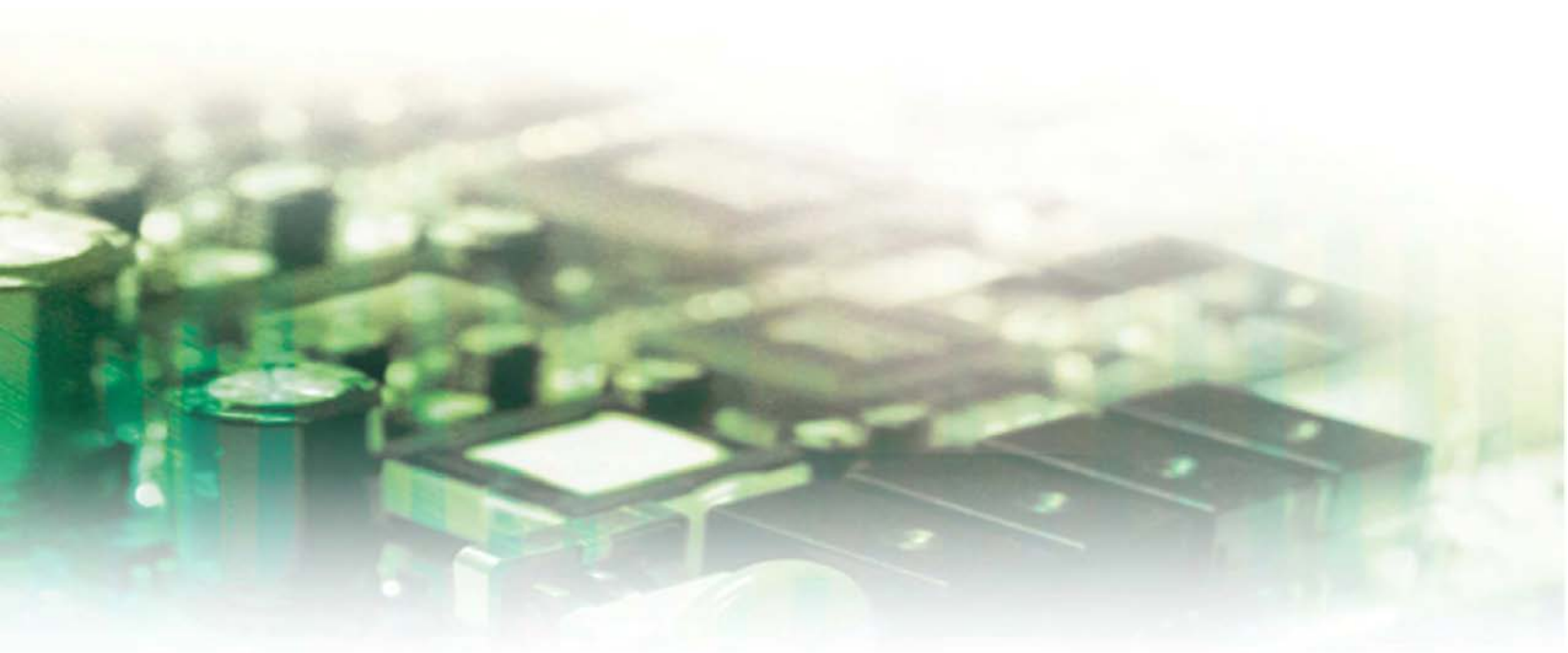




## MICROPROCESSOR BASED COUNTER



# Product Introduction

## FEATURE

The microprocessor based counter is a fast, accurate and user friendly product that can satisfy the user through its multi-function feature. This in turn decreases the need for stock keeping and lowers costs, resulting in increased competitiveness.

The counter is suitable in a wide range of application, e.g. batch counter, totalizer, length measurement, positioning control, chronometer, tachometer, flowmeter, etc. User need only to configure the counter according to the required function.

The counter possesses most of the options available in the market, e.g. memory retention, 100~240VAC power supply, 2 sets of relay output, adjustable action delay for the relay outputs (0.1 ~ 99999.9s), provisions for 2 signal inputs, sampling frequency of maximum 10KHz, a set of DC12V power supply. RS485 communication port (ModBus), counter parameters settings, scaling settings etc.

