CLAIMS

1. A discharge detector for detecting discharge occurred in an electrical circuit with an electrically connected load based on a noise superimposed on a voltage or current, the discharge detector comprising:

a filter circuit configured to pass the noise in a predetermined frequency range; an amplifier configured to amplify a level of the noise passed through the filter circuit; and a processor configured to detect occurrence of discharge based on the noise level amplified by the amplifier, wherein

the processor is set to have a threshold related to the noise level and a determination time to determine whether discharge has occurred,

the processor is configured to selectively execute either one of a discharge detection mode or a learning mode,

the processor in the discharge detection mode executes process of determining whether discharge has occurred by comparing a duration time of the noise at a 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 settings based on a result of the sampling,

wherein the processor in the learning mode executes:

a process of comparing the level of the sampled noise with the threshold;

a process of measuring the duration time of the noise if the level of the noise is the threshold or more; and

a process of resetting a value of the determination time to a value of the noise duration time or more.

2. The discharge detector according to Claim 1, wherein

the duration time of the noise is set to have an upper limit, and

the processor in the learning mode executes a process of determining that discharge has occurred if the duration time of the sampled noise is more than the upper limit.

3. The discharge detector according to Claim 1 or 2, wherein the processor in the learning mode executes a process of resetting the value of the determination time to a value more than the noise duration time.

4. The discharge detector according to any one of Claims 1 through 3, wherein

the processor is set to have an amplification factor of the amplifier, and

the processor in the learning mode executes a process of reducing the amplification factor of the amplifier if the noise level is the threshold or more.

5. The discharge detector according to any one of Claims 1 through 4, further comprising an operation section for manually selecting either one of the discharge detection mode or the learning mode.