

**CPC****COOPERATIVE PATENT CLASSIFICATION****G04G****ELECTRONIC TIME-PIECES****NOTE**

This subclass covers:

- electronic time-pieces with no moving parts; - electronic circuitry for producing timing pulses irrespective of the nature of the time indicating means utilised.

This subclass does not cover electronic time-pieces with moving parts, which are covered by subclass [G04C](#).

**G04G 3/00**

**Producing timing pulses** (driving circuits for stepping motors [G04C 3/14](#); producing preselected time intervals for use as timing standards [G04F 5/00](#); pulse technique in general [H03K](#); control, synchronisation, or stabilisation of generators in general [H03L](#) )

**G04G 3/02**

- . Circuits for deriving low frequency timing pulses from pulses of higher frequency (pulse frequency dividers in general [H03K 23/00](#) to [H03K 29/00](#))

**G04G 3/022**

- .. {the desired number of pulses per unit of time being obtained by adding to or subtracting from a pulse train one or more pulses (in general [G06F 7/68](#)) }

**G04G 3/025**

- .. {by storing time-date which are periodically investigated and modified accordingly, e.g. by using cyclic shift-registers }

**G04G 3/027**

- .. {by combining pulse-trains of different frequencies, e.g. obtained from two independent oscillators or from a common oscillator by means of different frequency dividing ratios (synchronisation of electric time pieces [G04G 7/00](#), [G04C 11/00](#)) }

**G04G 3/04**

- . Temperature-compensating arrangements

**G04G 5/00**

**Setting, i.e. correcting or changing, the time-indication** (radio-controlled time-pieces [G04R](#) )

**G04G 5/002**

- . { brought into action by radio }

**WARNING**

This group is no longer used for the classification of new documents as from September 1, 2012. The backlog of this group is being continuously reclassified to subgroups of [G04R](#)

**G04G 5/005**

- . {Debouncing circuits }

**G04G 5/007**

- . {by using a separate register into which the entire correct setting is introduced, which is thereafter transferred to the time counters }

**G04G 5/02**

- . by temporarily changing the number of pulses per unit time, e.g. quick-feed method

**G04G 5/022**

- .. {quick-feed method }

**WARNING**

Not complete, see also [G04G 5/02](#)

- G04G 5/025 . . . {the time-counters first being reset to zero }
- G04G 5/027 . . {by adding or suppressing individual pulses, e.g. for step-motor }

**WARNING**

Not complete, see also [G04G 5/02](#)

- G04G 5/04 . by setting each of the displayed values, e.g. date, hour, independently
- G04G 5/041 . . { Correction of the minutes counter in function of the seconds' counter position at zero adjustment of the latter }
- G04G 5/043 . . {using commutating devices for selecting the value, e.g. hours, minutes, seconds, to be corrected }

**WARNING**

Not complete, see also [G04G 5/04](#)

- G04G 5/045 . . . {using a sequential electronic commutator }

**WARNING**

Not complete, see also [G04G 5/04](#)

- G04G 5/046 . . . . {by using a separate register into which the correct setting of one of the counters is introduced which is thereafter transferred to the selected time-counter to be reset }
- G04G 5/048 . . . { by using a separate register into which the correct setting of the selected time-counter is introduced which is thereafter transferred to the time-counter to be reset }

**G04G 7/00 Synchronisation (radio-controlled time-pieces [G04R](#) )**

- G04G 7/005 . {provided with arrangements to prevent synchronisation by interfering signals ([G04G 7/023](#) takes precedence) }
- G04G 7/02 . by radio

**WARNING**

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- G04G 7/023 . . {provided with arrangements to prevent synchronisation by interfering signals }
- G04G 7/026 . . {the time-piece preparing itself on set times on the reception of the synchronising signal }

**G04G 9/00 Visual time or date indication means**

- G04G 9/0005 . {Transmission of control signals }
- G04G 9/0011 . . {using coded signals (synchronisation combined with automatic setting at regular intervals, e.g. by coded signals [G04G 7/00](#)) }
- G04G 9/0017 . {in which the light emitting display elements may be activated at will or are controlled in accordance with the ambient light }
- G04G 9/0023 . {by light valves in general ([G04G 9/06](#), [G04G 9/12](#) takes precedence; electro-, magneto- or acousto-optic devices in general [G02F 1/00](#)) }
- G04G 9/0029 . . {Details }
- G04G 9/0035 . . . {constructional }
- G04G 9/0041 . . . . {Illumination devices }
- G04G 9/0047 . . . {electrical, e.g. selection or application of the operating voltage }
- G04G 9/0052 . . . . {using means to adjust the display in accordance with the ambient light, e.g. switching or controlling a supplementary light source }
- G04G 9/0058 . {using a cathode ray tube as display device (displaying supplementary informative, e.g. time on TV screen [H04N 5/445](#)) }
- G04G 9/0064 . {in which functions not related to time can be displayed (digital output to display devices of digital computers [G06F 3/14](#)) }
- G04G 9/007 . . {combined with a calculator or computing means }
- G04G 9/0076 . {in which the time in another time-zone or in another city can be displayed at will }
- G04G 9/0082 . {by building-up characters using a combination of indicating elements and by selecting desired characters out of a number of characters or by selecting indicating elements the positions of which represents the time, i.e. combinations of [G04G 9/02](#) and [G04G 9/08](#) }
- G04G 9/0088 . . {by controlling light sources, e.g. electroluminescent diodes }
- G04G 9/0094 . . {using light valves, e.g. liquid crystals }
- G04G 9/02 . by selecting desired character out of a number of characters or by selecting indicating elements the position of which represent the time, e.g. by using multiplexing techniques { ([G04G 9/0082](#) takes precedence) }
- G04G 9/022 . . {using multiplexing techniques }
- G04G 9/025 . . {provided with date indication }
- G04G 9/027 . . {provided with means for displaying at will a time indication or a date or a part thereof }
- G04G 9/04 . . by controlling light sources, e.g. electroluminescent diodes { ([G04G 9/0058](#) takes precedence) }
- G04G 9/042 . . . {using multiplexing techniques }
- G04G 9/045 . . . {provided with date indication }
- G04G 9/047 . . . {provided with means for displaying at will a time indication or a date or a part thereof }
- G04G 9/06 . . using light valves, e.g. liquid crystals
- G04G 9/062 . . . {using multiplexing techniques }
- G04G 9/065 . . . {using a drop of liquid suspended by capillary forces and moved by an electric field }

