

## SECTION G — PHYSICS

## G01 MEASURING; TESTING

**G01D MEASURING NOT SPECIALLY ADAPTED FOR A SPECIFIC VARIABLE; ARRANGEMENTS FOR MEASURING TWO OR MORE VARIABLES NOT COVERED BY A SINGLE OTHER SUBCLASS; TARIFF METERING APPARATUS; TRANSFERRING OR TRANSDUCING ARRANGEMENTS NOT SPECIALLY ADAPTED FOR A SPECIFIC VARIABLE; MEASURING OR TESTING NOT OTHERWISE PROVIDED FOR**

Note(s)

- This subclass covers:
  - devices for indicating or recording the results of measurements, not peculiar to variables covered by a single other subclass;
  - analogous arrangements but in which the input is not a variable to be measured, e.g. a hand operation;
  - details of measuring instruments, which are of general interest;
  - measurement transducers not adapted solely for the measurement of a single specified variable and not provided for elsewhere, i.e. means for converting the output of a sensing member to another variable where the form or nature of the sensing member does not constrain the means for converting;
  - measuring or testing not otherwise provided for.
- Attention is drawn to the Notes following the title of class G01.

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## MEASURING ARRANGEMENTS IN GENERAL

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**1/00 Measuring arrangements giving results other than momentary value of variable, of general application** (G01D 3/00 takes precedence; in tariff metering apparatus G01D 4/00; transducers not specially adapted for a specific variable G01D 5/00) **[1, 2006.01]**

1/02 • giving mean values, e.g. root mean square values (measuring root mean square values of currents or voltages G01R 19/02) **[1, 2006.01]**

1/04 • giving integrated values (giving mean values G01D 1/02) **[1, 2006.01]**

1/06 • • by intermittent summation **[1, 2006.01]**

1/08 • • • over fixed periods of time **[1, 2006.01]**

1/10 • giving differentiated values **[1, 2006.01]**

1/12 • giving a maximum or minimum of a value **[1, 2006.01]**

1/14 • giving a distribution function of a value, i.e. number of times the value comes within specified ranges of amplitude **[1, 2006.01]**

1/16 • giving a value which is a function of two or more values, e.g. product, ratio **[1, 2006.01]**

1/18 • with arrangements for signalling that a predetermined value of an unspecified parameter has been exceeded (G01D 1/14 takes precedence) **[3, 2006.01]**

**3/00 Measuring arrangements with provision for the special purposes referred to in the subgroups of this group [1, 2006.01]**

3/02 • with provision for altering or correcting the transfer function **[1, 2006.01]**

3/024 • • for range change; Arrangements for substituting one sensing member by another **[6, 2006.01]**

3/028 • mitigating undesired influences, e.g. temperature, pressure **[6, 2006.01]**

3/032 • • affecting incoming signal, e.g. by averaging; gating undesired signals **[6, 2006.01]**

3/036 • • on measuring arrangements themselves **[6, 2006.01]**

3/06 • with provision for operation by a null method **[1, 2006.01]**

3/08 • with provision for safeguarding the apparatus, e.g. against abnormal operation, against breakdown **[1, 2006.01]**

3/10 • with provision for switching-in of additional or auxiliary indicators or recorders **[1, 2006.01]**

**4/00 Tariff metering apparatus** (in taximeters G07B 13/00; apparatus actuated by coins, cards or the like with meter-controlled dispensing of liquid, gas, or electricity G07F 15/00) **[1, 2006.01]**

- 4/02 • Details [1, 2006.01]
- 4/04 • • Resetting-mechanisms, e.g. for indicating members [1, 2006.01]
- 4/06 • • Arrangement of clutches between driving and indicating member, e.g. of hysteresis clutch (G01D 4/04 takes precedence) [1, 2006.01]
- 4/08 • • Transfer of indication from a counter into a summing counter [1, 2006.01]
- 4/10 • Maximum indicating or recording apparatus, i.e. where the tariff for a period is based on a maximum demand within that period [1, 2006.01]
- 4/12 • • Apparatus for indicating or recording progressive maximum [1, 2006.01]
- 4/14 • • Fixed-demand indicating or recording apparatus, i.e. where indication is made when a predetermined quantity has been consumed during a time interval greater or less than a predetermined time interval [1, 2006.01]
- 4/16 • Apparatus for indicating or recording maximum or minimum load hours [1, 2006.01]
- 4/18 • Apparatus for indicating or recording overconsumption with opposing torque which comes into effect when a predetermined level is exceeded, e.g. subtraction meters [1, 2006.01]

