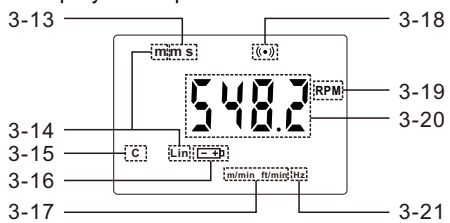# MULTIFUNCTIONAL TACHOMETER

DT-2859

This TACHOMETER is small in size, light in weight, easy to carry. Although complex and advanced, it is convenient to use and operate. Its ruggedness will allow many years of use if proper operating techniques are followed. Please read the following instructions carefully and always keep this manual within easy reach.

1. FEATURES

* Multifunctional, one instrument combines PHOTO TACH. (RPM) & CONTACT TACH. (RPM , m/min., ft/min). It can also be applied to the measurement of Frequency, Cycle, Pulse Times, Pulse Distance, User-defined Pulse Distance, etc.
* Wide measuring range & high resolution.
* The last Value / max. Value / min. Value will be automatically stored in memory and can be obtained by pressing Memory Key.
* LCD display gives exact rpm with no guessing or errors and saves battery energy.
* This tachometer used the exclusive one chip of MICROCOMPUTER LSI-circuit and crystal time base to accurately offer the high accuracy measurement.
* Can communicate with PC for recording, printing and analyzing by the optional USB cable and software. Bluetooth adaptor can also be used.

2. SPECIFICATIONS

Display : LCD (Liquid Crystal Display)

Measurement range :
PHOTO TACH.: 2.5~99,999 RPM
CONTACT TACH. : 2.5~19,999 RPM
SURFACE SPEED: 0.05~1,999.9 m/min
0.2~6,560 ft/min
Frequency: 0.04~1666.65Hz

1

Resolution:
TACHOMETER: 0.1 RPM (2.5 ~ 999.9 RPM)
1RPM (over 1,000 RPM)
SURFACE SPEED:
0.01m/min. (over 10 m/min.)
0.1 m/min. (over 100 m/min.)
0.1 ft/min. (0.1 ~ 999.9 ft/min.)
1 ft/min. (over 1,000 ft/min.)

Accuracy : TACH.: (0.05%+1 RPM)
SURFACE SPEED: (0.05%+0.03m/min.)

Sampling Time:
PHOTO TACH. (1 sec. over 60 RPM).
CONTACT TACH. (1 sec. over 15 RPM)
Photo Tach. Detecting distance :
50 to 250mm / 2 to 10 inch.
(typical max. 600mm/24 inch).
Battery: 4x1.5AAA(UM-4)battery
Operation temp.: 0-50°C (32-122°F)
Size: Main Unit: 140x72x34 mm
(5.5 x2.8x1.3 inch)
Sensor: Φ45x195 mm
(Φ1.8x7.7 inch)
Weight : 245g/0.540lb (not including batteries)
Accessories :
Carrying case ....1pc.
Reflective tape marks (350mm).......2pc.
RPM adapter (CONE).....................1pc.
RPM adapter (FUNNEL).................1pc.
Surface speed test wheel.................1pc.

2

Operation manual..........................1pc.

3. PANEL DESCRIPTIONS

3.1 Front Panel Descriptions

3-1 Reflective Mark
3-2 Signal Light Beam
3-3 PHOTO TACH. Sensor
3-4 Power Key
3-5 Display
3-6 Monitor Indicator
3-7 Plus/Function Key

3

3-8 Power/Measurement Key
3-9 Minus/Send/Memory Key
3-10 CONTACT TACH. Sensor
3-11 Battery Cover On The Back
3-12 USB Interface

3.2 Display Descriptions

3-13 Cycle Indicator
3-14 Pulse Distance Indicator
3-15 Pulse Times Indicator (User-defined Pulse Distance Indicator)
3-16 Battery Indicator
3-17 Linear Velocity Unit
3-18 Measurement Coupling Symbol
3-19 Rotation Rate Unit
3-20 Measurement Value
3-21 Frequency Unit

4

4. MEASUREMENT MODE SELECTION

The Tachometer can be either PHOTO TACH. and CONTACT TACH. Select the intended measurement mode according to the requirement.

4.1 PHOTO TACH. MEASUREMENT

4.1.1 Apply a reflective mark to the object being measured. If the test RPM less than 50 RPM, suggest to attach more Reflective Marks averagely. Then divided the reading shown by the number of Reflective Marks is the real RPM to get high resolution & stability on display reading.

4.1.2 REFLECTIVE MARK
Cut and peel adhesive tape provided into approx. 12mm (0.5)square sand apply one square to each rotation shaft.
a. The non-reflective area must always be greater than the reflective area.
b. If the shaft is normally reflective, it must be covered with black tape or black paint before attaching reflective tape.

4.1.3 Take off the CONTACT TACH. Sensor and press the Power Key or Power/Measurement Key to turn on the meter. The meter is in PHOTO TACH. Mode. Select the intended parameter for measurement. (For details about parameter selection see 5)

4.1.4 Press the Power/Measurement Key, the

5

PHOTO TACH. Sensor emits a visible light beam. Align the visible light beam with the applied target. Verify that the Monitor Indicator lights when the target passes thru the light beam. Sampling started.

4.1.5 After measurement, press the Power/Measrement Key to quit. Sampling complete.

4.1.6 During sampling, a readout (the last Value, max. Value, min. Value) obtained immediately before pressing the Power/Measurement Key is automatically memorized. The data can be called out by pressing Minus/Send/Memory Key.

