E1. Temperature Controllers

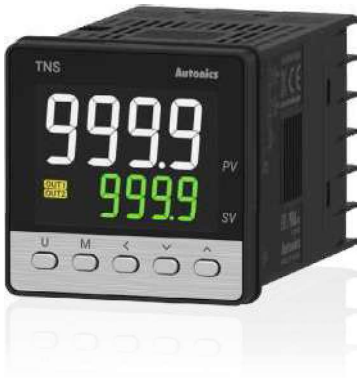
Temperature controllers are used to identify measured temperature and release output to maintain desired temperatures.

E1-1	Panel Mount	TN Series	Two-Degree-of-Freedom PID Temperature Controllers
		TX Series	LCD PID Temperature Controllers
		TK Series	Simultaneous Heating & Cooling Output PID Temperature Controllers
		KPN Series	Bar Graph Temperature Controllers
		TCN Series	Dual Display PID Temperature Controllers
		TC Series	Single Display PID Temperature Controllers
		TA Series	Analog Non-Indication Type PID Temperature Controllers
		TF3 Series	Refrigeration Temperature Controllers
		TC3YF Series	Refrigeration Temperature Controllers
		TH4M Series	LCD Temperature / Humidity Controllers
		T3 / T4 Series	Thumbwheel Switch Temperature Controllers
		T3 / T4 Series	1-Channel Digital Temperature Indicators
		KN-1000B Series	Bar Graphic Temperature Indicators
		KN-2000W Series	1-Channel Digital Temperature Indicators
E1-2	DIN-Rail Mount	TMH Series	Modular 2 / 4-Channel PID Temperature Controllers with Screw Connector
		TM Series	Modular 2 / 4-Channel PID Temperature Controllers with Screwless Connector
		TR1D Series	Independent Single Display PID Temperature Controllers

Two-Degree-of-Freedom

PID Temperature Controllers

TN Series



Features

- 2-DOF PID algorithm optimized for various control environments
- 50 ms high-speed sampling and ± 0.2% display accuracy
- Program control and fixed control models available
  - Up to 10 patterns X 20 steps program setting (program control model)
  - Timer function for preset operation (fixed control model)
- Simultaneous heating / cooling and automatic / manual control function
- Control functions: Group PID, Zone PID, Anti Reset Windup (ARW)
- Control status monitoring of up to 10 events
- RS485 communication output model available
  - Communication protocols: Modbus RTU / ASCII, PLC ladderless, Sync-Master
  - Communication speed: up to 115,200bps
- Heater burnout alarm function (CT input)
- Parameter setting via PC
  - Comprehensive Device Management Software (DAQMaster) provided
  - Communication converter connection with front loader port (TNH, TNL only)
- Shortcut key setting with front user key button [U]
- Easy maintenance with detachable terminal blocks

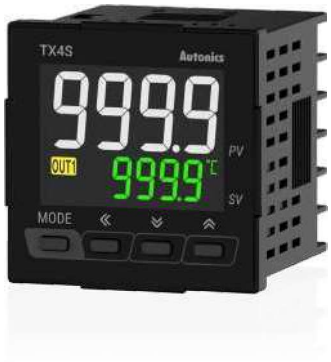
View product detail

Specifications

Power supply		100 - 240 VAC~, 50/60 Hz ±10%
Power consumption		≤ 8 VA
Display type		11 segment, LCD type (operating value display part: 7 segment)
Sampling period		50 / 100 / 250 ms (parameter)
Input specification		Refer to Autonics website
Option input	CT	• 0.0-50.0 A (primary current measurement range) • CT ratio: 1/1,000 • Measurement accuracy: ±5% F.S. ±1digit
	Digital	• Contact - ON: ≤ 2 kΩ, OFF: ≥ 90 kΩ • Non contact - residual voltage ≤ 1.0 V, leakage current ≤ 0.1 mA • Outflow current: ≈ 0.5 mA per input
Control output	Relay	250 VAC~ 3A 1a
	SSR	12 VDC⎓ ±2 V, ≤ 20 mA
	Current	DC 0 - 20 mA or DC 4 - 20 mA (parameter), Load resistance: ≤ 500 Ω
Option output	Alarm	250 VAC~ 3 A 1a
	Transmission	DC 4 - 20 mA (load resistance: ≤ 500 Ω, output accuracy: ±0.3% F.S.)
	Communication	RS485
Control type	Type	ON/OFF, P, PI, PD, PID
	Multi SV	≤ 4 SV
	Group PID	≤ 8 group
	Zone PID	4 zones
	ARW (Anti Reset Windup)	50 to 200 %
Program control	Program	≤ 10 patterns
	Step	≤ 200 steps (1 pattern: ≤ 20 steps)
	Setting type	Time setting
Hysteresis		• Thermocouple, RTD: 1 to 100 (0.1 to 100.0) °C/°F • Analog: 1 to 100 digit
Proportional band (P)		0.1 to 999.9 °C (0.1 to 999.9%)
Integral time (I)		0 to 9,999 sec
Derivative time (D)		0 to 9,999 sec
Control cycle (T)		• Relay / SSRP output: 0.1 to 120.0 sec • Selectable current or SSR drive output: 1.0 to 120.0 sec
Manual reset		0.0 to 100.0%
Dielectric strength		Between the charging part and the case: 3,000 VAC~ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Relay life cycle	Mechanical	• OUT1/2: ≥ 5,000,000 operations • AL1/2/3/4/5/6: ≥ 20,000,000 operations
	Electrical	• OUT1/2: ≥ 200,000 operations • AL1/2/3/4/5/6: ≥ 100,000 operations
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)
Insulation type		Double insulation or reinforced insulation (mark: ⊡, dielectric strength between the measuring input part and the power part: 3 kV)
Noise immunity		±2 kV square shaped noise by noise simulator (pulse width: 1 μs) R-phase, S-phase
Memory retention		≈ 10 years (non-volatile semiconductor memory type)
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity		35 to 85%RH
Protection structure		IP65 (Front panel, IEC standards)
Loader port		• TNS: top side • TNH, TNL: front side
Accessory		Bracket
Unit weight (packaged)		• TNS: ≈ 128 g (≈ 156 g) • TNH: ≈ 184 g (≈ 286 g) • TNL: TNL: ≈ 301 g (≈ 443 g)
Approval		CE cULus
Comm. protocol		Modbus RTU/ASCII, Sync-Master, PLC ladderless

LCD
PID Temperature Controllers

TX Series



Features

- 50 ms high-speed sampling rate and ± 0.3 % display accuracy
- Large LCD display with easy-to-read white PV characters
- Switch between current output and SSR drive output
- SSR drive output (SSRP function) control options: ON / OFF control, cycle control, phase control
- Communication output model available: RS485 (Modbus RTU)
- Parameter configuration via PC (RS485 communication): DAQMaster software included (comprehensive device management software)
- Compact, space-saving design with 45 mm depth: 30% rear-length size reduction compared to similar-sized (48 × 48 mm) models from Autonics Terminal protection cover sold separately: RSA-COVER

*Korea Patent Registration 30-2020-0020300, Korea Patent Registration 10-1651262, U.S.A. Patent Registration 10281339, Japan Patent Registration 6603317, China Patent Registration ZL201580039398.2, Germany Patent Application 112015003239.8

*Korea Design Registration 30-0999138

Specifications

Series		TX Series
Power supply		100 - 240 VAC~ 50/60 Hz ±10%
Power consumption		≤ 8 VA
Sampling period		50 ms
Input specification		Refer to Autonics website
Control output	Relay	250 VAC~ 3 A, 30 VDC⎓ 3 A, 1a
	SSR	TX4S: 12 VDC⎓ ±2 V, ≤ 20 mA TX4M/H/L: 13 VDC⎓ ±3 V, ≤ 20 mA
	Current	DC 4-20 mA or DC 0-20 mA (parameter), Load resistance: ≤ 500 Ω
Alarm output	Relay	AL1/2: 250 VAC~ 3 A 1a
Option output	PV transmission	DC 4 - 20 mA (Load resistance: ≤ 500 Ω, Output Accuracy: ±0.3% F.S.)
	RS485 Comm.	Modbus RTU
Display type		11 Segment (Red, Green, Yellow), LCD type
Control type	Heating, Cooling	ON/OFF, P, PI, PD, PID Control
	Heating& Cooling	
Hysteresis		1 to 100 (0.1 to 50.0) °C/°F
Proportional band (P)		0.1 to 999.9 °C/°F
Integral time (I)		0 to 9,999 sec
Derivative time (D)		0 to 9,999 sec
Control cycle (T)		0.5 to 120.0 sec
Manual reset		0.0 to 100.0%
Relay life cycle	Mechanical	≥ 5,000,000 operations
	Electrical	≥ 200,000 operations (resistance load: 250 VAC~ 3 A)
Dielectric strength		Between all terminals and case: 3,000 VAC~ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency 5 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)
Noise immunity		±2 kV square shaped noise (pulse width 1 μs) by noise simulator R-phase, S-phase
Memory retention		≈ 10 years (non-volatile semiconductor memory type)
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Protection structure		IP50 (Front panel, IEC standards)
Insulation type		Double or reinforced insulation (mark: ⧈, dielectric strength between primary circuit and secondary circuit: 3 kV)
Approval		CE cULus EAC
Unit weight (packaged)		• TX4S: ≈ 87 g (≈ 146 g) • TX4M: ≈ 143 g (≈ 233 g) • TX4H: ≈ 133 g (≈ 214 g) • TX4L: ≈ 206 g (≈ 290 g)
Comm. protocol		Modbus RTU

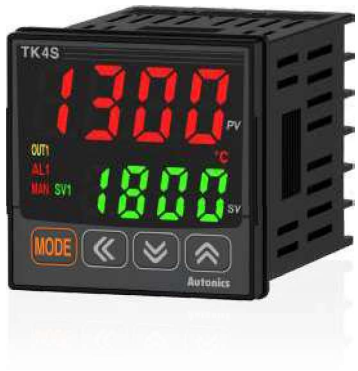
01) When using the unit at low temperature (below 0°C), display cycle is slow.

View product detail

Simultaneous Heating & Cooling Output

PID Temperature Controllers

TK Series



Features

- 50 ms high-speed sampling rate and ± 0.3 % display accuracy
- Simultaneous heating and cooling control function
- Switch between current output and SSR drive output
- SSR drive output (SSRP function) control options:
  ON / OFF control, cycle control, phase control
- Communication output models available:
  RS485 (Modbus RTU)
- Parameter configuration via PC (RS485 communication)
  - DAQMaster software included (comprehensive device management software)
  - Communication converter sold separately:
    SCM-US (USB to serial converter),
    SCM-38I (RS-232C to RS485 converter),
    SCM-US48I (USB to RS485 converter)
- User-friendly parameter features
- Heater disconnect alarm function (CT input)
  - Current transformer (CT) sold separately:
    CSTC-E80LN, CSTC-E200LN, CSTS-E80PP
- SV preset function (up to 4 set values) using digital input terminals
- Available in various DIN sizes:
  48 × 24, 48 × 48, 72 × 72, 96 × 48, 48 × 96, 96 × 96 mm

View product detail

Specifications

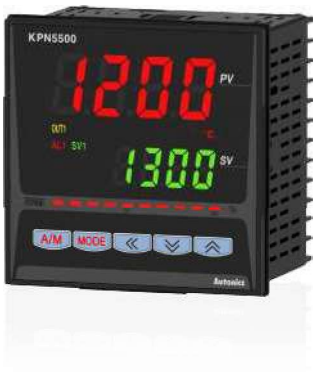
Series		TK4N	TK4SP	TK4S	TK4M
Power supply	AC type	100 - 240 VAC~ 50/60 Hz ±10%			
	AC/DC type	-	24 VAC~ 50/60 Hz ±10%, 24-48 VDC⎓ ±10%		
Power consumption	AC type	≤ 6 VA	≤ 8 VA		
	AC/DC type	-	AC: ≤ 8 VA, DC ≤ 5W		
Unit weight (packaged)		≈ 70 g (≈ 140 g)	≈ 85 g (≈ 130 g)	≈ 105 g (≈ 150 g)	≈ 140 g (≈ 210 g)

Series		TK4W	TK4H	TK4L
Power supply	AC type	100 - 240 VAC~ 50/60 Hz ±10%		
	AC/DC type	24 VAC~ 50/60 Hz ±10%, 24-48 VDC⎓ ±10%		
Power consumption	AC type	≤ 8 VA		
	AC/DC type	AC: ≤ 8 VA, DC ≤ 5W		
Unit weight (packaged)		≈ 141 g (≈ 211 g)	≈ 141 g (≈ 211 g)	≈ 198 g (≈ 294 g)

Sampling period		50 ms
Input specification		Refer to Autonics website
Option input	CT input	• 0.0-50.0 A (primary current measurement range) • CT ratio: 1/1,000 • Measurement accuracy: ±5% F.S. ±1digit
	Digital input	• Contact - ON: ≤ 2 kΩ, OFF: ≥ 90 kΩ • Non contact - residual voltage ≤ 1.0 V, leakage current ≤ 0.1 mA • Outflow current: ≈ 0.5 mA per input
Control output	Relay	250 VAC~ 3 A, 30 VDC⎓ 3 A 1a
	SSR	11 VDC⎓±2 V, ≤ 20 mA
	Current	DC 4-20 mA or DC 0-20 mA (parameter), Load resistance: ≤ 500 Ω
Alarm output	Relay	AL1, AL2: 250 VAC~ 3 A 1a • TK4N AL2: 250 VAC~ 0.5 A 1a (≤ 125 VA)
Option output	Transmission	DC 4 - 20 mA (Load resistance: ≤ 500 Ω, Output accuracy: ±0.3% F.S.)
	RS485 comm.	Modbus RTU
Display type		7 segment (red, green, yellow), LED type
Control type	Heating, Cooling	ON/OFF, P, PI, PD, PID Control
	Heating & Cooling	
Hysteresis		• Thermocouple, RTD: 1 to 100 (0.1 to 100.0) °C/°F • Analog: 1 to 100 digit
Proportional band (P)		0.1 to 999.9 °C/°F (0.1 to 999.9%)
Integral time (I)		0 to 9,999 sec
Derivative time (D)		0 to 9,999 sec
Control cycle (T)		• Relay output, SSR drive output: 0.1 to 120.0 sec • Selectable current or SSR drive output: 1.0 to 120.0 sec
Manual reset		0.0 to 100.0%
Relay life cycle	Mechanical	OUT1/2: ≥ 5,000,000 operations AL1/2: ≥ 20,000,000 operations (TK4H/W/L: ≥ 5,000,000 operations)
	Electrical	≥ 100,000 operations
Dielectric strength		Between power source terminal and input terminal: 2,000 VAC~ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)
Noise immunity		±2 kV square shaped noise by noise simulator (pulse width: 1 μs) R-phase, S-phase
Memory retention		≈ 10 years (non-volatile semiconductor memory type)
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Protection structure		IP65 (Front panel, IEC standards) • TK4SP: IP50 (Front panel, IEC standards)
Insulation type		Double insulation or reinforced insulation (mark: ⊡, dielectric strength between the measuring input part and the power part: 2 kV)
Accessory		Bracket, Terminal protection cover (TK4N)
Approval		CE cULus EAC
Comm. protocol		Modbus RTU

Bar Graph
Temperature Controllers

KPN Series



Features

- High speed sampling of 50 ms and ± 0.3 % display accuracy
- Enable to check control output operation amount by adopting bar graph
- Simultaneous heating / cooling control and automatic / manual control for high performance control
- Selection function of current output or SSR drive output
- Parameter setting available via PC (USB and RS485 communication) - Free device comprehensive management program (DAQMaster)
- Communication converter sold separately: SCM-US (USB / Serial converter), SCM-38I (RS232C / RS485 converter), SCM-US48I (USB / RS485 converter)
- Multi-SV (Max. 4) function (select via digital input terminal)
- Heater break alarm
- CT sold separately: CSTC-E80LN, CSTC-E200LN, CSTS-E80PP
- Small size (rear length: 60 mm)
- Multi input / multi range

