Manuals+ — User Manuals Simplified.

Autonics MT4N Series Digital Multi Panel Meter Instruction Manual

Contents

Autonics MT4N Series Digital Multi Panel Meter

Thank you for choosing our Autonics product

Read and understand the instruction manual and manual thoroughly before using the product. For your safety, read and follow the below safety considerations before using. For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website. Keep this instruction manual in a place where you can find easily. The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice. Follow Autonics website for the latest information.

Product Information

Safety Considerations

- Install a fail-safe device when using the unit with machinery that may cause serious injury or substantial economic loss.
- Do not use the unit in places where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
- Install on a device panel to use.
- Do not connect, repair or inspect the unit while connected to a power source.
- Check connections before wiring.
- Do not disassemble or modify the unit.

Cautions

- When connecting power, measurement input, and relay output, use AWG 24 (0.20 mm2) to AWG 16 (1.30 mm2) cable or over and tighten the terminal screw with a tightening torque of 0.78 to 0.98 N m.
- Use the unit within the rated specifications.

- Use a dry cloth to clean the unit and do not use water or organic solvent.
- Keep the product away from metal chip, dust, and wire residue which flow into the unit.

Cautions During Use

- In case of installing power line and input signal line closely, use a line filter or varistor at the power line and shielded wire at the input signal line.
- Do not use near equipment which generates strong magnetic force or high-frequency noise.

Ordering Information

- **Input Types:** DV (DC voltage), DA (DC current), AV (AC voltage), AA (AC current)
- **Preset Output**: None (indicator), Relay (OUT1/2), NPN open collector (OUT1/2, GO), PNP open collector (OUT1/2, GO), Transmission (DC 4 – 20 mA), RS485 communication
- **Sub Output:** Relay (OUT1/2)

Product Usage Instructions

1. Install the fail-safe device when using the unit with machinery that may cause serious injury or substantial economic loss.
2. Do not use the unit in places where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
3. Install the unit on a device panel.
4. Do not connect, repair, or inspect the unit while connected to a power source.
5. Check connections before wiring.
6. Do not disassemble or modify the unit.
7. When connecting power, measurement input, and relay output, use AWG 24 (0.20 mm2) to AWG 16 (1.30 mm2) cable or over and tighten the terminal screw with a tightening torque of 0.78 to 0.98 N m.
8. Use the unit within the rated specifications.
9. Use a dry cloth to clean the unit and do not use water or organic solvent.
10. Keep the product away from metal chip, dust, and wire residue which flow into the unit.
11. In case of installing power line and input signal line closely,use a line filter or varistor at the power line and shielded wire at the input signal line.
12. Do not use near equipment which generates strong magnetic force or high-frequency noise.
13. Select the appropriate input and output type as per your requirements.

Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- Symbol indicates caution due to special circumstances in which hazards may occur.

Warning: Failure to follow instructions may result in serious injury or death.

1. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or

substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime / disaster prevention devices, etc.)

- Failure to follow this instruction may result in personal injury, economic loss or fire.

2. Do not use the unit in the place where flammable / explosive / corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact or salinity may be present.

- Failure to follow this instruction may result in explosion or fire.

3. Install on a device panel to use.

- Failure to follow this instruction may result in fire or electric shock.

4. Do not connect, repair, or inspect the unit while connected to a power source.

- Failure to follow this instruction may result in fire or electric shock.

5. Check 'Connections' before wiring.

- Failure to follow this instruction may result in fire.

6. Do not disassemble or modify the unit.

- Failure to follow this instruction may result in fire or electric shock.

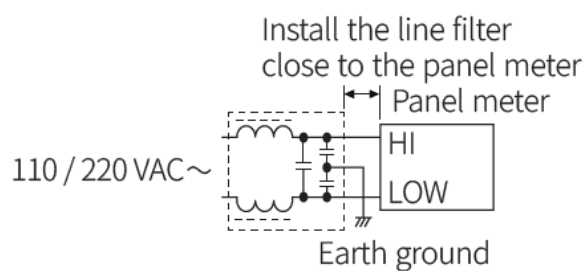**Caution:** Failure to follow instructions may result in injury or product damage.

1. When connecting the power / measurement input and relay output, use AWG 24 (0.20 mm2) to AWG 16 (1.30 mm2)cable or over and tighten the terminal screw with a tightening torque of 0.78 to 0.98 N m.Use the wiring suitable for the load current capacity.

- Failure to follow this instruction may result in fire or malfunction due to contact failure.

2. Use the unit within the rated specifications.

- Failure to follow this instruction may result in fire or product damage.

3. Use a dry cloth to clean the unit, and do not use water or organic solvent.

- Failure to follow this instruction may result in fire or electric shock.

4. Keep the product away from metal chip, dust, and wire residue which flow into the unit.

- Failure to follow this instruction may result in fire or product damage.

