

Autonics LCD Display Multi Panel Meter MX4W SERIES

INSTRUCTION MANUAL



Thank you for choosing our Autonics product.
Please read the following safety considerations before use.

Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.
※⚠ symbol represents caution due to special circumstances in which hazards may occur.

Warning Failure to follow these instructions may result in serious injury or death.
Caution Failure to follow these instructions may result in personal injury or product damage.

Warning

- 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 fire, personal injury, or economic loss.
- Install on a device panel to use.
- Failure to follow this instruction may result in electric shock or fire.
- Do not connect, repair, or inspect the unit while connected to a power source.
- Failure to follow this instruction may result in electric shock or fire.
- Check 'Connections' before wiring.
- Failure to follow this instruction may result in fire.
- Do not disassemble or modify the unit.
- Failure to follow this instruction may result in electric shock or fire.

Caution

- When connecting the power/measurement input, use 24(0.20mm²) to AWG 15(1.65mm²) cable and tighten the terminal screw with a tightening torque of 0.78 to 0.98N·m.
- Failure to follow this instruction may result in fire or malfunction due to contact failure.
- Use the unit within the rated specifications.
- Failure to follow this instruction may result in fire or product damage.
- Use dry cloth to clean the unit, and do not use water or organic solvent.
- Failure to follow this instruction may result in electric shock or fire.
- Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
- Failure to follow this instruction may result in fire or explosion.
- Keep metal chip, dust, and wire residue from flowing into the unit.
- Failure to follow this instruction may result in fire or product damage.

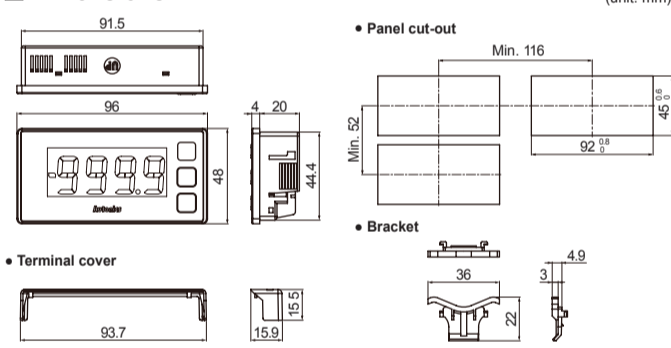
Model

Model	Measurement input	Power supply	Output
MX4W-V-FN			Indicator
MX4W-V-F1	DC/AC voltage	24-240VAC 50/60Hz, 24-240VDC	NPN open collector output
MX4W-V-F2			PNP open collector output
MX4W-A-FN			Indicator
MX4W-A-F1	DC/AC current		NPN open collector output
MX4W-A-F2			PNP open collector output

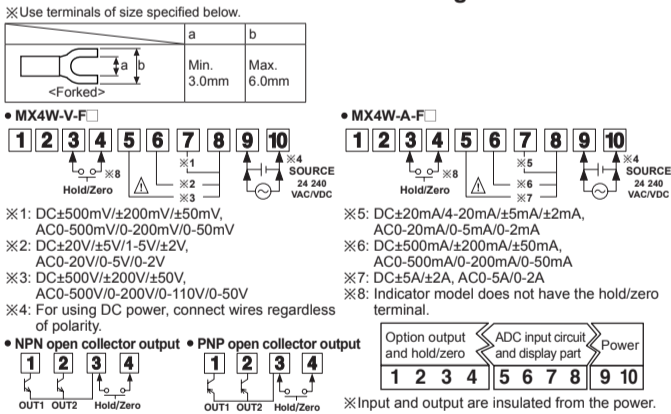
Unit Description

- Measurement value display part
- Key: Press the key to enter parameter groups, return RUN mode, move parameters, or save the setting values.
- Key: Press the key to move digits, enter parameters, or move parameter setting values.
- Key: Press the key to change digit value, enter or change parameters, or change the parameter setting value.
- Control output (OUT1/OUT2) indicator (red, indicator model white)
- MAX/MIN indicator (green, indicator model white)
- When input is over/low the range, HHHH or LLLL appears.
- AC/DC indicator (green, indicator model white)
- Unit (V/mV/A/mA/Hz/%) indicator (yellow, indicator model white)