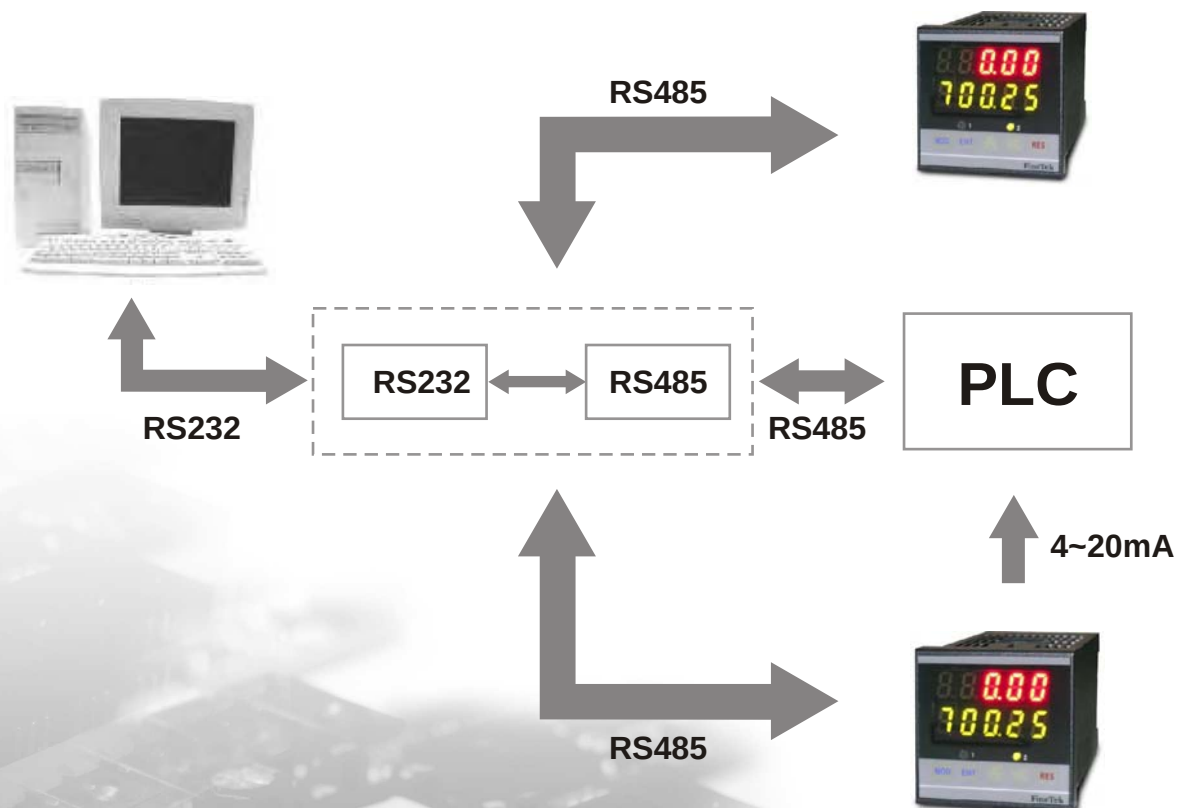
## INPUT SIGNAL

- RLC sensor
- PNP open collector input
- Emitter follower
- NPN open collector input
- CMOS type
- TTL type
- Contact type input (Count on short)
- Photocouplers Solid-state type input (Count on ON)
- Contact type input (Count on open)
- Photocouplers Solid-state type input (Count on OFF)

## APPLICATIONS

Food Industry, Pulp & Paper Industry, Dyeing, Packaging, Publication, Textile, Pharmaceutical, Tooling, Waste water treatment, Petrochemical, Manufacturing Process, etc.

## COUNTER NETWORK CONNECTIONS



# PC-13□□ Dip-Type Counter



PC-1320



PC-1340

## WORKING PRINCIPLE:

When the counter value reaches the pre-set value, it will output a relay action. (The output duration is adjustable from 0.5~25s  $\pm 10\%$  through a potentiometer in the settings window)

## PRODUCT APPLICATION:

Food industry, Pulp & paper, Dyeing, Packaging, Publication, Textile, etc.

## FEATURES:

- Memory backup
- Switching Power Supply 85~265Vac, 50/60Hz
- Push button Setpoints input.

## SPECIFICATIONS

|                           |                                                                                                                                                                    |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Supply              | 85~265Vac, 50/60Hz                                                                                                                                                 |
| Power Supply for sensor   | DC12V, 70mA                                                                                                                                                        |
| Power Consumption         | Max. 7W                                                                                                                                                            |
| Operating Temperature     | 0 ~ 55°C                                                                                                                                                           |
| Storage Temperature       | -10 ~ 70°C (20 ~ 85%RH)                                                                                                                                            |
| Display                   | PC-1320 : 0.31" 7 segment 4-digits<br>PC-1340 : 0.36" 7 segment 6-digits                                                                                           |
| Buttons                   | 1 x reset button                                                                                                                                                   |
| Counting Speed            | 10K cps(with Solid-state input only)<br>30 cps(with contact input)                                                                                                 |
| Counting range            | PC-1220 : 99999<br>PC-1240 : 999999                                                                                                                                |
| Input method (Switchable) | <u>No-Voltage input</u><br>ON impedance: max. 1KW<br>OFF impedance: min. 100KW<br><u>Voltage input</u><br>High (logic) level: 4~24Vdc<br>Low (logic) level: 0~2Vdc |
| Pre-set Point             | 1 point                                                                                                                                                            |
| Contact Output Delay      | 1 Relay Output (The action duration is adjustable from 0.5~25s $\pm 10\%$ through a potentiometer in the settings window)                                          |
| Relay Output              | SPST-NO, 3A at 250Vac/30Vdc (resistive load)                                                                                                                       |
| Memory backup             | EEPROM<br>(overwrites: 100,000 times min.)<br>That can store data for 10 years min.                                                                                |
| Reset                     | Manual, Automatic, External terminals.                                                                                                                             |

## ORDERING INFORMATION:

PC - 13□□ - □□

|                |                                                  |
|----------------|--------------------------------------------------|
| Dimension      | 20---48X48<br>40---72X72                         |
| Power Supply   | S---85~265 Vac, 50/60Hz                          |
| Data Retention | 0---No Data Retention<br>1---With Data Retention |



PC-6340

### WORKING PRINCIPLE

User defined sampling timing (1-99s) to acquire sampling pulse signal. Signal is processed to display per second (per minute / per hour) instantaneous flow rate in 4 ~ 20mA signal. When flow rate exceeds pre-set value, relay 1 actions. When total flow reaches pre-set value, relay 2 actions (Relay action time from 1 ~ 99999.9s). Includes a linear flow rate signal output 4~20mA.

### PRODUCT APPLICATION

Petrochemical, Food, Feed, Water Treatment, Dyeing etc.

### FEATURES

- Switching Power Supply 85~265Vac, 50/60Hz
- Counting Speed: 5K cps (Solid-state), 30 cps (Contact)
- Decimal Point Setting
- Prescaling Value
- 2 x designated preset-points
- Adjustable output delay timing
- Sampling Timing 1 ~ 99s
- Instantaneous Flow rate units (per second / per minute / per hour)
- Analog output 4 ~ 20mA

### SPECIFICATIONS

|                                  |                                                                                                                                                                    |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power Supply</b>              | 85~265Vac, 50/60Hz                                                                                                                                                 |
| <b>Power Supply for sensor</b>   | DC12V, 70mA                                                                                                                                                        |
| <b>Power Consumption</b>         | Max. 7W                                                                                                                                                            |
| <b>Operating Temperature</b>     | 0 ~ 55°C                                                                                                                                                           |
| <b>Storage Temperature</b>       | -10 ~ 70°C (20 ~ 85%RH)                                                                                                                                            |
| <b>Display</b>                   | 0.36" 7 segment 6-digits                                                                                                                                           |
| <b>Counting Speed</b>            | 10K cps(with Solid-state input only) ;<br>30 cps(with contact input)                                                                                               |
| <b>Counting range</b>            | 1~99s                                                                                                                                                              |
| <b>Input method (Switchable)</b> | <u>No-Voltage input</u><br>ON impedance: max. 1KW<br>OFF impedance: min. 100KW<br><u>Voltage input</u><br>High (logic) level: 4~24Vdc<br>Low (logic) level: 0~2Vdc |
| <b>Decimal Point Setting</b>     | 0.001 ~ 999.999                                                                                                                                                    |
| <b>Sampling Time</b>             | 1~99s                                                                                                                                                              |
| <b>Flow Rate Units</b>           | Flow rate/s, Flow rate/min, Flow rate/hr                                                                                                                           |
| <b>Pre-set Point</b>             | 2 points                                                                                                                                                           |
| <b>Contact Output Delay</b>      | 2 sets Relay Output (Relay action timing adjustable 0.1 ~ 99999.9s)                                                                                                |
| <b>Relay Output</b>              | SPST-NOx2, 3A at 250Vac/30Vdc (resistive load)                                                                                                                     |
| <b>Analog Output</b>             | 4~20mA                                                                                                                                                             |
| <b>Communication Interface</b>   | RS485 Transmission speed 1200-57600bps selectable                                                                                                                  |
| <b>Reset</b>                     | Manual, Automatic, External terminals.                                                                                                                             |