Cautions during Use

- Follow instructions in 'Cautions during Use'.
- Otherwise, It may cause unexpected accidents.
- Power supply should be insulated and limited voltage / current or Class 2, SELV power supply device.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- Use twisted pair wire for communication line.
- Keep away from high voltage lines or power lines to prevent inductive noise.

In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line. Do not use near the equipment which generates strong magnetic force or high frequency noise.

Connection with the line filter	Connection with the varistor
Install the line filter close to the panel meter	
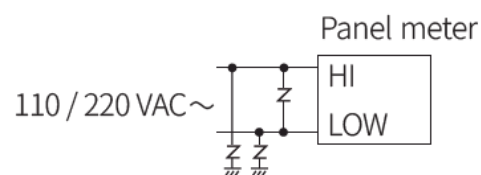
- This unit may be used in the following environments.
    - Indoors (in the environment condition rated in 'Specifications')
    - Altitude max. 2,000 m
    - Pollution degree 2
    - Installation category II

Ordering Information

- This is only for reference, the actual product does not support all combinations.
- For selecting the specified model, follow the Autonics website.

1. Input type
    - **DV:** DC voltage 01)
    - **DA:** DC current
    - **AV:** AC voltage 02)
    - **AA:** AC current 02)
2. Power supply
    - **E:** 12 – 24 VDC --- ± 10 %,
        - 12 – 24 VAC∿ ± 10 % 50 / 60 Hz
    - **4:** 100 – 240 VAC∿ ± 10 % 50 / 60 Hz
3. Preset output + Sub output

	Preset output	Sub output
N	None (indicator)	
0	Relay (OUT1 / 2)	–
1	NPN open collector (OUT1 / 2, GO)	–
2	PNP open collector (OUT1 / 2, GO)	–
3	Relay (OUT1)	Transmission (DC 4 – 20 mA)
4	Relay (OUT1)	RS485 communication
5	Relay (OUT1 / 2)	Transmission (DC 4 – 20 mA)

1. To measure the current over DC 500 mA, please select DV type because the shunt should be used.
2. In case of selecting frequency display, no output will be provided even if it is output support model.

Product Components

- Product
- Instruction manual

Manual

- For proper use of the product, refer to the manuals and be sure to follow the safety considerations in the manuals.
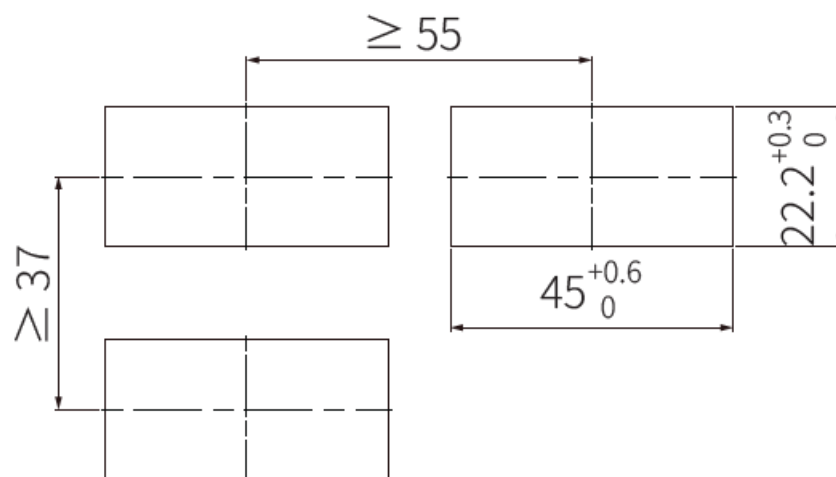- Download the manuals from the Autonics website.

Dimensions
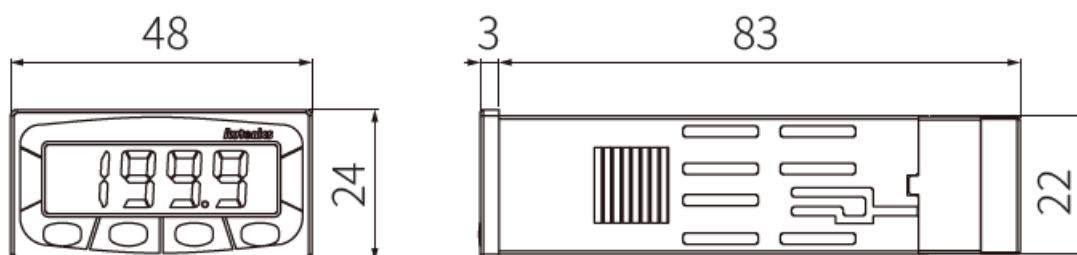
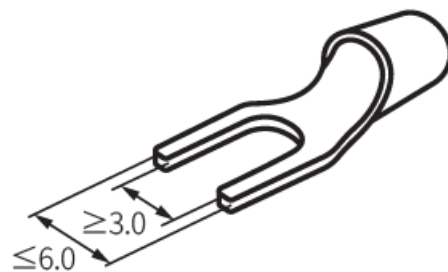- **Unit:** mm, For the detailed drawings, follow the Autonics website.