**5/00 Mechanical means for transferring the output of a sensing member; Means for converting the output of a sensing member to another variable where the form or nature of the sensing member does not constrain the means for converting; Transducers not specially adapted for a specific variable**  
(G01D 3/00 takes precedence; specially adapted for apparatus giving results other than momentary value of variable G01D 1/00) [1, 6, 2006.01]

#### Note(s)

Groups G01D 5/02-G01D 5/54 are distinguished by the means which is of major importance. Thus the mere application of other means for giving a final indication does not affect the classification.

- 5/02 • using mechanical means [1, 2006.01]
- 5/04 • • using levers; using cams; using gearing [1, 2006.01]
- 5/06 • • acting through a wall or enclosure, e.g. by bellows, by magnetic coupling [1, 2006.01]
- 5/08 • • Reducing the effects of friction, e.g. by applying vibrations [1, 2006.01]
- 5/10 • • Applying external forces to increase force available for operation of indicating or recording part [1, 2006.01]
- 5/12 • using electric or magnetic means (G01D 5/06 takes precedence) [1, 3, 2006.01]
- 5/14 • • influencing the magnitude of a current or voltage [1, 2006.01]
- 5/16 • • • by varying resistance [1, 2006.01]
- 5/165 • • • • by relative movement of a point of contact and a resistive track [6, 2006.01]
- 5/18 • • • by varying effective impedance of discharge tubes or semiconductor devices [1, 2006.01]
- 5/20 • • • by varying inductance, e.g. by a movable armature [1, 2006.01]
- 5/22 • • • • differentially influencing two coils [1, 2006.01]
- 5/24 • • • by varying capacitance [1, 2006.01]
- 5/241 • • • • by relative movement of capacitor electrodes [6, 2006.01]
- 5/242 • • • by varying output of an electrodynamic device, e.g. of a tachodynamo [1, 2006.01]

- 5/243 • • influencing the phase or frequency of ac [1, 2006.01]
- 5/244 • • influencing characteristics of pulses or pulse trains; generating pulses or pulse trains [1, 6, 2006.01]
- 5/245 • • • using a variable number of pulses in a train [1, 2006.01]
- 5/246 • • • by varying the duration of individual pulses [1, 2006.01]
- 5/247 • • • using time shifts of pulses [1, 2006.01]
- 5/248 • • • by varying pulse repetition frequency [1, 2006.01]
- 5/249 • • • using pulse code [1, 2006.01]
- 5/25 • • Selecting one or more conductors or channels from a plurality of conductors or channels, e.g. by closing contacts [1, 2006.01]
- 5/251 • • • one conductor or channel [1, 2006.01]
- 5/252 • • • a combination of conductors or channels [1, 2006.01]
- 5/26 • using optical means, i.e. using infra-red, visible or ultra-violet light [1, 2006.01]
- 5/28 • • with deflection of beams of light, e.g. for direct optical indication (G01D 5/40 takes precedence) [1, 2006.01]
- 5/30 • • • the beams of light being detected by photocells [1, 2006.01]
- 5/32 • • with attenuation or whole or partial obturation of beams of light (G01D 5/40 takes precedence) [1, 2006.01]
- 5/34 • • • the beams of light being detected by photocells [1, 2006.01]
- 5/347 • • • • using displacement encoding scales [6, 2006.01]
- 5/353 • • • • influencing the transmission properties of an optical fibre [6, 2006.01]
- 5/36 • • • • Forming the light into pulses [1, 2006.01]
- 5/38 • • • • by diffraction gratings [1, 2006.01]
- 5/39 • • Scanning a visible indication of the measured value and reproducing this indication at a remote place, e.g. on the screen of a cathode-ray tube [1, 2006.01]
- 5/40 • • specially adapted for use with infra-red light [1, 2006.01]
- 5/42 • using fluid means [1, 2006.01]
- 5/44 • • using jets of fluid [1, 2006.01]
- 5/46 • • • by deflecting or throttling the flow [1, 2006.01]
- 5/48 • using wave or particle radiation means (G01D 5/26 takes precedence) [1, 2006.01]
- 5/50 • • derived from a radioactive source [1, 2006.01]
- 5/52 • • • detected by a counter tube [1, 2006.01]
- 5/54 • using means specified in two or more of groups G01D 5/02, G01D 5/12, G01D 5/26, G01D 5/42, and G01D 5/48 [1, 2006.01]

#### Note(s)

Classification is made in this group only if no other group can be selected as being predominantly applicable.

