

Total solutions for control & measurement





LCD Temperature Controllers

VX series



High-performance temperature controller with wide LCD angle, convenient and excellent control performance

- ▶ PV: 14-segment display
(17% increased from existing products)
- ▶ SV: 11-segment, MV: 7-segment value display (VX2, 7, 9)
- ▶ 0.2 % Display accuracy
- ▶ 50 ms High-speed sampling
- ▶ Fast tuning time of 1.5 cycle
(existing tuning time: 2.25 cycle)
- ▶ 4 PID groups, 4 SV settings, 4 auxiliary outputs
(VX4: max 3 outputs)
- ▶ 63mm short body size
- ▶ Protective cover can be attached (Optional)
- ▶ Real time monitoring / recording /
parameter setting by TCS

※ TCS freeware download at www.hynux.com



Visibility



Wide angle, Various colors, Increased visibility with large character size

- ▶ PV: 14 segment display(17% increased from existing products)
- ▶ SV: 11 segment, MV: 7 segment value display(VX2, 7, 9)
- ▶ MV display: Available for only VX2, VX7, VX9
(VX4: Press the MD key to check MV value in RUN status)
- ▶ Improved visibility by characters in white, green, yellow color
- ▶ Control status, communication status and function fault can be checked immediately by various indicators



▶ Previous model



▶ VX

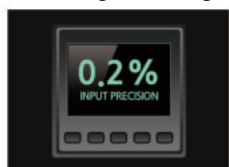


Superior control performance



◆ High precision & high speed sampling

- ▶ Realization of high precision control(display accuracy $\pm 0.2\%$ of FS ± 1 digit)
- ▶ Applicable to fast control system by high-speed sampling cycle
- ▶ Optimized for environments requiring high-speed response
- ▶ Heating & cooling simultaneous control



▶ 0.2 %



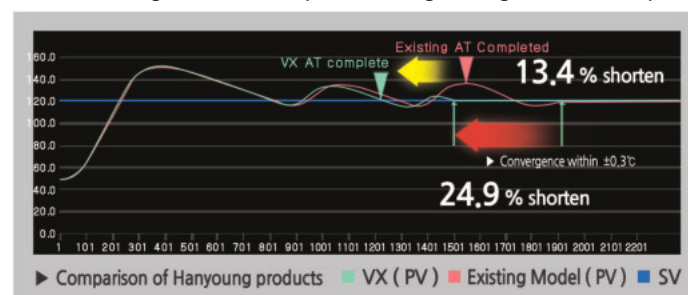
▶ 50 ms



▶ Heating & Cooling
Display accuracy High-speed sampling control

◆ Reduced auto-tuning time

- ▶ Fast tuning time of 1.5 cycle(existing tuning time: 2.25 cycle)



◆ Various options

- ▶ Thermocouple, RTD, Analog Input
- ▶ Standard Control, Heating Cooling Control, Ramp Control
- ▶ 4 PID groups, 4 SV settings, 4 auxiliary outputs(VX4: max 3 outputs)
- ▶ Various alarm function and high capacity relay(5A, 220Va.c.)
- ▶ Loop Break Alarm(LBA), Retransmission output (RET),
Digital Input(DI) Remote Input(REM), Heater Break Alarm(HBA)
- ▶ RS485 communication
(Modbus RTU) (PC-Link, PC-Link SUM, ModbusASCII)



Convenience



Space saving, Front panel protection structure, Improved button operation

- ▶ 63 mm depth short body
(78.4 mm depth with additional protective cover)
- ▶ Front panel protection(VX4:IP66, VX2,7,9:IP65)
- ▶ Easy to maintain/repair with front separation structure
- ▶ Smooth touch and durability with tact switch
(ABS material)



▶ 63mm short body size



▶ Safe use in dust and waterproof environments



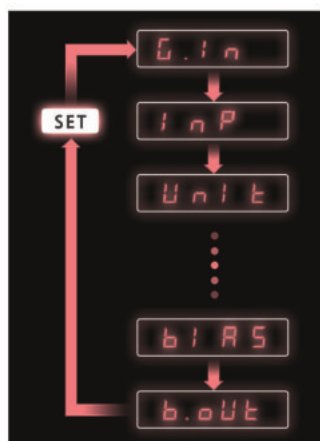
▶ Improved durability using ABS tact switch



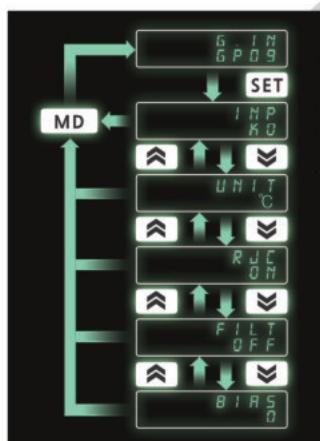
▶ Easy replacement without re-wiring through front detachment



▶ Protective cover can be attached
(Sold separately)



▶ Existing parameter setting method
(One-way movement)



▶ VX parameter setting method
(Two-way movement)

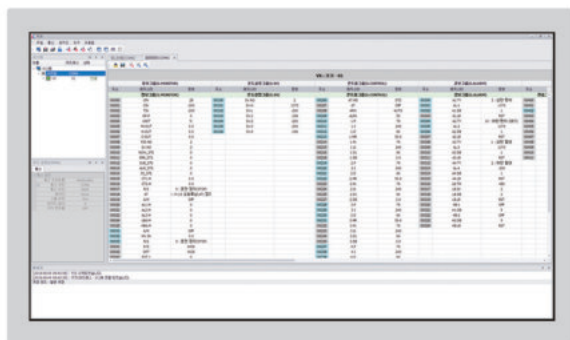


◆ Easy menu settings

- ▶ Convenient and time saving setting by up/down key
- ▶ Easy operation through full/basic/easy menu
- ▶ Front function key
(RUN/STOP, AT, MANUAL/AUTO output, Lock)

◆ Parameter setting on PC

- ▶ Hanyoung Nux total communication software(TCS)
- ▶ Real time monitoring / recording / parameter setting by TCS
- ※ TCS freeware download at www.hynux.com



◆ USB Loader Function





- ▶ MINI USB 2.0 cable(NMC-UM210)/ Sold separately
- ▶ Easy parameter value backup
- ▶ Can be set in non-power source



▶ Simple and easy connection with USB cable



▶ VX and TCS connection with USB cable

Classification		VX2		VX4		VX7		VX9	
Input	Thermocouple	K, J, E, T, R, B, S, L, N, U, W, PLII							
	Reference junction compensation accuracy	±1.5 °C (within -10~50 °C)							
	RTD	JPT100, PT100							
	Allowable line resistance	Each 3 wire within 10 Ω (but the resistance among 3 lines should be same)							
	DC voltage / current	1 ~ 5 V (4 ~ 20 mA), 0 ~ 5 V, 0 ~ 10 V, 0 ~ 50 mV, 0 ~ 100 mV							
	Sampling cycle	50 ms							
Control output	Relay output	● Rated switching capacity: 5A 250Va.c., 5 A 30Vd.c. ● Max. switching power: 750 VA, 90 W ● Max. switching voltage: 250Va.c., 110Vd.c. ● Max. switching current: 5 A ● Mechanical life: 20 million times (at 180 CPM)							
	Voltage pulse output	12Vd.c. ± 1Vd.c. pulse voltage (load resistance min. 600 Ω)							
	Current output	4 ~ 20 mA ± 0.2% of FS ± 1 digit, load resistance: max. 600 Ω							
Control	Control type	ON/OFF, PID control, 2DOF PID control							
	Output operation	Reverse action, direct action							
Memory	Non-volatile memory life	EEPROM unlocked: when setting E2P.L: OFF in G.SET group (EEPROM life: 1 million times write guaranteed) /EEPROM locked: when setting E2P.L: ON in G.SET group (store in RAM)							
Display part (H * W) mm	Display method	Wide viewing angle LCD							
	PV character	20.5 x 6.9	15.2 x 6.8	19.8 x 9.3	29.0 x 13.6				
	SV character	12.8 x 5.9	7.4 x 3.9	10.2 x 4.9	15.0 x 7.2				
	MV character	9.3 x 4.4	7.4 x 3.9	7.5 x 3.3	11.0 x 4.8				
USB Loader	Communication method	USB 2.0							
	Protocol	Protocol : PC-LINK	Baudrate : 38400 bps	Start bit : 1 bit	Data bit : 8bit	Parity bit : None	Stop bit : 1bit		
	Communication distance	Within 5 m							
Option	Sub output	Relay 1 ~ 4 outputs, rated switching capacity: 5A 250Va.c., 5 A 30Vd.c.							
	Digital input	2 points or 4 point	Contact input ON : 1 KΩ max., OFF: 100 KΩ min., Non-contact input ON : 1.5 V max., OFF: 0.1 mA max. Current Flow : approx. 2 mA per contact, Voltage at open : Approx. 5 V DC						
	Retransmission output	1 output, 4 ~ 20 mA ± 0.2% of FS ± 1 digit, load resistance: max. 600 Ω							
	Remote input	1 input, 4 ~ 20 mA (1 ~ 5 V)							
	Current detection input	1 input or 2 inputs, 0.0 ~ 50.0 A, CT-70 current transformer (sold separately)							
	RS-485	Communic. method	EIA RS485 standard, 2-wire half-duplex						
		Max. connections	31 (address setting 1~99 available)						
		Communic.sequence	No sequence						
		Communic.distance	Within 1.2 km						
		Communic. speed	4800, 9600, 14400, 19200, 38400, 57600 BPS						
		bit	Start bit : 1 bit, Data bit : 7 or 8 bit, Parity bit : NONE / EVEN / ODD, Stop bit : 1 or 2 bit						
Protocol		PC-LINK STD, PC-LINK WITH SUM, MODBUS-ASCII, MODBUS-RTU							
Response time	Actual response time = processing time + (response time X 50 ms)								
Power	Power voltage	100 - 240Va.c., 50/60 Hz							
	Voltage fluctuation rate	±10 % of power voltage							
	Insulation resistance	Min. 20 MΩ, 500Vd.c.							
	Dielectric strength	3,000Va.c., 50/60 Hz for 1 minute (between 1st and 2nd terminal)							
	Power consumption	Max. 8.5 VA	Max. 8.5 VA	Max. 8.5 VA	Max. 9.0 VA				
	Ambient temperature & humidity	-10 ~ 50 °C, 35 ~ 85 % RH (without condensation)							
	Storage temperature	-25 ~ 65 °C							
Approval		   							
		Electrostatic discharge (ESD) : KN61000-4-2 EFT(RS) : KN61000-4-3 Conductive RF (CS) : KN61000-4-6 SURGE : KN61000-4-5							
Weight (g)		202	120	194	290				
Basic components		Main body, Bracket, 250 Ω resistor (1%) , Rubber packing, Instruction manual							





Model	Code										Content
VX	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LCD Digital Temperature Controller
Size	2										48(W) × 96(H) × 63(D) mm
	4										48(W) × 48(H) × 63(D) mm
	7										72(W) × 72(H) × 63(D) mm
	9										96(W) × 96(H) × 63(D) mm
Sensor	U										Universal input
OUT 1 (control output 1)	M										Relay output
	S										Voltage pulse output (voltage pulse output for SSR drive)
	C										Current output (4-20 mA current output for SCR drive)
OUT 2 (control output 2)	N										None
	M										Relay output
Power	A										100 - 240Va.c. 50/60 Hz
Sub output	A1										1 relay output (VX4 basic option)
	A2										2 relay outputs (VX2, VX7, VX9 basic option)
	A3										3 relay outputs (※ *1 *2)
	A4										4 relay outputs (※ *2)
Communication											None
	C										RS-485 communication
Retransmission output RET											None
	T										Retransmission output (4 ~ 20 mA)
Digital input DI											None
	D2										2 digital inputs (DI 1 ~ 2)
	D4										4 digital inputs (DI 1 ~ 4)
Current detection input CT											None
	H1										Current detection input (CT) 1 contact
	H2										Current detection input (CT) 2 contacts
Remote input REM											None
	R										1 input 4 20 mA 1 5 V




※ *1) Not available for VX4 However when OUT2 is selected as M SUB3 can be used according to the parameter setting
 ※ *2) You can select from VX2 VX7 VX9 VX4 is excluded
 ※ Please refer to our user s manual catalog or homepage for the model names of VX available for order

※ Sold separately
 - Current transformer: CT-70
 - USB Loader Cable: NMC-UM210
 - Protective cover




VX2	VX4	VX7	VX9
TC2A-COV	TC4A-COV	TC7A-COV	TC9A-COV




■ Temperature Controllers




Type	Multi Input / Output Temperature Controllers		Easy Operation Temperature Controllers		Multi Input Temperature Controllers			
Model	NX series		DX series		AX series		KX series	
Appearance								
Features	<ul style="list-style-type: none">• Fuzzy function, PID auto-tuning• 3 zone PID/ Group PID 3 types• Ramp control function• Heating / cooling control, Heater break alarm• 3 set value type selection function by digital input (DI)• Communication function (RS485/422)		<ul style="list-style-type: none">• PID auto-tuning• Direct/reverse operation internal selection• High and Low alarm output• Control loop break alarm (LBA)• Decimal point display and high / low setting limitation• Retransmission output		<ul style="list-style-type: none">• Multi Input• High speed sampling cycle (0.1 sec)• Installation depth: 63 mm• Control output selectable: reverse operation/ direct operation• Control loop break alarm (LBA)		<ul style="list-style-type: none">• Multi Input• Decimal point position selection• 2-stage step function by external contact (KX4S)• Output operation selectable: reverse operation/direct operation• PID auto-tuning	
Power voltage	100-240Va.c. 50/60Hz, 24Vd.c.				100-240Va.c. 50/60Hz		100-240Va.c. 50/60 Hz, 24Vd.c.(KX4S selection inhibited)	
Accuracy	0.5 % of FS				±0.3 % of FS		0.5 % of FS	
Input	RTD, thermocouple, DC voltage							
Output	Relay output, SSR output, current output							
Control type	PID control / ON-OFF control							