Bracket
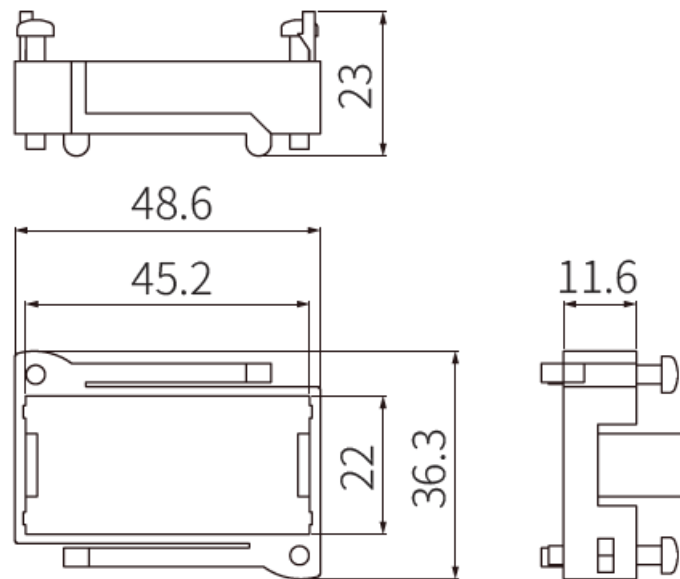
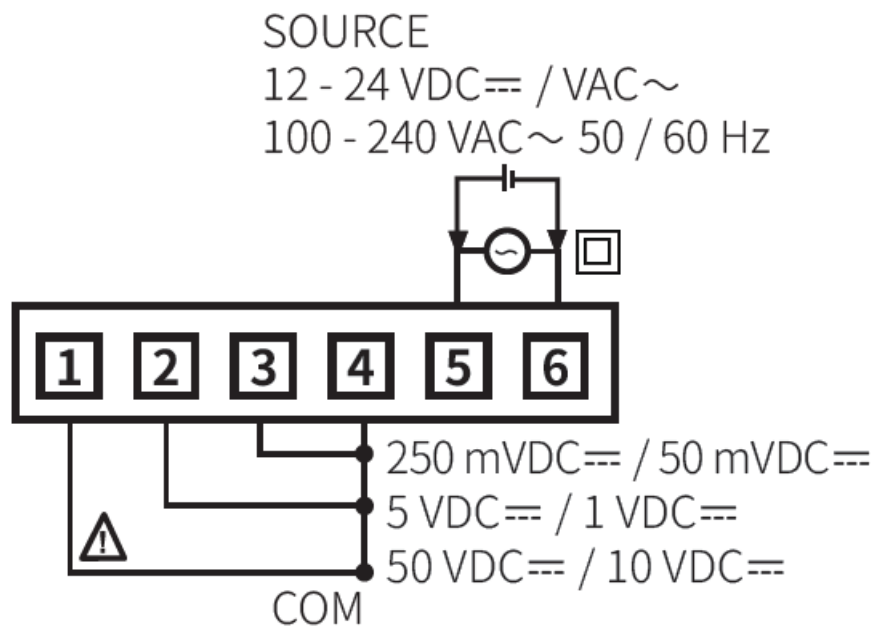**Panel cut-out**

Cautions during Wiring

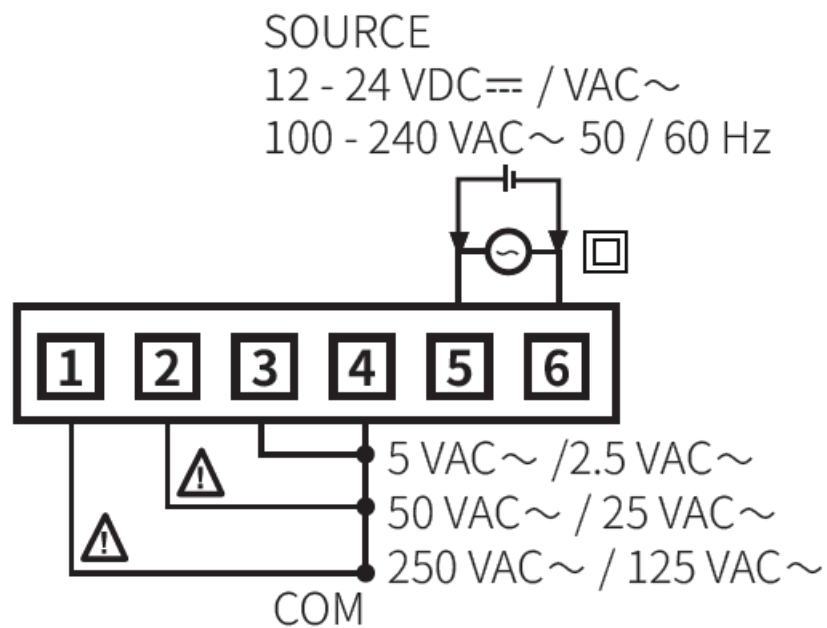- **Unit:** mm, Use terminals of size specified below.

