The Talyvel® instrument

Talyvel® 6 Standard System (Code M112-4515-01)
Wide Range Talyvel® (Code M112-5056)

This compact unit offers stable, high accuracy measurement. Its pendulum type transducer is suspended on fine wires and is silicon oil damped to reduce the effects of mechanical vibration during measurements. Built-in electronics allow the Talyvel® level to interface directly to a PC using either the USB cable supplied or an optional wireless dongle. The level contains rechargeable batteries.

The Level Unit incorporates an On/Off clamp knob which, when locked in, secures the pendulum during transport.

Talyvel® 6 Differential System (Code M112-4516-01)
Wide Range Differential (Code M112-5057)

Two Level Units (A and B) can be controlled from the computer interface to provide a differential system for measuring the difference in inclination of two surfaces, as well as their departure from absolute level. Display of results from each Level Unit and their differential value are determined by selection of A, B or A-B.

The differential Talyvel® is of particular value in applications such as measuring the relative deflections in buildings, in the production and assembly of precision machinery where there may be vibration and for monitoring twist or deflection on moving surfaces, eg ship's engines or machinery on oil rig platforms.

The Talyvel® can also be supplied with **multiple levels** connected to one computer with dedicated software – particularly useful for monitoring level on large areas such as platforms or tables – price on application.

Connectivity options

❶ 20 metre USB extension (Code 112-5590)

This extension cable allows the Talyvel® to be used at longer distances (standard length cable is 3 metres).

❷ Wireless Dongle Accessory (Code 112-4519)

The Talyvel® can be used in wireless mode with the addition of an optional dedicated wireless receiver which plugs into the computer USB port and has a range of up to 10 metres.

❸ Remote keypad (Code 265-1277)

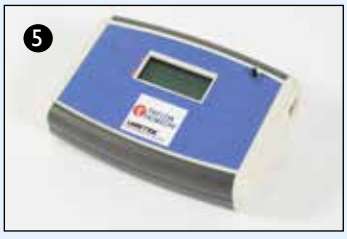
Small handheld keypad allows measurements to be taken away from the laptop over short range.

❹ External Trigger (Code 112-5766)

This switch allows measurements to be triggered remotely when the level is being used far away from the laptop.

❺ Digital Readout (Code 112-5765)

This hand-held digital readout is used for a simple readout without the need for the laptop. Ideal for simple levelling where measurements do not need to be saved or for use in awkward locations where it is not possible to use a laptop. Readout has a range of up to 15 metres.



Talyvel® 6 technical data

Measurement capability

	Standard option	Wide range option
Range	± 800 seconds	± 2000 seconds
Best accuracy	0.2 second	0.4 second
Accuracy over central 100s	± 1 second	± 2 second
Accuracy over full range	± 8 second	± 20 second
Resolution	0.01 seconds	0.1 seconds
Analogue software display	± 600 seconds range, switchable to "FINE" range of ± 10 seconds.	
Response time	Settling time of display 2 seconds	
Talyvel® battery life	Not less than 10 hours continuous use from fully charged state	
Working temperature	- 5°C to + 40°C	
Storage temperature (Instrument without batteries)	- 10°C to + 40°C	
Standard USB cable length	3 metres (9.8 feet)	
Power supply through PC	110V, 120V, 220V, 240V, 50/60Hz	

Technical

Overall dimensions of level unit	
Base	100 x 32 mm (3.94 x 1.25 in)
Height	115 mm (4.53 in)

Approx. weight	
Level unit	0.75 kg (1.65 lb)
Notebook / Tablet PC unit	2.0 kg (4.4 lb) approx. (model may vary)

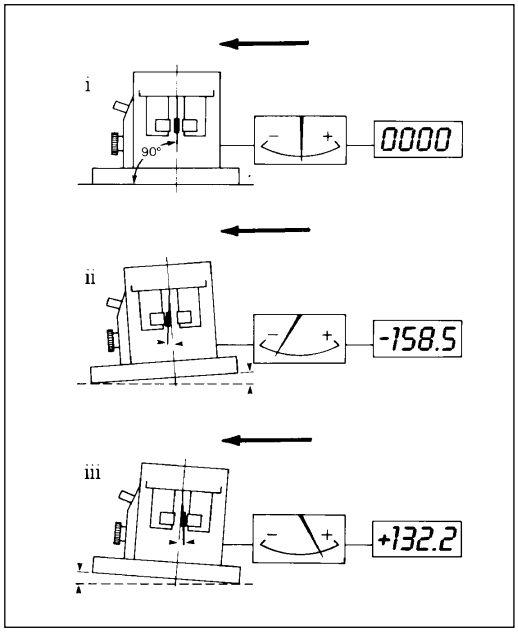
Wireless accessory	
Frequency used	2.405 to 2.48 GHz band
Protocol used	MiWi™
Range	≤ 10 metres (32.8 feet)

Speed of measurement

Speed of measurement depends on the processing capability of the PC. Taylor Hobson supplies a (minimum) 1 GHz processor which has a speed of about 0.4 sec for a single measurement. This can be as small as 0.1 sec for faster (3 GHz processors). The facility to average a number of successive measurements is available to the user in order to (for example) eliminate any vibrations or other short term instabilities associated with the measurement set up.

UKAS Certification

Talyvel®'s can be supplied with a United Kingdom Accreditation Service (UKAS) certificate which gives an independent and authoritative traceable guarantee of instrument performance and accuracy. Regular servicing and UKAS calibration will guarantee that the performance specification is maintained.



Meter and digital indication of Level Unit inclination

(i) Level Unit Level - Zero inclination

(ii) Level Unit inclined anti-clockwise - negative indication

(iii) Level Unit inclined clockwise - positive indication

Talyvel® computer processing

Taylor Hobson optical analysis software 112-5105 (Optional)

A full Windows based software package is available to support Talyvel®, conforming to international standards BS817, DIN876, ISO8512. The package includes flatness measurement Union Jack (Moody) or grid, straightness measurement (including twist and squareness) and the polygon angular indexing program (for autocollimators).

The software can be accessed by means of an optional licensed dongle. Languages including Japanese and Chinese are also selectable.

Flatness program

Flatness can be measured using either Grid or Union Jack (Moody) methods. Simple, interactive menu driven software displays an initial diagram of the surface to be measured, together with surface generator lines and direction of measurement.

After the selected number of measuring steps have been entered, the program calculates and displays the shape of each generator line and the flatness of the surface.

Once the computer has accepted the Talyvel® readings, the values are displayed as arc seconds and then converted to height in micrometers or millionths of an inch units for printout.

Measurement results of flatness are displayed and printed out as an isometric diagram, certificate or results table. To comply with international standards a minimum zone calculation is used to generate flatness errors. A local variation gauge is available (code 112-5588).

Straightness & twist programs

The straightness program will permit straightness measurement on components such as machine tool slideways, shafts and rolls. The method used is similar to flatness measurement described above.

Results are presented in both tabular form and also as a straightness graph. Twist and squareness measurement is also available in this package. Analysis is to Least Squares Line or ENDS ZERO, with appropriate graphical representation of results.

The Twist program combines a single line straightness measurement with a number of radial or cross measurements.

Squareness & parallelism

Using the Right Angled Base (see accessories page 7) the Talyvel® can also be used to measure squareness. Two single straightness plots are taken (one at right angles to the other) and with each completed plot a slope value is given in mm/m. A comparison of these two values gives an indication of squareness.

Special software – price on application

Additional software can be developed to meet specific application requirements upon request. A typical application is circular flatness and parallelism measurement, for example for measurement of large bearings where a series of measurements can be plotted around the circumference of each ring.