Type	Multi-Channel Digital Temperature Controllers	Modular Multi-Channel Temperature Controllers	Multi Input Temperature Controllers
Model	MC9	ML series	MT100
Appearance			
Features	<ul style="list-style-type: none"> 4/8 channel control function Multi-memory function (ax 8 X 8) Heating / cooling control (4 channels) Digital input (DI) Communication function (RS232, RS485/422) 	<ul style="list-style-type: none"> Sampling cycle 50 ms 8 Event output contact units Max. 32 parallel connections (including ML-E) Unit power, communication connection by side connector Communication function (RS232C, RS485) 	<ul style="list-style-type: none"> Input 4 channels (control: 2 channels, monitoring: 2 channels) Temperature, pressure, current detection alarm functions Abnormal history display and saving functions Reverse phase detection (motor rotation direction) function Medium replenishment and suction function Communication function (RS485/422)
Power voltage	100-240Va.c. 50/60Hz	24Vd.c.	100-240Va.c. 50/60Hz
Accuracy	±0.3 % of FS ±1 Digit		Temperature: ±0.3 % of FS ±1 Digit Pressure: ±3 % of FS ±1 Digit
Input	RTD, thermocouple, DC voltage		RTD, thermocouple
Output	Relay output, SSR output, current output, Triac output	Relay output, SSR output, current output	Relay output, SSR output
Control type	PID control / ON-OFF control		PID control

■ Temperature Controllers




Type	Modular Programmable Temperature Controllers		2-Channel Programmable Temperature Controllers	
Model	TD510		TD500	TD300
Appearance				
Features	<ul style="list-style-type: none">· 5.7" Color TFT LCD touch screen· 2-channel control · Several alarm functions· Multi input (RTD, TC,Vd.c.)· Communication function built-in (RS485)· Detachable and expandable structure· Digital Recorder function (internal memory, SD card storage)· Digital input (DI) max. 32 contacts, Digital output (DO) max. 32 contacts		<ul style="list-style-type: none">· 5.7" Color STN LCD touch screen· 2-channel control · PID control· Max. 100 patterns, 100 segments / pattern (total 2,400 segments)· Several alarm functions (output: 4 contacts, operation: 20 types)· Digital input (DI) 8 contacts, Digital output (DO) 16 contacts· Communication function (RS485 or RS232 depending on the suffix code)	<ul style="list-style-type: none">· 3.5" Color TFT LCD touch screen· 2-channel control · PID control· Max. 100 patterns, 100 segments/pattern (total 2,400 segments)· Several alarm functions (output: 4 contacts, operation: 20 types)· Digital input (DI) 8 contacts, Digital output (DO) 8 contacts· Communication function (RS485 or RS232 depending on the suffix code)· Data storage and parameter backup through SD card
Power voltage	100-240Va.c. 50/60Hz			
Accuracy	±0.15 % of FS		±0.1 % of FS	
Input	RTD, thermocouple, DC voltage			
Output	Relay output, SSR output, current output			
Control type	PID control / ON-OFF control			




Type	Modular Programmable Temperature & Humidity Controllers	Programmable Temperature & Humidity Controllers	
Model	TH510	TH500	TH300
Appearance			
Features	<ul style="list-style-type: none"> 5.7" Color TFT LCD touch screen High-precision control Several alarm functions Smartphone remote monitoring function Communication function built-in (RS485) Detachable and expandable structure Temperature, humidity independent PID control Digital recorder function (internal memory, SD card storage) Digital input (DI) max. 32 contacts, Digital output (DO) max. 32 contacts 	<ul style="list-style-type: none"> 5.7" Color STN LCD touch screen High-precision control 100 patterns (total 6000 segments) Temperature, humidity independent PID control Several alarm functions Digital input (DI) 8 contacts, Digital output (DO) 20 contacts Communication function built-in (RS232, RS422/485) 	<ul style="list-style-type: none"> 3.5" Color TFT LCD touch screen High-precision control 100 patterns (total 2000 segments, 100 segments / pattern) Temperature, humidity independent PID control Several alarm functions Digital input (DI) 4 contacts, Digital output (DO) 12 contacts Communication function (RS485 or RS232 depending on the suffix code)
Power voltage	100-240Va.c. 50/60Hz		
Accuracy	Temperature: ± 0.1 % of FS / Humidity: ± 1 % of FS		Temperature: ± 0.2 % of FS / Humidity: ± 2 % of FS
Input	RTD, DC voltage		
Output	SSR output, current output		
Control type	PID control / ON-OFF control		

Type	Thermal Shock Test Controllers	Shock Test Controllers	Programmable Temperature Controllers
Model	TS510	TS500	NP200
Appearance			
Features	<ul style="list-style-type: none">· 5.7" Color TFT LCD touch screen· Damper & elevator method support· Multi input (RTD, TC,Vd.c.)· Communication function built-in(RS485)· Detachable and expandable structure· Digital Recorder function (internal memory, SD card storage)· Digital input (DI) max. 32 contacts, Digital output (DO) max. 32 contacts	<ul style="list-style-type: none">· 5.7" Color STN LCD touch screen· Damper & elevator, GAS method support· Multi input (RTD, TC,Vd.c.)· Digital input (DI) max. 16 contacts, Digital output (DO) max. 24 contacts· Communication function (RS485 or RS232 depending on the suffix code)· Data storage and parameter backup through SD card	<ul style="list-style-type: none">· Multi input / output, ± 0.1 % high accuracy· 30 patterns, 300 segments (1 pattern / 99 segments)· Heating / cooling PID control· 3-level PID selection (4 PID groups)· PID auto-tuning mode 2 types· Digital input (DI) 7 contacts, User output (UO) 10 contacts· Communication function (RS485/422)
Power voltage	100-240Va.c. 50/60Hz		
Accuracy	RTD: ±0.1% of FS, thermocouple: ±0.15 % of FS	±0.1 % of FS	
Input	RTD, thermocouple, DC voltage		
Output	SSR output, current output	Relay output, SSR output, current output	
Control type	PID control / ON-OFF control		





Type	Board Type Temperature Controllers		Cost-Effective Digital Temperature Controllers
Model	BX8	SM100	ED6
Appearance			
Features	<ul style="list-style-type: none"> Fuzzy function, PID auto-tuning 3 zone PID / Group PID 3 types Ramp control function Heating / cooling control, Heater break alarm 3 set value type selection function by digital input (DI) Communication function (RS485) Convenient design (detachable case) 	<ul style="list-style-type: none"> Less installation space required with the board design 20 Channel integrated digital temperature controller ± 0.5 % display accuracy of max. range Several alarm functions. (digital output 3 contacts) Communication function built-in (RS485/422, RS232C) 	<ul style="list-style-type: none"> Heating/cooling control selection Alarm output and timer output selection ON/OFF, Proportional control selection 0.1°C / 1°C selection Delay output time setting
Power voltage	100-240Va.c. 50/60Hz		100-240Va.c. 50/60Hz, 10-24Va.c. 50/60Hz or 10-24Vd.c.
Accuracy	± 0.5 % of FS ± 1 Digit	± 0.5 % of FS	± 0.5 % of FS ± 1 Digit
Input	RTD, thermocouple, DC voltage	RTD, thermocouple	
Output	Relay output, SSR output, current output	SSR output	Relay output, SSR output
Control type	PID control, ON-OFF control		Proportional control, ON/OFF control

Temperature / Humidity Controllers


Type	Easy Operation Temperature Controllers		Temperature Controllers Without Indicator
Model	HY-8000S / 8200S / 72D / 48D	DF series	HY-2000, HY-1000, ND4
Appearance			
Features	<ul style="list-style-type: none"> Proportional control or ON / OFF control Convenient temperature setting Alarm setting (HY-8200S) Sharp digital display 	<ul style="list-style-type: none"> Proportional control or ON / OFF control Convenient temperature setting Auxiliary output setting (SUB) Sharp digital display Convenient 8 pin socket type (DF4) 	<ul style="list-style-type: none"> Proportional control or ON/OFF control Convenient temperature setting Plug-in method (repair, inspection, exchange convenience) Burnout function (output OFF during sensor disconnection) Strong against vibrations and impacts, so it can be installed directly on the machine
Power voltage	110/220Va.c. 50/60Hz	DF2: 110/220Va.c. 50/60Hz DF4: 110Va.c. 50/60Hz, 220Va.c. 50/60Hz ※ Model DF4 with 110 V power voltage is available (order-made)	HY-1000: 110/220Va.c. 60Hz HY-2000: 110/220Va.c. 60Hz ND4: 110Va.c. 60Hz, 220Va.c. 60Hz ※ Model ND4 with 110 V power voltage is available (order-made)
Accuracy	±1 % of FS ±1 Digit		Non-indicating
Input	RTD, thermocouple, DC voltage		RTD, thermocouple
Output	Relay output, SSR output, current output		Relay output
Control type	Proportional control, ON/OFF control		

Type	Temperature Controllers For Refrigerators		Temperature Controllers For Greenhouses
Model	BR6A	BR6	HD6
Appearance			
Features	<ul style="list-style-type: none"> Heating/cooling control selection Alarm output, timer output selection ON/OFF, Proportional control selection 0.1℃ / 1℃ selection Delay output time setting IP65 (IEC 60529) front degree of protection Operation convenience improved with the set move key 	<ul style="list-style-type: none"> Heating/cooling control selection Alarm output and timer output selection ON/OFF, Proportional control selection 0.1℃ / 1℃ selection Delay output time setting 	<ul style="list-style-type: none"> Greenhouse open / close motor control only 1-, 2-stage control operation according to set value Hysteresis setting by ON/OFF output Operation according to temperature and time setting 0.1℃ display function
Power voltage	100-240Va.c. 50/60Hz or 100-240Vd.c.	100-240Va.c. 50/60Hz 10-24Va.c. 50/60Hz or 10-24Vd.c.	100-240Va.c. 50/60Hz
Accuracy	±1 % of FS ±1 Digit		±1 % of FS
Input	TH-570N (Hanyoung Nux exclusive sensor)		TH-540N (Hanyoung Nux exclusive sensor)
Output	Relay output, SSR output		Relay output
Control type	Proportional control, ON/OFF control		


■ Temperature Indicators

Type	Digital Temperature Indicators	Large LED Temperature Indicators	5-channel Temperature Indicators	Multi Input Temperature Indicators
Model	BK3	HN100	TP3	BK6-M
Appearance				
Features	<ul style="list-style-type: none">· 0.5 % high accuracy indicator· Simple exclusive indication· Power voltage 110/220 V a.c.· Character height 14.2/20.0 mm LED applied	<ul style="list-style-type: none">· Large LED indication (character 34 X 56 mm)· IP57 (IEC 60529) protection degree· Stainless external case· Suitable for saunas, green houses, sport centers	<ul style="list-style-type: none">· Indicating temperature up to 5 channels· Temperature deviation compensation function in each channel· Channel fixing/channel automatic switch selection· Automatic switching time selection in each channel	<ul style="list-style-type: none">· Multi Input (thermocouple, RTD, voltage · current)· Retransmission output (4-20mA d.c.)· Temperature unit selection· Measured value correction function
Power voltage	110/220Va.c. 50/60Hz	12Vd.c. (Power cable length : 1.8 m)	100-240Va.c. 50/60Hz	
Accuracy	±0.5 % of FS	±0.5 % of FS ±1 Digit		
Input	RTD, thermocouple, DC voltage, DC current	RTD, DC current	RTD, thermocouple	Multi Input (19 types), thermocouple, RTD

■ Portable Thermometers

Type	Portable Thermometers
Model	D55
Appearance	
Features	<ul style="list-style-type: none"> Temperature indication by large LCD Temperature unit selection Thermocouple selection function (K,J) Indication value hold, max. / min value indication Individual temperature and temperature difference indication with 2 contact measurement input
Power voltage	9Vd.c. Battery (6F22, 006P)
Accuracy	±0.5 % of FS ±1 Digit
Input	Thermocouple

■ Data Storage Devices

Type	Data Storage Devices
Model	EM310
Appearance	
Features	<ul style="list-style-type: none"> 32 Mbyte data storage device Convenient panel installation type (72 × 36 mm) USB port for memory stick connection
Power voltage	24Vd.c. 500 mA





■ Floatless Level Switches

Type	Floatless Level Switches
Model	FS - 3A
Appearance	
Features	<ul style="list-style-type: none"> Used for agricultural water, water treatment plant, sewage treatment plant, factory and several surface water control Lightweight and easy to install Operation status is indicated by LED
Power voltage	110Va.c. 50/60Hz, 220Va.c. 50/60Hz



■ Electrode Holders

Type	Electrode Holders
Model	HY-ER3
Appearance	
Features	<ul style="list-style-type: none"> IP63 (IEC 60529) protection degree The PBT flame retardant provides robustness and reduces the fire risk Body and cover are connected by hook coupling structure so they are easily detached by screwdriver
Power voltage	-

■ Converters

Type	Ethernet To Serial Converters	Communication Converters		Temperature / Humidity Converters
Model	HMCE-103	CV310	CV300	CV250
Appearance				
Features	<ul style="list-style-type: none"> Several connection interface support (RS232 / RS485 / RS422) Open network protocol support Up to 3 clients can be simultaneously connected 	<ul style="list-style-type: none"> RS232 to RS485 / RS422 signal conversion RS232 and RS485 / RS422 2 kV electrical insulation built-in protection device RS485 Echo, Non-Echo function support Excellent compatibility with fast transmission/reception switching speed Max. 1.2 Km, 256 Node connection available 	<ul style="list-style-type: none"> RS422/485 Line Drive auto control Convert RS232 signal to RS422/485 signal Built in electrical insulation/ protection device Between RS232 and RS422/485 	<ul style="list-style-type: none"> DIN rail and bolt fixing mounting method Uniform with DC signal Relative humidity calculation by dry bulb temperature and wet bulb temperature Two-wire transmission line is simple. Simple signal distribution (low output resistance) Linear signal
Power voltage	5Vd.c. (±10 %)	9-30Vd.c.	9Vd.c., 300 mADC Adapter (1.3 Ø d.c Jack)	100-240Va.c. 50/60Hz

■ Recorders

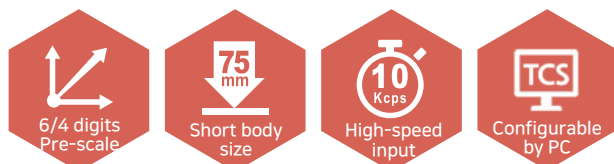
Type	Touch Screen Recorders	2-channel temperature controllers & recorders
Model	GR200	RT9N
Appearance		
Features	<ul style="list-style-type: none"> High-definition screen: 5.7" 640×480 TFT-LCD Large memory: SD and SDHC card support (internal memory: 80 MB) 3-language support: Korean, English, Chinese (simplified) Data storage and parameter backup function with SD card RS485 / 422 / ETHERNET 	<ul style="list-style-type: none"> Various alarm functions Multi input/output Communication function (RS485) Free scale function PID auto-tuning Temperature record & control
Power voltage	100-240Va.c. 50/60Hz	
Accuracy	±0.15 % of FS ±1 Digit	
Input	RTD, thermocouple, DC voltage	
Channels	2/4/8/12 channels	1/2 channels
Contact outputs	6 contacts / 12 contacts	Control output: 1 contact Alarm: 2 contacts

