: Type T: Totem pole N: NPN open collector V: Voltage	5VDC=	Radial cable type	IP50	CE	E40S□-□-2-■-5
			Radial cable connector type			E40S□-□-2-■-5-C
		12-24VDC=	Radial cable type	IP50	CE	E40S□-□-2-■-24
			Radial cable connector type			E40S□-□-2-■-24-C
A, □, B, □	Line driver	5VDC=	Radial cable type	IP50	—	E40S□-□-4-L-5
			Radial cable connector type			E40S□-□-4-L-5-C
		12-24VDC=	Radial cable type	IP50	—	E40S□-□-4-L-24
			Radial cable connector type			E40S□-□-4-L-24-C
■: Type 2: A, B 3: A, B, Z 4: A, □, B, □	■: Type T: Totem pole N: NPN open collector V: Voltage	5VDC=	Radial cable type	IP50	CE	E40S□-□-■-5
			Radial cable connector type			E40S□-□-■-5-C
		12-24VDC=	Radial cable type	IP50	CE	E40S□-□-■-24
			Radial cable connector type			E40S□-□-■-24-C
A, □, B, □, Z, □	Line driver	5VDC=	Radial cable type	IP50	—	E40S□-□-6-L-5
			Radial cable connector type			E40S□-□-6-L-5-C
		12-24VDC=	Radial cable type	IP50	—	E40S□-□-6-L-24
			Radial cable connector type			E40S□-□-6-L-24-C

Rotary Encoders

Series	Shaft Outer Diameter	Max. Response Frequency	Max. Allowable Revolution	Starting Torque	Resolution (□: Type)			
					To 50	To 256	To 1500	To 8000
Incremental, Ø50mm, Shaft Type Rotary Encoder E50S Series	Ø8mm	300kHz	5000rpm	Max. 70gf·cm (max. 0.00686N·m)	1, 2, 5	—	—	—
					10, 12, 15, 20, 23, 25, 30, 35, 40, 45, 50	60, 75, 100, 120, 125, 150, 192, 200, 240, 250, 256	300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1500	1800, 2000, 2048, 2500, 3000, 3600, 4000, 5000, 6000, 8000
					1, 2, 5	—	—	—
					10, 12, 15, 20, 23, 25, 30, 35, 40, 45, 50	60, 75, 100, 120, 125, 150, 192, 200, 240, 250, 256	300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1500	1800, 2000, 2048, 2500, 3000, 3600, 4000, 5000, 6000, 8000
					Max. 800gf·cm (max. 0.0784N·m)	—	—	—
				Max. 800gf·cm (max. 0.0784N·m)	1, 2, 5	—	—	—
					10, 12, 15, 20, 23, 25, 30, 35, 40, 45, 50	60, 75, 100, 120, 125, 150, 192, 200, 240, 250, 256	300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1500	1800, 2000, 2048, 2500, 3000, 3600, 4000, 5000, 6000, 8000
					1, 2, 5	—	—	—
					10, 12, 15, 20, 23, 25, 30, 35, 40, 45, 50	60, 75, 100, 120, 125, 150, 192, 200, 240, 250, 256	300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1500	1800, 2000, 2048, 2500, 3000, 3600, 4000, 5000, 6000, 8000
					Max. 800gf·cm (max. 0.0784N·m)	—	—	—