Dimensions



Connections and Insulated Block Diagram



Specifications

Model	MX4W-V-F	MX4W-A-F
Measurement input	DC/AC voltage	DC/AC current
Max. allowable input	DC input: approx. -110 to 110% of each measurement input range (when not using minus input: -10 to 110%) AC input: approx. 110% of each measurement input range	
Power supply	24-240VAC~50/60Hz, 24-240VDC=	
Allowable voltage range	90 to 110% of the rated voltage	
Power supply	Max. 5VA (24-240VAC~50/60Hz), Max. 3W (24-240VDC=)	
Display method ^{*1}	12-segment (measurement value display part: white, character height: 19mm), other display parts (red, green, yellow, indicator model: white) LCD method	
Display accuracy	23°C±5°C - DC input: ±0.1% F.S. ±2-digit, AC input: ±0.3% F.S. ±3-digit ※ The terminal for 5A of current input, ±0.3% F.S. ±3-digit 0°C to 50°C - DC/AC input: ±0.5% F.S. ±3-digit ※ The terminal for 5A of current input, ±1% F.S. ±3-digit	
Display cycle	0.2 to 5.0 sec (select per 0.1 sec)	
A/D conversion method	Sigma-Delta (ΣΔ) analog-to-digital converter	
Sampling cycle	DC input: 50ms (resolution 1/20,000), AC input: 16.6ms (resolution 1/20,000)	
Max. display range	-9999 to 9999 (4-digit)	
Preset output ^{*2}	NPN/PNP open collector output ※ Load current: max. 100mA ※ Residual voltage: max. 1VDC=(NPN), max. 2VDC=(PNP)	
AC measurement ^{*3}	Select RMS value/AVG value measurement methods	
Frequency measurement ^{*3}	Measurement range: 0.100 to 1200Hz (varies depending on the decimal point)	
Insulation resistance	Over 100MΩ (at 500VDC megger)	
Dielectric strength	3,000VAC 50/60Hz for 1 min (between all terminals and case)	
Noise immunity	±2kV the square wave noise (pulse width: 1μs) by the noise simulator	
Vibration	Mechanical 0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours Malfunction 0.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min	
Shock	Mechanical 100m/s ² (approx. 10G) in each X, Y, Z direction for 3 times Malfunction 300m/s ² (approx. 30G) in each X, Y, Z direction for 3 times	
Environment	Ambient temp. -10 to 50°C, storage: -20 to 60°C Ambient humi. 35 to 85%RH, storage: 35 to 85%RH	
Insulation type	Double insulation or reinforced insulation (mark: □, dielectric strength between the measurement input part and the power part: 1kV)	
Approval	CE, UL	
Weight ^{*4}	Approx. 100g (approx. 77g)	

※1: When using the unit at low temperature (below 0°C), display cycle is slow due to characteristics of LCD.
Control output operates normally.
※2: Indicator model (MX4W-V-FN) does not have the function.
※3: AC, frequency measurement are available when input type is AC.
※4: The weight includes packaging. The weight in parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.
※The above specifications are subject to change and some models may be discontinued without notice.
※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

