

# CPC COOPERATIVE PATENT CLASSIFICATION

## H ELECTRICITY

(NOTE omitted)

## H03 ELECTRONIC CIRCUITRY

## H03G CONTROL OF AMPLIFICATION

### NOTES

1. This subclass covers:
  - control of gain of amplifiers or frequency-changers;
  - control of frequency range of amplifiers;
  - limiting amplitude or rate of change of amplitude.
2. Attention is drawn to the Note following the title of subclass [H03F](#).

### 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.

<b>1/00</b>	<b>Details of arrangements for controlling amplification</b>	3/008	• {Control by switched capacitors}
1/0005	• {Circuits characterised by the type of controlling devices operated by a controlling current or voltage signal}	3/02	• Manually-operated control ({ <a href="#">H03G 3/001</a> and <a href="#">H03G 3/002</a> take precedence})
1/0011	• . . {the device being at least one of the amplifying tubes of the amplifier}	3/04	• . . in untuned amplifiers
1/0017	• . . {the device being at least one of the amplifying solid state elements of the amplifier}	3/06	• . . . having discharge tubes
1/0023	• . . . {in emitter-coupled or cascode amplifiers ( <a href="#">H03G 1/0029</a> takes precedence)}	3/08	• . . . . incorporating negative feedback
1/0029	• . . . {using FETs}	3/10	• . . . having semiconductor devices
1/0035	• . . {using continuously variable impedance elements}	3/12	• . . . . incorporating negative feedback
1/0041	• . . . {using thermistors}	3/14	• . . in frequency-selective amplifiers
1/0047	• . . . {using photo-electric elements}	3/16	• . . . having discharge tubes
1/0052	• . . . {using diodes}	3/18	• . . . having semiconductor devices
1/0058	• . . . . {PIN-diodes}	3/20	• Automatic control ({ <a href="#">H03G 3/005</a> takes precedence;} combined with volume compression or expansion <a href="#">H03G 7/00</a> )
1/0064	• . . . . {Variable capacitance diodes}	3/22	• . . in amplifiers having discharge tubes
1/007	• . . . {using FET type devices}	3/225	• . . . {controlling or controlled by the (local) oscillators of a (super)heterodyne receiver}
1/0076	• . . . {using galvanomagnetic elements}	3/24	• . . . Control dependent upon ambient noise level or sound level
1/0082	• . . . {using bipolar transistor-type devices}	3/26	• . . . Muting amplifier when no signal is present {or when only weak signals are present, or caused by the presence of noise, e.g. squelch systems}
1/0088	• . . {using discontinuously variable devices, e.g. switch-operated}	3/28	• . . . . in frequency-modulation receivers {; in angle-modulation receivers}
1/0094	• . . . {using switched capacitors}	3/30	• . . in amplifiers having semiconductor devices
1/02	• Remote control of amplification, tone or bandwidth (combined with remote tuning or selection of resonant circuits <a href="#">H03J</a> )	3/3005	• . . . {in amplifiers suitable for low-frequencies, e.g. audio amplifiers ( <a href="#">H03G 3/32</a> , <a href="#">H03G 3/34</a> take precedence)}
1/04	• Modifications of control circuit to reduce distortion caused by control (modifications to reduce influence of variations of internal impedance of amplifying elements caused by control <a href="#">H03F 1/08</a> )	3/301	• . . . . {the gain being continuously variable}
<b>3/00</b>	<b>Gain control in amplifiers or frequency changers</b>	3/3015	• . . . . . {using diodes or transistors}
3/001	• {Digital control of analog signals}	3/3021	• . . . . . {by varying the duty cycle}
3/002	• {Control of digital or coded signals ( <a href="#">H03G 3/3089</a> take precedence)}	3/3026	• . . . . . {the gain being discontinuously variable, e.g. controlled by switching}
3/004	• {Control by varying the supply voltage}	3/3031	• . . . . . {using switched capacitors}
3/005	• {Control by a pilot signal ( <a href="#">H03G 3/001</a> takes precedence)}	3/3036	• . . . {in high-frequency amplifiers or in frequency-changers ( <a href="#">H03G 3/3052</a> , <a href="#">H03G 3/32</a> , <a href="#">H03G 3/34</a> take precedence)}
3/007	• {Control dependent on the supply voltage}		

