

MDR Series (Bidirectional Electronic Counter)

INSTRUCTION MANUAL

MDR-244M



MDR-166M



MODEL SELECTION

Models	Digits	Preset Level	Preset Digits	Preset Range	Memory	Weight
MDR - 144M	4	1	4	1 - 9999	○	950 g
MDR - 166M	6		6	1 - 999999		
MDR - 244M	4	2	4	1 - 9999		1050 g
MDR - 266M	6		6	1 - 999999		

SPECIFICATIONS

Models	MDR - 144M	MDR - 166M	MDR - 244M	MDR - 266M
Display	Red LED, 14.22 x 8.13mm (Zero Suppress)			
Input Method / Signal	Contact Input : Relay, Microswitch Non-Contact Input : L: 0 - 1V ; H: +4.5 - 27V			
Count Mode	90° Quadrature (directional) / Add/Subtract			
Count Speed	Contact Input : 20 Hz max. / Non-Contact Input : 5000 Hz max.			
Pulse Width	Contact Input : 25 msec min. / Non-Contact Input : 100 μsec min.			
Make (Duty)	1:1			
Output Type	Contact output : Relay Type 1C (AC230V, 2.5A max. load) * for each output Non-contact output : NPN open collector (DC30V, 100mA maximum)			
Output Display	Turns ON during output time			
Output Time	One-shot mode : 0.1 - 3sec (adjustable) Overrun mode : Infinite		Preset Level 1 : Infinite Preset Level 2 : Infinite or 0.1 - 3sec (adjustable)	
Reset	Remote reset (100msec min.) Auto reset : One-shot reset (Output relay : 0.1 - 3sec reset)			
Memory	E ² PROM (10 yrs. retention, 10,000 times)			
Power Source for Sensor	DC12V 100mA maximum			
Input Impedance	5kΩ			
Power Source	AC100/110V or AC200/220V ±10%, 50/60 Hz			
Power Consumption	Approximately 5.5VA			
Operating Temperature	0 - +40°C (Non-freezing)			
Operating Humidity	45 - 85%RH (Non-condensing)			
Hi-pot Test	AC1500V (1 minute)			
Dielectric Test	20MΩ min. (DC500V megger)			
Connection	M3 Terminal Screw			

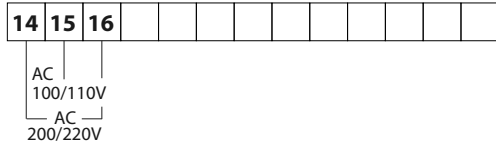
FEATURES

- Fits DIN 72 mm x 144 mm Panel.
- Large high brightness LED.
- Change of preset value during operation can be made without any accidental tripping of output relay.
- Switch or Pulse input and output is available.
- Operating modes selectable on rear terminals.
- A power supply module is built-in for input devices or power source application.

- Dust-proof preset switches.
- Input can be inhibited through a terminal connection.
- Output at zero available (option).

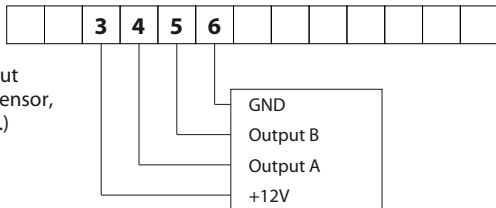
CONNECTIONS

Power Supply

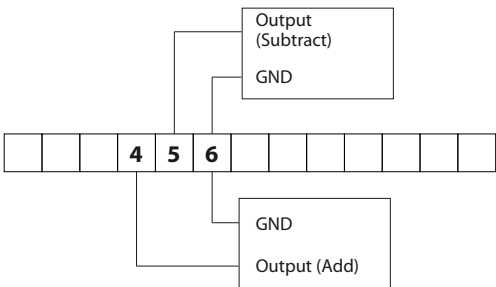


Input

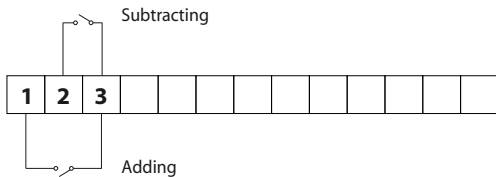
90° quadrature input
(Two output type sensor,
rotary encoder, etc.)



