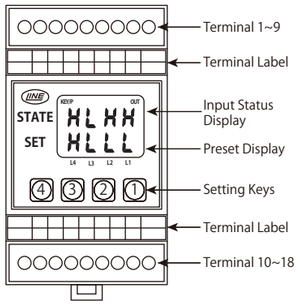
■ M13-212 (Logic Filter)

● Parts



KEY/P··· appears when Key Protect is activated
OUT ··· appears when Input Logic matches Preset Logic

● Operation

① ~ ④

Each digit of Preset Logic is entered by corresponding keys. Pressing ①~④ will select the corresponding digit and make it blink. While blinking, the logic of the digit can be changed between "L" and "H".
When no change is made after 3 seconds from last operation, Preset Logic is confirmed and blinking stops automatically.

Key Protect Function

- When Key Protect (K / P) terminal is connected to GND, Key Operation is disabled.
- Make sure to disconnect Key Protect (K/ P) terminal from GND before attempting Key Operation.

＜Setting Example＞

To enter a Preset Logic to "H L L H":

④ Press ④. Preset digit 4 will be selected and start to blink. (LLLL / LLLL)

④ Press ④ again. Preset digit 4 will change display to "H". (LLLL / HLLL)

① Press ①. Preset digit 1 will be selected and start to blink. (LLLL / HLL)

① Press ① again. Preset digit 1 will change display to "H". (LLLL / HLLH)

Preset Logic will be confirmed and saved when there is no key operation within 3 seconds. (LLLL / HLLH)

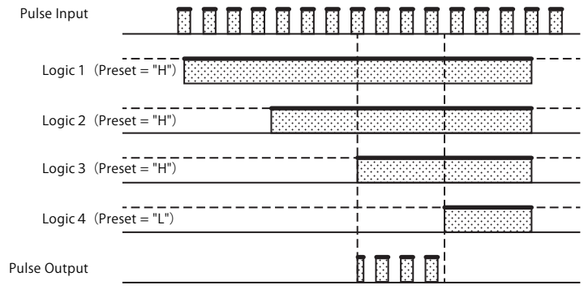
● Operation Example

Logic Filter (input logic match output)
This device monitors the input pulse, and passes it through as an output only when Input Logic matches Preset Logic.

- If Input Logic does not match Preset Logic, output is disabled.

※ Please set unused Logic inputs to "L".

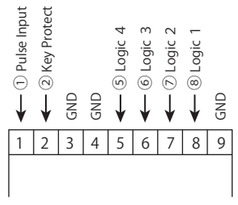
Timing Diagram



● Wire Terminal Type: Screw Tightening (use AWG14-22 leadwires)

Input

Terminal Array

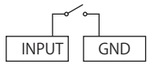


※ Terminals ③④⑨⑫⑬⑱ are connected internally.

Input signal in ① will pass through as output signal ⑩.
(when Input Logic matches Preset Logic)
Connect ② to GND to disable Key Operation.
Connect terminal ⑤⑥⑦⑧ to Input Logic signal.

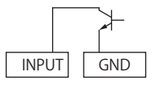
● Input Circuit Non-voltage Input (NPN Input)

＜Reed Input＞



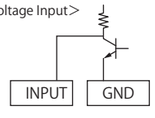
※signal when contact is ON

＜Open Collector＞



※ signal when transistor is ON

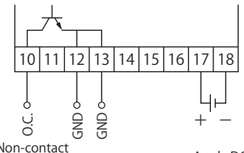
＜Voltage Input＞



※ signal when transistor is ON

Output・Power

Terminal Array



Non-contact Output

Apply DC12V ~ 24V power to terminal No.17, 18.

※ Terminals ③④⑨⑫⑬⑱ are connected internally.

When Input Logic matches Preset Logic, the output is the state of input terminal ①.

This manual was last revised January 21, 2015. 4MWT002A

MIERUZZO ACCESSORY UNIT Instruction Manual

M13-210 WATCHDOG TIMER
M13-211 PULSE FILTER
M13-212 LOGIC FILTER

⚠ ATTENTION

- Do not use this device near machines that emit strong electromagnetic field or objects that store static electricity.
- Do not drop or subject this device to strong impact.
- Do not use or store this device where it will be exposed to water or in places with wet conditions.
- Do not use or store this device where it can be exposed to direct sunlight, dust, high temperature, and high humidity.
- Do not attempt to disassemble or modify this device.
- Do not use organic solvents such as thinners etc., for they will damage the external finish.