Connections

Input
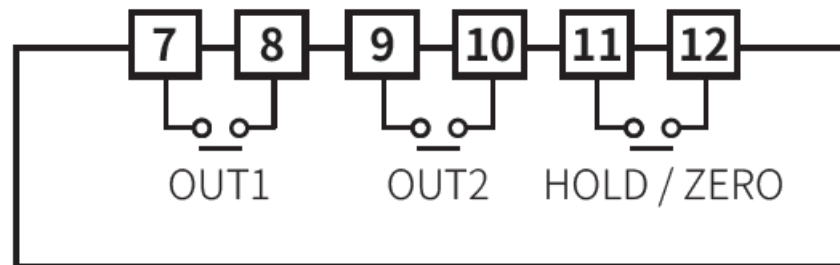
- DC voltage

SOURCE
12 - 24 VDC== / VAC~
100 - 240 VAC~ 50 / 60 Hz

| 1 | 2 | 3 | 4 | 5 | 6 |

250 mVDC== / 50 mVDC==
5 VDC== / 1 VDC==
50 VDC== / 10 VDC==
COM

- AC voltage

SOURCE
12 - 24 VDC== / VAC~
100 - 240 VAC~ 50 / 60 Hz

| 1 | 2 | 3 | 4 | 5 | 6 |

5 VAC~ /2.5 VAC~
50 VAC~ / 25 VAC~
250 VAC~ / 125 VAC~
COM

- DC current

SOURCE
12 - 24 VDC== / VAC~
100 - 240 VAC~ 50 / 60 Hz

| 1 | 2 | 3 | 4 | 5 | 6 |

5 mA / 2 mA
50 mA / 4 - 20 mA
500 mA / 200 mA
COM

- AC current

SOURCE
12 - 24 VDC⎓ / VAC∼
100 - 240 VAC∼ 50 / 60 Hz

| 1 | 2 | 3 | 4 | 5 | 6 |

100 mA / 50 mA
500 mA / 250 mA
5 A / 2.5 A
COM

Output

- **0:** Relay

| 7 | 8 | 9 | 10 | 11 | 12 |

OUT1　　OUT2　　HOLD / ZERO

- **1:** NPN open collector

| 7 | 8 | 9 | 10 | 11 | 12 |

HOLD / ZERO
OUT1　GO　OUT2　COM

- **2:** PNP open collector

| 7 | 8 | 9 | 10 | 11 | 12 |

B(-)　　A(+)

RS485　　　OUT1　　HOLD / ZERO

- **3:** Relay + Transmission (DC 4 – 20 mA)

| 7 | 8 | 9 | 10 | 11 | 12 |

HOLD / ZERO
OUT1　GO　OUT2　COM
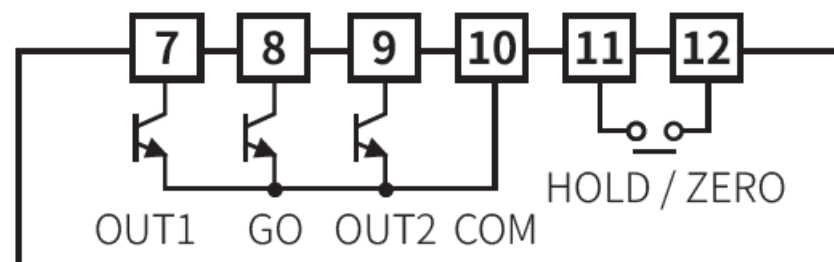
- **4:** Relay + RS485 communication
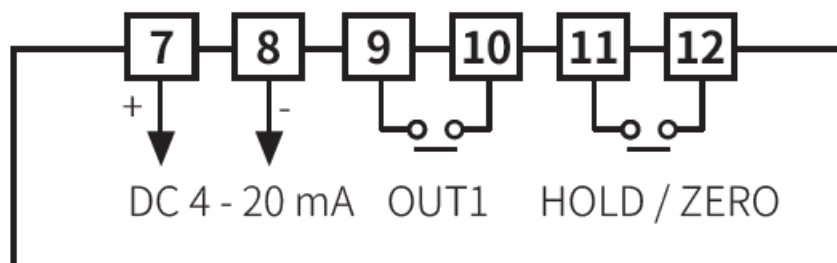
- **5:** Relay + Transmission (DC 4 – 20 mA)
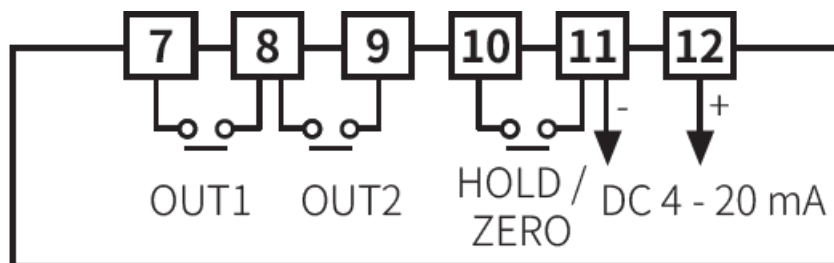
Specifications

