

CPC COOPERATIVE PATENT CLASSIFICATION

G PHYSICS (NOTES omitted)

INSTRUMENTS

G05 CONTROLLING; REGULATING (NOTES omitted)

G05F SYSTEMS FOR REGULATING ELECTRIC OR MAGNETIC VARIABLES

NOTES

- This subclass covers:
 - systems only;
 - use of hydraulic, pneumatic, mechanical, and electrical motors for varying electric characteristics of devices which restore the quantity regulated;
 - the combination of static converters and current or voltage regulators, if the invention resides in the combination.
- This subclass does not cover elements per se, which are covered by the relevant subclasses.

WARNINGS

- The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

G05F 3/28	covered by	G05F 3/26
G05F 5/02	covered by	G05F 5/00
G05F 5/04	covered by	G05F 5/00
G05F 5/06	covered by	G05F 5/00
G05F 5/08	covered by	G05F 5/00
- 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	Automatic systems in which deviations of an electric quantity from one or more predetermined values are detected at the output of the system and fed back to a device within the system to restore the detected quantity to its predetermined value or values, i.e. retroactive systems	1/247	. . . . with motor in control circuit
		1/253	. . . . the transformers including plural windings in series between source and load (G05F 1/247 takes precedence)
		1/26	. . . . combined with discharge tubes or semiconductor devices
1/02	. Regulating electric characteristics of arcs	1/30	. . . . semiconductor devices only
1/04	. . by means of saturable magnetic devices	1/32	. . . using magnetic devices having a controllable degree of saturation as final control devices
1/06	. . by means of discharge tubes		
1/08	. . by means of semiconductor devices	1/325	. . . . with specific core structure, e.g. gap, aperture, slot, permanent magnet
1/10	. Regulating voltage or current (G05F 1/02 takes precedence)	1/33	. . . . with plural windings through which current to be controlled is conducted
1/12	. . wherein the variable actually regulated by the final control device is AC (G05F 1/625 takes precedence)	1/335	. . . . . on different cores
		1/34	. . . . combined with discharge tubes or semiconductor devices
1/13	. . . using ferroresonant transformers as final control devices	1/38	. . . . . semiconductor devices only
1/14	. . . using tap transformers or tap changing inductors as final control devices	1/40	. . . using discharge tubes or semiconductor devices as final control devices
1/147	. . . . with motor driven tap switch	1/42	. . . . discharge tubes only
1/153	. . . . controlled by discharge tubes or semiconductor devices	1/44	. . . . semiconductor devices only
1/16	. . . . combined with discharge tubes or semiconductor devices	1/445	. . . . . being transistors in series with the load
		1/45	. . . . . being controlled rectifiers in series with the load
1/20	. . . . . semiconductor devices only	1/452	. . . . . {with pulse-burst modulation control}
1/22	. . . . combined with separate magnetic control devices having a controllable degree of saturation	1/455	. . . . . with phase control
		1/46	. . wherein the variable actually regulated by the final control device is DC (G05F 1/625 takes precedence)
1/24	. . . using bucking or boosting transformers as final control devices		

