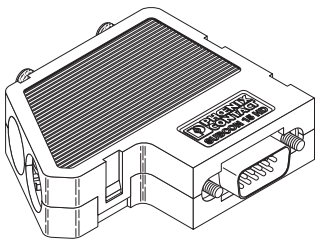
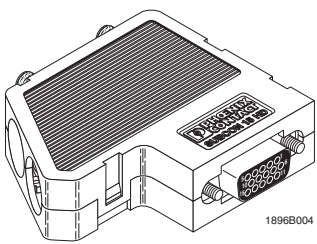
SUBCON 15 HD (High-density) D-Subminiature Connectors

Installation Instructions 1896_en_D



15-position High-density D-subminiature Plug 5604602



15-position High-density D-subminiature Receptacle 5604603

PN: 56 53 11 1

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1 Unpacking and Inspection

This SUBCON 15 high-density, D-subminiature connector was inspected prior to shipment. After connector is unpacked, inspect all items for possible damage that may have occurred during shipping. Contents applicable to the SUBCON 15 high-density connectors are shown in Figure 1. If physical damage or missing items are found, notify Phoenix Contact, Customer Service at 1-800-322-3225 for instructions.

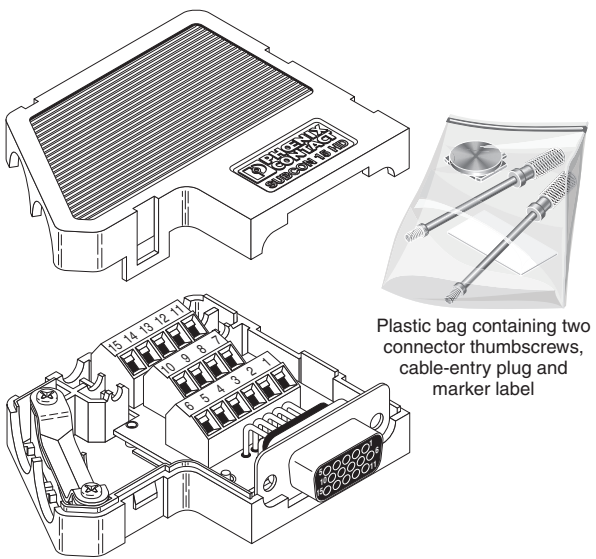

Figure 1. Packaged Items for the SUBCON 15 High-density, D-subminiature Connector

2 Dimensions

Figure 2 provides the basic dimensions of the SUBCON 15 HD D-subminiature connector.

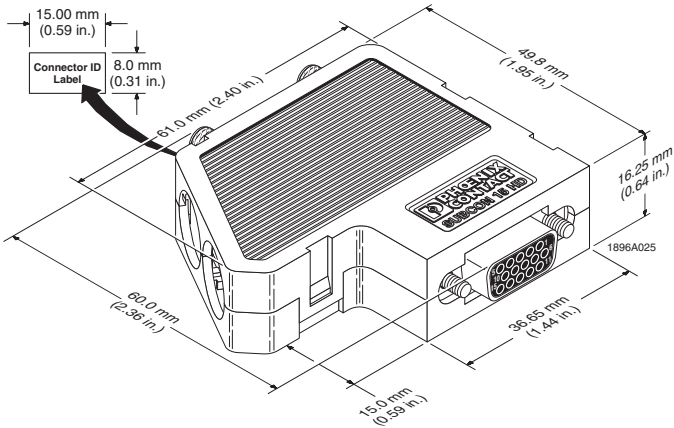

Figure 2. Dimensions of the SUBCON 15 HD (High-density) D-Subminiature Connector

3 Physical Description

Components that make up a typical SUBCON 15 high-density connector system are identified in Figure 3. Table 1 provides a description of the items shown in Figure 3. Table 2 at the back of these instructions provides technical information for the SUBCON 15 high-density connectors and Table 3 provides ordering information for SUBCON 15 high-density connectors.