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 ℃	± 0.1 % F.S. rdg ± 2 digit [02]		± 0.3 % F.S. rdg ± 3 digit	
-10 to 50 ℃	± 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 EHC	

1. Available frequency display
2. 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 $\sim$ 0.3 A, 30 VDC $---$ 1 A Contact composition: N.O (1a)
NPN / PNP open collector	Output capacity: ≤ 12 – 24 VDC $\sim$ ± 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 $\sim$ ± 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) 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/s^2 (≈ 30 G) in each X, Y, Z direction for 3 times

| Shock (malfunction)	100 m/s^2 ($\approx$ 10 G) in each X, Y, Z direction for 3 times
Ambient temp.	-10 to 50 ℃, storage: -20 to 60 ℃ (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)

1. Except MT4N-□□-E5: 5 W / 8 VA

Communication Interface

RS485

Comm. protocol	Modbus RTU
Application standard	Compliance with EIA RS485
Max. connection	31-unit (address: 01 to 99)
Comm. synchronous method	Asynchronous
Comm. method	2-wire half duplex
Comm. distance	≤ 800 m
Comm. speed	1,200 / 2,400 / 4,800 / 9,600 / 19,200 / 38,400 bps
Start bit	1-bit (fixed)
Data bit	8-bit (fixed)
Parity bit	None, Even, Odd
Stop bit	1-bit, 2-bit
EEPROM life cycle	≈ 1,000,000 operations (Erase / Write)

Mode Setting
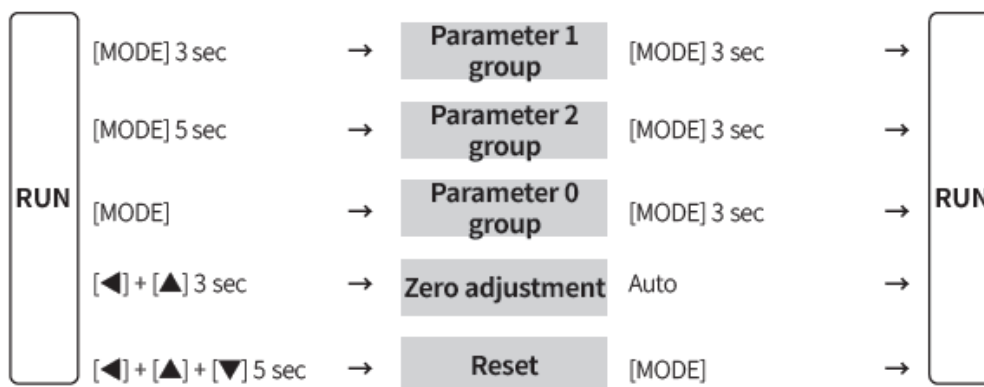
Parameter Setting

- Some parameters are activated / deactivated depending on the model or setting of other parameters. Refer to the description of each parameter.
- If any key is not entered for 60 sec in each parameter, it returns to RUN mode.
- After returning to RUN mode, press the [MODE] key within 2 sec, it returns to previous parameter.
- **[MODE] key:** Saves current setting value and moves to the next parameter.
    - **[◀] key:** Checks fixed value / Changes setting digits.
    - **[▲], [▼] key:** Changes setting values.

