CPC COOPERATIVE PATENT CLASSIFICATION

H ELECTRICITY

(NOTE omitted)

H03 BASIC ELECTRONIC CIRCUITRY

H03G CONTROL OF AMPLIFICATION (impedance networks, e.g. attenuators, H03H; control of transmission in lines H04B 3/04)

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.

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)**}**

1/0005 . {Circuits characterised by the type of controlling devices operated by a controlling current or voltage signal}

1/0011 . . {the device being at least one of the amplifying tubes of the amplifier}

1/0017 . . {the device being at least one of the amplifying solid state elements of the amplifier}

1/0023 . . . {in emitter-coupled or cascode amplifiers (H03G 1/0029 takes precedence)}

1/0029 . . . {using FETs}

1/0035 . . {using continuously variable impedance elements}

1/0041 . . . {using thermistors}

1/0047 . . . {using photo-electric elements}

1/0052 . . . {using diodes}

1/0058 . . . . {PIN-diodes}

1/0064 . . . . {Variable capacitance diodes}

1/007 . . . {using FET type devices}

1/0076 . . . {using galvanomagnetic elements}

1/0082 . . . {using bipolar transistor-type devices}

1/0088 . . {using discontinuously variable devices, e.g. switch-operated}

1/0094 . . . {using switched capacitors}

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)

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)

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)

3/001 . {Digital control of analog signals}

3/002 . {Control of digital or coded signals (H03G 3/3089 take precedence)}

3/004 . {Control by varying the supply voltage}

3/005 . {Control by a pilot signal (H03G 3/001 takes precedence)}

3/007 . {Control dependent on the supply voltage}

3/008 . {Control by switched capacitors}

3/02 . Manually-operated control {(H03G 3/001 and H03G 3/002 take precedence)}

3/04 . . in untuned amplifiers

3/06 . . . having discharge tubes

3/08 . . . . incorporating negative feedback

3/10 . . . having semiconductor devices

3/12 . . . . incorporating negative feedback

3/14 . . in frequency-selective amplifiers

3/16 . . . having discharge tubes

3/18 . . . having semiconductor devices

3/20 . Automatic control ({H03G 3/005 takes precedence } ; combined with volume compression or expansion H03G 7/00)

3/22 . . in amplifiers having discharge tubes

3/225 . . . {controlling or controlled by the (local) oscillators of a (super)heterodyne receiver}

3/24 . . . Control dependent upon ambient noise level or sound level

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}

3/28 . . . . in frequency-modulation receivers {; in angle-modulation receivers}

3/30 . . in amplifiers having semiconductor devices

3/3005 . . . {in amplifiers suitable for low-frequencies, e.g. audio amplifiers (H03G 3/32, H03G 3/34 take precedence)}

3/301 . . . . {the gain being continuously variable}

3/3015 . . . . . {using diodes or transistors}

3/3021 . . . . . {by varying the duty cycle}

3/3026 . . . . {the gain being discontinuously variable, e.g. controlled by switching}
3/3031 . . . . . {using switched capacitors}
3/3036 . . . {in high-frequency amplifiers or in frequency-changers (H03G 3/3052, H03G 3/32, H03G 3/34 take precedence)}
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 (see provisionally also H03G 5/00)}
5/02 . Manually-operated control (variable bandpass or bandstop filters H03H 7/12)
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 (see provis. also H03G 7/00)}
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 (combined tone controls for low and high frequencies H03G 5/00 {; compression or expansion combined with volume control H03G 7/00})
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 (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})

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; see provisional also H03G 11/00)}
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 (see provis. also H03G 11/00, H03G 11/02)}
11/02 . by means of diodes ({H03G 11/008, } H03G 11/04, H03G 11/06, H03G 11/08 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 {(H03G 11/008 takes precedence)}
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)
11/08 . Limiting rate of change of amplitude {(H03G 11/008 takes precedence)}

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

2201/00 Indexing scheme relating to subclass H03G

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