- 3/3042 . . . . {in modulators, frequency-changers, transmitters or power amplifiers (transmission power control in bidirectional transmission systems [H04W 52/04](#))}
- 3/3047 . . . . {for intermittent signals, e.g. burst signals}
- 3/3052 . . . {in bandpass amplifiers (H.F. or I.F.) or in frequency-changers used in a (super)heterodyne receiver ([H03G 3/32](#), [H03G 3/34](#) take precedence)}
- 3/3057 . . . . {using at least one diode as controlling device}
- 3/3063 . . . . {using at least one transistor as controlling device, the transistor being used as a variable impedance device}
- 3/3068 . . . . {Circuits generating control signals for both R.F. and I.F. stages}
- 3/3073 . . . . {Circuits generating control signals when no carrier is present, or in SSB, CW or pulse receivers}
- 3/3078 . . . . {Circuits generating control signals for digitally modulated signals}
- 3/3084 . . . {in receivers or transmitters for electromagnetic waves other than radiowaves, e.g. lightwaves ([H03G 3/32](#), [H03G 3/34](#) take precedence)}
- 3/3089 . . . {Control of digital or coded signals}
- 3/3094 . . . {in parametric amplifiers ([H03G 3/32](#), [H03G 3/34](#) take precedence)}
- 3/32 . . . the control being dependent upon ambient noise level or sound level
- 3/34 . . . Muting amplifier when no signal is present {or when only weak signals are present, or caused by the presence of noise signals, e.g. squelch systems}
- 3/341 . . . . {Muting when no signals or only weak signals are present ([H03G 3/344](#), [H03G 3/345](#) take precedence)}
- 3/342 . . . . {Muting when some special characteristic of the signal is sensed which distinguishes it from noise, e.g. using speech detector ([H03G 3/344](#), [H03G 3/345](#) take precedence)}
- 3/344 . . . . {Muting responsive to the amount of noise (noise squelch) ([H03G 3/345](#) takes precedence)}
- 3/345 . . . . {Muting during a short period of time when noise pulses are detected, i.e. blanking ([H03G 3/348](#) takes precedence)}
- 3/347 . . . . . {dependent on the rate of noise pulses}
- 3/348 . . . . {Muting in response to a mechanical action or to power supply variations, e.g. during tuning; Click removal circuits}
- 5/00 Tone control or bandwidth control in amplifiers**
- 5/005 . {of digital signals}
- 5/02 . Manually-operated control
- 5/025 . . {Equalizers; Volume or gain control in limited frequency bands}
- 5/04 . . in untuned amplifiers
- 5/06 . . . having discharge tubes
- 5/08 . . . . incorporating negative feedback
- 5/10 . . . having semiconductor devices
- 5/12 . . . . incorporating negative feedback
- 5/14 . . in frequency-selective amplifiers
- 5/16 . Automatic control
- 5/165 . . {Equalizers; Volume or gain control in limited frequency bands}
- 5/18 . . in untuned amplifiers
- 5/20 . . . having discharge tubes
- 5/22 . . . having semiconductor devices
- 5/24 . . in frequency-selective amplifiers
- 5/26 . . . having discharge tubes
- 5/28 . . . having semiconductor devices
- 7/00 Volume compression or expansion in amplifiers {(frequency dependent [H03G 9/00](#))}**
- 7/001 . {without controlling loop ([H03G 7/007](#), [H03G 7/02](#), [H03G 7/06](#) take precedence)}
- 7/002 . {in untuned or low-frequency amplifiers, e.g. audio amplifiers ([H03G 7/007](#), [H03G 7/001](#), [H03G 7/008](#), [H03G 7/02](#), [H03G 7/06](#) take precedence)}
- 7/004 . . {using continuously variable impedance devices}
- 7/005 . . {using discontinuously variable devices, e.g. switch-operated}
- 7/007 . {of digital or coded signals}
- 7/008 . {Control by a pilot signal ([H03G 7/007](#), [H03G 7/02](#), [H03G 7/06](#) take precedence)}
- 7/02 . having discharge tubes
- 7/04 . . incorporating negative feedback
- 7/06 . having semiconductor devices
- 7/08 . . incorporating negative feedback
- 9/00 Combinations of two or more types of control, e.g. gain control and tone control**
- 9/005 . {of digital or coded signals}
- 9/02 . in untuned amplifiers
- 9/025 . . {frequency-dependent volume compression or expansion, e.g. multiple-band systems ([H03G 9/10](#), [H03G 9/18](#) take precedence)}
- 9/04 . . having discharge tubes
- 9/06 . . . for gain control and tone control
- 9/08 . . . . incorporating negative feedback
- 9/10 . . . for tone control and volume expansion or compression
- 9/12 . . having semiconductor devices
- 9/14 . . . for gain control and tone control
- 9/16 . . . . incorporating negative feedback
- 9/18 . . . for tone control and volume expansion or compression
- 9/20 . in frequency-selective amplifiers
- 9/22 . . having discharge tubes
- 9/24 . . having semiconductor devices
- 9/26 . in untuned amplifying stages as well as in frequency-selective amplifying stages
- 9/28 . . all amplifying stages having discharge tubes
- 9/30 . . all amplifying stages having semiconductor devices
- 11/00 Limiting amplitude; Limiting rate of change of amplitude {; Clipping in general}**
- 11/002 . {without controlling loop ([H03G 11/004](#), [H03G 11/006](#), [H03G 11/008](#), [H03G 11/02](#), [H03G 11/04](#), [H03G 11/06](#), [H03G 11/08](#) take precedence)}
- 11/004 . {using discharge tubes ([H03G 11/008](#) takes precedence)}
- 11/006 . {in circuits having distributed constants ([H03G 11/008](#) takes precedence)}
- 11/008 . {of digital or coded signals}

