

CPC**COOPERATIVE PATENT CLASSIFICATION****H03G**

CONTROL OF AMPLIFICATION (impedance networks, e.g. attenuators, [H03H](#) ; control of transmission in lines [H04B 3/04](#))

NOTE

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

Attention is drawn to the Note following the title of subclass [H03F](#) .

Guidance heading:**H03G 1/00**

Details of arrangements for controlling amplification { for arrangements combined with means for generating a controlling signal, or these means per se, see the other main groups of [H03G](#) }

H03G 1/0005

- . { Circuits characterised by the type of controlling devices operated by a controlling current or voltage signal }

H03G 1/0011

- .. { the device being at least one of the amplifying tubes of the amplifier }

H03G 1/0017

- .. { the device being at least one of the amplifying solid state elements of the amplifier }

H03G 1/0023

- ... { in emitter-coupled or cascode amplifiers ([H03GB4F](#) takes precedence) }

H03G 1/0029

- ... { using FETs }

H03G 1/0035

- .. { using continuously variable impedance elements }

H03G 1/0041

- ... { using thermistors }

H03G 1/0047

- ... { using photo-electric elements }

H03G 1/0052

- ... { using diodes }

H03G 1/0058

- { PIN-diodes }

H03G 1/0064

- { Variable capacitance diodes }

H03G 1/007

- ... { using FET type devices }

H03G 1/0076

- ... { using galvanomagnetic elements }

H03G 1/0082

- ... { using bipolar transistor-type devices }

H03G 1/0088

- .. { using discontinuously variable devices, e.g. switch-operated }

H03G 1/0094

- ... { using switched capacitors }

H03G 1/02

- . Remote control of amplification, tone, or bandwidth (remote control in general [G05](#) , [G08](#) ; combined with remote tuning or selection of resonant circuits [H03J](#))

H03G 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 [H03F 1/08](#))

| | |
|------------------|---|
| H03G 3/00 | Gain control in amplifiers or frequency changers { without distortion of the input signal } (gated amplifiers H03F 3/72 ; peculiar to television receivers H04N) |
| H03G 3/001 | . { Digital control of analog signals } |
| H03G 3/002 | . { Control of digital or coded signals (H03G 3/3089 take precedence) } |
| H03G 3/004 | . { Control by varying the supply voltage } |
| H03G 3/005 | . { Control by a pilot signal (H03G 3/001 takes precedence) } |
| H03G 3/007 | . { Control dependent on the supply voltage } |
| H03G 3/008 | . { Control by switched capacitors } |
| H03G 3/02 | . Manually-operated control { H03G 3/001 and H03G 3/002 take precedence } |
| H03G 3/04 | .. in untuned amplifiers |
| H03G 3/06 | ... having discharge tubes |
| H03G 3/08 | incorporating negative feedback |
| H03G 3/10 | ... having semiconductor devices |
| H03G 3/12 | incorporating negative feedback |
| H03G 3/14 | .. in frequency-selective amplifiers |
| H03G 3/16 | ... having discharge tubes |
| H03G 3/18 | ... having semiconductor devices |
| H03G 3/20 | . Automatic control ({ H03G 3/005 takes precedence } ; combined with volume compression or expansion H03G 7/00) |
| H03G 3/22 | .. in amplifiers having discharge tubes |
| H03G 3/225 | ... { controlling or controlled by the (local) oscillators of a (super)heterodyne receiver } |
| H03G 3/24 | ... Control dependent upon ambient noise level or sound level |
| H03G 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 } |
| H03G 3/28 | in frequency-modulation receivers; { in angle-modulation receivers } |
| H03G 3/30 | .. in amplifiers having semiconductor devices |
| H03G 3/3005 | ... { in amplifiers suitable for low-frequencies, e.g. audio amplifiers (H03G 3/32 , H03G 3/34 take precedence) } |
| H03G 3/301 | { the gain being continuously variable } |
| H03G 3/3015 | { using diodes or transistors } |
| H03G 3/3021 | { by varying the duty cycle } |
| H03G 3/3026 | { the gain being discontinuously variable, e.g. controlled by switching } |
| H03G 3/3031 | { using switched capacitors } |
| H03G 3/3036 | ... { in high-frequency amplifiers or in frequency-changers (H03G 3/3052 , H03G 3/32 , H03G 3/34 take precedence) } |

