

**3 in 1**

# VIBRATION/TACHOMETER

**Model : VT-8204**

**ISO-9001, CE, IEC1010**



## FEATURES

- \* Separate professional vibration sensor.
- \* Vibration meter
  - Acceleration :  
200 m/s<sup>2</sup>, RMS, PEAK,  
Max. Hold., g, ft/s<sup>2</sup>.
  - Velocity :  
200 mm/s, RMS, PEAK,  
Max. Hold, cm/s, inch/s.
  - Displacement ( p-p ) :  
2 mm, Max. Hold.
- \* Tachometer ( photo ) :  
5 to 100,000 RPM.
- Tachometer ( contact ) :  
5 to 19,000 RPM.
- Tachometer ( surface speed ) :  
m/min., ft/min., inch/min.
- \* Laser photo tachometer.
- \* Data logger.
- \* Data hold, Record (max., min.).
- \* RS-232 computer interface.
- \* DC 1.5V ( UM-3, AA ) x 4 PCs.
- \* Patented.



**Lutron**

**LUTRON ELECTRONIC**

***The Art of Measurement***

# VIBRATION METER

Model : VT-8204

## 1. FEATURES

### Vibration function :

- \* Applications for industrial vibration monitoring :  
All industrial machinery vibrates. The level of vibration is a useful guide to machine condition. Poor balance, misalignment & looseness of the structure will cause the vibration level increase, it is a sure sign that the maintenance is needed.
- \* Acceleration range : 200 m/s<sup>2</sup>.
- \* Velocity range : 200 mm/s.
- \* Displacement ( p-p ) range : 2 mm.
- \* Metric and imperial display unit .
- \* RMS measurement for Acceleration and Velocity.
- \* Peak to peak measurement for Displacement.
- \* Peak function for Acceleration and Velocity.
- \* Max. hold function for Acceleration ( peak ), Velocity ( peak ) and Displacement ( peak to peak ).
- \* Frequency range 10 Hz - 1 kHz, sensitivity relative meet ISO 2954.
- \* Zero function, executed by front buttons.
- \* Data logger function with flexible sampling time selection, can save max. 1000-point data into the memory circuit.
- \* Data hold button to freeze the desired reading.
- \* Memory function to record maximum and minimum reading of RMS value ( Acc., Vel. ) or Displacement ( p-p ).
- \* Auto shut off saves battery life.
- \* Professional vibration meter supply with separate vibration sensor & magnetic base, full set.

### Tachometer ( photo, contact ) function :

- \* Laser light detecting source, long measuring range up to 1.5 meters, it is useful in the RPM measurement application where the machine would be a risk to the operator or close access is difficult or not possible.
- \* The best Tachometer in the world. 2 in 1, one instrument combine Photo Tachometer & Contact Tachometer.
- \* Wide measuring range from 0.5 to 100,000 RPM, 0.1 RPM resolution for the measured value < 1000 RPM.
- \* Microprocessor based circuit, crystal time base, high precision with 0.05% accuracy.
- \* Memory with recall function, the last value, max., value, min. value will be stored into the memory automatically.
- \* Patent patented.

### General function :

- \* Super large LCD display.
- \* No contact infrared temperature measurement via optional IR temp. probe.
- \* RS 232 computer interface.
- \* Optional data acquisition software and data logger software.
- \* Microcomputer circuit, high performance.
- \* Built-in low battery indicator.
- \* Heavy duty & compact housing case.
- \* Complete set with the hard carrying case.

## 2. SPECIFICATIONS

### 2-1 Vibration function

|                             |                                                                                                                                              |                              |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Velocity range              | 0.5 to 199.9 mm/s                                                                                                                            |                              |
|                             | 0.05 to 19.99 cm/s                                                                                                                           |                              |
|                             | 0.02 to 7.87 in/s                                                                                                                            |                              |
| Acceleration range          | 0.5 to 199.9 m/s^2                                                                                                                           |                              |
|                             | 0.05 to 20.39 g                                                                                                                              |                              |
|                             | 2 to 656 ft/s^2                                                                                                                              |                              |
| Displacement ( p-p )        | 0.005 to 1.999 mm                                                                                                                            |                              |
|                             | 0.002 to 0.078 inch                                                                                                                          |                              |
| <i>* p-p : Peak to Peak</i> |                                                                                                                                              |                              |
| Frequency range             | 10 Hz to 1 KHz                                                                                                                               |                              |
|                             | <i>* Sensitivity relative during the frequency range meet ISO 2954</i>                                                                       |                              |
|                             | <i>Refer to table 1, page 28.</i>                                                                                                            |                              |
| Function                    | Velocity                                                                                                                                     | RMS, Peak, Max. hold (peak). |
|                             | Acceleration                                                                                                                                 | RMS, Peak, Max. hold (peak). |
|                             | Displacement                                                                                                                                 | p-p, Max. hold (p-p).        |
|                             | <i>* Peak : To measure the peak value.</i><br><i>* p-p : Peak to peak value.</i><br><i>* Max. hold : To hold the max. peak or p-p value.</i> |                              |
| Accuracy                    | ± ( 5 % + 2 d ) reading , 160 Hz, 80 Hz.<br><i>* 23 ± 5 °C</i>                                                                               |                              |
| Data hold                   | Freeze the desired reading.                                                                                                                  |                              |

\* Appearance and specifications listed in this brochure are subject to change without notice.