LC series




LCD Counter / Timers with expanded pre-scale range

- ▶ Wide viewing angle LCD and white backlight
- ▶ Front panel protection(IP66) ▶ Offset function for counter and timer
- ▶ Pre-scale setting range expanded (from 0.00001 to 999999)
- ▶ Modbus communication function (RS485)



※ Hanyoung Nux total communication software(TCS)
Real time monitoring / recording / parameter setting by TCS
- TCS freeware download at www.hynux.com

Specifications

Model		LC6	LC4	LC3	LC7
Power voltage		100 - 240Va.c. 50/60 Hz, 24 - 48 Va.c./d.c. 50 Hz (voltage fluctuation rate: ±10 %)			
Power consumption	AC	● 2-stage setting: max. 12 VA ● 1-stage setting: max. 11 VA			
	DC	● 2-stage setting: max. 6 W ● 1-stage setting: max. 5W			
Character height		Counting unit (10.5 mm), Setting unit (6.7 mm)	6-digit: counting unit (10.8 mm), setting unit (8 mm) 4- digit: counting unit (14 mm), setting unit (8.5 mm)	Counting unit (14.5 mm), Setting unit (10 mm)	Counting unit (17.2 mm), Setting unit (12.5 mm)
Maximum counting speed		1 cps / 30 cps / 1 Kcps / 10 Kcps			
Power outage compensation		10 years (using non-volatile memory)			
Input		● Selection of input method by external switch (voltage input / non-voltage input) ● Counter: composed of CP1, CP2, RESET, BATCH-RESET ● Timer: composed of START, INHIBIT, RESET ● Voltage input: HIGH level (5 - 30Vd.c.), LOW level (0 - 2Vd.c.), input resistance (about 4.5 kΩ) ● Non-voltage input: impedance during short-circuit (max. 1 kΩ), residual voltage during short-circuit (max. 2Vd.c.)			
Minimum input signal time		1 ms / 20 ms (START, INHIBIT, RESET inputs)			
External power supply		Max. 12Vd.c. 100 mA			
ONE SHOT output		0.01 ~ 99.99 SEC			
Control output	Contact	1-stage setting	OUT (SPST, 1a)	OUT (SPDT, 1c)	OUT (SPDT, 1c)
		2-stage setting	OUT1 (SPST, 1a), OUT2 (SPDT, 1c) * OUT2 of LC6-P62C: SPST configuration		
		Capacity	SPDT: NC (250Va.c. 5A), NO (250Va.c. 2A), resistive load SPST: 250Va.c. 5A, resistive load		
	Contactless	1-stage setting	NPN 2 circuits (OUT, BAT.O) * LC4-P61C/P41C models NPN 1 circuit configuration		
		2-stage setting	-	NPN 2 circuits (OUT1, OUT2)	NPN 2 circuits (OUT1, OUT2)
		Capacity	Open collector, max. 30Vd.c. 100 mA		
Timer operation error		Power start: max. ±0.01 % ±0.05 sec, Reset start: max. ±0.01 % ± 0.03 sec			
Communication		● Protocol: Modbus-RTU ● Communication type: RS485 (2-wire half-duplex) ● Synchronization: Asynchronous ● Data bit: 8 bit ● Communication speed: 2,400 / 4,800 / 9,600 / 19,200 / 38,400 bps ● Effective distance: Max. within 800 m ● Parity bit: None / Odd / Even ● Max. connections: 31 (address: 1 ~ 127) ● Response waiting time: 5 ~ 99 ms ● Start bit: 1 bit (fixed) ● Stop bit: 1 bit (fixed)			
Insulation Resistance		Min. 100 MΩ (500Vd.c.) conductive terminal - unfilled metal			
Dielectric strength		2000Va.c. 60 Hz for 1 min (different live part terminals)			
Noise immunity		Square-wave noise by noise simulator (1 μs pulse every 16 ms), ±2000 V (pulse width 1 μs)			
Vibration resistance		10 - 55 Hz, single amplitude 0.5 mm, 3-axis each direction, 2 h			
Relay Life		● Electrical: Min. 50,000 times ● Mechanical: Min. 10 million times			
Degree of protection		IP66 (IEC 60529) (product front)			
Storage temperature		-20 ~ 65 °C			
Ambient temperature & humidity		-10 ~ 55 °C, 35 ~ 85 % RH (without condensation)			
Approval		CE 			
Weight (g)		196	140	143	222

Suffix code

Model	Code	Content
LC	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	LCD Counter / Timer
Appearance	3	96(W) \times 48(H) \times 71.1(D) mm
	4	48(W) \times 48(H) 79.5(D) mm
	6	72(W) \times 36(H) 84.1(D) mm
	7	72(W) \times 72(H) 92.9(D) mm
Type	P	Preset Counter / Timer
Display digits	4	4 digit display (9999) ※ LC4 only
	6	6 digit display (999999)
Setting stages	1	1-stage setting
	2	2-stage setting
Sub output	N	No sub output
	C	RS485 (MODBUS-RTU)
Power voltage	A	100 - 240Va.c. 50/60 Hz
	D	24 - 48Vd.c. 50/60 Hz

LT4/LT4S



Timer with high visibility LCD display

- ▶ Bright and easy to view with wide viewing angle LCD
- ▶ 51.2 mm short body size ▶ Front panel protection(IP66)
- ▶ Improved durability using ABS tact switch
- ▶ Wide power specifications (24 – 240Va.c./d.c. 50/60 Hz dual usage)
- ▶ One-shot output time setting (0.01 sec ~ 99.99 sec)
- ▶ Minimum signal time selection (1 ms / 20 ms)
- ▶ Several time ranges (0.01 sec ~ 9999 hrs)
- ▶ Several operation modes

LT4 : POND/PFKF/PFKN/PINT/TWON/TWOF/S-D

LT4S : SOND/SFKF/SINT/SNFN/SNFF/SOFD/S.OND/S.FKN/S.INT/S.ODR





Specifications




Model		LT4 (socket type)	LT4S (socket type)
Power voltage		24 – 240Va.c. 50/60 Hz, 24 – 240Vd.c.	
Allowable voltage fluctuation rate		±10% of power voltage	
Power consumption		Max. 4 VA (24 – 240Va.c. 50/60 Hz) Max. 1.6 W (24 – 240Vd.c.)	Max. 4.5 VA (24 – 240Va.c. 50/60 Hz) Max. 2 W (24 – 240Vd.c.)
Display method		Wide viewing angle negative LCD display	
Display mode		Up display and down display	
Display digits		4 digits	
Character height		PV display: 14 mm, SV display: 8.5 mm	
Return time		Max. 100 ms	
External connection		Socket 8-pin	
Operating time range		0.01 sec ~ 9999 hour	
External input	Input signal	-	START, INHIBIT, RESET
	Input method	-	Non-voltage input Impedance during short-circuit: max. 1 kΩ Voltage during short-circuit: max. 0.5 V Impedance during open: min. 100 kΩ
Minimum input time		-	START, INHIBIT, RESET minimum input signal width 1 ms / 20ms selection
Operating time error		Power START : max. ± 0.01 % ±0.05 sec., Signal START : max. ± 0.005 % ±0.03 sec.	
Control output	Operation mode	POND / PFKF / PFKN / PINT / TWON / TWOF / S-D	SOND / SFKF / SINT / SNFN / SNFF / SOFD / S.OND / S.FKN / S.INT / S.ODR
	Contact configuration	Time limit 2c, instantaneous 1c + time limit 1c	Time limit 1c
	Contact capacity	250Va.c. 3A resistive load (NO:5A, NC:3A)	250Va.c. 5A resistive load
Relay life		Mechanical life: min. 10 million times, Electrical life: min. 100,000 times (250Va.c. 5A resistive load)	
Insulation Resistance		Min. 100 MΩ (500Vd.c. Mega standard, conductive terminal - exposed unfilled metal part)	
Dielectric strength		2000Va.c. 60 Hz for 1 min (conductive terminal - exposed unfilled metal part)	
Noise immunity		± 2 kV (among operation power terminals, pulse width = 1 us, square wave noise by noise simulator)	
Vibration resistance		10 – 55 Hz (for 1 min) single amplitude 0.5 mm X, Y, Z each direction 2 hours	
Shock resistance		300 m/s ² (30G) X, Y, Z each direction 3 times	
Degree of protection		IP66 (IEC 60529) (product front)	
Ambient temperature & humidity		-10 ~ 55 °C, 35 ~ 85 % RH (without icing)	
Storage temperature		-25 ~ 65 °C (without icing)	
Approval		CE	
Weight (g)		86	84




Suffix code

Model	Code	Content
LT4	□	LCD Timer
Control output		Time limit 2c, time limit 1c + instantaneous 1c
	S	Time limit 1c

Counter / Timers

Type	Digital Counter / Timers	LCD Digital Counters
Model	GF series	LC1
Appearance		
Features	<ul style="list-style-type: none"> Counter & timer functions Pre-scale setting 14 input operations, 16 output operations Decimal places setting 16 timer ranges (decimal / sexagesimal 8 types) NPN/PNP (voltage / non-voltage) input selection 	<ul style="list-style-type: none"> Compact LCD indicating total counter External power not needed with the built-in battery You can reuse the product by replacing the battery Small Power consumption and long battery life (about 7 years at room temperature) Non-voltage or voltage input IP66 (IEC 60529) degree of protection (front side)
Power voltage	100-240Va.c. 50/60Hz	Lithium battery built-in
Type	Preset method, Indication only	Indication only
Control functions	Counter, Timer	Counter
Display digits	4 digits, 6 digits	8 digits (addition)
Setting stages	1-stage setting, 2-stage setting	-

Type	LCD Timers		LCD Weekly & Yearly Time Switches
Model	LT1	LF4N	LY series
Appearance			
Features	<ul style="list-style-type: none"> Compact LCD indicating total counter External power not needed with the built-in battery You can reuse the product by replacing the battery Long battery life with small power consumption (about 10 years at room temperature) Non-voltage or voltage input IP66 (IEC 60529) degree of protection (front side) 	<ul style="list-style-type: none"> LCD display (displays several functions) Multi input ranges (10 types) Multi output operations (10 types) Bar graph over time display Reset, start and inhibit inputs Free voltage (24-240Va.c. 50/60Hz or 24-240Vd.c.) 	<ul style="list-style-type: none"> Easy to check and change programs Automatic change of seasonal program according to season setting function It is possible to add the yearly program to the weekly program The holiday setting function can block the output during the selected holidays Embedded type and exposed type installations (it can be installed on DIN rail without base plate)
Power voltage	Lithium battery built-in	24-240Va.c. 50/60Hz or 24-240Vd.c.	100-240Va.c. 50/60Hz
Display digits	8 digits (Addition)	4 digits	4 digits, 2 lines
Type	Indication only		
Time specs	-	0.01 s ~9990 h	Minimum spacing interval: 1 minute

Type	Digital Twin Timers		Digital Timers
Model	TT7H	TT4	TF4
Appearance			
Features	<ul style="list-style-type: none"> Individual setting of ON time and OFF time Output operation control according to external START input signal 	<ul style="list-style-type: none"> Free voltage (100 - 240 V a.c. 50/60 Hz) Dual timer & twin timer functions (Can be used as 2 independent timers) Output operation control according to external input signal (START, RESET, INHIBIT) 	<ul style="list-style-type: none"> Simple functions, convenient setting Range selection with front side deep switch (2 types) Decimal or sexagesimal Relay or transistor output Free power (100-240Va.c. 50/60Hz, 24-60Vd.c.)
Power voltage	220Va.c. 60Hz	100-240Va.c. 50/60Hz	100-240Va.c. 50/60Hz, 24-60Vd.c.
Display digits	4 digits		3 digits, 4 digits
Time specs	0.01 s ~9999 hour		Refer to standard range

LP3



RPM measurement, High-speed pulse, 13 operating modes

- ▶ Bright and easy to view with wide viewing angle LCD
- ▶ 66.4 mm short body size ▶ Front panel protection(IP66)
- ▶ Expanding maximum scale range : -99999 ~ 99999
- ▶ Several functions
 - : AUTO ZERO, Starting compensator timer, Limit comparative readout, Hysteresis, Display cycle setting, Selectable time unit, Indicate maximum and minimum value, Blackout memory



Specifications

Model		LP3-5A5	LP3-5A3	LP3-5AN
Power voltage		100 ~ 240Va.c. 50/60 Hz		
Power consumption		Max. 15 VA	Max. 13 VA	Max. 10 VA
Display method		Negative LCD display		
Character size		PV value (14.5 mm), SV value (10 mm)		
Input frequency		Contactless (max. 50 KHz, ON/OFF pulse width 10 us min), contact (max. 30 Hz, ON/OFF pulse width min. 16.6 ms)		
Input type	Voltage	[H] level (4.5 ~ 24Vd.c.), [L] level (0 ~ 1Vd.c.), input impedance (4.5 kΩ)		
	Non-voltage	Impedance during short circuit (max. 300 Ω), residual voltage (1 V max), impedance during open (min. 100 kΩ)		
Measuring range		F1, F2, F10, F11, F12, F13 : 0.0005 ~ 50 KHz, F3, F4, F5, F6 : 0.001 s ~ 3200 s, F7, F8, F9 : 0 ~ 4x10 ⁹		
Measuring accuracy		F1, F4, F10, F11, F12, F13 : FS ±0.05 % rdg ±1 digit, F2, F3, F5, F6 : FS ±0.01 % rdg ±1 digit		
External power supply		12Vd.c. ±10 % 100 mA		
Display cycle		0.05 sec / 0.5 sec / 1 sec / 2 sec / 4 sec / 8 sec		
Display range		-99999 ~ 99999		
Power outage compensation		Approx. 10 years (applying non-volatile EEPROM)		
Control output		HH (SPST), H (SPST), GO (SPST), L (SPST), LL (SPST) * HH/H output COM common, * LL/L output COM common	H (SPDT), GO (SPST), L (SPDT)	-
		NO contact (250Va.c. 5 A resistive load), NC contact (250Va.c. 2 A resistive load)		
Relay Life	Electrical	Min. 100 thousand times		
	Mechanical	Min. 10 million times (250Va.c. 2A)		
Vibration resistance		10 ~ 55Hz double amplitude 0.75 mm X·Y·Z each direction 2 hours		
Insulation Resistance		Min. 100 MΩ (500Vd.c.), conductive terminal - unfilled metal		
Dielectric strength		2000Va.c. at 60Hz for 1 min (different live part terminals)		
Noise immunity		±2000 V (pulse width 1 μs, apply square wave noise by noise simulator among power terminals)		
Degree of protection		IP66 (IEC 60529) (product front)		
Ambient temperature & humidity		-10 ~ 50 °C, 35 ~ 85 % RH (without condensation)		
Storage temperature		-20 ~ 60 °C		
Approval		CE		
Weight (g) ※		210	208	154

※ The weight of the terminal block cover is 8g.

