CM1-CT   MULTIFUNCTION COUNTER [Pulse Input]

■ Description

CM1-CT multifunction counter(position) display controller, is design to have 2 pulse input, for proximity switch, photoelectric sensor, encoder etc.. Counting increase or decrease, positioning batch count etc.. display, with External input and Modbus communication port.
Multiple types of input mode, trip mode setting to fulfil easy usage and requirement for counter controller. For different requirement, the meter can be with 2 relay or 1 Analogue output or 1 RS485(Modbus RTD mode) communication. (Choose 1 kind of output from the 3 options)

■ Features

● Measuring Pulse 0~5Khz(A/B phase, 2.5Khz per phase); Mechanical contact/NPN/PNP/Voltage pulse etc.. Input type can be programmable via Dip Switch setting
● 5 counting mode (Counting up, Counting down, Counting Up and Down, each phase counting Up or down and phase different up or down, setting via programming
● When measuring length, set meter pulse per unit (PPR), the diameter (Diame), and the constant (Cnt.SF), the meter automatic calculate and display accumulated length
● When option 2 relays, the relay can be set to totalize value or present value, totalize value output come in various mode N/R/C/E/F/Q or Phase different input position or length, high/low alarm mode
● 2 External control input , use for Reset or Gate function
  Choose 1 kind of output from the 3 options , 2 Relays or 1 Analogue output or 1 RS485(Modbus RTD mode) Commnunication

■ Applications

● For Proximity switches, photoelectric sensors, encoder etc.. Counting Up/Down, length, positioning, batch display, External Control input and remote terminal communication ability
● Electrical cable machinery, paper printing machinery···

■ Ordering Information

CM1-CT — | Input Type | Pulse Level | — | Output Option | — | Power Supply |

CODE		Input
C	00	Contact Input
N		NPN
P	12	PNP
V		12V Pulse Input

CODE	Output Option
N	None
R2	2 Relay
I	(0)4~20mA/0~10mA
V	0~10V/(0)1~5V
8	RS485(Modbus RTU)

CODE	Power Supply
A	AC 115/230V

■ Technical Specification

Input

Input Range	Input Type	Pulse Level
0~50Hz	Contact	
A/B Phase:0~2.5KHz(each) Other count :0~5kHz	NPN	High level: Over 8V Low level: Under 4V
	PNP	
	12V Pulse Input	
Input type (NPN, PNP, Contact) can select by dip switch of rear panel		

Counting mode: Five mode
    UP: Counting up / Increment (A:Increase B:Pause)
    DOWN: Counting down / Decrement (A:Decrease B:Pause)
    IDV: Different input of counting Up or Down
        (A:Increase B:Decrease)
    CMD: Counting Up or Down(A:signal B:Increase or Decrease)
    ABP-2: A/B phase input
        (A➔B:Increase，B➔A:Decrease)
Input range: UP / DOWN / IDV / CMD mode: 0~5KHz
                 A/B phase mode : 0~2.5kHz (Each Channel)

Display and Function

LED: 6 digits,0.56"H red high-brightness LED
                    Relay output indication: 2 square red LED
                    ECI function indication: 2 square green LED
                    ECI1=Gate(Pause) and ECI2=RST(Reset)
                    RS485 communication: 1 square orange LED
Display value: CNT(Counting) / METER(Length Counting)
Pulse count: PPR : 1~999999
Multiplier：   CNTSF : 0.00001~9.99999
                    Display= Pulse count x Multiplier
Length unit   M / CM / Yard / Foot
Shaft diameter setting: DIQMT : 0.00001~9.99999 (Unit：M)
Over flow setting: OVFL(Overflow) / RCYCL(Re-cycle counting)
Initial value of count down : In DOWN mode, can set start value for count down
                    (Relay output type) ; Setting range : 0~999999

External Control Input Function

Input mode: Two channels input
Input function: ECI1=Gate ; ECI2= RST

Control function (Option)

Relay output: 2 Sets
                     FORM-C, 5A/230Vac, 10A/115V
Action mode: N / R / C / E / F / Q or Hi / Lo mode
Relay action time: 0:00.0~9(min):59.9(sec)
H/L mode: Only in A/B phase input mode

Analog Output (Option)