Output Phase	Control Output	Power Supply	Connection	Protection Structure	Approval	Model
A, B	■: Type T: Totem pole N: NPN open collector V: Voltage	5VDC==	Axial cable type	IP50	CE	E50S8-□-2-■-5
			Axial cable connector type	IP50	CE	E50S8-□-2-■-5-C
	12-24VDC==	Axial cable type	IP50	CE	E50S8-□-2-■-24	
		Axial cable connector type	IP50	CE	E50S8-□-2-■-24-C	
A, Ā, B, B̄	Line driver	5VDC==	Axial cable type	IP50	—	E50S8-□-4-L-5
			Axial cable connector type	IP50	—	E50S8-□-4-L-5-C
	12-24VDC==	Axial cable type	IP50	—	E50S8-□-4-L-24	
		Axial cable connector type	IP50	—	E50S8-□-4-L-24-C	
■: Type 2: A, B 3: A, B, Z 4: A, Ā, B, B̄	■: Type T: Totem pole N: NPN open collector V: Voltage	5VDC==	Axial cable type	IP50	CE	E50S8-□-■-5
			Axial cable connector type	IP50	CE	E50S8-□-■-5-C
	12-24VDC==	Axial cable type	IP50	CE	E50S8-□-■-24	
		Axial cable connector type	IP50	CE	E50S8-□-■-24-C	
A, Ā, B, B̄, Z, Z̄	Line driver	5VDC==	Axial cable type	IP50	—	E50S8-□-6-L-5
			Axial cable connector type	IP50	—	E50S8-□-6-L-5-C
	12-24VDC==	Axial cable type	IP50	—	E50S8-□-6-L-24	
		Axial cable connector type	IP50	—	E50S8-□-6-L-24-C	
A, B	■: Type T: Totem pole N: NPN open collector V: Voltage	5VDC==	Axial connector type	IP65	CE	E50S8-□-2-■-5-CR
			Radial connector type	IP65	CE	E50S8-□-2-■-5-CS
	12-24VDC==	Axial connector type	IP65	CE	E50S8-□-2-■-24-CR	
		Radial connector type	IP65	CE	E50S8-□-2-■-24-CS	
A, Ā, B, B̄	Line driver	5VDC==	Axial connector type	IP65	—	E50S8-□-4-L-5-CR
			Radial connector type	IP65	—	E50S8-□-4-L-5-CS
	12-24VDC==	Axial connector type	IP65	—	E50S8-□-4-L-24-CR	
		Radial connector type	IP65	—	E50S8-□-4-L-24-CS	
■: Type 2: A, B 3: A, B, Z 4: A, Ā, B, B̄	■: Type T: Totem pole N: NPN open collector V: Voltage	5VDC==	Axial connector type	IP65	CE	E50S8-□-■-5-CR
			Radial connector type	IP65	CE	E50S8-□-■-5-CS
	12-24VDC==	Axial connector type	IP65	CE	E50S8-□-■-24-CR	
		Radial connector type	IP65	CE	E50S8-□-■-24-CS	
A, Ā, B, B̄, Z, Z̄	Line driver	5VDC==	Axial connector type	IP65	—	E50S8-□-6-L-5-CR
			Radial connector type	IP65	—	E50S8-□-6-L-5-CS
	12-24VDC==	Axial connector type	IP65	—	E50S8-□-6-L-24-CR	
		Radial connector type	IP65	—	E50S8-□-6-L-24-CS	

Vision Sensors

Series	Image Element	Resolution	Effective Focal Length	Min. Sensing Distance	Power Supply	Light Color	Work Group
Vision Sensor VG Series  W49xH82xL64.9mm	1/3 inch mono CMOS 752x480 pixel	8mm 16mm 25mm	50mm 100mm 200mm	24VDC	■: Type W: white R: red G: green B: blue	32	
	1/3 inch color CMOS 752x480 pixel	8mm 16mm 25mm	50mm 100mm 200mm	24VDC	■: Type W: white R: red G: green B: blue	32	

※1. It is available to set up to 64 inspection items for each work group.

※2. It is available to send the inspection result images to FTP server.

※3. These inspection items convert a color image to a mono color image to inspect data.

※ Sold Separately

Appearence	Type	Color	Model
Light 	Light	White	LR-W-06-VG
		Red	LR-R-06-VG
		Green	LR-G-06-VG
		Blue	LR-B-06-VG
Color filter 	Color filter	Red	FL-R-VG
		Green	FL-G-VG
		Blue	FL-B-VG
		Infrared blocking	FL-IC-VG
Polarizing filter 	Polarizing filter	Window	FL-P-VG
		Red	FL-RP-VG
		Green	FL-GP-VG
		Blue	FL-BP-VG
		Infrared blocking	FL-ICP-VG

※Other accessories sold separately: bracket B (BK-VG-B), protection cover (P96-M12-1)

