

# 4½ Digit *Frequency or RPM* with Alarm, A/O, RS485 options

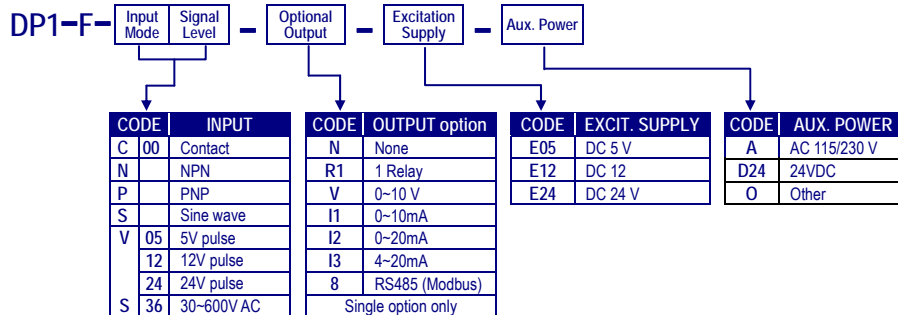
# DP1-F

## ► FEATURES

- Measures & Displays **0.001Hz~100KHz / ~140KHz(optional)** / Contact, NPN, PNP, Voltage pulse, 30~600V sine wave
- Accuracy:  $\pm 0.005\%$ ; Display range: 0~99999
- **Auto Decimal Point position**
- Easily programmed by the front panel
- **1 Relay, 1 Analogue output or RS 485 communication**
- CE Approved



## ► ORDER CODING



## ► SPECIFICATION

Input Frequency	Input Mode	Input Level
0.001~50 Hz	Contact	
0.001~50 Hz 0.001 Hz~100 KHz <b>0.001 Hz~140 KHz (optional)</b>	NPN	High Level: 8~12V; Low Level: 0.0~4.0 V (with excitation supply 12Vdc)
	PNP	
	Voltage Pulse	High Level: over 2/3 of input level Low Level: under 1/3 of input level
	Sine Wave	30~600Vac

► Input Mode can be selected by dip switch on rear terminal block (not AC)

- Calibration: Factory Set.
- Accuracy:  $\leq \pm 0.005\%$  of RDG  $\pm 1C$ ;
- Sampling time: 10 cycles/sec ( $\geq 10Hz$ );  
f cycles/sec ( $\leq 10Hz$ )
- Response time:  $\leq 100$  msec (when the AvG = "1")
- Operating**
- Programming: 4 keys for Enter(Function) / Shift(Esc) / Up / Down  
Up key: increases number / back to previous function  
Down key: decreases number / go to next function  
Shift/Escape key: moves the flashing digit position / Return to upper level  
Enter/Fun key: enter the parameters set or Selects programming mode
- Programmable key: Down key can be programmed to be Present Value (PV), PV Hold, / Max-Min value reset / or Relay reset if alarm is configured as latching 4 digit password
- Security : Lock: 3 function group lock level for None/User Level / Engineer Level / All(Engineer Level & User Level)

### Display functions

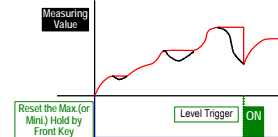
- LED: Measured value: 0.56" red high-brightness LED  
Relay output indication: square red LED  
RS 485 communication: square orange LED  
Max. / Mini. Hold: square red LED
- Programming: 4 keys for Enter(Function) / Shift(Esc) / Up / Down
- Low Cut function: Low.cut : Settable range: -19999~19999 counts
- Average function: AvG : Settable range: 1~99 times
- Digital Filter: D.FiLt : Settable range: 0(None)/1~99 times

### Reading functions

- Input range: 0.01Hz~100KHz; **0.001Hz ~ 140KHz specify in option**
- Resolution:** **Auto / Semi-Auto / Fixed; 3 mode selectable**  
(Auto-Moving for d.p.) **Decimal point dynamic positioned**

- Compensation factor: Compensate error from 0.0001~9.9999
- Over range indication: ovFL, when input is over 120% of input range Hi
- Under range indication: -ovFL, when input is under -120% of input range Lo
- Display functions: **Present Value / Maximum Hold / Minimum Hold / Write to display by RS485 command**