Accuracy: ≤ 0.2% of F.S.; 12 bits DA converter
Ripple: ≤ 0.1% of F.S.
Response time: ≤100 mS (10~90% of input)
Isolation: AC 2.0 KV between input and output
Output range: Voltage output: 0~5V / 0~10V / 1~5V
                     Current output:0~10mA / 0~20mA / 4~20mA
Output capability: Voltage: 0~10V: ≥ 1000Ω ;
                     Current: 4(0)~20mA: ≤ 520Ω max
Scaling: [AOLS] Output High setting:-19999~99999
                     [AOHS] Output Low setting:-19999~99999
Digital fine adjust: [AOZRO] adjust range: -1999~1999
                     [AOSPN] adjust range: -1999~1999

RS485 Communication (Option)

Protocol: RS485 Modbus RTU mode
Baud rate: 1200/2400/4800/9600/19200
Data bits: 8 bits
Stop bits: 1 or 2
Address: 1~255
Distance: 1200M max
Terminate resistor: 150Ω

Power Supply

Range: AC 115/230V,±15%,50/60Hz
Excitation power: DC12V,40mA
Power consumption: ≤ 7.0VA
Memory storage: EEPROM

Safety

Isolation: AC 2.0KV, 1minute, Between Power/ Input / Output / Case
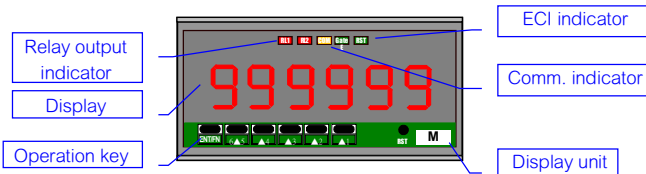Insulation resistance: ≥100MΩ at 500Vdc，Between Power/ Input / Output

Environmental characteristics

Operating temp.:   0~60˚C
Humidity rating: 20~95 %RH, Non-condensing
Temp. coefficient: ≤ 100 PPM/˚C
Storage temp.:   -10~70 ˚C
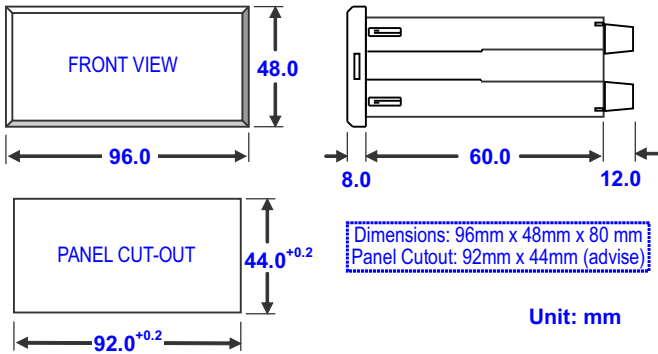IP Enclosure: Front panel: IEC 549(IP54); Housing: IP20

Mechanical characteristics

Dimensions: 96mm(W) x 48mm(H) x 80mm(L)
Panel cutout: 92mm(W) x 44mm(H)
Case material: ABS (with fire-retardant)
Mounting: Panel mounting
Terminal block: Plastic NYLON 66 (UL 94V-0);
                   10A/300Vac, M2.6, 1.3mm^2~2.0mm^2 (16~22AWG)
Weight: 310g

■ Front Panel

Relay output indicator
Display
Operation key
ECI indicator
Comm. indicator
Display unit

■ Dimension

FRONT VIEW   48.0
96.0
PANEL CUT-OUT   44.0$^{+0.2}$
92.0$^{+0.2}$
8.0   60.0   12.0

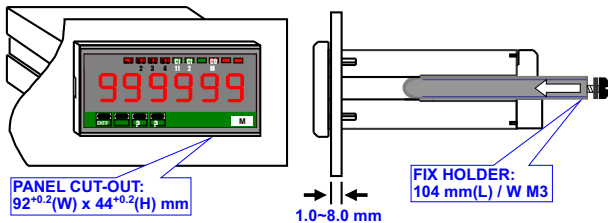Dimensions: 96mm x 48mm x 80 mm
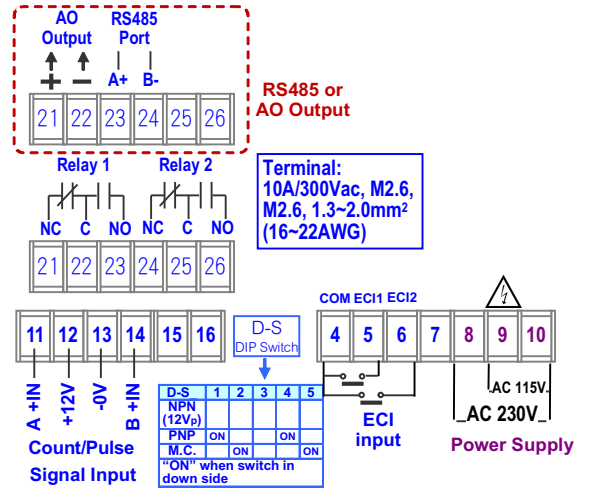Panel Cutout: 92mm x 44mm (advise)