#### Note(s)

For a combination of two or more of the means specified, the first applicable one of subgroups G01D 5/56-G01D 5/62 takes precedence over any others of these groups.

- 5/56 • • using electric or magnetic means [1, 2006.01]
- 5/58 • • using optical means, i.e. using infra-red, visible or ultra-violet light [1, 2006.01]

- 5/60 • • using fluid means [1, 2006.01]
- 5/62 • • using wave or particle radiation means not covered by group G01D 5/58 [1, 2006.01]
- 7/00 Indicating measured values [1, 2006.01]**
- 7/02 • Indicating value of two or more variables simultaneously [1, 2006.01]
- 7/04 • • using a separate indicating element for each variable [1, 2006.01]
- 7/06 • • • Luminous indications projected on a common screen [1, 2006.01]
- 7/08 • • using a common indicating element for two or more variables [1, 2006.01]
- 7/10 • • • giving indication in co-ordinate form [1, 2006.01]
- 7/12 • Audible indication of meter readings, e.g. for the blind [2, 2006.01]
- 9/00 Recording measured values [1, 2006.01]**
- 9/02 • Producing one or more recordings of the values of a single variable [1, 2006.01]
- 9/04 • • with provision for multiple or alternative recording [1, 2006.01]
- 9/06 • • • Multiple recording, e.g. duplicating [1, 2006.01]
- 9/08 • • • • giving both graphical and numerical recording [1, 2006.01]
- 9/10 • • the recording element, e.g. stylus, being controlled in accordance with the variable, and the recording medium, e.g. paper roll, being controlled in accordance with time [1, 2006.01]
- 9/12 • • • recording occurring continuously [1, 2006.01]
- 9/14 • • • • with provision for altering speed of recording medium in accordance with the magnitude of the variable to be recorded [1, 2006.01]
- 9/16 • • • recording occurring at separated intervals, e.g. by chopper bar [1, 2006.01]
- 9/18 • • • • recording element actuated only upon change in value of variable [1, 2006.01]
- 9/20 • • the recording element, e.g. stylus, being controlled in accordance with time and the recording medium, e.g. paper roll, being controlled in accordance with the variable [1, 2006.01]
- 9/22 • • • recording occurring continuously [1, 2006.01]
- 9/24 • • • recording occurring at separated intervals, e.g. by chopper bar [1, 2006.01]
- 9/26 • • either the recording element, e.g. stylus, or the recording medium, e.g. paper roll, being controlled in accordance with both time and the variable [1, 2006.01]
- 9/28 • Producing one or more recordings, each recording being of the values of two or more different variables (G01D 9/38, G01D 9/40 take precedence) [1, 2006.01]
- 9/30 • • there being a separate recording element for each variable, e.g. multiple-pen recorder [1, 2006.01]
- 9/32 • • there being a common recording element for two or more variables [1, 2006.01]
- 9/34 • • • the variables being recorded in predetermined sequence [1, 2006.01]
- 9/36 • • • in separate columns [1, 2006.01]
- 9/38 • Producing one or more recordings, each recording being produced by controlling the recording element, e.g. stylus, in accordance with one variable and controlling the recording medium, e.g. paper roll, in accordance with another variable [1, 2006.01]
- 9/40 • Producing one or more recordings, each recording being produced by controlling either the recording element, e.g. stylus, or the recording medium, e.g. paper roll, in accordance with two or more variables [1, 2006.01]
- 9/42 • Recording indications of measuring instruments by photographic means, e.g. of counters [1, 2006.01]
- 11/00 Component parts of measuring arrangements not specially adapted for a specific variable (G01D 13/00, G01D 15/00 take precedence) [1, 2006.01]**
- 11/02 • Bearings or suspensions for moving parts [1, 2006.01]
- 11/04 • • Knife-edge bearings [1, 2006.01]
- 11/06 • • Strip or thread suspensions, e.g. in tension [1, 2006.01]
- 11/08 • Elements for balancing moving parts [1, 2006.01]
- 11/10 • Elements for damping the movement of parts [1, 2006.01]
- 11/12 • • using fluid damping [1, 2006.01]
- 11/14 • • using magnetic induction damping [1, 2006.01]
- 11/16 • Elements for restraining or preventing the movement of parts, e.g. for zeroising (caging of moving parts when not in use G01D 11/20) [1, 2006.01]
- 11/18 • • Springs (G01D 11/06 takes precedence) [1, 2006.01]
- 11/20 • Caging devices for moving parts when not in use [1, 2006.01]
- 11/22 • • automatically actuated [1, 2006.01]
- 11/24 • Housings [1, 2006.01]
- 11/26 • • Windows; Cover glasses; Sealings therefor [1, 2006.01]
- 11/28 • Structurally-combined illuminating devices [1, 2006.01]
- 11/30 • Supports specially adapted for an instrument; Supports specially adapted for a set of instruments [1, 2006.01]
- 13/00 Component parts of indicators for measuring arrangements not specially adapted for a specific variable [1, 2006.01]**
- 13/02 • Scales; Dials [1, 2006.01]
- 13/04 • • Construction [1, 2006.01]
- 13/06 • • • Moving bands (G01D 13/10 takes precedence) [1, 2006.01]
- 13/08 • • • Rotating drums (G01D 13/10 takes precedence) [1, 2006.01]
- 13/10 • • • with adjustable scales; with auxiliary scales, e.g. vernier [1, 2006.01]
- 13/12 • • Graduation [1, 2006.01]
- 13/14 • • • for rotations of more than 360° [1, 2006.01]
- 13/16 • • • with staggered markings [1, 2006.01]
- 13/18 • • • with raised or recessed markings [1, 2006.01]
- 13/20 • • • with luminescent markings [1, 2006.01]
- 13/22 • Pointers, e.g. settable pointer [1, 2006.01]
- 13/24 • • for indicating a maximum or minimum [1, 2006.01]
- 13/26 • • adapted to perform a further operation, e.g. making electrical contact [1, 2006.01]
- 13/28 • • with luminescent markings [1, 2006.01]
- 15/00 Component parts of recorders for measuring arrangements not specially adapted for a specific variable [1, 2006.01]**