### ORDERING INFORMATION:

PC - 6340 - □ □

|                |                                             |                                         |
|----------------|---------------------------------------------|-----------------------------------------|
| Power Supply   | S---85~265 Vac, 50/60Hz                     | ▲                                       |
| Data Retention | 0---No Data Retention<br>1---Data Retention | 2---RS485<br>3---Data Retention & RS485 |

# PC-73 Multi-function Programmable Counter



PC-7320



PC-7340



PC-7330

## WORKING PRINCIPLE

Principle: Includes 4 different functions for Counter, Batch-Counter, Chronometer and Tachometer

## PRODUCT APPLICATION

Food, Feed, Dyeing, Pharmaceutical, Injection Moulding, Various Machinery, Electrical Cabling and wiring, etc.

## FEATURES

- Switching Power Supply 85~265Vac, 50/60Hz
- Counting Speed: 10K cps (Solid-state), 30 cps (Contact)
- Decimal Point Setting
- Timing Parameters 99hrs 59mins
- Timer display (user set h/min, min/s or s/0.1s)
- Decimal Point Settings
- Prescaling Value
- 2 x designated preset-points (pre-set1: batch, Pre-set2: count)
- Adjustable output delay timing
- RS485 communication interface (ModBus)
- Sampling Timing 1 ~ 99s
- Speed Units: Speed/s, Speed/min, Speed/hr

## ORDERING INFORMATION:

PC-73□□-□□□

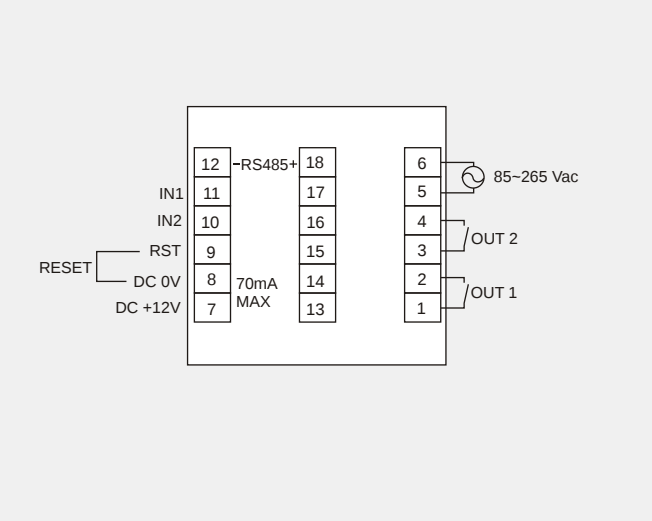
|                |                                                                                                                                          |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Dimension      | 20---48X48<br>30---96X48<br>40---72X72                                                                                                   |
| Power Supply   | S---85~265 Vac, 50/60Hz<br>F---18~36Vdc (only PC-7320)                                                                                   |
| Function       | 1---Counter(Pre Setx1)<br>2---Counter(Pre Setx2)<br>3---Tachometer<br>4---Batch-Counter<br>5---Chronometer<br>6---Multi-function Counter |
| Data Retention | 0---No Data Retention<br>1---Data Retention<br>2---RS485<br>3---Data Retention & RS485                                                   |

## SPECIFICATIONS

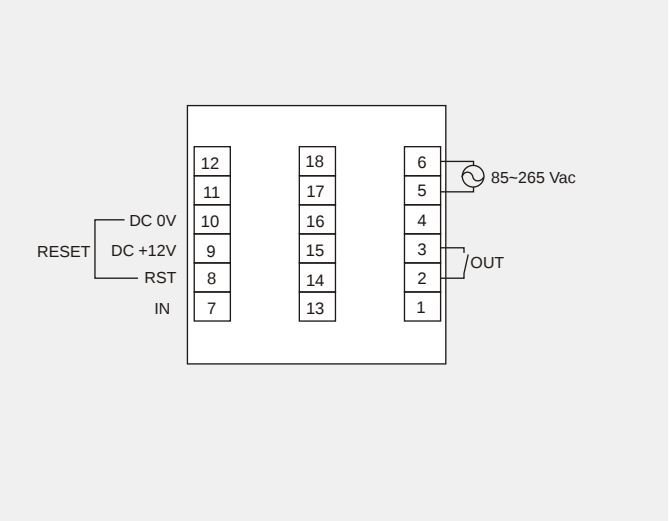
|                           |                                                                                                                                                               |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Supply              | 85~265Vac, 50/60Hz                                                                                                                                            |
| Power Supply for sensor   | DC12V, 70mA                                                                                                                                                   |
| Power Consumption         | Max. 7W                                                                                                                                                       |
| Operating Temperature     | 0 ~ 55°C                                                                                                                                                      |
| Storage Temperature       | -10 ~ 70°C (20 ~ 85%RH)                                                                                                                                       |
| Display                   | PC-7320 : 0.31" 7 segment 5-digits<br>PC-7330 : Upper row 0.39", Lower row 0.28" 7 segment 6-digits<br>PC-7340 : 0.36" 7 segment 6-digits                     |
| Buttons                   | 5 buttons                                                                                                                                                     |
| Counting Mode             | up, down, AB Phase                                                                                                                                            |
| Counting Speed            | 10K cps(with Solid-state input only) ;<br>30 cps(with contact input)                                                                                          |
| Timing Mode               | 1 <sup>st</sup> mode : IN1, first clock starts timer<br>IN1, second clock stops timer<br>2 <sup>nd</sup> mode : IN1 clock start timer<br>IN2 clock stop timer |
| Counting range            | PC-7320 : -9999 ~ 99999<br>PC-7330 : -99999 ~ 999999<br>PC-7340 : -99999 ~ 999999                                                                             |
| Input method (Switchable) | No-Voltage input<br>ON impedance: max. 1KW<br>OFF impedance: min. 100KW<br>Voltage input<br>High (logic) level: 4~24Vdc<br>Low (logic) level: 0~2Vdc          |
| Decimal Point Setting     | PC-7320: Maximum 3 digits<br>PC-7330: Maximum 4 digits<br>PC-7340: Maximum 4 digits                                                                           |
| Prescaling Value          | PC-7320 : 0.001 ~ 99.999<br>PC-7330 : 0.001 ~ 999.999<br>PC-7340 : 0.001 ~ 999.999                                                                            |
| Pre-set Value             | 2 points: Pre-set1: batch<br>Pre-set2: Individual count                                                                                                       |
| Contact Output Delay      | 2 sets Relay Output<br>(Relay action timing adjustable)<br>PC-7320 : 0.1 ~ 9999.9s<br>PC-7330 : 0.1 ~ 99999.9s<br>PC-7340 : 0.1 ~ 99999.9s                    |
| Relay Output              | SPST-NOx2, 3A at 250Vac/30Vdc<br>(resistive load)                                                                                                             |
| Timer Display             | User selectable h/min, min/s, 0.1s/s                                                                                                                          |
| Memory backup             | Optional                                                                                                                                                      |
| Communication Interface   | RS485 Transmission<br>speed 1200-57600bps selectable                                                                                                          |
| Suitable Sensors          | Limit switch, Proximity switch, Optical switch, Conductive switch, Encoder                                                                                    |
| Reset                     | Manual, Automatic, External terminals.                                                                                                                        |