View product detail

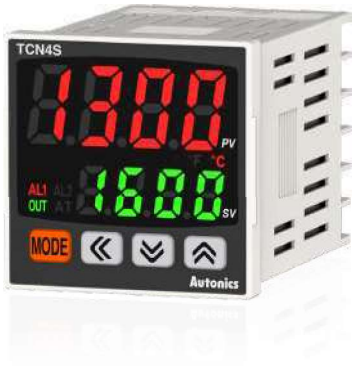
Specifications

Series		KPN Series
Power supply		100 - 240 VAC~ 50/60 Hz
Power consumption		≤ 15 VA
Sampling period		50 ms
Input specification		Refer to Autonics website
Option input	CT input	• 0.0-50.0 A (primary current measurement range) • CT ratio: 1/1,000
	Remote SV	1 - 5 VDC⎓ or 4 - 20 mA (Current Input: External resistance 250 Ω)
	Digital input	• Contact - ON: ≤ 2 kΩ, OFF: ≥ 90 kΩ • Non contact - residual voltage ≤ 1.0 V, leakage current ≤ 0.1 mA
Control output	Relay	250 VAC~ 5 A 1a
	SSR	11 VDC⎓±2 V, ≤ 20 mA
	Current	DC 4-20 mA or DC 0-20 mA (parameter), load resistance: ≤ 500 Ω
Alarm output	Relay	250 VAC~ 3 A 1a
Option output	Transmission	DC 4 - 20 mA (load resistance: ≤ 500 Ω, output accuracy: ±0.3% F.S. ±1-digit)
	RS485 Comm.	Modbus RTU
Display type		7 segment (red, green), control output bar graph (red, green), LED type
Control type	Heating, Cooling	ON/OFF, P, PI, PD, PID Control
	Heating & Cooling	
Hysteresis		• Thermocouple, RTD: 1 to 100 (0.1 to 100.0) °C/°F • Analog: 1 to 100 digit
Proportional band (P)		0.1 to 999.9 °C/°F (0.1 to 999.9%)
Integral time (I)		0 to 9,999 sec
Derivative time (D)		0 to 9,999 sec
Control cycle (T)		• 0.1 to 120.0 sec [relay output model] • 1.0 to 120.0 sec [SSR drive output model]
Manual reset		0.0 to 100.0%
Relay life cycle	Mechanical	≥ 10,000,000 operations
	Electrical	≥ 100,000 operations (load resistance: 250 VAC~ 3 A)
Dielectric strength		Between power source terminal and input terminal: 2,000 VAC~ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)
Noise immunity		±2 kV square shaped noise (pulse width 1 μs) by noise simulator R-phase, S-phase
Memory retention		≈ 10 years (non-volatile semiconductor memory type)
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Protection structure		IP65 (front panel, IEC standards)
Insulation type		Double or reinforced insulation (mark: ⊡, dielectric strength between the measuring input part and the power part: 2 kV)
Accessory		Bracket
Approval		CE EAC
Unit weight (packaged)		• KPN52□-□: ≈ 160 g (≈ 230 g) • KPN53□-□: ≈ 160 g (≈ 230 g) • KPN55□-□: ≈ 220 g (≈ 316 g)
Comm. protocol		Modbus RTU

Dual Display

PID Temperature Controllers

TCN Series



Features

- Dual digital display (PV / SV)
- 100 ms high-speed sampling rate and ± 0.5 % display accuracy
- Switch between relay output and SSR drive output
- SSR drive output (SSRP function) control options: ON / OFF control, cycle control, phase control
- Compact design with large display panels for easier reading
- Connector plug types offer easier wiring and maintenance (TCN4S-□-P)

*Korea Patent Registration 10-1002582, U.S.A. Patent Registration 8645000, Japan Patent Registration 3184816, China Patent Registration ZL200980111733.X, Vietnam Patent Registration 1-0012131, India Patent Registration 291573, Indonesia Patent Registration IDP0032166

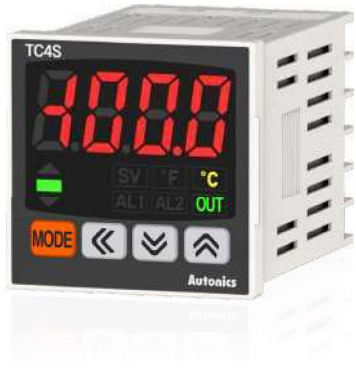
Specifications

Series		TCN4□-22□-□	TCN4□-24□-□
Power supply		24 VAC~ 50/60 Hz ±10% 24 - 48 VDC⎓ ±10%	100 - 240 VAC~ 50/60 Hz ±10%
Power consumption		AC: ≤ 5 VA, DC: ≤ 3 W	≤ 5 VA
Sampling period		100 ms	
Input specification		Refer to Autonics website	
Control output	Relay	250 VAC~ 3A, 30 VDC⎓ 3A, 1a	
	SSR	12 VDC⎓ ±2 V, ≤ 20 mA	
Alarm output		250 VAC~ 1 A 1a	
Display type		7 Segment (red, green), LED type	
Control type	Heating, Cooling	ON/OFF, P, PI, PD, PID Control	
Hysteresis		1 to 100 (0.1 to 50.0) °C/°F	
Proportional band (P)		0.1 to 999.9 °C/°F	
Integral time (I)		0 to 9,999 sec	
Derivative time (D)		0 to 9,999 sec	
Control cycle (T)		0.5 to 120.0 sec	
Manual reset		0.0 to 100.0%	
Relay life cycle	Mechanical	≥ 5,000,000 operations	
	Electrical	OUT1/2: ≥ 200,000 operations (load resistance: 250 VAC~ 3 A) AL1/2: ≥ 300,000 operations (load resistance: 250 VAC~ 1 A)	
Dielectric strength		Between input terminal and power terminal: 1,000 VAC~ 50/60 Hz for 1 min	Between input terminal and power terminal: 2,000 VAC~ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)	
Noise immunity		±2 kV square shaped noise (pulse width: 1 μs) by noise simulator R-phase, S-phase	
Memory retention		≈ 10 years (non-volatile semiconductor memory type)	
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)	
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)	
Insulation type		Mark: ⊟, double or reinforced insulation (dielectric strength between the measuring input part and the power part: 1 kV)	Mark: ⊟, double or reinforced insulation (dielectric strength between the measuring input part and the power part: 2 kV)
Approval		CE cULus EAC	
Unit weight (packaged)		• TCN4S: ≈ 100 g (≈ 147 g) • TCN4M: ≈ 133 g (≈ 203 g) • TCN4H: ≈ 124 g (≈ 194 g) • TCN4L: ≈ 179 g (≈ 275 g)	

View product detail

Single Display
PID Temperature Controllers

TC Series



Features

- Single digital display (switch between PV and SV)
- 100 ms high-speed sampling rate and ± 0.5 % display accuracy
- Switch between relay output and SSR drive output
- SSR drive output (SSRP function) control options: ON / OFF control, cycle control, phase control
- Compact design with large display panels for easier reading
- Connector plug types offer easier wiring and maintenance (TCN4S-□-P)

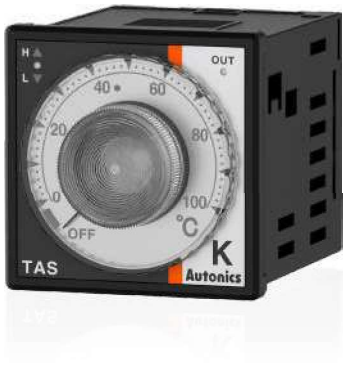
Specifications

Series		TC4□-□2□	TC4□-□4□
Power supply		24 VAC~ 50/60 Hz ±10% 24-48 VDC⎓ ±10%	100 - 240 VAC~ 50/60 Hz ±10%
Power consumption		AC: ≤ 5 VA, DC: ≤ 3 W	≤ 5 VA
Sampling period		100 ms	
Input specification		Refer to Autonics website	
Control output	Relay	250 VAC~ 3 A, 30 VDC⎓ 3 A, 1a	
	SSR	12 VDC⎓±2 V, ≤ 20 mA	
Alarm output		250 VAC~ 1 A 1a	
Display type		7 Segment (red, green, yellow), LED type	
Control type	Heating, Cooling	ON/OFF, P, PI, PD, PID Control	
Hysteresis		1 to 100 (0.1 to 50.0) °C/°F	
Proportional band (P)		0.1 to 999.9 °C/°F	
Integral time (I)		0 to 9,999 sec	
Derivative time (D)		0 to 9,999 sec	
Control cycle (T)		0.5 to 120.0 sec	
Manual reset		0.0 to 100.0%	
Relay life cycle	Mechanical	OUT1/2, AL1/2: ≥ 5,000,000 operations	
	Electrical	OUT1/2: ≥ 200,000 operations (load resistance: 250 VAC~ 3A) AL1/2: ≥ 300,000 operations (load resistance: 250 VAC~ 1 A)	
Dielectric strength		Between input terminal and power terminal: 1,000 VAC~ 50/60 Hz for 1 min	Between input terminal and power terminal: 2,000 VAC~ 50/60 Hz 1 min
Vibration		0.75 mm amplitude at frequency 5 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)	
Noise immunity		Square shaped noise (pulse width: 1 μs) by noise simulator ±2 kV R-phase, S-phase	
Memory retention		≈ 10 years (non-volatile semiconductor memory type)	
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)	
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)	
Insulation type		Mark: ⧈, double or reinforced insulation (dielectric strength between the measuring input part and the power part: 1 kV)	Mark: ⧈, double or reinforced insulation (dielectric strength between the measuring input part and the power part: 2 kV)
Approval		CE c UL us EAC	
Unit weight (packaged)		• TC4S: ≈ 94 g (≈ 141 g) • TC4SP: ≈ 76 g (≈ 123 g) • TC4Y: ≈ 85 g (≈ 174 g) • TC4M: ≈ 133 g (≈ 204 g) • TC4W: ≈ 122 g (≈ 194 g) • TC4H: ≈ 122 g (≈ 194 g) • TC4L: ≈ 155 g (≈ 254 g)	

View product detail

Analog
Non-Indication Type
PID Temperature Controllers

TA Series



Features

- Auto-tuning PID temperature control
- PID and ON / OFF control:
  toggle via external switch
- Deviation indicators (green, red LED)
- Control output indicator (red LED)
- Stop control output function using analog dial
- Sensor disconnect display function
- Built-in microprocessor

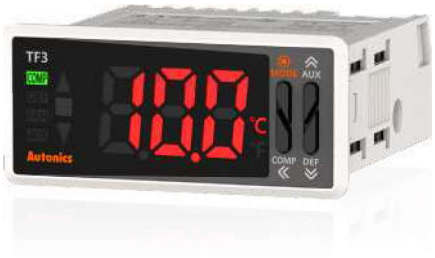
Specifications

Series		TA Series
Power supply		100 - 240 VAC~ 50/60 Hz ±10%
Power consumption		≤ 4 VA
Sampling period		100 ms
Input specification		• RTD: DPt100Ω (allowable line resistance per a wire: ≤5 Ω) • Thermocouple: K (CA), J (IC)
Control output	Relay	250 VAC~ 3 A, 30 VDC⎓ 1 A 1c
	SSR	12 VDC⎓±2 V, ≤ 20 mA
Display type		PV deviation, Error display (red, green), LED type
Setting method		Front dial
Setting accuracy		• At room temperature (23 °C ±5 °C) Over 100 °C model: F.S.±2%, below 100 °C model: F.S.±3% • Out of room temperature range Over 100 °C model: F.S.±3%, below 100 °C model: F.S.±4%
Control type	ON / OFF	Hysteresis: 2°C (fixed)
	PID Control	Control cycle: relay output 20 sec / SSR drive output 2 sec
Relay life cycle	Mechanical	≥ 10,000,000 operations (18,000 operations/time)
	Electrical	≥ 100,000 operations (900 operations/time)
Dielectric strength		Between input terminal and power terminal: 2,000 VAC~ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)
Noise immunity		Square shaped noise (pulse width: 1 μs) by noise simulator ±2 kV R-phase, S-phase
Memory retention		≈ 10 years (non-volatile semiconductor memory type)
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Insulation type		Double or reinforced insulation (mark: ⧈, dielectric strength between the measuring input part and the power part: 2 kV)
Approval		CE cULus EAC
Unit weight (packaged)		• TAS: ≈ 69 g (≈ 107 g) • TAM: ≈ 109 g (≈ 171 g) • TAL: ≈ 147 g (≈ 232 g)

View product detail

Refrigeration
Temperature Controllers

TF3 Series



Features

- Standard installation size for refrigeration panels (W 70.3 × H 28.2mm)
- Various compressor load current capacity: 5 A, 16 A, 20 A
- Various user-friendly functions
  - Defrost sync function : simultaneous defrost operation of multiple controllers (up to 6 units)
  - RTC (Real Time Clock) function : night mode operation and real-time defrost control
  - Built-in alarm function
- Remote monitoring of real-time temperature and output control (using TFD series remote display unit, sold separately)
- Communication output models available: RS485 (Modbus RTU)
- Parameter configuration via PC (RS485 communication): DAQMaster software included (comprehensive device management software)
- IP65 protection structure (IEC standard): front panel only

Specifications

Series		TF3 Series
Power supply	AC	100 - 240 VAC~ 50/60 Hz ±10%
	AC / DC	24 VAC~ 50/60 Hz ±10%, 12-24 VDC⎓ ±10%
Power consumption	AC	≤ 8 VA
	AC / DC	AC: ≤ 5 VA, DC: ≤ 3 W
Sampling period		500 ms
Input specification		Refer to Autonics website
Option input	Digital input	• Contact - ON: ≤ 1 kΩ, OFF: ≥ 100 kΩ • Non contact - residual voltage ≤ 1 V, leakage current ≤ 1 mA Outflow current: ≈ 4 uA
Control output	Compressor (COMP)	250 VAC~ 5 A / 30 VDC⎓ 5 A / 1a 250 VAC~ 16 A / 24 VDC⎓ 16 A / 1c 250 VAC~ 20 A 1a
	Defrost (DEF)	250 VAC~ 10 A / 24 VDC⎓ 10 A / 1a
	Auxiliary (AUX)	250 VAC~ 5 A / 30 VDC⎓ 5 A / 1a
RS485 communication		Modbus RTU
Display type		7 segment (red), LED type
Control type		ON/OFF Control
Hysteresis		0.5 to 5.0 °C, 2 to 10 °F
Relay life cycle	Mechanical	• COMP (5 A 1a), AUX: ≥ 5,000,000 operations • COMP (16 A 1c), DEF: ≥ 20,000,000 operations • COMP (20 A 1a): ≥ 10,000,000 operations
	Electrical	• COMP (5 A 1a), AUX: ≥ 50,000 operations (load resistance: 250 VAC~ 5 A) • COMP (16 A 1c): ≥ 30,000 operations (load resistance: 250 VAC~ 16 A) • COMP (20 A 1a): ≥ 100,000 operations (load resistance: 250 VAC~ 20 A) • DEF: ≥ 100,000 operations (load resistance: 250 VAC~ 10 A)
Dielectric strength	AC	Between all terminals and case, power and input circuit: 3,000 VAC~ 50 / 60 Hz for 1 min
	AC / DC	Between all terminals and case, power and input circuit: 1,000 VAC~ 50 / 60 Hz for 1 min
Vibration		1.5 mm amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)
Noise immunity		Square shaped noise by noise simulator (pulse width 1 μs) ±2 kV R-phase, S-phase
Memory retention		≈ 10 years (non-volatile semiconductor memory type)
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Protection structure		IP65 (front panel, IEC standards)
Approval		CE cULus EAC
Unit weight (packaged)		≈ 105 g (≈ 207 g)
Comm. protocol		Modbus RTU

View product detail

Refrigeration
Temperature Controllers

TC3YF Series

Features

- ON / OFF control
- Standard input type: thermistor (NTC)
  - RTD (Pt100Ω) input models available upon request.
- Temperature range
  - Thermistor (NTC):
    -40.0 to 99.9 °C -40 to 212 °F)
  - RTD (Pt100 Ω):
    -99.9 to 99.9 °C (-148 to 212 °F)
- Various functions available for optimal cooling control
  - Auto / manual defrost selection, compressor start-up delay, restart delay, minimum ON time, end-defrost delay, evaporator fan operation delay
- Input correction function
- Operation cycle programming available to protect contents in case of error

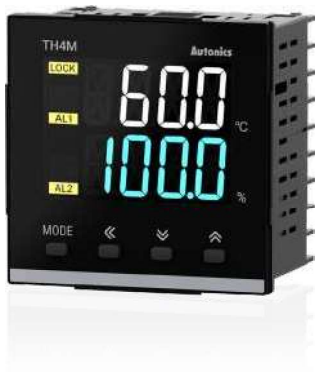
Specifications

Series			TC3YF Series
Power supply		AC	100 - 240 VAC~ 50/60 Hz
		DC	12-24 VDC⎓
Allowable voltage range			90 to 110% of rated voltage
Power consumption		AC	≤ 4 VA
		DC	≤ 8 W
Sampling period			500 ms
Input specification			Refer to Autonics website
Display accuracy			At room temperature (23 ±5 °C): (PV ±0.5% or 1 °C higher one) rdg ±1 digit Out of room temperature range: (PV ±0.5% or 1 °C higher one) rdg ±1 °C
Control output	Compressor (COMP)		250 VAC~ 5 A 1a, 30 VDC⎓ 5 A 1a
	Defrost (DEF)		250 VAC~ 10 A 1a
	Evaporation-fan (FAN)		250 VAC~ 5 A 1a, 30 VDC⎓ 5 A 1a
Display type			7 segment (red), LED type
Control type			ON/OFF Control
Hysteresis			0.5 to 5.0 °C, 2 to 50 °F
Relay life cycle	Mechanical		≥ 20,000,000 operations
	Electrical		• COMP, DEF: ≥ 50,000 operations (load resistance: 250 VAC~ 5 A) • FAN ≥ 100,000 operations (load resistance: 250 VAC~ 10 A)
Dielectric strength			Between all external terminals and case: 2,000 VAC~ 60 Hz for 1 min
Vibration			0.75 mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
Malfunction vibration			0.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min
Insulation resistance			≥ 100 MΩ (500 VDC⎓ megger)
Noise immunity		AC	±2 kV square shaped noise (pulse width 1 μs) by noise simulator R-phase, S-phase
		DC	±500 V square shaped noise (pulse width 1 μs) by noise simulator R-phase, S-phase
Memory retention			≈ 10 years (non-volatile semiconductor memory type)
Ambient temperature			-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity			35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Protection structure			IP65 (Front panel, IEC standards)
Approval		AC	c UL us (Except RTD option models) EAC
		DC	EAC
Unit weight (packaged)			≈ 143 g (≈ 229 g)

