

CPC COOPERATIVE PATENT CLASSIFICATION

G PHYSICS (NOTES omitted)

INSTRUMENTS

G01 MEASURING; TESTING (NOTES omitted)

G01K MEASURING TEMPERATURE; MEASURING QUANTITY OF HEAT; THERMALLY-SENSITIVE ELEMENTS NOT OTHERWISE PROVIDED FOR ([radiation pyrometry G01J 5/00](#))

NOTES

1. In this subclass, the following term is used with the meaning indicated :
 - "thermometer" includes thermally-sensitive elements not provided for in other subclasses.
2. Attention is drawn to the Notes following the title of class [G01](#).
3. Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "microstructural devices" and "microstructural systems".

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00	Details of thermometers not specially adapted for particular types of thermometer (circuits for reducing thermal inertia G01K 7/42)	1/22	• • by means of fluid contained in a hollow body having parts which are deformable or displaceable under the pressure developed by the fluid
1/02	• Means for indicating or recording specially adapted for thermometers	1/24	• • by means of compounded strips or plates, e.g. by bimetallic strips
1/022	• • for recording	1/26	• Compensating for effects of pressure changes
1/024	• • for remote indication	3/00	Thermometers giving results other than momentary value of temperature (G01K 7/42 takes precedence)
1/026	• • {arrangements for monitoring a plurality of temperatures, e.g. by multiplexing}	3/005	• {Circuits arrangements for indicating a predetermined temperature (fire detection G08B 17/00)}
1/028	• • {arrangements for numerical indication}	3/02	• giving means values; giving integrated values
1/04	• • Scales	3/04	• • in respect of time
1/045	• • • {temperature indication combined with the indication of another variable (indicating of human comfort G01W 1/17)}	3/06	• • in respect of space
1/06	• • • Arrangements for facilitating reading, e.g. illumination, magnifying glass	3/08	• giving differences of values (using thermoelectric elements G01K 7/02); giving differentiated values
1/065	• • • • {of liquid column thermometers}	3/10	• • in respect of time, e.g. reacting only to a quick change of temperature
1/08	• Protective devices, e.g. casings	3/12	• • • based upon expansion or contraction of materials
1/10	• • for preventing chemical attack	3/14	• • in respect of space
1/105	• • • {for siderurgical use}	2003/145	• • • {Hotspot localization}
1/12	• • for preventing damage due to heat overloading	5/00	Measuring temperature based on the expansion or contraction of a material (G01K 9/00 takes precedence; giving other than momentary value of temperature G01K 3/00)
1/125	• • • {for siderurgical use}	5/02	• the material being a liquid (contained in a hollow body having parts which are deformable or displaceable under the pressure developed by the material G01K 5/32)
1/14	• Supports; Fastening devices; Arrangements for mounting thermometers in particular locations	5/025	• • {Manufacturing of this particular type of thermometer}
1/143	• • for measuring surface temperatures		
1/146	• • {arrangements for moving thermometers to or from a measuring position}		
1/16	• Special arrangements for conducting heat from the object to the sensitive element		
1/165	• • {for application in zero heat flux sensors}		
1/18	• • for reducing thermal inertia		
1/20	• Compensating for effects of temperature changes other than those to be measured, e.g. changes in ambient temperature		

