CLAIMS

1. A conductive contactor unit comprising:

a signal conductive contactor configured to input or output a signal to or from a predetermined circuit structure, the signal conductive contactor including

a first plunger configured to contact the predetermined circuit structure,

a second plunger connected to a circuit board configured to input or output the signal to or from the predetermined circuit structure, and

a spring member configured to connect the first plunger and the second plunger in an extendable and contractible manner; and

a conductive contactor holder configured to house the signal conductive contactor used for inputting and outputting the signal to and from the predetermined circuit structure, the conductive contactor holder having a coaxial structure with the signal conductive contactor, and including

a holder substrate including an opening configured to allow the signal conductive contactor to be inserted therethrough,

a holding member housed in the opening, and including a holding hole configured to hold one or more of the signal conductive contactors, and

a stab configured to form a hollow space extending from the holding hole in a direction perpendicular to a central axis of the holding hole,

wherein, denoting a length between a tip of the first plunger and the stab at a position in a direction of a central axis of the holding hole at time of inputting or outputting the signal as D_1, and denoting a length of the stab in a direction in which the stab extends from the central axis of the holding hole as L_1, the stab satisfies:

$$D_1 = \tan^{-1}\frac{1}{\overline{A_{SRW}}} \times \frac{\lambda}{2\pi}$$

(1)

$$L_1 = \tan^{-1}\frac{A_{SRW}-1}{\overline{A_{SRW}}}\times\frac{\lambda}{2\pi}$$

(2)

(where A_{SRW} is a standing wave ratio ($A_{SRW}=Z_0/Z_a$, where Z_0 is a characteristic impedance, Z_a is a pure resistance ($<Z_0$), A_{SRW} (with a line on top thereof) is a conjugate complex number of A_{SRW}, and λ is a wavelength at a particular frequency).

2. The conductive contactor unit according to claim 1, wherein

each of the holder substrate and the holding member includes two element members configured to form a boundary in a direction intersecting with an axial line direction of the opening, and divide the conductive contactor holder, and

the stab is formed between the two element members.

3. The conductive contactor unit according to claim 1 or 2, wherein a tip of the stab in an extending direction is brought into contact with an outer circumferential surface of the holder substrate.

4. The conductive contactor unit according to claim 3, further comprising an adjustment member inserted into a tip side of the stab in the extending direction, and configured to be capable of adjusting a length of the stab in the extending direction.

5. The conductive contactor unit according to claim 1, wherein

each of the holder substrate and the holding member includes two element members configured to divide the conductive contactor holder in a direction intersecting with an axial line direction of the opening, and

the stab is provided to one of the two element members.

6. The conductive contactor unit according to claim 5, wherein the stab forms a disk-like hollow space that is rotationally symmetric with respect to a central axis of the holding hole.

7. A conductive contactor unit comprising:

a signal conductive contactor configured to input or output a signal to or from a predetermined circuit structure, the signal conductive contactor including

a first plunger configured to contact the predetermined circuit structure,

a second plunger connected to a circuit board configured to input or output the signal to or from the predetermined circuit structure, and

a spring member configured to connect the first plunger and the second plunger in an extendable and contractible manner; and

a holder substrate including a plurality of housing units configured to house a plurality of the signal conductive contactors, respectively, wherein

at least one of the first plunger and the second plunger includes a stab protruding from an outer surface in a direction perpendicular to an axial line direction of the plunger,

wherein, denoting a length between a tip of the first plunger and the stab at a position in the axial line direction of the first plunger as D_2, and denoting a length of the stab from a central axis of the first plunger in a direction perpendicular to the axial line direction as L_2, the stab satisfies:

$$D_2 = \tan^{-1}\overline{B_{SRW}} \times \frac{\lambda}{2\pi}$$

(3)

$$L_2 = \tan^{-1}\frac{\overline{B_{SRW}}}{B_{SRW} - 1} \times \frac{\lambda}{2\pi}$$

(4)

(where B_{SRW} is a standing wave ratio ($B_{SRW}=Z_a/Z_0$, Z_0 is a characteristic impedance, Z_a is a pure resistance ($>Z_0$), B_{SRW} (with a line on top thereof) is a conjugate complex number of B_{SRW}, and λ is a wavelength at a particular frequency).

8. The conductive contactor unit according to claim 7, wherein the stab has a disk-like shape that is rotationally symmetric with respect an axial line of the plunger having the stab.