View product detail

LCD
Temperature / Humidity Controllers

TH4M Series



Features

- Simultaneous control of temperature and humidity
- LCD display with easy-to-read white and blue characters
- Input correction of temperature and humidity
- Output delay time setting
- Deviation high / low-limit alarm output
- Dedicated temperature / humidity sensor THD-RM (accessory)

Specifications

Model		TH4M-24R
Power supply		100 - 240 VAC~ 50/60 Hz ±10%
Power consumption		≤ 8 VA
Sampling period		1 sec
Display accuracy	Temperature	• At room temperature (25 °C ±5 °C): ≤ ±1.0 °C • Out of room temperature range: ≤ ±2.0 °C
	Humidity	• At room temperature (25 °C ±5 °C): ≤ ±3.0%RH (20 to 90%RH), ≤ ±5.0%RH (below 20%RH, over 90%RH) • Out of room temperature: ≤ ±5.0%RH (all range)
Display range	Temperature	-20.0 to 60.0 °C
	Humidity	10.0 to 100.0%RH
Using range	Temperature	-20.0 to 60.0 °C
	Humidity	10.0 to 100.0%RH
Control output 01)	Temperature (OUT1)	Relay: 250 VAC~ 3 A, 30 VDC⎓ 3 A, 1a
	Humidity (OUT2)	Relay: 250 VAC~ 3 A, 30 VDC⎓ 3 A, 1a
Alarm output	Relay	AL1/2: 250 VAC~ 3 A, 1a
Display type 02)		11-Segment (temperature: white, humidity: blue), other display (yellow) LCD type
Control type		ON/OFF control
Relay life cycle	Mechanical	≥ 5,000,000 operations
	Electrical	≥ 200,000 operations (resistance load: 250 VAC~ 3 A)
Dielectric strength		Between primary circuit and secondary circuit: 3,000 VAC~ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency 5 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)
Noise immunity		±2 kV square shaped noise (pulse width 1 μs) by noise simulator R-phase, S-phase
Memory retention		≈ 10 years (non-volatile semiconductor memory type)
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Insulation type		Double or reinforced insulation (mark: ⧈, dielectric strength between primary circuit and secondary circuit: 3 kV)
Approval		CE
Unit weight		≈ 144 g

01) Connect to a load using the same power supply. Connecting to a load from a different power supply may cause safety issues.
02) When using the unit at low temperature (below 0°C), display cycle is slow.

View product detail

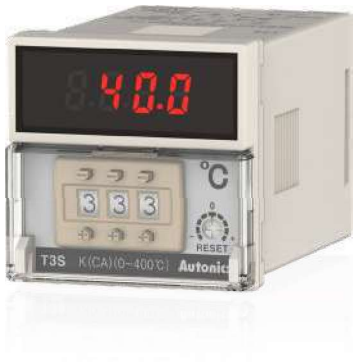
Next Page ▶

[Temperature / Humidity sensor]

Model		THD-RM
Power supply		3.3 VDC⎓ ±2%
Power consumption		≤ 1.3mA
Response time		15 sec
Sensing accuracy	Temperature	• At room temperature (25 °C ±5 °C): ≤ ±1.0 °C • Out of room temperature: ≤ ±2.0 °C
	Humidity	• At room temperature (25 °C ±5 °C): ≤ ±3.0%RH (20 to 90%RH), ≤ ±5.0%RH (below 20%RH, over 90%RH) • Out of room temperature: ≤ ±5.0%RH (all range)
Sensing range	Temperature	-20.0 to 60.0 °C
	Humidity	10.0 to 100.0%RH
Communication type		I2C communication output
Dielectric strength		Between primary circuit and case: 500 VAC~ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency 5 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
Ambient temperature		-20 to 60 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity		0 to 100%RH, storage: 35 to 85%RH (no freezing or condensation)
Cable		Ø4 mm, 4 seam , 2 m (tensile strength: 1kgf/s)
Approval		CE
Unit weight		≈ 56 g

Thumbwheel Switch
Temperature Controllers

T3 / T4 Series



Features

- Various control output options: relay, SSR drive, current
- 2 independent set points and control outputs for heating and cooling control (T4LP)
- Various sizes (W 48 × H 48, W 48 × H 96, W 72 × H 72, W 96 × H 96 mm)

Specifications

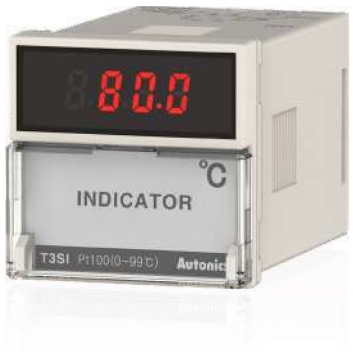
Series		T3/T4 Series
Power supply		100 - 240 VAC~ 50/60 Hz ±10%
Power consumption		≤ 5 VA
Sampling period		100 ms
Input specification		Refer to Autonics website
Display accuracy 01)		• At room temperature (23 °C ±5 °C): (PV ±0.5% or ±1°C higher one) ±1 digit • Out of room temperature range: (PV ±0.5% or ±2 °C higher one) ±1 digit
Control output	Relay 02)	OUT1: 250 VAC~ 5 A / 30 VDC⎓ 5A 1c, OUT2: 250 VAC~ 2 A / 30 VDC⎓ 2A 1c
	SSR	12 VDC⎓±2 V, ≤ 20 mA
	Current	DC 4-20 mA, Load resistance: ≤ 500 Ω
Option output		250 VAC~ 2 A 1c
Alarm output setting range		F.S. 0 to 10% (volume switch)
Option output setting range		0 to 50 °C (volume switch)
Reset range		F.S. -3 to 3% (volume switch)
Display type		7 segment (red), LED type
Control type		ON/OFF, Proportional control
Hysteresis		F.S. 0.2 to 3% (T3S: F.S. 0.5%) (volume switch)
Proportional band		F.S. 1 to 10% (T3S: F.S. 3%) (volume switch)
Proportional cycle		20 sec
Relay life cycle	Mechanical	≥ 5,000,000 operations
	Electrical	OUT1: ≥ 100,000 operations, OUT2: ≥ 200,000 operations
Dielectric strength		Between input terminal and power terminal: 2,000 VAC~ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)
Noise immunity		±2 kV square shaped noise by noise simulator (pulse width 1 μs) R-phase, S-phase
Memory retention		≈ 10 years (non-volatile semiconductor memory type)
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Approval		EAC
Unit weight (packaged)		• T3S: ≈ 95 g (≈ 135 g) • T3H, T3HA, T3HS: ≈ 176 g (≈ 239 g) • T4M, T4MA: ≈ 180 g (≈ 246 g) • T4L, T4LA, T4LP: ≈ 222 g (≈ 310 g)

01) In case of the T3S Series and the decimal point display models
At room temperature (23 °C ±5 °C): (PV ±0.5% or ±2 °C higher one) ±1 digit
Out of room temperature range: (PV ±0.5% or ±3 °C higher one) ±1 digit
02) Dual setting output of the T4LP is fixed as relay output and, it is also available as alarm output.

View product detail

1-Channel Digital Temperature Indicators

T3 / T4 Series



Features

- Various control output options : relay, SSR drive, current
- 2 independent set points and control outputs for heating and cooling control (T4LP)
- Various sizes (W 48 × H48, W 48 × H 96, W 72 × H 72, W 96 × H 96 mm)

Specifications

Series	T3/T4 Series
Power supply	100 - 240 VAC~ 50/60 Hz ±10% (T3NI: 12 -24 VDC⎓ ±10%)
Power consumption	≤ 5 VA (T3NI: ≤ 1 W)
Input specification	Refer to Autonics website
Display accuracy 01)	• At room temperature (23 °C ±5 °C): (PV ±0.5% or ±1°C higher one) ±1 digit • Out of room temperature range: (PV ±0.5% or ±2 °C higher one) ±1 digit
Display type	7 Segment (red), LED type
Dielectric strength	Between input terminal and power terminal: 2,000 VAC~ 50/60 Hz for 1 min
Vibration	0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Noise immunity	±2 kV square shaped noise (pulse width 1 μs) by noise simulator R-phase, S-phase
Ambient temperature	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity	35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Accessory	Bracket
Approval	EAC
Unit weight (packaged)	• T3NI: ≈ 25 g (≈ 48 g) • T4YI: ≈ 123 g (≈ 181 g) • T4WI: ≈ 140 g (≈ 231 g) • T3SI: ≈ 80 g (≈ 120 g) • T3HI: ≈ 137 g (≈ 203 g) • T4MI: ≈ 137 g (≈ 202 g) • T4LI: ≈ 185 g (≈ 274 g)

01) In case of T3NI, T3SI Series and the decimal point display models
At room temperature (23 °C ±5 °C): (PV ±0.5% or ±2 °C higher one) ±1 digit
Out of room temperature range: (PV ±0.5% or ±3 °C higher one) ±1 digit

View product detail

Bar Graphic
Temperature Indicators

KN-1000B Series

Features

- High accuracy with 16 bit ADC (± 0.2 % F.S.)
- Multi-input
  - Thermometer 12 types
  - RTD 5 types
  - Analog: current 2 types / voltage 4 types
- 101 LED bar graph (green)
- Various output options
  - Alarm output: 2 points / 4 points
  - 4 - 20 mA transmission output (isolated), RS485 Communication output
- Various functions
  - Bar graph alarm display
  - High / Low peak input monitoring
  - Alarm output (upper / lower, sensor break)
  - Transmission output / display scale
  - Digital input (DI), etc.
- Built-in power supply for sensor / transmitter (24 VDC⎓)
- Small size (rear length: 70 mm)

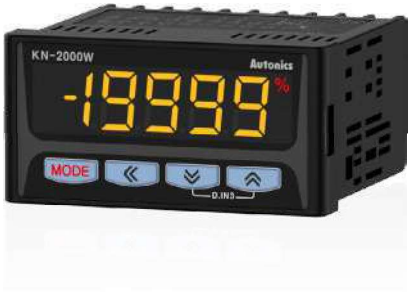
Specifications

Series		KN-1000B Series	
		AC voltage	DC voltage
Power supply		100 - 240 VAC~ 50/60 Hz	24 VDC⎓
Allowable voltage range		90 to 110% of rated voltage	
Power consumption		≤ 6 VA	≤ 4 W
Sampling period		• Thermocouple, RTD: 250 ms • Analog: 100 ms	
Input specification		Refer to Autonics website	
Digital input	Contact	• ON: ≤ 2 kΩ • OFF: ≥ 90 kΩ	
	Non contact	• Residual voltage: ≤ 1.0 V • leakage current: ≤ 0.03 mA	
	Outflow current	≈ 0.2 mA	
Option output	Alarm	• 2 point relay: 250 VAC~ 3 A 1c • 4 point relay: 250 VAC~ 1 A 1a	
	PV transmission	ISOLATED DC 4-20 mA (Load resistance: ≤ 600 Ω)	
	RS485 comm.	Modbus RTU	
Display type		7 Segment (red), Graph bar (green)	
Alarm output Hysteresis		1 to 999 digit	
Relay life cycle	Mechanical	• 2 point: ≥ 10,000,000 operations • 4 point: ≥ 20,000,000 operations	
	Electrical	• 2 point: ≥ 100,000 operations (load resistance: 250 VAC~ 3 A) • 4 point: ≥ 500,000 operations (load resistance: 250 VAC~ 1 A)	
Dielectric strength		Between input terminal and power terminal: 2,000 VAC~ 50/60 Hz for 1 min	
Vibration		0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)	
Noise immunity		±2 kV square shaped noise (pulse width 1 μs) by noise simulator	
Memory retention		≈ 10 years (non-volatile semiconductor memory type)	
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)	
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)	
Approval		CE EAC	
Unit weight (packaged)		≈ 182 g (≈ 304 g)	
Comm. protocol		Modbus 1.1 RTU	

View product detail

1-Channel Digital Temperature Indicators

KN-2000W Series



Features

- High accuracy with 16 bit ADC (± 0.2 % F.S.)
- Max. display range: -19999 to 19999
- Multi-input
  - Thermometer 12 types
  - RTD 5 types
  - Analog: Current 2 types / voltage 6 types
- Auto display color change function
  - Selectable indicator colors when error occurs or alarm operates
- Various output options
  - Alarm output: 2 points / 4 points
  - 4 - 20 mA transmission output (isolated), RS485 Communication output
- Various functions
  - High / Low peak input monitoring
  - Alarm output (upper / lower, sensor break)
  - Transmission output/display scale
  - Digital input (DI), etc.
- Built-in power supply for sensor / transmitter (24 VDC)

Specifications

Series		KN-2000W Series	
		AC voltage	DC voltage
Power supply		100 - 240 VAC~ 50/60 Hz	24 VDC⎓
Power consumption		≤ 8 VA	≤ 3 W
Sampling period		• Thermocouple, RTD: 250 ms • Analog: 100 ms	
Input specification		Refer to Autonics website	
Digital input	Contact	• ON: ≤ 2 kΩ • OFF: ≥ 90 kΩ	
	Non contact	• Residual voltage: ≤ 1.0 V • Leakage current: ≤ 0.03 mA	
	Outflow current	≈ 0.2 mA	
Option output	Alarm	• 2 point relay: 250 VAC~ 3 A 1c • 4 point relay: 250 VAC~ 1 A 1a	
	PV Transmission	ISOLATED DC 4-20 mA (Load resistance: ≤ 600 Ω)	
	RS485 comm.	Modbus RTU	
Display type		7 Segment (Red, Green, Yellow), LED type	
Alarm output Hysteresis		1 to 999 digit	
Relay life cycle	Mechanical	• 2 point: ≥ 10,000,000 operations • 4 point: ≥ 20,000,000 operations	
	Electrical	• 2 point: ≥ 100,000 operations(Load resistance: 250 VAC~ 3 A) • 4 point: ≥ 500,000 operations (Load resistance: 250 VAC~ 1 A)	
Dielectric strength		Between input terminal and power terminal: 2,000 VAC~ 50/60 Hz for 1 min	
Vibration		0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)	
Noise immunity		±2 kV square shaped noise (pulse width 1 μs) by noise simulator	
Memory retention		≈ 10 years (non-volatile semiconductor memory type)	
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)	
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)	
Approval		CE EAC	
Unit weight (packaged)		≈ 200 g (≈ 332 g)	
Comm. protocol		Modbus 1.1 RTU	

View product detail

Modular 2/4-Channel PID Temperature Controllers with Screw Connector

TMH Series

Features

- Common
  - Easy maintenance with detachable body and base terminal
  - Power supply and communication with expansion connectors (up to 32 units)
- **[TMH2/4 Series (Control Module)]**
  - Multi-channel (2-channel / 4-channel) input and output control: Expandable up to 32 units (64-channels / 128-channels)
  - 50 ms high-speed sampling rate and ± 0.3 % measurement accuracy
  - Simultaneous heating and cooling control function and auto / manual control mode
- **[TMHA (Analog Input / Output Option Module)]**
  - 4 channels, various input types / temperature ranges / transmission outputs
  - 50 ms high-speed sampling rate and ± 0.3% measurement accuracy
- **[TMHE (Digital Input / Alarm Output Option Module)]**
  - 8 digital inputs / 8 alarm outputs
- **[TMHCT (CT Input Option Module)]**
  - 8 CT inputs
- **[TMHC (Communication Modules)]**
  - Allows connection of control modules and option modules to master devices
  - Connect up to 32 control / option modules per communication model

Specifications

[Control module]

Model	TMH2	TMH4
No. of channels	2 channels	4 channels
Sampling period	50 ms (2 channels or 4 channels synchronous sampling)	
Input specification	Thermocouple, RTD, Analog (refer to 'Input Specification')	
CT input	• 0.0 - 50.0A (primary current measurement range) • CT ratio: 1/1,000, • Measurement accuracy: ±5% F.S. ±1 digit	
Digital input	• Connect input ON: ≤ 1 kΩ, OFF: ≥ 100 kΩ • Solid state input Residual voltage: ≤ 0.9 V, Leakage current: ≤ 0.5 mA • Outflow current: ≈ 0.3 mA per input	-
Control type	Heating, cooling, heating & cooling: ON/OFF, P, PI, PD, PID control	
Control output	• Relay: 250 VAC~ 3 A 1a mechanical life cycle: ≥ 10,000,000 operations, electrical life cycle: ≥ 100,000 operations • SSR: 12 VDC⎓ ±3 V, ≤ 20 mA • Current [01]: DC 4 - 20 mA or DC 0 - 20 mA (Load: ≤ 500 Ω)	
Alarm output	250 VAC~ 3 A 1a Mechanical life cycle: ≥ 10,000,000 operations Electrical life cycle: ≥ 100,000 operations	-
Communication	Modbus RTU	
Hysteresis	• Thermocouple / RTD: 1 to 100 (0.1 to 100) °C/°F • Analog: 1 to 100 digit	
Proportional band (P)	• Thermocouple / RTD: 1 to 999 (0.1 to 999.9) °C/°F • Analog: 0.1 to 999.9 digit	
Integral time (I)	0 to 9,999 sec	
Derivative time (D)	0 to 9,999 sec	
Control period (T)	• Relay output, SSR drive output: 0.1 to 120.0 sec • Selectable current or SSR drive output: 1.0 to 120.0 sec	
Manual reset	0 to 100 (0.0 to 100.0) %	
Insulation type	Double insulation or reinforced insulation (mark: ⊡, dielectric strength between the measuring input part and the power part: 1 kV)	
Unit weight (packaged)	• Basic module: ≈ 178 g (≈ 251 g) • Expansion module: ≈ 173 g (≈ 246 g)	

01) When the control output is set to the current output, the heater current value monitoring function through the CT input terminals is not available.