|                              |                                                                                                                          |                                                               |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Calibration point            | Velocity                                                                                                                 | 50 mm/s ( 160 Hz )                                            |
|                              | Acceleration                                                                                                             | 50 m/s <sup>2</sup> ( 160 Hz )                                |
|                              | Displacement ( p-p )                                                                                                     | 0.05 mm ( 160 Hz )                                            |
| Memory                       | Maximum & Minimum value.<br><i>* Memory function are only available for RMS ( Acc., Vel. ) and Displacement ( p-p ).</i> |                                                               |
| Sampling time                | Approx. 1 second.                                                                                                        |                                                               |
| Data logger                  | Data logger function with flexible sampling time selection, can save max. 1000-point data into the memory circuit.       |                                                               |
| Sampling Time of Data Logger | Manual                                                                                                                   | Push the data logger button once will save the data one time. |
|                              | Auto                                                                                                                     | 1, 2, 10, 30, 60, 600, 1800, 3600 seconds.                    |
| Sampling time                | Approx. 1 second.                                                                                                        |                                                               |
| Power off                    | Auto shut off, saves battery life, or manual off by push button.                                                         |                                                               |

### 2-2 Tachometer ( photo, contact ) function

|                                     |                                                                                                                                                                                                                                                                                                                        |                 |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Range                               | Photo Tachometer : 10 to 99,999 RPM                                                                                                                                                                                                                                                                                    |                 |
|                                     | Contact Tachometer : 0.5 to 19,999 RPM                                                                                                                                                                                                                                                                                 |                 |
|                                     | Surface Speed ( m/min. ) :<br>0.05 to 1,999.9 m/min.                                                                                                                                                                                                                                                                   |                 |
|                                     | Surface Speed ( ft/min. ) :<br>0.2 to 6,560 ft/min.                                                                                                                                                                                                                                                                    |                 |
| Accuracy                            | ± ( 0.05 % + 1 digit ).                                                                                                                                                                                                                                                                                                |                 |
| Resolution                          | 0.1 RPM                                                                                                                                                                                                                                                                                                                | < 1,000 RPM     |
|                                     | 1 RPM                                                                                                                                                                                                                                                                                                                  | ≥ 1,000 RPM     |
|                                     | 0.01 m/min.                                                                                                                                                                                                                                                                                                            | < 100 m/min.    |
|                                     | 0.1 m/min.                                                                                                                                                                                                                                                                                                             | ≥ 100 m/min.    |
|                                     | 0.1 ft/min.                                                                                                                                                                                                                                                                                                            | < 1000 ft/min.  |
|                                     | 1 ft/min.                                                                                                                                                                                                                                                                                                              | ≥ 1,000 ft/min. |
| Time base                           | Quartz crystal                                                                                                                                                                                                                                                                                                         |                 |
| Sampling Time                       | Photo Tachometer - 1 sec. ( ≥ 60 RPM ).<br>Contact Tachometer - 1 sec. ( ≥ 6 RPM ).                                                                                                                                                                                                                                    |                 |
| Photo Tachometer detecting distance | 50 - 1,500 mm typically.<br><i>* Spec. of detecting distance are that under the size of reflecting tape is 10 mm square &amp; the measuring RPM value is 1,800 RPM. The max. &amp; min. detecting distance may change under different environment, different reflecting tape or the measuring RPM beyond 1800 RPM.</i> |                 |
| Laser light source                  | <i>* Photo Tach.</i><br><i>* Less than 1 mW.</i><br><i>* Class 2 laser diode. Red. Wave length is 645 nm approximately.</i>                                                                                                                                                                                            |                 |
| Memory                              | Last value, Max. value, Min. value.                                                                                                                                                                                                                                                                                    |                 |

### 2-3 General function

|                       |                                                                                                                                                                                                                                           |                 |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Display               | 45 mm x 48 mm LCD size.                                                                                                                                                                                                                   |                 |
| Circuit               | Exclusive microcomputer circuit.                                                                                                                                                                                                          |                 |
| Data output           | RS 232 serial output.                                                                                                                                                                                                                     |                 |
| Operating temperature | 0 to 50 °C ( 32 to 122 °F ).                                                                                                                                                                                                              |                 |
| Operating humidity    | Less than 80% RH.                                                                                                                                                                                                                         |                 |
| Power supply          | 1.5 V battery x 4 PCs<br>UM-3, AA, R6<br>Alkaline or heavy duty type,                                                                                                                                                                     |                 |
| Power consumption     | Vibration                                                                                                                                                                                                                                 | Approx. 10.5 mA |
|                       | Tachometer                                                                                                                                                                                                                                | Approx. 21 mA   |
| Weight                | Meter                                                                                                                                                                                                                                     | 397 g/0.87 LB   |
|                       | Probe with magnetic base                                                                                                                                                                                                                  | 110 g/0.24 LB   |
| Dimension             | Meter :<br>46.8 x 75.5 x 188 mm<br>( 1.8 x 3.0 x 7.4 inch ).<br>Vibration sensor probe:<br>Round 18 mm Dia. x 40 mm.                                                                                                                      |                 |
| Accessories included  | Instruction manual..... 1 PC.<br>Vibration sensor ( VB-82 )..... 1 PC.<br>Magnetic base..... 1 PC.<br>Reflecting tape marks (600 mm)..... 1 PC.<br>RPM cone rubber..... 1 PC.<br>RPM funnel rubber..... 1 PC.<br>Carrying Case..... 1 PC. |                 |
| Optional accessories  | <i>* Data Acquisition software,</i><br><i>..... SW-U801-WIN</i><br><i>* Data Logger software, SW-DL2005</i><br><i>* RS232 cable..... UPGB-02</i><br><i>* USB cable..... USB-01</i><br><i>* IR Temp. probe..... IR-962</i>                 |                 |