



Description

These Precision Engineers Levels (PEL) are high accuracy engineers and machinists levels that combine high sensitivity, rapid levelling and optimum vial quality in a robust design for professional users. The precision ground vials are manufactured in our world leading UK facility to ensure a fast stabilisation time, and highly accurate and repeatable readings. The level features a precision ground granite base with flat and prismatic 'V' surfaces. This high quality granite base eliminates traditional issues of corrosion, denting and distortion which ensures accuracy can be maintained over the life of the product. The novel vial mounting and adjustment mechanism is highly rigid and yet easy to adjust. The rigidity ensures it is minimally affected by impacts and temperature variation which means it can be used straight from the box with confidence. The level comes in two lengths (125mm and 200mm) with three sensitivity options (0.1mm/m, 0.05mm/m and 0.02mm/m.) These levels are designed, manufactured and tested to the highest standard in our UK factory and laboratory and conforms to the British and European Standards (BS958 and DIN877) for precision spirit levels.

Features

- Optimised vial design and manufacturing ensures fast stabilisation time and excellent bubble contrast for improved readability
- Precision ground granite base with flat and prismatic 'V' surfaces can be used for levelling flat and cylindrical surfaces.
- The granite base will not corrode or distort and cannot be dented which ensures it will maintain precision over the life of the product.
- Two base length options: 125mm and 200mm
- Three sensitivity options: 0.02mm/m, 0.05mm/m, 0.1mm/m
- An ultra fine yet highly rigid adjustment mechanism allows for simple recalibration (see page 4) and ensures a high level of stability over time, temperature and shocks and impacts
- All spares are available to purchase as well as a repair and recalibration service
- Certification can be supplied to BS958 and DIN877 on request
- Supplied in a protective aluminium carry case with foam inserts
- Wide operating temperature range -5 to +45°C
- Manufactured and tested in our UK facility

