

## ■ Product description-

CM1-RL series provides a simple economic programmable speed/velocity table, it 20.0mm, 5-digit LED display, press the key to set the display range and its anti-jamming design and reliable quality, simple installation, you can meet the needs of general measurement of speed/velocity.

This instrument also has 2 group relay outputs, 1 analog output, or 1 groups RS485 (Modbus RTU mode) communication features three a (More features please refer

to page description). Operation press the inner design, the more human-no action can be avoided, especially suitable for all kinds of machinery used.



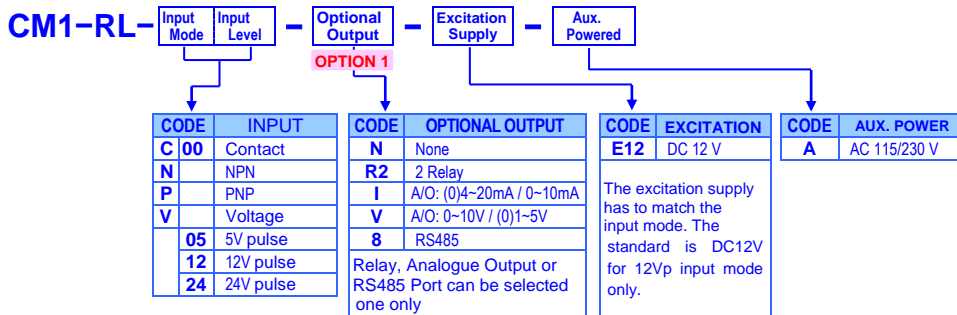
## ■ Feature :

- Free input frequency of 1Hz~6KHz, does not need to specify the frequency range input mode (NPN, PNP, and forth.) and pulse dial switch level by means of direct switch
- Purchase 2 to attach three to choose a group of relay outputs, 1 analog output, or 1 groups RS485 (Modbus RTU mode) communication
- Operation press the inner (in front), according to field requirements set display scope; Terminal straight into design, bad problem-free installation depth only 72mm

## ■ Application :

- Tie in with the adjacent switches, photoelectric switch speed/wire speed display, control and RS485 data collection

## ■ ORDERING INFORMATION



## ■ TECHNICAL SPECIFICATION

Input		
Input Frequency	Input Mode	Input Level
1Hz ~ 50 Hz	Mech. Contact	
1Hz ~ 50 Hz 1Hz ~ 6.00KHz	NPN	High Level: over 2/3 of input level Low Level: under 1/3 of input level
	PNP	
	Voltage Pulse	
Input Mode (NPN, PNP, Contact) & Level (5Vp, 12Vp, 24Vp) changeable by dip switch of rear terminal block.		

**Calibration:** Doesn't need calibration  
**A/D conversion:** Pulse direct-reading, none A/D conversion  
**Accuracy:** ± 0.1% of FS ± 1C  
**Sampling time:** 0.1~99 sec  
**Response time:** 15 times/sec.(≥15Hz · when RuG = "1")  
 F times/sec.(≤15Hz · when RuG = "1")

### Display & Functions

**LED:** Numeric: 5 digits, 0.8"(20.0mm)H high-brightness LED  
**Display range:** 0~99999  
**Display type:** RPM / RPS / Linear line speed / Frequency programmable  
**D.P. of set point:** D.P. of set point auto / semi-auto / manual  
 Programmable from 0 / 0.0 / 0.00 / 0.000 / 0.0000  
**Display unit:** Line speed unit can be set M/min CM/Min Yd/Min ft/Min  
**Over range indication:** ouFL: when input is over 110% of input range  
**Max / Mini recording:** Maxi & Mini Value of PV storage during power on.  
**Low cut:** LaCUt: settable range -19999~19999  
**Reading stable Functions.**  
**Average:** RuG: settable range 1~99 times  
**Digital filter:** dF : settable range 1~99 times