Parameter 1 group

Parameter		Mark	Defaults	Setting range	Display condition
1-1	Input range	In-r	50	[DC voltage model] • Refer to Input Range and Display Range	-
			500	[DC current model] • Refer to Input Range and Display Range	-
			250	[AC voltage model] • Refer to Input Range and Display Range	-
			5	[AC current model] • Refer to Input Range and Display Range	-
1-2	Display method	dISP	Stnd	STND: standard, SCAL: scale, FREQ: frequency[01]	-
1-3	Measurement method	In-t	t.rñS	[AC voltage model], [AC current model] T.RMS: True RMS, A.RMS: Average RMS, AVG • True RMS $= \sqrt{\dfrac{A_1^2 + A_2^2 + \cdots + A_n^2}{n}}$ • Average RMS $= \dfrac{A_1 + A_2 + \cdots + A_n}{n}$ $\times$ Waveform rate (n = number of display values per cycle, A = display value)	1-2 Display method: STND, SCAL
1-4	Max. display value (fixed)	Stnd	50.00	[DC voltage model] Max. value of display range	
			500.0	[DC current model] Max. value of display range	
			250.0	[AC voltage model] Max. value of display range	1-2 Display method: STND
			5.000	[AC current model] Max. value of display range	
1-5	High-limit display value gradient correction	InbH	L000	0.100 to 5.000 %	
1-6	Low-limit display value deviation correction	InbL	00	-99 to 99	
1-7	Decimal point position	dot	0.00	[DC voltage model] 0, 0.0, 0.00, 0.000	
			0.0	[DC current model], [AC voltage model] 0, 0.0, 0.00, 0.000	
			0.000	[AC current model] 0, 0.0, 0.00, 0.000	1-2 Display method: SCAL & * 1-7 Decimal point position: 0.0, 0.00, 0.000
1-8	High-limit scale	H-SC	-	Display value against max. measurement input*	
1-9	Low-limit scale	L-SC	-	Display value against min. measurement input*	
1-10	Display unit	dUnt	u	[DC voltage model], [AC voltage model] MV, V, OFF	
			A	[DC current model], [AC current model] MA, A, HZ, OFF	
1-11	High-limit display value gradient correction	InbH	L000	0.100 to 5.000 %	
1-12	Low-limit display value deviation correction [02]	InbL	00	-99 to 99	
1-13	Decimal point position [03]	dot	0.0	[AC voltage model] 0, 0.0, 0.00, 0.000	
			0.000	[AC current model] 0, 0.0, 0.00, 0.000	1-2 Display method: FREQ
1-14	High-limit display value gradient correction	InbH	L000	0.100 to 9.999	
1-15	Exponent of INB	InbE	10-0	10-0: 10^0, 10-1: 10^{-1}, 10-2: 10^{-2}, 10 1: 10^1	

1. Displays at AC voltage or AC current model only.

2. Low-limit display value deviation correction range is within -99 to 99 for D0, D-1 digit regardless of decimal point position.
3. Display range is variable according to decimal point position.

Dot	Display range	Frequency measurement range
0	-1999 to 9999	1 to 9999 Hz
0	-199.9 to 999.9	0.1 to 999.9 Hz
00	-19.99 to 99.99	0.10 to 99.99 Hz
000	-1.999 to 9.999	0.100 to 9.999 Hz

Parameter 2 group

Parameter		Mark	Defaults	Setting range	Display condition
2-1	OUT1 operation mode	oU1.t	oFF	[OUT1 output model] OFF, HI, LO, HL, HL-G • Refer to Output Operation Mode	-
2-2	OUT2 operation mode	oU2.t	oFF	[OUT2 output model] OFF, HI, LO, HL, HL-G • Refer to Output Operation Mode	-
2-3	OUT1 hysteresis	HYS.1	00.01	[Except indicator model] Within 10 % of max. display range, digit	2-1 OUT1 operation mode: except OFF
2-4	OUT2 hysteresis	HYS.2	00.01	[Except indicator model] Within 10 % of max. display range, digit	2-2 OUT2 operation mode: except OFF
2-5	Startup compensation time	StR.t	00.0	[Except indicator model] 0.0 to 99.9 sec	-
2-6	Peak monitoring delay time	PE2.t	00 5	00 to 30 sec	-
2-7	Display cycle	di 5.t	0.2 5	0.1 to 5.0 sec	-
2-8	Current value display part color	CoLr	rEd	RED: red / red, GRN: green / green, YEL: yellow / yellow, R-G: red / green, G-R: green / red • Display: normal / error occurs	-
2-9	Keys for zero adjustment	ZEro	no	NO, YES • YES: Press the [◄] + [▲] keys for 3 sec to adjust zero.	-
2-10	External input terminal	EuLn	HoLd	[Except indicator model] HOLD, ZERO • If the external input terminal is short-circuited for 50 ms or more, it operates with the set function.	-
2-11	High-limit value of transmission output	FS-H	50.00	[DC voltage & Transmission (DC 4 - 20 mA) output model] Max. value of display range	-
			500.0	[DC current & Transmission (DC 4 - 20 mA) output model] Max. value of display range	
			250.0	[AC voltage & Transmission (DC 4 - 20 mA) output model] Max. value of display range	
			5.000	[AC current & Transmission (DC 4 - 20 mA) output model] Max. value of display range	
2-12	Low-limit value of transmission output	FS-L	00.00	[DC voltage & Transmission (DC 4 - 20 mA) output model] Min. value of display range	-
			000.0	[DC current & Transmission (DC 4 - 20 mA) output model] Min. value of display range	
			0.0	[AC voltage & Transmission (DC 4 - 20 mA) output model] Min. value of display range	
			0.000	[AC current & Transmission (DC 4 - 20 mA) output model] Min. value of display range	