- 1/461 . . . {using an operational amplifier as final control device}
- 1/462 . . . {as a function of the requirements of the load, e.g. delay, temperature, specific voltage/current characteristic}
- 1/463 {Sources providing an output which depends on temperature}
- 1/465 {Internal voltage generators for integrated circuits, e.g. step down generators}
- 1/466 {Sources with reduced influence on propagation delay}
- 1/467 {Sources with noise compensation}
- 1/468 . . . {characterised by reference voltage circuitry, e.g. soft start, remote shutdown}
- 1/52 . . . using discharge tubes in series with the load as final control devices
- 1/54 additionally controlled by the unregulated supply
- 1/56 . . . using semiconductor devices in series with the load as final control devices ([G05F 1/461 takes precedence](#))
- 1/561 {Voltage to current converters (amplifiers [H03F](#))}
- 1/562 {with a threshold detection shunting the control path of the final control device}
- 1/563 including two stages of regulation at least one of which is output level responsive, e.g. coarse and fine regulation
- 1/565 sensing a condition of the system or its load in addition to means responsive to deviations in the output of the system, e.g. current, voltage, power factor ([G05F 1/563 takes precedence](#))
- 1/567 for temperature compensation
- 1/569 for protection
- 1/571 with overvoltage detector
- 1/573 with overcurrent detector
- 1/5735 {with foldback current limiting}
- 1/575 characterised by the feedback circuit
- 1/577 for plural loads
- 1/585 providing voltages of opposite polarities
- 1/59 including plural semiconductor devices as final control devices for a single load
- 1/595 semiconductor devices connected in series
- 1/607 . . . using discharge tubes in parallel with the load as final control devices
- 1/61 including two stages of regulation, at least one of which is output level responsive
- 1/613 . . . using semiconductor devices in parallel with the load as final control devices ([G05F 1/461 takes precedence](#))
- 1/614 including two stages of regulation, at least one of which is output level responsive
- 1/618 . . . using semiconductor devices in series and in parallel with the load as final control devices ([G05F 1/461 takes precedence](#))
- 1/62 . . . using bucking or boosting DC sources
- 1/625 . . wherein it is irrelevant whether the variable actually regulated is AC or DC
- 1/63 . . . using variable impedances in series with the load as final control devices
- 1/635 being Hall effect devices, magnetoresistors or thermistors
- 1/644 being pressure-sensitive resistors
- 1/648 being plural resistors among which a selection is made
- 1/652 . . . using variable impedances in parallel with the load as final control devices
- 1/656 . . . using variable impedances in series and in parallel with the load as final control devices
- 1/66 . . Regulating electric power
- 1/67 . . to the maximum power available from a generator, e.g. from solar cell
- 1/70 . . Regulating power factor; Regulating reactive current or power
- 3/00 Non-retroactive systems for regulating electric variables by using an uncontrolled element, or an uncontrolled combination of elements, such element or such combination having self-regulating properties {(current generators specially designed for use in phase-locked loops [H03L 7/0891](#))}**
- 3/02 . . Regulating voltage or current
- 3/04 . . wherein the variable is AC
- 3/06 . . . using combinations of saturated and unsaturated inductive devices, e.g. combined with resonant circuit
- 3/08 . . wherein the variable is DC
- 3/10 . . . using uncontrolled devices with non-linear characteristics
- 3/12 being glow discharge tubes
- 3/16 being semiconductor devices
- 3/18 using Zener diodes
- 3/185 {and field-effect transistors}
- 3/20 using diode- transistor combinations ([G05F 3/18 takes precedence](#))
- 3/205 {Substrate bias-voltage generators (for static stores [G11C 5/146](#))}
- 3/22 wherein the transistors are of the bipolar type only ([G05F 3/26](#), [G05F 3/30 take precedence](#))
- 3/222 {with compensation for device parameters, e.g. Early effect, gain, manufacturing process, or external variations, e.g. temperature, loading, supply voltage}
- 3/225 {producing a current or voltage as a predetermined function of the temperature}
- 3/227 {producing a current or voltage as a predetermined function of the supply voltage}
- 3/24 wherein the transistors are of the field-effect type only ([G05F 3/205](#), [G05F 3/26](#), [G05F 3/30 take precedence](#))
- 3/242 {with compensation for device parameters, e.g. channel width modulation, threshold voltage, processing, or external variations, e.g. temperature, loading, supply voltage}
- 3/245 {producing a voltage or current as a predetermined function of the temperature}
- 3/247 {producing a voltage or current as a predetermined function of the supply voltage}
- 3/26 Current mirrors
- 3/262 {using field-effect transistors only}

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- 3/265 {using bipolar transistors only}
- 3/267 {using both bipolar and field-effect technology}
- 3/30 Regulators using the difference between the base-emitter voltages of two bipolar transistors operating at different current densities ([G05F 3/26](#) takes precedence)

- 5/00** **Systems for regulating electric variables by detecting deviations in the electric input to the system and thereby controlling a device within the system to obtain a regulated output**

- 7/00** **Regulating magnetic variables**