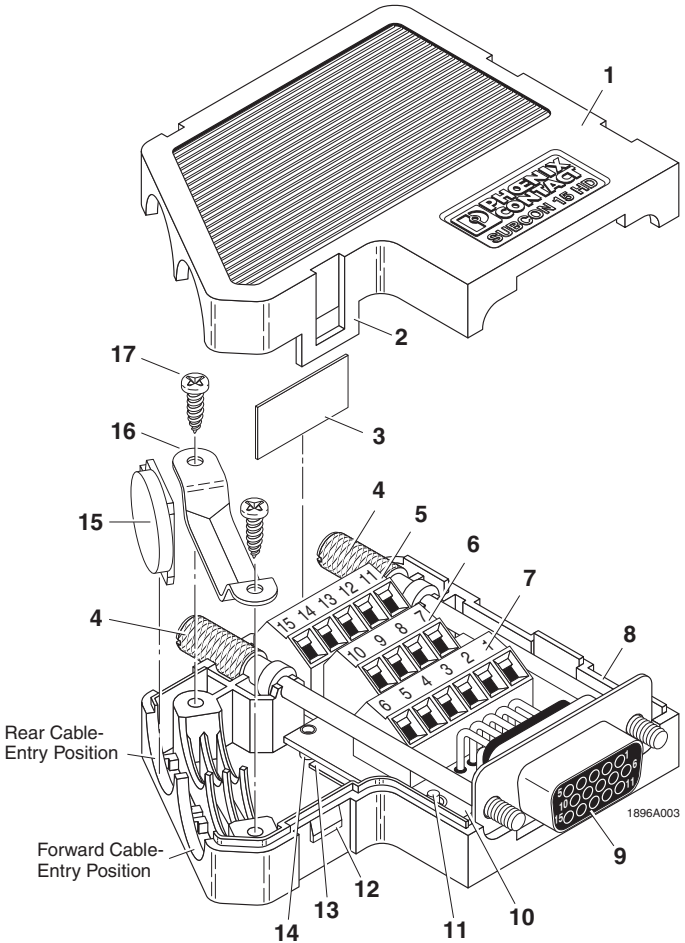

Figure 3. Exploded View of the SUBCON 15 High-density D-Subminiature Connector System

Table 1. Key to Figure 3

Item No..	Description
1	SUBCON housing, half “A”
2	Molded-in housing latch
3	SUBCON connector marker label
4	SUBCON connector thumbscrew
5	COMBICON MINI printed circuit board terminal block, SMKDS 1/5-3,5, 5-position, screw-clamp contacts (for SUBCON D-sub connector positions 11 though 15
6	COMBICON MINI printed circuit board terminal block, SMKDS 1/4-3,5, 4-position, screw-clamp contacts (for SUBCON D-sub connector positions 7 though 10
7	COMBICON MINI printed circuit board terminal block, SMKDS 1/6-3,5, 6-position, screw-clamp contacts (for SUBCON D-sub connector positions 1 though 6
8	SUBCON housing, half “B”
9	D-sub connector, receptacle, 15 position (shown) D-sub connector, plug, 15 position (not shown)
10	PC board assembly, 15-position high density
11	PC board guide pin (typical both sides)
12	Molded-in locking tab for housing latch
13	Electrical insulator for PC board, polycarbonate
14	Rear standoff for PC board (typical both sides)
15	Cable-entry plug
16	Strain relief and ground clamp for cable
17	Pan-hear, self-tapping screws

4 Cable Preparation

The SUBCON 15 high-density connector can accept either one or two individual cables with an outside diameter ranging from 4 mm to 13 mm. Wire and cable recommendations are shown in Table 2. Figure 4 shows general stripping recommendations for cables with one or a combination of shielding types.

1. Strip 55 mm (2.165 in.) off the cable jacket. See Figure 4.
2. Cut back the braided shielding or foil wrap 45 mm (1.772 in.) so there is 10 mm (0.393 in.) remaining. If drain wire is used, do not cut.
3. Strip 5.0 mm (0.196 in.) from the end of each conductor.

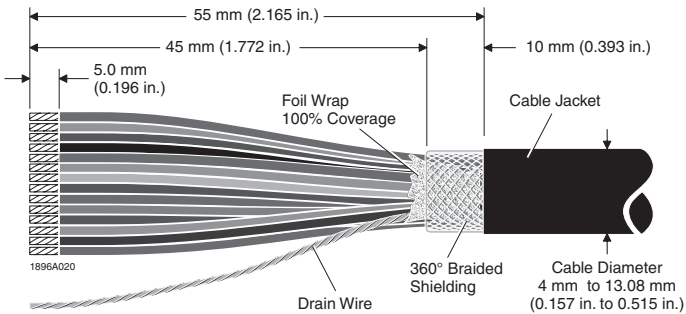

Figure 4. Strip-Length Requirements

4. Fold back the braided shielding, foil wrap, or drain wire evenly over the cable jacket. See Figure 5.

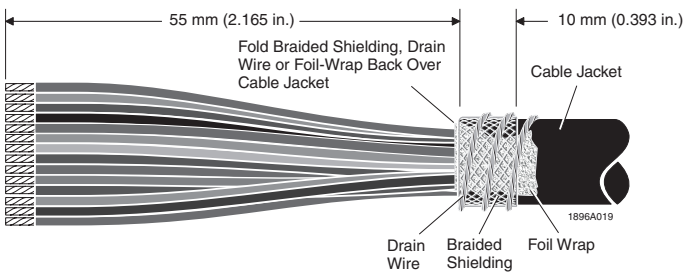

Figure 5. Preparing the Cable Shielding

5 Connector Preparation

The SUBCON 15 high-density connector is shipped with the cable strain relief/ground clamp installed. See Figure 6. The clamp can be removed to install cable.