ATTENTION
Please note that misuse of this device may lead to injury to the user or damage to the device.
Please observe all safety precautions and warnings in this instruction manual.

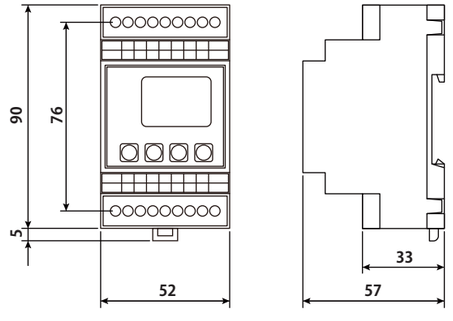
● CUSTOMER SERVICE
LINE SEIKI CO., LTD.
Head Office 37-7 Chuo-cho, 2-Chome Meguro-ku
Tokyo JAPAN 152-0001
TEL: 03-3716-5151 FAX: 03-3710-4552
E-mail support@mieruzzo.com
URL http://www.mieruzzo.com

Thank you for purchasing our product, M13-210/211/212.
Please read this instruction manual carefully to ensure correct usage of this device.
Please keep this instruction manual for future reference.

■ MODEL・SPECIFICATIONS

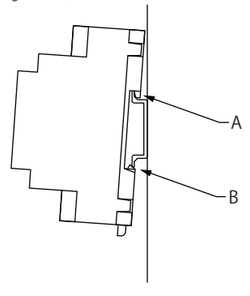
Model	M13-210	M13-211	M13-212
Function	Watchdog Timer	Pulse Filter	Logic Filter
Display	4-Digit, 7-Segment LCD Digit Size： 7 mm		
Setting Range	00：01～99：59 (mm:ss)	0.1～999.9 (s)	LLLL～HHHH（16 possible logic）
Input	Pulse Input（Input） Disable（DIS） Key Protect（K/P）	Pulse Input（Input） Key Protect（K/P）	Pulse Input（Input） Logic 3（Logic3） Logic 1（Logic1） Logic 4（Logic4） Logic 2（Logic2） Key Protect（K/P）
Input Type	Non-contact / Reed Input: Open Collector Input L＜2V（Sink Current approx. 1mA）		
Input Frequency	10Hz（Pulse Input）		1kHz（Pulse Input）
Output	Non-contact Output：NPN Open Collector（DC30V 100mA max.） Relay Output：1c Contact（AC/DC30V 0.5A max.）（M13-210 only）		
Output Type	Hold（Timer Stop Output）	One-shot（100ms）	Hold（Logical Match Output）
Output Delay	25msec		
Key Protect	via Key Protect Input		
Memory	EEPROM (10 years Data Retention; 10,000 Re-write Cycles)		
Power Supply	DC12～24V（-15% / +10%）		
Power Consumption	approx. 1.8W（at DC24V）	approx. 0.4W（at DC24V）	
Operating Humidity	45～85%RH（non-condensing）		
Operating Temperature	-10～+50℃（non-freezing）		
Storage Temperature	-20～+60℃（non-freezing）		
Noise Immunity	Square-wave Noise from Noise Simulator Power Supply Terminal: ±600V / Input Terminal: ±500V		
Vibration Resitance	Malfunction: 10～55Hz peak amplitude 0.15mm 3-directional 10 minutes Endurance: 10～55Hz peak amplitude 0.375mm 3-directional 2 hours		
Weight	approx. 130g	approx. 110g	
Regulatory Compliance	CE、RoHS		

■ DIMENSIONS (mm)

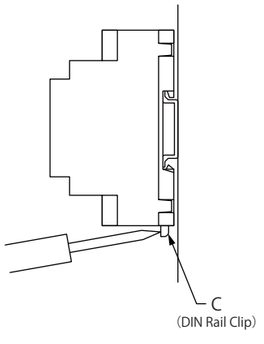


■ MOUNTING METHOD (via DIN Rail Size: 35mm)

[DIN Rail Mounting Method]
1. Hook Part A of the device to the top portion of the DIN rail, as shown in the figure below.
2. Plug-in Part B of the device.

