This invention relates to terminals for video pair cables, and more especially to terminals that are mounted on a plate of a terminal rack.

When a video pair shield is grounded at the terminal rack on which a terminal plate is mounted, this grounding sometimes induces a local noise which is objectionable; and it is an object of this invention to provide a versatile terminal assembly construction which gives a choice in the grounding of the shield.

It is another object of the invention to provide a terminal assembly construction which can be used in the same way as conventional terminals and which is interchangeable with conventional terminals, but which can, if desired, be connected so as to ground the housing and receptacle tubing of the assembly separately from the video pair shield without danger of introducing local noise into the shield circuit; the shield being grounded at any location removed from heavy ground currents such as occur in ground loops resulting from multiple grounds.

Thus the invention provides a terminal construction which:

(1) Can be installed in the same manner and employ existing equipment,

(2) Permits the use of the present patch cords and connectors,

(3) Isolates the video pair shields from:

(a) each other,

(b) the lead shield,

(c) the mounting plate, and

(d) ground,

(4) Permits, at the installer's option, the grounding of one or more video pair shields on the terminal or at other locations.

Another object is to provide a terminal construction of the character indicated which is particularly convenient to connect and assemble with resulting saving in time and cost.

Other objects, features and advantages of the invention will appear or be pointed out as the description proceeds.

In the drawings, forming a part hereof, in which like reference characters indicate corresponding parts in all the views:

FIGURE 1 is a diagrammatic elevation, partly broken away and in section, of a terminal assembly construction connected with a cable stub;

FIGURE 2 is a greatly enlarged sectional view taken on the line 2—2 of FIGURE 1 and showing the connection of an individual video pair with a receptacle of the terminal assembly; and

FIGURE 3 is a sectional view on the line 3—3 of FIGURE 2.

FIGURE 1 shows a cable stub 10 which includes a lead sheath 12 covering four video pairs 14 which are insulated from the lead sheath by insulation 16. The lead sheath 12 of the cable stub is connected to a hollow element or manifold 20 by solder 22. Each video pair 14 is connected to a connector receptacle 26 by passing the pair through a copper tubing 28 which ends in a housing 30 connected to a mounting plate 32 of a terminal rack.

FIGURE 2 shows one of the copper tubes 28 connected with one of the housings 30 by a connection 36 which provides a rigid and air tight connection for the tube with the housing. The video pair 14, which extends through the tube 28, consists of two conductors 38 and 39, insulated from each other by insulation 40, and insulated from shielding 42 which is preferably a tape surrounding the insulated conductors 38 and 40 outside of their insulation 40. The video pair 14 also includes an insulated conductor 46 which is connected to the video pair shielding at the point 48 (FIGURE 1).

The conductors 38, 39 and 46 pass through a hermetic terminal seal 50 and are soldered at points 52 to the terminal seal 50. This hermetic terminal seal 50 seats against a shoulder 58 in the housing 30. The seal 50 is a partition made mostly of electrical insulating material but with metal inserts for soldering to the conductors 38, 39 and 40. The seal 50 rests in the housing 30 and there is an O-ring 60 held down against the shoulder 58 by a washer 62 which is pressed downward by a retainer 64 threaded into the upper end of the housing 30. Thus the hermetic terminal seal 50 and the O-ring 60, together with the washer 62 and retainer 64, provide a gas pressure seal which permits pressurization of the cables that are terminated.

The conductors 38 and 39 are terminated at female pins 66 and 68, respectively, of the receptacle 26. The conductor 46 is connected with a copper ring 70 by a connector 72.

The housing 30 is connected to the plate 32 by angularly spaced screws 65. The receptacle 26 has a metal outer shell 74, and is attached to the mounting plate 32 by screws 76 which extend through a flange 78 that is an integral part of the lower end of the receptacle 26, and through an insulating gasket 80 into threaded openings 82 in the mounting plate 32. Although the screws 76 fit the threads in the opening 82, these screws 76 are substantially smaller in diameter than the openings which the screws pass through in the flange 78 and the gasket 80. There are electrical insulating bushings 86 with integral flanges 88 at their upper ends surrounding the screws 76 and insulating the screws 76 from the flange 78.

