



LT-T30/40/50 3, 4 & 5 DIGIT LED TACHOMETERS/ LINESPEED METERS

DESCRIPTION

The Texmate Models LT-T30, LT-T40 and LT-T50 are three new advanced rate counters featuring the versatility and flexibility to accommodate virtually any rate measuring need. The LT-T series can be used as either tachometers, frequency meters or as linespeed meters. All provide the capability of measuring very slow input rates.

The count input is compatible with NPN or PNP proximity sensors, photo-electric couplers, or encoders. The units provide +12VDC at 30mA to power the sensors. Four pulse/rotation settings, i.e. 1, 10, 60 and 120 are available through DIP switches mounted at the rear of the unit. In the LT-T series models, a DIP switch selects either a tachometer or linespeed measuring mode. Either Y/min or M/min can be chosen as the linespeed unit. The linespeed is converted from the angular speed of the roller by setting the proper diameter of the roller. All these settings or selections are made via rear mounted switches.

The unit is powered by either 110VAC or 220VAC. All power and input signal connections are made via the terminal strip located at the rear of the unit.

SPECIFICATIONS

Display:

3 Digit: 0.8" (20mm) , 7 segment High Efficiency LED

4 & 5 Digit: 0.56" (14.2mm), 7 segment, High Efficiency LED

Display Ranges:

3 Digit: Tachometer: 0.13-999 RPM
Frequency Meter: 0.26Hz - 1.66KHz
Linespeed Meter: 0.01-999 M(V)/Min

4 Digit: Tachometer: 0.13-9999 RPM
Frequency Meter: 0.26Hz - 1.666KHz
Linespeed Meter: 0.01-999.9 M(V)/Min

5 Digit: Tachometer: 0.13-99999 RPM
Frequency Meter: 0.26Hz - 1.666KHz
Linespeed Meter: 0.01-999.99 M(V)/Min

Accuracy: 0.01%

Count Input: NPN or PNP Proximity Sensor
Photo-Electric Sensor
Encoder-Conduct Switch

Sensor Power: +12VDC at 30mA supplied by meter

Input Frequency:

3 Digit: 1.66KHz Max.

4 & 5 Digit: 1.666KHz Max.

Scanning Time:

1 Sec + 1/fin for fin > 5HZ

2 Sec + 1/fin for fin < 5HZ

(Max 4 sec.)

(Note: fin-Input Frequency)

Input Impedance:

NPN Type: 7.8K

PNP Type: 3.9K

Operating Temperature : 0°C to 50°C

Humidity: 45 to 85% RH

Power Requirements: 110V/220VAC ±10%
50/60Hz/AC

ORDERING INFORMATION

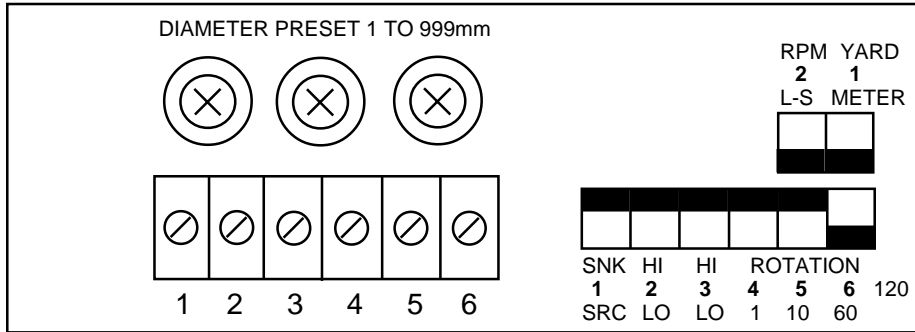
Order Part No.

| | |
|--|--------|
| 3 Digit Linespeed/Tachometer, AC 110/220 | LT-T30 |
| 4 Digit Linespeed/Tachometer, AC 110/220 | LT-T40 |
| 5 Digit Linespeed/Tachometer, AC 110/220 | LT-T50 |

Accessories:

| | |
|--|--------|
| Plug-In screw terminal connector provided with meter | No P/N |
|--|--------|

REAR VIEW OF METER



CONNECTOR PINOUTS

- 1 - AC Power Neutral Input
- 2 - 110VAC Active Input
- 3 - 220VAC Active Input
- 4 - Sensor Input Ground
- 5 - Sensor Input
- 6 - +12VDC System Power Output

SELECTION SWITCHES

Diameter Setting Switches: Three rotary switches set-up for roller diameter from 001mm to 999mm.

