

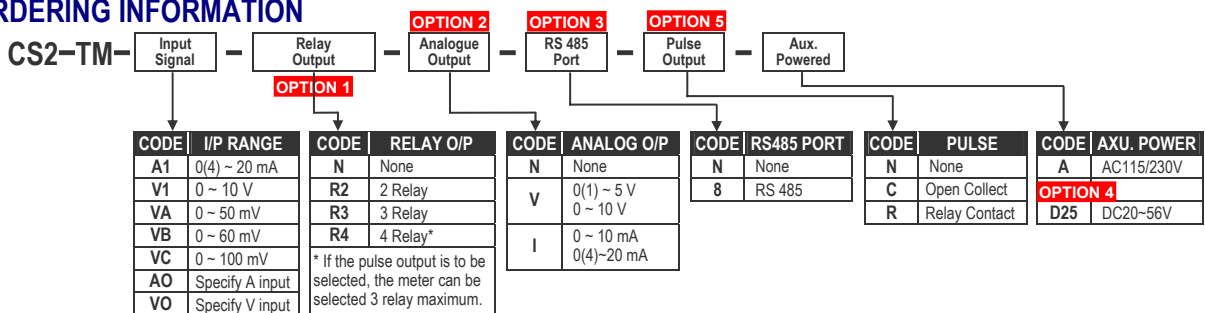
## FEATURE

- Measuring 0~50/60/100mVdc from shunt or 0~10V/0(4)~20mA from flow-meter and other application
- Dual display screen for totalizer & batch or PV(immediate value) programmable, so that it's easier to be a batch controller
- Accuracy of PV(immediate value):  $\pm 0.04\%$ ; Display range: -19999~29999
- **4 banks pre-set for all relay functions relative 4 difference scaling, and selectable by 3 External Control Inputs(E.C.I.) Or front key**
- **4 relay for immediate value Hi / Lo energized with Start Delay / Hysteresis / Energized & De-energized Delay / Relay Energized Hold..... functions and totalizer & batch N / C / R mode programmable**
- **3 external control inputs for PV Hold / Reset for Maximum or Minimum Hold / Reset for Relay latching / DI / Reset & Gate for Totalizer and(or) Batch....**
- **Pulse, Analogue output and RS 485 communication port in option.**



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## ORDERING INFORMATION



## SPECIFICATION

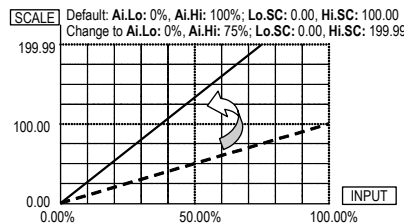
Measuring Range	Input Impedance	Measuring Range	Input Impedance
Voltage	0 ~ 10 V	Current	0(4)~20 mA
	0 ~ 100 mV		250 ohm
	$\geq 1M$ ohm		$\geq 1M$ ohm

- Calibration: Digital calibration by front key
- Accuracy:  $\leq \pm 0.04\%$  of FS
- Response time:  $\leq 100$  msec.(when the AvG = "1")
- Operating
- Programming: 4 keys for Enter(Function) / Shift(Escape) / Up / Down  
Up key: increase the number / back to previous function  
Down key: decreases the number / go to next function  
Shift/Escape key: moves the flash digit position / Return back to upper level  
Enter/Fun key: enter the parameters you set or function select
- Security function: 4 digits password
- Lock function: 3 function group lock level for None/User Level/ Engineer Level / All(Engineer Level & User Level)
- Display functions
- LED: 7 segments 0.28" red high-brightness LED  
Relay energized indication: square red LED  
External control input: square green LED  
RS 485 communication: square red LED  
Max. / Mini. Hold: square red LED
- Display Range: Immediate Value: 4 1/2 digital; -19999~29999  
**Batch: 6 digital; 0~999999**  
**Totalizer: 10 digits; 0~999999999**
- Low Cut function: Low.cut :Settable range: -19999~19999 counts
- Average function: AvG :Settable range: 1~99 times
- Moving Average function: M.AvG :Settable range: 1~10 times
- Digital Filter function: D.FILT : Settable range: 0(None)/1~99 times
- Over range indication: ovFL, when input is over 120% of input range Hi  
Totalizer / Batch: Showing ovFL or re-counting prog.
- Under range indication: -ovFL, when input is under -20% of input range Lo
- Display functions: **PV Hold / Maximum or Minimum Hold / Write to down screen display by RS485 command**
- Down screen selection: **Down screen can be programmed to show Batch(6 digits) or Immediate Value(5 digits)**

\*\* Totalizer increase is always according to PV(immediate Value), Even the display function has been set PV Hold, Max. / Mini. Hold or RS485.