Pulse Input

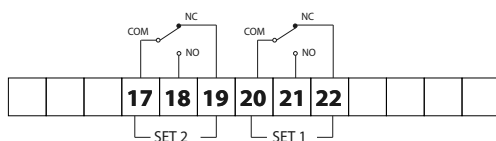


Switch Input



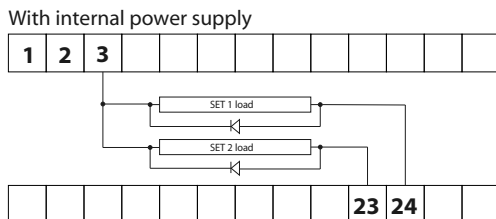
Output

Switch Output



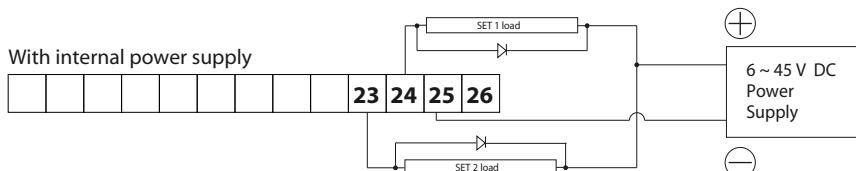
Use SET 2 for output on standard 1 level preset model.

Pulse Output



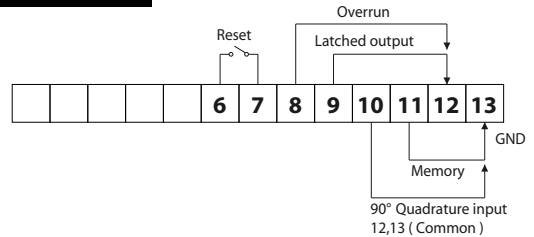
Use SET 2 for output on standard 1 level preset model.

With internal power supply



Use SET 2 for output on standard 1 level preset model.

Other Connections



Reset

Terminals 6 and 7 (Counter can be reset by conventional switch or relay etc.)

Change of Operating Modes

Add a jumper between 8 and 12 for overrun operation.

Disconnect the jumper between 8 and 12 for instantaneous rest operation.

Output Time

Output time for 0.1 to 3 sec. can be set by turning the screw on the front panel.

Add a jumper between 9 and 12 for latched output.

Input

Add a jumper between 10 and 13 for 90° quadrature input.

Disconnect the jumper between 10 and 13 for the other input modes.

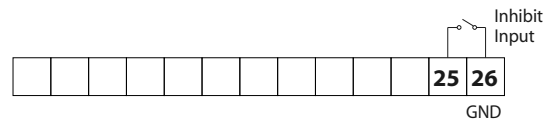
Memory

Make sure connect terminals 11 and 12.

And please make a remote reset after turning the power supply on only at the first time.

Input Inhibition

Add a jumper between 25 and 26 to stop input signals.

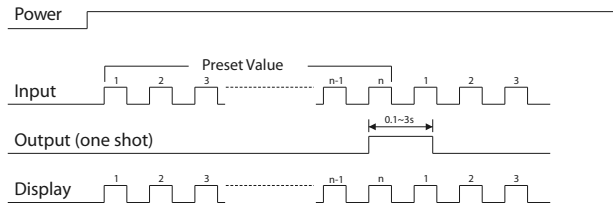


CAUTION

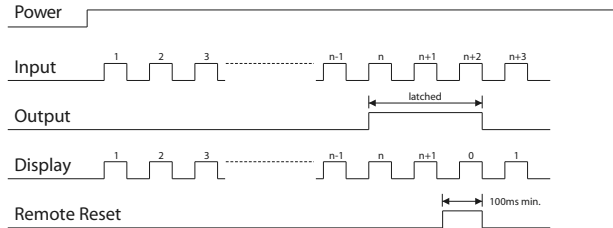
- Do not apply voltage to switch input terminal or remote reset terminal.
- The display is blanked, input or reset is inhibited, and output relay is not latched during power interruption.
- Switch and sensor inputs cannot be used at the same time.
- Subtracting and adding inputs cannot be used at the same time.
- Use shielded cable for input or reset, and also use shielded cable on other long lines.
- Mount the counter, as far as possible, away from motor starters, large relays, etc.