# Wiring Diagram

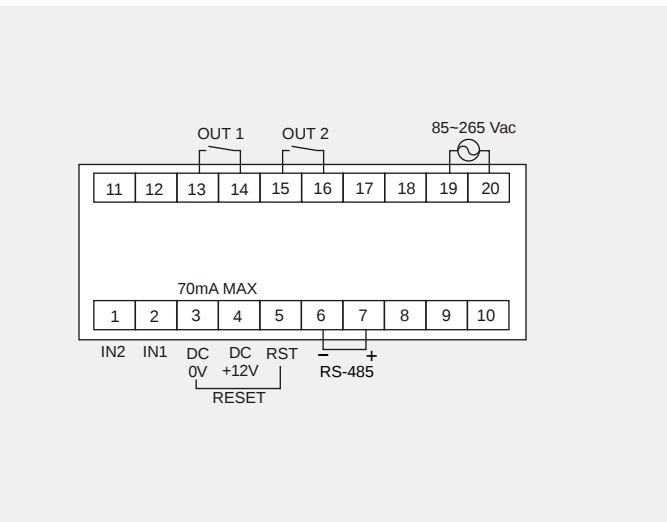
PC-7320



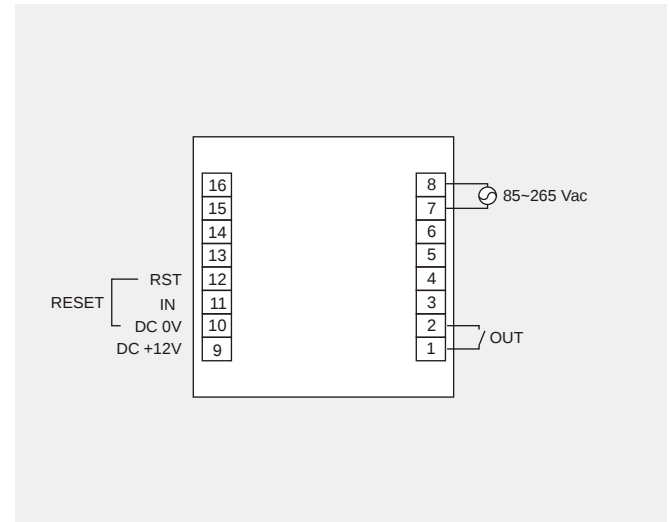
PC-1320



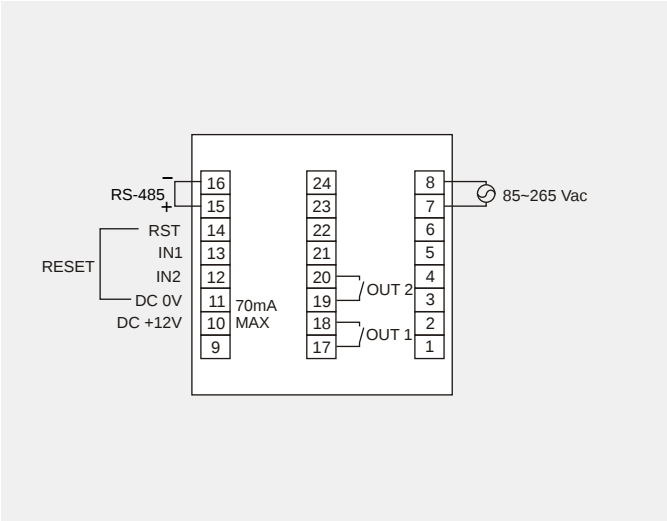
PC-7330



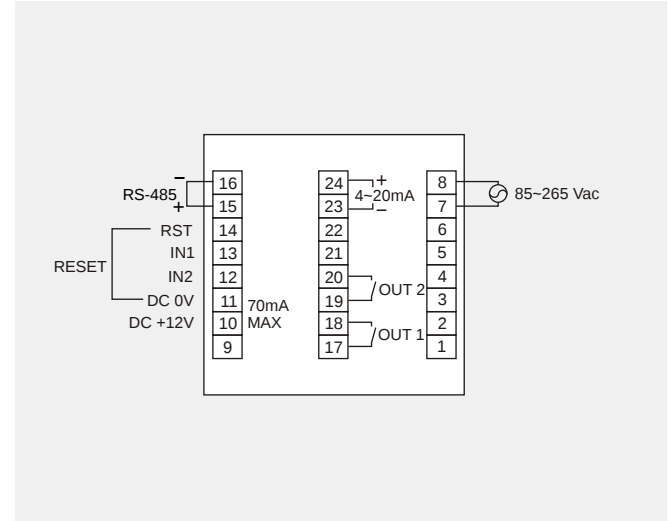
PC-1340



PC-7340



PC-6340



# Input Modes

| Function | Diagrams | Description                                                                                                                                                                                                         |
|----------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UP       |          | (1) IN1 input (Increment)<br>(2) Display                                                                                                                                                                            |
| Dn       |          | (1) IN1 input (Decrement)<br>(2) Display                                                                                                                                                                            |
| Updn     |          | (1) Input IN1, count in the direction of the cycle<br>(2) Input IN2, count in the opposite direction from the cycle<br>(3) Display (0→Pre2)-channel up/down counter<br>(4) Display (Pre2→0)-channel up/down counter |
| UPUP     |          | (1) Input IN1, count in the direction of the cycle<br>(2) Input IN2, count in the direction of the cycle<br>(3) Display (0→Pre2)-channel up/down counter<br>(4) Display (Pre2→0)-channel up/down counter            |
| Dir      |          | (1) Input IN1 input pulses<br>(2) Input IN2 reversal of counting direction<br>(3) Display (0→Pre2)-channel up/down counter<br>(4) Display (Pre2→0)-channel up/down counter                                          |
| Ph       |          | (1) Input IN1 (signals 90° out of phase) count on an edge<br>(2) Input IN2 reversal of counting direction if IN2 ahead of IN1<br>(3) Display (0→Pre2)<br>(4) Display (Pre2→0)                                       |

## Speed / Line Speed measurement

A conveyer belt which the radius of gyration for the pulley is 0.5m, a sensor on the pulley outputs one pulse per revolution.

Hence  $PPr = 1$  pulse/revolution

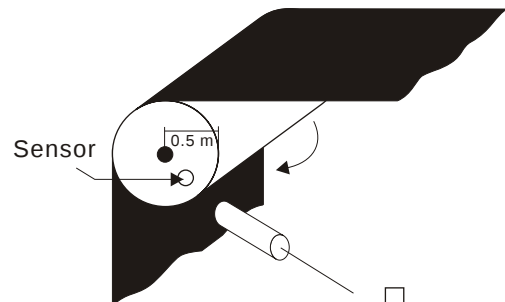
$rP\Box$ :

- 1: rotational speed per second
- 60: rotational speed per minute
- 3600: rotational speed per hour

$$PSCL: 2p_r = 2p \cdot (0.5) = p_m$$

TL: Update time of measurement

Tr: Tr must be shorter than TL. Tr is used for check the validity of measurement under TL.



# PC-8340 Preset Counter



Output Mode: N, F, C,R, K, P, Q, S

## PRODUCT APPLICATION

Food, Feed, Dyeing, Pharmaceutical, Injection Moulding, Various Machinery, Electrical Cabling and wiring, etc.

## FEATURES

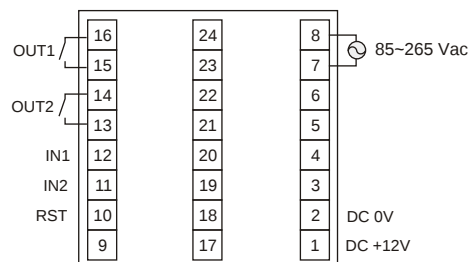
- Switch Power Supply: 85~265Vac, 50/60Hz
- Counting Speed: 10K cps (Solid-state), 30 cps (Contact)
- Counting Mode 8 type
- Output Mode 8 type
- 2nd output is adjustable from 0.12~1.25s

## ORDERING INFORMATION:

PC-83□□-□□

|                |                                                  |
|----------------|--------------------------------------------------|
| Dimension      | 40---72X72                                       |
| Power Supply   | S---85~265 Vac, 50/60Hz                          |
| Data Retention | 0---No Data Retention<br>1---With Data Retention |

