

Description

This invention relates to coaxial connectors and more particularly to coaxial cable tap connectors having a signal probe for penetrating into a coaxial cable and electrically connecting with a center conductor and electrical contacts that penetrate the coaxial cable and form electrical connection with an outer conductor thereof.

A coaxial-cable tap-connector is disclosed in U.S. Patent No. 4,120,554 which includes matable housing members each having a semicylindrical channel. When the housing members are secured together onto a coaxial cable, the semicylindrical channels coincide and outer conductor contacts penetrate the outer jacket of the coaxial cable and make electrical connection with the outer conductor of the coaxial cable. A spring-biased center conductor probe is driven so as to penetrate into the coaxial cable and make electrical connection with the center conductor. The probe does not rotate as it is being driven into connection with the center conductor, thus the electrical contact section of the probe is not cleaned nor is any debris removed from the contact area between the contact section of the probe and the center conductor that may collect when the probe is being driven through the coaxial cable into electrical connection with the center conductor.

A coaxial-cable tap is known that is easily applied onto a coaxial cable. It includes housing members having arcuate recesses engaging the cable. When the housing members are secured together with the cable disposed in the recesses, ground probes as integral parts of one or both of the housing members located in the recess or recesses penetrate through the outer jacket of the coaxial cable and make electrical connection with the outer conductor. A signal probe is threaded into a threaded hole of one of the housing members and is driven into the cable until its contact section is electrically connected with the center conductor. However, no spring is associated with the signal probe, thus the center conductor may eventually drift away from the probe resulting in an open connection. The connection between the probe and the center conductor may relax over time thereby causing a high resistance connection impairing the transfer of signal information thereacross.

According to the present invention, a coaxial-cable tap-connector of the type for electrical connection to the outer and center conductors of a coaxial cable which comprises first and second matable members securable together and each having a channel for engagement with the cable, an outer conductor contact member for penetration through an outer jacket of the cable for electrical connection to an outer conductor of the cable when the matable members are secured together, and a spring-biased signal probe contact member for electrical connection with a center conductor of the cable is characterized in that the second matable member contains a clamp member having said channel therealong, a

member in said second matable member adapted to move said clamp member into clamping engagement with the cable to cause the outer conductor contact member to penetrate through the outer jacket and electrically connect with the outer conductor, said spring-biased signal probe contact member being part of a signal probe assembly including a threaded bolt carrying said spring-biased signal probe contact member, said threaded bolt being matable with a threaded hole in one of said matable members rotatably to drive said spring-biased signal probe contact member through the outer jacket and outer conductor, into an insulation sheath and into electrical connection with the center conductor.

According to one embodiment of the present invention, the contact section and part of the insulation covering the signal probe contact member having self-tapping threads enabling the signal probe member to thread its way into the cable as the signal probe assembly is being threaded into position in the threaded hole of the cable-engaging member so that the contact section is electrically connected to the center conductor and the area along which the self-tapping threads form is cleaned.

FIGURE 1 is an exploded and perspective view of the parts of a coaxial-cable tap-connector.

FIGURE 2 is a view similar to Figure 1 with parts in an assembled condition prior to connection onto a section of a coaxial cable and a transceiver exploded therefrom.

FIGURE 3 is a perspective view of the tap-connector connected to the cable and to which is mounted the transceiver.

FIGURE 4 is a cross-sectional view of Figure 3.

FIGURE 5 is a cross-sectional view through the tap-connector at the signal probe assembly showing the signal probe contact member connected to the center conductor.

FIGURE 6 is a cross-sectional view through the tap-connector showing the outer conductor contact member connected to the outer conductor.

FIGURE 7 is a cross-sectional view through the tap-connector showing a drill guide and a drill bit having drilled a hole in the cable.

FIGURE 8 is a cross-sectional view through the tap-connector showing an alternative signal probe contact member.

A coaxial-cable tap-connector 10 as shown in Figures 1 through 4 includes a cable-engaging member 12, a clamp-retaining member 14, a clamp member 16, and a signal probe assembly 18.