1. Remove and save the two self-tapping screws from strain relief/ground clamp.
2. Remove and save the clamp.

As shown in Figure 6, the strain-relief/ground-clamp can be installed two ways. One way for large diameter cables and another way for smaller diameter cables.

The SUBCON 15 high-density connector has two cable-entry positions. For ease of terminating conductors, we recommend using the forward entry position first.

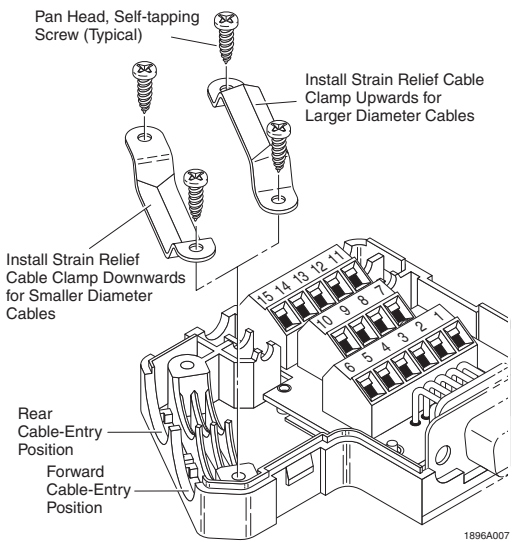

Figure 6. Strain Relief/Ground Clamp Orientation

6 Terminal Block Pin Assignments

Figure 7 identifies terminal block pin assignments for wiring the SUBCON 15 high-density connector.

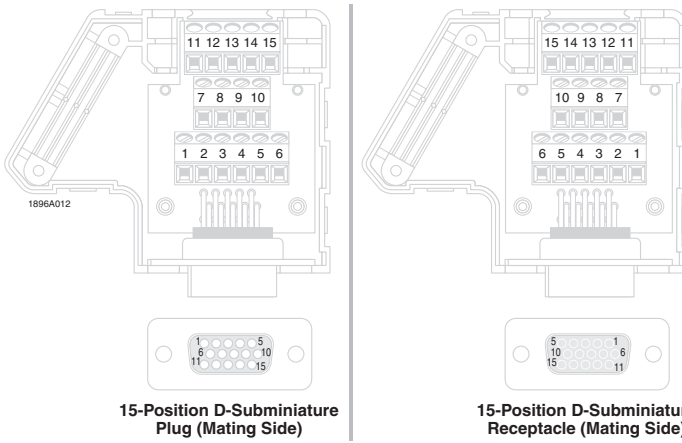

Figure 7. SUBCON 15 High-density Connector Terminal Block Pin Assignments

7 Determining Cable-entry Orientation

The SUBCON 15 high-density connector can be set up to accept cable that enters the connector from either the left-side or the right-side. The main difference is in the assembly of the connector.

Prior to assembly, determine the direction that the cable will enter the SUBCON connector. The following paragraphs provide housing assembly requirements for left- and right-side cable entries.

7.1 Left-Side Cable Entry

Figure 8 (VIEW "A") shows a typical SUBCON assembly where the cable enters the connector from the left. You will note in this assembly that housing-half "A" is on the top and housing-half "B" is on the bottom.

7.2 Right-Side Cable Entry

Figure 8 (VIEW "B") shows a typical SUBCON assembly where the cable enters the connector from the right. You will note that in this assembly housing-half "A" is on the bottom and housing-half "B" on top.

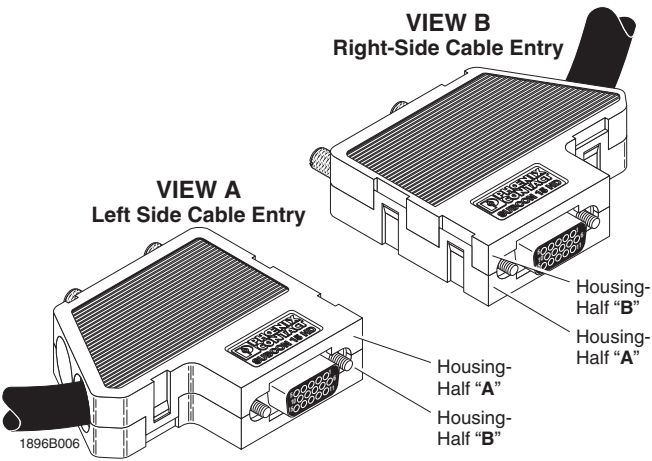

Figure 8. Connector Orientation for Left- and Right-side Cable Entry

8 Assembly Procedures

8.1 Left-side Cable Entry

1. Place the printed circuit board onto the PC board guide pins of housing-half "B". See Figure 9.
2. Lay the cable, previously prepared, on housing-half "B'' so that the shielded end of the cable is about 10 mm (3/8 in.) in from the forward cable-entry hole of the housing.
3. Terminate conductors using the guidelines shown in Figure 9. For cable containing over 20 conductors, we also recommend installing one of the connector thumbscrews after about one-half of the conductors have been terminated.