### Scaling

- Input range function: Ai.Lo: 0~100% of input; Ai.Hi: 0~100% of input
- Scaling function for PV: Hi.SC(High scale): -19999~29999  
Lo.SC(Low scale): -19999~29999

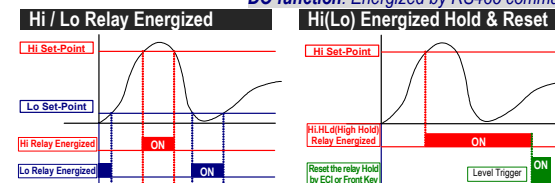


- Decimal point: Immediate Value(PV): Settable from 00000~0.0000  
**Totalizer & Batch: Settable from 00000~0.0000, and always less than immediate Value (PV)**

- Time unit for totalizer & batch: Second / Minute / Hour / Day selectable

### Control functions

- Control relay: 2 Relays SPDT, 5A/230Vac, 10A/115V  
2 Relays SPST, 1A/230Vac, 3A/115V
- Bank Function: **4 banks pre-set for Hi/Lo scale, dp, set-points., and selectable by E.C.I. or Front key**
- Relay Output: Energized levels compare with set-points:  
- Immediate Value(PV): **Hi / Lo / Hi.Hold / Lo Hold / DO / Go Programmable**  
**DO function: Energized by RS485 command**

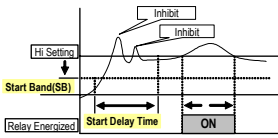


- Functions: Start delay / Energized & De-energized delay / Hysteresis  
Start band: 0~9999 counts  
Start delay time: 0:00.0~9(Minutes):59.9(Second)  
**Energized delay time: 9(Minutes):59.9(Second)**  
**De-energized delay time: 9(Minutes):59.9(Second)**  
Hysteresis: 0~5000 counts

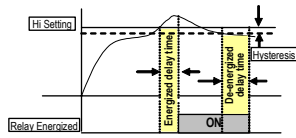
# 10 DIGITAL TOTALIZER (ANALOGUE INPUT)

**CS2-TM**<sub>(1.0)</sub>

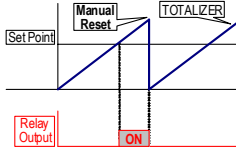
## Start Delay



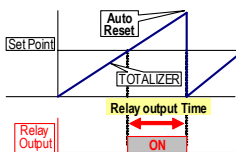
## Energized / De-energized Delay & Hysteresis



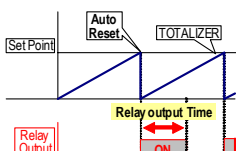
**Totalizer / Batch:** **Totalizer/ Batch & N/R/C mode selectable**  
**Energized time: 0:00.0~9(Minutes):59.0(Sec.)**



**N MODE:**  
 When the condition of Set Point is met:  
 1. The relay will be energized;  
 2. The totalizer will run as same as usual; until manual reset by front key or by rear terminal, the totalizer will be reseted to "0" and the relay will be de-energized.



**R MODE:**  
 When the condition of Set Point is met:  
 1. The relay will be energized; until the time is over Relay output time (rY.1(or 2).ot).  
 2. The totalizer will run as same as usual; until the time is over Relay output time (rY.1(or 2).ot), The totalizer will be reseted to "0".



**C MODE:**  
 When the condition of Set Point is met:  
 1. The relay will be energized; until the time is over Relay output time (rY.1(or 2).ot).  
 2. The totalizer will be reseted to "0", then counts-up from "0".

## External Control Input

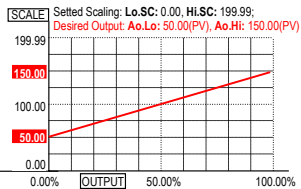
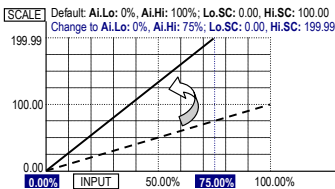
- Input mode:** 3 ECI points, Contact or open collect input
- Functions:** **PV Hold / Reset for Max or Mini. Hold / DI / Reset for Relay latching / Reset for Totalizer and/or Batch / Gate for Totalizer and/or Batch / Key Lock**  
 Debouncing time: 5~255 x 8mseconds