View product detail

Next Page ▶

[Option module]

Model	TMHA-42AE
No. of channels	4 channels
Sampling period	50 ms (4 channels synchronous sampling)
Input specification	Thermocouple, RTD, analog (refer to 'Input Specification')
Transmission output	DC 4 - 20 mA or DC 0 - 20 mA (Load: ≤ 500 Ω)
Communication	Modbus RTU
Insulation type	Double insulation or reinforced insulation (mark: ⧈, dielectric strength between the measuring input part and the power part: 1 kV)
Unit weight (packaged)	≈ 161 g (≈ 234 g)

Model	TMHE-82RE	TMHCT-82NE
No. of channels	8 points	8 points
Input specification	- Digital input • Connect input ON: ≤ 1 kΩ, OFF: ≥ 100 kΩ • Solid state input Residual voltage: ≤ 0.9 V, Leakage current: ≤ 0.5 mA • Outflow current: ≈ 0.3 mA per input	- CT input • 0.0-50.0 A (primary current measurement range) • CT ratio: 1/1,000 • Measurement accuracy: ±5% F.S. ±1 digit
Alarm output	250 VAC~ 3 A 1a, • Mechanical life cycle: ≤ 10,000,000 operations • Electrical life cycle: ≤ 100,000 operations	-
Communication	Modbus RTU	
Insulation type	Double insulation or reinforced insulation (mark: ⧈, dielectric strength between the measuring input part and the power part: 1 kV)	-
Unit weight (packaged)	≈ 166 g (≈ 239 g)	≈ 148 g (≈ 221 g)

[Communication module]

Model		TMHC-22LE	TMHC-22EE
Communi-cation	COM1	• Connection type: RS422 / RS485 • Protocol: Modbus RTU, PLC Ladderless communication	• Connection type: Ethernet (10/100BaseT) • Protocol: Modbus TCP
	COM2		
	PC loader	TTL (Protocol: Modbus RTU)	
Insulation type		Double insulation or reinforced insulation (mark: ⧈, dielectric strength between the measuring input part and the power part: 1 kV)	
Unit weight (packaged)		≈ 147 g (≈ 219 g)	≈ 129 g (≈ 200 g)

[Common]

Power supply [01)]	24 VDC⎓
Allowable voltage range	90 to 110% of rated voltage
Power Consumption	≤ 5 W (for max. load)
Display type	None- parameter setting and monitoring is available at external devices
Memory retention	≈ 10 years (non-volatile semiconductor memory type)
Insulation resistance	100 MΩ (500 VDC⎓ megger)
Dielectric strength	Between the charging part and the case: 1,000 VAC~ 50/60 Hz for 1 min
Vibration	0.75mm amplitude at frequency of 5 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
Noise immunity	Square shaped noise by noise simulator (pulse width 1 μs) ±0.5 kV
Ambient temperature	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity	35 to 85%RH, Storage: 35 to 85%RH (no freezing or condensation)
Accessory	Expansion connector: 1, module lock connector: 2
Protection structure	IP20 (IEC standard)
Approval	CE cULus KC EAC

01) The control extension/option/communication module uses the power voltage from the control basic module.

Modular 2/4-Channel PID Temperature Controllers with Screwless Connector

TM Series

Features

- Multi-channel (4-channel: TM4 / 2-channel: TM2) input and output control
- High-speed sampling cycle (4-channel: 100ms / 2-channel : 50ms)
- Module connection and expansion with expansion connectors
  - Communication between modules
  - No additional power supply wiring
  - Expandable up to 31 units (124-channels / 62-channels)
- Simultaneous heating and cooling control function
- Isolated input channels (dielectric strength: 1000 VAC)
- Switch between current output and SSR drive output (TM2- 2C)
- Parameter configuration via PC (USB and RS485 communication)
  - DAQMaster software included (comprehensive device management software)
  - Communication converter sold separately: SCM-US (USB to serial converter), SCM-38I (RS-232C to RS485 converter), SCM-US48I (USB to RS485 converter)
- Easy wiring and maintenance with various connectors: sensor input connector, control output connector, power / communication connector
- Heater disconnect alarm function (CT input)
  - Current transformer (CT) sold separately: CSTC-E80LN, CSTC-E200LN
- Various input types and temperature ranges

View product detail

Specifications

Series		TM2	TM4
No. of channels		2 channels	4 channels
Power supply		24 VDC⎓ ±10%	
Allowable voltage range		90 to 110% of rated voltage	
Power consumption		≤ 5 W (for Max. load)	
Sampling period		50 ms (2 channels synchronous sampling)	100 ms (4 channels synchronous sampling)
Input specification		Refer to Autonics website	
Option input	CT input	• 0.0-50.0 A (primary current measurement range) • CT ratio: 1/1,000 • Measurement accuracy: ±5% F.S. ±1 digit	-
	Digital input	• Contact ON: ≤ 1 kΩ, OFF: ≥ 100 kΩ • Non contact residual voltage: ≤ 1.5 VDC⎓ leakage current: ≤ 0.1 mA • Outflow current: ≈ 0.5 mA per input	-
Control output	Relay	250 VAC~ 3 A 1a, 30 VDC⎓ 3 A 1a	
	SSR	12 VDC⎓ ±3 V, ≤ 30 mA	22 VDC⎓ ±3 V, ≤ 30 mA
	Current	DC 4 - 20 mA or DC 0 - 20 mA (Load resistance: ≤ 500 Ω)	
Alarm output		250 VAC~ 3 A 1a	-
RS485 Comm.		Modbus RTU	
Display type		None- parameter setting and monitoring is available at external devices	
Control type	Heating, Cooling	ON/OFF, P, PI, PD, PID Control	
	Heating & Cooling		
Hysteresis		1 to 100 (0.1 to 100) °C/°F	
Proportional band (P)		0.1 to 999.9 °C/°F	
Integral time (I)		0 to 9,999 sec	
Derivative time (D)		0 to 9,999 sec	
Control cycle (T)		0.1 to 120.0 sec	
Manual reset		0.0 to 100.0 %	
Relay life cycle	Mechanical	≥ 10,000,000 operations	
	Electrical	≥ 100,000 operations (250 VAC~ 3 A load resistance)	
Dielectric strength		Between input terminal and power terminal: 2,000 VAC~ 50/60 Hz for 1 min	
Vibration		0.75 mm amplitude at frequency of 5 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Insulation resistance		100 MΩ (500 VDC⎓ megger)	
Noise immunity		±0.5 kV square shaped noise (pulse width 1 μs) by noise simulator	
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)	
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)	
Channel insulation		Dielectric strength 1,000 VAC~	
Insulation type		Double insulation or reinforced insulation (mark: ⧈, dielectric strength between the measuring input part and the power part: 1 kV)	
Approval		CE cULus KC EAC	
Unit weight (packaged)		• Basic module: ≈ 152 g (≈ 217 g) • Expansion module: ≈ 143 g (≈ 208 g)	• Basic module: ≈ 174 g (≈ 239 g) • Expansion module: ≈ 166 g (≈ 231 g)
Comm. protocol		Modbus RTU	

Independent Single Display

PID Temperature Controllers

TR1D Series

Features

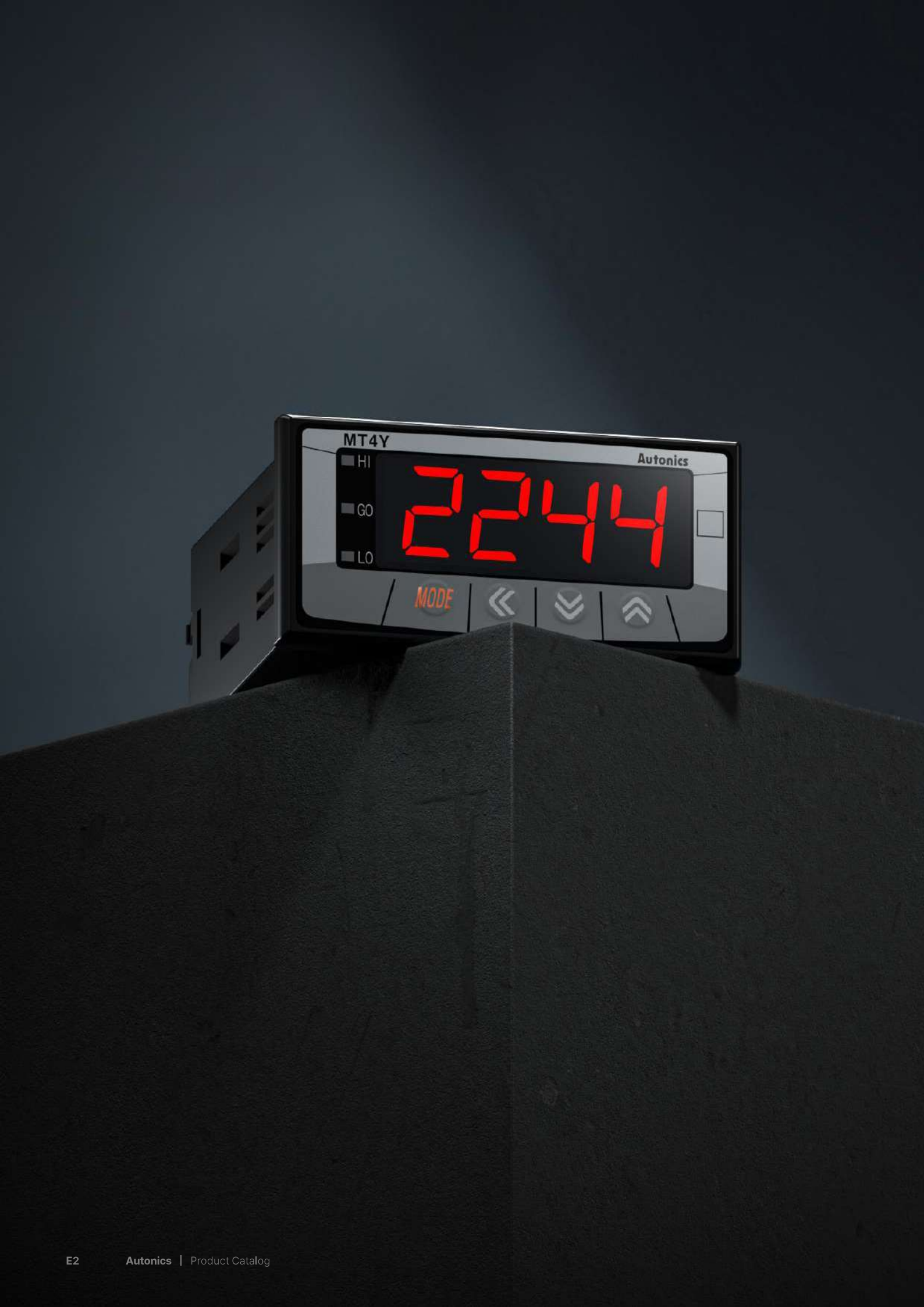
- Compact, space-saving design with 22.5 mm width size
- 50 ms high-speed sampling and ± 0.3 % display accuracy
- Simultaneous heating / cooling and automatic / manual control function
- Switch between current output and SSR drive output
- Easy mount on DIN rails
- RS485 communication output model available
  - Protocol: Modbus RTU or ASCII
  - Communication speed: up to 115,200 bps
- Parameter setting via PC (USB or RS485 communication)
  - Comprehensive device management software (DAQMaster) provided
- Heater disconnect alarm function (CT input)
  - Current transformer (CT) sold separately: CSTC-E80LN, CSTC-E200LN, CSTS-E80PP
  - Screen protection function

*1 Korea Patent Registration 10-2019-0158569, Korea Design Registration 30-1065663, China Design Registration 202030164351.2

Specifications

Series		TR1D Series
Power supply		100 - 240 VAC~ 50/60 Hz
Allowable voltage range		90 to 110% of rated voltage
Power consumption		≤ 8 VA
Sampling period		50, 100, 250 ms
Input specification		Refer to Autonics website
Option input	CT input	• 0.0-50.0 A (primary current measurement range) • CT ratio: 1/1,000, • Measurement accuracy: ±5% F.S. ±1digit
Control output	Relay	250 VAC~ 3 A 1a
	SSR	12 VDC⎓ ±3 V, ≤ 20 mA
	Current	DC 4-20 mA or DC 0-20 mA (parameter), Load: ≤ 500 Ω
Option output	Alarm	AL1, AL2: 250 VAC~ 3 A 1a
	Transmission	DC4-20 mA (Load resistance: ≤ 500 Ω, Output accuracy: ±0.3% F.S.)
	RS485 comm.	Modbus RTU / ASCII
Display type		7 segment (red), 4-digit
Control type		ON/OFF, P, PI, PD, PID Control
Hysteresis		Control output: 1 to 100 °C/°F (0.1 to 100.0 °C/°F) Alarm output: 1 to 100 °C/°F (0.1 to 50.0 °C/°F)
Proportional band (P)		0.1 to 999.9 °C
Integral time (I)		0 to 9,999 sec
Derivative time (D)		0 to 9,999 sec
Control cycle (T)		Relay output: 0.5 to 120.0 sec, SSR drive output: 0.5 to 120.0 sec
Manual reset		0.0 to 100.0%
Dielectric strength		Between the power part and the case: 3,000 VAC~ 50/60 Hz for 1 min
Vibration		0.75 mm amplitude at frequency of 5 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
Relay life cycle	Mechanical	OUT1/2, AL1/2: ≥ 5,000,000 operations
	Electrical	OUT1/2, AL1/2: ≥ 100,000 operations (resistance load: 250 VAC~ 5 A)
Insulation resistance		≥ 100 MΩ (500 VDC⎓ megger)
Insulation type		Double insulation or reinforced insulation (dielectric strength between the power part and the case: 3 kV)
Noise immunity		Square shaped noise (pulse width: 1 μs) by noise simulator ±2 kV R-phase, S-phase
Memory retention		≈ 10 years (non-volatile semiconductor memory type)
Ambient temperature		-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity		35 to 85%RH, storage: 35 to 85%RH (no freezing or condensation)
Approval		CE EAC
Unit weight (packaged)		≈ 123.5 g (≈ 194.5 g)
Comm. protocol		Modbus RTU / ASCII

View product detail


MT4Y
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MODE

E2. Digital Panel Meters

Multi panel meters are used to measure and monitor various industrial processes including voltage, current, frequency, and pressure.