OPERATING MODES

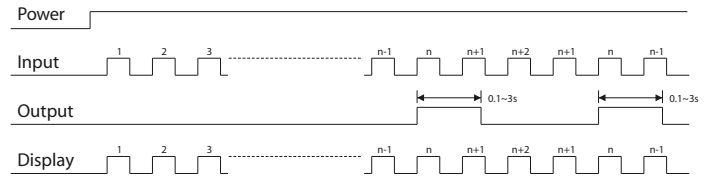
INSTANTANEOUS RESET TYPE



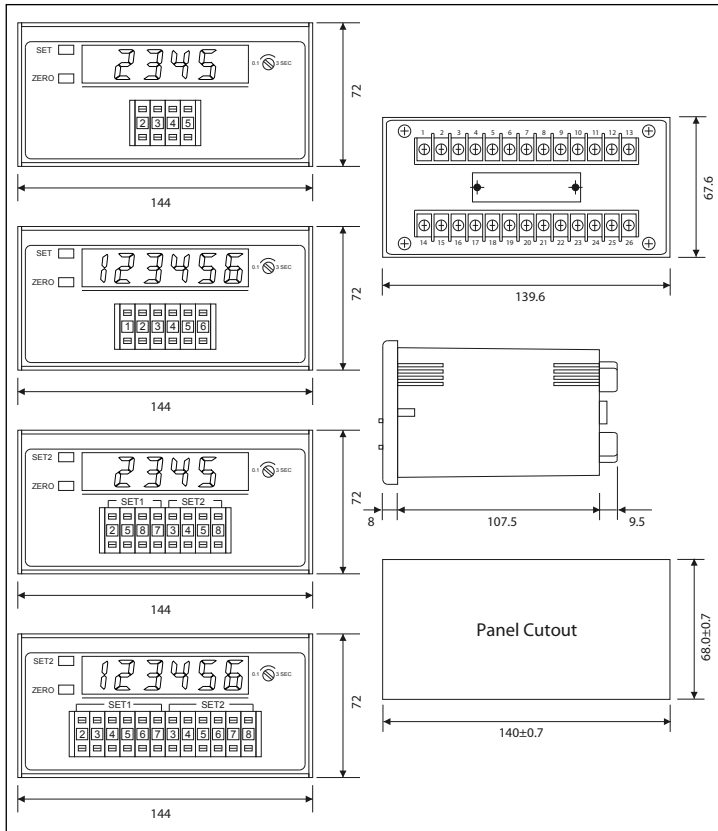
OVERRUN TYPE



OVERRUN INSTANTANEOUS OUTPUT TYPE



DIMENSIONS - MILLIMETERS



CONNECTIONS TO TERMINALS

NO.	MDR-144M MDR-166M	MDR-244M MDR-266M		
1	Switch Input A (Adding)			
2	Switch Input B (Subtracting)			
3	+12 V			
4	Pulse Input A (Adding) Sensor input			
5	Pulse Input B (Subtracting) Sensor input			
6	GND			
7	Reset			
8	Overrun			
9	Latched Relay			
10	Input Selection			
11	Memory			
12	Common			
13	Common			
14	Neutral			
15	100 / 110 VAC			
16	200 / 220 VAC			
17	COM.	Switch Output (SET)	COM.	Switch Output (SET2)
18	N.O.		N.O.	
19	N.C.		N.C.	
20	/		COM.	Switch Output (SET1)
21			N.O.	
22			N.C.	
23	Pulse Output (SET)		Pulse Output (SET 2)	
24	/		Pulse Output (SET 1)	
25	Input is Inhibited			
26	GND			



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*Subject to change without prior notice.
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