



nippon instruments (india) pvt. ltd.



Manufacturers of : **Process Control Instruments and Sensors**

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nippon's **DIGITAL SPEED (R.P.M.) INDICATOR**

FEATURES

nippon 6060 Is an accurate digital speed (R.P.M.) indicator for measuring R.P.M., rates per minute.... etc..... It is widely used in centrifuges, stirrers, pharmaceutical and laboratory equipments, digital read outs, control panels, drives, textiles, chemicals plants etc.

- Wide range from 10 to 9,999 R.P.M.
- Accepts inputs like proximity switch, photo sensors, voltage pulses...
- P.L.L. Multipliers and quartz crystal timebase.
- Accuracy ± 1 R.P.M.
- No mechanical moving parts.



PRINCIPLE

An output coming from a transducer is filtered, signal conditioned and chopped. Finally it is converted into square waves. The square wave is passed through P.L.L. multipliers. This output is gated by a precise time base generated through piezo crystals and then counted. This counts are displayed on bright LDE.D's It's nothing but R.P.M. with accuracy of ± 1 R.P.M. !!!

MEASURING RANGE

- A) P.L.L. circuitry requires minimum 2.5 pulses per second i.e. $2.5 \times 60 = 150$ R.P.M. It's lower limit. If more than one pulse is give in one rotation then lower limit is reduced. eg if 2 pulses in one rotation than 75 R.P.M. i.e. If n pulses per rotation can give measurement of $150 \div n$ R.P.M.
- B) 60 tooth gear wheel can give R.P.M. upto 10.

SPECIFICATIONS

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|-----------------------|---|
| INPUT RANGE | : Proximity switch, photo sensors, voltage pulses, 60 tooth gear wheel etc. |
| ACCURACY | : + 1 R.P.M. |
| DISPLAY UPDATE | : After every second i.e. 1 second. |
| DISPLAY | : 4 digit bright easy to read seven segment L.E.D. |
| TIME BASE | : QUARTZ CRYSTAL |
| PRINCIPLE | : P.L.L. Multipliers |
| SUPPLY | : 230 VAC $\pm 10\%$, 50 Hz. |
| BOX SIZE | : 48H x 96W x 180D in mm modular deslgn, or 72H x 72W or 96H x 96W |

nippon's **DIGITAL R.P.M. INDICATOR CUM TRIP UNIT**

FEATURES



- 2 Limits
- 2 Sets of 4-digit thumbwheel setting
- 2 Relay O/P's
- Housed in 96(H) X 96(W) DIN size box
- Widely used in AC Drives, Centrifuges....etc.

nippon's DIGITAL FREQUENCY INDICATOR

FEATURES

nippon 6000 is a versatile digital frequency indicator for the accurate measurement of line (mains) and other frequencies. It is widely used in U.P.S. systems, drives, M.C.B. Panels, different types of Control Panels, Power Stations, Industrial and medical electronics and many other applications for accurate frequency measurement.

- Wide frequency band. 45.00 to 99.99 Hz, 45.0 to 999.9 Hz
- Phase Lock Loop (P.L.L.) Counting.
- Quartz Crystal Time base.
- Accuracy of $\pm .01$ Hz.
- No mechanical moving parts.
- 4-digit bright L.E.D. display.



nippon-6000 a digital frequency indicator is working on Phase Lock Loop multiplying principle. Dedicated CMOS P.L.L. I.C.'S are used for frequency multiplication. Quartz Crystal and frequency divider I.C.'S are used to generate accurate gate time of 0.5 seconds. In this gate time number of pulses coming out from P.L.L. is counted and displayed. The display is updated after every one second. Due to P.L.L. multipliers and Quartz Crystal time base accuracy of $\pm .01$ Hz is achieved.

SPECIFICATIONS

| | |
|--------------------|---|
| INPUT | : Supply line for line frequency measurement. |
| RANGE | : A = 45.00 Hz to 99.99 Hz B = 45.0 Hz to 999.9 Hz |
| RESOLUTION | : 0.01 Hz for range A 0.1 Hz for range B |
| ACCURACY | : ± 0.01 Hz for range A ± 0.1 Hz for range B |
| DISPLAY | : 4 digit bright L.E.D. (seven- segment) |
| TIME BASE | : QUARTZ CRYSTAL |
| GATE TIME | : 0.5 Seconds |
| UPDATE TIME | : 1 Second |
| PRINCIPLE | : Phase Lock Loop multiplication |
| SUPPLY | : 230 VAC $\pm 10\%$, 50 Hz |
| BOX SIZE | : 48(H) X 96(W) X 180 D in mm DIN size or 72(H) X 72(W) or 96(H) X 96(W) DIN size |

nippon's DIGITAL FREQUENCY INDICATOR CUM TRIP UNIT

FEATURES



- 2 Limits
- 2 Sets of 4-digit thumbwheel setting
- 2 Relay O/P's
- Housed in 96(H) X 96(W) DIN size box
- Widely used in AC Drives, U.P.S., M.C.B. Panels,
- Control Panels, Power Station & State Electricity boards.

nippon's OTHER RANGE OF PRODUCTS

- Digital Presettable Timers / Counters.
- Digital Totalisers.
- Digital Temperature Indicators (3 $\frac{1}{2}$ & 4 $\frac{1}{2}$ digits)
- Blind Temperature Controllers.
- Multipoint Temperature Indicators.
- Digital Temperature Indicators / Controllers (Single & Double Point)
- Photo Sensor.
- Proximity Switches.
- Thermowells, Thermocouples, RTD's & Cables.