E2-1	Panel Meters	MX4W Series	LCD Multi Panel Meters
		MT4N Series	4-Digit Multi Panel Meters
		MT4W Series	4-Digit Multi Panel Meters
		MT4Y Series	4-Digit Multi Panel Meters
		M4NN Series	4-Digit Multi Panel Meters
		M4N Series	Panel Meters (Indicator)
		M4M Series	Indicator / Thumbwheel Switch Panel Meters
		M4W Series	Indicator / Thumbwheel Switch Panel Meters
		M4Y Series	Panel Meters (Indicator)
		M5W Series	Panel Meters (Indicator)
		M4NS / M4YS Series	Loop-Power Panel Meters (Indicator)
		M4V Series	Digital Panel Meters for Mosaic Panels (Indicator)
E2-2	Pulse Meters	LR5N-B Series	Revolutions / Frequency Pulse Meters (Indicator)
		MP5M Series	Thumbwheel Switch Multi Pulse Meters
		MP5S / MP5Y / MP5W Series	Multi Pulse Meters

LCD Multi
Panel Meters

MX4W Series

Features

- LCD display with easy-to-read white PV characters
- Isolated input and power modules allow powering of multiple units using a single power supply
- Compact, space-saving design (rear-length: 20 mm): reduced rear-length size by 80 % compared to same DIN size panel meters (MT4W)
- Various input options (by model)
  - Input options: DC / AC voltage, DC / AC current
- Maximum allowed input:
  500 VDC⎓, 500 VAC~, DC 5 A, AC 5 A
- Display range: -9999 to 9999
- High / low-limit display scale function
- AC frequency measurement
  (range: 0.100 to 1200 Hz)
- Preset output: OUT1, OUT2
  (NPN / PNP open collector output)
- Power factor display / output function: displays analog outputs (1 - 5 V, 4 - 20 mA) from power factor converters as -0.50 to 1.00 to 0.50
- Various functions: peak display value monitoring, display cycle delay, zero-point adjustment, peak display value correction, etc.
- Power supply: 24 - 240 VAC~ 50 / 60 Hz,
  24 - 240 VDC⎓ universal

View product detail

Specifications

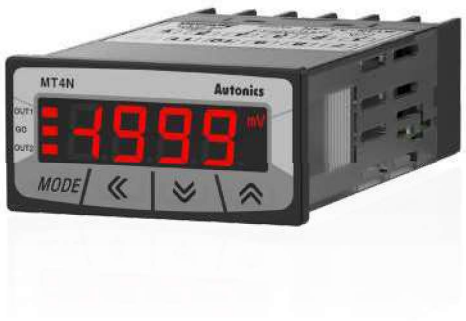
Model	MX4W-V-F□	MX4W-A-F□
Input type	DC / AC voltage	DC / AC current
Max. allowable input	Dependent on the input type	
+DC input	≈ -10 to 110 % F.S. for each measured input range	
-DC input	≈ -110 to 110 % F.S. for each measured input range	
AC input	≈ 110 % F.S. for each measured input range	
Display method	12-segment LCD [01] - measurement value display part: white, character height: 19 mm - other display parts: red, green, yellow (indicator: white)	
Display accuracy	Dependent on the ambient temperature	
23 ± 5 °C (DC input)	± 0.1 % F.S. rdg ± 2-digit	± 0.1 % F.S. rdg ± 2-digit [02]
23 ± 5 °C (AC input)	± 0.3 % F.S. rdg ± 3-digit	± 0.3 % F.S. rdg ± 3-digit
0 to 50 °C	± 0.5 % F.S. rdg ± 3-digit	± 0.5 % F.S. rdg ± 3-digit [03]
Display cycle	0.2 to 5.0 sec (select per 0.1 sec)	
Display scale	-9999 to 9999 (4-digit)	
A / D conversion method	ΣΔ (Sigma Delta) analog-to-digital converter	
Sampling cycle (DC input)	50 ms	
Sampling cycle (AC input)	16.6 ms	
Resolution	1 / 20,000	
Preset output	NPN / PNP open collector output model	
Load voltage	≤ 30 VDC⎓	
Load current	≤ 100 mA	
Residual voltage	NPN open collector output: ≤ 1 VDC⎓ / PNP open collector output: ≤ 2 VDC⎓	
Unit weight (packaged)	≈ 77 g (≈ 100 g)	
Approval	CE c UL us	

01) When using the unit at low temperature (below 0 °C), display cycle is slow due to characteristics of LCD. Control output operates normally.
02) 5 A terminal: ± 0.3 % F.S. rdg ± 3-digit
03) 5 A terminal: ± 1 % F.S. rdg ± 3-digit

Power supply	24 - 240 VDC⎓ ± 10 %, 24 - 240 VAC~ ± 10 % 50 / 60 Hz
Power consumption	DC: ≤ 3 W, AC: ≤ 5 VA
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Dielectric strength	Between all terminals and case: 3,000 VAC~ 50 / 60 Hz for 1 min
Noise immunity	± 2 kV square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 2 hours
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min
Shock	300 m/s² (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s² (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Insulation type	Symbol: ⧈, double or reinforced insulation (dielectric strength between the measurement input part and the power part: 1 kV)

4-Digit Multi
Panel Meters

MT4N Series



Features

- Various input / output options (by model)
  - Input options: DC voltage, DC current, AC voltage, AC current
  - Output options: RS485 communication output, transmission output (DC 4 - 20 mA), NPN / PNP open collector output, relay contact output (default option: indicator / no output)
- Maximum allowed input: 50 VDC⎓, DC 500 mA, 250 VAC~, AC 5A
- Display range: -1999 to 9999
- High / low-limit display scale function
- AC frequency measurement (range: 0.1 to 9999 Hz)
- Various functions: peak display value monitoring, display cycle delay, zero-point adjustment, peak display value correction, PV transmission output (DC 4 - 20 mA) scale, etc.
- Power supply: 12 - 24 VDC⎓ / VAC~, 100 - 240 VAC~

View product detail

Specifications

Model	MT4N-DV-□□	MT4N-DA-□□	MT4N-AV-□□	MT4N-AA-□□
Input type	DC voltage	DC current	AC voltage [01]	AC current [01]
Max. allowable input	110 % F.S. for each measured input range			
Display method	7-segment (red) LCD (character height: 9 mm)			
Display accuracy	Dependent on the ambient temperature			
23 ± 5 °C	± 0.1 % F.S. rdg ± 2 digit [02]		± 0.3 % F.S. rdg ± 3 digit	
-10 to 50 °C	± 0.5 % F.S. rdg ± 3 digit			
Max. display range	-1999 to 9999 (4 digit)			
A / D conversion method	Practical oversampling using successive approximation ADC			
Sampling cycle	50 ms		16.6 ms	
Unit weight (packaged)	≈ 64 g (≈ 127 g)			
Approval	CE EAC			

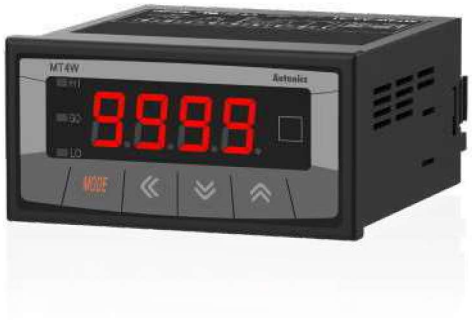
01) Available frequency display
02) 5 A terminal: ± 0.3 % F.S. rdg ± 3 digit

Preset output	None (indicator) / Relay / NPN open collector / PNP open collector output model
Relay	Contact capacity: 125 VAC~ 0.3 A, 30 VDC⎓ 1 A Contact composition: N.O (1a)
NPN / PNP open collector	Output capacity: ≤ 12 - 24 VDC⎓ ± 2 VDC⎓, 50 mA resistive load
Sub output	None (indicator) / Transmission (DC 4 - 20 mA) / RS485 communication output model
Transmission (DC 4 - 20 mA)	Resolution: 1/12,000 (load resistance: ≤ 600 Ω) Response time: ≤ 450 ms
RS485 communication	Protocol: Modbus RTU
Power supply	12 - 24 VDC⎓ ± 10 %, 12 - 24 VAC~ ± 10 % 50 / 60 Hz / 100 - 240 VAC~ ± 10 % 50 / 60 Hz model
Power consumption (DC / AC voltage)	3 W / 5 VA [01]
Power consumption (AC voltage)	5 VA
Insulation resistance	≥ 20 MΩ (500 VDC⎓ megger)
Dielectric strength (DC / AC voltage)	Between external terminal and case: 1,000 VAC~ 50 / 60 Hz for 1 min
Dielectric strength (AC voltage)	Between external terminal and case: 2,000 VAC~ 50 / 60 Hz for 1 min
Noise immunity	± 2 kV square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 10 min
Shock	300 m/s² (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s² (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temp.	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humi.	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Insulation type	Symbol: ⧈, double or reinforced insulation (dielectric strength between the measurement input part and the power part: 1 kV)
Comm. protocol	Modbus RTU

01) Except MT4N-□□-E5: 5 W / 8 VA

4-Digit Multi
Panel Meters

MT4W Series



Features

- Various input / output options (by model)
  - Input options: DC voltage, DC current, AC voltage, AC current
  - Output options: RS485 communication output, low speed serial output, BCD dynamic output, transmission output (DC 4 - 20 mA), NPN / PNP open collector output, relay contact output (default option: indicator / no output)
- Maximum allowed input:
  500 VDC⎓, DC 5 A, 500 VAC~, AC 5 A
- Display range: -1999 to 9999
- High / low-limit display scale function
- AC frequency measurement
  (range: 0.1 to 9999 Hz)
- Various functions: peak display value monitoring, display cycle delay, zero-point adjustment, peak display value correction, PV transmission output (DC 4 - 20 mA) scale, etc.
- Power supply:
  12 - 24 VDC⎓, 100 - 240 VAC~
- DIN W 72 × H 36 mm

View product detail

Specifications

Model	MT4W-DV-□□	MT4W-DA-□□	MT4W-AV-□□	MT4W-AA-□□
Input type	DC voltage	DC current	AC voltage [01]	AC current [01]
Max. allowable input	110 % F.S. for each measured input range			
Display method	7-segment (red) LED (character height: 14.2 mm)			
Display accuracy	Dependent on the ambient temperature			
23 ± 5 °C	± 0.1 % F.S. rdg ± 2 digit	± 0.1 % F.S. rdg ± 2 digit [02]	± 0.3 % F.S. rdg ± 3 digit	± 0.3 % F.S. rdg ± 3 digit
-10 to 50 °C	± 0.5 % F.S. rdg ± 3 digit			
Max. display range	-1999 to 9999 (4 digit)			
A / D conversion method	ΣΔ (Sigma Delta) ADC			
Sampling cycle	50 ms		16.6 ms	
Unit weight (packaged)	≈ 211 g (≈ 326 g)			
Approval	CE cULus [03] EAC			

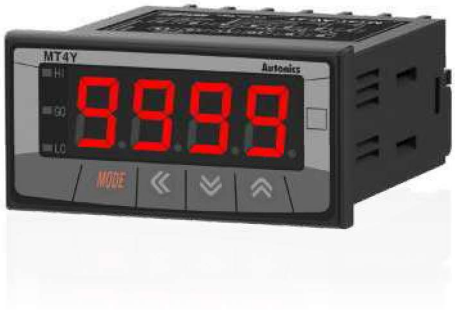
01) Available frequency display, Display accuracy (23 ± 5 °C): ± 0.1 % F.S. rdg ± 2 digit
02) 5 A terminal: ± 0.3 % F.S. rdg ± 3 digit
03) Except power supply 12 - 24 VDC⎓ model

Preset output	None (indicator) / Relay / NPN open collector / PNP open collector output model
Relay	Contact capacity: 250 VAC~ 3 A, 30 VDC⎓ 3 A Contact composition: N.O (1a)
NPN / PNP open collector	Output capacity: ≤ 12 - 24 VDC⎓ ± 2 VDC⎓, 50 mA resistive load
Sub output	None (indicator) / BCD Dynamic / Transmission (DC 4 - 20 mA) / Low speed serial / RS485 Communication output model
BCD Dynamic / Low speed serial	NPN open collector output Output capacity: ≤ 12 - 24 VDC⎓, 50 mA resistive load
Transmission (DC 4 - 20 mA)	Resolution: 1/12,000 (load resistance: ≤ 600 Ω) Response time: ≤ 450 ms
RS485 communication	Protocol: Modbus RTU

Model	MT4W-□□-1□	MT4W-□□-4□
Power supply	12 - 24 VDC⎓ ± 10 %	100 - 240 VAC~ ± 10 % 50 / 60 Hz
Power consumption	5 W	5 VA
Insulation resistance	Between external terminal and case: ≥ 100 MΩ (500 VDC⎓ megger)	
Dielectric strength	Between external terminal and case: 2,000 VAC~ 50 / 60 Hz for 1 min	
Noise immunity	± 2 kV square wave noise (pulse width: 1 μs) by the noise simulator	
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 10 min	
Shock	300 m/s² (≈ 30 G) in each X, Y, Z direction for 3 times	
Shock (malfunction)	100 m/s² (≈ 10 G) in each X, Y, Z direction for 3 times	
Relay life cycle	Mechanical: ≥ 20,000,000 operations Electrical: ≥ 100,000 operations (250 VAC~ 3A resistive load)	
Ambient temp.	-10 to 50 °C, storage: -20 to 60 °C (freezing or condensation)	
Ambient humi.	35 to 85 %RH, storage: 35 to 85 %RH (freezing or condensation)	
Insulation type	Symbol: ⧈, double or reinforced insulation (dielectric strength between the measurement input part and the power part: 1 kV)	
Comm. protocol	Modubus RTU	

4-Digit Multi
Panel Meters

MT4Y Series



Features

- Various input / output options (by model)
  - Input options: DC voltage, DC current, AC voltage, AC current
  - Output options: RS485 communication output, low speed serial output, BCD dynamic output, transmission output (DC 4 - 20 mA), NPN / PNP open collector output, relay contact output (default option: indicator / no output)
- Maximum allowed input:
  500 VDC⎓, DC 5 A, 500 VAC~, AC 5 A
- Display range: -1999 to 9999
- High / low-limit display scale function
- AC frequency measurement
  (range: 0.1 to 9999 Hz)
- Various functions: peak display value monitoring, display cycle delay, zero-point adjustment, peak display value correction, PV transmission output (DC 4 - 20 mA) scale, etc.
- Power supply:
  12 - 24 VDC⎓, 100 - 240 VAC~
- DIN W 96 × H 48 mm

Specifications

Model	MT4Y-DV-4□	MT4Y-DA-4□	MT4Y-AV-4□	MT4Y-AA-4□
Input type	DC voltage	DC current	AC voltage [01]	AC current [01]
Max. allowable input	110 % F.S. for each measured input range			
Display method	7-segment (red) LED (character height: 14.2 mm)			
Display accuracy	Dependent on the ambient temperature			
23 ± 5 °C	± 0.1 % F.S. rdg ± 2 digit	± 0.1 % F.S. rdg ± 2 digit [02]	± 0.3 % F.S. rdg ± 3 digit	± 0.3 % F.S. rdg ± 3 digit
-10 to 50 °C	± 0.5 % F.S. rdg ± 3 digit			
Max. display range	-1999 to 9999 (4 digit)			
A / D conversion method	ΣΔ (Sigma Delta) ADC			
Sampling cycle	50 ms		16.6 ms	
Unit weight (packaged)	≈ 134 g (≈ 213.5 g)			
Approval	CE cULus EAC			

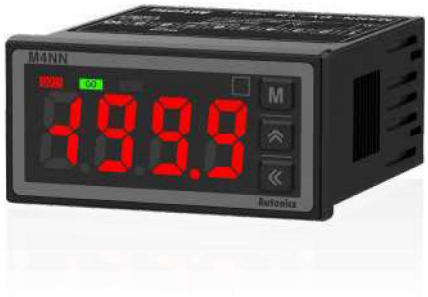
01) Available frequency display, Display accuracy (23 ± 5 °C): ± 0.1 % F.S. rdg ± 2 digit
02) 5 A terminal: ± 0.3 % F.S. rdg ± 3 digit

Preset output	None (indicator) / Relay / NPN open collector / PNP open collector output model
Relay	Contact capacity: 250 VAC~ 3 A, 30 VDC⎓ 3 A Contact composition: N.O (1a)
NPN / PNP open collector	Output capacity: ≤ 12 - 24 VDC⎓ ± 2 VDC⎓, 50 mA resistive load
Sub output	None (indicator) / BCD Dynamic / Transmission (DC 4 - 20 mA) / Low speed serial / RS485 Communication output model
BCD Dynamic / Low speed serial	NPN open collector output Output capacity: ≤ 12 - 24 VDC⎓, 50 mA resistive load
Transmission (DC 4 - 20 mA)	Resolution: 1/12,000 (load resistance: ≤ 600 Ω) Response time: ≤ 450 ms
RS485 communication	Protocol: Modbus RTU
Power supply	100 - 240 VAC~ ± 10 % 50 / 60 Hz
Power consumption	5 VA
Insulation resistance	Between external terminal and case: ≥ 100 MΩ (500 VDC⎓ megger)
Dielectric strength	Between external terminal and case: 2,000 VAC~ 50 / 60 Hz for 1 min
Noise immunity	± 2 kV square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 10 min
Shock	300 m/s² (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s² (≈ 10 G) in each X, Y, Z direction for 3 times
Relay life cycle	Mechanical: ≥ 20,000,000 operations Electrical: ≥ 100,000 operations (250 VAC~ 3A resistive load)
Ambient temp.	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humi.	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Insulation type	Symbol: ⧈, double or reinforced insulation (dielectric strength between the measurement input part and the power part: 1 kV)
Comm. protocol	Modubus RTU

View product detail

4-Digit Multi
Panel Meters

M4NN Series



Features

- Various input / output options (by model)
  - Input options: DC voltage, DC current, AC voltage, AC current
  - Output options: NPN open collector / PNP open collector (default: indicator / no output)
- Isolated input and power modules allow powering of multiple units using a single power supply
- Display range: -1999 to 9999
- High / low-limit display scale function
- AC frequency measurement (range: 0.1 to 9999 Hz)
- Preset output mode: OUT1, GO, OUT2 (NPN / PNP open collector output)
- Power factor display function: displays analog input (1 - 5 V, 4 - 20 mA) from power factor converters as -0.50 to 1.00 to 0.50
- Various functions: peak display value monitoring, display cycle delay, zero-point adjustment, peak display value correction
- Power supply: 5 - 24 VDC⎓ (isolated type)