Suffix code

Model	Code	Content
LP	□ - □ □ □ □	LCD Multi Pulse meter
Appearance	3	96(W) × 48(H) × 71.1(D) mm
Display digits	5	5-digit display
Power voltage	A	100 ~ 240Va.c. 50 ~ 60Hz
Output specifications	N	Indication only (None output type)
	3	3-stage setting (H/GO/L)
	5	5-stage setting (HH/H/GO/L/LL)

LM series



LCD Multi panel meter with measurement of voltage and current

- ▶ Improved visibility with the viewing angle LCD, various color and large character size
- ▶ 68mm(LM3), 81mm(LM6) depth short body
- ▶ IP66(only for front panel) ▶ Selectable measurement RMS and AVG
- ▶ Alternating current frequency measurement(0.1~9999 Hz)
- ▶ Easy setting with parameter by 4 digits and 2nd row on screen
- ▶ Maximum scale range(-9999~9999)
- ▶ Modbus communication function
- ▶ Maximum measurement input specification(500Vd.c., 500Va.c., DC 5A, AC 5A)
- ▶ Realizing smooth touch with ABS plastic keys by using tact switch (Durability)









Specifications





Model	LM3	LM6
Power voltage	100 ~ 240Va.c. 50/60 Hz	
Input	● DV: DC voltage ● DA: DC current ● AV: AC voltage / Frequency ● AA: AC current / Frequency	
Maximum measurement input	● DV: 500V ● DA: 5A ● AV: 500V ● AA: 5A	
Alternating current measurement	Selectable AVG / RMS	
Frequency measurement range	0.1 ~ 9999 Hz	
Display	Negative-LCD, 4 digits 2 stage, PV: White, SV: Green	
Character height	18.1 X 11.0 mm	11.5 X 7.5 mm
Maximum	-9999 ~ 9999	
Sampling cycle	● DV/DA : 50ms ● AV/AA : 16.6ms	
Accuracy(23℃)	● DC : FS ±0.1% rdg ±2digit ● AC : FS ±0.3% rdg ±3digit ● Frequency : FS ±0.1% rdg ±2digit	
Control output	● Relay output: 3 stage, solid state relay: 3 stage ● NPN/PNP open collector	
Option output	Transmission output (4 ~ 20 mA), RS485	
External input	HOLD / ZERO, Zero voltage input, Break Impedance: Under 300 Ω, residual voltage: under 1V, open impedance: over 100 kΩ	
Communication	● Protocol : Modbus-RTU ● Communication way : RS485 (2-wire half-duplex) ● Speed : 2400 / 4800 / 9600 / 19200 / 38400 bps	
Degree of protection	IP66 (Front with protect cover)	
Functions	6 modes, hysteresis, alternating current frequency, Zero in, initialization, lower value deviation compensation, adjusting scale of transmission output, Pre-scale, Ramp function, offset compensation, delay, Monitoring Max/Min values, Lock key function	

Suffix code

Model	Code	Content
LM	□ □ □ □ □ □	LCD Multi panel meter
Appearance	3	96(W) X 48(H) X 68(D) mm
	6	72(W) X 36(H) X 81(D) mm
Display digits	4	4 DIGIT
Input type	DV	DC voltmeter
	DA	DC ammeter
	AV	AC voltmeter
	AA	AC ammeter
Output specifications	N	Indication only
	3R	3 stage Contact output
	3N	3 stage NPN Open collector output
	3P	3 stage PNP Open collector output
Option output	-	None (None output type)
	C	RS485 Output (MODBUS-RTU)
	A	Current output (4 ~ 20 mA d.c.)
Power voltage	A	100 ~ 240Va.c. 50/60 Hz

Type	Small LCD Pulse Meters	Multi Pulse Meters	Multi Pulse Meters
Model	LP1	BP6	RP series
Appearance			
Features	<ul style="list-style-type: none"> Small LCD Pulse Meters Rotation speed / Frequency measurement 5-digit display available External power not needed with the built-in battery Non-voltage or free voltage input IP66 (IEC 60529) protection degree (front side) 	<ul style="list-style-type: none"> Auto zero time setting Comparative output (HH,H,GO,L,LL) Start compensation timer function Max. value (5 steps), min value (5 steps) memory Reset by external reset signal (F9 mode) Max. 50 KHz 	<ul style="list-style-type: none"> Auto zero time setting Comparative output (HH, H, GO, L, LL) Start compensation timer function Max. value (5 steps), min value (5 steps) memory Reset by external reset signal (F9 mode) Max. 10 KHz input
Power voltage	Built-in lithium battery	100-240Va.c. 50/60Hz, 24-60Va.c. 50/60Hz or 24-60Vd.c.	
Operation modes	Rotation, speed, frequency	Number of rotations, frequency, speed, Moving speed, cycle, transit time, time difference, time width, pulse width, pulse interval, integration counter, absolute ratio, error ratio, density, error	Number of rotations, frequency, speed, Moving speed, cycle, transit time, time difference, time width, pulse width, pulse interval, integration counter
Input frequency	-	50 KHz	10 KHz
Display cycle	-	0.05, 0.5, 1, 2, 4, 8 sec	
Output	-	Relay, transistor	Relay, transistor, retransmission

Type	Digital Multi Panel Meters	Digital Frequency Meters	Digital Wattmeters
Model	MP3 / MP6	MP3-4H / MP6-4H	WM3
Appearance			
Features	<ul style="list-style-type: none">• RMS measurement• Multi input range• Wide display range, 4 digits (-1999 ~ 9999)	<ul style="list-style-type: none">• Frequency meter• Frequency measurement by AC voltage input signal• Wide display range, 4 digits (-1999~9999)	<ul style="list-style-type: none">• Effective power display by RMS measurement• Converter not needed with the voltage and current measurement method• Measuring range up to 220Va.c.• Several outputs (Relay 4-20mA.d.c. open collector)
Power voltage	100-240Va.c. 50/60Hz, 24Vd.c. (only applied with the name plate attached type)	100-240Va.c. 50/60Hz	
Display digits	-1999 ~ 9999		
Functions	Scaling	Frequency meter (Hz)	Wattmeter (W)
Input	Multi Input	Multi Input	Single-phase 2-wire 220Va.c.
Output	Relay (HI,GO,LO) transistor,4-20mA.d.c., communication (RS485) BCD (Except MP6), display only	Relay (HI, GO, LO), transistor, 4-20mA.d.c., communication (RS485), display only	Display only, 4-20mA.d.c. relay (HI, GO, LO), transistor, communication (RS485)

Type	Digital Scale Meters	Non-Power Scale Meters	Digital Voltmeter / Ammeters	
Model	HP3	HLP1	BS	BA1
Appearance				
Features	<ul style="list-style-type: none"> High accuracy indicator ($\pm 0.03\%$ of FS) Max. display (-19999 ~ 19999) Retransmission output (4-20mA.d.c.) Communication (RS232 or RS485) function selectable 	<ul style="list-style-type: none"> Non-power free scale High accuracy indicator ($\pm 0.3\%$ of FS) Max. display (-1999 ~ 9999) Current input (4-20mA.d.c.) 	<ul style="list-style-type: none"> Bright and clear LED display Cost-effective Max. display 1999 Average value measurement 	<ul style="list-style-type: none"> Bright and clear LED display Cost-effective Max. display 1999
Power voltage	100-240Va.c. 50/60Hz	Non-power	BS1: 100-240Va.c. 50/60Hz BS3/6: 110/220Va.c. 50/60Hz	5Vd.c., 12-24Vd.c.
Display digits	± 19999	-1999 ~ 9999	± 19999	
Functions	Scale meter		Polarity display (BS3) Indication value hold by external contact	Decimal point and polarity display over range indication
Input	1 channel 1-5Vd.c. / 4-20mA.d.c.	4-20mA.d.c.	4-20mA.d.c. / 1-5Vd.c. AC voltmeter / AC ammeter DC voltmeter / DC ammeter	4-20mA.d.c. / 1-5Vd.c. DC voltmeter / DC ammeter
Output	4-20mA.d.c. Alarm output 2 contacts	Indication only	Indication only	

TPR-2G

Single phase power regulator



- Slim size
- Phase control, ON/OFF control (25A, 35A only)
- Improved safety with terminal protection cover
- LED display alarm for over current and SCR short



Specifications



Model	Low	TPR-2G25L	TPR-2G35L	TPR-2G50L	TPR-2G70L
	High	TPR-2G25H	TPR-2G35H	TPR-2G50H	TPR-2G70H
Rated load voltage	Low	220Va.c.			
	High	380Va.c.			
Power frequency		50/60 Hz (Dual usage)			
Rated current		25 A	35 A	50 A	70 A
Applying load		Resistive load			
Control input	Current input	4 - 20 mA d.c. (Impedance : 100 Ω)			
	Voltage input	1 - 5 Vd.c.			
	Contact point input	ON / OFF			
	External V.R	External volume (10 KΩ)			
Control method		Phase control, ON/OFF control (25A, 35A only) ✖			
Movement type		SOFT START, SOFT UP/DOWN (Time 0 to 50 seconds)			
Output voltage		More than 98 % of the power supply voltage (In case of maximum current input)			
Cooling method		Natural cooling			Forced cooling
Display method		Display by LED			
Insulation resistance		500Vd.c. 100 MΩ			
Dielectric strength		2,500Va.c. 50/60 Hz for 1 min			
Line noise		Noise by noise simulator (Pulse width 1 us : ± 2kV)			
Ambient temperature		0 ~ 50 °C (Without Condensation)			
Ambient humidity		30 ~ 85 % RH			
Storage temperature		-25 ~ 70 °C			
Approval		CE			
Weight(g)		740		1730	1750





✖ Order made : Fixed cycle control & Variable cycle control







Suffix code

Model	Code		Content
TPR-2G	<input type="checkbox"/>	<input type="checkbox"/> - <input type="checkbox"/>	Slim type single phase power regulator
Rated load current	040		40 A
	055		55 A
	070		70 A
	090		90 A
Rated load voltage	L		220Va.c. (Low)
	H		380Va.c. (High)

Thyristor Power Regulators

Type	3-Phase Thyristor Power Regulators	
Model	TPR-3N	TPR-3
Appearance		
Features	<ul style="list-style-type: none"> Various status indications with 9 LEDs Several protection functions Soft start / Soft up / Soft down Fast fuse built-in 	<ul style="list-style-type: none"> Status indication with 9 LEDs Several alarm functions Soft start & Soft down Fast fuse built-in
Power voltage	220Va.c. 50/60Hz, 380Va.c. 50/60Hz, 440Va.c. 50/60Hz	
Rated current	70A, 100A	70A, 100A, 150A, 200A, 250A, 320A, 500A, 600A
Control type	Phase control, ON/OFF control	Phase control, ON/OFF control, cycle control

Type	Slim Type Single-Phase Thyristor Power Regulators		Small 3-Phase Thyristor Power Regulators
Model	TPR-2G	TPR-2M	TPR-3M
Appearance	 		
Features	<ul style="list-style-type: none"> Slim size Phase control, ON/OFF control (25A, 35A only) Improved safety with terminal protection cover LED display alarm for over current and SCR short 	<ul style="list-style-type: none"> Several protection functions (heater break, overcurrent, heat sink overheating, SCR short circuit, etc) Improved safety by of circuit power supply and load power supply separation SOFT START(60 sec), SOFT UP/DOWN (15 sec) Status indication with 4 LEDs 	<ul style="list-style-type: none"> 110 mm (width) small 3-phase slim type thyristor power regulators Improved safety with the separate power supply 4 LEDs to check operation status and alarm Several alarm functions divided into Caution and Warning
Power voltage	220Va.c. 50/60Hz, 380Va.c. 50/60Hz	100-240Va.c. 50/60Hz, 100-440Va.c. 50/60Hz	100-240Va.c. 50/60Hz
Rated current	25 A, 35 A, 50 A, 70 A	25 A, 35 A	25A, 45A, 55A (Order made)
Control type	Phase control (standard), Fixed cycle control (optional) Variable cycle control(optional)	Phase control (standard), variable cycle control (optional)	Phase control (fixed cycle control, variable cycle control option)

Type	Slim Type Single-Phase Thyristor Power Regulators	3-Channel Each Phase Control Thyristor Power Regulators		Slim Type 3-Phase Thyristor Power Regulators
Model	TPR-2SL	TPR-3SL-EP	TPR-3CH-EC	TPR-3SL
Appearance		 	 	
Features	<ul style="list-style-type: none"> Alarm output divided into caution and warning Several Control types available depending on load Several protection functions (partial heater break, overcurrent, heat sink overheating, SCR short circuit, etc) Improved safety by separation between circuit power supply and load power supply(free voltage) 	<ul style="list-style-type: none"> 3 individual phase controls in one product Setting and monitoring with RS485 communication Single phase and 3-phase for load input power available Several protection functions 	<ul style="list-style-type: none"> 3 individual phase controls available in one product Setting and monitoring with Ether CAT communication Single phase and 3-phase for load input power available Several protection functions 	<ul style="list-style-type: none"> The slimmest 3-phase thyristor power regulators with the same rating (110 mm) The excellent designed heat sink and several protection circuits provide high durability. Improved safety with the separation of circuit power supply and load power supply Several alarm functions (heater break, load imbalance, heat sink overheating, overcurrent, etc.)
Power voltage	100-240Va.c. 50/60Hz, 380-440Va.c. 50/60Hz	100-240Va.c. 50/60Hz, 100-440Va.c. 50/60Hz		100-240Va.c. 50/60Hz, 380-440Va.c. 50/60Hz
Rated current	25A, 40A, 55A, 70A, 90A, 110A, 130A, 160A, 200A	40A, 55A, 70A, 90A, 130A, 160A		
Control type	Phase control, cycle control, ON/OFF control (dip switch selection)	Phase control, fixed cycle control, variable cycle control	Phase control, fixed cycle control, variable cycle control, ON/OFF control	