## G01D

- 15/02 • Styli or other recording elements acting to mechanically deform or perforate the recording surface (printing recording elements G01D 15/20) **[1, 2006.01]**
- 15/04 • • acting to punch holes in the recording surface **[1, 2006.01]**
- 15/06 • Electric recording elements, e.g. electrolytic **[1, 2006.01]**
- 15/08 • • for spark erosion **[1, 2006.01]**
- 15/10 • Heated recording elements acting on heat-sensitive layers **[1, 2006.01]**
- 15/12 • Magnetic recording elements **[1, 2006.01]**
- 15/14 • Optical recording elements; Recording elements using X- or nuclear radiation **[1, 2006.01]**
- 15/16 • Recording elements transferring recording material, e.g. ink, to the recording surface (printing recording elements G01D 15/20) **[1, 2006.01]**
- 15/18 • • Nozzles emitting recording material **[1, 2006.01]**
- 15/20 • Recording elements for printing with ink or for printing by deformation or perforation of the recording surface, e.g. embossing **[1, 2006.01]**
- 15/22 • Chopper bars for bringing recording element into contact with recording surface **[1, 2006.01]**
- 15/24 • Drives for recording elements or surfaces, not covered by group G01D 5/00 **[1, 2006.01]**
- 15/26 • • operating by clockwork **[1, 2006.01]**
- 15/28 • Holding means for recording surfaces; Guiding means for recording surfaces; Exchanging means for recording surfaces **[1, 2006.01]**
- 15/30 • • for foldable strip charts **[1, 2006.01]**
- 15/32 • • for circular charts **[1, 2006.01]**
- 15/34 • Recording surfaces **[1, 2006.01]**
- 18/00 Testing or calibrating apparatus or arrangements provided for in groups G01D 1/00-G01D 15/00 [1, 2006.01]**
- 21/00 Measuring or testing not otherwise provided for [1, 2006.01]**
- 21/02 • Measuring two or more variables by means not covered by a single other subclass **[1, 2006.01]**