Specifications

Model	M4NN-DV-1□	M4NN-DA-1□	M4NN-AV-1□	M4NN-AA-1□
Input type	DC voltage	DC current	AC voltage [01]	AC current [01]
Max. allowable input	Dependent on the input type			
+DC input	≈ -10 to 110 % F.S. for each measured input range		-	
-DC input	≈ -110 to 110 % F.S. for each measured input range		-	
AC input	-		≈ 110 % F.S. for each measured input range	
Display method	7-segment (red) LED (character height: 11 mm)			
Display accuracy	Dependent on the ambient temperature			
23 ± 5 °C	± 0.1 % F.S. rdg ± 2-digit	± 0.1 % F.S. rdg ± 2-digit [02]	± 0.3 % F.S. rdg ± 3-digit	± 0.3 % F.S. rdg ± 3-digit
-10 to 50 °C	± 0.5 % F.S. rdg ± 3-digit	± 0.5 % F.S. rdg ± 3-digit [03]	± 0.5 % F.S. rdg ± 3-digit	± 0.5 % F.S. rdg ± 3-digit [03]
Display cycle	0.1 to 5.0 sec (select per 0.1 sec)			
Display scale	-1999 to 9999 (4-digit)			
A / D conversion method	Practical oversampling using successive approximation ADC			
Sampling cycle	50 ms		16.6 ms	
Resolution	1 / 12,000			
Preset output	NPN / PNP open collector output model			
Load voltage	≤ 30 VDC⎓			
Load current	≤ 100 mA			
Residual voltage	NPN open collector output: ≤ 1 VDC⎓ / PNP open collector output: ≤ 2 VDC⎓			
Unit weight (packaged)	≈ 46.8 g (≈ 83.7 g)		≈ 46.9 g (≈ 83.8 g)	
Approval	CE EAC		CE EAC	

01) Available frequency display
02) 5 A terminal: ± 0.3 % F.S. rdg ± 3-digit
03) 5 A terminal: ± 1 % F.S. rdg ± 3-digit

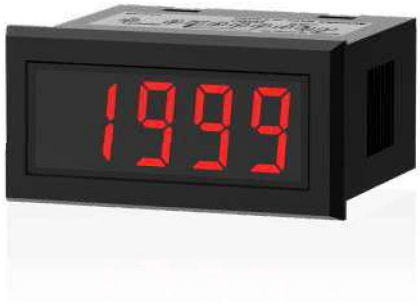
Power supply	5 - 24 VDC⎓ ± 10 % (low-limit: 5 VDC⎓ fixed)
Power consumption	≤ 3 W
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Dielectric strength	Between all terminals and case: 2,000 VAC~ 50 / 60 Hz for 1 min
Noise immunity	± 2 kV square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 2 hours
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min
Shock	300 m/s² (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s² (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Insulation type	Symbol: ⧈, double or reinforced insulation (dielectric strength between the measurement input part and the power part: 1 kV)
Connection	Plug type - socket type terminal

View product detail

Panel Meters

(Indicator)

M4N Series



Features

- Input options (by model)
  - Input options: DC voltage, DC current
- Auto-zero adjustment and hold display value function
- Max display value: 1999
- 7-segment LED display
- Compact size: DIN W 48 × H 24 mm
- Power supply: 5 VDC⎓, 12 - 24 VDC⎓

Specifications

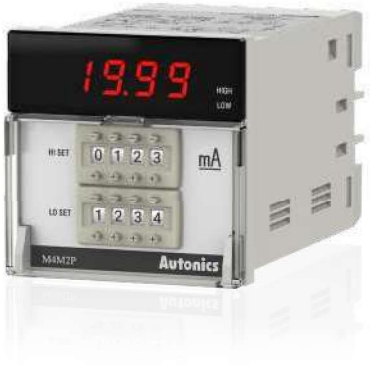
Model	M4N-DV-□□	M4N-DA-□□	M4N-DI-□X
Input type	DC voltage	DC current	DC 4 - 20 mA
Max. allowable input	≈ 150 % F.S. for each measured input range		
Display method	7-segment (red) LED (character height: 10 mm)		
Display accuracy	0.2 % F.S. rdg ± 1-digit		
Sampling time	2.5 times / sec		
Display scale	-1999 (4-digit)		
Operation method	Dual integral method		
Sampling cycle	300 ms		
Response speed	≈ 2 sec (0 to 1999)		
Unit weight	≈ 44 g		
Approval	EAC		
Power supply	5 VDC⎓ ± 10 % / 12 - 24 VDC⎓ ± 10 % model		
Power consumption	2 W		
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)		
Dielectric strength	2,000 VAC~ 50 / 60 Hz for 1 min		
Noise immunity	±100 V square wave noise (pulse width: 1 μs) by the noise simulator		
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 1 hours		
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min		
Shock	300 m/s^2 (≈ 30 G) in each X, Y, Z direction for 3 times		
Shock (malfunction)	100 m/s^2 (≈ 10 G) in each X, Y, Z direction for 3 times		
Ambient temperature	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)		
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)		

View product detail

Indicator / Thumbwheel Switch

Panel Meters

M4M Series



Features

- Max. display value: 1999
- Auto-zero function and hold display value function
- Linear display based on input specification
- Display output values (0 - 10 VDC⎓) from power converters (options available for DC 4 - 20 mA, 1 - 5 VDC⎓)
- RMS or AVG value selection (AC voltage)
- 7-segment LED display
- DIN standard size models

View product detail

Voltmeter

Scaling

Ammeter

Wattmeter

Tachometer / Speed Meter

Specifications

Input type	DC voltage	AC voltage	DC current	AC current	Power	Rotation, speed	Scaling
Max. allowable input	≤ 300 VDC⎓	≤ 400 VAC~	≤ DC 2 A	≤ AC 5 A	≤ 10 VDC⎓	≤ 10 VDC⎓ ≤ 10 VAC~	DC 4 - 20 mA
	≈ 150 % F.S. for each measured input range 01)						
Display method	7-segment (red) LED (character height: 10 mm)						
Display accuracy	Dependent on the input type						
DC input	± 0.2 % F.S. rdg ± 1-digit						
AC input	± 0.5 % F.S. rdg ± 1-digit						
Display scale	1999						
Sampling time	2.5 times / sec						
Response speed	≈ 2 sec (0 to 1999)						
Sampling cycle	300 ms						
Operation method	Dual integral method						
Unit weight	Dependent on the output						
Indicator	≈ 262 g						
Single setting	≈ 290 g						
Dual setting	≈ 316 g						
Approval	EAC						

01) At 400 VAC~ input: ≈ 120 % F.S. for each measured input range

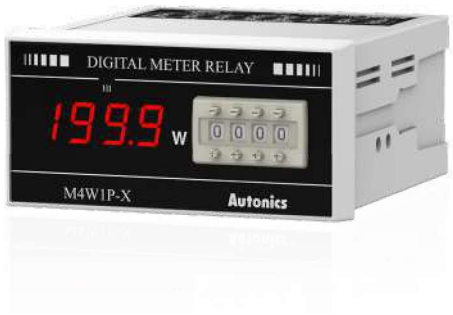
Output	Indicator	Single setting	Dual setting
Power supply 01)	110 / 220 VAC~ ± 10 % 50 / 60 Hz		
Power consumption	Dependent on the input type		
DC input	2 W	3 W	3 W
AC input	4 VA	5 VA	5 VA
Contact capacity	-	250 VAC~ 3 A, 150 VDC⎓ 3 A	250 VAC~ 3 A, 150 VDC⎓ 3 A
Contact composition	-	1c × 1	1c × 2
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)		
Dielectric strength	2,000 VAC~ 50 / 60 Hz for 1 min		
Noise immunity	± 1 kV square wave noise (pulse width: 1 μs) by the noise simulator		
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 1 hours		
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min		
Shock	300 m/s^2 (≈ 30 G) in each X, Y, Z direction for 3 times		
Shock (malfunction)	100 m/s^2 (≈ 10 G) in each X, Y, Z direction for 3 times		
Relay life cycle	Mechanical: ≥ 10,000,000 operations Electrical: ≥ 100,000 operations (250 VAC~ 3A resistive load)		
Ambient temperature	-10 to 50 °C, storage: -25 to 65 °C (no freezing or condensation)		
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)		

01) Power supply 24 - 70 VDC⎓, 100 - 240 VAC~ 50 / 60 Hz options are also available to order.

Indicator / Thumbwheel Switch

Panel Meters

M4W Series



Features

- Max. display value: 1999
- Auto-zero function and hold display value function
- Linear display based on input specification
- Display output values (0 - 10 VDC⎓) from power converters (options available for DC 4 - 20 mA, 1 - 5 VDC⎓)
- RMS or AVG value selection (AC voltage)
- 7-segment LED display
- DIN standard size models

View product detail

Voltmeter

Scaling

Ammeter

Wattmeter

Tachometer / Speed Meter

Specifications

Input type	DC voltage	AC voltage	DC current	AC current	Power	Rotation, speed	Scaling
Max. allowable input	≤ 300 VDC⎓	≤ 400 VAC~	≤ DC 2 A	≤ AC 5 A	≤ 10 VDC⎓	≤ 10 VDC⎓ ≤ 10 VAC~	DC 4 - 20 mA
	≈ 150 % F.S. for each measured input range [01]						
Display method	7-segment (red) LED (character height: 14 mm)						
Display accuracy	Dependent on the input type						
DC input	± 0.2 % F.S. rdg ± 1-digit					± 0.3 % F.S. rdg ± 1-digit	
AC input	± 0.5 % F.S. rdg ± 1-digit						
Display scale	1999						
Sampling time	2.5 times / sec						
Response speed	≈ 2 sec (0 to 1999)						
Sampling cycle	300 ms						
Operation method	Dual integral method						
Unit weight	Dependent on the output type						
Indicator	≈ 168 g						
Single setting	≈ 253 g						
Dual setting	≈ 278 g						
Approval	EAC						

01) At 400 VAC~ input: ≈ 120 % F.S. for each measured input range

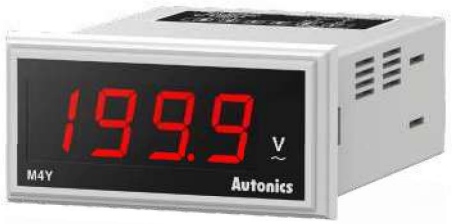
Output type	Indicator	Single setting	Dual setting
Power supply [01]	110 / 220 VAC~ ± 10 % 50 / 60 Hz		
Power consumption	Dependent on the input type		
DC input	2 W	3 W	3 W
AC input	4 VA	5 VA	5 VA
Contact capacity	-	250 VAC~ 3 A, 150 VDC⎓ 3 A	250 VAC~ 3 A, 150 VDC⎓ 3 A
Contact composition	-	1c × 1	1c × 2
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)		
Dielectric strength	2,000 VAC~ 50 / 60 Hz for 1 min		
Noise immunity	± 1 kV square wave noise (pulse width: 1 μs) by the noise simulator		
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 1 hours		
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min		
Shock	300 m/s² (≈ 30 G) in each X, Y, Z direction for 3 times		
Shock (malfunction)	100 m/s² (≈ 10 G) in each X, Y, Z direction for 3 times		
Relay life cycle	Mechanical: ≥ 10,000,000 operations Electrical: ≥ 100,000 operations (250 VAC~ 3A resistive load)		
Ambient temperature	-10 to 50 °C, storage: -25 to 65 °C (no freezing or condensation)		
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)		

01) Power supply 24 - 70 VDC⎓, 100 - 240 VAC~ 50 / 60 Hz options are also available to order.

Panel Meters

(Indicator)

M4Y Series



Features

- Max. display value: 1999
- Auto-zero function and hold display value function
- Linear display based on input specification
- Display output values (0 - 10 VDC⎓) from power converters (options available for DC 4 - 20 mA, 1 - 5 VDC⎓)
- RMS or AVG value selection (AC voltage)
- 7-segment LED display
- DIN standard size models

View product detail

Voltmeter

Scaling

Ammeter

Wattmeter

Tachometer / Speed Meter

Specifications

Input type	DC voltage	AC voltage	DC current	AC current	Power	Rotation, speed	Scaling
Max. allowable input	≤ 300 VDC⎓	≤ 400 VAC~	≤ DC 2 A	≤ AC 5 A	≤ 10 VDC⎓	≤ 10 VDC⎓ ≤ 10 VAC~	DC 4 - 20 mA
	≈ 150 % F.S. for each measured input range [01]						
Display method	7-segment (red) LED (character height: 14 mm)						
Display accuracy	Dependent on the input type						
DC input	± 0.2 % F.S. rdg ± 1-digit						
AC input	± 0.5 % F.S. rdg ± 1-digit						
Display scale	1999						
Sampling time	2.5 times / sec						
Response speed	≈ 2 sec (0 to 1999)						
Sampling cycle	300 ms						
Operation method	Dual integral method						
Unit weight	≈ 144 g						
Approval	EAC						

01) At 400 VAC~ input: ≈ 120 % F.S. for each measured input range

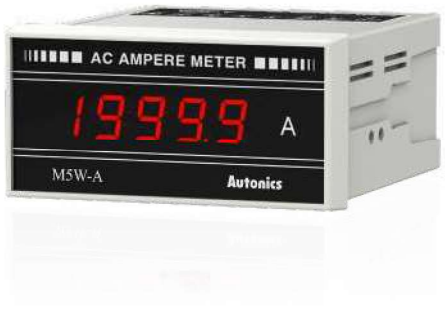
Power supply [01]	100 - 240 VAC~ ± 10 % 50 / 60 Hz
Power consumption	Dependent on the input type
DC input	2 W
AC input	4 VA
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Dielectric strength	2,000 VAC~ 50 / 60 Hz for 1 min
Noise immunity	± 1 kV square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 1 hours
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min
Shock	300 m/s^2 (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s^2 (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-10 to 50 °C, storage: -25 to 65 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)

01) Power supply 24 - 70 VDC⎓ option is also available to order.

Panel Meters

(Indicator)

M5W Series



Features

- Max. display value: 19999
- Linear display based on input specification
- Display output values (0 - 10 VDC⎓) from power converters (options available for DC 4 - 20 mA, 1 - 5 VDC⎓)
- RMS or AVG value selection (AC voltage)
- 7-segment LED display
- DIN standard size models

Specifications

Input type	DC voltage	DC current	Power	Rotation, speed	Scaling
Max. allowable input	≤ 300 VDC⎓	≤ DC 2 A	≤ 10 VDC⎓	≤ 10 VDC⎓	DC 4 - 20 mA
	≈ 150 % F.S. for each measured input range				
Display method	7-segment (red) LED (character height: 14 mm)				
Display accuracy	± 0.2 % F.S. rdg ± 1-digit				
Display scale	19999				
Sampling time	2.5 times / sec				
Response speed	≈ 2 sec (0 to 19999)				
Sampling cycle	300 ms				
Operation method	Dual integral method				
Unit weight	≈ 172 g				
Approval	EAC				

Power supply [01]	100 - 240 VAC~ ± 10 % 50 / 60 Hz
Power consumption	2 W
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Dielectric strength	2,000 VAC~ 50 / 60 Hz for 1 min
Noise immunity	± 1 the square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 1 hours
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min
Shock	300 m/s^2 (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s^2 (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	0 to 50 °C, storage: -25 to 65 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)

01) Power supply 24 - 70 VDC⎓ option is also available to order.

