

ECLA EUROPEAN CLASSIFICATION

G04G ELECTRONIC TIME-PIECES

Notes

1. 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.
2. This subclass does not cover electronic time-pieces with moving parts, which are covered by subclass G04C.

G04G3/00 **Producing timing pulses** (driving circuits for stepping motors [G04C3/14](#); producing preselected time intervals for use as timing standards [G04F5/00](#); pulse technique in general [H03K](#); control, synchronisation, or stabilisation of generators in general [H03L](#))

- G04G3/02 . Circuits for deriving low frequency timing pulses from pulses of higher frequency (pulse frequency dividers in general [H03K23/00](#) to [H03K29/00](#))
- G04G3/02B . . [N: 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 [G06F7/68](#))]
- G04G3/02D . . [N: by storing time-date which are periodically investigated and modified accordingly, e.g. by using cyclic shift-registers]
- G04G3/02E . . [N: 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 [G04G7/00](#), [G04C11/00](#))]
- G04G3/04 . Temperature-compensating arrangements [[N0411](#)]

G04G5/00 **Setting, i.e. correcting or changing, the time-indication (radio-controlled time-pieces G04R) [[N1208](#)]**

- G04G5/00B . [N: brought into action by radio]
 [N: **WARNING** [[N1208](#)]
 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
]
- G04G5/00C . [N: Debouncing circuits]
- G04G5/00D . [N: by using a separate register into which the entire correct setting is introduced, which is thereafter transferred to the time counters]
- G04G5/02 . by temporarily changing the number of pulses per unit time, e.g. quick-feed method

- G04G5/02B
 - . . [N: quick-feed method]
 - [N: **WARNING**
Not complete, see also [G04G5/02](#)
]
- G04G5/02B2
 - . . . [N: the time-counters first being reset to zero]
- G04G5/02C
 - . . [N: by adding or suppressing individual pulses, e.g. for step-motor]
 - [N: **WARNING**
Not complete, see also [G04G5/02](#)
]
- G04G5/04
 - . by setting each of the displayed values, e.g. date, hour, independently
- G04G5/04B
 - . . [N: Correction of the minutes counter in function of the seconds' counter position at zero adjustment of the latter]
- G04G5/04C
 - . . [N: using commutating devices for selecting the value, e.g. hours, minutes, seconds, to be corrected]
 - [N: **WARNING**
Not complete, see also [G04G5/04](#)
]
- G04G5/04C2
 - . . . [N: using a sequential electronic commutator]
 - [N: **WARNING**
Not complete, see also [G04G5/04](#)
]
- G04G5/04C2D
 - [N: 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]
- G04G5/04C3
 - . . . [N: 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]
- G04G7/00** **Synchronisation (radio-controlled time-pieces G04R) [N1208]**
- G04G7/00B
 - . [N: provided with arrangements to prevent synchronisation by interfering signals ([G04G7/02B](#) takes precedence)] [C9704]
- G04G7/02
 - . by radio
 - [N: **WARNING** [N1208]
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]
- G04G7/02B
 - . . [N: provided with arrangements to prevent synchronisation by interfering signals]
- G04G7/02C
 - . . [N: the time-piece preparing itself on set times on the reception of the synchronising signal]
- G04G9/00** **Visual time or date indication means**
- G04G9/00B
 - . [N: Transmission of control signals]

- G04G9/00B2 . . [N: using coded signals (synchronisation combined with automatic setting at regular intervals, e.g. by coded signals [G04G7/00](#))]
- G04G9/00C . [N: in which the light emitting display elements may be activated at will or are controlled in accordance with the ambient light]
- G04G9/00D . [N: by light valves in general ([G04G9/06](#), [G04G9/12](#) takes precedence; electro-, magneto- or acousto-optic devices in general [G02F1/00](#))]
- G04G9/00D1 . . [N: Details]
- G04G9/00D1B . . . [N: constructional]
- G04G9/00D1B2 [N: Illumination devices]
- G04G9/00D1C . . . [N: electrical, e.g. selection or application of the operating voltage]
- G04G9/00D1C2 [N: using means to adjust the display in accordance with the ambient light, e.g. switching or controlling a supplementary light source]
- G04G9/00E . [N: using a cathode ray tube as display device (displaying supplementary informative, e.g. time on TV screen [H04N5/445](#))]
- G04G9/00F . [N: in which functions not related to time can be displayed (digital output to display devices of digital computers [G06F3/14](#))]
- G04G9/00F2 . . [N: combined with a calculator or computing means]
- G04G9/00G . [N: in which the time in another time-zone or in another city can be displayed at will]
- G04G9/00H . [N: 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 [G04G9/02](#) and [G04G9/08](#)]
- G04G9/00H2 . . [N: by controlling light sources, e.g. electroluminescent diodes]
- G04G9/00H3 . . [N: using light valves, e.g. liquid crystals]
- G04G9/02 . 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 [N: ([G04G9/00H](#) takes precedence)] [C9704]
- G04G9/02B . . [N: using multiplexing techniques]
- G04G9/02C . . [N: provided with date indication]
- G04G9/02D . . [N: provided with means for displaying at will a time indication or a date or a part thereof]
- G04G9/04 . . by controlling light sources, e.g. electroluminescent diodes [N: ([G04G9/00E](#) takes precedence)]
- G04G9/04B . . . [N: using multiplexing techniques]
- G04G9/04C . . . [N: provided with date indication]
- G04G9/04D . . . [N: provided with means for displaying at will a time indication or a date or a part thereof]
- G04G9/06 . . using light valves, e.g. liquid crystals
- G04G9/06B . . . [N: using multiplexing techniques]
- G04G9/06F . . . [N: using a drop of liquid suspended by capillary forces and moved by an electric field]
- G04G9/06G . . . [N: using mechano-optical means]