SSR-2B/2C

2 contact / Bimetal 3 contact

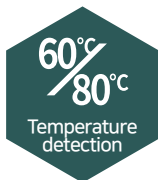
- ▶ Width 38 mm slim body
- ▶ B contact alarm output
- ▶ Protection from overheating by detecting 60/80 °C degree



Slim size



B contact alarm



Temperature detection



Bolt type Din-rail type



Specifications

Model		3 contacts	SSR-2B252Z	SSR-2B402Z
		2 contacts	SSR-2C252Z	SSR-2C402Z
Load	Operating load voltage		90 - 264Va.c.	
	Peak voltage (non-repetition)		600 V	
	Rated load current		25 A	40 A
	Frequency		50/60 Hz (dual usage)	
	Surge current (8.3 ms non-repetition)		260 A	420 A
	Leakage current		Max. 10 mA	
	Output ON voltage drop	3 contacts	Max. 2.5 V (RMS)	
2 contacts		Max. 1.8 V (RMS)		
Input	Rated voltage (circuit voltage)	3 contacts	24Vd.c.	
		2 contacts	None	
	Operating voltage range		4 - 32Vd.c.	
	Impedance		Max. 4 kΩ	
	Operating voltage		Min. 3Vd.c.	
	Reset voltage		Max. 1.5Vd.c.	
Response speed		Max. 1/2 Cycle + 1 ms		
Insulation resistance		500Vd.c. 100 MΩ (input/output and among cases)		
Dielectric strength		2,500Va.c. (60 Hz for one minute)		
Vibration resistance		10 -55 Hz, double amplitude: 1.5 mm, each X· Y· Z axis for 2 hours		
Shock resistance		1,000 g, each X· Y· Z axis for 3 times		
Storage temperature		-30 ~ 90 ℃		
Ambient temperature		-20 ~ 80 ℃ (without condensation)		
Ambient humidity		45 ~ 85 % RH		
Applied standard		IEC 62314		
Load Category		LC A		
IP Degree		IP20		
Pollution degree		2 Rating		
Weight(g)		670	900	

Suffix code

Model	Code	Content
SSR-2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Solid State Relay
Phase	2	Single-Phase
Contact	B	Bimetal input 3 contacts
	C	2 contacts
Rated load current	25	25A
	40	40A
Operating load voltage	2	90 - 264V _{a.c.}
Operation method	Z	Zero-cross switching

SSR-3F



Various functions with solid state relay

- ▶ Detecting over current
- ▶ Detecting open phase of load
- ▶ Various functions
 - : Fan malfunction alarm, Load break,
 - Load unbalance alarm, SCR break alarm
- ▶ Realizing accurate control by zero cross switching(optional)









Specifications

Model		SSR-3F252Z	SSR-3F352Z	SSR-3F452Z
Rated load voltage		90 - 264Va.c.		
Peak voltage (non-repeating)		600 V		
Rated load current		25 A	35 A	45 A
Power frequency		50/60Hz (Dual usage)		
Input current (8.3 ms non repetition)		220 A	330 A	450 A
Applied load		Resistive load		
Leakage current		10 mA or less		
Output ON voltage drop		1.8 V (R.M.S.) or less		
Input	Rated voltage (circuit voltage)	24Vd.c. 4W		
	Operating voltage range	7 - 32Vd.c.		
	Impedance	4 kΩ or less		
Response speed		1/2 Cycle + 1 ms max.		
Insulation Resistance		500Vd.c. 100MΩ		
Withstand voltage		1 minute at 2,500Va.c. 50/60 Hz		
Vibration		10 -55 Hz, Double amplitude: 1.5mm, 2 hours in X, Y, Z each axis direction		
Impact resistance		1,000 %g , 3 times in X, Y, Z each axis direction		
Storage temperature		-30 ~ 90 °C		
Operating ambient temperature		-20~80 °C(without condensation)		
Ambient humidity		45~85 % R.H.		
Weight (g)		1,800		







Suffix code




Model	Code	Content
SSR-3F	<input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/>	Three-phase function type contactless relay
Rated load current	25	25 A
	35	35 A
	45	45 A
Rated load voltage	2	90 - 264Va.c.
Operation type	Z	Zero cross switching

■ Solid State Relays




Type	Single-Phase Solid State Relays		3-Phase Solid State Relays	Single-Phase Solid State Relays For PCB Substrate
Model	SSR-2B/2C		SSR-3F	HSR-PD
Appearance	  		 	
Features	<ul style="list-style-type: none"> 2 contact / Bimetal 3 contact Width 38 mm slim body B contact alarm output Protection from overheating by detecting 60/80°C 		<ul style="list-style-type: none"> Detecting over current Detecting open phase of load Various functions <ul style="list-style-type: none"> Fan malfunction alarm, Load break, Load unbalance alarm, SCR break alarm Realizing accurate control by zero cross switching(optional) 	<ul style="list-style-type: none"> Load voltage 90 - 240 V a.c High insulation between input and output Compact, lightweight, with large capacity High reliability as non-contact Zero cross switching
Operating voltage range	4-32Vd.c.		24Vd.c.	4-32Vd.c.
Rated load current	25A, 40A		25A, 35A, 45A	3A, 5A
Load voltage	90-264Va.c.			90-240Va.c.

■ Solid State Relays

Type	Single-Phase Solid State Relays		3-Phase Solid State Relays	
Model	SSR-2	HSR-2	SSR-3	HSR-3
Appearance	 		 	
Features	<ul style="list-style-type: none"> Terminal protection cover for safety Two types of load voltage (90-264Va.c. / 90-480Va.c.) Operation check by red LED indicator Zero cross switching / random switching 	<ul style="list-style-type: none"> Load voltage 90-264Va.c. / 90-480Va.c. High insulation between input and output High reliability as non-contact C-R Snubber, Zero cross switching 	<ul style="list-style-type: none"> Terminal protection cover for safety Two types of load voltage (low voltage 90-264Va.c. / high voltage 90-480Va.c.) Operation check by operation indicator (red LED) Zero cross switching / random switching 	<ul style="list-style-type: none"> Load voltage 90-264Va.c. / 90-480Va.c. High insulation between input and output High reliability as non-contact C-R Snubber, Zero cross switching
Input voltage	70-264Va.c., 4.6-32Vd.c.	90-264Va.c., 4-32Vd.c.	70-264Va.c., 4.6-32Vd.c.	90-264Va.c., 4-32Vd.c.
Rated load current	10A, 20A, 30A, 40A	10A, 20A, 30A, 40A, 50A, 70A	10A, 20A, 30A, 40A	10A, 20A, 30A, 40A, 50A, 70A
Load voltage	90-264Va.c., 90-480Va.c.			

Type	Slim Type Single-Phase Solid State Relays	2-Wire Cutoff Solid State Relays	Slim Type 3-Phase Solid State Relays
Model	HSR-SL	HSR-2SLD / SE	HSR-3SL
Appearance			
Features	<ul style="list-style-type: none"> 22.4 mm Slim Type Load voltage 90-264Va.c./90-480Va.c. High insulation between input and output C-R Snubber, Zero cross switching Improved safety and working convenience with the heat sink one-body type. 	<ul style="list-style-type: none"> Status indication with several LED displays Control each phase simultaneously with the 2-wire disconnection function When the temperature of heat sink reaches to 60 °C/80 °C, the alarm output works and operation stops Improved safety and working convenience with the heat sink one-body type (din rail is available) Mandatory functions required for FPD industry satisfied 	<ul style="list-style-type: none"> Din rail installation type Improved safety and working convenience with the heat sink one-body type Can be installed in small spaces with the space saving design The slimmest type among the 3-phase solid state relays under the same rating (79 mm)
Operating voltage range	4-32Vd.c.		
Rated load current	15A, 25A, 40A	25A, 40A	15A, 25A, 40A
Load voltage	90-264Va.c., 90-480Va.c.		

■ Power Supplies

Type	DIN Rail Type		Enclosed type	DIN Rail Type
Model	DPS		TPS	HNPS
Appearance				
Features	<ul style="list-style-type: none"> Low output voltage fluctuation High efficiency and low heat generation Equipped with DC OK signal relay output Overcurrent, overvoltage, overheating protection functions Wide product range from 15W to 240W Output ON indication (LED) Input voltage 100-240Va.c. free voltage or 110/220Va.c. automatic selection 		<ul style="list-style-type: none"> Input inrush current limit Output voltage adjustable volume Overcurrent/overvoltage/short circuit protection/overheating protection 	<ul style="list-style-type: none"> Over current protection Variation of output voltage Simple rail installation (DIN) Limitation of inrush current
Power output	1output	15 W, 30 W, 50 W,	15 W, 30 W, 50 W, 75 W, 100 W	3 W, 7.5 W
	2output	75 W, 100 W, 120 W, 180 W, 216W, 240 W	55 W, 100 W, 150 W, 220 W, 230 W, 350 W, 450 W	-
Input voltage	100-240Va.c., 100-120Va.c./200-240Va.c.			100-240Va.c. 50/60Hz
Output voltage	5 V, 12 V, 15 V, 24 V, 48 V		5 V, 12 V, 15 V, 24 V, 48 V, 24/05 V, 24/12 V, 24/24 V	5 V, 12 V, 15 V, 24 V
Voltage fluctuation range	± 5 ~ 10 % (according to internal VR)			±10 % (at V. ADJ)
Protection circuit	Overcurrent, overvoltage, overheating, output short-circuit protection			Overcurrent protection
Dielectric strength	2700Va.c. for 1 min (Input - Output)			3kVa.c. (input - output), 1.5kVa.c. (input - F.G), 500Va.c. (output - F.G) , (Current Detected : 10 mA, per 1 min)


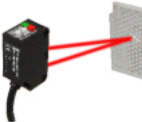
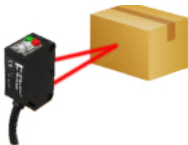
PB series

Realizing excellent anti-noise and minimize effect by disturbance light

- ▶ 25.4mm standard mounting hole
- ▶ Convenient operation mode selection by VR
- ▶ Built-in VR for sensitivity adjustment ▶ High protection circuit
- ▶ Hanyoung Nux new ASIC chip used (operation stability, long-distance detection)



Specifications

Model	NPN	PB-T7N	PB-T10RN	PB-T15N	PB-M3RN	PB-R01N	PB-R04RN	PB-R1N	PB-D04N
	PNP	PB-T7P	PB-T10RP	PB-T15P	PB-M3RP	PB-R01P	PB-R04RP	PB-R1P	PB-D04P
Appearance									
Sensing mode	Through-beam				Retro-reflective	Diffuse - reflective			Distancesettable
Detecting object	Opaque object (over Ø12 mm)				Opaque object (over Ø75 mm)	White non-glossy paper (100 x 100 mm)			
Hysteresis	None					Max. 20% of sensing distance			
Operation mode	Light ON / Dark ON mode switching selection by VR								
Sensing distance	7 m	10 m	15 m	0.1 - 3 m (HY-M5) 0.1 - 4 m (HY-M5S)	0.1 m	0.4 m	1 m	0.4 m	
Response time	Max. 1 ms								
Sensitivity adjustment	VR built-in								
Power voltage	12 - 24Vd.c. ± 10 % (Ripple max. 10 %)								
Current consumption	Emitter : Max. 20 mA Receiver : Max. 20 mA				Max. 30 mA				
Light source (wavelength)	IR(850 nm)	Red LED	IR (850 nm)	Red LED	IR (850 nm)	Red LED	IR (850 nm)		
Control output	Load Current: max. 100mA (26.4Vd.c.) Residual voltage: max. 1 V								
Protection circuit	Power reverse protection circuit, output reverse protection circuit, output short circuit protection circuit, mutual interference prevention function (through-beam type excluded), output short circuit notification (emitter part excluded)								
LED Indicator	Red LED: operation indicator, green LED: stability indicator (however, the red LED of the emitter displays the power only)								
Insulation resistance	Min. 20 MΩ (500Vd.c. mega standard)								
Dielectric strength	1000Va.c. 50/60 Hz for 1 min								
Vibration resistance	10 - 55 Hz, double amplitude: 1.5 mm, X·Y·Z each direction 2 hours								
Shock resistance	500 m/s², X·Y·Z each direction 3 times								
Ambient illumination	● Sunlight: max. 11000 lx ● Incandescent lamp: max. 3000 lx								
Ambient temperature & humidity	● During operation: -20 ~ 55 °C ● During storage: -40 ~ 70 °C, 35 ~ 85 % RH (without condensation)								
Noise immunity	Square wave noise by noise simulator (pulse width 1 μs) ±240 V								
Degree of protection	IP65 (IEC 60529)								
Accessories	Common	Brackets A, Bolt (M3 X 12 mm), Volume driver							
	Individual	-			Mirror (HY-M5)	-			
	Optional	Brackets B, Brackets C, Mirror(HY-M5S)							
Approval	CE								
Weight(g)	90			60	50				

Suffix code

Model	Code				Content
PB-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General Purpose Photo Sensor
Sensing mode and distance	T	7			7 m
		10			10 m
		15			15 m
	M	3			3 m
		01			0.1 m
		04			0.4 m
	R	1			1 m
		04			0.4 m
Light source	R				Infrared (IR) right LED
					Red right LED
Output	N				NPN open collector output
	P				PNP open collector output

Proximity Sensors





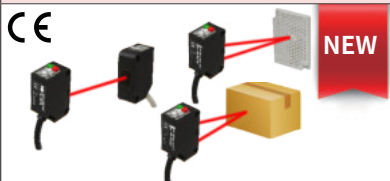


Type	Inductive Round Type Proximity Sensors	Inductive Square Type Proximity Sensors	Inductive Flat Type Proximity Sensors	Capacitive Type Proximity Sensors
Model	UP□R series	UP□S series	UP□F series	CUP series
Appearance				
Features	<ul style="list-style-type: none"> World's first exclusive IC for C-MOS Wide operating voltage (5-35Vd.c. : DC 3-wire) Noise resistant reinforced circuit 2-wire type non-polarity applied 	<ul style="list-style-type: none"> World's first exclusive IC for C-MOS Wide operating voltage (5-35Vd.c. : DC 3-wire) Noise resistant reinforced circuit 2-wire type non-polarity applied 	<ul style="list-style-type: none"> World's first exclusive IC for C-MOS Wide operating voltage Noise resistant reinforced circuit 2-wire type proximity non-polarity applied It can be installed directly on metal surfaces 	<ul style="list-style-type: none"> Noise resistant reinforced circuit Leakage current less than 2 mA Operating Voltage 12-24Vd.c., 20-240Va.c./d.c.
Power voltage	12-24Vd.c., 100-240Va.c. 50/60Hz			12-24Vd.c., 20-240Va.c. 50/60Hz or 20-240Vd.c.
Shield	Shield, Non shield	-		Non shield
Sensing distance	1.5, 2, 4, 5, 7, 8, 10, 14, 15, 25 mm	2, 4, 5, 8, 10, 12, 15, 20 mm	8 mm	8, 15 mm