View product detail

Voltmeter

Scaling

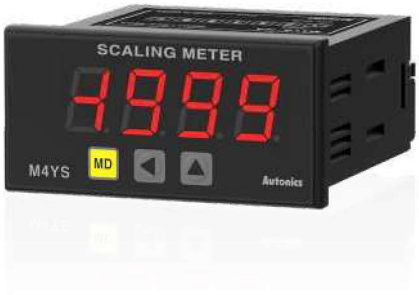
Ammeter

Wattmeter

Tachometer / Speed Meter

Loop-Power
Panel Meters
(Indicator)

M4NS / M4YS Series



Features

- Loop-powered: power supplied by loop current
- Measured input: DC 4 - 20 mA
- Display range: -1999 to 9999
- High / low-limit display scale function
- Decimal point setting function
- Input high / low-value correction function
- Display peak value monitoring function
- Set peak value monitoring delay time
- Display cycle time setting
  (0.5 / 1 / 2 / 3 / 4 / 5 seconds)
- Error display function
  - M4NS: DIN W 48 × H 24 mm
  - M4YS: DIN W 72 × H 36 mm

Specifications

Model	M4NS-NA	M4YS-NA
Input type	DC 4 - 20 mA	
Impedance between input lines [01]	≤ 600 Ω	
Display method	7-segment (red) LED (character height: 10 mm)	7-segment (red) LED (character height: 14 mm)
Display accuracy	Dependent on the ambient temperature	
25 ± 5 °C	0.3 % F.S. rdg ± 1-digit	
-10 to 50 °C	0.4 % F.S. rdg ± 1-digit	
Display scale	-1999 to 9999 (4-digit)	
Display cycle	0.5, 1, 2, 3, 4, 5 sec	
Resolution	1 / 12,000	
Unit weight	≈ 44 g	≈ 110 g
Approval	EAC	

01) Based on input power 24 VDC⎓

Power supply	Loop powered type
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Dielectric strength	2,000 VAC~ 50 / 60 Hz for 1 min
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 1 hours
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min
Shock	300 m/s^2 (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s^2 (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-10 to 50 °C, storage: -25 to 60 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)

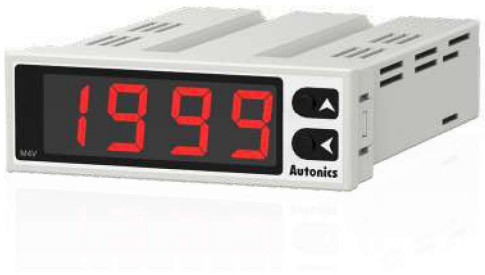
View product detail

Digital Panel Meters

for Mosaic Panels

(Indicator)

M4V Series



Features

- Various input options:
  0 - 2 VDC⎓, 0 - 10 VDC⎓, 1 - 5 VDC⎓,
  DC 0 - 1 mA, DC 4 - 20 mA
- High / low-limit display scale function
- Display range: -999 to 9999
- Display accuracy: F.S ± 2 % rdg ± 1-digit
- Error display function
- Built-in microprocessor

Specifications

Model	M4V
Input type	DC voltage, DC current
Measurement input type	0 - 2 VDC⎓, 1 - 5 VDC⎓, 0 - 10 VDC⎓, DC 0 - 1 mA, DC 4 - 20 mA
Max. allowable input	≈ 110 % F.S. for each measured input range
Display method	7-segment (red) LED (character height: 14 mm)
Display accuracy	Dependent on the ambient temperature
0 to 50 °C	± 0.2 % F.S. rdg ± 1-digit
-10 to 0 °C	± 0.3 % F.S. rdg ± 1-digit
Display cycle	0.5 sec
Unit weight	≈ 83 g
Approval	EAC
Power supply	12 - 24 VDC⎓ ± 10 %
Power consumption	≤ 2 W
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Dielectric strength	2,000 VAC~ 50 / 60 Hz for 1 min
Noise immunity	± 300 V square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 1 hours
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min
Shock	300 m/s^2 (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s^2 (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)

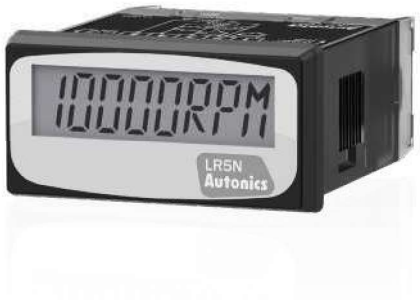
View product detail

Revolutions / Frequency

Pulse Meters

(Indicator)

LR5N-B Series



Features

- 1-pulse input per revolution
- Display up to 10,000 RPM
- Built-in internal battery
  (power supply not required)
- Display RPM or RPS of rotating shaft or disc
- AC voltage frequency display function
- IP66 protection structure (front panel)

Specifications

Model	LR5N-B		
Display digits	4½-digit		
Display type	LCD Zero Blanking (character size: H 8.7 mm)		
Input type	IN 1: No-voltage input	IN 2: Voltage input 1	IN 3: Voltage input 2
Input signal level	Short-residual voltage : ≤ 0.5 V Short-circuit impedance : ≤ 10 kΩ Open-circuit impedance : ≥ 500 kΩ	High input voltage range : 4.5 - 30 VDC⎓ Low input voltage range : 0 - 2 VDC⎓ Voltage: 3 - 30 VAC~	30 - 240 VAC~
HOLD	YES		
Unit weight (packaged)	≈ 59 g (≈ 91.5 g)		

Power supply	Built-in battery (CR2477)
Battery life cycle	≳ 3 years (at ≈ 20 °C)
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Dielectric strength	2,000 VAC~ 50 / 60 Hz for 1 min (Cutoff current = 10 mA)
Vibration	0.75 mm double amplitude at frequency of 10 to 55Hz (for 1 minute) in each X, Y, Z direction for 1 hour
Vibration (malfunc.)	0.3 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 minute
Shock	300 m/s^2 (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunc.)	100 m/s^2 (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temp.	-10 to 55 °C, storage: -25 to 65 °C (no freezing or condensation)
Ambient humid.	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Protection rating	IP66 (when using waterproof rubber for front panel), terminal cover (finger protector)

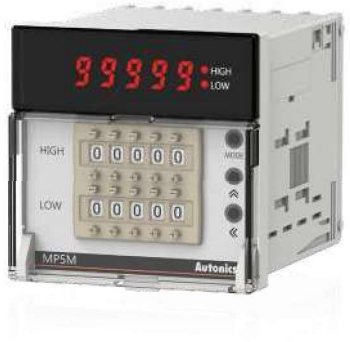
Display unit	Display range	Display accuracy
RPM	1 to 10000 RPM	1 to 5000 RPM: F.S. ± 0.05 % ± 1-digit
		5001 to 10000 RPM: F.S. ± 0.1 % ± 1-digit
0.1RPM	0.1 to 1000.0 RPM	F.S ± 0.05 % ± 1-digit
Hz	1 to 1000 Hz	F.S ± 0.1 % ± 1-digit
0.1Hz	0.1 to 100.0 Hz	
RPS	1 to 1000 RPS	

View product detail

Thumbwheel Switch Multi

Pulse Meters

MP5M Series



Features

- 14 operation modes
  - Frequency / revolutions / speed, passing speed, cycle, passing time, time interval
  - Time differential, absolute ratio, density, length measurement 1 / 2, interval
  - Accumulation, addition / subtraction (individual input), addition / subtraction (phase difference input)
- Various output models
  - Relay single (high-limit) / double (high / low-limit) + NPN open collector output
- Various functions
  - Prescale, monitoring delay, hysteresis, auto-zero, parameter lock
- NPN input (non-contact / contact) or PNP input (non-contact / contact)
- Display range: -19999 to 99999
- Various display units
- Power supply
  - 100 - 240 VAC~ 50 / 60Hz (AC type)
  - 24 VAC~ 50 / 60 Hz, 24 - 48 VDC⎓ (AC / DC type)

Specifications

Series	MP5M-□N	MP5M-□1	MP5M-□2
Input signal [01]	Solid state input 1: ≤ 50 kHz (pulse width: ≥ 10 μs) Solid state input 2 [02]: ≤ 5 kHz (pulse width: ≥ 100 μs) Contact input: ≤ 45 Hz (contact: ≥ 12 VDC⎓ 5 mA, pulse width: ≥ 11 ms)		
Voltage input	Input impedance: 3.9 kΩ, [H]: 4.5 - 24 VDC⎓, [L]: 0 - 1 VDC⎓		
No-voltage input	Short-circuit impedance: ≤ 80 Ω, residual voltage: ≤ 1 VDC⎓, open-circuit impedance: ≥ 100 kΩ		
Display method	7-segment LED (zero blanking method)		
Character size	W 4 × H 8 mm		
Prescale	0.0001×10^{-9} to 9.9999×10^{9}		
Hysteresis	-	0 to 9999 [03]	
Display cycle	OFF [04], 0.05, 0.5, 1, 2, 4, 8 sec (same as update output cycle)		
Display range	-19999 to 99999		
Contact control output	Relay		
Type	-	1c × 1	1a × 2
Capacity	-	250 VAC~ 3 A, 30 VDC⎓ 3 A resistive load	250 VAC~ 3 A, 30 VDC⎓ 3 A resistive load
Solid-state control output	NPN open collector		
Type	-	× 1	× 2
Capacity	-	≤ 30 VDC⎓ 100 mA	≤ 30 VDC⎓ 100 mA
Approval	CE cULus EAC		
Unit weight (package)	≈ 168 g (≈ 243 g)	≈ 181g (≈ 256g)	≈ 190 g (≈ 265 g)

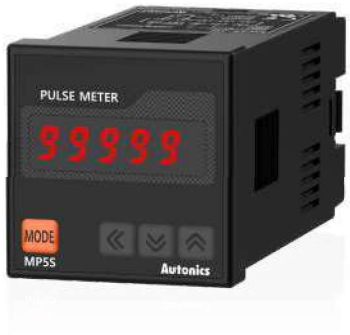
01) Standard duty ratio 1:1
02) Operation mode F7, F8: ≤ 1 kHz (pulse width: ≥ 500 μs)
03) The hysteresis setting range varies according to the decimal point setting position.
04) Only available operation mode F2, F14

Input	AC voltage	AC / DC voltage
Power supply	100 - 240 VAC~ ~ ± 10 % 50 / 60 Hz	24 VAC~ ± 10 % 50 / 60 Hz, 24 - 48 VDC⎓ ± 10 %
Power consumption	≤ 9 VA	AC: ≤ 6.5 VA, DC: ≤ 5 W
External power supply	≤ 12 VDC⎓ ±10 % 80 mA	
Memory retention	Number of inputs: 100,000 operations (non-volatile semiconductor memory type)	
Relay life cycle	Mechanical: ≥ 5,000,000 operations Electrical: ≥ 100,000 operations (250 VAC~ 3 A resistive load)	
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)	
Dielectric strength	2,000 VAC~ 60 Hz for 1 min	
Noise immunity	± 2 kV the square wave noise (pulse width: 1μs) by the noise simulator	
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 1 hour	
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 10 min	
Shock	300m / s^2 (≈ 30G) in each X, Y, Z direction for 3 times	
Shock (malfunction)	100m / s^2 (≈ 30G) in each X, Y, Z direction for 3 times	
Ambient temperature	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)	
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)	

View product detail

Multi
Pulse Meters

MP5S / MP5Y / MP5W Series



Features

- 16 operation modes
  - Frequency / revolutions / speed, passing speed, cycle, passing time, time interval
  - Time differential, absolute ratio, error ratio, density, error, length measurement 1 / 2, interval
  - Accumulation, addition / subtraction (individual input), addition / subtraction (phase difference input)
- Various output models
  - Relay triple / quintuple output, NPN / PNP open collector quintuple output
  - BCD Dynamic output, PV transmission output (current output)
  - RS485 communication output (Modbus RTU)
- Various function
  - Prescale, delay monitoring, hysteresis, auto-zero, parameter lock, data bank (MP5W only)
- Display range: -19999 to 99999
- Various display units

View product detail

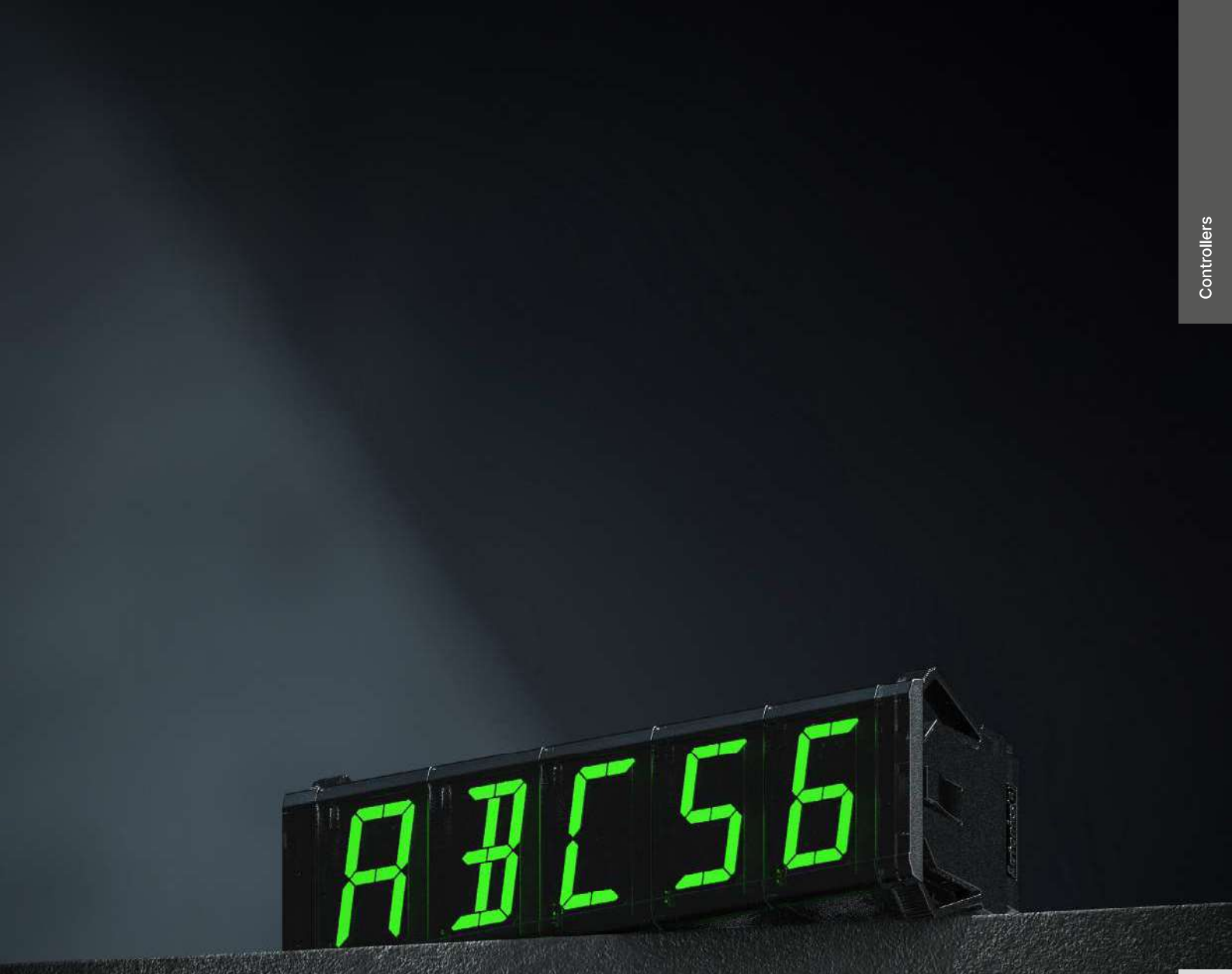
Specifications

Series	MP5S	MP5Y	MP5W
Input signal [01]	Solid state input 1: ≤ 50 kHz (pulse width: ≥ 10 μs) Solid state input 2 [02]: ≤ 5 kHz (spulse width: ≥ 100 μs) Contact input: ≤ 45 Hz (contact: 12 VDC⎓ ≥ 5 mA, (pulse width: ≥ 11 ms)		
Voltage input	Input impedance: 3.9 kΩ, [H]: 4.5 - 24 VDC⎓, [L]: 0 - 1 VDC⎓		
No-voltage input	Short-circuit impedance: ≤ 80 Ω, residual voltage: ≤ 1 VDC⎓, open-circuit impedance: ≥ 100 kΩ		
Display method	7-segment LED (zero blanking method)		
Character size	W 4 × H 8 mm	W 7 × H 14 mm	
Prescale	0.0001×10^{-9} to 9.9999×10^{9}		
Hysteresis	0 to 9999 [03]		
Display cycle	OFF[04], 0.05, 0.5, 1, 2, 4, 8 sec (same as update output cycle)		
Display range	-19999 to 99999		
Output	Depending on models		
Relay	250 VAC~ 3 A, 30 VDC⎓ 3 A resistive load		
NPN / PNP open collector	≤ 30 VDC⎓ 30 mA		
BCD Dynamic	NPN open collector ≤ 30 VDC⎓ 30 mA (Dynamic COM cycle (T) = 40 ms)		
PV transmission	DC 4 - 20 mA (load: ≤ 500 Ω, resolution: 8,000 divisions) / DC 0 - 20 mA (load: ≤ 500 Ω, resolution: 10,000 divisions)		
RS485 communication	Modbus RTU		
Product components	Product, instruction manual		
Bracket	Mounted	× 2	× 2
Unit sticker	× 1	× 1	× 2
Unit weight (package)	≈ 132 g (≈ 191 g)	≈ 140 g (≈ 230 g)	≈ 210 g (≈ 334 g)
Approval	CE cULus EAC		

01) Standard duty ratio 1:1
02) Operation mode F7, F8, F9, F10: ≤ 1 kHz (pulse width: ≥ 500 μs)
03) The hysteresis setting range varies according to the decimal point setting position.
04) Only available operation mode F2, F16

Input	AC voltage	AC / DC voltage
Power supply	100 - 240 VAC ~ ± 10 % 50 / 60 Hz	24 VAC~ ± 10 % 50 / 60 Hz, 24 - 48 VDC⎓ ± 10 %
Power consumption	Depending on Series / power supply	
MP5S	≤ 7.5 VA	AC: ≤ 6 VA, DC: ≤ 4.5 W
MP5Y	≤ 9 VA	AC: ≤ 7 VA, DC: ≤ 6.2 W
MP5W	≤ 15 VA	AC: ≤ 11 VA, DC: ≤ 7 W
External power supply	≤ 12 VDC⎓ ± 10 % 80 mA	
Sub power supply [01]	≤ 24 VDC⎓ 30 mA	
Memory retention	Number of inputs: 100,000 operations (non-volatile semiconductor memory type)	
Relay life cycle	Mechanical: ≥ 10,000,000 operations (switching frequency 180 operations / min) Electrical: ≥ 100,000 operations (250 VAC~ 3 A, 30 VDC⎓ 3 A resistive load) (switching frequency 20 operations / min)	
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)	
Dielectric strength	2,000 VAC~ 60 Hz for 1 min	
Noise immunity	±2 kV the square wave noise (pulse width: 1μs) by the noise simulator	
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 1 hour	
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 10 min	
Shock	300m / s^2 (≈ 30G) in each X, Y, Z direction for 3 times	
Shock (malfunction)	100m / s^2 (≈ 30G) in each X, Y, Z direction for 3 times	
Ambient temperature	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)	
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)	
Comm. protocol	Modbus RTU (16-bit CRC)	

01) Only for MP5W

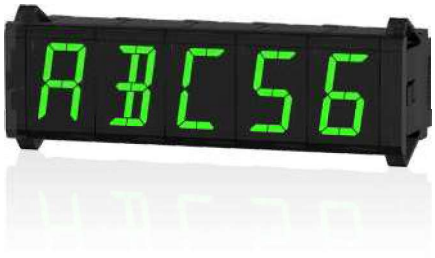


E3. Digital Display Units

Digital display units are available in various sizes, can display over 60 different characters and signals for various monitoring purposes.