Cable-engaging member 12 is molded from a suitable plastic material that is preferably glass-filled and has a channel 20 extending therealong in which a section of coaxial cable 22 is to be disposed. A threaded hole 24 extends through member 12 and a series of intersecting flat surfaces 26 are located in channel 20 on each side of threaded hole 24. A hole 28 extends through member 12 and communicates with channel 20 via the bottom flat surfaces of each of the series of intersecting flat surfaces 26 as best shown in

Figures 4 and 6. Post sections 30 of outer conductor contact members 32 are disposed in respective holes 28 and they are frictionally secured therein. Bases 34 of contact members 32 have stamped therefrom tines 36. The outer ends of tines 36 are pointed and bases 34 in their normal condition are planar and extend across the flat surfaces 26 adjacent the bottom flat surface containing holes 28. Recesses 38 are located in opposing sides of cable-engaging member 12 and they terminate at stop members 40. Spaced projections 42 extend outwardly from the bottom of cable-engaging member 12 and form a printed circuit board guide slot as well as protecting the post sections of the contact members.

Clamp-retaining member 14 is extruded from a suitable metal and has projections 44 extending along the inside surfaces of the sides thereof which are engaged by projections 46 of clamp member 16 when clamp member 16 is disposed within clamp-retaining member 14 as shown in Figure 2. The sides of clamp-retaining member 14 terminate in inwardly-directed sections 48 which cooperate with recesses 38 in cable-engaging member 12 to mount clamp-retaining member 14 onto cable-engaging member 12 when these members are to be secured onto a section of coaxial cable 22. A nut member 50 is press fitted into hole 52 of clamp-retaining member 14 with bolt 54 threadably mounted in nut member 50 so as to move clamp member 16 relative to clamp-retaining member 14. Clamp member 16 has a channel 56 along which projections 58 extend.

Signal probe assembly 18 includes a signal probe contact member 60, Belleville spring washers 62, and a probe retainer bolt 64. Signal probe contact member 60 includes a conical contact section 66 from which extends a post section 68. Dielectric material 70 is moulded onto post section 68 from conical contact section 66 to a position spaced from the end of post section 68 so that a lower part of post section 68 is exposed. Dielectric material 70 from conical contact section 66 downwardly has an upper cylindrical section, the outside diameter of which is the same as the base of contact section 66, a downwardly divergent conical section, a lower cylindrical section, a hexagonal section, and a bottom cylindrical section along which spring washers 62 are disposed as shown in Figures 4 and 5.

Probe retainer bolt 64 has a bore 72, the upper end of which is of hexagonal configuration in which the hexagonal section of dielectric material 70 is disposed, and a cylindrical section through which the bottom cylindrical section of dielectric material 70 extends. After signal probe contact member 60 has been inserted in bore 72 of retainer bolt 64 with the hexagonal section of dielectric material 70 disposed in the hexagonal part of bore 72 with spring washers 62 disposed on the lower cylindrical section of dielectric material 70 in engagement with the bottom of the hexagonal part and this lower cylindrical section of dielectric material 70 extending through the

cylindrical section of bore 72 as shown in Figure 5, top annular section 74 of bolt 64 is rolled inwardly into engagement with the hexagonal section of dielectric material 70 thereby securing signal probe contact member 60 in position in bore 72 of bolt 64 and under spring pressure of spring washers 62 as shown in Figure 5. Threaded section 76 of bolt 64 is threadably matable with threaded hole 24 of cable-engaging member 12 with flange 78 serving as a bottoming member limiting the movement of signal probe assembly 18 into member 12. Hexagonal section 80 is suitably engaged by a wrench to move threaded section 76 along threaded hole 24.