## WIRING DIAGRAM:



## SPECIFICATIONS

|                                  |                                                                                                                                                      |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power Supply</b>              | 85~265Vac, 50/60Hz                                                                                                                                   |
| <b>Power Supply for sensor</b>   | DC12V, 70mA                                                                                                                                          |
| <b>Power Consumption</b>         | Max. 7W                                                                                                                                              |
| <b>Operating Temperature</b>     | 0 ~ 55°C                                                                                                                                             |
| <b>Storage Temperature</b>       | -10 ~ 70°C (20 ~ 85%RH)                                                                                                                              |
| <b>Display</b>                   | 0.36" 7'segment 6-digits                                                                                                                             |
| <b>Buttons</b>                   | 9 buttons                                                                                                                                            |
| <b>Counting Mode</b>             | UP, dn, UPdn-A, UPdn-b, UPdn-c, UPdn-d, UPdn-E, UPdn-F                                                                                               |
| <b>Output Mode</b>               | N, F, C,R, K, P, Q, S                                                                                                                                |
| <b>Counting Speed</b>            | 10K cps(with Solid-state input only)                                                                                                                 |
| <b>Input method (Switchable)</b> | No-Voltage input<br>ON impedance: max. 1KW<br>OFF impedance: min. 100KW<br>Voltage input<br>High (logic) level: 4~24Vdc<br>Low (logic) level: 0~2Vdc |
| <b>Pre-set Point</b>             | 2 points                                                                                                                                             |
| <b>Relay Output</b>              | SPST-NOx2, 3A/250V ac, 3A/30Vdc (resistive load)                                                                                                     |
| <b>Memory backup</b>             | EEPROM<br>(overwrites: 100,000 times min.)<br>That can store data for 10 years min.                                                                  |
| <b>Suitable Sensors</b>          | Limit switch, Proximity switch, Optical switch, Conductive switch, Encoder                                                                           |
| <b>Reset</b>                     | Manual, Automatic, External terminals.                                                                                                               |