High Performance
Display Units
(Serial / Parallel Input)

DS / DA Series



Features

- Simple wiring without soldering
  - multi-stage connection using expansion connectors or ribbon cables
  - power supply and data wiring required on base unit only
- Various input options
  - Serial input
  - Dynamic Parallel input
  - RS485 communication (Modbus) input (Master, Slave)
  - RS485 communication (Modbus) time sync display
  - PT temperature sensor input
  - PT temperature sensor + RS485 communication input
- Expandable up to 24 units with multi-stage connection
- Available in various sizes:
  16 mm, 22.5 mm, 40 mm, 60 mm
- High luminance LED display
- Various unit display plates (switchable) with flashing or ON / OFF options
- Various display types
  - 7-segment display and 16-segment
  - Red and green display types
  - Display 64 characters
    (0 to 9, A to Z, 27 symbols, decimal point)

Specifications

Model	DS16-□□	D□22-□□	D□40-□□	D□60-□□
Display color	Red / green model			
Power supply	12 - 24 VDC⎓			
Allowable voltage range	90 to 110 % of power supply			
Current consumption (red)	≤ 20 mA	≤ 25 mA	≤ 55 mA	≤ 65 mA
Current consumption (green)	≤ 15 mA	≤ 20 mA	≤ 40 mA	≤ 45 mA
Characters size (W×H)	9 × 16 mm	11.2 × 22.5 mm	22.4 × 40 mm	33.6 × 60 mm
Noise immunity	± 500 V the square wave noise (pulse width: 1 μs) by the noise simulator			
Ambient temperature	-10 to 55 °C, storage: -25 to 65 °C (no freezing or condensation)			
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)			
Protection rating	IP40 (front part)			
Approval	CE EAC			
Weight (packaged) 01)	≈ 12 g (≈ 52 g)	≈ 17 g (≈ 58 g)	≈ 28 g (≈ 63 g)	≈ 60 g (≈ 110 g)

01) The package weight of 16 mm / 22 mm expansion unit varies, it based on 3 packages.
16 mm: ≈ 77 g / 22 mm: ≈ 92 g

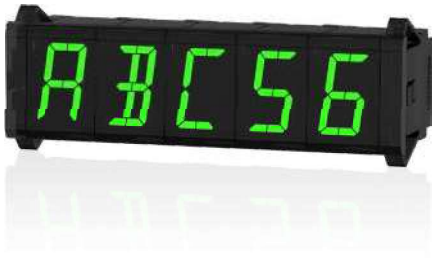
Model	D□□-□S	D□□-□P
Input method	Serial	Parallel
Max. Clock 01)	≤ 2 kHz	Dynamic 1: ≤ 3 kHz Dynamic 2: ≤ 1.5 kHz
Input logic	Positive logic (PNP), negative logic (NPN)	
Input resistance	20 kΩ	
Input level	High: 4.5 - 24 VDC⎓, Low: 0 - 1.2 VDC⎓	
Display character	64 characters and symbols display: 0 to 9, A to Z, 27 symbols, decimal point	
Max. number of multi-stage	24-unit	Dynamic 1: 6-unit (4-bit) or 4 units (6-bit) Dynamic 2: 24-unit (6-bit)

01) Based on 50 : 50 (%) of duty ratio (ON / OFF)

View product detail

High Performance
Display Units
(RS485 Input)

DS / DA Series



Features

- Simple wiring without soldering
  - multi-stage connection using expansion connectors or ribbon cables
  - power supply and data wiring required on base unit only
- Various input options
  - Serial input
  - Dynamic Parallel input
  - RS485 communication (Modbus) input (Master, Slave)
  - RS485 communication (Modbus) time sync display
  - PT temperature sensor input
  - PT temperature sensor + RS485 communication input
- Expandable up to 24-units with multi-stage connection
- Available in various sizes: 16 mm, 22.5 mm, 40 mm, 60 mm
- High luminance LED display
- Various unit display plates (switchable) with flashing or ON / OFF options
- Various display types
  - 7-segment display and 16-segment
  - Red and green display types
  - Display 64 characters (0 to 9, A to Z, 27 symbols, decimal point)

Specifications

Model	DS16-□□	D□22-□□	D□40-□□	D□60-□□
Display color	Red / green model			
Power supply	12 - 24 VDC⎓			
Allowable voltage range	90 to 110 % of power supply			
Current consumption (red)	≤ 20 mA	≤ 25 mA	≤ 55 mA	≤ 65 mA
Current consumption (green)	≤ 15 mA	≤ 20 mA	≤ 40 mA	≤ 45 mA
Size (W×H)	9 × 16 mm	11.2 × 22.5 mm	22.4 × 40 mm	33.6 × 60 mm
Noise immunity	±500 V the square wave noise (pulse width: 1 μs) by the noise simulator			
Ambient temperature	-10 to 55 °C, storage: -25 to 65 °C (non freezing or condensation)			
Ambient humidity	35 to 85%RH, storage: 35 to 85%RH (non freezing or condensation)			
Protection rating	IP40 (front part)			
Approval	CE EAC			
Weight (packaged) 01)	≈ 12 g (≈ 52 g)	≈ 17 g (≈ 58 g)	≈ 28 g (≈ 63 g)	≈ 60 g (≈ 110 g)
Comm. protocol	Modubus RTU			

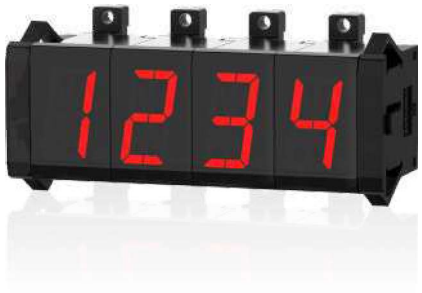
01) The package weight of 16 mm / 22 mm expansion unit varies, it based on 3 packages.
16 mm: ≈ 77 g / 22 mm: ≈ 92 g

Model	D□□-□T	DS□-□C
Input method	RS485 communication	RS485 communication (time)
Directly connected Autonics Series	CT6, CT4, MP5, MT4, TK / TX, TM2, TM4, THD	-
Display character (range)	64 characters and symbols display: 0 to 9, A to Z, 27 symbols, decimal point	World local time, 12/24-hour, summer time
Max. number of multi-stage	24-unit	10-unit
Comm. protocol	Modubus RTU	

View product detail

W 11 × H 22 mm
16-Segment
Display Units

D1AA Series



Features

- Displays 61 types of characters and signs (0 to 9, A to Z, 24 symbols, decimal point)
- Selectable input logic (positive / negative), data input type (parallel / serial)
- 16-segment in red/green
- Wide range of input signal level (Low : 0 - 1.2 VDC⎓, High : 4.5 - 24 VDC⎓)
- 12 - 24 VDC⎓ power supply
- Multi-stage connection available

Specifications

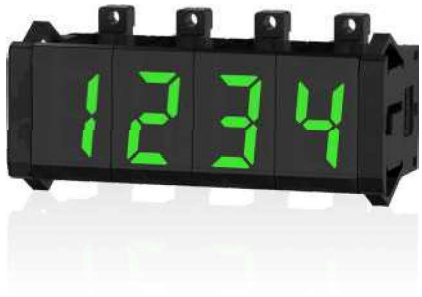
Model	D1AA-RN	D1AA-GN
Display method	16-segment LED (red)	16-segment LED (green)
Power supply	12 - 24 VDC⎓	
Allowable voltage range	90 to 110 % of power supply	
Current consumption	≤ 32 mA	
Size	W 11 × H 22 mm	
Display character	61 characters and symbols (0 to 9, A to Z, 24 symbols, decimal point)	
Input	Parallel: Parallel 6 bits data, LATCH, decimal point Serial : Serial 6 / 7 bits data, CLOCK, LATCH, decimal point [01]	
Input resistance	20 kΩ	
Input level	High: 4.5 - 24 VDC⎓, Low: 0 - 1.2 VDC⎓	
Max. Clock [02]	≤ 3 kHz	
Output	Data output (serial input)	
Input logic	Positive logic (PNP), negative logic (NPN) selectable (by inner soldering)	
Noise immunity	± 300 V the square wave noise (pulse width: 1 μs) by the noise simulator	
Ambient temperature	0 to 60 °C, storage: -10 to 85 °C (no freezing or condensation)	
Ambient humidity	35 to 85 %RH (no freezing or condensation)	
Accessory	Connector (CT-10S)	
Approval	EAC	
Weight (packaged) [03]	≈ 16 g (≈ 131 g)	

01) When applying the serial 6 bits input.
02) Max. Clock is for 1:1 of duty ratio (ON, OFF ratio).
03) The package weight is based on four.

View product detail

W 11 × H 22 mm
7-Segment
Display Units

D1SA Series



Features

- Selectable decimal (0 to 9) / hexadecimal (0 to 9, A to F) display, input logic (positive / negative), data input method (serial / parallel)
- 7-segment, red / green display
- 12 - 24 VDC⎓ power supply
- Wide range on signal input voltage level (Low: max. 0 - 1.2 VDC⎓, High: 4.5 - 24 VDC⎓)
- Easy multi-stages connection
- Zero Blanking function

Specifications

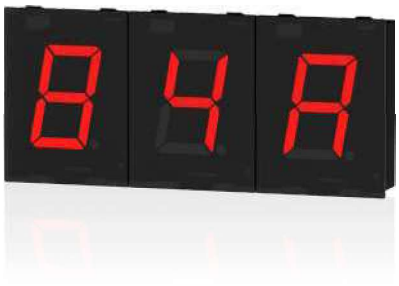
Model	D1SA-RN	D1SA-GN
Display method	7-segment LED (red)	7-segment LED (green)
Power supply	12 - 24 VDC⎓	
Allowable voltage range	90 to 110 % of power supply	
Current consumption	≤ 35 mA	
Size	W 11 × H 22 mm	
Display character	Decimal number: 0 to 9, decimal point Hexadecimal number: 0 to 9, A to F, decimal point	
Input	Parallel: Parallel 4-bit data, LATCH, Zero Blanking, decimal point Serial: Serial 4 / 5-bit data, CLOCK, Zero Blanking, LATCH, decimal point [01]	
Input resistance	20 kΩ	
Input level	High: 4.5 - 24 VDC⎓, Low: 0 - 1.2 VDC⎓	
Max. Cock [02]	≤ 3 kHz	
Output	Data output (serial input), Zero Blanking output	
Input logic	Positive logic (PNP), negative logic (NPN) selectable (function set switches)	
Noise immunity	Between power terminals or input terminals : ± 300 V the square wave noise (pulse width: 1 μs) by the noise simulator	
Ambient temperature	0 to 60 °C, storage: -10 to 85 °C (no freezing or condensation)	
Ambient humidity	35 to 85 %RH (no freezing or condensation)	
Accessory	Connector (CT-10S)	
Approval	EAC	
Weight (packaged) [03]	≈ 16 g (≈ 131 g)	

01) When applying the serial 4-bit input.
02) Max. Clock is for 50 : 50 (%) of duty ratio (ON, OFF ratio).
03) The package weight is based on four.

View product detail

W 32 × H 57 mm
7-Segment
Display Units

D1SC-N Series



Features

- Selectable decimal (0 to 9) / hexadecimal (0 to 9, A to F) display, input logic (positive / negative), data input method (serial / parallel)
- 12 - 24 VDC⎓ power supply
- Wide range on signal input voltage level (Low: max. 0 - 1.2 VDC⎓, High: 4.5 - 24 VDC⎓)
- Zero Blanking function

Specifications

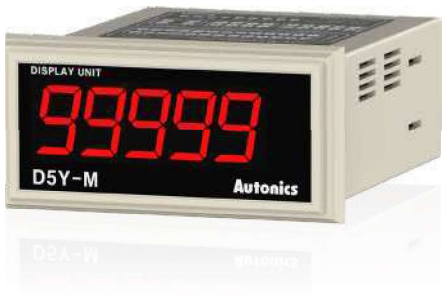
Model	D1SC-N
Display method	7-segment LED (red)
Power supply	12 - 24 VDC⎓
Allowable voltage range	90 to 110 % of power supply
Current consumption	≤ 70 mA
Character size (W×H)	32 × 57 mm
Display character	Decimal number: 0 to 9, decimal point, Minus Hexadecimal number: 0 to 9, A to F, decimal point, Minus
Input method	Parallel: Parallel 4-bit data, LATCH, Zero Blanking, decimal point Serial : Serial 4/5-bit data, CLOCK, Zero Blanking, LATCH, decimal point [01]
Input resistance	12 kΩ
Input level	High: 4.5 - 24 VDC⎓, Low: 0 - 1.2 VDC⎓
Max. Clock [02]	≤ 3 kHz
Output	Data output (serial input), Zero Blanking output
Input logic	Positive logic (PNP), negative logic (NPN) selectable (function set switches)
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Noise immunity	Between the power terminals or input terminals: ± 300 V the square wave noise (pulse width: 1 μs) by the noise simulator
Ambient temperature	0 to 60 °C, storage: -10 to 85 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH (no freezing or condensation)
Approval	EAC
Weight	≈ 100 g

01) When applying the serial 4-bit input.
02) Max. Clock is for 50 : 50 (%) of duty ratio (ON, OFF ratio).

View product detail

Panel Mount
5 Digit
Display Units

D5Y / D5W Series



Features

- Various input specifications
  - Static Parallel input, Dynamic Parallel input, 4 / 5-bit Serial input, 16 / 20 / 25-bit
- Serial input method
- Decimal point, minus sign display selection function
  - Display type by serial input, external DP terminal and Minus terminal
- Positive / negative logic input selection function
- Display digit selection function
  - 4-digit (-9999 to 9999), 5-digit (0 to 99999)
- Zero blanking function selection function
- Selectable reversion function of latch signal

Specifications

Model	D5Y-M	D5W-M	D5W-MX
Power supply	12 - 24 VDC⎓		110 / 220 VAC~ 50 / 60 Hz
Allowable voltage range	90 to 110 % of power supply		
Current consumption	1.1 W		2 VA
Size (W×H)	DIN 72 × 36 mm	DIN 96 × 48 mm	
Display method	7-segment LED Display		
Display digit / display range	4-digit / -9999 to 9999		
	5-digit [01] / 0 to 99999		
Max. response CLOCK	100 Hz to 5 kHz [01]		
Input level	High: 5 - 24 VDC⎓, Low: 0 - 1.2 VDC⎓		
Input logic	Positive logic (PNP), negative logic (NPN)		
Input method	Static, Dynamic, 4 / 5-bit serial, Serial (16 / 20 / 25-bit)		
Insulation resistance	100 MΩ (500 VDC⎓ megger)		
Dielectric strength	2000 VAC~ 50 / 60 Hz for 1 min		
Noise immunity	±1 kV the square wave noise (pulse width: 1 μs) by the noise simulator		
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each of X, Y, Z directions for 1 hour		
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each of X, Y, Z directions for 10 min		
Shock	300 m / s² (≈ 30 G) in X, Y, Z directions for 3 times		
Shock (malfunction)	100 m / s² (≈ 10 G) in X, Y, Z directions for 3 times		
Ambient temperature	-10 to 50 °C, storage: -25 to 65 °C (no freezing or condensation)		
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)		
Approval	EAC		
Weight	≈ 75 g	≈ 165 g	≈ 267 g

01) Except for Static input method

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