

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 }