In operation, cable-engaging member 12 is positioned against cable 22 so that a section thereof is positioned within channel 20. Clamp-retaining member 14 with clamp member 16 therein is moved transverse to the axis of cable 22 from the left of cable-engaging member 12 when viewing Figure 2 and is then moved axially along cable 22 with inwardly-directed sections 48 sliding along recesses 38 until member 14 engages stop members 40. Bolt 54 is then moved in nut member 50 thereby driving clamp member 16 into engagement with cable 22 causing projections 58 to bite into outer jacket 82 of cable 22 and as cable 22 is forced into channel 20 of cable-engaging member 12, tines 36 of outer conductor contact members 32 penetrate through outer jacket 82 and electrically connect with outer conductor 84 of cable 22. As shown in Figure 6, as cable 22 is forced into channel 20 of cable-engaging member 12, bases 34 of contact members 32 are bent into engagement with flat surfaces 26 adjacent the bottom-most flat surface and this causes tines 36 to be directed toward each other thereby capturing part of outer conductor 84 therebetween as well as establishing a wiping contact between tines 36 and outer conductor 84 during the termination therebetween which results in an excellent mechanical and electrical connection. Such action is disclosed in U.S. Patent No. 4,120,554. With cable 22 now properly secured in channel 20 of cable-engaging member 12 via clamp member 16, outer conductor 84 is now properly terminated by outer conductor contact members 32.

Signal probe assembly 18 is now positioned in member 12 by threaded section 76 threadably engaging threaded hole 24 and as bolt 64 is moved inwardly, signal probe contact member 60 penetrates through outer jacket 82, outer conductor 84, into insulation sheath 86 of cable 22 with conical contact section 66 embedding into center conductor 88 as shown in Figure 5. As signal probe contact member 60 is penetrating through outer jacket 82, outer conductor 84, into insulation sheath 86 and into center conductor 88 via the rotation of signal probe assembly 18 as it is threadably moved along threaded hole 24 by threaded section 76, conical contact section 66 is cleaned so that an excellent mechanical and electrical connection is formed between center conductor 88 and contact section 66, and dielec-

tric material 70 prevents any shorting between outer conductor 84, post section 68, conical section 66, and center conductor 88. An excellent mechanical and electrical connection is also effected between center conductor 88 and contact section 66 due to the balancing of the spring forces generated by the signal probe assembly 18 against the tensile spring characteristics of center conductor 88.

If desired, a drill guide 90 can be threadably positioned in threaded hole 24 as shown in Figure 7 so that drill member 92 can be guided by hole 94 in drill guide 90 to drill a hole through outer jacket 82, outer conductor 84, and partway into insulation sheath 86. Drill guide 90 is then removed from member 12 and signal probe assembly 18 is threadably positioned in threaded hole 24 with conical contact section 66 electrically connected with center conductor 88 as shown in Figure 5. The practice of drilling a hole in cable 22 prior to signal probe assembly 18 being positioned in threaded hole 24 is generally followed if there is risk of damage to signal probe contact member 60 as it is being driven into cable 22 by bolt 64, for example if cable 22 has double layers of braid and conductive sheaths for the outer conductor which would make it difficult for signal probe contact member 60 to penetrate through the double layers.

Figure 8 illustrates an alternative embodiment of signal probe contact member 60A whereby a contact section 96 and the conical section of dielectric material 70A have threads 98 thereon which are at a different pitch from that of the threads on threaded section 76 thereby facilitating the penetration of contact section 96 and the conical section of dielectric material 70A through outer jacket 82, outer conductor 84, into insulation sheath 86, and into electrical connection with center conductor 88. Threads 98 are of a different pitch to enable them to self-tap their way into cable 22 while cleaning the tapped area during this self-tapping operation. This also assures that the outer conductor will not short the connection because the threads on the conical section of dielectric material 70A force the outer conductor away from the center conductor 22.

After tap-connector 10 has been terminated to the outer and center conductors of cable 22, transceiver 100 of conventional construction can be electrically connected to connector 10 via electrical connectors 102 on printed circuit transceiver board 104 mating with post sections 30 and 68 of contact members 32 and 60, board 104 being guided into position by the slot between projections 42 as projections 42 extend into opening 106, housing 108 carrying board 104. Housing 108 abuts against surface 110 of cable-engaging member 12 and is secured to member 12 via screws 112 extending through holes 114 in housing 108, holes 43 in member 12, and threadably engaging threaded members 116 in housing 108. A gasket can be interposed between surface 110 and housing 108 to form a seal therebetween. An I/O connector 118 is mounted in housing 108 and

electrically connected to the electronic circuitry on board 104 so that electrical connector 120 can be connected thereto to process input and output signals from and to electronic equipment via cable 22, connector 10, transceiver 100, and connectors 118, 120. A dust shield (not shown) can be sealingly secured onto connector 10 in the same manner as transceiver 100 to protect connector 10 when not in use.