5/04	. . Details	5/64	. . . . Details of the compounds system
5/06	. . . Arrangements for driving back the liquid column	5/66	. . . . . Selection of composition of the components of the system
5/08	. . . Capillary tubes	5/68	. . . . . Shape of the system
5/10	. . . Containers for the liquid	5/70	. . . . specially adapted for indicating or recording
5/12	. . . Selection of liquid compositions	5/72	. . . . . with electric transmission means for final indication
5/14	. . the liquid displacing a further liquid column or a solid body (for maximum or minimum indication G01K 5/20)	7/00	Measuring temperature based on the use of electric or magnetic elements directly sensitive to heat (giving results other than momentary value of temperature G01K 3/00) ; Power supply therefor, e.g. using thermoelectric elements}
5/16	. . with electric contacts	7/003	. {using pyroelectric elements (radiation pyrometers G01J 5/00)}
5/18	. . with electric conversion means for final indication	7/006	. {using superconductive elements}
5/20	. . with means for indicating a maximum or a minimum or both (G01K 5/22 takes precedence)	7/01	. using semiconducting elements having PN junctions (G01K 7/02 , G01K 7/16 , G01K 7/30 take precedence)
5/22	. . with provision for expansion indicating over not more than a few degrees	7/015	. . {using microstructures, e.g. made of silicon}
5/225	. . . {with means for indicating a maximum, e.g. a constriction in the capillary tube}	7/02	. using thermoelectric elements, e.g. thermocouples
5/24	. . with provision for measuring the difference between two temperatures	7/021	. . {Particular circuit arrangements (G01K 7/026 , G01K 7/12 , G01K 7/14 take precedence)}
5/26	. . with provision for adjusting zero point of scale, e.g. Beckmann thermometer	7/023	. . {provided with specially adapted connectors (connectors per se H01R)}
5/28	. the material being a gas (contained in a hollow body having parts which are deformable or displaceable under the pressure developed by the material G01K 5/32)	7/025	. . {expendable thermocouples}
5/30	. . the gas displacing a liquid column	7/026	. . Arrangements for signalling failure or disconnection of thermocouples
5/32	. the material being a fluid contained in a hollow body having parts which are deformable or displaceable (under pressure developed by evaporation G01K 11/04 ; pressure measuring devices in general G01L)	7/028	. . {using microstructures, e.g. made of silicon}
5/323	. . {Selection of fluid compositions}	7/04	. . the object to be measured not forming one of the thermoelectric materials
5/326	. . {using a fluid container connected to the deformable body by means of a capillary tube}	7/06	. . . the thermoelectric materials being arranged one within the other with the junction at one end exposed to the object, e.g. sheathed type
5/34	. . the body being a capsule (G01K 5/36 , G01K 5/42 take precedence)	7/08	. . the object to be measured forming one of the thermoelectric materials, e.g. pointed type
5/36	. . the body being a tubular spring, e.g. Bourdon tube	7/10	. . Arrangements for compensating for auxiliary variables, e.g. length of lead
5/38	. . . of spiral formation	7/12	. . . Arrangements with respect to the cold junction, e.g. preventing influence of temperature of surrounding air
5/40	. . . of helical formation	7/13	. . . . Circuits for cold-junction compensation
5/42	. . the body being a bellows	7/14	. . Arrangements for modifying the output characteristic, e.g. linearising
5/44	. . the body being a cylinder and piston	7/16	. using resistive elements
5/46	. . with electric conversion means for final indication	2007/163	. . {provided with specially adapted connectors}
5/465	. . . {using electrical contact making or breaking devices}	2007/166	. . {Electrical time domain reflectometry}
5/48	. the material being a solid	7/18	. . the element being a linear resistance, e.g. platinum resistance thermometer (G01K 7/26 takes precedence)
5/483	. . {using materials with a configuration memory, e.g. Ni-Ti alloys}	7/183	. . . {characterised by the use of the resistive element}
5/486	. . {using microstructures, e.g. made of silicon (G01K 7/015 , G01K 7/028 , G01K 7/226 , G01K 17/006 take precedence)}	7/186	. . . {using microstructures}
5/50	. . arranged for free expansion or contraction	7/20	. . . in a specially-adapted circuit, e.g. bridge circuit
5/52	. . . with electrical conversion means for final indication	7/203	. . . . {in an oscillator circuit}
5/54	. . consisting of pivotally-connected elements	7/206	. . . . {in a potentiometer circuit}
5/56	. . constrained so that expansion or contraction causes a deformation of the solid	7/21	. . . . for modifying the output characteristic, e.g. linearising
5/58	. . . the solid body being constrained at more than one point, e.g. rod, plate, diaphragm (G01K 5/62 takes precedence)	7/22	. . the element being a non-linear resistance, e.g. thermistor (G01K 7/26 takes precedence)
5/60	. . . . the body being a flexible wire or ribbon	7/223	. . . {characterised by the shape of the resistive element}
5/62	. . . the solid body being formed of compounded strips or plates, e.g. bimetallic strip	7/226	. . . {using microstructures, e.g. silicon spreading resistance}