Measurement Input

DC voltage				DC current			
Measurement input range	Display	Input impedance	Display range [S.H.d.]	Measurement input range	Display	Input impedance	Display range [S.H.d.]
0.0-500.0V	500.0	4.062MΩ	0.0 to 500.0	0.000-5.000A	500.0	0.02Ω	0.000 to 5.000
0.0-500V	500		0.0 to 500.0	0.000-5.000A	500		0.000 to 5.000
0.0-200.0V	200.0	162kΩ	0.0 to 200.0	0.000-2.000A	200.0	0.02Ω	0.000 to 2.000
0.0-200V	200		0.0 to 200.0	0.000-2.000A	200		0.000 to 2.000
0.0-50.00V	50.00	4kΩ	0.0 to 50.00	0.0-500.0mA	500.0	0.02Ω	0.0 to 500.0
0.0-50.0V	50.0		0.0 to 50.0	0.0-500.0mA	500		0.0 to 500.0
0.0-20.00V	20.00	162kΩ	0.0 to 20.00	0.0-200.0mA	200.0	0.02Ω	0.0 to 200.0
0.0-20.0V	20.0		0.0 to 20.0	0.0-200.0mA	200		0.0 to 200.0
0.0-5.000V	5.000	4kΩ	0.000 to 5.000	0.00-5.000mA	500.0	0.02Ω	0.00 to 5.000
0.00-5.00V	5.00		0.000 to 5.000	0.00-5.000mA	500		0.00 to 5.000
0.00-2.000V	2.000	162kΩ	0.000 to 2.000	0.00-2.000mA	200.0	0.02Ω	0.000 to 2.000
0.00-2.00V	2.00		0.000 to 2.000	0.00-2.000mA	200		0.000 to 2.000
0.00-500.0mV	500.0	4kΩ	0.000 to 500.0	0.00-500.0mA	500.0	0.02Ω	0.000 to 500.0
0.00-500mV	500		0.000 to 500.0	0.00-500.0mA	500		0.000 to 500.0
0.00-200.0mV	200.0	162kΩ	0.000 to 200.0	0.00-200.0mA	200.0	0.02Ω	0.000 to 200.0
0.00-200mV	200		0.000 to 200.0	0.00-200.0mA	200		0.000 to 200.0
0.00-50.00mV	50.00	4kΩ	0.000 to 50.00	0.00-50.00mA	500.0	0.02Ω	0.000 to 50.00
0.00-50.0mV	50.0		0.000 to 50.00	0.00-50.00mA	500		0.000 to 50.00
0.00-2.000mV	2.000	162kΩ	0.000 to 2.000	0.00-2.000mA	200.0	0.02Ω	0.000 to 2.000
0.00-2.00mV	2.00		0.000 to 2.000	0.00-2.000mA	200		0.000 to 2.000
0.00-500.0mV	500.0	4kΩ	0.000 to 500.0	0.00-500.0mA	500.0	0.02Ω	0.000 to 500.0
0.00-500mV	500		0.000 to 500.0	0.00-500.0mA	500		0.000 to 500.0
0.00-200.0mV	200.0	162kΩ	0.000 to 200.0	0.00-200.0mA	200.0	0.02Ω	0.000 to 200.0
0.00-200mV	200		0.000 to 200.0	0.00-200.0mA	200		0.000 to 200.0
0.00-50.00mV	50.00	4kΩ	0.000 to 50.00	0.00-50.00mA	500.0	0.02Ω	0.000 to 50.00
0.00-50.0mV	50.0		0.000 to 50.00	0.00-50.00mA	500		0.000 to 50.00

※Display range of [S.C.R.] will vary depending on the decimal point.
(-9999 to 9999, -999.9 to 999.9, -99.99 to 99.99, -9.999 to 9.999)
※When changing measurement input type, oU [H]oU [L] M PERK L PERK L PERK L SPAN H L dot M SCL SCL SPAN I ERo E5PNH RGL RGLdUHL oU L MYS parameters are reset.
※Frequency measurement range (AC voltage/current): 0.100 to 1200Hz
※Check the unit indicator when selecting measurement input type.
※Parameter setting order of input range [I, R] is followed by the above table.
E.g.) AC current: 500.0 → 50.0 → 200.0 → 2.000 → 200
※When "HHHH" or "LLLL" is flashes with a certain measurement input, disconnect power supply and then check the cables.
※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. When the max. input value is over the 100%, it may result in input terminal damage.

Preset Output Operation Mode [PA 2 group: oU [L]oU [L]]

Operation mode	Output operation	Description
oFF	OUT1 output: No output	No output
HI GH	OUT1.H: Hysteresis (HY5) OUT1 output	ON period: Display value ≥ oU [H] OFF period: Display value ≤ oU [H]-HY5.I
Lo W	OUT1.L: Hysteresis (HY5) OUT1 output	ON period: Display value ≤ oU [L] OFF period: Display value ≥ oU [L]+HY5.I
HL	OUT1.H: Hysteresis (HY5) OUT1.L: Hysteresis (HY5) OUT1 output	ON period: Display value ≤ oU [L], Display value ≥ oU [H] OFF period: Display value ≥ oU [L]+HY5.I, Display value ≤ oU [H]-HY5.I
HL G	OUT1.H: Hysteresis (HY5) OUT1.L: Hysteresis (HY5) OUT1 output	ON period: Display value ≥ oU [L], Display value ≤ oU [H] OFF period: Display value ≤ oU [H]-HY5.I, Display value ≥ oU [L]+HY5.I

※Set preset output mode separately for each OUT1/OUT2.
※OUT1/OUT2 are operated individually depending on the set preset output operation mode.
※High/low preset value parameters of the parameter 0 group appear by setting preset output operation mode.
※When changing preset output operation mode, oU [H]oU [L] MYS are reset.