Inspection Item ^{※1}	Control Output	Communication	Protection Structure	Dedicated Software	Approval	Model
Alignment, brightness, contrast, area, edge, length, angle, diameter, object counting (total 9 items)	NPN open collector/ PNP open collector (set by parameter)	Ethernet (TCP/IP), FTP ^{※2}	IP67	Vision Master	CE KC	VG-M04■-8E
Alignment, brightness, contrast, area, edge, length, angle, diameter, object counting (total 9 items)	NPN open collector/ PNP open collector (set by parameter)	Ethernet (TCP/IP), FTP ^{※2}	IP67	Vision Master	CE KC	VG-M04■-16E
Alignment, brightness, contrast, area, edge, length, angle, diameter, object counting (total 9 items)	NPN open collector/ PNP open collector (set by parameter)	Ethernet (TCP/IP), FTP ^{※2}	IP67	Vision Master	CE KC	VG-M04■-25E
Alignment, brightness ^{※3} , contrast ^{※3} , area ^{※3} , edge, length, angle, diameter, object counting ^{※3} , color identification, area of color, object of color counting (total 12 items)	NPN open collector/ PNP open collector (set by parameter)	Ethernet (TCP/IP), FTP ^{※2}	IP67	Vision Master	CE KC	VG-C04■-8E
Alignment, brightness ^{※3} , contrast ^{※3} , area ^{※3} , edge, length, angle, diameter, object counting ^{※3} , color identification, area of color, object of color counting (total 12 items)	NPN open collector/ PNP open collector (set by parameter)	Ethernet (TCP/IP), FTP ^{※2}	IP67	Vision Master	CE KC	VG-C04■-16E
Alignment, brightness ^{※3} , contrast ^{※3} , area ^{※3} , edge, length, angle, diameter, object counting ^{※3} , color identification, area of color, object of color counting (total 12 items)	NPN open collector/ PNP open collector (set by parameter)	Ethernet (TCP/IP), FTP ^{※2}	IP67	Vision Master	CE KC	VG-C04■-25E

Appearence	Head Shape	Connector Standard	Number of Connector Pins	Connection Method	Cable Length (m)	Model
Power I/O Cable CID/CLD Series 	<CID>	M12	12-pin	Plug type	2	CID-2-VG
					5	CID-5-VG
					10	CID-10-VG
Color filter 	<CLD>	M12	12-pin	Plug type	2	CLD-2-VG
					5	CLD-5-VG
Ethernet Cable CIR/CLR Series 	<CIR>	M12	8-pin	Socket type	2	CIR-2-VG
					5	CIR-5-VG
Polarizing filter 	<CLR>	M12	8-pin	Socket type	10	CIR-10-VG
					2	CLR-2-VG
					5	CLR-5-VG
					10	CLR-10-VG

Temperature Controllers

Series	Size	Display Method	Control Method	Input Type	Sampling Period		
High Performance, General-Purpose, PID Control Temperature Controller	TK4W Series	4-digit 7-segment LED	Heating, Cooling	ON/OFF control, P, PI, PD, PID control	Thermocouple: K(CA), J(IC), E(CR), T(CC), B(PR), R(PR), S(PR), N(NN), C(TT), G(TT), L(IC), U(CC), Platinel II RTD: DPt100Ω, DPt50Ω, JPt100Ω, Cu100Ω, Cu50Ω, Nikel 120Ω Analog: 0-100mV, 0-5V, 1-5V, 0-10V 0-20mA, 4-20mA	50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating, Cooling	ON/OFF control, P, PI, PD, PID control		50ms	
			Heating & Cooling	ON/OFF control, P, PI, PD, PID control		50ms	