7/24	. . . in a specially-adapted circuit, e.g. bridge circuit	11/28	. using measurements of density {(measuring density in general G01N 9/00)}
7/245	. . . . {in an oscillator circuit}	11/30	. using measurement of the effect of a material on X-radiation, gamma radiation or particle radiation
7/25	. . . . for modifying the output characteristic, e.g. linearising	11/32	. using changes in transmittance, scattering or luminescence in optical fibres
7/26	. . the element being an electrolyte	11/3206	. . at discrete locations in the fibre, e.g. using Bragg scattering
7/28	. . . in a specially-adapted circuit, e.g. bridge circuit	11/3213	. . . using changes in luminescence, e.g. at the distal end of the fibres
7/30	. using thermal noise of resistances or conductors	11/322	. . using Brillouin scattering
7/32	. using change of resonant frequency of a crystal	11/324	. . using Raman scattering
7/34	. using capacitive elements (capacitors per se H01G)	13/00	Thermometers specially adapted for specific purposes
7/343	. . {the dielectric constant of which is temperature dependant}	13/006	. {for cryogenic purposes}
7/346	. . {for measuring temperature based on the time delay of a signal through a series of logical ports}	13/008	. . {using microstructures, e.g. made of silicon}
7/36	. using magnetic elements, e.g. magnets, coils (magnetic elements per se H01F)	13/02	. for measuring temperature of moving fluids or granular materials capable of flow
7/38	. . the variations of temperature influencing the magnetic permeability	13/022	. . {Suction thermometers}
7/40	. using ionisation of gases	13/024	. . of moving gases
7/42	. Circuits effecting compensation of thermal inertia; Circuits for predicting the stationary value of a temperature	13/026	. . {of moving liquids}
2007/422	. . {Dummy objects used for estimating temperature of real objects}	13/028	. . {for use in total air temperature [TAT] probes}
7/425	. . {Thermal management of integrated systems}	13/04	. for measuring temperature of moving solid bodies
7/427	. . {Temperature calculation based on spatial modeling, e.g. spatial inter- or extrapolation}	13/06	. . in linear movement
9/00	Measuring temperature based on movements caused by redistribution of weight, e.g. tilting thermometer (not giving momentary value of temperature G01K 3/00)	13/08	. . in rotary movement
11/00	Measuring temperature based upon physical or chemical changes not covered by groups G01K 3/00, G01K 5/00, G01K 7/00 or G01K 9/00	13/10	. for measuring temperature within piled or stacked materials (by special arrangements for conducting heat from the object to the sensitive heat element G01K 1/16)
11/003	. {using absorption or generation of gas, e.g. hydrogen}	13/12	. combined with sampling devices for measuring temperatures of samples of materials
11/006	. {using measurement of the effect of a material on microwaves or longer electromagnetic waves, e.g. measuring temperature via microwaves emitted by the object (G01K 17/003, G01J 5/00 take precedence; measuring the effect of a material on X-, gamma- or particle radiation G01K 11/30)}	13/125	. . {for siderurgical purposes}
11/02	. using evaporation or sublimation, e.g. by observing boiling	13/20	. Clinical contact thermometers for use with humans or animals
11/04	. . from material contained in a hollow body having parts which are deformable or displaceable under the pressure developed by the vapour	13/223	. . {Infrared clinical thermometers, e.g. tympanic}
11/06	. using melting, freezing, or softening	13/25	. . Protective devices therefor, e.g. sleeves preventing contamination
11/08	. . of disposable test bodies, e.g. cone	13/252	. . . {for tympanic thermometers}
11/10	. using sintering	15/00	Testing or calibrating of thermometers
11/12	. using changes in colour, translucency or reflectance	15/002	. {Calibrated temperature sources, temperature standards therefor (arrangements with respect to the cold junction of thermo-electric elements G01K 7/12)}
11/125	. . using changes in reflectance	15/005	. {Calibration}
11/14	. . of inorganic materials	15/007	. {Testing}
11/16	. . of organic materials	17/00	Measuring quantity of heat (measuring temperature by calorimetry G01K 3/00 - G01K 11/00; specially adapted for measuring thermal properties of materials, e.g. specific heat, heat of combustion G01N)
11/165	. . . of organic liquid crystals	17/003	. {for measuring the power of light beams, e.g. laser beams}
11/18	. . of materials which change translucency	17/006	. {Microcalorimeters, e.g. using silicon microstructures}
11/20	. using thermoluminescent materials (G01K 11/32 takes precedence)	17/02	. Calorimeters using transport of an indicating substances, e.g. evaporation calorimeters
11/22	. using measurement of acoustic effects	17/025	. . {where evaporation, sublimation or condensation caused by heating or cooling, is measured}
11/24	. . of the velocity of propagation of sound	17/04	. Calorimeters using compensation methods {, i.e. where the absorbed or released quantity of heat to be measured is compensated by a measured quantity of heating or cooling}
11/26	. . of resonant frequencies		
11/265	. . . {using surface acoustic wave [SAW]}		

G01K

- 17/06 . Measuring quantity of heat conveyed by flowing media, e.g. in heating systems ([G01K 17/02](#), [G01K 17/04](#) take precedence){e.g. the quantity of heat in a transporting medium, delivered to or consumed in an expenditure device}
- 17/08 . . based upon measurement of temperature difference {or of a temperature}
- 17/10 . . . between an inlet and an outlet point, combined with measurement of rate of flow of the medium {if such, by integration during a certain time-interval}
- 17/12 Indicating product of flow and temperature difference directly {or temperature}
- 17/14 using mechanical means for both measurements
- 17/16 using electrical {or magnetic} means for both measurements
- 17/18 using electrical {or magnetic} means for one measurement and mechanical means for the other
- 17/185 {where the indicating-instrument is driven electrically or magnetically by the temperature-measurement device and mechanically by the flow-measurement device}
- 17/20 . . . across a radiating surface, combined with ascertainment of the heat-transmission coefficient

19/00 Testing or calibrating calorimeters

2201/00 Application of thermometers in air-conditioning systems

- 2201/02 . in vehicles

2203/00 Application of thermometers in cryogenics

2205/00 Application of thermometers in motors, e.g. of a vehicle

- 2205/02 . for measuring inlet gas temperature
- 2205/04 . for measuring exhaust gas temperature

2207/00 Application of thermometers in household appliances

- 2207/02 . for measuring food temperature
- 2207/04 . . for conservation purposes
- 2207/06 . . for preparation purposes
- 2207/08 . . with food recipients having temperature sensing capability

2211/00 Thermometers based on nanotechnology

2213/00 Temperature mapping

2215/00 Details concerning sensor power supply

2217/00 Temperature measurement using electric or magnetic components already present in the system to be measured

2219/00 Thermometers with dedicated analog to digital converters