# Input mode

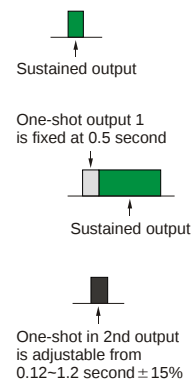
## INPUT OPERATION MODE

| UP mode                                   |                                                                                | DOWN mode                                 |                                                                                          |
|-------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------|
| Input mode                                | Timing charts                                                                  | Input mode                                | Timing charts                                                                            |
| UP input                                  | <p>P1: Count input, P2: Gate input</p> <p>Count value</p> <p>0 0 1 2 3 4 5</p> | DOWN input                                | <p>P1: Count input, P2: Gate input</p> <p>Count value</p> <p>0 n n-1 n-2 n-3 n-4 n-5</p> |
|                                           | <p>P1: Count input, P2: Gate input</p> <p>Count value</p> <p>0 0 1 2 3 4 5</p> |                                           | <p>P1: Count input, P2: Gate input</p> <p>Count value</p> <p>0 n n-1 n-2 n-3 n-4 n-5</p> |
| UP/DOWN-A<br>Command<br>input             | <p>Count value</p> <p>0 0 1 2 3 2 1 2 3</p>                                    | UP/DOWN-D<br>Command<br>input             | <p>Count value</p> <p>0 n n-1 n-2 n-3 n-2 n-1 n-2 n-3</p>                                |
| UP/DOWN-B<br>Individual<br>input          | <p>Count value</p> <p>0 0 1 2 3 2 1 1 2 3</p>                                  | UP/DOWN-E<br>Individual<br>input          | <p>Count value</p> <p>0 n n-1 n-2 n-3 n-2 n-1 n-1 n-2 n-3</p>                            |
| UP/DOWN-C<br>Phase<br>difference<br>input | <p>Count value</p> <p>0 0 1 2 3 2 1 2 3</p>                                    | UP/DOWN-F<br>Phase<br>difference<br>input | <p>Count value</p> <p>0 n n-1 n-2 n-3 n-2 n-1 n-2 n-3</p>                                |

# Output mode

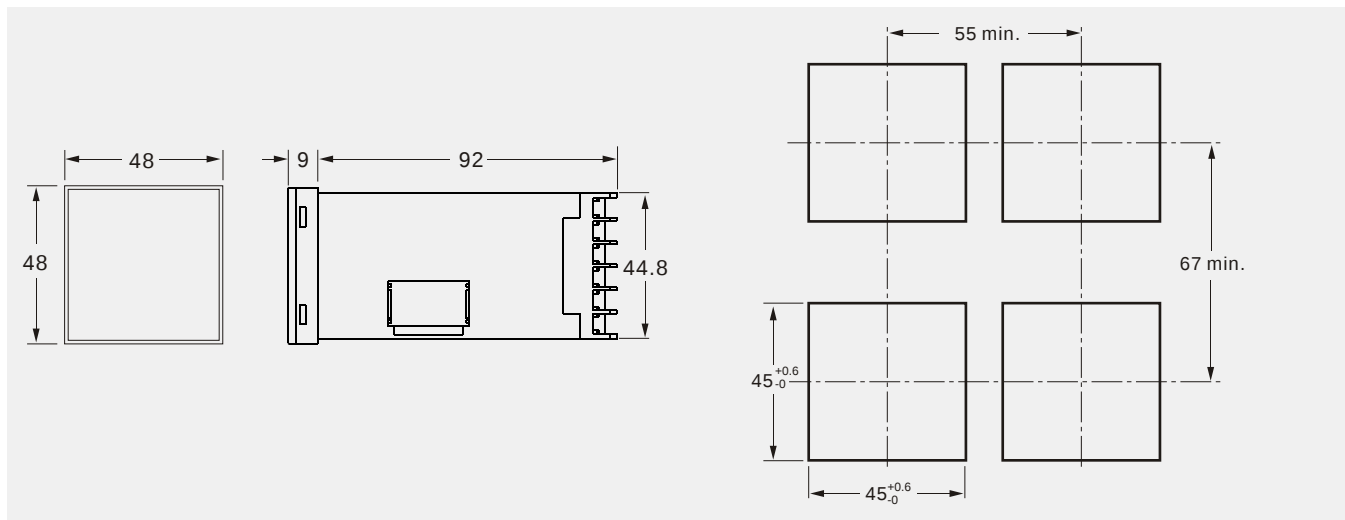
## OUTPUT OPERATION MODE

| Output mode   | UP mode | DOWN mode |
|---------------|---------|-----------|
| <b>Mode N</b> |         |           |
| <b>Mode F</b> |         |           |
| <b>Mode C</b> |         |           |
| <b>Mode R</b> |         |           |
| <b>Mode K</b> |         |           |
| <b>Mode P</b> |         |           |
| <b>Mode Q</b> |         |           |
| <b>Mode S</b> |         |           |

