TESATRONIC Length Measuring Instruments – General Overview

Dedicated compact units having either an analogue or a numerical display – Usually applied in association with precision handtools or on stationary devices for shop floor inspection and maintenance, but also in the measuring room.

TESATRONIC	TT 10	TT 20	TT 60	TT 80	TTA 20
Nº	04430008	04430009	04430010	04430011	04430003
Number of probe inputs	1	2	2	2	2
– Automatic recognition	—	●	●	●	—
Number of measuring ranges	3	7	7	9	6
– Lowest value	± 5 µm	± 5 µm	± 5 µm	± 0,5 µm	± 3 µm
– Highest value	± 500 µm	± 5000 µm	± 5000 µm	± 5000 µm	± 1000 µm
– Zoom function (5x)	●	—	—	—	—
– Automatic conversion	●	●	●	●	—
Digital display	●	●	●	●	—
Numerical interval – lowest value	0,1 µm	0,1 µm	0,1 µm	0,01 µm	
– highest value	10 µm	0,1 µm	0,1 µm	0,01 µm	
Analogue display	●	●	●	●	●
Scale value – lowest value	0,1 µm	0,2 µm	0,2 µm	0,02 µm	0,1 µm
– highest value	10 µm	200 µm	200 µm	200 µm	50 µm
Metric/Inch unit systems	●	●	●	●	●
Value classification	—	●	●	●	●
– Number of classes		3	up to 42	up to 42	3
– Signal outputs		●	●	●	●
Memory	—	—	●	●	—
Digital output	RS 232	RS 232	RS 232	RS 232	—
Analogue output	—	—	●	●	●
Power supply	Batteries	Adapter	Adapter	Adapter	Mains

TESATRONIC TT 10

Pocket-sized, battery-operated electronic unit for use on the move – Perfect for your measurement tasks on the surface plate, in the inspection room right next to the production floor or directly on the machine – Provides full portability where there's no room for cumbersome power cable.

- Simple-to-use function keys used in conjunction with the combined analogue/digital indication providing easy reading.
- LCD, pointerless display for high repeatability and negligible hysteresis.
- 3 measuring ranges, switchable manually or automatically depending on the size of the measured value.
- Metric and inch conversion.
- Additional signal amplification (5x) for easy display setting.
- Quick zero-setting through to digital technology.
- Signal input for one probe.
- Opto-coupled RS 232 compatible digital output.

✓

DIN 32876 Part 1

66 x 57 mm LC display

9 x 4,5 mm

Response time of display ≤ 100 ms. Hold time ≥100 ms

Zero drift* ≤ ± 0,005%/ °C. Frequency limit of display based on the signal input: 10 Hz

Max. indication error*: 2%

± 1 numerical interval

Opto-coupled RS 232 compatible output

3,5 V to 4,5 V, 3 batteries, type LRC 6, 1,5 V, AA. Power consumption: ≈ 7 mW/3,5 V

Self-controlled voltage fluctuation.

Drive voltage of the probe: 0,7 V

Drive frequency: 13 ±0,65 kHz

0°C to 60°C

-10°C to 70°C

80%, with no condensation

IP42 (IEC 60529)

EN 50081-1, EN 50081-2, EN 50082-1, EN 50082-2

95 x 170 x 68 mm (W x D x H)

490 g (incl. batteries)

Shipping packaging

Identification number

Declaration of conformity

* With reference to 20°C as well as a relative humidity of ≤ 50%..

04430008	**TESATRONIC TT 10** Electronic measuring unit with both analogue and numerical display; 3 measuring ranges, switchable from metric to inch; 1 probe input; RS 232 data output.
Provided with following accessories:	
04768002	3 batteries, 1,5 V, type LRC 6, AA
04460007	1 Visual template for value classification

Measuring ranges with numerical intervals

	Zoom function	Used for	µm	µm	*in*	*in*
1	without 5 x	measuring setting	± 500 ± 100	10 2	*± 0.025* *± 0.005*	*0.0005* *0.0001*
2	without 5 x	measuring setting	± 50 ± 10	1 0,2	*± 0.0025* *± 0.0005*	*0.00005* *0.00001*
3	without	measuring	± 5	0,1	*± 0.00025*	*0.000005*

TESATRONIC TT 20, TT 60 and TT 80

Feature most advanced technology – Provide functional reliability – Simple to use – Essential for shop floor inspection or in the measurement laboratory.

TESATRONIC TT 20

Includes a combined analogue/numerical display – Two probe inputs for single, sum or difference measurements.

- Large LC display for error-free reading.
- Better repeatability and negligible hysteresis as the analogue display has no mechanical pointer.
- Choice between pointer or bargraph.
- All measuring functions are readable on the LC display.
- 7 measuring ranges, selectable manually or automatically according to the size of the measured value.
- Direct conversion from metric to inch units.
- Zeroing with just one touch button for each measuring channel.
- Setting of tolerances over the keyboard.
- 3 quality classes displayed through LEDs with control signal outputs.
- Lockable display for step by step measurement routines.
- Automatic recognition of the connected TESA's probe with direct adaptation of the measurement signals to the right output (only for TESA probes made in 1997 or later).
- Opto-coupled RS 232 output, bidirectional.
- Power supply through mains adapter.