| | | |
|-------------|-------|---|
| H03G 3/3042 | .... | { in modulators, frequency-changers, transmitters or power amplifiers (transmission power control in bidirectional transmission systems H04W 52/04) } |
| H03G 3/3047 | ..... | { for intermittent signals, e.g. burst signals } |
| H03G 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) } |
| H03G 3/3057 | .... | { using at least one diode as controlling device } |
| H03G 3/3063 | .... | { using at least one transistor as controlling device, the transistor being used as a variable impedance device } |
| H03G 3/3068 | .... | { Circuits generating control signals for both R.F. and I.F. stages } |
| H03G 3/3073 | .... | { Circuits generating control signals when no carrier is present, or in SSB, CW or pulse receivers } |
| H03G 3/3078 | .... | { Circuits generating control signals for digitally modulated signals } |
| H03G 3/3084 | ... | { in receivers or transmitters for electromagnetic waves other than radiowaves, e.g. lightwaves (H03G 3/32 , H03G 3/34 take precedence) } |
| H03G 3/3089 | ... | { Control of digital or coded signals } |
| H03G 3/3094 | ... | { in parametric amplifiers (H03G 3/32 , H03G 3/34 take precedence) } |
| H03G 3/32 | ... | the control being dependent upon ambient noise level or sound level |
| H03G 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 } |
| H03G 3/341 | .... | { Muting when no signals or only weak signals are present (H03G 3/344 , H03G 3/345 take precedence) } |
| H03G 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) } |
| H03G 3/344 | .... | { Muting responsive to the amount of noise (noise squelch) (H03G 3/345 takes precedence) } |
| H03G 3/345 | .... | { Muting during a short period of time when noise pulses are detected, i.e. blanking (H03G 3/348 takes precedence) } |
| H03G 3/347 | ..... | { dependent on the rate of noise pulses } |
| H03G 3/348 | .... | { Muting in response to a mechanical action or to power supply variations, e.g. during tuning; Click removal circuits } |

H03G 5/00**Tone control or bandwidth control in amplifiers**

| | | |
|------------|------|---|
| H03G 5/005 | . | { of digital signals (see provisionally also H03G 5/00) } |
| H03G 5/02 | . | Manually-operated control (variable bandpass or bandstop filters H03H 7/12) |
| H03G 5/025 | .. | { Equalizers; Volume or gain control in limited frequency bands } |
| H03G 5/04 | .. | in untuned amplifiers |
| H03G 5/06 | ... | having discharge tubes |
| H03G 5/08 | .... | incorporating negative feedback |
| H03G 5/10 | ... | having semiconductor devices |
| H03G 5/12 | .... | incorporating negative feedback |
| H03G 5/14 | .. | in frequency-selective amplifiers |
| H03G 5/16 | . | Automatic control |

- H03G 5/165 . . { Equalizers; Volume or gain control in limited frequency bands }
- H03G 5/18 . . in untuned amplifiers
- H03G 5/20 . . . having discharge tubes
- H03G 5/22 . . . having semiconductor devices
- H03G 5/24 . . in frequency-selective amplifiers
- H03G 5/26 . . . having discharge tubes
- H03G 5/28 . . . having semiconductor devices

H03G 7/00 Volume compression or expansion in amplifiers { frequency dependent [H03G 9/00](#) }

- H03G 7/001 . { without controlling loop ([H03G 7/007](#) , [H03G 7/02](#) , [H03G 7/06](#) take precedence) }
- H03G 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) }
- H03G 7/004 . . { using continuously variable impedance devices }
- H03G 7/005 . . { using discontinuously variable devices, e.g. switch-operated }
- H03G 7/007 . { of digital or coded signals (see provis. also [H03G 7/00](#)) }
- H03G 7/008 . { Control by a pilot signal ([H03G 7/007](#) , [H03G 7/02](#) , [H03G 7/06](#) take precedence) }
- H03G 7/02 . having discharge tubes
- H03G 7/04 . . incorporating negative feedback
- H03G 7/06 . having semiconductor devices
- H03G 7/08 . . incorporating negative feedback

H03G 9/00 Combinations of two or more types of control, e.g. gain control and tone control

- H03G 9/005 . { of digital or coded signals }

WARNING

Not complete pending reclassification; see provisionally also group [H03G 9/00](#))