RPM/LS Switch: Select to use as either Tachometer (RPM) or Linespeed Meter (LS).

Y/min/M/min Switch: When LS is selected, this switch selects the unit of the linespeed as either Yards/min or Meters/min.

Pulse/Rotation: Three DIP switches select the number of pulses per rotation. These switches may also be used to change the scaling factor.

SNK Switch: Provides a 7.8K pull-up resistor for sensor with sinking output normally used on NPN and NPN open collector sensor.

SRC Switch: Provides a 3.9K pull-up resistor for sensors with sourcing output, normally used on PNP sensor.

HI FRQ Switch: Removes damping capacitor and allows operation up to high speed of 1K cps max count specification. Normally used on proximity sensor and encoder (non-contact).

LO FRQ Switch: Connects damping capacitor for switch contact de-bounce. Limits count speed to 30 cps. Minimum count on/off times = 17 msec. Normally used on micro switch and relay switch (contact switches).

BIAS HI Switch: Sets input trigger levels at mid-range to accept logic pulses (CMOS) with full 0 to 12V swings.

(Lo = 4V, Hi = 7.5V)

BIAS LO Switch: Sets input trigger levels at low-range to accept logic pulse (TTL) with 0 to 5V swings. (Lo = 1V, Hi = 3.5V)

PIN DESCRIPTIONS

PIN 1 - AC Power Neutral Input: Connect the neutral side of the AC power input, either 110VAC or 220VAC, to Pin 1.

PIN 2 - 110VAC Active Input: Connect the active side of the 110VAC power input to Pin 2.

PIN 3 - 220VAC Active Input: Connect the active side of the 220VAC power input to Pin 3.

PIN 4 - Sensor Input Ground: All input signals should be returned to system ground Pin 4.

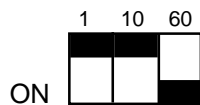
PIN 5 - Signal Input: The output wire of the sensor should be connected to the signal input Pin 5.

PIN 6 - +12VDC System Power Output: Regulated +12VDC at 30mA is provided at Pin 6 to power the sensor.

SETTING INSTRUCTIONS

1. TO USE AS A FREQUENCY METER

- a). Set the RPM/LINESPEED DIP switch to RPM position. The "RPM" indicator on the front panel is ON.
- b). Set the PULSES/ROTATION DIP switches to the scale of 60 as follows:



Therefore the display value is the actual input RPM divided by 60. If there is only one pulse per revolution. i.e. PPR = 1, then we have:

$$\text{Display Value} = \frac{\text{Actual RPM}}{60} = \frac{f_{in}}{\text{PPR}} = f_{in} \text{ Hz}$$

- c). Frequency range of 3 digit meter: 0.26Hz to 1.66KHz. Frequency range of 4 and 5 digit meters: 0.26Hz to 1.666KHz.

SETTING INSTRUCTIONS (Continued)

2. TO USE AS A TACHOMETER

- a). Set the RPM/LS DIP switch to RPM position. The "RPM" indicator on the front panel is ON.
 b). The four pulse/rotation DIP switches are the scaling factor setting for the display.