## H03G

11/02	. by means of diodes ( <a href="#">H03G 11/008</a> , <a href="#">H03G 11/04</a> , <a href="#">H03G 11/06</a> , <a href="#">H03G 11/08</a> take precedence)
11/025	. . {in circuits having distributed constants}
11/04	. Limiting level dependent on strength of signal; Limiting level dependent on strength of carrier on which signal is modulated { <a href="#">H03G 11/008</a> takes precedence}
11/06	. Limiters of angle-modulated signals; such limiters combined with discriminators ( <a href="#">discriminators having an inherent limiting action H03D 3/00</a> )
11/08	. Limiting rate of change of amplitude { <a href="#">H03G 11/008</a> takes precedence}
<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>
<b>2201/00</b>	<b>Indexing scheme relating to subclass <a href="#">H03G</a></b>
2201/10	. Gain control characterised by the type of controlled element
2201/103	. . being an amplifying element
2201/106	. . being attenuating element
2201/20	. Gain control characterized by the position of the detection
2201/202	. . being in baseband
2201/204	. . being in intermediate frequency
2201/206	. . being in radio frequency
2201/208	. . being in power supply of the amplifier
2201/30	. Gain control characterized by the type of controlled signal
2201/302	. . being baseband signal
2201/305	. . being intermediate frequency signal
2201/307	. . being radio frequency signal
2201/40	. Combined gain and bias control
2201/50	. Gain control characterized by the means of gain control
2201/502	. . by switching impedance in feedback loop
2201/504	. . by summing selected parallel amplifying paths, i.e. more amplifying/attenuating paths summed together
2201/506	. . by selecting one parallel amplifying path
2201/508	. . by using look-up tables
2201/60	. Gain control characterized by varying time constants in control loop
2201/603	. . time constant being continuous
2201/606	. . time constant being discrete
2201/70	. Gain control characterized by the gain control parameter
2201/702	. . being frequency, e.g. frequency deviations
2201/704	. . being number of multiplexed channels
2201/706	. . being quality indicator, e.g. BER,C/I
2201/708	. . being temperature