- H03G 9/02 . in untuned amplifiers (combined tone controls for low and high frequencies [H03G 5/00](#)) { compression or expansion combined with volume control [H03G 7/00](#) }
- H03G 9/025 . . { frequency-dependent volume compression or expansion, e.g. multiple-band systems ([H03G 9/10](#) , [H03G 9/18](#) take precedence) }
- H03G 9/04 . . having discharge tubes
- H03G 9/06 . . . for gain control and tone control
- H03G 9/08 incorporating negative feedback
- H03G 9/10 . . . for tone control and volume expansion or compression
- H03G 9/12 . . having semiconductor devices
- H03G 9/14 . . . for gain control and tone control
- H03G 9/16 incorporating negative feedback

- H03G 9/18 . . . for tone control and volume expansion or compression
- H03G 9/20 . in frequency-selective amplifiers
- H03G 9/22 . . having discharge tubes
- H03G 9/24 . . having semiconductor devices
- H03G 9/26 . in untuned amplifying stages as well as in frequency-selective amplifying stages (gain control in both stages [H03G 3/00](#) ; tone control or bandwidth control [H03G 5/00](#)) { compression or expansion combined with volume control [H03G 7/00](#) }
- H03G 9/28 . . all amplifying stages having discharge tubes
- H03G 9/30 . . all amplifying stages having semiconductor devices

H03G 11/00 Limiting amplitude ; Limiting rate of change of amplitude; { Clipping in general }

- H03G 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; see provisional also [H03G 11/00](#)) }
- H03G 11/004 . { using discharge tubes ([H03G 11/008](#) takes precedence) }
- H03G 11/006 . { in circuits having distributed constants ([H03G 11/008](#) takes precedence) }
- H03G 11/008 . { of digital or coded signals (see provis. also [H03G 11/00](#) , [H03G 11/02](#)) }
- H03G 11/02 . by means of diodes ({ [H03G 11/008](#) , } [H03G 11/04](#) , [H03G 11/06](#) , [H03G 11/08](#) take precedence)
- H03G 11/025 . . { in circuits having distributed constants }
- H03G 11/04 . Limiting level dependent on strength of signal ; Limiting level dependent on strength of carrier on which signal is modulated { [H03G 11/008](#) takes precedence }
- H03G 11/06 . { Limiters of angle-modulated signals } ; such limiters combined with discriminators ([H03G 11/00](#) takes precedence; discriminators having an inherent limiting action [H03D 3/00](#))
- H03G 11/08 . Limiting rate of change of amplitude { [H03G 11/008](#) takes precedence }

H03G 99/00 Subject matter not provided for in other groups of this subclass

Guidance heading:

H03G 2201/00 Indexing scheme relating to subclass [H03G](#)

- H03G 2201/10 . Gain control characterised by the type of controlled element
- H03G 2201/103 . . being an amplifying element
- H03G 2201/106 . . being attenuating element
- H03G 2201/20 . Gain control characterized by the position of the detection

- H03G 2201/202 . . being in baseband
- H03G 2201/204 . . being in intermediate frequency
- H03G 2201/206 . . being in radio frequency
- H03G 2201/208 . . being in power supply of the amplifier

- H03G 2201/30 . Gain control characterized by the type of controlled signal
- H03G 2201/302 . . being baseband signal
- H03G 2201/305 . . being intermediate frequency signal
- H03G 2201/307 . . being radio frequency signal

- H03G 2201/40 . Combined gain and bias control

- H03G 2201/50 . Gain control characterized by the means of gain control
- H03G 2201/502 . . by switching impedance in feedback loop
- H03G 2201/504 . . by summing selected parallel amplifying paths, i.e. more amplifying/attenuating paths summed together
- H03G 2201/506 . . by selecting one parallel amplifying path
- H03G 2201/508 . . by using look-up tables

- H03G 2201/60 . Gain control characterized by varying time constants in control loop
- H03G 2201/603 . . time constant being continuous
- H03G 2201/606 . . time constant being discrete

- H03G 2201/70 . Gain control characterized by the gain control parameter
- H03G 2201/702 . . being frequency, e.g. frequency deviations
- H03G 2201/704 . . being number of multiplexed channels
- H03G 2201/706 . . being quality indicator, e.g. BER,C/I
- H03G 2201/708 . . being temperature