Temperature Controllers / Solid State Relay

Series	Display Method	Control Method	Input CH	Input Type	Sampling Period
2-CH Modular Type, PID Control Temperature Controller TM2 Series	Non-display	Heating, Cooling Heating& Cooling	ON/OFF control, P, PI, PD, PID control	2-CH	Thermocouple: K(CA), J(IC), E(CR), T(CC), B(PR), R(PR), S(PR), N(NN), C(TT), G(TT), L(IC), U(CC), Platinel II RTD: DPt100Ω, JPt100Ω 50ms (2-CH synchronous sampling)
4-CH Modular Type, PID Control Temperature Controller TM4 Series	Non-display	Heating, Cooling Heating& Cooling	ON/OFF control, P, PI, PD, PID control	4-CH	Thermocouple: K(CA), J(IC), E(CR), T(CC), B(PR), R(PR), S(PR), N(NN), C(TT), G(TT), L(IC), U(CC), Platinel II RTD: DPt100Ω, JPt100Ω 100ms (4-CH synchronous sampling)

※1. Expansion units (TM□□-□2□E) of TM2/4 Series (2/4-CH modular type) are available to order separately.

Series	Control Phase	Heatsink	Mounting	Rated Input Voltage	Rated Load Voltage	Dielectric Strength
3-Phase, Integrated Heatsink Type SSR SRH2/SRH3 Series					2,500VAC	
<Rated load current: 15A/30A/40A>				24-240VAC~	4,000VAC	
				4-30VDC=	4,000VAC	
				48-480VAC~	4,000VAC	
				24VAC~	48-480VAC~	4,000VAC
				90-240VAC~	2,500VAC	
					4,000VAC	
				48-480VAC~	4,000VAC	

※1. Overheat prevention function: When SSR internal temperature is overheated, the load output is cut off to prevent internal device damage. The alarm indicator turns ON and alarm output turns ON.

※2. Rated load current capacity is varied by ambient temperature. Refer to "SSR Derating Curve" of Autonics' total catalogue.

※3. Only rated load current 15A/30A/40A models of SRH2/SRH3 Series are available to install on DIN rail.

Control Output	Option Input	Option Output	Module Type	Power Supply	Protection Structure	Approval	Model
Relay (250VAC~ 3A, 30VDC= 3A)	CT, Digital (DI-1/2)	Alarm 1/2, RS485 comm.	Basic module ^{※1}	24VDC=	—	CE cULus	TM2-22RB
Current (DC0/4-20mA) or SSR drive (12VDC=) [ON/OFF]	CT, Digital (DI-1/2)	Alarm 1/2, RS485 comm.	Basic module ^{※1}	24VDC=	—	CE cULus	TM2-22CB
Relay (250VAC~ 3A, 30VDC= 3A)	CT, Digital (DI-1/2)	Alarm 1/2/3/4, RS485 comm.	Basic module ^{※1}	24VDC=	—	CE cULus	TM2-42RB
Current (DC0/4-20mA) or SSR drive (12VDC=) [ON/OFF]	CT, Digital (DI-1/2)	Alarm 1/2/3/4, RS485 comm.	Basic module ^{※1}	24VDC=	—	CE cULus	TM2-42CB
Relay (250VAC~ 3A, 30VDC= 3A)	—	RS485 comm.	Basic module ^{※1}	24VDC=	—	CE cULus	TM4-N2RB
SSR drive (22VDC=) [ON/OFF]	—	RS485 comm.	Basic module ^{※1}	24VDC=	—	CE cULus	TM4-N2SB

Rated Load Current (□: Type) 15: 15A, 30: 30A, ..., 75: 75A					Function		Alarm (Overheat Prevention) ^{※1}		Ambient Temperature ^{※2}	Approval	Model
15A	30A	40A	50A	75A	Zero Cross Turn-On	Random Turn-On	Alarm Indicator	Alarm Output			
●	●	—	—	—	●	—	●	●	-30 to 80°C	CE cULus	SRH■-12□
—	—	—	●	●	●	—	●	●	-30 to 80°C	CE cULus	SRH■-14□
●	●	●	●	●	●	—	●	●	-30 to 80°C	CE cULus	SRH■-14□R
●	●	●	●	●	—	●	●	●	-30 to 80°C	CE cULus	SRH■-24□
●	●	—	—	—	●	—	●	●	-30 to 70°C	CE cULus	SRH■-42□
—	—	—	●	●	●	—	●	●	-30 to 70°C	CE cULus	SRH■-44□