### Control Functions.(option)

**Realy:** 2 group\_Realy  
 2 grop FORM-C, 5A/230Vac, 10A/115V  
**Relay energized mode:** Hi / Lo / Hi.HLd / Lo.HLd model  
**Energizing functions:** Start delay / Energized & De-energized delay / Hysteresis /Energized Latch  
 [ r45b] Start band: 0~9999 counts  
 [ r45d] Start delay time: 0.00.0~9(min):59.9(sec)  
 [ r4rd] Energized delay time: 0.00.0~9(min):59.9(sec)  
 [ r4Fd] De-energized delay time: 0.00.0~9(min):59.9(sec)  
 [ r4H4] Hysteresis: 0~5000 counts

### Analogue output(option)

**Accuracy:** ≤ ± 0.2% of F.S.; 12 bits DA converter  
**Ripple:** ≤ ± 0.1% of F.S.  
**Response time:** ≤100 m-sec. (10~90% input)  
**Isolation:** AC 2.0 KV between input and output  
**Output range:** Specify either Voltage or Current output in ordering  
 Voltage: 0~5V / 0~10V / 1~5V programmable  
 Current: 0~10mA / 0~20mA / 4~20mA programmable  
 Voltage: 0~10V: ≥ 1000Ω;  
 Current: 4(0)~20mA: ≤ 6000 Ω

### Output capability:

### Functions:

### Digital fine adjust:

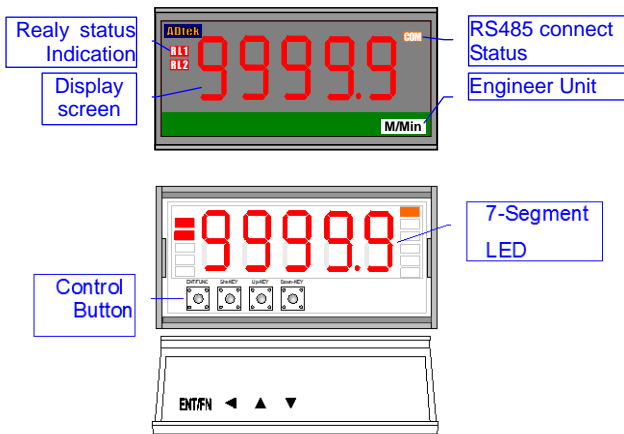
[ RaL5] output range high:  
 Settable range: -1999~9999  
 [ RaH5] output range Low:  
 Settable range: -1999~9999  
 [RaPr0] Settable range: 0~99999  
 [RaSPn] Settable range: 0~99999