- G04G9/08 . by building-up characters using a combination of indicating elements, e.g. by using multiplexing techniques [N: ([G04G9/00H](#) takes precedence)] [C9704]
- G04G9/08B . . [N: using multiplexing techniques]
- G04G9/08C . . [N: provided with date indication]
- G04G9/08D . . [N: provided with means for displaying at will a time indication or a date or a part thereof]
- G04G9/10 . . by controlling light sources, e.g. electroluminescent diodes [N: ([G04G9/00E](#) takes precedence)]
- G04G9/10B . . . [N: using multiplexing techniques]
- G04G9/10C . . . [N: provided with date indication]
- G04G9/10D . . . [N: provided with means for displaying at will a time indication or a date or a part thereof]
- G04G9/12 . . using light valves, e.g. liquid crystals
- G04G9/12B . . . [N: using multiplexing techniques]
- G04G9/12C . . . [N: provided with date indication]
- G04G9/12D . . . [N: provided with means for displaying at will a time indication or a date or a part thereof]
- G04G9/12G . . . [N: using mechano-optical means]

G04G11/00 Producing optical signals at preselected times

G04G13/00 Producing acoustic time signals

- G04G13/02 . at preselected times, e.g. alarm clocks
- G04G13/02A . . [N: Details]
- G04G13/02A2 . . . [N: Adjusting the duration or amplitude of signals]
- G04G13/02B . . [N: acting only at one preselected time]
- G04G13/02C . . [N: acting at a number of different times]
- G04G13/02D . . [N: combined with a radio]

G04G15/00 Time-pieces comprising means to be operated at preselected times or after preselected time intervals ([G04G11/00](#), [G04G13/00](#) take precedence; [N: electronic timers [G04F1/00B](#)]; pulse delay circuits [H03K5/13](#); electronic time-delay switches [H03K17/28](#); electronic time-programme switches which automatically terminate their operation after the programme is completed [H03K17/296](#))

- G04G15/00B . [N: acting only at one preselected time or during one adjustable time interval]
- G04G15/00C . [N: for operating at a number of different times (cigar or cigarette receptacles or boxes with means for limiting the frequency of smoking [A24F15/00B](#))]

G04G17/00 Structural details ; Housings (constructional details of radio-controlled time-pieces, e.g. antennas [G04R60/00](#)) [N1208]

- G04G17/00G . [N: Time-pieces combined with games] [N0411]

- G04G17/02 . Component assemblies [N0411]
- G04G17/04 . . Mounting of electronic components [N0411]
- G04G17/04B . . . [N: Mounting of the display] [N0411]
- G04G17/06 . . Electric connectors, e.g. conductive elastomers [N0411]

- G04G17/08 . Housings [N0411]
- G04G17/08B . . [N: Watches distributed over several housings] [N0411]
- G04G17/08C . . [N: Desktop clocks] [N0411]

- G04G19/00** **Electric power supply circuits specially adapted for use in electronic time-pieces [N0411]**

- G04G19/02 . Conversion or regulation of current or voltage [N0411]
- G04G19/04 . . Capacitive voltage division or multiplication [N0411]
- G04G19/06 . . Regulation [N0411]

- G04G19/08 . Arrangements for preventing voltage drop due to overloading the power supply [N0411]

- G04G19/10 . Arrangements for supplying back-up power [N0411]

- G04G19/12 . Arrangements for reducing power consumption during storage [N0411]

- G04G21/00** **Input or output devices integrated in time-pieces [N1005]**

- G04G21/02 . Detectors of external physical values, e.g. temperature [N1005]
- G04G21/02B . . [N: for measuring physiological data] [N1005]

- G04G21/04 . using radio waves (radio-controlled time-pieces G04R) [N1208]

- G04G21/06 . using voice [N1005]

- G04G21/08 . Touch switches specially adapted for time-pieces [N1005]

- G04G99/00** **Subject matter not provided for in other groups of this subclass [N1005]**

- G04G99/00E . [N: Pulse shaping; Amplification] [N1005]

- G04G99/00M . [N: Electronic time-pieces using a micro-computer, e.g. for multi-function clocks] [N1005]