Counters / Timers / Digital Panel Meters

Series	Display Method	Operation Method	Terminal	Power Supply	External Power Supply	Signal Input Method	Max. Counting Speed [cps]
Programmable Counter (Timer) CT6M Series 	6-digit 7-segment LED	Count up, Count down, Count up/down	Terminal block	24VAC~, 24-48VDC=	Max. 12VDC= 100mA	Voltage input (PNP), No-voltage input (NPN)	1, 30, 1k, 5k, 10k
				100-240VAC~	Max. 12VDC= 100mA	Voltage input (PNP), No-voltage input (NPN)	1, 30, 1k, 5k, 10k

Series	Display Method	Character Height	Max. Display Range	Measurement	Input Specification	AC Measurement
Multi Panel Meter MT4Y Series 	4-digit 7-segment LED	14.2mm	-1999 to 9999	DC voltage	0-500V, 0-100V, 0-50V, 0-10V, 0-5V, 0-1V, 0-250mV, 0-50mV	—
					0-500V, 0-250V, 0-110V, 0-50V, 0-20V, 0-10V, 0-2V, 0-1V	Average value (AVG), Root mean square value (RMS)
				DC current	0-5A, 0-2A, 0-500mA, 0-200mA, 0-50mA, 4-20mA, 0-5mA, 0-2mA	—
					0-5A, 0-2.5A, 0-1A, 0-500mA, 0-250mA, 0-100mA, 0-50mA	Average value (AVG), Root mean square value (RMS)

※1. Sold separately: Hirose connector socket (HIF3BA-14D-2.54R)

Min. Signal Width	Control Output			Communication Output	Protection Structure	Approval	Model
	Type	Relay	NPN Open Collector				
1ms/20ms	2-stage preset	SPST (1a): 1, SPDT (1c): 1	3	—	IP65 (front panel)		CT6M-2P2
		2	RS485	CT6M-2P2T			
	1-stage preset	SPDT (1c): 1	2	—	IP65 (front panel)		CT6M-1P2
			RS485	CT6M-1P2T			
	Indicator	—	—	—	IP65 (front panel)		CT6M-I2
			RS485	CT6M-I2T			
1ms/20ms	2-stage preset	SPST (1a): 1, SPDT (1c): 1	3	—	IP65 (front panel)		CT6M-2P4
		2	RS485	CT6M-2P4T			
	1-stage preset	SPDT (1c): 1	2	—	IP65 (front panel)		CT6M-1P4
			RS485	CT6M-1P4T			
	Indicator	—	—	—	IP65 (front panel)		CT6M-I4
			RS485	CT6M-I4T			

Power Factor Display	Power Supply	Output		Approval	Model
		Main Output (Comparative Value)	Sub Output (Display Value)		
—	100-240VAC~	Indicator	—		MT4Y-DV-4N
		Relay (HI, GO, LO)	—		MT4Y-DV-40
		NPN open collector (HI, GO, LO)	—		MT4Y-DV-41
		PNP open collector (HI, GO, LO)	—		MT4Y-DV-42
		Relay (LO)	PV transmission (DC4-20mA)		MT4Y-DV-43
		Relay (LO)	RS485 communication		MT4Y-DV-44
		—	BCD dynamic		MT4Y-DV-45 ^{※1}
		—	Low speed serial		MT4Y-DV-46
—	100-240VAC~	Indicator	—		MT4Y-AV-4N
		Relay (HI, GO, LO)	—		MT4Y-AV-40
		NPN open collector (HI, GO, LO)	—		MT4Y-AV-41
		PNP open collector (HI, GO, LO)	—		MT4Y-AV-42
		Relay (LO)	PV transmission (DC4-20mA)		MT4Y-AV-43
		Relay (LO)	RS485 communication		MT4Y-AV-44
		—	BCD dynamic		MT4Y-AV-45 ^{※1}
		—	Low speed serial		MT4Y-AV-46
—	100-240VAC~	Indicator	—		MT4Y-DA-4N
		Relay (HI, GO, LO)	—		MT4Y-DA-40
		NPN open collector (HI, GO, LO)	—		MT4Y-DA-41
		PNP open collector (HI, GO, LO)	—		MT4Y-DA-42
		Relay (LO)	PV transmission (DC4-20mA)		MT4Y-DA-43
		Relay (LO)	RS485 communication		MT4Y-DA-44
		—	BCD dynamic		MT4Y-DA-45 ^{※1}
		—	Low speed serial		MT4Y-DA-46
—	100-240VAC~	Indicator	—		MT4Y-AA-4N
		Relay (HI, GO, LO)	—		MT4Y-AA-40
		NPN open collector (HI, GO, LO)	—		MT4Y-AA-41
		PNP open collector (HI, GO, LO)	—		MT4Y-AA-42
		Relay (LO)	PV transmission (DC4-20mA)		MT4Y-AA-43
		Relay (LO)	RS485 communication		MT4Y-AA-44
		—	BCD dynamic		MT4Y-AA-45 ^{※1}
		—	Low speed serial		MT4Y-AA-46

