

SECTION G — PHYSICS

G01 MEASURING; TESTING

G01P MEASURING LINEAR OR ANGULAR SPEED, ACCELERATION, DECELERATION OR SHOCK; INDICATING PRESENCE OR ABSENCE OF MOVEMENT; INDICATING DIRECTION OF MOVEMENT (measuring angular rate using gyroscopic effects G01C 19/00; combined measuring devices for measuring two or more variables of movement G01C 23/00; measuring velocity of sound G01H 5/00; measuring velocity of light G01J 7/00; determining direction or velocity of solid objects by reflection or reradiation of radio or other waves and based on propagation effects, e.g. Doppler effect, propagation time or direction of propagation, G01S; measuring speed of nuclear radiation G01T)

Note(s) [4]

1. This subclass covers measuring direction or velocity of flowing fluids using propagation effects of radiowaves or other waves caused in the fluid itself, e.g. by laser anemometer, by ultrasonic flowmeter with "sing-around-system".
2. Attention is drawn to the Notes following the title of class G01.

Subclass index

INDICATING MOVEMENT OR DIRECTION OF MOVEMENT.....	13/00
MEASURING LINEAR OR ANGULAR SPEED OF SOLID BODIES	
Characterised by prevailing principle of action of the means.....	3/00
By integration; by gyroscopic effect; by averaging.....	7/00, 11/00
MEASURING SPEED OF FLUIDS OR RELATIVE SPEED OF SOLID TO FLUID OR FLUID TO SOLID.....	5/00
MEASURING ACCELERATION OR SUDDEN CHANGE OF ACCELERATION.....	15/00
DETAILS.....	1/00
FUNCTIONAL TESTING OR CALIBRATING.....	21/00

1/00 Details of instruments [1, 2006.01]	3/06 • • • using a friction gear [1, 2006.01]
1/02 • Housings [1, 2006.01]	3/08 • • • using differential gearing [1, 2006.01]
1/04 • Special adaptations of driving means [1, 2006.01]	3/10 • • by actuating an indicating element, e.g. pointer, for a fixed time [1, 2006.01]
1/07 • Indicating devices, e.g. for remote indication [3, 2006.01]	3/12 • • by making use of a system excited by impact [1, 2006.01]
1/08 • • Arrangements of scales, pointers, lamps, or acoustic indicators, e.g. in automobile speedometers [1, 2006.01]	3/14 • • by exciting one or more mechanical resonance systems [1, 2006.01]
1/10 • • • for indicating predetermined speeds [1, 2006.01]	3/16 • • by using centrifugal forces of solid masses [1, 2006.01]
1/11 • • • • by the detection of the position of the indicator needle [3, 2006.01]	3/18 • • • transferred to the indicator by mechanical means [1, 2006.01]
1/12 • Recording devices [3, 2006.01]	3/20 • • • transferred to the indicator by fluid means [1, 2006.01]
1/14 • • for permanent recording [3, 2006.01]	3/22 • • • transferred to the indicator by electric or magnetic means [1, 2006.01]
1/16 • • for erasable recording, e.g. magnetic recording [3, 2006.01]	3/24 • • by using friction effects (G01P 3/06 takes precedence) [1, 2006.01]
3/00 Measuring linear or angular speed; Measuring differences of linear or angular speeds (G01P 5/00-G01P 11/00 take precedence; measuring angular rate using gyroscopic effects G01C 19/00) [1, 2006.01]	3/26 • Devices characterised by the use of fluids [1, 2006.01]
Note(s)	3/28 • • by using pumps [1, 2006.01]
Groups G01P 3/02-G01P 3/64 are distinguished by the method of measurement which is of major importance. Thus the mere application of other methods for giving a final indication does not affect the classification.	3/30 • • by using centrifugal forces of fluids [1, 2006.01]
3/02 • Devices characterised by the use of mechanical means [1, 2006.01]	3/32 • • • in a rotary container communicating with a fixed container [1, 2006.01]
3/04 • • by comparing two speeds [1, 2006.01]	3/34 • • by using friction effects [1, 2006.01]
	3/36 • Devices characterised by the use of optical means, e.g. using infra-red, visible, or ultra-violet light (G01P 3/68 takes precedence) [1, 2006.01]
	3/38 • • using photographic means [1, 2006.01]