| | LT-T30 | LT-T40 | LT-T50 |
|----|---|---|---|
| ON | <ul style="list-style-type: none"> • Scale: 1 Pulse/Revolution • Display Range: 16 - 999 RPM | <ul style="list-style-type: none"> • Scale: 1 Pulse/Revolution • Display Range: 16 - 9999 RPM | <ul style="list-style-type: none"> • Scale: 1 Pulse/Revolution • Display Range: 16 - 99999 RPM |
| ON | <ul style="list-style-type: none"> • Scale: 10 Pulses/Revolution • Display Range: 1.6 - 999 RPM | <ul style="list-style-type: none"> • Scale: 10 Pulses/Revolution • Display Range: 1.6 - 9999 RPM | <ul style="list-style-type: none"> • Scale: 10 Pulses/Revolution • Display Range: 1.6 - 9999.9 RPM |
| ON | <ul style="list-style-type: none"> • Scale: 60 Pulses/Revolution • Display Range: 0.26 - 166 RPM | <ul style="list-style-type: none"> • Scale: 60 Pulses/Revolution • Display Range: 0.26 - 1666 RPM | <ul style="list-style-type: none"> • Scale: 60 Pulses/Revolution • Display Range: 0.26 - 1666.6 RPM |
| ON | <ul style="list-style-type: none"> • Scale: 120 Pulses/Revolution • Display Range: 0.13 - 833 RPM | <ul style="list-style-type: none"> • Scale: 120 Pulses/Revolution • Display Range: 0.13 - 833.3 RPM | <ul style="list-style-type: none"> • Scale: 120 Pulses/Revolution • Display Range: 0.13 - 833.3 RPM |

- c). The setting of Diameter and Y/min M/min switches are irrelevant.
 d). The formula below is used to calculate the rate of revolution:

$$RPM = \frac{60 \times N}{DT \times PPR} = \frac{60 \text{ fin}}{PPR}$$

where PPR = Number of Pulse/Revolution
 N = Number of input pulses during the scanning time DT
 DT = Scanning Time

Therefore: $\frac{N}{DT} = \text{fin} = \text{input frequency}$

3. TO USE AS A LINESPEED METER

- a). Set the RPM/SPEED DIP switch to SPEED position.
 b). Set the Y/min M/min DIP switch to the desired position. This is the unit of the linespeed represented. The "Y/min" or "M/min" indicator on the front panel will be ON.
 c). Set the diameter D of the rotor (1mm to 999mm). The linespeed is calculated by the formula as follows:

$$\text{SPEED (M/min)} = D \times 3.14 \times \text{RPM}$$

or

$$\text{SPEED (Y/min)} = \frac{\text{Speed (M/min)}}{0.9144}$$

Where D is the diameter of the rotor in the meter.

- d). The display limit of the linespeed is 0.05 to 999 on the 3 digit, 0.05 to 999.9 on the 4 digit and 0.05 to 999.99 on the 5 digit. In case of overflow, the proper scale factor 1, 10, 30 or 60 can be selected to scale down the display to be within the limit.