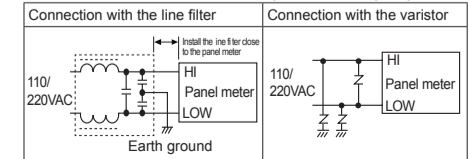
Factory Defaults

Group	Parameter	MX4W-V (DC)	MX4W-V (±DC)	MX4W-V (AC)	MX4W-A (DC)	MX4W-A (±DC)	MX4W-A (AC)
PR0 (PA 0 group)	oU [H] R1	500.0	500.0	500.0	500.0	500.0	500.0
	oU [L] R1	000.0	000.0	000.0	000.0	000.0	000.0
	oU [H] R2	500.0	500.0	500.0	500.0	500.0	500.0
	oU [L] R2	000.0	000.0	000.0	000.0	000.0	000.0
	HPEK	00	00	00	00	00	00
	LPEK	00	00	00	00	00	00
	dC AC	dC	dC	AC	dC	dC	AC
	I N R	500.0	500.0	500.0	500.0	500.0	500.0
	dI SP	S.H.d	S.H.d	S.H.d	S.H.d	S.H.d	S.H.d
	I N L	---	---	R.V.G	---	---	R.V.G
PR1 (PA 1 group)	dot	000.0	000.0	000.0	000.0	000.0	000.0
	H S C	500.0	500.0	500.0	500.0	500.0	500.0
	L S C	000.0	000.0	000.0	000.0	000.0	000.0
	SPAN	1000	1000	1000	1000	1000	1000
	ERo	00	00	00	00	00	00
	E5PN	---	---	10.0	---	---	10.0
	H R G	500.0	500.0	---	500.0	500.0	---
	L R G	000.0	000.0	---	000.0	000.0	---
	dUHL	V	V	V	A	A	A
	oU [L] R1	oFF	oFF	oFF	oFF	oFF	oFF
PR2 (PA 2 group)	oU [L] R1	oFF	oFF	oFF	oFF	oFF	oFF
	HY5.1 R1, R2	00.1	00.1	00.1	000.1	000.1	000.1
	HY5.2 R1, R2	00.1	00.1	00.1	000.1	000.1	000.1
	S.L.R	000	000	000	000	000	000
	PERK	00.5	00.5	00.5	00.5	00.5	00.5
	dI S L	02.5	02.5	02.5	02.5	02.5	02.5
	dI L	HoLd	HoLd	HoLd	HoLd	HoLd	HoLd
	Lo C	oFF	oFF	oFF	oFF	oFF	oFF
	oU [L] R1	oFF	oFF	oFF	oFF	oFF	oFF
	oU [L] R2	oFF	oFF	oFF	oFF	oFF	oFF

※1: Does not appear in indicator models.
※2: t will vary depending on input range [I, R] setting.

Cautions during Use

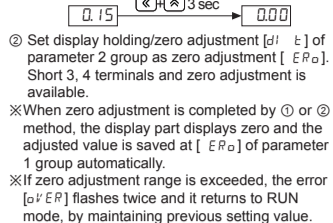
- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- Keep away from high voltage lines or power lines to prevent inductive noise. In case installing 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.



4. This unit may be used in the following environments.
 ①Indoors (in the environment condition rated in 'Specifications')
 ②Altitude max. 2,000m
 ③Pollution degree 2
 ④Installation category II

Zero Adjustment

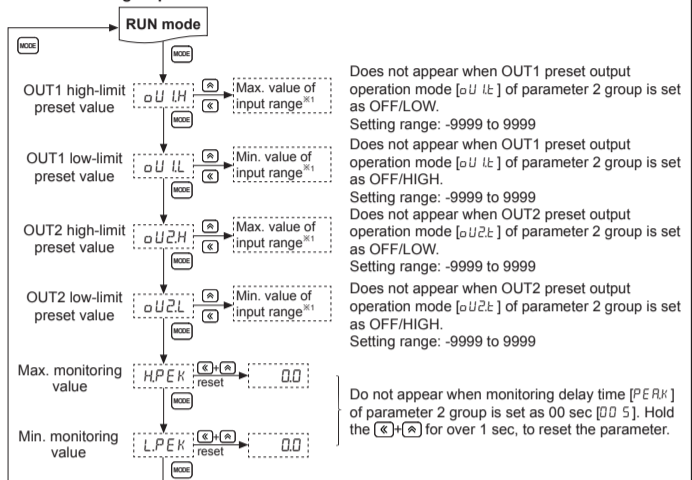
Forces the display value of measured input to 0 (Zero).
 • Zero adjustment range: -99 to 99
 • Zero adjustment method:
 ① Hold [K] [A] keys for 3 sec at the same time.