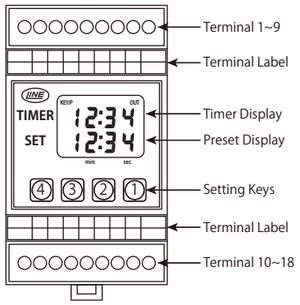


[DIN Removal Method]
1. Push Part C of the device using a screw driver, as shown in the figure below.
2. Remove the device from the DIN rail.



■ M13-210 (Watchdog Timer)

● Parts



KEY/P… appears when Key Protect is activated
OUT … appears when Timer is stopped

● Operation

① ~ ④

Each digit of Preset Time is entered by corresponding keys. Pressing ①~④ will select the corresponding digit and make it blink. While blinking, the value of the digit can be changed from "0" up to "9".
When no change is made after 3 seconds from last operation, Preset Time is confirmed and blinking stops automatically.

Key Protect Function
- When Key Protect (K / P) terminal is connected to GND, Key Operation is disabled.
- Make sure to disconnect Key Protect (K/ P) terminal from GND before attempting Key Operation.

＜Setting Example＞

To enter a Preset Time of 1 min 30 sec:

③ Press ③. Preset digit 3 will be selected and start to blink. (Upper row is Timer Display)

③ Press ③ again. Preset digit 3 will increment and display "1".

② Press ②. Preset digit 2 will be selected and start to blink.

②×2 Press ② again, twice. Preset digit 2 will increment twice and display "3".

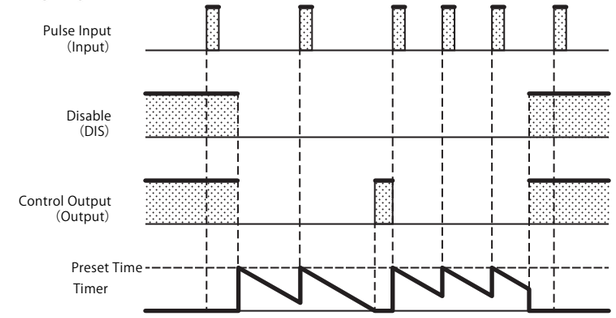
Preset Time will be confirmed and saved when there is no key operation within 3 seconds. Timer will be displayed on upper row and start from "00:00".

● Operation Example

Watchdog Timer (continuous pulse monitoring)
This device monitors the interval of input signal entering the Pulse Input via a Timer. If there is no signal received within the Preset Time, Timer is stopped and output signal is generated. By disabling input, forced start/stop of the Timer is possible.

- Timer is restarted for each input pulse received (when Disable Input is OFF).
- Timer is stopped when Preset Time is reached.
- Timer is stopped and Pulse Input is disabled when Disable Input is ON.
- Timer restarts when Disable Input is released (OFF).
- Control Output is set ON when Timer is stopped (Preset Time is reached).

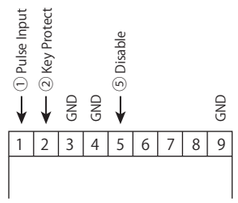
Timing Diagram



● Wire Terminal Type: Screw Tightening (use AWG14-22 leadwires)

Input

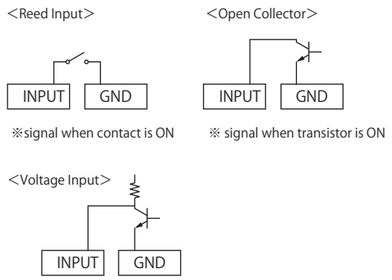
Terminal Array



※ Terminals ③④⑨⑫⑬⑱ are connected internally.

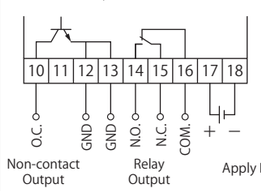
Input signal detection in ① will start (restart) the Timer.
Connect terminal ② to GND to disable Key Operation.
Connect terminal ⑤ to GND to stop the Timer, disconnect from GND to restart.