Photo Sensors

Type	General Purpose Photo Sensors	Amplifier Built-In Photo Sensors	Flat Photo Sensors
Model	PB series	PLD	PY series
Appearance			
Features	<ul style="list-style-type: none"> 25.4mm standard mounting hole Hanyoung Nux new ASIC chip used (operation stability, long-distance detection) Built-in VR for sensitivity adjustment Convenient operation mode selection by VR You can check the presence of overload with the output short circuit notification function Excellent noise immunity and reduced disturbance of light influence High protection circuit 	<ul style="list-style-type: none"> Power reverse connection and output short circuit protecting circuit built-in Diffuse-reflective type with 2 m of sensing distance 1 ms response time Sensitivity adjustment volume built-in IP64 (IEC 60529) protection degree 	<ul style="list-style-type: none"> Light ON / Dark ON mode switching selection by wiring Power reverse connection and output short circuit protecting circuit built-in Convenient installation with the ultra slim size 1 ms response time Control output and stable output display
Power voltage	12-24Vd.c.		
Sensing mode	Through-beam, Diffuse-reflective, Retro-reflective (mirror), Distance-settable	Diffuse-reflective	Through-beam
Sensing distance	7 m, 10 m, 15 m, 0.1 - 3 m, 1 m, 0.1 m, 0.4 m	2m	3 m
Operating mode	Light ON, Dark ON	Light ON	Light ON, Dark ON (Selectable by wiring)
Response time	Max. 1 ms		
Degree of protection	IP65	IP64	IP67











Type	Voltage Output Photo Sensors	Round Photo Sensors	U-Shaped Fast Response Photo Sensors	Long Distance Detection Photo Sensors
Model	PN series	PR series	PU series	PEN series
Appearance				
Features	<ul style="list-style-type: none"> Power reverse connection and output short circuit protecting circuit built-in Motion display light attached Sensitivity adjustment volume attached Light ON/ Dark ON selectable by wiring 	<ul style="list-style-type: none"> IP66 (IEC 60529) protection degree, round structure Output short over current protecting circuit built-in Sensitivity adjustment volume attached Light ON /Dark ON selection 	<ul style="list-style-type: none"> Optic axis control not required Solid die casting case Sensitivity adjustment volume built-in Sensing distance 30/50 mm Operating mode selection by power polarity reverse connection 	<ul style="list-style-type: none"> Long distance detection IP64 (IEC 60529) protection degree Stability indication
Power voltage	12-24Vd.c.			24-240Va.c. 50/60Hz or 24-240Vd.c.
Sensing mode	Through-beam, Diffuse-reflective, Retro-reflective		Through-beam	Through-beam, Diffuse-reflective, Retro-reflective
Sensing distance	3 m, 0.1 - 1 m, 200 mm	10 m, 0.1 - 1 m, 0.1 - 2 m, 300 mm	30 mm, 50 mm	10 m, 0.1 - 5 m, 700 mm
Operating mode	Light ON, Dark ON			
Response time	Max. 3 ms	Max. 1.5 ms	Max. 1 ms	Max. 20 ms
Degree of protection	-	IP66	IP65	IP64

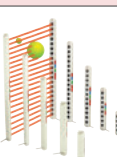

Photo Sensors

Type	Power /Amplifier Built-In Photo Sensors	Power Built-In Photo Sensors	Distance-settable Photo Sensors
Model	PTX series	PE series	PL-D2B
Appearance			
Features	<ul style="list-style-type: none"> Terminal block type connection for convenient wiring Wide power voltage range (Power built-in : 24 - 240Va.c./d.c. Amp built-in : 12 - 24Vd.c.) Timer function available NPN/PNP open collector simultaneous output with DC power IP66 (IEC 60529) protection degree 	<ul style="list-style-type: none"> Cost-effective model Wide power voltage range Relay output Operation status indication attached Lower impact of dust with the flat lens 	<ul style="list-style-type: none"> Distance setting reflective type by 2 split photo diodes Almost no influence of the amount of light change with the distance detection method by light angle Applicable in several fields with the long detection distance (2m) Power reverse connection and output short circuit protective circuit built-in IP65 (IEC 60529) protection degree
Power voltage	24-240Va.c. 50/60Hz or 24-240Vd.c.	24Vd.c., 100-240Va.c. 50/60Hz or 100-240Vd.c.	12-24Vd.c.
Sensing mode	Through-beam , Diffuse-reflective, Retro-reflective		Distance-settable
Sensing distance	15 m, 7 m, 1 m	5 m, 0.1 - 3 m, 500 mm	0.2 - 2 m
Operating mode	Light ON , Dark ON		
Response time	Power built-in type: max. 20 ms Amplifier built-in type: max. 1 ms	Max. 25 ms	Max. 2 ms
Degree of protection	IP66	IP54	IP65


Fiber Optic Sensors

Type	Fiber Optic Sensors		Multi-Function Digital Fiber Optic Sensors
Model	PG series	PFB	PFD
Appearance			
Features	<ul style="list-style-type: none"> Applicable to any application with the AMP unit 4 type and several fiber unit types. Easy to install to a 35 mm wide DIN rail, so less installing space is needed. 	<ul style="list-style-type: none"> Sensitivity adjustment by auto-teaching Light volume indication by Bar LED External teaching input/external synchronous input Output delay time (40 ms fixed) Mutual interference prevention, power reverse connection protection, output short circuit protection Light ON/ Dark ON selection by slide switch 	<ul style="list-style-type: none"> Sensitivity adjustment by auto-teaching 7-Segment 4-digit LED display Mark detection/ counter / tachometer functions (multi-type) Output delay time setting (1 ~ 9999 ms)
Power voltage	12-24Vd.c.		
Sensing mode	Through-beam, Diffuse-reflective		
Sensing distance	Decided by fiber optic cable		
Operating mode	Light ON , Dark ON		
Response time	Max. 1 ms		RM: max. 1 ms, RG: max. 0.7 ms
Degree of protection	IP40	IP40	IP40




Area sensors

Type	Area Sensors	Area Sensors Equipped With An Exclusive IC
Model	PAS series	PAN series
Appearance		
Features	<ul style="list-style-type: none"> Less installation space (thickness: 13.5 mm, width : 30 mm) Automatic sensitivity correction function built-in Mutual interference prevention function built-in Minimum sensing object (Ø30 mm) 	<ul style="list-style-type: none"> Several optical axis distances (20/40 mm) Mutual interference prevention function built-in Output short circuit protection circuit built-in Operating mode selection (all optical axes / optical axis light ON)
Power voltage	12-24Vd.c.	
Sensing mode	Through-beam	
Sensing distance	5 m	7 m
Operating mode	Output ON operation during light ON of all optical axes (output OFF operation during dark ON of 1 optical axis or more)	Emitter: M/S operation selection (mutual interference prevention setting) Receiver: A mode (light ON of all optical axes)/ O mode (light ON of 1 optical axis)
Response time	Max. 7 ms	Max. 7 ms, max. 15 ms
Degree of protection	IP40 (IEC)	IP65 (IEC)





Sensor Controllers

Type	Sensor Controllers
Model	HPA-12
Appearance	
Features	<ul style="list-style-type: none"> NPN/PNP dual usage input sensor controller Solid output contact (250 V 3 A, more than 100,000 times) Convenient installation with plug in method
Power voltage	220Va.c. 50/60Hz
Functions	Universal
Power consumption	Approx. 4 VA
External output power	12 Vd.c., ± 10 %, max. 50 mA
Output	Relay 1c, 250Va.c., 3A (resistive load)

■ Sensor Controllers

Type	Sensor Controllers		
Model	HPAN-C7	HPAN-CT7	HPAN-C7W
Appearance			
Features	<ul style="list-style-type: none"> · Contact/contactless 2 outputs built-in (HPAN-C7, HPAN-CT7) · For connecting 2 sensor · DIN rail installation 		
Power voltage	100-240Va.c. 50/60Hz ±10%		
Functions	Universal	High function (timer)	2 built-in sensors for connection
	2 inputs 1 output		2 inputs 2 outputs
Power consumption	Approx. 5 VA		
External output power	12Vd.c. (± 10 %), load current: max. 200 mA		
Output	OUT 1		OUT 1, OUT 2
	NO contact : 250Va.c. 3A resistance load NC contact : 250Va.c. 2A resistance load		
	NPN open collector 30Vd.c., max. 100 mA		-

■ Rotary Encoders

Type	Ø30, Ø40, Ø50 Shaft Type	Ø40 Hollow Shaft Type	Ø40 Blind Shaft Type	Wheel Type
Model	HE30B, HE40B, HE50B	HE40H	HE40HB	PSC
Appearance				
Features	<ul style="list-style-type: none"> · Wide power voltage (5-12Vd.c., 12-24Vd.c.) · Several output specifications · Convenient installation structure 	<ul style="list-style-type: none"> · Wide power voltage (5-12Vd.c., 12-24Vd.c.) · Several output specifications · Convenient installation structure 	<ul style="list-style-type: none"> · Wide power voltage (5-12Vd.c., 12-24Vd.c.) · Several output specifications · Convenient installation structure 	<ul style="list-style-type: none"> · The wheel type detection structure is suitable for length and speed measurement · Several measuring units (6 types) · Cost-effective · Convenient installation structure
Power voltage	5-12Vd.c.±5%, 12-24Vd.c.±5 %, 5Vd.c.±5 %			5-12Vd.c.±5%, 12-24Vd.c.±5 %
Output phase difference	Phase difference between A, B phases: $T/4 \pm T/8$ (T = 1 cycle of A phase)			
Response time	Max. 1 µs			
Number of pulses	1, 2, 5, 10, 12, 15, 20, 25, 30, 40, 45, 50, 60, 75, 100, 120, 125, 150, 192, 200, 240, 250, 256, 300, 360, 400, 500, 512, 600, 800, 1000, 1024			Decided by the desired measuring unit and its minimum value

DR series

Ø16, Ø22 Mini Control switches

- 1a1b one-body contact
- Long life with bright LED light source
- Assembling type (actuator and contact parts)



Actuator

1 PUSH BUTTON SWITCHES



2 PILOT LAMPS



3 SELECTOR SWITCHES



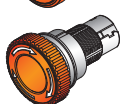
4 KEY SELECTOR SWITCHES



5 EMERGENCY STOP BUTTON SWITCHES (Momentary)

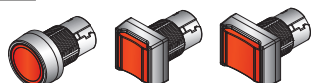


6 EMERGENCY STOP BUTTON SWITCHES (Push lock turn reset)

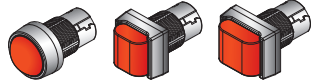


Flush (Ø22)

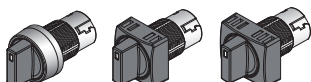
7 PUSH BUTTON SWITCHES



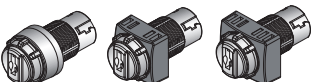
8 PILOT LAMPS



9 SELECTOR SWITCHES



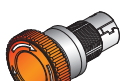
10 KEY SELECTOR SWITCHES



11 EMERGENCY STOP BUTTON SWITCHES (Momentary)



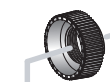
12 EMERGENCY STOP BUTTON SWITCHES (Push lock turn reset)



Extended (Ø16)
Square (Ø16)
Rectangular (Ø16)

Installing panel

13
Flush nut

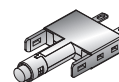


14
Extended nut



Contact parts

LED illuminating unit (DR-LB)



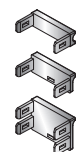
Contact unit (DR-CB)



Fixing plate (MR-FP)



Protective cover



Suffix code

Model	Code	Description
DRF -	<input type="checkbox"/>	Push button switch
DRX -	<input type="checkbox"/>	Illuminated push button switch
DRP -	<input type="checkbox"/>	Pilot light
DRS -	<input type="checkbox"/>	Selector switch
DRT -	<input type="checkbox"/>	Illuminated selector switch
DRK -	<input type="checkbox"/>	Key selector switch
DRE -	<input type="checkbox"/>	Emergency stop switch
DRA -	<input type="checkbox"/>	Illuminated emergency stop switch
Hole size and actuator type	A	Ø22 Flush
	R	Ø16 Extended
	K	Ø22 Flush
	T	Ø16 Extended
	S	Ø16 Square
	O	Ø16 Rectangular
		Chromium-plated guard
		Plastic guard

CR series



Ø25, Ø30 Economical Control switches

- ▶ 1a1b one-body contact
- ▶ Long life with bright LED light source
- ▶ Assembling type (actuator and contact part)
- ▶ High contact reliability
- ▶ Product weight reduced



Suffix code

Model	Code	Description
CRF -	□	Push button switch
CRX -	□	Illuminated push button switch
CRP -	□	Pilot light
CRS -	□	Selector switch
CRSL -	□	Selector switch
CRT -	□	Illuminated selector switch
CRK -	□	Key selector switch
CRE -	□	Emergency stop switch
CRA -	□	Illuminated emergency stop switch
CRB-	□	Buzzer
Hole size and actuator type	F30	Ø30 Flush
	P30	Ø30 Extended
	G30	Ø30 Protective guide
	F25	Ø25 Flush
	P25	Ø25 Extended
	G25	Ø25 Protective guide

Actuator

Contact parts

3 PUSH BUTTON SWITCHES
(illuminate/non-illuminate, alternate)

4 PUSH BUTTON SWITCHES
(illuminate/non-illuminate, alternate)

5 PILOT LAMPS

6 SHORT LEVER
SELECTOR SWITCHES
(illuminate/non-illuminate)

7 LONG
LEVER
SELECTOR
SWITCHES
(illuminate
non-illuminate)

8 KEY
SELECTOR
SWITCHES

9 BUZZERS

10 EMERGENCY STOP
SWITCHES
(illuminate/non-illuminate)

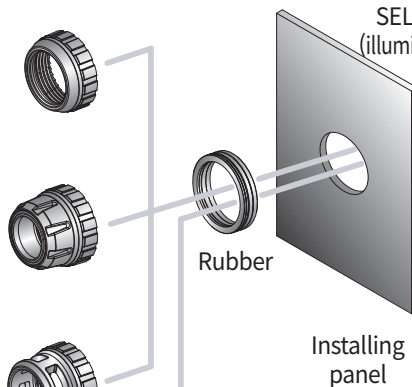
LED illuminating
unit(CR-LB)