Digital Panel Meters / Digital Display Units

Series	Display Method	Character Height	Display Range	Measurement	Measurement Range	Input Method
Pulse Meter MP5Y Series ^{※1}	5-digit 7-segment LED	14mm	-19999 to 99999	16 operation modes: Frequency, Revolutions, Speed, Cycle, Time, Ratio, Density, Error, Length measurement, Interval, Accumula- tion, Addition/Subtraction, etc.	0.0005Hz to 50kHz, 0.01 to max. of each time range, 0 to 99999, -19999 to 99999	Voltage input (PNP), No-voltage input (NPN)



W72×H36×L100mm

※1. Rear size of MP5Y/MP5W is based on indicator model. In case of output model, rear size may be longer due to output hirose connector or output terminal block.
※2. Sold separately: Hirose connector socket (HIF3BA-10D-2.54R)

Series	Input Method	Input Logic	Display Method	Display Color	Display Characters
Intelligent Display Unit DS/DA Series ^{※1}	Serial input	Positive logic (PNP), Negative logic (NPN)	■: Type S: 7-segment LED A: 16-segment LED	Red	Displays 64 types of character and sign (0 to 9, A to Z, 27 signs, dot)
<DS16>				Green	Displays 64 types of character and sign (0 to 9, A to Z, 27 signs, dot)
	W16×H24×L39.5mm				
<DS22/DA22>	Parallel (dynamic parallel 1/2) input	Positive logic (PNP), Negative logic (NPN)	■: Type S: 7-segment LED A: 16-segment LED	Red	Displays 64 types of character and sign (0 to 9, A to Z, 27 signs, dot)
				Green	Displays 64 types of character and sign (0 to 9, A to Z, 27 signs, dot)
<DS40/DA40>	RS485 communication input	—	■: Type S: 7-segment LED A: 16-segment LED	Red	Displays 64 types of character and sign (0 to 9, A to Z, 27 signs, dot)
				Green	Displays 64 types of character and sign (0 to 9, A to Z, 27 signs, dot)
<DS60/DA60>	Pt temperature sensor input (DPt100Ω, JPt100Ω)	—	7-segment LED	Red	-50°C to 400.0°C or -58.0 to 752.0°F (display accuracy ±5.0% F.S.)
	Pt temperature sensor input (DPt100Ω, JPt100Ω) +RS485 communication input	—	7-segment LED	Red	-50°C to 400.0°C or -58.0 to 752.0°F (display accuracy ±5.0% F.S.)
	RS485 communication input (synchronous time display type)	—	7-segment LED	Red	World local time 12/24hour (supports summer time)
				Green	World local time 12/24hour (supports summer time)

※1. Expansion units and Unit-display unit (DU16, DU22) are available to order separately.