TESATRONIC TT 60

Same features as TESATRONIC TT 20, but with added functions that include:

- Memory for retaining extreme values «max.», «min.», «max.-min.» along with mean value obtained from «max.» minus «min.».
- Dynamic measurement with acquisition of more than 100 single values/s.
- Value classification with output signals through contact relay for 5, 10, 20 or 40 good classes.
- Remote signal processing using the analogue output.

TESATRONIC TT 20, TT 60, TT 80

✓

DIN 32876 Part 1

126 x 62 mm LC display

110 mm scale length

50 scale divisions

2,2 mm

6-decade display plus minus sign

12,5 x 6,6 mm

Zero drift plus drift of the signal amplification*: ≤ ± 0,005%/ °C.

No drift for registered values.

± 1 numerical interval

RS 232 opto-coupled output

6,5 Vdc up to 7,3 Vdc.
Consumption: 2 W
Self-controlled voltage fluctuation.
Drive voltage of the probe: 3 V

0°C to 60°C

–10°C to 70°C

80%, non-condensing

Resistant plastic

IP54 for the front face only (IEC 60529)

EN 50081-1, EN 50081-2, EN 50082-1, EN 50082-2

255 x 235 x 120 mm (W x D x H)

1,1 kg

* With reference to 20°C as well as a relative humidity of ≤ 50%.

Shipping packaging

Identification number

Declaration of conformity

Additional data on TESATRONIC TT 20

Response time* of analogue display with pointer and digital display: ≤ 80 ms.

Holding time of digital display: 80 ms

Frequency limit for all displays with reference to the signal input: 12,5 Hz

Limit value* for analogue display: ≤ 2%.

Digital display and output: ≤ 0,3%

Dive frequency 13 ±0,65 kHz

Additional data on TESATRONIC TT 60

Response time* of analogue display with pointer and digital display: ≤ 80 ms.

Holding time of digital display: 80 ms.

Response time of analogue signal output with reference to the analogue display: ≤ 30 ms.

Response time of the LEDs used for value classification: ≤ 80 ms

Frequency limit for all displays with reference to the signal input: 12,5 Hz

Frequency limit with reference to the signal input: 20 Hz for the analogue output or 100 Hz for the memory

Limit value* for analogue display: ≤ 2%.

Digital display, analogue and digital outputs: ≤ 0,3%

Voltage range: ± 2 V up to ±10 V

* With reference to 20°C as well as a relative humidity of ≤ 50%.

04430009	**TESATRONIC TT 20** Electronic length measuring unit with both analogue and digital display; 7 measuring ranges, switchable from metric to inch; value classification with 1 good class; signal output through contact relay; 2 probe inputs; RS 232 data output.
04430010	**TESATRONIC TT 60** Same features as model TT 20, but with added memory; dynamic measuring and signal output through contact relay for 5, 10, 20 or 40 good classes; analogue output.

Delivery includes the following items:

04761054	1 Mains adapter, 110 to 240 Vac, 50 to 60 Hz, 6,6 Vdc, 750 mA
04761055	1 Adapter cable EU

Optional accessory

Adapter for 5, 10, 20 or 40 classes available on request

Measuring ranges along with scale divisions or numerical intervals (TESATRONIC TT 20 and TT 60)

µm	µm	µm	*in*	*in*	*in*
± 5000	0,1	200	*± 0.200*	*0.000005*	*0.01*
± 2000	0,1	100	*± 0.100*	*0.000005*	*0.005*
± 500	0,1	20	*± 0.02*	*0.000005*	*0.001*
± 200	0,1	10	*± 0.01*	*0.000005*	*0.0005*
± 50	0,1	2	*± 0.002*	*0.000005*	*0.0001*
± 20	0,1	1	*± 0.001*	*0.000005*	*0.00005*
± 5	0,1	0,2	*± 0.0002*	*0.000005*	*0.00001*

TESATRONIC TT 80

Electronic measuring unit with high resolution – Fitted with a combined analogue/digital display – Provided with 2 probe inputs for single, sum as well as difference measurements.

Same features as TESATRONIC TT 20, but with the following added functions:

- 9 measuring ranges with numerical interval to 0,01 µm or 0.000001 in.
- Memory for storing extreme values «max.», «min.» and «max.-min.» plus mean of both values «max.» and «min.».
- Dynamic measurement with acquisition of more than 10 single values/s.
- Value classification with output signals through contact relay for 5, 10, 20 or 40 good classes.
- Remote signal processing using the analogue output.