Claims

1. A coaxial-cable tap-connector of the type for electrical connection to the outer (84) and center (88) conductors of a coaxial cable (22) which comprises first (12) and second (14) matable members securable together and each having a channel (20, 56) for engagement with the cable (22), an outer conductor contact member (32) for penetration through an outer jacket (82) of the cable (22) for electrical connection with an outer conductor (84) of the cable (22) when the matable members (12, 14) are secured together, and a spring-biased signal probe contact member (60, 60A) for electrical connection to a center conductor (88) of the cable (22), characterized in that:

the second matable member (14) contains a clamp member (16) having said channel (56) therealong, a member (54) in said second matable member (14) adapted to move said clamp member (16) into clamping engagement with the cable (22) to cause the outer conductor contact member (32) to penetrate through the outer jacket (82) and electrically connect with the outer conductor (84),

said spring-biased signal probe contact member (60, 60A) being part of a signal probe assembly (18) including a threaded bolt (64) carrying said spring-biased signal probe contact member (60), said threaded bolt (64) being matable with a threaded hole (24) in one of said matable members (12) to rotatably drive said spring-biased signal probe contact member (60) through the outer jacket (82) and outer conductor (84), into an insulation sheath (86) and into electrical connection with the center conductor (88).

2. A coaxial-cable tap-connector as set forth in claim 1, characterized in that said outer conductor contact member (32) and said probe contact member (60, 60A) have post sections (30, 68) disposed between spaced projections (42) of said first matable member (12), said spaced projections (42) defining an area in which a section of a printed circuit board (104) is disposed so that said post sections (30, 68) electrically connect with electrical connectors (102) on the printed circuit board (104).

3. A coaxial-cable tap-connector as set forth in claim 1, characterized in that said clamp member (16) has projections (58) along said channel (56) for biting into the outer jacket (82) when said clamp member (16) is moved into clamping engagement with the cable (22).

4. A coaxial-cable tap-connector as set forth in claim 1, characterized in that said first matable

tric material 70 prevents any shorting between outer conductor 84, post section 68, conical section 66, and center conductor 88. An excellent mechanical and electrical connection is also effected between center conductor 88 and contact section 66 due to the balancing of the spring forces generated by the signal probe assembly 18 against the tensile spring characteristics of center conductor 88.

If desired, a drill guide 90 can be threadably positioned in threaded hole 24 as shown in Figure 7 so that drill member 92 can be guided by hole 94 in drill guide 90 to drill a hole through outer jacket 82, outer conductor 84, and partway into insulation sheath 86. Drill guide 90 is then removed from member 12 and signal probe assembly 18 is threadably positioned in threaded hole 24 with conical contact section 66 electrically connected with center conductor 88 as shown in Figure 5. The practice of drilling a hole in cable 22 prior to signal probe assembly 18 being positioned in threaded hole 24 is generally followed if there is risk of damage to signal probe contact member 60 as it is being driven into cable 22 by bolt 64, for example if cable 22 has double layers of braid and conductive sheaths for the outer conductor which would make it difficult for signal probe contact member 60 to penetrate through the double layers.

Figure 8 illustrates an alternative embodiment of signal probe contact member 60A whereby a contact section 96 and the conical section of dielectric material 70A have threads 98 thereon which are at a different pitch from that of the threads on threaded section 76 thereby facilitating the penetration of contact section 96 and the conical section of dielectric material 70A through outer jacket 82, outer conductor 84, into insulation sheath 86, and into electrical connection with center conductor 88. Threads 98 are of a different pitch to enable them to self-tap their way into cable 22 while cleaning the tapped area during this self-tapping operation. This also assures that the outer conductor will not short the connection because the threads on the conical section of dielectric material 70A force the outer conductor away from the center conductor 22.