● Input Circuit Non-voltage Input (NPN Input)



Output・Power

Terminal Array



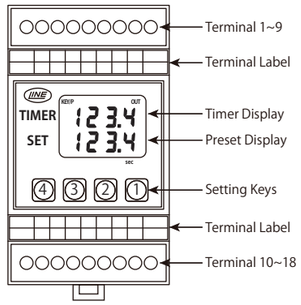
Apply DC12V ~ 24V power to terminal No.17, 18.

※ Terminals ③④⑨⑫⑬⑱ are connected internally.

When Timer is stopped, output is set.
(transistor output, relay output)

■ M13-211 (Pulse Filter)

● Parts



KEY/P… appears when Key Protect is activated
OUT … appears when Timer is started (100ms)

● Operation

① ~ ④

Each digit of Preset Time is entered by corresponding keys. Pressing ①~④ will select the corresponding digit and make it blink. While blinking, the value of the digit can be changed from "0" up to "9".
When no change is made after 3 seconds from last operation, Preset Time is confirmed and blinking stops automatically.

Key Protect Function
- When Key Protect (K / P) terminal is connected to GND, Key Operation is disabled.
- Make sure to disconnect Key Protect (K/ P) terminal from GND before attempting Key Operation.

＜Setting Example＞

To enter a Preset Time of 2.0s:

② Press ②. Preset digit 2 will be selected and start to blink. (Upper row is Timer Display)

②×2 Press ② again, twice. Preset digit 2 will increment twice and display "2".

③ Press ③. Setting digit 3 will be selected and start to blink.

③×9 Press ③ again, 9 times. Preset digit 3 will increment 9 times and display "0".

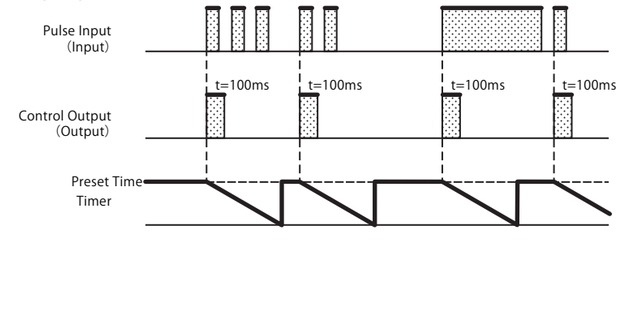
Preset Time will be confirmed and saved when there is no key operation within 3 seconds. Preset Time will be displayed on upper row as start of timer.

● Operation Example

Pulse Filter (one-shot output)
This device is a One-shot Timer for signal entering the Pulse Input.
Multiple Pulse input received within a Preset Time (0.1s - 999.9s) will generate a one-shot pulse output.

- Timer is started when Input Pulse is received. While Timer is counting, Input Pulse is invalid.
- One-shot Pulse (100ms) is generated at the time the Timer is started.

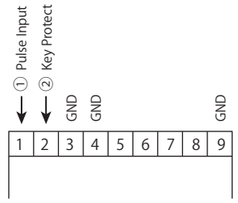
Timing Diagram



● Wire Terminal Type: Screw Tightening (use AWG14-22 leadwires)

Input

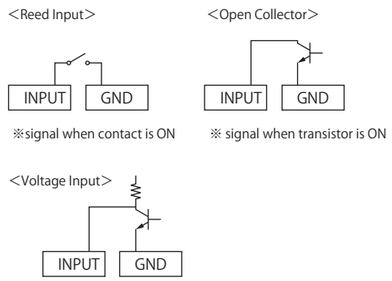
Terminal Array



※ Terminals ③④⑨⑫⑬⑱ are connected internally.

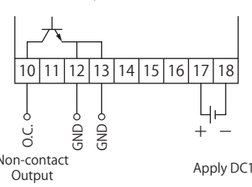
Input signal detection in ① will start the Timer.
Connect terminal ② to GND to disable Key Operation.

● Input Circuit Non-voltage Input (NPN Input)



Output・Power

Terminal Array



Apply DC12V ~ 24V power to terminal No.17, 18.

※ Terminals ③④⑨⑫⑬⑱ are connected internally.

One-shot Pulse output (100ms) will be generated at the start of countdown timer.