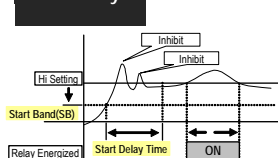
### Max. (or Mini.) Hold & Reset



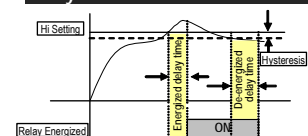
### Control functions(optional)

- Control relay: 1 Relay SPDT, 5A/230Vac, 10A/115V
- Relay Output: Energized levels are compared with set-points: Hi / Lo / Hi hold / Lo hold (latching) selectable  
Start delay / Energized & De-energized delay / Hysteresis  
Start band: 0~9999 counts  
Start delay time: 0:00.0~9(Minutes):59.9(Seconds)  
Energized delay time: 9(Minutes):59.9(Seconds)  
De-energized delay time: 9(Minutes):59.9(Seconds)  
Hysteresis: 0~5000 counts

### Start Delay



### Energized / De-energized Delay & Hysteresis

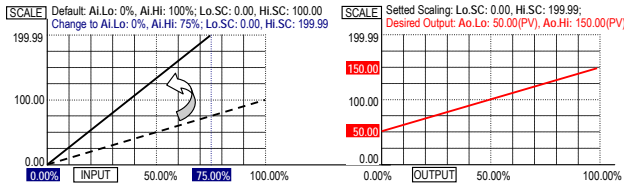


### Analogue output(option)

- Accuracy:  $\leq \pm 0.2\%$  of F.S.;
- Ripple:  $\leq \pm 0.1\%$  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  
**Ao.Hi(output high): PV Hi vs. output range Hi**  
**Ao.Lo(output range Low): PV Low vs. output range Lo**

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**DP1-F**



## RS 485 communication(optional)

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

## Power

Power Supply: AC 115/230V ± 15%, 50/60Hz, DC 24V ± 10%,  
 Power consumption: 5VA  
 Back up memory: By EEPROM

## Environmental

Operating temperature: 0~60 °C  
 Operating relative humidity: 20~95 %RH, Non-condensing  
 Temperature coefficient: ≤100 PPM/°C  
 Storage temperature: -10~70 °C  
 Enclosure: Front panel: IEC 549 (IP54)

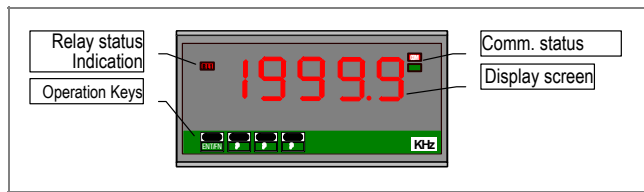
## Electrical

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

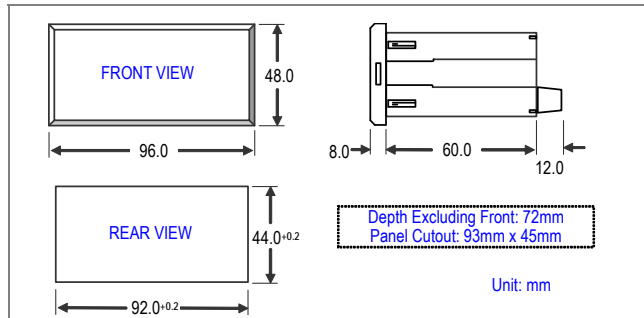
## Mechanical

Dimensions: 96mm(W) x 48mm(H) x 72mm(D)  
 Panel cutout: 93mm(W) x 45mm(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  
 Others: 10A 300Vac, M2.6, 16~22AWG

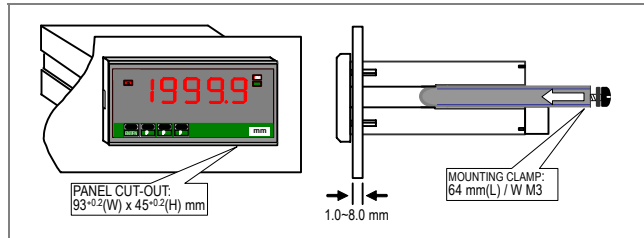
## FRONT PANEL



## DIMENSIONS



## INSTALLATION



## CONNECTION DIAGRAM