The video pair shield is continued through the receptacle 26 by means of the copper ring 70 which is in physical contact with the metal of the receptacle 26; but the video pair shield is isolated from the mounting plate 32 by the insulating gasket 80 and by the bushings 86 with their flanges 88 interposed between the screws 76 and the flange 78 of the receptacle 26.

Grounding of the terminal rack grounds the mounting plate 32 which is a part of the terminal rack and this grounds the lead sheath 12 through the housing 30, tubing 28 and manifold assembly 20 (FIGURE 1). If the video pair shield is to be grounded on the mounting plate 32, this can be accomplished by merely removing the flanged bushings 86 from the assembly so that the shoulders at the heads of the screws 76 can contact directly with the top surface of the metal flange 78 of the receptacle 26.

Certain parts of the assembly have been described as made of particular material, such as the tubing 28 and ring 70, but it will be understood that these parts can be made of other material suitable for grounding electrical circuits. The preferred embodiment of the invention has been illustrated and described, but changes and modifications can be made and some features can be used in different combinations without departing from the invention as defined in the claims.

What is claimed:

1. A video pair cable terminal construction including a housing for receiving the end of a video pair cable which has a grounding conductor and insulated conductors with shielding around the insulated conductors, a receptacle with quick detachable terminal means for con-
3. The video pair cable terminal construction described in claim 2 characterized by fastening means that connect the housing to the mounting plate being screws at angularly spaced locations around the housing, and the other fastening means that connect the receptacle to the mounting plate being a second set of screws at angularly spaced locations around the receptacle, said other insulation being sleeves around the second set of screws, there being a sleeve around each screw where it passes through the receptacle and an insulating flange at the end of each sleeve between the head of the screw and the receptacle.

4. The video pair cable terminal construction described in claim 2 characterized by means grounding the mounting plate, the means for connecting the receptacle with the grounding conductor of the cable being an electrically conductive ring clamped between the receptacle and the insulating gasket and also a conductor for connecting the ring with the grounding conductor of the cable.

5. The video pair cable terminal construction described in claim 1 characterized by a housing including a sealing partition through which all of the conductors extend in insulated relation to one another, and means hermetically sealing the partition around the conductors and between the partition and the inside wall of the housing.

6. The video pair cable construction described in claim 1 characterized by a video pair cable extending into the housing and having two insulated conductors with shielding outside the insulation, and a grounding conductor that extends along the length of the insulated conductors and adjacent thereto, the shielding being connected with said grounding conductor and the receptacle having an outer metal housing which is also connected with said grounding conductor.

7. The video pair cable construction described in claim 2 characterized by a video pair cable having at least two insulated conductors with shielding around the outside of the insulation and a grounding conductor that extends along the length of the insulated conductors and adjacent thereto, another covering layer outside of the insulated and grounding conductors, a hollow element into which the cable extends, the outside layer of the cable terminating in said hollow element and the insulated conductors and grounding conductor of the cable continuing beyond said hollow element to said housing, and tubing leading from the hollow element and through which the conductors of the cable extend between said hollow element and the housing, the shielding being electrically insulated from the hollow element and the tubing.

8. The video pair cable construction described in claim 7 characterized by other electrical insulation over the shielding, the covering over the outside of the cable being a metal sheath covering said other electrical insulation, the sheath and other electrical insulation terminating in said hollow element and the sheath being connected to said hollow element and being locally grounded.

9. The video pair cable construction described in claim 8, characterized by there being a plurality of housings and receptacles connected to the mounting plate, the hollow element being a manifold, a different tubing extending from the manifold to each of the housings, the video pair cable extending into the manifold having as many video pairs as there are receptacles, each video pair having two insulated conductors with shielding outside of the insulation and a grounding conductor that extends along the length of the insulated chambers and adjacent thereto, the cable dividing in the manifold and a different video pair extending through each tubing to the respective receptacles, the shielding being electrically insulated from the manifold and from each tubing, and said manifold, tubing and sheath being electrically connected for local grounding.

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