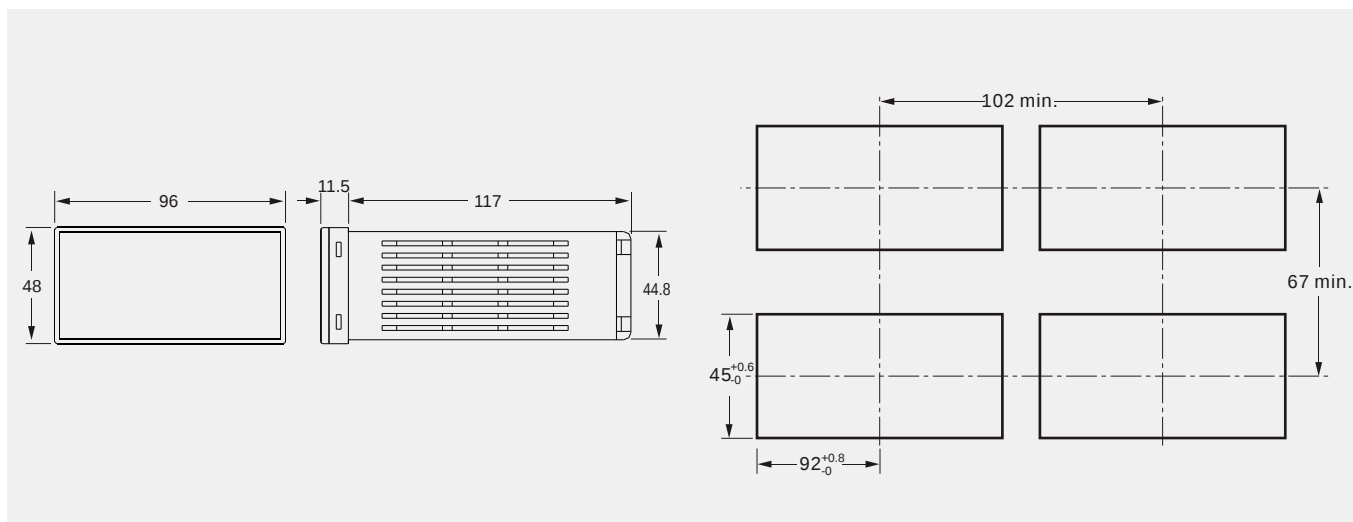


## DIMENSION / PANEL CUTOUT

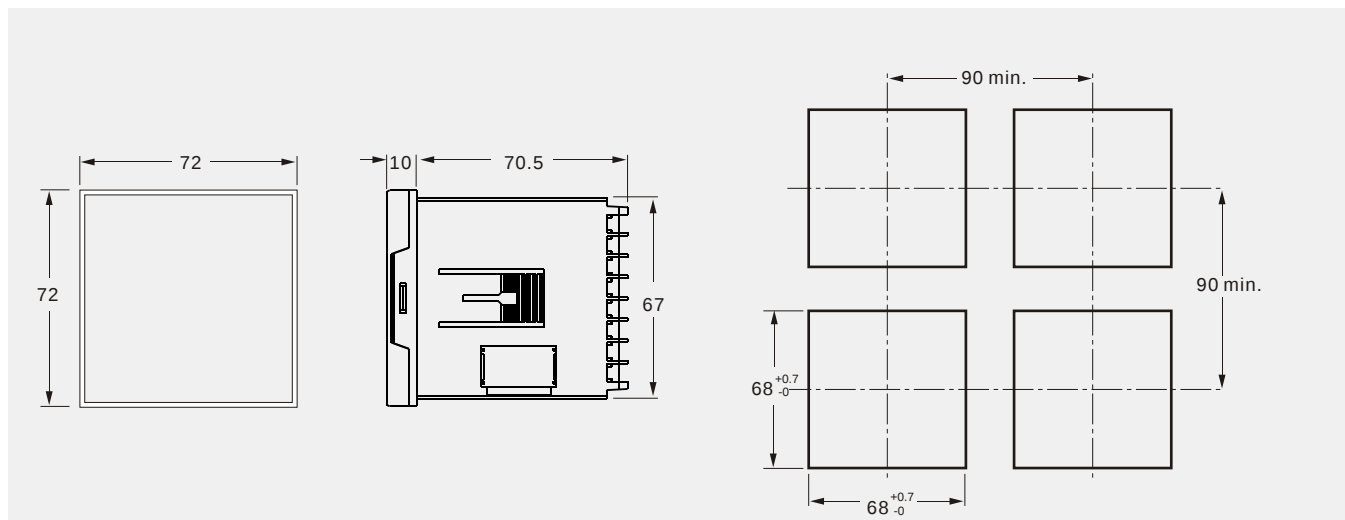
PC-□□20 : 48mm(H) x 48mm(W) x 101mm(D)



PC-□□30 : 96mm(H) x 48mm(W) x 128.5mm(D)



PC-□□40 : 72mm(H) x 72mm(W) x 80.5mm(D)

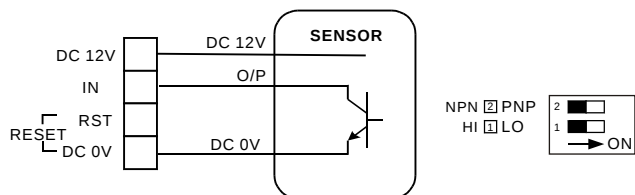


# Sensor Connection / Dip Switch Settings

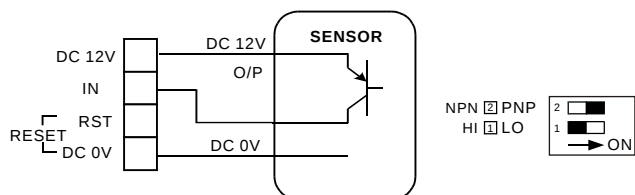
**PC-13** ☐ ☐: Sensors input wiring diagram and DIP switch setting (in the setting window of plastic housing)

PS: ● Black rectangle shows the setting of DIP switch  
● should power off and power on again whenever changing DIP switch setting.

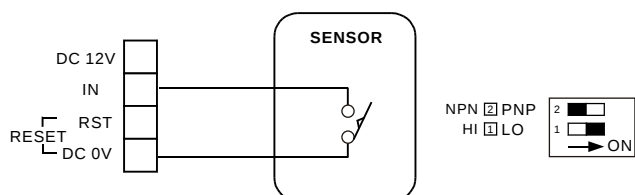
## NPN TYPE



## PNP TYPE



## Contact

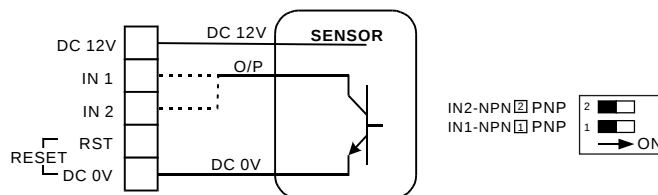


## PC-7320, 7340, 6340, 8340

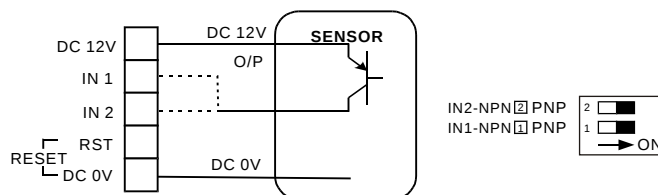
Sensors input wiring diagram and DIP switch setting (in the setting window of plastic housing)

PS: ● Black rectangle shows the setting of DIP switch  
● should power off and power on again whenever changing DIP switch setting.

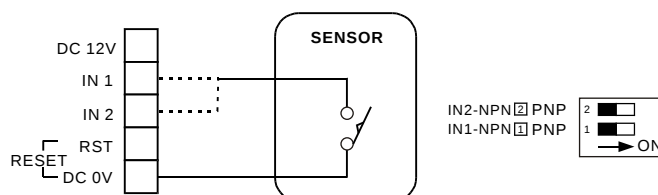
## NPN TYPE



## PNP TYPE



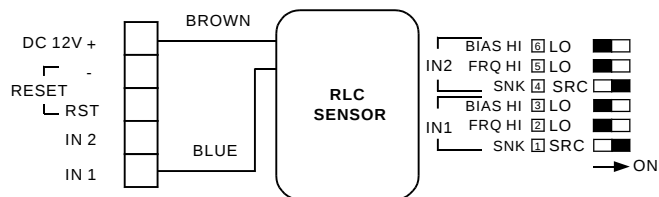
## Contact



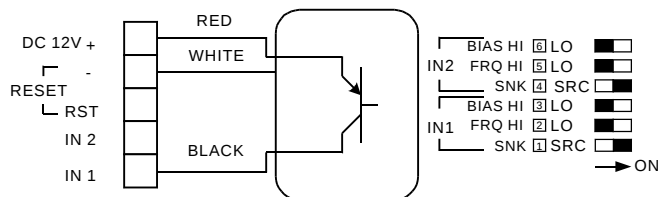
# Sensor Connection / Dip Switch Settings