4.2 CONTACT TACH. MEASUREMENT

4.2.1 Plug in the CONTACT TACH. Sensor and press the Power Key or Power/Measurement Key to turn on the meter. The meter is in CONTACT TACH. Mode. Select the intended parameter for measurement. (For details about parameter selection see 5)

4.2.2 Press the Power/Measuring Key, lightly pressing the CONTACT TACH. Sensor (3-10) against the center hole on the rotating hole. Verify that the Monitor Indicator lights. Sampling started.

4.2.3 After measurement, press the Power/Measrement Key to quit. Sampling completed.

6

4.2.4 During sampling, a readout (the last Value, max. Value, min. Value) obtained immediately before pressing the Power/Measurement Key is automatically memorized. The data can be called out by pressing Minus/Send/Memory Key.

5. PARAMETER SELECTION

The meter can measure Rotation Rate, Linear Velocity, Frequency, Cycle, Pulse Times, Pulse Distance, User-defined Pulse Distance, etc.

5.1 Rotation Rate Measurement
Press Power/Measurement Key to turn on the meter. Then Press Plus/Function Key to select the intended parameter.
Call out the Rotation Rate Unit (3-18) to operate Rotation Rate measurement.

5.2 Linear Velocity Measurement
Press Power/Measurement Key to turn on the meter. Then Press Plus/Function Key to select the intended parameter.
Call out the Linear Velocity Unit (3-16) to operate Linear Velocity measurement.

5.3 Frequency Measurement
Press Power/Measurement Key to turn on the meter. Then Press Plus/Function Key to select the intended parameter.
Call out the Frequency Unit (3-20) to operate Frequency measurement.

7

5.4 Cycle Measurement
Press Power/Measurement Key to turn on the meter. Then Press Plus/Function Key to select the intended parameter.
Call out the Cycle Indicator (3-12) to operate Cycle measurement.

5.5 Pulse Times Measurement
Press Power/Measurement Key to turn on the meter. Then Press Plus/Function Key to select the intended parameter.
Call out the Pulse Times Indicator (3-14) to operate Pulse Times measurement.

5.6 Pulse Distance Measurement
Press Power/Measurement Key to turn on the meter. Then Press Plus/Function Key to select the intended parameter.
Call out the Pulse Distance Indicator (3-13) to operate Pulse Distance measurement.

5.7 User-defined Pulse Distance Measurement
Press Power/Measurement Key to turn on the meter. Then Press Plus/Function Key to select the intended parameter.
Call out the Pulse Distance Indicator (3-13) and the User-defined Pulse Distance Indicator (3-14) to operate User-defined Pulse Distance measurement.

6. USER-DEFINED DIAMETER SETTING

6.1 Press and hold the Power/Measurement Key for about 6 seconds, 'LEn' signal is shown on the display. Release the Key for adjustment of User-defined Diameter.

6.2 Press Plus/Function Key or Minus/Send/Memory Key to adjust User-defined Diameter.

6.3 Press Power/Measurement Key to save the settings and quit.

7. VANE NUMBER SETTING

7.1 When measuring the rotation rate of vane, vane number can be amended. Press and hold the Power/Measurement Key for about 9 seconds, 'no' signal is shown on the display. Release the Key for vane number adjustment.

7.2 Press Plus/Function Key or Minus/Send/Memory Key to adjust vane number.

7.3 Press Power/Measurement Key to save the settings and quit.

7.4 When vane number setting is more than 1, the PHOTO TACH. Sensor does not emit light beam any more. External light source is required during measurement. Align the PHOTO TACH. Sensor to vane, press the Power/Measurement Key, Verify that the Monitor Indicator lights. Sampling started.

7.5 After measurement, press the Power/Measrement Key to quit. Sampling completed.

7.6 During sampling, a readout (the last Value, max. Value, min. Value) obtained immediately before pressing the Power/Measurement Key is automatically memorized. The data can be called out by pressing Minus/Send/Memory Key.

8. MEMORY CALL OPERATION

8.1 During the measurement, a readout (the last Value, max. Value, min. Value) obtained immediately before pressing the Power/Measuring Key is automatically memorized. For example, please ref. fig. 2.

8.2 Press the Minus/Send/Memory Key, memorized values can be displayed on the display. LA and "the last value", "UP" and "the max. value", "dn" and "the min. value" will be displayed by turn.

Measuring time
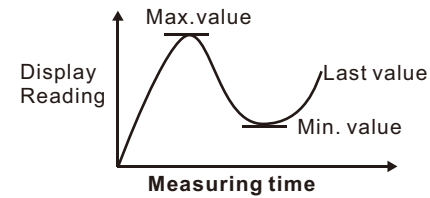
9. BATTERY REPLACEMENT

9.1 When it is necessary to replace the battery, i.e.battery voltage less than approx. 5v, symbol "▭" will appear on the Display.

9.2 Slide the battery cover (Fig.1) away from the instrument and remove the batteries

9.3 Install the batteries (4x1.5VAAA / UM-4) correctly into the case.

9.4 If the instrument is not to be used for any extended period, remove batteries.

10. COMMUNICATING WITH THE PC

Install the batteries correctly into the case. Can communicate with PC for statistics and printing by the optional cable and software for USB and Bluetooth. Follow the instructions of transferring readings to a computer.