- G04G 9/067 . . . {using mechano-optical means }
- G04G 9/08 . by building-up characters using a combination of indicating elements, e.g. by using multiplexing techniques { ([G04G 9/0082](#) takes precedence) }
- G04G 9/082 . . {using multiplexing techniques }
- G04G 9/085 . . {provided with date indication }
- G04G 9/087 . . {provided with means for displaying at will a time indication or a date or a part thereof }
- G04G 9/10 . . by controlling light sources, e.g. electroluminescent diodes { ([G04G 9/0058](#) takes precedence) }
- G04G 9/102 . . . {using multiplexing techniques }
- G04G 9/105 . . . {provided with date indication }
- G04G 9/107 . . . {provided with means for displaying at will a time indication or a date or a part thereof }
- G04G 9/12 . . using light valves, e.g. liquid crystals
- G04G 9/122 . . . {using multiplexing techniques }
- G04G 9/124 . . . {provided with date indication }
- G04G 9/126 . . . {provided with means for displaying at will a time indication or a date or a part thereof }
- G04G 9/128 . . . {using mechano-optical means }

## **G04G 11/00 Producing optical signals at preselected times**

## **G04G 13/00 Producing acoustic time signals**

- G04G 13/02 . at preselected times, e.g. alarm clocks
- G04G 13/021 . . {Details }
- G04G 13/023 . . . {Adjusting the duration or amplitude of signals }
- G04G 13/025 . . {acting only at one preselected time }
- G04G 13/026 . . {acting at a number of different times }
- G04G 13/028 . . {combined with a radio }

## **G04G 15/00 Time-pieces comprising means to be operated at preselected times or after preselected time intervals ([G04G 11/00](#), [G04G 13/00](#) take precedence; {electronic timers [G04F 1/005](#) }; pulse delay circuits [H03K 5/13](#); electronic time-delay switches [H03K 17/28](#); electronic time-programme switches which automatically terminate their operation after the programme is completed [H03K 17/296](#))**

- G04G 15/003 . {acting only at one preselected time or during one adjustable time interval }
- G04G 15/006 . {for operating at a number of different times (cigar or cigarette receptacles or boxes with means for limiting the frequency of smoking [A24F 15/005](#)) }

## **G04G 17/00 Structural details ; Housings (constructional details of radio-controlled time-pieces, e.g. antennas [G04R 60/00](#) )**

- G04G 17/005 . {Time-pieces combined with games }

- G04G 17/02 . Component assemblies
- G04G 17/04 . . Mounting of electronic components
- G04G 17/045 . . . {Mounting of the display }
- G04G 17/06 . . Electric connectors, e.g. conductive elastomers
  
- G04G 17/08 . Housings
- G04G 17/083 . . {Watches distributed over several housings }
- G04G 17/086 . . {Desktop clocks }
  
- G04G 19/00            Electric power supply circuits specially adapted for use in electronic time-pieces**
  
- G04G 19/02 . Conversion or regulation of current or voltage
- G04G 19/04 . . Capacitive voltage division or multiplication
- G04G 19/06 . . Regulation
  
- G04G 19/08 . Arrangements for preventing voltage drop due to overloading the power supply
- G04G 19/10 . Arrangements for supplying back-up power
- G04G 19/12 . Arrangements for reducing power consumption during storage
  
- G04G 21/00            Input or output devices integrated in time-pieces**
  
- G04G 21/02 . Detectors of external physical values, e.g. temperature
- G04G 21/025 . . { for measuring physiological data }
- G04G 21/04 . using radio waves (radio-controlled time-pieces [G04R](#) )
- G04G 21/06 . using voice
- G04G 21/08 . Touch switches specially adapted for time-pieces
  
- G04G 99/00            Subject matter not provided for in other groups of this subclass**
  
- G04G 99/003 . { Pulse shaping; Amplification }
- G04G 99/006 . { Electronic time-pieces using a micro-computer, e.g. for multi-function clocks }