- 3/40 • • using stroboscopic means [1, 2006.01]
- 3/42 • Devices characterised by the use of electric or magnetic means (G01P 3/66 takes precedence) [1, 2006.01]
- 3/44 • • for measuring angular speed (G01P 3/56 takes precedence) [1, 2006.01]
- 3/46 • • • by measuring amplitude of generated current or voltage [1, 2006.01]
- 3/48 • • • by measuring frequency of generated current or voltage [1, 2006.01]
- 3/481 • • • of pulse signals [3, 2006.01]
- 3/482 • • • • delivered by nuclear radiation detectors [3, 2006.01]
- 3/483 • • • • delivered by variable capacitance detectors [3, 2006.01]
- 3/484 • • • • delivered by contact-making switches [3, 2006.01]
- 3/486 • • • • delivered by photo-electric detectors [3, 2006.01]
- 3/487 • • • • delivered by rotating magnets [3, 2006.01]
- 3/488 • • • • delivered by variable reluctance detectors [3, 2006.01]
- 3/489 • • • • Digital circuits therefor [3, 2006.01]
- 3/49 • • • using eddy currents [1, 2006.01]
- 3/495 • • • where the indicating means responds to forces produced by the eddy currents and the generating magnetic field [3, 2006.01]
- 3/50 • • for measuring linear speed (G01P 3/56 takes precedence) [1, 2006.01]
- 3/52 • • • by measuring amplitude of generated current or voltage [1, 2006.01]
- 3/54 • • • by measuring frequency of generated current or voltage [1, 2006.01]
- 3/56 • • for comparing two speeds [1, 2006.01]
- 3/58 • • • by measuring or comparing amplitudes of generated currents or voltages [1, 2006.01]
- 3/60 • • • by measuring or comparing frequency of generated currents or voltages [1, 2006.01]
- 3/62 • Devices characterised by the determination of the variation of atmospheric pressure with height to measure the vertical components of speed [1, 2006.01]
- 3/64 • Devices characterised by the determination of the time taken to traverse a fixed distance [1, 2006.01]
- 3/66 • • using electric or magnetic means (G01P 3/80 takes precedence) [1, 4, 2006.01]
- 3/68 • • using optical means, i.e. using infra-red, visible, or ultra-violet light (G01P 3/80 takes precedence) [1, 4, 2006.01]
- 3/80 • • using auto-correlation or cross-correlation detection means [4, 2006.01]
- 5/00 **Measuring speed of fluids, e.g. of air stream; Measuring speed of bodies relative to fluids, e.g. of ship, of aircraft** (application of speed-measuring devices for measuring volume of fluids G01F) [1, 2006.01]
- 5/01 • by using swirlflowmeter [3, 2006.01]
- 5/02 • by measuring forces exerted by the fluid on solid bodies, e.g. anemometer [1, 2006.01]
- 5/04 • • using deflection of baffle-plates [1, 2006.01]
- 5/06 • • using rotation of vanes [1, 2006.01]
- 5/07 • • • with electrical coupling to the indicating device [3, 2006.01]
- 5/08 • • by measuring variation of an electric variable directly affected by the flow, e.g. by using dynamo-electric effect [1, 2006.01]
- 5/10 • by measuring thermal variables [1, 2006.01]
- 5/12 • • using variation of resistance of a heated conductor [1, 2006.01]
- 5/14 • by measuring differences of pressure in the fluid [1, 2006.01]
- 5/16 • • using Pitot tubes [1, 2006.01]
- 5/165 • • • Arrangements or constructions of Pitot tubes [3, 2006.01]
- 5/17 • • • Coupling arrangements to the indicating device [3, 2006.01]
- 5/175 • • • • with the determination of Mach number [3, 2006.01]
- 5/18 • by measuring the time taken by the fluid to traverse a fixed distance [1, 7, 2006.01]
- 5/20 • • using particles entrained by a fluid stream (G01P 5/22 takes precedence) [1, 4, 2006.01]
- 5/22 • • using auto-correlation or cross-correlation detection means [4, 2006.01]
- 5/24 • by measuring the direct influence of the streaming fluid on the properties of a detecting acoustical wave [7, 2006.01]
- 5/26 • by measuring the direct influence of the streaming fluid on the properties of a detecting optical wave [7, 2006.01]
- 7/00 **Measuring speed by integrating acceleration** (inertial navigation, i.e. calculating position or speed aboard the object being navigated, by integration of speed or acceleration G01C 21/16) [1, 2006.01]
- 11/00 **Measuring average value of speed** (by determining time taken to traverse a fixed distance G01P 3/64, G01P 5/18) [1, 2006.01]
- 11/02 • Measuring average speed of a number of bodies, e.g. of vehicles for traffic control [1, 2006.01]
- 13/00 **Indicating or recording presence or absence of movement; Indicating or recording of direction of movement** [1, 2006.01]
- 13/02 • Indicating direction only, e.g. by weather vane [1, 2006.01]
- 13/04 • • Indicating positive or negative direction of a linear movement or clockwise or anti-clockwise direction of a rotational movement [3, 2006.01]
- 15/00 **Measuring acceleration; Measuring deceleration; Measuring shock, i.e. sudden change of acceleration** [1, 2006.01]
- 15/02 • by making use of inertia forces (G01P 15/14 takes precedence) [1, 7, 2006.01, 2013.01]
- 15/03 • • by using non-electrical means [3, 2006.01]
- 15/04 • • for indicating maximum value [1, 2006.01]
- 15/06 • • • using members subjected to a permanent deformation [1, 2006.01]
- 15/08 • • with conversion into electric or magnetic values [1, 2006.01]
- 15/09 • • • by piezo-electric pick-up [3, 2006.01]
- 15/093 • • • by photoelectric pick-up [7, 2006.01]
- 15/097 • • • by vibratory elements [7, 2006.01]
- 15/10 • • • • by vibratory strings [1, 2006.01]
- 15/105 • • • by magnetically sensitive devices [7, 2006.01]
- 15/11 • • • • by inductive pick-up [3, 2006.01]
- 15/12 • • • by alteration of electrical resistance [1, 2006.01]
- 15/125 • • • by capacitive pick-up [3, 2006.01]

- 15/13 • • • by measuring the force required to restore a proofmass subjected to inertial forces to a null position [**3, 2006.01**]
- 15/135 • • • by making use of contacts which are actuated by a movable inertial mass [**3, 2006.01**]
- 15/14 • by making use of gyroscopes [**1, 7, 2006.01, 2013.01**]
- 15/16 • by evaluating the time-derivative of a measured speed signal [**3, 7, 2006.01, 2013.01**]
- 15/18 • in two or more dimensions [**7, 2006.01, 2013.01**]
- 21/00 Testing or calibrating of apparatus or devices covered by the other groups of this subclass [1, 2006.01]**
- 21/02 • of speedometers [**1, 2006.01**]