2-13	Comm. Address	Rdr5	01	[RS485 communication output model] 01 to 99	-
2-14	Comm. speed	bP5	9600	[RS485 communication output model] 38.4k, 19.2k, 9600, 4800, 2400, 1200 bps	-
2-15	Parity bit	PrtY	nonE	[RS485 communication output model] NONE, EVEN, ODD	-
2-16	Stop bit	5tP	2	[RS485 communication output model] 2, 1 bit	-
2-17	Response waiting time	r5ut	5	[RS485 communication output model] 5 to 99 sec	-
2-18	Lock	LoC	oFF	OFF: unlock, LOC1: lock parameter 1, LOC2: lock parameter 1, 2, LOC3: lock parameter 0, 1 and 2	-

Parameter 0 group

Parameter		Mark	Defaults	Setting range	Display condition
0-1	OUT1 high-limit output setting value	oU1H	50.00	[DC voltage model], [DC current model] -5 to 110 % of display range	2-1 OUT1 operation mode: except OFF
			250.0	[AC voltage model] 0 to 110 % of display range	
			5.000	[AC current model] 0 to 110 % of display range	
0-2	OUT1 low-limit output setting value	oU1L	00.00	[DC voltage model] -5 to 110 % of display range	
			000.0	[DC current model] -5 to 110 % of display range [AC voltage model] 0 to 110 % of display range	
			0.000	[AC current model] 0 to 110 % of display range	
0-3	OUT2 high-limit output setting value	oU2.H	50.00 250.0 5.000	• Same as setting range of OUT1 high-limit output setting value	2-2 OUT2 operation mode: except OFF
0-4	OUT2 low-limit output setting value	oU2.L	00.00 000.0 0.000	• Same as setting range of OUT1 low-limit output setting value	
0-5	Display max. peak value[01]	H.PEL	0.00	[DC voltage model] Max. peak value in run mode	2-1 OUT1 operation mode: except OFF or 2-2 OUT2 operation mode: except OFF & 2-6 Peak monitoring delay time: except 00
			0.0	[DC current model], [AC voltage model] Max. peak value in run mode	
			0.000	[AC current model] Max. peak value in run mode	
0-6	Display min. peak value[01]	L.PEL	0.00	[DC voltage model] Min. peak value in run mode	
			0.0	[DC current model], [AC voltage model] Min. peak value in run mode	
			0.000	[AC current model] Min. peak value in run mode	

1. **Reset:** Press any one of [◄], [▼], [▲] keys.

Input Range and Display Range

When the max. input value is over the 100 %, it may result in input terminal damage.

DC voltage model

Input range	Display range			Input impedance
	Diaplay method: STND (fixed)		Diaplay method: SCAL 01)	
0 – 50 VDC ⎓	0.00 to 50.00	50		433.48 kΩ
0 – 10 VDC ⎓	0.00 to 10.00	10		433.48 kΩ
0 – 5 VDC ⎓	0.000 to 5.000	5		43.48 kΩ
0 – 1 VDC ⎓	0.000 to 1.000	1		43.48 kΩ
0 – 250 mVDC ⎓	0.0 to 250.0	250		2.28 kΩ
0 – 50 mVDC ⎓	0.00 to 50.00	50		2.28 kΩ

Display method: SCAL 01 (spanning):

Decimals	Display range
0	-1999 to 9999
0.0	-199.9 to 999.9
0.00	-19.99 to 99.99
0.000	-1.999 to 9.999

1. Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure. When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

DC current model

Input range	Display range		Display method: SCAL 01)	Input impedance
	Diaplay method: STND (fixed)			
0 – 500 mA	0.0 to 500.0	500		0.22 Ω
0 – 200 mA	0.0 to 200.0	200		0.22 Ω
0 – 50 mA	0.00 to 50.00	50		2.22 Ω
4 – 20 mA	4.00 to 20.00	4-20		2.22 Ω
0 – 5 mA	0.000 to 5.000	5		22.22 Ω
0 – 2 mA	0.000 to 2.000	2		22.22 Ω

SCAL 01 display:

Decimals	Display range
0	-1999 to 9999
0.0	-199.9 to 999.9
0.00	-19.99 to 99.99
0.000	-1.999 to 9.999

1. Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure. When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

AC voltage model

Input range	Display range		Input impedance
	Diaplay method: STND (fixed)	Diaplay method: SCAL 01)	
0 – 250 VAC∿	0.0 to 250.0	250	1.086 MΩ
0 – 125 VAC∿	0.0 to 125.0	125	1.086 MΩ
0 – 50 VAC∿	0.00 to 50.00	50	199.12 kΩ
0 – 25 VAC∿	0.00 to 25.00	25	199.12 kΩ
0 – 5 VAC∿	0.000 to 5.000	5	19.12 kΩ
0 – 2.5 VAC∿	0.000 to 2.500	@5	19.12 kΩ

