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"TERMINAL CONNECTOR"

This invention relates to a terminal connector for use in communication apparatus more particularly, a trunk telephone system, to establish electrical connections between ingoing and outgoing conductors.

5 The object of the invention is to provide such a connector in a simple and convenient form.

 According to the invention a terminal connector for use in communication apparatus more particularly a trunk telephone system, to establish electrical
10 connections between ingoing and outgoing conductors, the connector comprising first and second connector parts, each connector part defining an equal number of conductive paths, one end of each conductive path ending in a terminal connector arranged in use to
15 receive a conductor, the other end of each conductive path ending in a contact member, the contact members being disposed on one side of the respective connector part, means for supporting the first and second connector parts relative to each other so that the
20 respective contact members on the two parts are in alignment, a third connector part supported by said means and a connector unit which carries at least one conductive strip, said connector unit being slidable into and located by said third connector part whereby
25 it is located relative to said first and second connector parts so that the conductive strip or the conductive strips on the connector unit establish electrical connection between one contact member on the first connector part and the corresponding contact
30 member on the second connector part, said connector unit being interchangeable whereby different functions can be provided in the connection between said contact members.

In the accompanying drawings:-

Figure 1 is a side elevation of the connector,
Figure 2 is a side view partly in section of a
part of the connector of Figure 1,

5 Figure 2A is a plan view of the part of the
connector seen in Figure 2,

Figure 3 is a side elevation of a further part of
the connector seen in Figure 1, and

Figures 4, 5 and 6 are sectional side elevations
of different forms of the aforesaid further parts.

10 With reference to the drawings, the connector com-
prises first and second connector parts 1, 2 each being
of elongated form and provided at their ends with
latches 11, 21 respectively whereby they can be secured
15 to the limbs 92 of a support frame 9. The frame in
use, is mounted in a support structure not shown and
the frame carries a support member 91 arranged to
receive cables having a plurality of insulated elec-
trical conductors .

The connector parts 1, 2 in the example, each
20 define 20 conductive paths which at one end terminate
in solderless terminal connectors to receive the
insulated conductors. As shown, the connector part 2
has one such solderless connector 22 for each conduc-
tive path and the connector part 1 has two such
25 solderless terminal connectors 12 for each conductive
path, the solderless connectors being of the type
incorporating contact blades which penetrate the
insulation of the conductors as the latter are pressed
into position. The conductive paths terminate at
30 their other ends in contact members 12A, 22A. The two
connector parts can if desired, be identical in
construction.

The connector also includes a further connector

part 3 the details of which are seen more clearly in Figures 2 and 2A. The connector part 3 carries in the particular example, two signal lines or strips 32 which terminate at opposite ends of the connector part in contact blades which when the part 3 is assembled in the frame make electrical contact with connectors not shown carried by insulated supports carried by the frame. The connector part 3 also carries an earthing strip 33.

10 In the particular example, the connector part 1 has the outgoing lines connected to its solderless terminal connectors 12 and the solderless terminal connectors 22 of the part 2 are connected to the incoming lines. Electrical connection between the
15 respective conductive paths of the connector parts 1 and 2 is achieved using slide-in connector units 4, 5, 6, 7 or 8. Each unit is different, being designed for a specific purpose. Each unit deals with the connection of a pair of conductive paths and the
20 body of each is substantially the same. As seen in Figures 3-6 the units comprise an elongated body which at one end is provided with an offset tab. The bodies define elongated shoulders which are adapted to be slidably engaged by retaining lips 25 on the connector
25 parts 1, 2 as and when the units are assembled in their working positions. The units are also slidably received in the connector part 3 which provides end location of the units. The simplest unit is that which is shown in Figure 4 this carrying a pair of
30 conductive strips disposed in spaced relationship which when the unit is slid into position, effect electrical connection between the respective contact members 12A, 22A.

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The more complex units are seen in Figures 3, 5 and 6 and although there are only two sectional views it is intended that these should demonstrate four variations. Reference numeral 5 is intended to denote
5 a unit similar to the simple unit 4 but having.....

isolating contacts 51 which are accessible through an opening in the end of the body of the unit and which can be operated to prevent flow of current in the associated circuit. Reference numeral 6 denotes a unit which again is basically the same as unit 4 but with contacts 61 which are provided for tapping to enable the current flow in the associated circuit to be directed to an external circuit; an alternative form of contact is seen in Figure 5. Reference numeral 7 denotes a more complex unit which incorporates an over voltage protection device 71. An earth contact 74 is provided for engagement with the earthing strip 33 in the connector part 3 together with a signal contact 73 for connection with one of the signal strips 32 also in the connector part 3. The unit also includes a pair of signal contacts 72.

Reference numeral 8 indicates a connection unit incorporating an over current protector 81, a pair of contacts 82 together with a signal contact 83 and an earth contact 84 for connection when the unit is in position, with the signal strip 32 and the earthing strip 33 respectively.

The connector units in a particular connector need not be all of the same type, the form of connector unit depends upon the type of circuit with which it is to be associated.



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CLAIMS

1. A terminal connector for use in communication apparatus more particularly a trunk telephone system, to establish electrical connections between ingoing and outgoing conductors, the connector comprising first and second connector parts, each connector part defining an equal number of conductive paths, one end of each conductive path ending in a terminal connector arranged in use to receive a conductor, the other end of each conductive path ending in a contact member, the contact members being disposed on one side of the respective connector part, means for supporting the first and second connector parts relative to each other so that the respective contact members on the two parts are in alignment, a third connector part supported by said means and a connector unit which carries at least one conductive strip, said connector unit being slidable into and located by said third connector part whereby it is located relative to said first and second connector parts so that the conductive strip or the conductive strips on the connector unit establish electrical connection between one contact member on the first connector part and the corresponding contact member on the second connector part, said connector unit being interchangeable whereby different functions can be provided in the connection between said contact members.

2. A connector according to Claim 1 in which said connector unit defines elongated shoulders, said connector parts defining retaining lips for engagement with said shoulders.

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3. A connector according to Claim 1 in which said terminal connectors are of the solderless type incorporating contact blades which penetrate the insulation of the electrical conductors.
- 5 4. A connector according to Claim 1 in which said first and second connector parts are identical in construction.
- 10 5. A connector according to Claim 1 in which said means for supporting comprises a support frame having a pair of limbs, and latches at the opposite ends of the connector parts for engagement with said limbs.
6. A connector according to Claim 5 in which said support frame carries a cable support member.
- 15 7. A connector according to Claim 1 in which said third connector part carries at least one signal line and also an earthing strip, said signal line and earthing strip being engaged in use, by signal and earth contacts carried by a connector unit.
- 20 8. A connector according to Claim 1 or Claim 2 in which the conductive strip of the connector unit includes contact means whereby flow of current through the strip can be prevented or directed through an external circuit.
- 25 9. A connector according to Claim 1 or Claim 2 in which the connector unit includes an over voltage or over current protection device.



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10. A terminal connector comprising the combination and arrangement of parts substantially as hereinbefore described with reference to the accompanying drawings.