Unit: mm

■ Installation

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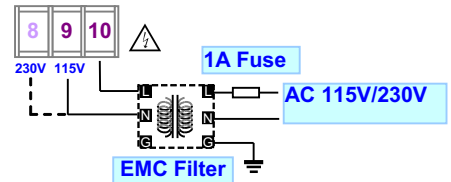

PANEL CUT-OUT:
92$^{+0.2}$(W) x 44$^{+0.2}$(H) mm
FIX HOLDER:
104 mm(L) / W M3
1.0~8.0 mm

■ Connection Diagram

AO Output   RS485 Port
+   −   A+   B-
21   22   23   24   25   26

RS485 or AO Output

Relay 1   Relay 2
NC   C   NO   NC   C   NO
21   22   23   24   25   26

Terminal:
10A/300Vac, M2.6, M2.6, 1.3~2.0mm^2 (16~22AWG)

11   12   13   14   15   16
A +IN   +12V   -0V   B +IN

Count/Pulse Signal Input

D-S DIP Switch

D-S	1	2	3	4	5
NPN (12Vp)					
PNP	ON			ON	
M.C.		ON			ON

"ON" when switch in down side

COM ECI1 ECI2
4   5   6   7   8   9   10
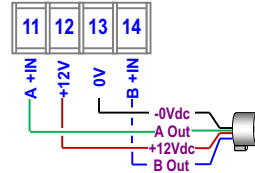ECI input
AC 115V
AC 230V
Power Supply

⚠ 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
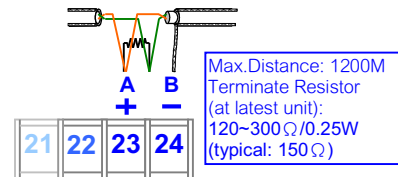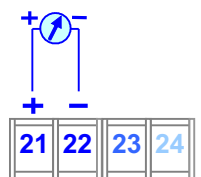
Power Supply

8   9   10
230V   115V
1A Fuse
AC 115V/230V
L   L
N   N
G   G
EMC Filter

Sensor Input

11   12   13   14
A +IN   +12V   0V   B +IN
-0Vdc
A Out
+12Vdc
B Out

RS485 Communication Port

A   B
+   −
21   22   23   24

Max.Distance: 1200M
Terminate Resistor (at latest unit):
120~300Ω/0.25W
(typical: 150Ω)

Analog Output

+   −
+   −
21   22   23   24

Relay action mode

Optional 2 relay output for N/R/C/E/F/Q, H/L 8 types of control mode.
Function details as below

Output mode setting		Input mode			Operation after count completion
		Up	Down	Up/Down-counting	
Output mode setting	N				The outputs and present value display are held until reset
	C				As soon as the count reaches SV, the present value display returns to the reset start status. Out 1 self-holding output turn OFF after the Out 2 one-shot output time . The Out1 one-shot output time is independent of Out2
	R				The present value display return to the reset start status after the one-shot output time. Out1 self-holding output turns OFF after the Out 2 one shot output time The Out1 one-shot output time is independent of Out 2
	E				The present value display continues to increase/decrease. Out 1 self-holding output turns OFF after the Out 2 one-shot output time The Out1 one-shot output time is independent of Out 2.
	F				The present value display continues to increase/decrease. Out 1 self-holding output turns OFF after the Out 2 one-shot output time. The Out1 one-shot output time is independent of Out2.
	Q				The present value continues to increase/ decrease for the one-shot output time, but returns to the reset start status after the one shot output time has elapsed. Out 1 self-holding output turns OFF after the Out 2 one-shot output time. The Out1 one-shot output time is independent of Out2.

		Input	Operation after count completion
		phase different up or down	
Output	L		The display continues to increase / decrease until the overflow or underflow value is reached. Out1 is held while the present value is less than or equal to set value 1. Out 2 is held while the present is greater than or equal to set value 2.
	H		The display continues to increase / decrease until the overflow or underflow value is reached. Out1 is held while the present value is greater than or equal to set value 1. Out 2 is held while the present is greater than or equal to set value 2.