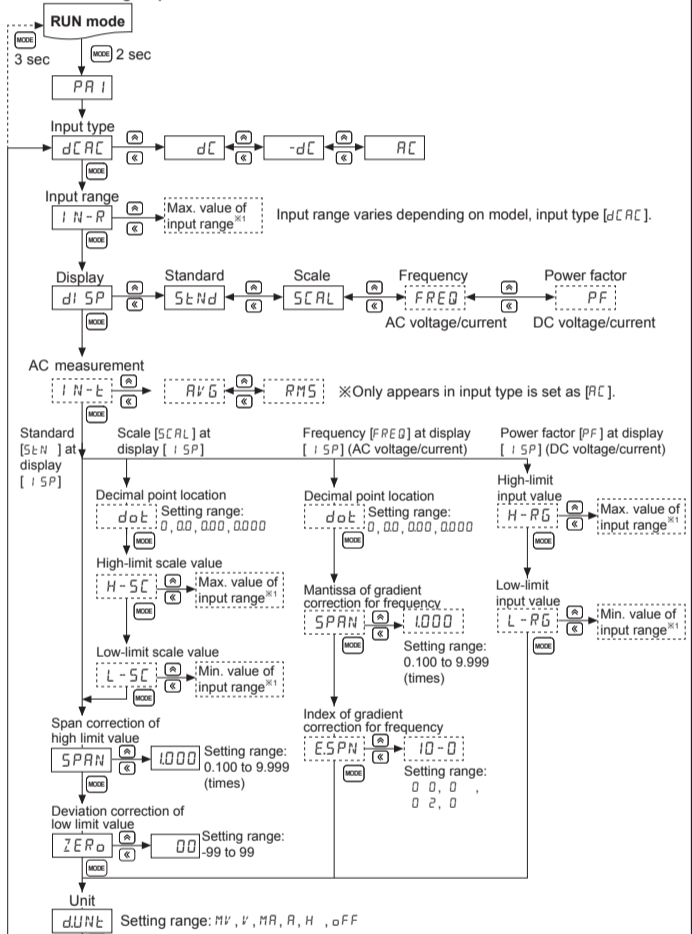
Parameter Group

- ① Parameter (0 to 2 group) setting
 1. Each parameter and corresponding setting value will flash alternately every 0.5 sec.
 2. Press the [K] key to save the setting value and move to the next parameter.
 3. If there is no key input for 60 sec, the unit will return to RUN mode.
 4. Hold the [K] key for 3 sec to return to RUN mode.
 5. Press the [K] [A] keys to change the set value.
 ([K] moves digits, [A] changes setting value)
 ※: Dotted parameters may not appear by model type or other parameter settings.
 ※1. Refer to 'Measurement Input Type And Range'.

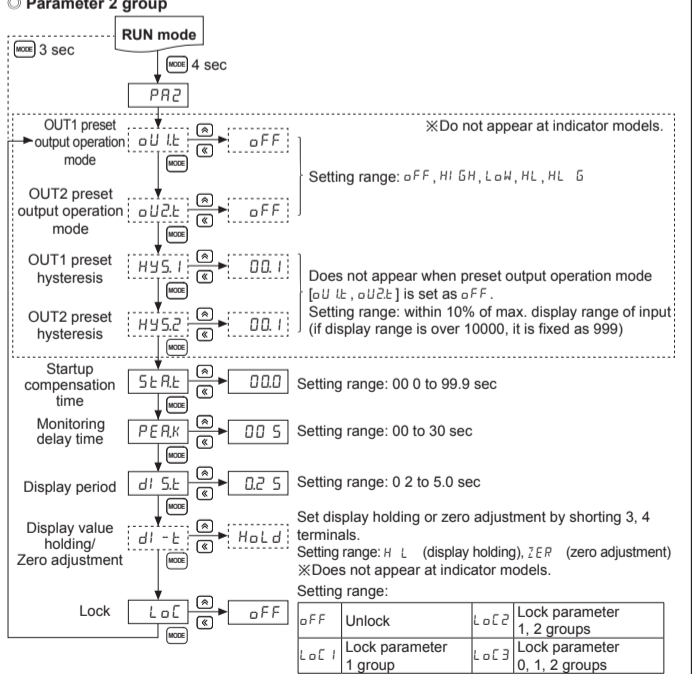
Parameter 0 group



Parameter 1 group



Parameter 2 group



Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Sockets
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, Co., Nd:YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometers/Pulse (Rate) Meters
- Display Units
- Sensor Controllers