## Analogue output(option)

- Accuracy:**  $\pm 0.1\%$  of F.S.; 16 bits AD converter
- Ripple:**  $\pm 0.1\%$  of F.S.
- Response time:**  $\leq 200$  msec. (10~90% of input)
- Isolation:** AC 2.0 KV between input and output
- Output range:** Specify Voltage or Current  
 Voltage: 0~5V / 0~10V / 1~5V selectable  
 Current: 0~10mA / 0~20mA / 4~20mA selectable
- Output Capability:** **Voltage: 0~10V;  $\geq 1000\Omega$ ;**  
**Current: 0(4)~20mA;  $\leq 600\Omega$  max**

## Functions:

- Ao.Hi(output high):** PV Hi vs. output range Hi
- Ao.Lo(output range Low):** PV Low vs. output range Lo
- Ao.LMt(output High Limit):** 0.00~110.00% of output High



## Pulse output(option)

- Output mode:** Open collect: 30V/60mA or Relay: DC24V/1A
- Output range:** **Relative to totalizer count: 1 Pulse/1~999Count**  
 Maximum frequency: 1000Hz; duty cycle 50%

## RS 485 communication(optional)

- Protocol:** Modbus RTU mode  
 Baud rate: 1200/2400/4800/9600/19200/38400  
 Data bits: 7 or 8 bit  
 Parity: Even, odd or none (with 1 or 2 stop bit)  
 Device no: 1 ~ 255
- Write function:** Write value to down screen from PC's RS485 command

## Power

- Excitation Supply:** DC 24V/30mA maximum
- Power Supply:** AC 115/230V  $\pm 15\%$ , 50/60Hz  
 Optional: DC20~56V

- Power consumption:** 5.0VA
- Back up memory:** By EEPROM
- Environmental**
- Operating temperature:** 0~60 °C
- Temperature coefficient:**  $\leq 100$  PPM/°C
- Storage temperature:** -10~70 °C
- Enclosure:** Front panel: IEC 549 (IP54)

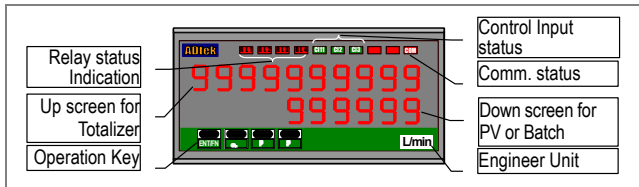
## Electrical safety

- Dielectric Strength:** AC 2.0 KV for 1 min  
 Between Power / Input / Output / Case
- Insulation resistance:**  $\geq 100M$  ohm at 500Vdc
- Isolation:** Between Power / Input / Output
- EMC:** EN61326
- Safety:** EN61010

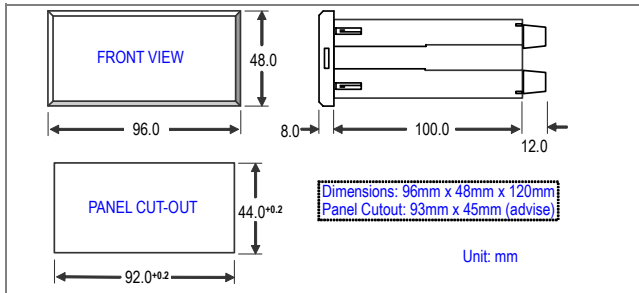
## Mechanical

- Dimensions:** 96mm(W) x 48mm(H) x 120mm(D)
- Panel cutout:** 92mm(W) x 44mm(H)
- Case Material:** ABS fire-protection (UL 94V-0)
- Mounting:** Panel flush mounting
- Terminal block:** Plastic NYLON 66 (UL 94V-0)  
 10A/300Vac, M2.6, 16~22AWG
- Weight:** 550g

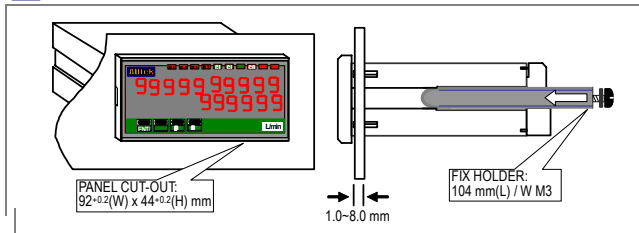
## FRONT PANEL



## DIMENSIONS



## INSTALLATION



## CONNECTION DIAGRAM