SCAL 01 display range table:

Decimals	Display range
0	-1999 to 9999
0.0	-199.9 to 999.9
0.00	-19.99 to 99.99
0.000	-1.999 to 9.999

1. Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure. When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.
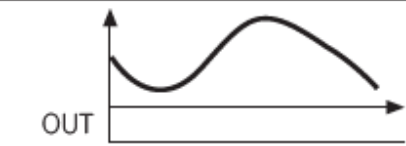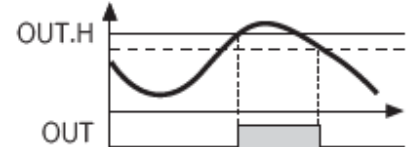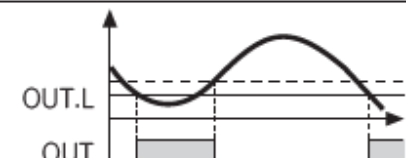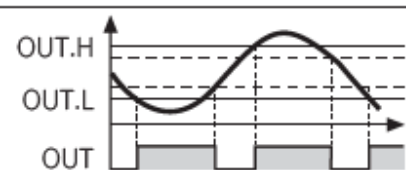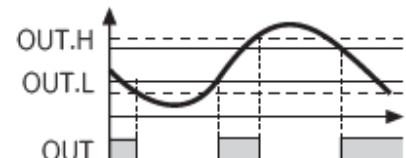
AC current model

Input range	Display range		Input impedance
	Diaplay method: STND (fixed)	Diaplay method: SCAL 01)	
0 – 5 A	0.000 to 5.000	5	0.01 Ω
0 – 2.5 A	0.000 to 2.500	@5	0.01 Ω
0 – 500 mA	0.0 to 500.0	500	0.19 Ω
0 – 250 mA	0.0 to 250.0	250	0.19 Ω
0 – 100 mA	0.0 to 100.0	100	1.01 Ω
0 – 50 mA	0.00 to 50.00	50	1.01 Ω

SCAL 01 display range table:

Decimals	Display range
0	-1999 to 9999
0.0	-199.9 to 999.9
0.00	-19.99 to 99.99
0.000	-1.999 to 9.999

1. Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure. When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

Output Operation Mode

- The below describes based on OUT1.
- OUT1 and OUT2 of output operations are same. It operates individually by the set output operation mode.
- GO output turns ON when the OUT1 and OUT2 turn OFF at the same time. (NPN / PNP open collector output type model)
- When changing output operation mode, high-limit / low-limit output setting value, and hysteresis are reset.

MODE	Output operation	Preset output	
		ON	OFF
oFF	OUT	No output	
HI	OUT.H — Hys / OUT	OU1.H ≤ Display value	OU1.H - HYS.1 ≥ Display value
Lo	OUT.L — Hys / OUT	OU1.L ≥ Display value	OU1.L + HYS.1 ≤ Display value
HL	OUT.H — Hys / OUT.L / OUT	OU1.L ≥ Display value / OU1.H ≤ Display value	OU1.L + HYS.1 ≤ Display value / OU1.H - HYS.1 ≥ Display value
HL - G	OUT.H / OUT.L — Hys / OUT	OU1.L ≤ Display value ≤ OU1.H + HYS.1	OU1.L - HYS.1 ≥ Display value / OU1.H + HYS.1 ≤ Display value

Reset

1. Press the [◀] + [▲] + [▼] keys for over 5 sec. in run mode, INIT and NO flash alternately for 0.5 sec in turn.
2. Change the setting value as YES by pressing the direction keys.
3. Press the [MODE] key to reset all parameter values as default and to return to run mode.

Error

Error display is released automatically when it is in the measured and display range.

Display	Description	Troubleshooting
HHHH	Flashes when measurement input is exceeded the max. allowable input (110 %)	Disconnect power supply and check the cables.
LLLL 01)	Flashes when measurement input is exceeded the min. allowable input (-10 %)	
d - HH	Turns ON when display input is exceeded high-limit scale setting value	Reset within the display range.
d - LL	Turns ON when display input is exceeded low-limit scale setting value	
F - HH	Turns ON when input frequency is exceeded the max. display value of measured range	-
ouEr	Flashes twice when it exceeds zero range (±99) and returns to run mode	Reset within the zero range.

1. Displays at DC input model only.

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- +82-2-2048-1577
- **sales@autonics.com**

Documents / Resources

	Autonics MT4N Series Digital Multi Panel Meter [pdf] Instruction Manual MT4N-DV-E3, MT4N Series Digital Multi Panel Meter, Digital Multi Panel Meter, Multi Panel Meter

References

- **autonics.com**