**PC-7330** Connections to various sensors and dip switch settings  
PS. ● Blackened box indicates position of dip switch

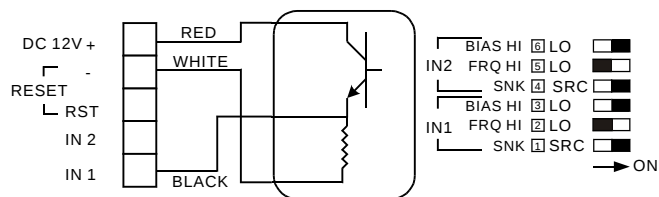
PNP open collector sensor (2-Wire)



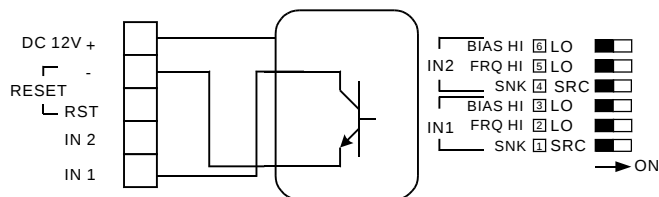
PNP open collector sensor (3-Wire)



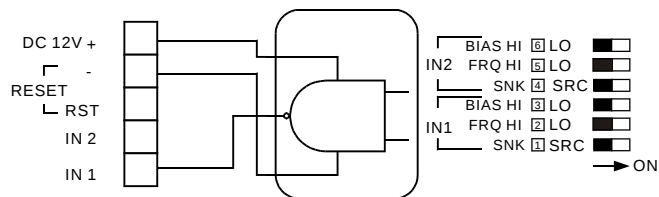
Emitter follower



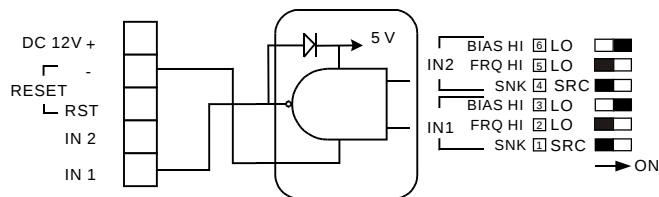
NPN open collector sensor



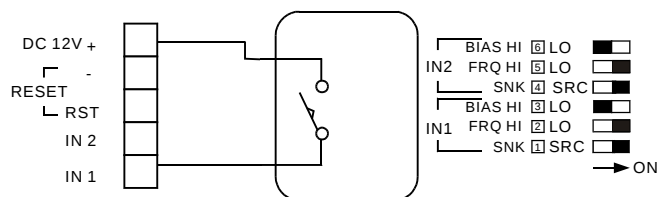
CMOS Type



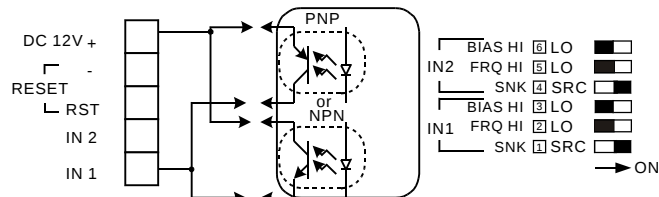
TTL Type



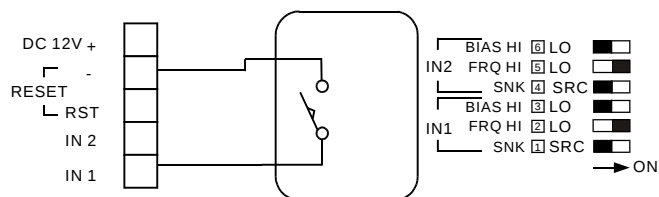
Contact Input Type (Count on short)



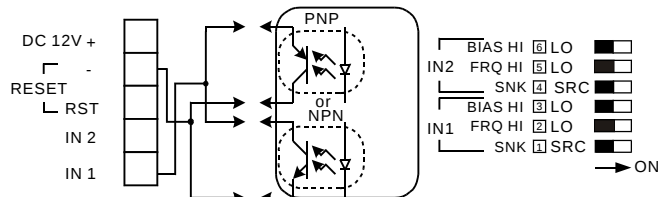
Potocouplers Solid-state Type Input (Count on ON)



Contact Input Type (Count on open)



Potocouplers Solid-state Type Input (Count on OFF)



## Microprocessor Bargraphic Display Scaling Meter

- Dual Channel, dual Bargraph and dual Analog output Capability
- Non-Linear Vessel Volume conversion/software
- Modularized Signal Input Support all process signals and ACV, ACA.....
- Modularized Option Output Support up to 8 Relays, 2 Analog outputs and RS485 interface.
- Inputs and Outputs are isolated
- ModBus Communication Protocol
- Wide Range Power Supply: 85~265Vac or 18~36Vdc
- IP-65 Class Front Panel



CE

## Microprocessor Based PID Temperature Controller

- Multi range input T/C, RTD
- PID or FUZZY control processes
- Wide power supply range: 85~265Vac
- RS-485 communication ModBus protocol
- Pass word protection function



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## Standard & Explosion Proof Designed Terminal Box



## Microprocessor Power Quality Meter

- Monitoring RMS Voltage, Current, Frequency, Power Factor
- Monitoring Power Functions: Active Power (Watts), Reactive Power (vars), Apparent Power (VA)
- Monitoring Energy Functions: Active Energy (MWh), Reactive Energy (Mvarh), Apparent Energy (MVAh)
- Monitoring Demand Function: Power Demand
- Power Quality Harmonics: THD Voltage, THD Current Harmonic distortion
- Relay function for over-Voltage, Over-Current
- Voltage Pulse output function for power overload

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## Microprocessor Counter

- 6 Counting Mode
- Standard DIN 48 x 48 and 72 x 72 and 96 x 48 housing Memory Retention
- Counting pulse 10 KHz max
- Wide power supply range: 85 ~ 265Vac
- RS-485 communication ModBus protocol
- Sensor supply: 12 VDC 100mA
- 2 Relay output



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