After tap-connector 10 has been terminated to the outer and center conductors of cable 22, transceiver 100 of conventional construction can be electrically connected to connector 10 via electrical connectors 102 on printed circuit transceiver board 104 mating with post sections 30 and 68 of contact members 32 and 60, board 104 being guided into position by the slot between projections 42 as projections 42 extend into opening 106, housing 108 carrying board 104. Housing 108 abuts against surface 110 of cable-engaging member 12 and is secured to member 12 via screws 112 extending through holes 114 in housing 108, holes 43 in member 12, and threadably engaging threaded members 116 in housing 108. A gasket can be interposed between surface 110 and housing 108 to form a seal therebetween. An I/O connector 118 is mounted in housing 108 and

electrically connected to the electronic circuitry on board 104 so that electrical connector 120 can be connected thereto to process input and output signals from and to electronic equipment via cable 22, connector 10, transceiver 100, and connectors 118, 120. A dust shield (not shown) can be sealingly secured onto connector 10 in the same manner as transceiver 100 to protect connector 10 when not in use.

Claims

1. A coaxial-cable tap-connector of the type for electrical connection to the outer (84) and center (88) conductors of a coaxial cable (22) which comprises first (12) and second (14) matable members securable together and each having a channel (20, 56) for engagement with the cable (22), an outer conductor contact member (32) for penetration through an outer jacket (82) of the cable (22) for electrical connection with an outer conductor (84) of the cable (22) when the matable members (12, 14) are secured together, and a spring-biased signal probe contact member (60, 60A) for electrical connection to a center conductor (88) of the cable (22), characterized in that:

the second matable member (14) contains a clamp member (16) having said channel (56) therealong, a member (54) in said second matable member (14) adapted to move said clamp member (16) into clamping engagement with the cable (22) to cause the outer conductor contact member (32) to penetrate through the outer jacket (82) and electrically connect with the outer conductor (84),

said spring-biased signal probe contact member (60, 60A) being part of a signal probe assembly (18) including a threaded bolt (64) carrying said spring-biased signal probe contact member (60), said threaded bolt (64) being matable with a threaded hole (24) in one of said matable members (12) to rotatably drive said spring-biased signal probe contact member (60) through the outer jacket (82) and outer conductor (84), into an insulation sheath (86) and into electrical connection with the center conductor (88).

2. A coaxial-cable tap-connector as set forth in claim 1, characterized in that said outer conductor contact member (32) and said probe contact member (60, 60A) have post sections (30, 68) disposed between spaced projections (42) of said first matable member (12), said spaced projections (42) defining an area in which a section of a printed circuit board (104) is disposed so that said post sections (30, 68) electrically connect with electrical connectors (102) on the printed circuit board (104).

3. A coaxial-cable tap-connector as set forth in claim 1, characterized in that said clamp member (16) has projections (58) along said channel (56) for biting into the outer jacket (82) when said clamp member (16) is moved into clamping engagement with the cable (22).

4. A coaxial-cable tap-connector as set forth in claim 1, characterized in that said first matable



member (12) includes recesses (38) along which inwardly-directed sections (48) of said second matable member (14) engage to secure said matable members (12, 14) together.

5. A coaxial-cable tap-connector as set forth in claim 4, characterized in that said first matable member (12) has stop members (40) against which said second matable member (14) engages when said matable members (12, 14) are secured together.

6. A coaxial-cable tap-connector as set forth in claim 1, characterized in that said threaded bolt (64) has a bore (72) with part of the bore having a hexagonal configuration and another part of the bore having a cylindrical configuration, said signal probe contact member (60, 60A) having a contact section (66, 96) and a post section (68) with dielectric material (70, 70A) covering said post section (68) from said contact section (66, 96) to a position spaced from a free end thereof, said dielectric material (70, 70A) having a hexagonal section disposed in the hexagonal part of said bore (72) and a cylindrical section disposed along the cylindrical part, spring members (62) extending along said cylindrical section between the hexagonal section and the bottom of the hexagonal part, and a top section (74) of said threaded bolt (64) being rolled onto the hexagonal part securing said signal probe contact member (60, 60A) in said bore (72).

7. A coaxial-cable tap-connector as set forth in claim 6, characterized in that said contact section (66) of said signal probe contact member (60) has a conical shape and said dielectric material (70) from said contact section (66) to said hexagonal section includes an upper cylindrical section having an outside diameter matching that of the adjacent portion of said conical contact section (66) and a lower downwardly divergent conical section.