Contact unit
(CR-CB)

Protective
cover

1 EMERGENCY STOP
BUTTON SWITCHES
(Momentary)

2 EMERGENCY STOP
BUTTON SWITCHES
(Push lock turn reset)



MR series

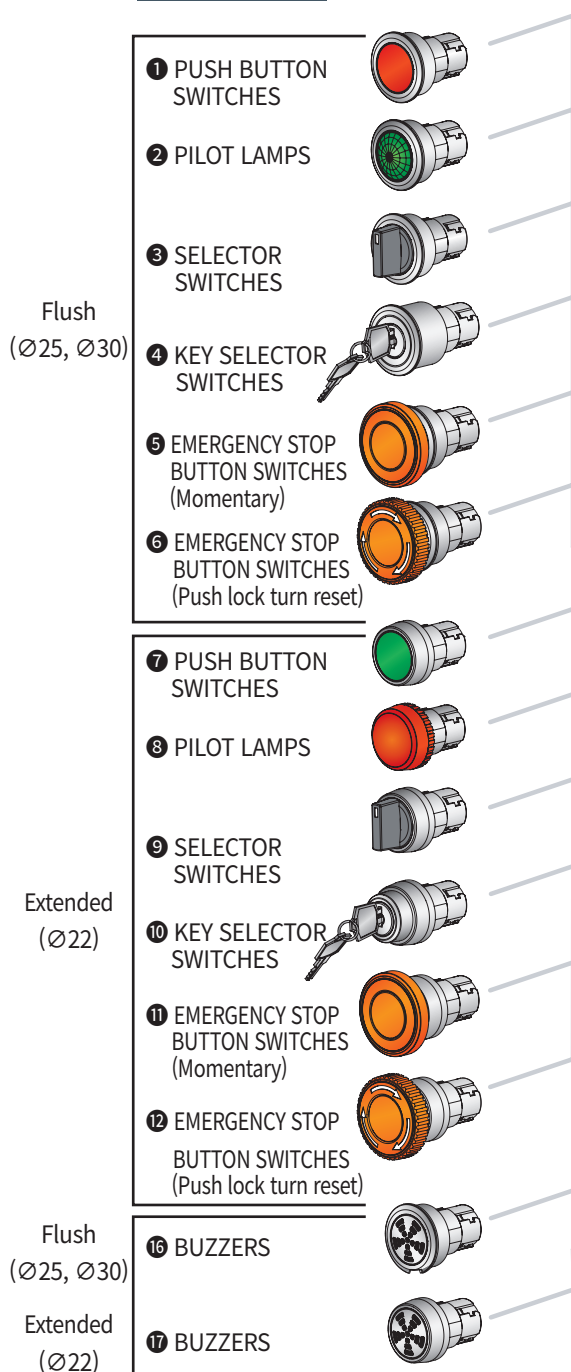


Ø22, Ø25, Ø30 High quality Control switches

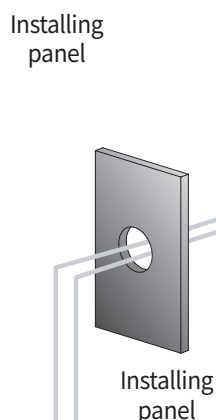
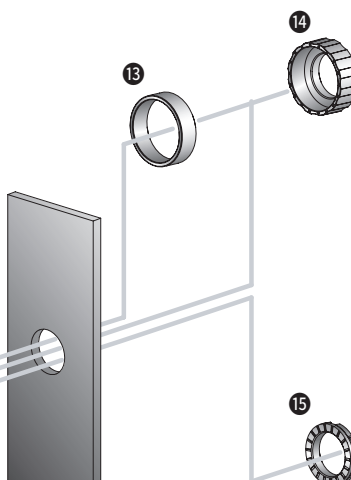
- Double break snap action contacts with self-diagnosis function for high contact reliability
- High brightness and durability with the LED light
- 3 aluminum guard and 2 plastic guard types provide wide configuration possibilities
- Assembling type (actuator and contact parts)



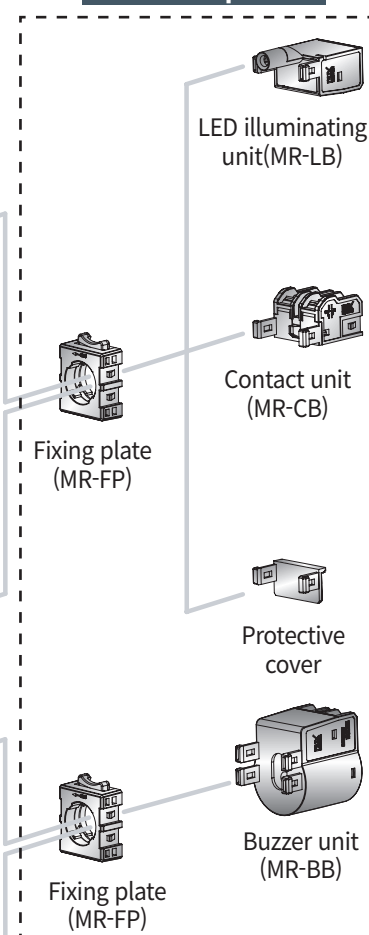
Actuator



- 13 Pressure (Key selector)
- 14 Flush nut
- 15 Extended nut





Contact parts





Suffix code

Model	Code	Description
MRF -	<input type="checkbox"/>	Push button switch
MRX -	<input type="checkbox"/>	Illuminated push button switch
MRP -	<input type="checkbox"/>	Pilot light
MRS -	<input type="checkbox"/>	Selector switch
MRT -	<input type="checkbox"/>	Illuminated selector switch
MRK -	<input type="checkbox"/>	Key selector switch
MRE -	<input type="checkbox"/>	Emergency stop switch
MRA -	<input type="checkbox"/>	Illuminated emergency stop switch
MRB -	<input type="checkbox"/>	Buzzer
Actuator	A	Ø30 Flush
	N	Ø25 Flush
	R	Ø22 Extended
	K	Ø25 Flush
	T	Ø22 Extended
		Aluminum guard
		Plastic guard


Power Switches

Type	Power Switches	
Model	HY-500	BE
Appearance		
Features	<ul style="list-style-type: none"> Directly turn ON/OFF the power of compact electric motor Exposed type/flush type, plastic/cold rolled steel case Push buttons for turning ON/OFF electric motors (forward, reverse operations) Lamp power ON/OFF switch mounting type Electrical appliances safety certification 	<ul style="list-style-type: none"> Directly turn ON/OFF the power of compact electric motor Exposed type/flush type, plastic/cold rolled steel case Push buttons for turning ON/OFF electric motors (forward, reverse operations) Waterproof non-flammable ABS Plastic Case
Rated capacity	250Va.c. 15A	440Va.c. 15 ~30 A
Display legends	ON, OFF, FOR, STOP, REV	
Case material	Cold rolled steel case, plastic	Cold rolled steel case, non-flammable ABS


Cam switches

Type	Cam switches	
Model	HY-SQ5 / 255 / 305 / MRK	SQ4
Appearance		
Features	<ul style="list-style-type: none"> HY-SQ5 / 305/255 series Several surfaces (square, Ø25 / Ø30 round) Standard A/S, V/S, C/S switch for incoming/distribution panels and switch boards Custom designed circuit configuration for machine, tools, electrical installation in various industries HY-MRK Handle lock function by key Rated current 20A, high capacity cam switches/custom circuit configuration 	<ul style="list-style-type: none"> Small Cam switches (48(W) X 48(H) mm) 2 operation handles (H type, R type) Ammeter switch (AS), voltmeter switch (VS) Several circuit configurations
Rated insulation voltage	600 V	690Va.c.
Rated current	10 A	16A-24Va.c., 8A-48Va.c., 5A-110Va.c., 3A-220Va.c., 1.8A-380Va.c.
Dielectric strength	2500Va.c. for 1 min	


Main Switches

Type	Main Switches
Model	MAS
Appearance	
Features	<ul style="list-style-type: none"> Designed as rapid switching structure for excellent contact reliability Lock ring applied on the OFF state Handle and contact parts with detachable structure (MAS-025) 2 color types of handle and handle guard (red/yellow and black/white) Ø22, Ø30 (MAS-025), 4 holes fixed panel mounting Clear indication of ON/OFF contact status (turning OFF the operation handle will block all contacts)
Rated insulation voltage	690Va.c.
Rated current	25A, 63A, 125A
Materials	Non-flammable


Foot Switches

Type	Foot Switches
Model	HY-100
Appearance	
Features	<ul style="list-style-type: none"> High mechanical safety with the aluminum case Micro switch with excellent electrical reliability Protective cover from falling materials and safety latch lever attached (HY-104) Cable locker applied (HY-103, 104) Cost-effective plastic case (HY-101)
Rated current	10 A 250Va.c.
Foot switch materials	Plastic, aluminum
Contact structure	C Contact

Mono Lever Switches

Type	Mono Lever Switches
Model	LEL / LES
Appearance	
Features	<ul style="list-style-type: none"> 1 single lever support 4 different directions Minimizing malfunction with tilted operation Suitable for frequent direction switching Auto returning, manual returning and mixed returning selectable Flexible circuit configuration of contact part with installation hole 30
Rated insulation voltage	600 V
Rated electric current	3 A 250Va.c.
Dielectric strength	2500Va.c. for 1 min

Pendant Switches

Type	Pendant Switches
Model	HY-P series
Appearance	 NEW
Features	<ul style="list-style-type: none"> Easy wiring and operation with the wire holder bending structure (15°) Solidity improved with the thicker high impact ABS resin, and anti-slip structure The wide internal space makes wiring easier and more convenient Several additional operations on-demand (LED, volume, toggle switch).
Degree of protection	IP65 (IEC 60529)
Materials	Case: high impact ABS, Contacts: AgSnO2
Insulation resistance	Min. 100 MΩ (500 V d.c.)

HY-M900 / LM900



Improved wiring convenience

- ▶ Solid aluminum die casting type
- ▶ IP67 Protection rating: waterproof and dustproof structure (when using HYC-M1, HYC-M2 cable connectors)
- ▶ Operation status indication lamp with LM900



Upgrades

01 Body structure improved

Cover fixing screws
Fixed protective cover
Wiring space expansion
6.65 mm
2 Insulation paper not required


02 Wiring space expanded

Before Upgrade
2.5 times!
6.65 mm
Insufficient wiring space Wiring space extended 2.5 times

03 Fixation/Water resistance improved

Before Upgrade
Insulation paper and rubber ring separated
One-piece protective cover no longer needs additional components

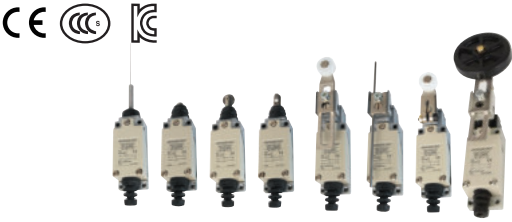

Specifications

Model		HY-M902	HY-LM902	HY-M903	HY-LM903	HY-M904	HY-LM904	HY-M907	HY-LM907	HY-M908	HY-LM908	HY-M909	HY-LM909	HY-M908R	HY-M908L
Shape															
Type		Roller Plunger type		Ball Plunger type		Roller Adjustable Lever type		Adjustable Rod Lever type		Roller Lever type		Coil Spring type		Ø50 Roller Lever type	Fork Roller Lever type
Allowable operating speed		0.1 - 1 m/s													
Open/close frequency	Mechanical	Max. 120 times/min													
	Electrical	Max. 20 times/min													
Insulation resistance		100 MΩ min (500Vd.c.)													
Dielectric strength		1,000Va.c. 50/60 Hz for 1 min (among terminals), 1,500Va.c. 50/60 Hz for 1 min (among unfilled metal parts)													
Contact resistance		Max. 100 MΩ (initial value)													
Vibration resistance	Malfunction	10 - 55 Hz double amplitude 1.5 mm													
Shock resistance	Mechanical	1,000 m/s min (100 G min)													
	Malfunction	300 m/s min (30 G min)													
Life	Mechanical	1,000,000 times min													
	Electrical	300,000 times min													
Ambient temperature and humidity		-10 ~ 80 °C, 45 ~ 95 % RH													
Weight(g)		350 g (HY-M904)													



Rating

Rated voltage (V)		Non-inductive load (A)				Inductive load (A)			
		Resistive load		Lamp		Inductive load		Electric motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
AC	125	15		3	1.5	10		3	1.5
	250	10		2	1	6		2	1
	480	3		1.5	0.8	2		1.5	0.75
DC	8	15		6	3	10		-	-
	14	15		6	3	10		-	-
	30	6		4	3	5		-	-
	125	0.4		0.2	0.2	0.05		-	-
	250	0.2		0.1	0.1	0.03		-	-

■ Limit Switches

Type	Zinc Die Casting	Plastic Case
Model	HY-L800	HY-LS800
Appearance		
Features	<ul style="list-style-type: none"> · Less installation space with the compact size · Zinc die casting body and plastic cover structure · 4 actuator types provide wide selections · Applicable to machine tools, transportation machines, assembling lines and several industrial machines 	<ul style="list-style-type: none"> · Compact size and lightweight with the plastic case · The plastic case is safe against electric leakage · 6 actuator types provide wide selections
Open/close frequency	Mechanical : Max. 120 times/min Electrical : Max. 30 times/min	
Insulation resistance	Min. 100 MΩ (500Vd.c.)	
Dielectric strength	Among terminals: 1500Va.c. 50/60 Hz for 1 min, Among non conductive metal parts: 2000Va.c. 50/60 Hz for 1 min	1000Va.c. 50/60 Hz for 1 min, 2000Va.c. 50/60 Hz for 1 min

■ Micro Switches

Type	Micro Switches	
Model	HY-700	ZCN-500
Appearance		
Features	<ul style="list-style-type: none"> · Accurate operation and long life with the snap action design · Excellent repetitive accuracy and 10A open/close capacity · Standard installation, hole distance gap: 25.4mm, using M4 bolt · 9 actuator types provide wide selections · Terminal protective cover (optional) 	<ul style="list-style-type: none"> · Accurate operation and long life with the beryllium copper and running spring to the strong chemically resistant resin case · Compact, lightweight, strong mechanical durability · 9 actuator types provide wide selections
Open/close frequency	Mechanical : Max. 120 times/min Electrical : Max. 20 times/min	
Insulation resistance	Min. 100 MΩ (500Vd.c.)	
Rated current	10A 250Va.c.	

