CABLE HEADER CONNECTOR

FIELD OF THE INVENTION

[0001] The invention relates to an electrical connector for interconnecting cables in a communication system.

DESCRIPTION OF RELATED ART

[0002] High speed differential connectors are known and used in electrical systems, such as communication systems to transmit signals within a network. Some electrical systems utilize cable mounted electrical connectors to interconnect the various components of the system. Routing of the cables is difficult, particularly in high density applications having many connectors and many cables. Some systems have space constraints at the cable exit, which limit the distance that the cables can extend behind the connectors. The cables need to be bent, typically perpendicular to the cable exit. If the cables are bent too sharply, the cables may be damaged.

[0003] There is a need for a cable connector that controls the bending and exit of the cables from the connector.

BRIEF DESCRIPTION OF THE INVENTION

[0004] According to a first aspect of the present invention, there is provided a cable header connector including: a contact module having a support body and a plurality of cable assemblies held by the support body and arranged in a column; the cable assemblies each comprising a contact terminated to a cable and a ground shield coupled to and providing electrical shielding for the contact; the support body having a frame defining contact channels extending along respective contact channel axes which are parallel to each other, and the frame defining cable channels extending along respective cable channel axes intersecting the contact channels at an angle, the contact channel axes extending generally from a front to a rear of the support body and the cable channel axes cable channels extending generally parallel to each other from one side to another side of the support body, wherein the cables extend through the frame within the contact channels and through the at least one cable channel to an outside of the support body, the cables emerging from the support body at corresponding cable exits defined at least one of the sides of the support body at respective angles to the contact channel axes, the support body including a cover overmolded in situ to the frame in the cable channels over the cables.

[0004a] According to a second aspect of the present invention, there is provided a cable header connector including: a header housing having a base wall with support walls extending rearward from the base wall to define a module cavity behind the base wall, the support walls being arranged along a top and a bottom of the module cavity; and contact modules received in the module cavity, each contact module having a support body and a plurality of cable assemblies held by the support body and arranged in a column; the cable assemblies each having a contact terminated to a cable and a ground shield coupled to and providing electrical shielding for the contact sub-assembly; the support body having a top and a bottom opposite the top, the top extending along the support wall at the top of the module cavity, the bottom extending along the support wall at the bottom of the module cavity; the support body having a frame defining contact channels extending along contact channel axes, the contact channels extending generally front to rear within the support body, the contact channels receiving portions of the contacts and portions of the cables; the support body having the frame defining a front cable channel and a rear cable channel having cable exits associated therewith and having a separating wall between the front cable channel and the rear cable channel, the cable channels extending generally side to side within the support body, the front and rear cable channels receiving further portions of the cables extending from the contact channels with at least some of the cables being routed to the cable exits associated with the front cable channel and at least some of the cables being routed to the cable exits associated with the rear cable channel, the separating wall having cable slots, the cables being routed in the frame through the rear cable channel from the cable exits at least at one of the top and the bottom of the support body through the cable slots and through the front cable channel to the corresponding contact channels.

CLAIMS

1. A cable header connector comprising:

a contact module having a support body and a plurality of cable assemblies held by the support body and arranged in a column;

the cable assemblies each comprising a contact terminated to a cable and a ground shield coupled to and providing electrical shielding for the contact;

the support body having a frame defining contact channels extending along respective contact channel axes which are parallel to each other, and the frame defining cable channels extending along respective cable channel axes intersecting the contact channels at an angle, the contact channel axes extending generally from a front to a rear of the support body and the cable channel axes cable channels extending generally parallel to each other from one side to another side of the support body, wherein the cables extend through the frame within the contact channels and through the at least one cable channel to an outside of the support body, the cables emerging from the support body at corresponding cable exits defined at least one of the sides of the support body at respective angles to the contact channel axes, the support body including a cover overmolded in situ to the frame in the cable channels over the cables.

2. The cable header connector of claim 1, wherein each contact extends parallel to the contact channel axes, the cables emerging from the support body at the cable exits in an exit direction being generally perpendicular to the contact channel axes.

3. The cable header connector of claim 1, wherein the cables are bent in the at least one cable channel between the corresponding cable exits and the contact channels.

4. The cable header connector of claim 1, wherein the support body includes bending anvils, the cables being bent along the bending anvils to control a bend radius of the cables in the at least one cable channel.

5. The cable header connector of claim 1, wherein the support body includes separating walls between and separating the contact channels, the support body including bending anvils at ends of the supporting walls at the intersections of the contact channels and the at least one cable channel.

6. The cable header connector of claim 1, wherein the sides of the support body define a top and a bottom, the contact sub-assemblies extending from the front of the support body, the cables emerging from the support body at the corresponding cable exits at least at one of the top and the bottom.

7. The cable header connector of claim 1, wherein the cables are contained forward of the rear of the support body.

8. The cable header connector of claim 1, wherein the at least one cable channel comprises a front cable channel and a rear cable channel, at least some of the cables being routed to the corresponding cable exits associated with the front cable channel and at least some of the cables being routed to the corresponding cable exits associated with the rear cable channel.

9. The cable header connector of claim 8, wherein the support body includes a separating wall between the front cable channel and the rear cable channel, the separating wall having cable slots, the cables in the rear cable channel passing through the cable slots and through the front cable channel to the corresponding contact channels.

10. The cable header connector of claim 1, wherein the cover supports the cables within the at least one cable channel.

11. A cable header connector comprising:

a header housing having a base wall with support walls extending rearward from the base wall to define a module cavity behind the base wall, the support walls being arranged along a top and a bottom of the module cavity; and

contact modules received in the module cavity, each contact module having a support body and a plurality of cable assemblies held by the support body and arranged in a column;

the cable assemblies each having a contact terminated to a cable and a ground shield coupled to and providing electrical shielding for the contact sub-assembly;

the support body having a top and a bottom opposite the top, the top extending along the support wall at the top of the module cavity, the bottom extending along the support wall at the bottom of the module cavity;

the support body having a frame defining contact channels extending along contact channel axes, the contact channels extending generally front to rear within the support body, the contact channels receiving portions of the contacts and portions of the cables;

the support body having the frame defining a front cable channel and a rear cable channel having cable exits associated therewith and having a separating wall between the front cable channel and the rear cable channel, the cable channels extending generally side to side within the support body, the front and rear cable channels receiving further portions of the cables extending from the contact channels with at least some of the cables being routed to the cable exits associated with the front cable channel and at least some of the cables being routed to the cable exits associated with the rear cable channel, the separating wall having cable slots, the cables being routed in the frame through the rear cable channel from the cable exits at least at one of the top and the bottom of the support body through the cable slots and through the front cable channel to the corresponding contact channels.

12. The cable header connector of claim 11, wherein the cables are bent in the corresponding cable channel between the cable exits and the contact channels.

13. The cable header connector of claim 11, wherein the support body includes bending anvils, the cables being bent along the bending anvils to control a bend radius of the cables in the corresponding cable channel.

14. The cable header connector of claim 11, wherein the support body includes separating walls between and separating the contact channels, the support body including bending anvils at ends of the separating walls at respective intersections of the contact channels and the cable channels.

15. The cable header connector of claim 11, wherein the support body includes a rear opposite the header housing, the cables contained forward of the rear of the support body.

16. The cable header connector of claim 11, wherein the support body includes a frame defining the contact channels and the cable channels, the support body including a cover coupled to the frame to cover the at least one cable channel.