CLAIMS

1. A discharge detection system for detecting discharge occurred in at least one of a plurality of electrical circuits branched into two or more based on a noise superimposed on a voltage or current, the discharge detection system comprising:

a plurality of filter circuits (32) electrically connected to each of the plurality of electrical circuits and configured to pass a noise in a predetermined frequency range;

a plurality of amplifiers (31) electrically connected to each of the plurality of filter circuits (32) and configured to amplify a level of the noise passed through the filter circuit (32); and

at least one processor (50) electrically connected to each of the plurality of amplifiers (31) and configured to detect occurrence of discharge based on the noise level amplified by the amplifier (31), characterized in that

the processor (50) is set to have an amplification factor of the amplifier (31) and a threshold related to the noise level, and

if a noise at a level of the threshold or more is output from each of two or more of the amplifiers (31), the processor (50) executes

process of reducing the amplification factor of each of the two or more amplifiers (31), and

process of specifying any one of the noises by comparing the level of the noise output from each of the two or more amplifiers (31) having the reduced amplification factor.

2. The discharge detection system according to Claim 1, wherein, in the process of reducing the amplification factor of each of the two or more amplifiers (31), the processor (50) reduces each amplification factor to have the same value.

3. The discharge detection system according to Claim 1 or 2, wherein the processor (50) specifies the one noise with a least reduced level by comparing the level of the noise output from each of the two or more amplifiers (31) having the reduced amplification factor.

4. The discharge detection system according to Claim 1, wherein, in the process of reducing the amplification factor of each of the two or more amplifiers (31), the processor (50) reduces each amplification factor stepwise at each predetermined time to have the same value.

5. The discharge detection system according to any one of Claims 1 through 4, wherein

the processor (50) is set to have the amplification factor, the threshold, and a determination time to determine whether discharge has occurred,

the processor (50) is capable of selectively executing either one of a discharge detection mode or a learning mode,

the processor (50) in the discharge detection mode executes process of determining whether discharge has occurred by comparing a duration time of the noise at the level of the threshold or more with the determination time, and

the processor in the learning mode executes process of sampling the noise at the level of the threshold or more and resetting at least one value of the settings based on a result of the sampling.

6. The discharge detection system according to any one of Claims 1 through 5, wherein

each of the plurality of filter circuits (32) is electrically connected to a corresponding one of a plurality of branch breakers (12) constituting a distribution board,

the processor (50) is capable of outputting a signal to interrupt each of the plurality of branch breakers (12), and

if detecting occurrence of discharge based on the level of the noise output from one of the amplifiers (31) electrically connected to one of the filter circuits (32), the processor (50) outputs the signal to one of the branch breakers (12) in electrical connection with the one filter circuit (32).