8. A coaxial-cable tap-connector as set forth in claim 6, characterized in that said dielectric material (70A) from said contact section (96) of said signal probe contact member (60A) to said hexagonal section has a conical shape and said contact section (96) and said conical shape dielectric material have threads thereon.

Patentansprüche

1. Koaxialkabel-Abzweigverbinder des Typs, der für eine elektrische Verbindung mit dem Außenleiter (84) und dem Mittelleiter (88) eines Koaxialkabels (22) ausgelegt ist, mit einem ersten (12) und einem zweiten (14) Element, die miteinander in Verbindung bringbar sind und aneinander befestigbar sind und deren jedes einen Kanal (20, 56) zum Angreifen an dem Kabel (22) aufweist, mit einem Außenleiter-Kontaktelement (32) zum Durchdringen eines Außenmantels (82) des Kabels (22) zur Herstellung einer elektrischen Verbindung mit dem Außenleiter (84) des Kabels (22), wenn die miteinander in Verbindung bringbaren Elemente (12, 14) aneinander befestigt sind, und

mit einem unter Federvorspannung stehenden Signalsonden-Kontaktelement (60, 60A) zur elektrischen Verbindung mit dem Mittelleiter (88) des Kabels (22), dadurch gekennzeichnet, daß das zweite (14) der miteinander in Verbindung bringbaren Elemente ein Klemmelement (16) enthält, in dem sich der Kanal (56) entlängerstreckt, wobei ein Element (54) in dem zweiten (14) der miteinander in Verbindung bringbaren Elemente dazu ausgelegt ist, das Klemmelement (16) in Klemmeingriff mit dem Kabel (22) zu bewegen, um das Außenleiter-Kontaktelement (32) dazu zu veranlassen, den Außenmantel (82) zu durchdringen und eine elektrische Verbindung mit dem Außenleiter (84) herzustellen, und daß das unter Federvorspannung stehende Signalsonden-Kontaktelement (60, 60A) Teil einer Signalsondenanordnung (18) ist, die einen das unter Federvorspannung stehende Signalsonden-Kontaktelement (60) tragenden Gewindebolzen (64) aufweist, wobei der Gewindebolzen (64) mit einem Gewindeloch (24) in einem (12) der miteinander in Verbindung bringbaren Elemente derart in Eingriff bringbar ist, daß er das unter Federvorspannung stehende Signalsonden-Kontaktelement (60) rotationsmäßig durch den Außenmantel (82) und den Außenleiter (84) hindurch und in eine Isolierhülle (86) hinein sowie in elektrische Verbindung mit dem Mittelleiter (88) drängt.

2. Koaxialkabel-Abzweigverbinder nach Anspruch 1, dadurch gekennzeichnet, daß das Außenleiter-Kontaktelement (32) und das Sonden-Kontaktelement (60, 60A) Stiftabschnitte (30, 68) aufweisen, die zwischen voneinander beabstandeten Vorsprüngen (42) des ersten (12) der miteinander in Verbindung bringbaren Elemente angeordnet sind, und daß die voneinander beabstandeten Vorsprünge (42) einen Bereich definieren, in dem ein Abschnitt einer gedruckten Schaltungsplatte (104) derart angeordnet ist, daß die Stiftabschnitte (30, 68) eine elektrische Verbindung mit elektrischen Verbindern (102) auf der gedruckten Schaltungsplatte (104) herstellen.

3. Koaxialkabel-Abzweigverbinder nach Anspruch 1, dadurch gekennzeichnet, daß das Klemmelement (16) entlang des Kanals (56) Vorsprünge (58) aufweist, die sich in den Außenmantel (82) eingraben, wenn das Klemmelement (16) in Klemmeingriff mit dem Kabel (22) bewegt ist.

4. Koaxialkabel-Abzweigverbinder nach Anspruch 1, dadurch gekennzeichnet, daß das erste (12) der miteinander in Verbindung bringbaren Elemente Ausnehmungen (38) aufweist, an denen entlang nach innen gerichtete Abschnitte (48) des zweiten (14) der miteinander in Verbindung bringbaren Elemente zum aneinander Befestigen der miteinander in Verbindung bringbaren Elemente (12, 14) eingreifen.