Power Supply	External Power Supply	Output		Approval	Model
		Main Output (Comparative Value)	Sub Output (Display Value)		
24VAC~, 24-48VDC=≈ 80mA	Max. 12VDC=≈ 80mA	Indicator	—	CE cUL us	MP5Y-2N
		NPN open collector (HH, H, GO, L, LL)	—		MP5Y-21 ^{※2}
		PNP open collector (HH, H, GO, L, LL)	—		MP5Y-22 ^{※2}
		—	BCD dynamic		MP5Y-23 ^{※2}
		—	PV transmission (DC0-20mA, DC4-20mA)		MP5Y-24 ^{※2}
		—	RS485 communication		MP5Y-25 ^{※2}
		Relay (H, GO, L)	—		MP5Y-26
100-240VAC~	Max. 12VDC=≈ 80mA	Indicator	—	CE cUL us	MP5Y-4N
		NPN open collector (HH, H, GO, L, LL)	—		MP5Y-41 ^{※2}
		PNP open collector (HH, H, GO, L, LL)	—		MP5Y-42 ^{※2}
		—	BCD dynamic		MP5Y-43 ^{※2}
		—	PV transmission (DC0-20mA, DC4-20mA)		MP5Y-44 ^{※2}
		—	RS485 communication		MP5Y-45 ^{※2}
		Relay (H, GO, L)	—		MP5Y-46

Character Size (mm)	Current Consumption	Max. Connections	Power Supply	Approval	Model
W9×H16	Max. 20mA	24	12-24VDC=≈	CE	DS16-RS
W11.2×H22.5	Max. 25mA				D22-RS
W22.4×H40	Max. 55mA				D40-RS
W33.6×H60	Max. 65mA				D60-RS
W9×H16	Max. 15mA				DS16-GS
W11.2×H22.5	Max. 20mA				D22-GS
W22.4×H40	Max. 40mA				D40-GS
W33.6×H60	Max. 45mA	24	12-24VDC=≈	CE	D60-GS
W11.2×H22.5	Max. 25mA				D22-RP
W22.4×H40	Max. 55mA				D40-RP
W33.6×H60	Max. 65mA				D60-RP
W11.2×H22.5	Max. 20mA				D22-GP
W22.4×H40	Max. 40mA				D40-GP
W33.6×H60	Max. 45mA				D60-GP
W9×H16	Max. 20mA	24	12-24VDC=≈	CE	DS16-RT
W11.2×H22.5	Max. 25mA				D22-RT
W22.4×H40	Max. 55mA				D40-RT
W33.6×H60	Max. 65mA				D60-RT
W9×H16	Max. 15mA				DS16-GT
W11.2×H22.5	Max. 20mA				D22-GT
W22.4×H40	Max. 40mA				D40-GT
W33.6×H60	Max. 45mA	24	12-24VDC=≈	CE	D60-GT
W11.2×H22.5	Max. 40mA				DS22-RR
W22.4×H40	Max. 55mA				DS40-RR
W33.6×H60	Max. 65mA				DS60-RR
W22.4×H40	Max. 55mA				DS40-RRT
W33.6×H60	Max. 65mA				DS60-RRT
W11.2×H22.5	Max. 25mA				DS22-RC
W22.4×H40	Max. 55mA	4	12-24VDC=≈	CE	DS40-RC
W33.6×H60	Max. 65mA				DS60-RC
W11.2×H22.5	Max. 20mA				DS22-GC
W22.4×H40	Max. 40mA				DS40-GC
W33.6×H60	Max. 45mA				DS60-GC

HMs / I/O Terminal Blocks / Laser Marking System

Series	Display Specifications				Graphic Drawing Memory	Touch Method
	LCD Type	Resolution	Display Area	Color		
5.7 inch, STN LCD (Mono) Graphic Panel GP-S057 Series	5.7 inch STN Blue Negative	320×240 pixel	119×91mm	MONO (blue, white)	512KB	Pressure sensitive type
W156×H132×L35.5mm						

※1. Ethernet communication is available only for data upload/download of the dedicated software.

