

Position indicators are mechanical measuring devices which indicate and monitor the movement of a machine component along a linear shaft or threaded lead spindle.

They are used to move and give a read out of values such as lengths [m, mm], force [N], volumes [l], revolutions [rpm] etc.

Position indicators are split into the following categories:

## Operating principle of the measuring mechanism

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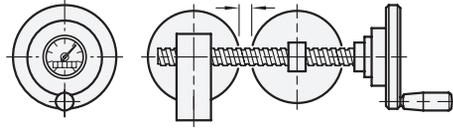
- Energized by a weighted pendulum and gravity (pendulum system) for connecting to a horizontal spindle
  - GN 000.8 → Page 366
  - GN 000.3 → Page 367
- Self energized, direct or indirect, (stationary system) to be connected in any required position
  - GN 000.9 → Page 386
  - GN 000.13 → Page 387
  - GN 953 → Page 396
  - GN 954 → Page 398
  - GN 955 → Page 400
- Drive, direct and contact-free
  - GN 9053 → Page 402
  - GN 9054 → Page 404
  - GN 9153 → Page 406

## Type of read out

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- analog (GN 000.8 / 000.9)
- digital / analog (GN 000.3 / 000.13)
- digital (GN 953 / 954 / 955)
- digital, electronic, LCD-display (GN 9053 / GN 9054)
- digital, electronic, LCD-display, with data transmission via radio frequency (GN 9153)

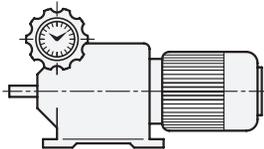
The movement is in most cases initiated by control systems. There is an extensive range of handwheels and hand knobs available which can be used for incorporating position indicators in their hubs.



Handwheel with position indicator GN 000.3  
Operating principle pendulum system,  
digital and analog read out

**Application example:**

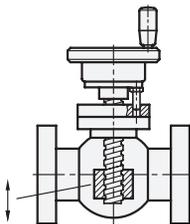
Positioning of rollers in mechanical engineering  
(pressing machines, straightening machines)



Handwheel with position indicator GN 000.8  
Operating principle pendulum system, analog read out

**Application example:**

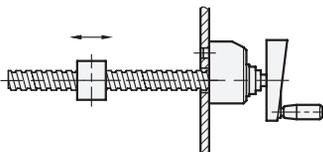
Regulating rpm speed on steplessly adjustable gear boxes



Handwheel with position indicator GN 000.9 / GN 000.13  
Operating principle stationary system,  
digital and analog read out

**Application example:**

Valve adjustment with vertically oriented adjustment spindle



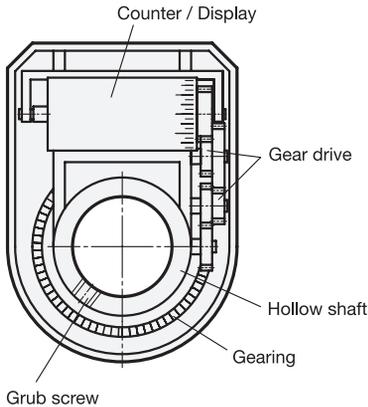
Cranked handle with position indicator GN 953 / GN 954 /  
GN 955 / GN 9053 / GN 9054 / GN 9153  
Operating principle stationary system (direct driven),  
digital read out

**Application example:**

Positioning of machine parts

## Operating principle

The position indicator is equipped with a hollow shaft that is slid directly onto the spindle and is connected to the spindle by a grub screw. The spindle rotations are transmitted to a counter directly by a gearbox. For torque support, a pin of the housing projects into a hole made on the machine-side, establishing the position relative to the mounting site.



The transmission ratio and counting direction of the counter are determined by the pitch of the adjusting spindle. The indicated value after one turn starting from the 0 position serves as a characteristic value. Decimal places are indicated in red.

Position indicators are also suitable for motor-driven spindles up to a maximum speed.

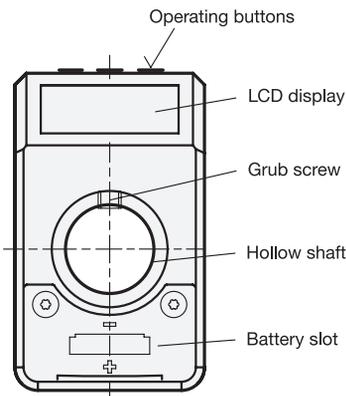
## Operating principle

The electronic position indicators GN 9053 / GN 9054 / GN 9153 are very similar to the mechanical position indicators GN 953 / GN 954 / GN 955 with regard to installation and external dimensions and can normally replace them.

The protection class IP 65 or IP 67 of the housing permits use in wet areas, even in contact with direct streams of water.

The measurement of the spindle rotations takes place directly, electronically and without contact. The required energy is supplied by a lithium battery with a lifespan of 5 or 8 years that can be easily replaced.

The special advantage of the electronic position indicator lies in its programmability. Nearly any desired counting option can be configured directly on the device using the operating buttons.



With 3 or 4 operating buttons, it is possible to:

- selecting between incremental or absolute measurement mode
- changing the unit of measure (mm, inch or degree)
- resetting the counter or selecting a predefined offset value
- changing the display after one turn of the shaft,
- determining the resolution, i.e. the number of decimal points displayed
- determining the direction of rotation / direction of counting
- determining the display orientation (as a factor of the installation position), and
- specifying the maximum speed of rotation.