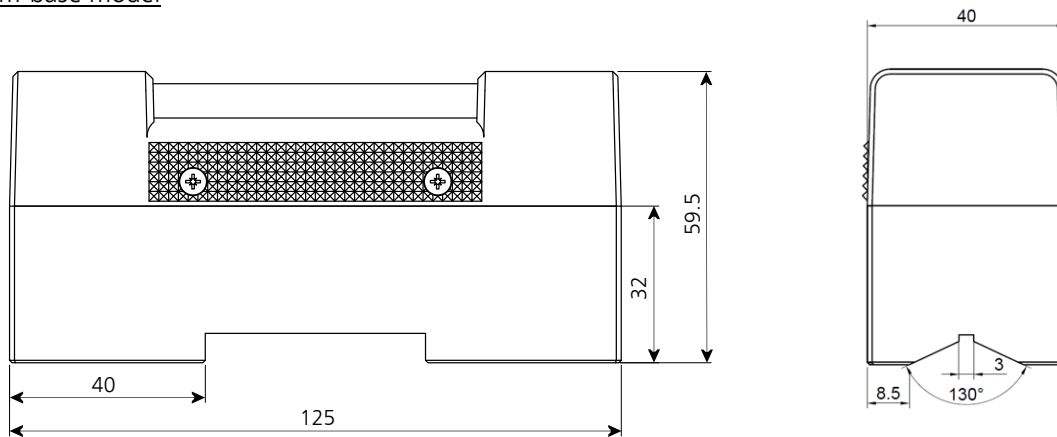


Specifications

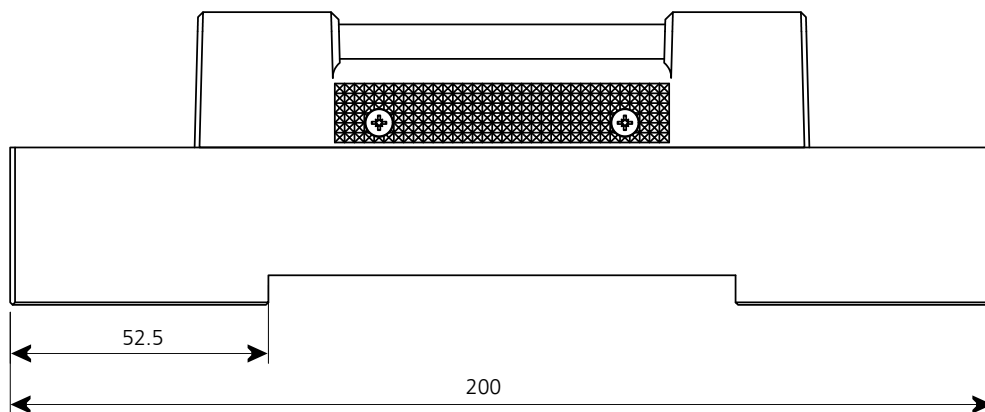
Specification	Value	Unit	Notes
Sensitivity per Division	0.02 0.05 0.1	mm/m	The level comes in three different sensitivity options. The sensitivity is the gradient required to move the bubble by one of the 2mm divisions
Length - PEL-125 - PEL-200	125 200	mm	
Stabilisation Time - 0.1mm/m - 0.05mm/m - 0.02mm/m	8 12 16	s	The time taken for the bubble to reach it's final position after placing on the measurement surface
Division Size	2	mm	The distance between each division
Cross Vial	Yes		A second vial for cross axis levelling used when levelling cylindrical surfaces
Operational Temperature Range	-5 to 45	°C	
Storage Temperature Range	-20 to 60	°C	
Base flatness	3	µm	The maximum flatness deviation across the flat feet
Parallelism	5	µm	The maximum deviation of parallelism of the V surfaces

Dimensions

125mm-base model



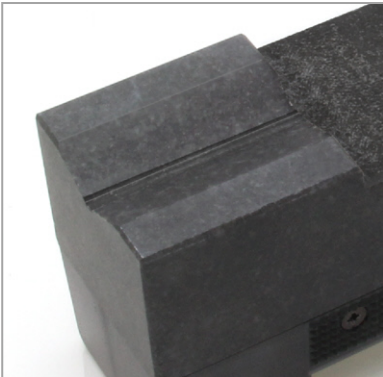
200mm-base model





Features

Flat and 'V' Granite Base



Side Viewable



Aluminium Protective Case



Precision Main Vial



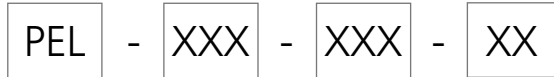
Cross Vial



Simple and Precise Adjustment



Part Numbering



Prefix

0.02 - 0.02mm/m Sensitivity
 0.05 - 0.05mm/m Sensitivity
 0.1 - 0.1mm/m Sensitivity

125 - 125mm Granite Base
 200 - 200mm Granite Base

Customer specific options (optional)

Example:

PEL-0.02-200

- PEL** - Precision Engineers Level
- 0.02** - 0.02mm/m sensitivity
- 200** - 200mm long granite base



Calibration Instructions

To calibrate the PEL, an adjustable flat surface that is mechanically stable such as a surface plate is required. It does not need to be perfectly level to start with, but must be within the range of the level.

1. Clean the bearing surface, and the underside of the level to remove any dirt or dust. Then place the level onto the surface plate ready for inspection.
2. Note the position of the bubble after it has settled and then turn the level by 180° and place back onto the surface in the same position as before.
3. Note again the position of the bubble after it has settled.

If the level and the surface plate are set level, then the bubble will be central on both readings. If the level is set level, but the surface plate is out of level, then the bubble will move in the same direction off-centre when the level is turned through 180°. The surface plate can then be adjusted by this amount. If the bearing surface is set level, and the level is out of level, then the bubble will move in a different direction off-centre when the level is turned through 180°. The level can then be adjusted to read level. If the readings are different, then both the level and the surface need to be adjusted.

Example 1

First bubble reading: 4 divisions to the left hand side

Second reading when rotated through 180°: 3 divisions to the right hand side:



First Reading



Second Reading

The error in the level is half of the total error = $(4+3)/2 = 3.5$ divisions.,
The error in the surface is half of the difference = $(4-3)/2 = 0.5$ divisions.

Example 2

First bubble reading: 3 divisions to the left hand side

Second reading when rotated through 180°: 1 divisions to the left hand side



First Reading



Second Reading

The error in the level is half of the total error = $(3-1)/2 = 1$ divisions.,
The error in the surface is half of the difference = $(3+1)/2 = 2$ division.

In order to adjust the level, use the Allen key provided to turn the adjustment screw accessible from the top cover of the level.