HL series



Designed for a wide spreaded light

- ▶ Convenient installation even in limited area
- ▶ Internal productive circuit securing operation from external interferences
- ▶ Cost-effective by non-isolated SMPS
- ▶ LED package certified LM80 by IESNA used




Specifications

Optical characteristics				
Model		HL-100	HL-200	HL-300
Lens color		Transparent		
Light color (default)		Daylight color		
Color temperature (default)		6,000 ~ 7,000 K		
Rated lumen	AC	509 lm	1044 lm	1063 lm
	DC	-		
Light intensity (at 1 m)	AC	205 lux	318 lux	368 lux
	DC	-		
Light efficiency		102 lm / W	109 lm/W	110 lm/W
General specifications				
Model		HL-100	HL-200	HL-300
LED model		LG Innotek G3 series (LEMWS59R80FZ) LM80 certification		
LED chip characteristics		Strong ESD durability through protection circuit with zener diode on LED chip internal circuit		
Product life (LED standard)		Min. 50,000 hours		
Rated voltage	AC	110 - 220Va.c.		
	DC	12 - 24Vd.c.		
Frequency		50/60 Hz		
Operating voltage range		100 - 240Va.c.		
Current consumption (A)		0.023	0.046	0.046
Power consumption		5W	10W	10W
Dielectric strength		AC: 3,000Va.c., 60 Hz, 1 minute		
Color rendering		88	87	88
Reliability				
Experiment items		Experiment conditions		Results
Dielectric strength		AC: 3,000 V, 60 Hz, 1 minute		OK
Operating temperature		-20 °C ~ +60 °C		OK
ON/OFF repeated experiment		Repeatedly turning on and off 1,000 times every 3 seconds		OK
Aging test		Over 96 hours of operation with rated input		OK
Approval		CE		
Weight (g)		10.6 g	13 g	15 g



Suffix code

Model	Code				Content
HL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	Basic type panel lamp
Size and output	1	0	0		5 W
	2	0	0		10 W
	3	0	0		10 W
	5	0	0		20 W
Input power type		A	110 - 220Va.c.		
		D	12 - 24Vd.c.		




Control Switches

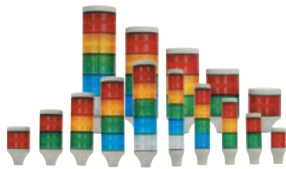

Type	Ø22, Ø25 Dual LED Switches
Model	AR
Appearance	
Features	<ul style="list-style-type: none"> Elegant European design Easy to attach and detach actuators and contacts Ø22, 25 dual usage
Type	Push buttons, illuminated push buttons, pilot lamps, selectors, illuminated selectors, key selectors, emergency switches
Power voltage	100-240Va.c., 12-24 V d.c.
Dielectric strength	2000Va.c. for 1 min (among pole terminals)

Combination Display Lights



Type	LED Square Indicators	LED Combination Display Lights
Model	CR40	CDN
Appearance		
Features	<ul style="list-style-type: none"> Display surface size 40 X 32 mm Bright LED light source Convenient individual mounting, gathered / assembled mounting Easy assembly with the die-casting connector 	<ul style="list-style-type: none"> 2 types of surface dimension : 30x30mm, 30x40mm Applied high brightness square surface LED unit 6 types of various indicating colors Simple assembling and able to change to color in the field Max 200 compositions (10 rows 20 columns)
Power voltage	100-240Va.c., 380Va.c., 12-24Vd.c.	110/220Va.c., 24Va.c or 24 Vd.c.
LED display color	Red, green, yellow, blue, white	Red, green, yellow, white, orange, blue
Dielectric strength	1500Va.c. for 1 min	2000Va.c. for 1 min

Sign Towers



Type	Ø25 Modular LED Sign Towers	Ø60 Modular LED Sign Towers	Ø55 Sign Towers[Bulb type]
Model	STE025	STE060	HY-TN
Appearance			
Features	<ul style="list-style-type: none"> Ø25 column type, suitable installation structure for small machines and narrow spaces Long life with high brightness LED light source 1~3 stacks and 3 color types Easy installation with pipe direct installation structure 	<ul style="list-style-type: none"> Long life with the high brightness LED light source Simple structure from 1 to 5 stacks Several mounting supporters 	<ul style="list-style-type: none"> Ø55 round type 1~5 stacks and 5 color types
Function	Continuous light only	Continuous light, flashing, buzzer	
Diameter	Ø 25	Ø 60	Ø55
Supporter	L type bracket (sold separately)	Plastic round supporter, L type bracket, elbow type supporter (optional)	Plastic round supporter, L type bracket, elbow type supporter (optional), Plastic supporter with pipe connection
Rated voltage	24Vd.c.	24Vd.c., 100-240Va.c. 50/60Hz	24Vd.c., 220Va.c. 50/60Hz
Number of stacks & colors	1~3 stacks (red, green, yellow)	1~5 stacks (red, green, yellow, blue, white)	



Type	Ø40, Ø60, Ø80 LED Sign Towers	Ø25, Ø40, Ø60, Ø80 LED Sign Towers
Model	STS	STL
Appearance		
Features	<ul style="list-style-type: none"> Several sizes (Ø40, Ø60, Ø80) Long life with the high brightness LED light source 1~5 stacks and 5 color types 3 installation types 	<ul style="list-style-type: none"> Several sizes Ø25, Ø40, Ø60, Ø80 Long life with the high brightness LED light source 1~5 stacks and 5 color types Cost-effective, continuous light models with IP54 (IEC 60529) protection degree
Function	Continuous light only	Continuous light, flashing, buzzer
Diameter	Ø40, Ø60, Ø80	Ø 25 Ø 40, Ø 60, Ø 80
Supporter	Plastic round supporter, L type bracket, elbow type supporter (optional)	Plastic round supporter, L type bracket, elbow type supporter (optional), Plastic supporter with pipe connection
Rated voltage	24Va.c. 50/60Hz or 24Vd.c., 12Va.c. 50/60Hz or 12Vd.c. (optional)	24Vd.c., 24Va.c. 50/60Hz or 24Vd.c., 100-240Va.c. 50/60Hz
Number of stacks & colors	1~5 stacks (red, green, yellow, blue, white)	

■ Indicating Lights


Type	LED Wall Mounted Lights	
Model	WME	WMS
Appearance		
Features	<ul style="list-style-type: none"> 3-color slim type, suitable for wall mounting Long life with the high brightness LED light source 2 body type: beige or chrome plated Continuous light, flashing light, 2-melody buzzer built-in IP54 (IEC 60529) protection degree 	<ul style="list-style-type: none"> 1~5 stacks, suitable for wall mounting Long life with the high brightness LED light source 2 types of buzzer melodies (single melody/ beeping) Continuous light, flashing light IP54 (IEC 60529) protection degree
Rated voltage	24Va.c. 50/60Hz or 24Vd.c., 12Va.c. 50/60Hz or 12Vd.c. (order-made)	
Functions	Continuous light, flashing, buzzer	
Number of stacks and colors	3 tiers Red, green, yellow	1~5 tiers Red, green, yellow, blue, white

■ Panel Lamp




Type	Basic type panel lamp	
Model	HL	
Appearance		
Features	<ul style="list-style-type: none"> Convenient installation even in limited area Internal productive circuit securing operation from external interferences Cost-effective by non-isolated SMPS LED package certified LM80 by IESNA used 	
Rated voltage	110 - 220 Va.c. 50/60 Hz, 12 - 24 Vd.c. 50/60 Hz	
Number of stacks and colors	Daylight color	

Type	Signal Lights [Xenon]	Ø84 LED Signal Lights	Ø70 LED Signal Lights
Model	RLA-WX/WXB	LT	SLB
Appearance			
Features	<ul style="list-style-type: none"> Ø118 Rotating continuous light only, rotating continuous light and buzzers built-in Xenon tube strobe light Excellent instant light emitting and high brightness Less current consumption compares to the rotating light and 4 times longer life expectancy compared to the regular lamp Simple attaching/detaching due to the permanent magnet attachment type (for cars) IP54 (IEC 60529) protection degree 	<ul style="list-style-type: none"> Rotational flickering function by the sequential flashing Long life with the high brightness LED light source Ø84 round cap, direct or supporter mounting Acrylic cap for excellent visible light transmittance Solid and smart design IP54 (IEC 60529) protection degree 	<ul style="list-style-type: none"> Continuous light, flashing light, buzzer (selection by external signal) Long life with the high brightness LED light source Select Ø70 round type cap, rectangular type cap, direct installation, supporter mounting installation Cost-effective, simple installation structure Solid polycarbonate protective cap IP54 (IEC 60529) protection degree
Diameter	Ø118	Ø84	Ø70
Rated voltage	110Va.c. 50/60Hz, 220Va.c. 50/60Hz, 12Vd.c., 24Vd.c.	12-24Va.c. 50/60Hz, 110/220Va.c. 50/60Hz, 12-48Vd.c.	24Va.c. 50/60Hz or 24 Vd.c., 110-240Va.c. 50/60Hz, 12Va.c. 50/60Hz or 12Vd.c. (order-made)
Functions	Rotating continuous light, buzzer	Rotating continuous light, flashing, buzzer built-in	Continuous light, flashing, buzzer (selection by external input signal)
Colors	Red, blue, white	Red, yellow, green, blue	Red, yellow, green




■ Warning Lights

Type	Ø60 / Ø84 / Ø100 / Ø150 Revolving Warning Lights	
Model	T series	
Appearance	 <div> T060 T084 T100 T150 </div>	
Features	<ul style="list-style-type: none"> Ø60 / Ø84 / Ø100 / Ø150 rotating continuous light, rotating continuous light and buzzers Incandescent lamp indicator (socket type) Several supporter mounting type Cost-effective, simple installation structure Solid polycarbonate protective cap Rotational structure with the excellent abrasion resistive acetal gear IP54 (IEC 60529) protection degree 	
Diameter	Ø60, Ø84, Ø100, Ø150	
Rated voltage	12Vd.c., 24Vd.c., 110Va.c., 220Va.c. 50/60Hz	
Functions	Rotating continuous light, buzzer	
Colors	Red, yellow, green, blue	


Buzzers

Type	Power Buzzers	4-Tone Buzzers	3-Tone Electronic Buzzers
Model	HY-256 / 306 / 606 / 606N	HY-606MD / MA	HY-226M / 256M
Appearance			
Features	<ul style="list-style-type: none"> Compact size, lightweight, high capacity buzzer melody Excellent alarm function Suitable for panel installation Low Power consumption 	<ul style="list-style-type: none"> 4 tones of melody selectable Compact, light weight, high capacity tones Low Power consumption and long life expectancy Simple installation structure with the panel installation type 	<ul style="list-style-type: none"> Compact, lightweight, with 3 melodies Front LED illuminates during buzzer operation Simple installation structure with the panel installation type Low Power consumption
Rated voltage	110Va.c. 50/60Hz, 220Va.c. 50/60Hz, 12Vd.c., 24Vd.c.	12/24Vd.c., 110/220Va.c.	100-240Va.c. 50/60Hz, 12Vd.c., 24Vd.c.
Power consumption	4 VA, 8 VA, 30 mA	2.5 W	0.6 W, 13.5 W
Volume (1 m distance)	85 dB	Max. 98 dB	80 dB


Terminal Blocks

Type	Assembly Terminal Blocks		Fixing Type Terminal Blocks
Model	HYBT-15A2	HYTM	HYT
Appearance		 NEW	 NEW
Features	<ul style="list-style-type: none"> DIN rail installation structure Possible to assemble the terminal block with different capacity to the same fixing plate Excellent attaching / detaching of terminal at the temporal position 	<ul style="list-style-type: none"> New design (simple and robust image) Contact protective structure for the terminal block live parts O-type and Y-type crimp terminal use more convenient with the screw self-up structure Din Rail one-touch assemblable and detachable structure (using slotted screwdriver during removal) 	<ul style="list-style-type: none"> Several polarities for each current capacity, easy selection Body made of phenolic resin (60 - 500 A) and ABS flame retardant resin (10 - 30 A) Because the bolt and plate underwent heat treatment and rust-proof treatment, it has excellent electrical and mechanical characteristics Standard product of rated current Simple installation
Rated insulation voltage	600 V		
Rated current	15A	15A, 25A, 35A, 60A, 100A	10A, 20A, 30A, 60A, 100A, 150A, 200A, 300A, 400A, 500A
Insulation resistance	Min. 100 MΩ (between each charging part and between each charging part and mounting metal plate)		


Fuse Holders

Type	Fuse Holders
Model	HY-F15 / HY-F30
Appearance	
Features	<ul style="list-style-type: none"> HY-F15 series <ul style="list-style-type: none"> LED continuous light indication during fuse disconnection / safety cover installation structure DIN rail and bolt fixing structure / Easy installation by 1P, 2P, 3P individual products HY-F30 series <ul style="list-style-type: none"> Body materials are made of NYLON66 with glass fiber and have excellent electrical insulation, strong against impact and heat The fuse comes out when replacing it, which provides excellent safety
Rated current	24Vd.c. 10 A, 250Va.c. 15 A, 250Va.c. 30 A
Remarks	110-220Va.c., 12-24Vd.c., 110-600Va.c.

Cable Connectors

Type	Cable Connectors
Model	HYC-M1 / HYC-M2
Appearance	
Features	<ul style="list-style-type: none"> Applied as waterproof and spinning-proof when extending the cable from many machine tools PF 1/2 cover fixing type nut Nut tightening structure by the seal rubber and stuffing washer
Materials	PC (resin)
Remarks	Ø8, Ø11

Control Boxes

Type	Rolled Steel Control Boxes
Model	HY-25 / HY-30
Appearance	
Features	<ul style="list-style-type: none"> Rolled iron and ivory color enamel painted Several operating switches attached (Ø20 and Ø30) Several specifications (1 ~ 6 holes)
Materials	Rolled steel
Remarks	Ø25, Ø30

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Temperature controllers / Recorders / Counters / Timers / Panelmeters / Multi pulse meters / Proximity sensors / Photo sensors / Rotary encoders / Thyristor power regulators / Solid state relays / Power supplies / Control switches / Combination display lights / Power switches / Main switches / Cam switches / Limit switches / Micro switches / Pendant switches / Foot switches / Mono lever switches / Sign towers / Turn lights / Buzzers / Terminal blocks / Fuse holders / Control boxes / Connector cables

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