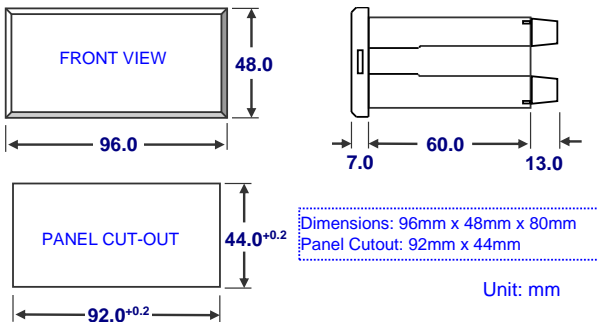
**RS 485 Communication(option)**

- Protocol:** Modbus RTU mode
- Baud rate:** 1200/2400/4800/9600/19200/38400 programmable
- Data bits:** 8 bits
- Parity:** Even, odd or none (with 1 or 2 stop bit) programmable
- Address:** 1 ~ 247 programmable
- Distance:** 1200M max
- Terminate resistor:** 150Ω. at last unit.
- Power**
- Power supply:** AC115/230V,50/60Hz;
- Power consumption:** 2.5VA maximum
- Excitation supply:** Excitation supply has to match the input mode / 30mA
- Back up memory:** EEPROM
- Electrical safety**
- Dielectric strength:** AC 2.0 KV for 1 min, Between Power / Input / Output / Case
- Insulation resistance:** ≥100M ohm at 50Vdc, Between Power / Input / Output
- Isolation:** Between Power / Input / Output
- EMC:** EN 55011:2002; EN 61326:2003
- Safety(LVD):** EN 61010-1:2001
- Environment**
- Operating temp.:** 0~60 °C
- Operating humidity:** 20~95 %RH, Non-condensing
- Temp. coefficient:** ≤ 100 PPM/°C
- Storage temp.:** -10~70 °C
- Enclosure:** Front panel: IEC 549 (IP54); Housing: IP20
- Vibration testing:** 1~800Hz, 3.175g<sup>2</sup>/Hz
- Mechanical**
- Dimensions:** 96mm(W) x 48mm(H) x 80mm(D)
- Panel cutout:** 92mm(W) x 44mm(H)
- Case material:** ABS fire-resistance (UL 94V-0)
- Mounting:** Panel flush mounting
- Terminal block:** Plastic NYLON 66 (UL 94V-0); 20A/300Vac, M3.5, 0.5mm<sup>2</sup>~2.0mm<sup>2</sup> (22~14AWG)
- Weight:** 310g

**FRONT PANEL**

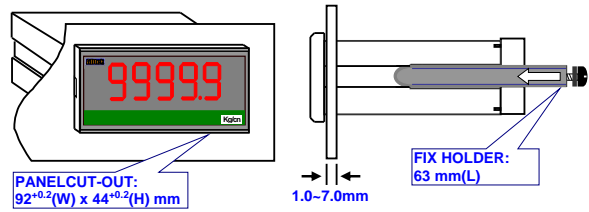


**DIMENSIONS**

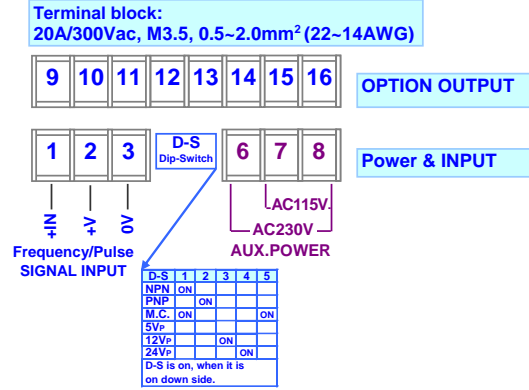


**INSTALLATION**

The meter should be installed in a location that does not exceed the maximum operating temperature and provides good air circulation.

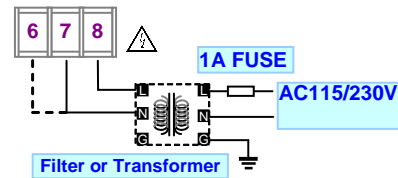


**CONNECTION DIAGRAM**

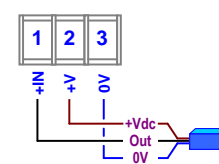


Please check the voltage of power supplied first, and then connect to the specified terminals. It is recommended that power supplied to the meter be protected by a fuse or circuit breaker. ⚠

**POWER Supply**



**Sensor Input connection**

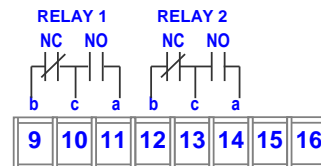


Please change the dip-switch on rear of meter to match the input mode and level.

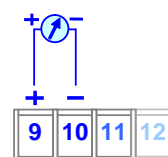
D-S	1	2	3	4	5
NPN	ON				
PNP		ON			
Mech. Contact	ON				ON
Voltage pulse 5V <sub>p</sub>					
Voltage pulse 12V <sub>p</sub>			ON		
Voltage pulse 24V <sub>p</sub>				ON	
D-S is on when it is in down site					

**Output** (Realy \ Analogue Output or RS485 can be selected only one)

**Realy Output**



**Analogue Output**



**RS485 Communication Port**