№	
04430011	**TESATRONIC TT 80** High-resolution electronic length measuring unit provided with combined analogue/digital display; 9 measuring ranges, switchable from metric to inch; value classification with 1 good class; signals output through contact relay for 5, 10, 20 or 40 good classes; value storage memory; dynamic measuring capability; 2 probe inputs; RS 232 interface with analogue output.
Delivered with the following accessories:	
04761054	1 Mains adapter, 110 to 240 Vac, 50 to 60 Hz, 6,6 Vdc, 750 mA
04761055	1 Adapter cable EU
Optional accessory	
	Adapter for 5, 10, 20 or 40 classes available on request

Measuring ranges along with scale divisions or numerical intervals (TESATRONIC TT 80)

µm	µm	µm	*in*	*in*	*in*
± 5000	0,01	200	*± 0.200*	*0.000001*	*0.01*
± 2000	0,01	100	*± 0.100*	*0.000001*	*0.005*
± 500	0,01	20	*± 0.02*	*0.000001*	*0.001*
± 200	0,01	10	*± 0.01*	*0.000001*	*0.0005*
± 50	0,01	2	*± 0.002*	*0.000001*	*0.0001*
± 20	0,01	1	*± 0.001*	*0.000001*	*0.00005*
± 5	0,01	2	*± 0.0002*	*0.000001*	*0.00001*
± 2	0,01	0,1	*± 0.0001*	*0.000001*	*0.000005*
± 0,5	0,01	0,02	*± 0.00002*	*0.000001*	*0.000001*

Output current: ≤ 2 mA

Permissible adjustment load: ≥ 5 kΩ

Residual ripple (with probe at zero point): ≤ 1 mV

Reference voltage level: analogue earth 0 V

Drive frequency: 13 ±0,65 kHz

Additional data on TESATRONIC TT 80

Response time of the analogue/digital display as well as the classification LEDs: ≤ 100 ms

Holding time of digital display: 100 ms

Response time of the signal of analogue output with reference to analogue display: ≤ 30 ms

Frequency limit for all types of display as well as the memory with reference to the signal input: 10 Hz

Limit values*: 2% for analogue display

0,15% for digital display

0,3% for analogue output

0,15% for digital output

Voltage range: ± 2 V to ±10 V

Output current: ≤ 2 mA

Permissible adjustment load: ≥ 5 kΩ

Residual ripple (with probe at zero point): ≤ 1 mV

Reference voltage level: analogue earth 0 V

Drive frequency: 13 kHz ±0,5%

* With reference to 20°C as well as a relative humidity of ≤ 50%.

TESATRONIC TTA 20

Compact design with analogue indication and value classification facility – Aluminium housing for harsh shop floor environment – Easy Handling.

- Easy-to-read analogue display with mirror strip in order to avoid parallax error.
- 6 measuring ranges.
- Metric/Inch conversion.
- Easy display setting through electrical zero.
- 2 probe inputs for single, sum or difference measurements.
- 1 auxiliary signal input, e.g. for all correction values.
- LEDs for signalling the relevant quality class with green for «Good», yellow for «Rework» and red for «Scrap».
- Potentiometer for setting limit deviations.
- Polarity selector switch for the classification signals (internal or external dimensions).
- Switch for locking or unlocking a displayed value.
- Analogue output for the connection of a remote displaying or scribing unit.

✓

DIN 32876 Part 1

≈ 100 mm scale length

Response time: ≤ 1 s (display), 20 ms (analogue output), 10 ms (output signal of classification)

Zero drift* ≤ ± 0,005%/ °C
Frequency limit*: 1 Hz (display) 50 Hz (analogue output) 30 Hz (value classification)

Limit value*: 1,5% (display), 0,3% (analogue output).

Negligible for display or 5% for classification signals).

Voltage: ± 1V, output current ≤ 3 mA, perm. adjustment load ≥ 2 kΩ.

Residual ripple (at zero): ≤ 1 mV.

Reference voltage level: analogue earth (0 V)

230 or 115 V -10% to 20%, 50 to 60 Hz

Power consumption: ≤ 20 VA

Drive voltage of probe: 1,5 Veff -10% to 5%

Drive frequency: 13 ±0,65 kHz

0°C to 50°C

–10°C to 70°C

IP40 (IEC 60529)

EN 50081-1, EN 50081-2, EN 50082-1, EN 50082-2

258 x 190 x 158 mm (W x D x H)

3,4 kg

Shipping packaging

Identification number

Declaration of conformity

* With reference to 20°C as well as a relative humidity of ≤ 50%.

04430003	**TESATRONIC TTA 20** Electronic length measuring unit with analogue display; 6 measuring ranges; switchable from metric to inch; value classification with 1 good class; signal output through contact relay; 2 probe inputs.
Supplied with either of the following cables depending on the country where goods are to be delivered (must be specified on ordering):	
03160015	Mains cable fitted with SEV connector, 3-wire cable type, 2 m long
03160016	Mains cable fitted with VDE connector, 3-wire cable type, 2 m long
03160017	Mains cable without connector, 3-wire cable type, 2 m long
Optional accessory	
04460004	15-pin connector for the analogue output and classification signal

Measuring ranges along with scale divisions

µm	µm	*in*	*in*
± 1000	50	*± 0.1*	*0.005*
± 300	10	*± 0.03*	*0.001*
± 100	5	*± 0.01*	*0.0005*
± 30	1	*± 0.003*	*0.0001*
± 10	0,5	*± 0.001*	*0.00005*
± 3	0,1	*± 0.0003*	*0.00001*