5. Koaxialkabel-Abzweigverbinder nach Anspruch 4, dadurch gekennzeichnet, daß das erste (12) der miteinander in Verbindung bringbaren Elemente Anschlagelemente (40) aufweist, an die das zweite (14) der miteinander in Verbindung bringbaren Elemente anstößt, wenn die miteinander in Verbindung bringbaren Elemente (12, 14)



aneinander befestigt sind.

6. Koaxialkabel-Abzweigverbinder nach Anspruch 1, dadurch gekennzeichnet, daß der Gewindebolzen (64) eine Bohrung (72) aufweist, wobei ein Teil der Bohrung eine sechseckige Konfiguration und ein anderer Teil der Bohrung eine zylindrische Konfiguration aufweist, daß das Signalsonden-Kontaktelement (60, 60A) einen Kontaktabschnitt (66, 96) und einen Stiftabschnitt (68) aufweist, wobei dielektrisches Material (70, 70A) den Stiftabschnitt (68) von dem Kontaktabschnitt (66, 96) bis zu einer von einem freien Ende des Stiftabschnitts (68) beabstandeten Stelle bedeckt, daß das dielektrische Material (70, 70A) einen in dem sechseckigen Teil der Bohrung (72) angeordneten sechseckigen Abschnitt sowie einen längs des zylindrischen Teils angeordneten zylindrischen Abschnitt aufweist, daß sich Federelemente (62) zwischen dem sechseckigen Abschnitt und dem Boden des sechseckigen Teils an dem zylindrischen Abschnitt entlangerstrecken, und daß ein oberer Abschnitt (74) des Gewindebolzens (72) auf den sechseckigen Teil gefaltet ist, wodurch das Signalsonden-Kontaktelement (60, 60A) in der Bohrung (72) befestigt ist.

7. Koaxialkabel-Abzweigverbinder nach Anspruch 6, dadurch gekennzeichnet, daß der Kontaktabschnitt (66) des Signalsonden-Kontaktelements (60) eine konische Form aufweist, und daß das sich von dem Kontaktabschnitt (66) zu dem sechseckigen Abschnitt erstreckende dielektrische Material (70) einen oberen zylindrischen Abschnitt, dessen Außendurchmesser dem des angrenzenden Bereich des konischen Kontaktabschnitts (66) entspricht, sowie einen unteren nach unten divergierenden konischen Abschnitt beinhaltet.

8. Koaxialkabel-Abzweigverbinder nach Anspruch 6, dadurch gekennzeichnet, daß das dielektrische Material (70A) von dem Kontaktabschnitt (96) des Signalsonden-Kontaktelements (60A) bis zu dem sechseckigen Abschnitt eine konische Form aufweist, und daß der Kontaktabschnitt (96) und das konisch geformte dielektrische Material mit Gewinden versehen sind.

Revendications

1. Connecteur de dérivation pour câble coaxial du type destiné à établir une connexion électrique avec les conducteurs extérieur (84) et central (88) d'un câble coaxial (22), qui comprend des premier (12) et second (14) éléments accouplables pouvant être fixés l'un à l'autre et présentant chacun une rainure (20, 56) destinée à établir une prise avec le câble (22), un élément de contact (32) du conducteur extérieur destiné à pénétrer à travers une gaine extérieure (82) du câble (22) pour établir une connexion électrique avec un conducteur extérieur (84) du câble (22) lorsque les éléments accouplables (12, 14) sont fixés l'un à l'autre, et un élément de contact (60, 60A) de sonde de signal, rappelé par ressort, destiné à établir une connexion électrique avec un conducteur central (88) du câble (22), caractérisé en ce que:

le second élément accouplable (14) contient une bride (16) le long de laquelle s'étend ladite rainure (56), un élément (54) situé dans ledit second élément accouplable (14) étant conçu pour amener ladite bride (16) en prise de bridage avec le câble (22) afin de faire pénétrer l'élément de contact (32) du conducteur extérieur à travers la gaine extérieure (82) et à le connecteur électriquement au conducteur extérieur (84),