Series	Terminal Side		Controller Side		Indicator	Input Logic
	Terminal Type	No. of Terminals	Connector Type			
Interface Terminal Block Screwless Type AFL Series <20-pin Connector>	Screwless	20	20-pin OMRON connector (XG4A-2031)	—	—	—
		16 ^{※1}	20-pin OMRON connector (XG4A-2031)	Power indicator: red LED Operation indicator: blue LED	■: Type N: NPN P: PNP	—
	Screwless	40	40-pin hirose connector (HIF3BA-40PA-2.54DSA)	—	—	—
		32 ^{※2}	40-pin hirose connector (HIF3BA-40PA-2.54DSA)	Power indicator: red LED Operation indicator: blue LED	■: Type N: NPN P: PNP	—
	Screwless	50	50-pin hirose connector (HIF3BA-50PA-2.54DSA)	—	—	—
			50-pin hirose connector (HIF3BB-50PA-2.54DSA)	—	—	—
W57.5×H32.7×L46.5mm <40-pin Connector>						
W106.5×H32.7×L46.5mm <50-pin Connector>						
W131.5×H32.7×L46.5mm						

※1: Among 20 terminals, 16 terminals are available for I/O and 4 terminals are LED power.

※2: Among 40 terminals, 32 terminals are available for I/O and 8 terminals are LED power and N.C (Not Connect) terminals.

※Please use UL certified crimp terminals.

Fiber laser marking (Specification)		
	Model	ALC-N10W
Output Power	10W	30W
Laser Source	CO ₂	
Marking Method	Galvo-based scanning	
Wavelength	10.6 ± 0.1 μm	
Power Supply	220VAC, 50~60Hz	
Power Consumption	Under 600VA	
Marking Speed	Approx. 250 Char/Min(for 1.2 mm alphanumeric characters)	
Output Accuracy	±10% F.S.	
Cooling Method	Air-cooled	
Environment	Temperature	5°C to 40°C (41 to 104°F)
	Humidity	10~90%RH (Non-condensed)
	Ground	Ground wire over 2.6mm(5.5mm), Ground resistance under 10Ω
Weight	30kg	51kg



Interface	RS232C	RS422	USB (Host)	USB (Device)	Ethernet ^{※1}	Power Supply	Protection Structure	Dedicated Software	Approval	Model
1	1	—	—	—	—	24VDC=	IP65 (front panel)	GP Editor (drawing program)	CE KC	GP-S057-S1D0
2	—	—	—	—	—	24VDC=	IP65 (front panel)	GP Editor (drawing program)	CE KC	GP-S057-S1D1
1	1	1	1	1	1	24VDC=	IP65 (front panel)	GP Editor (drawing program)	CE KC	GP-S070-T9D6
2	—	1	1	1	1	24VDC=	IP65 (front panel)	GP Editor (drawing program)	CE KC	GP-S070-T9D7

Rated Voltage	Applicable Wire	Protection Structure	Approval	Model
≤125VDC=, 125VAC~ 50/60Hz	AWG 22-16 (0.30 to 1.25mm ²)	IP20	CE cUL US LISTED	AFL-H20
24VDC= ±10%	AWG 22-16 (0.30 to 1.25mm ²)	IP20	CE cUL US LISTED	AFL-H20-L■
≤125VDC=, 125VAC~ 50/60Hz	AWG 22-16 (0.30 to 1.25mm ²)	IP20	CE cUL US LISTED	AFL-H40
24VDC= ±10%	AWG 22-16 (0.30 to 1.25mm ²)	IP20	CE cUL US LISTED	AFL-H40-L■
≤125VDC=, 125VAC~ 50/60Hz	AWG 22-16 (0.30 to 1.25mm ²)	IP20	CE cUL US LISTED	AFL-H50
				AFL-H50B

Fiber laser marking (Marking Area)			
Model	ALC-N10W / ALC-N10W V		
Item	Lens	Marking Area	Marking Distance
Standard	150mm	□80mm	150mm±5mm
Optional	200mm	□140mm	195mm±5mm
	300mm	□200mm	284mm±10mm
Standard	150mm	□80mm	102mm±5mm
Optional	200mm	□140mm	160mm±5mm
	300mm	□200mm	249mm±10mm

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Products

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* The dimensions or specifications on this product guide may change and some models may be discontinued without notice.

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