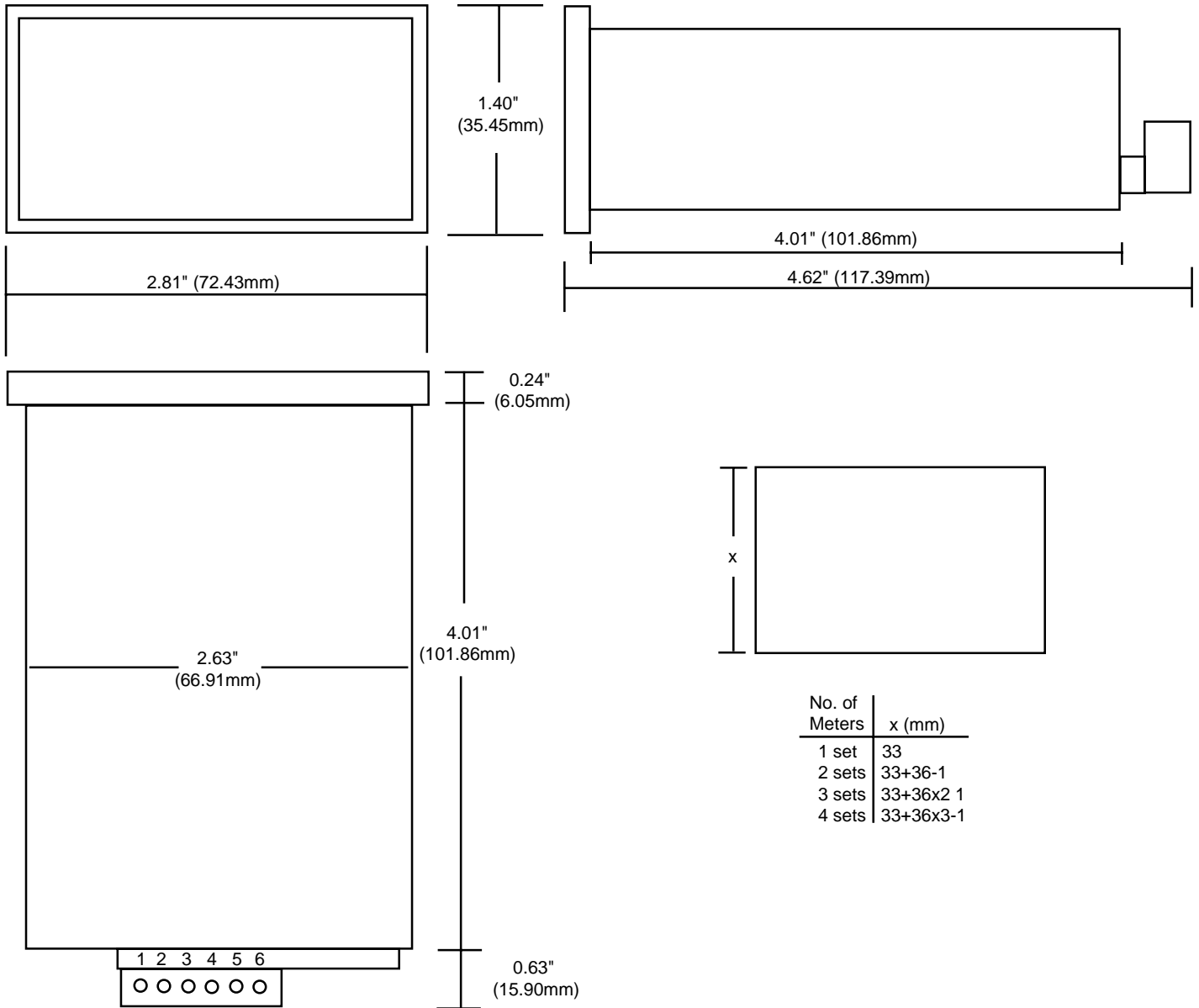
DISPLAY MALFUNCTION INDICATIONS

ALL DIGITS ARE ZERO AND FLASHING : Indicates that: a. No input signal or
 b. Input signal frequency is below 0.26Hz or
 c. The Pulses/Rotation settings are all off.

ALL DIGITS ARE 9 AND FLASHING : Indicates that the input signal frequency is greater than 1.66KHz on the 3 digit and 1.666KHz on the 4 and 5 digit meters.

0.00: Indicates that the diameter setting is zero when the counter is used as a linespeed meter, i.e. when the RPM/SPEED switch is set in SPEED position.

DIMENSIONS AND CUTOUTS



WARRANTY

Texmate warrants that its products are free from defects in material and workmanship under normal use and service for a period of one year from date of shipment. Texmate's obligations under this warranty are limited to replacement or repair, at its option, at its factory, of any of the products which shall, within the applicable period after shipment, be returned to Texmate's facility, transportation charges pre-paid, and which are, after examination, disclosed to the satisfaction of Texmate to be thus defective. The warranty shall not apply to any equipment which shall have been repaired or altered, except by Texmate, or which shall have been subjected to misuse, negligence, or accident. In no case shall Texmate's liability exceed the original purchase price. The aforementioned provisions do not extend the original warranty period of any product which has been either repaired or replaced by Texmate.

USER'S RESPONSIBILITY

We are pleased to offer suggestions on the use of our various products either by way of printed matter or through direct contact with our sales/application engineering staff. However, since we have no control over the use of our products once they are shipped, NO WARRANTY WHETHER OF MERCHANTABILITY, FITNESS FOR PURPOSE, OR OTHERWISE is made beyond the repair, replacement, or refund of purchase price at the sole discretion of Texmate. Users shall determine the suitability of the product for the intended application before using, and the users assume all risk and liability whatsoever in connection therewith, regardless of any of our suggestions or statements as to application or construction. In no event shall Texmate's liability, in law or otherwise, be in excess of the purchase price of the product.

Texmate cannot assume responsibility for any circuitry described. No circuit patent licenses are implied. Texmate reserves the right to change circuitry, specifications, and prices without notice at any time.

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Texmate has facilities in Japan, New Zealand, Taiwan, and Thailand. We also have authorized distributors throughout the USA and in 28 other countries.

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