ledit élément de contact (60, 60A) de sonde de signal, rappelé par ressort, faisant partie d'un ensemble (18) à sonde de signal comprenant un boulon fileté (64) portant ledit élément (60) de contact de sonde de signal, rappelé par ressort, ledit boulon fileté (64) pouvant être accouplé avec un trou taraudé (24) ménagé dans l'un desdits éléments accouplables (12) afin d'entraîner en rotation ledit élément de contact (60) de sonde de signal, rappelé par ressort, à travers la gaine extérieure (82) et le conducteur extérieur (84), jusque dans une enveloppe isolante (86) et en connexion électrique avec le conducteur central (88).

2. Connecteur de dérivation pour câble coaxial selon la revendication 1, caractérisé en ce que ledit élément (32) de contact du conducteur extérieur et ledit élément de contact (60, 60A) de sonde comportent des broches (30, 68) disposées entre des saillies espacées (42) dudit premier élément accouplable (12), lesdites saillies espacées (42) définissant une zone dans laquelle est disposée une partie d'une plaquette (104) à circuit imprimé afin que lesdites broches (30, 68) soient connectées électriquement à des connecteurs électriques (102) situés sur la plaquette (104) à circuit imprimé.

3. Connecteur de dérivation pour câble coaxial selon la revendication 1, caractérisé en ce que ladite bride (16) comporte, le long de ladite rainure (56), des saillies (58) destinées à mordre dans la gaine extérieure (82) lorsque ladite bride (16) est amenée en prise de bridage avec le câble (22).

4. Connecteur de dérivation pour câble coaxial selon la revendication 1, caractérisé en ce que ledit premier élément accouplable (12) présente des évidements (38) le long desquels s'enclenchent des parties (48), dirigées vers l'intérieur, dudit second élément accouplable (14) afin de fixer l'un à l'autre lesdits éléments accouplables (12, 14).

5. Connecteur de dérivation pour câble coaxial selon la revendication 4, caractérisé en ce que ledit premier élément accouplable (12) comporte des éléments de butée (40) contre lesquels ledit second élément accouplable (14) porte lorsque lesdits éléments accouplables (12, 14) sont fixés l'un à l'autre.

6. Connecteur de dérivation pour câble coaxial selon la revendication 1, caractérisé en ce que ledit boulon fileté (64) présente un trou (72) dont une partie est de configuration hexagonale et une autre partie de configuration cylindrique, ledit élément de contact (60, 60A) de la sonde de signal comportant une partie de contact (66, 96) et une broche (68), une matière diélectrique (70, 70A) recouvrant ladite broche (68) à partir de ladite partie de contact (66, 96) jusqu'à une position



espacée d'une extrémité libre de cette broche, ladite matière diélectrique (70, 70A) comportant un tronçon hexagonal disposé dans la partie hexagonale dudit trou (72) et un tronçon cylindrique disposé le long de la partie cylindrique, des éléments à ressort (62) s'étendant le long dudit tronçon cylindrique entre le tronçon hexagonal et le bas de ladite partie hexagonale, et une partie supérieure (74) dudit boulon fileté (64) étant rabattue par roulage sur la partie hexagonale, fixant ledit élément de contact (60, 60A) de la sonde de signal dans ledit trou (72).

7. Connecteur de dérivation pour câble coaxial selon la revendication 6, caractérisé en ce que ladit partie de contact (66) dudit élément de contact (60) de sonde de signal présente une

forme conique et ladite matière diélectrique (70), de ladite partie (66) de contact jusqu'audit tronçon hexagonal, comprend un tronçon cylindrique supérieur ayant un diamètre extérieur correspondant à celui de la portion adjacente de ladite partie conique (66) de contact, et un tronçon conique inférieur divergeant vers le bas.

8. Connecteur de dérivation pour câble coaxial selon la revendication 6, caractérisé en ce que ladite matière diélectrique (70A), s'étendant de ladite partie (96) de contact dudit élément (60A) de contact de la sonde de signal jusqu'audit tronçon hexagonal, présente une forme conique et ladite partie (96) de contact et ladite matière diélectrique de forme conique présentent des filets.

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