CAUTION

To prevent housings from damaging the wires during assembly, keep wires away from all housing mating surfaces.

The SUBCON 15 high-density connector utilizes the Phoenix Contact COMBICON PCB Terminal Block because of its highly reliable screw-clamp termination method.

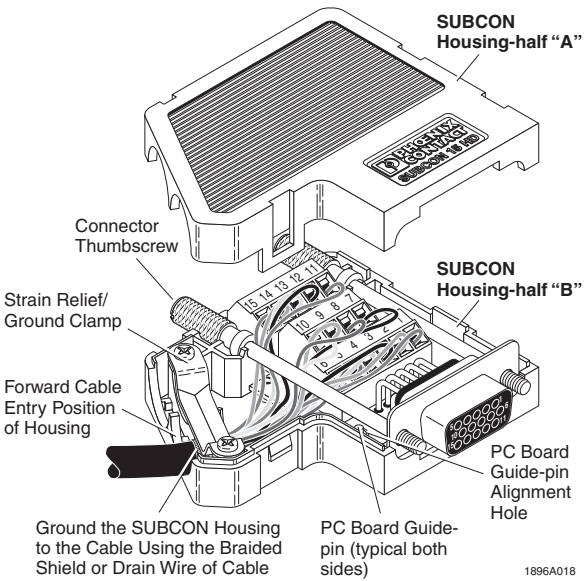

Figure 9. Assembling Connector for Left-side Cable Entry

4. Insert a prestripped wire into the appropriate position of the PCB terminal block. Then using a blade-type screwdriver (2.5 mm wide), tighten the PCB terminal block screw to a maximum of 0.4 Nm. See Figure 10. Continue ter-

minating all remaining wires in this same manner until all wires have been terminated.

5. Install any remaining connector thumbscrews.

If using only one of the cable-entry positions in the SUBCON 15 HD, proceed to Step 6. If both cable-entry positions are used, proceed to Step 7.

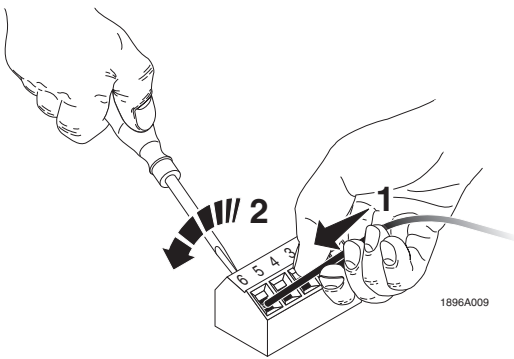

Figure 10. Terminating Conductors

6. Obtain the cable-entry plug from the plastic bag that came with the SUBCON 15 HD connector. Refer to Figure 1. Then carefully install the plug as shown in Figure 11.
7. Determine the best ground clamp orientation for the cable diameter being used. Refer to Figure 6. Then install the strain-relief/ground clamp.
8. Check that there are no conductors laying on the mating surfaces between the two housing halves. Next, carefully align the upper housing half with the lower housing half. Then push the housing halves together until all the latches of the one housing half are fully engaged with the locking tabs of the other housing half.

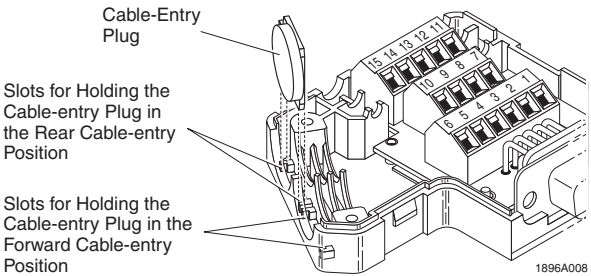

Figure 11. Installing the EMI Cable-Entry Housing Plug

8.2 Right-side Cable Entry

1. Place the printed circuit board onto the PC board guide pins of housing-half "A". See Figure 12.
2. Then lay the cable, previously prepared, on housing-half "A'' so that the shielded end of the cable is about 10 mm (3/8 in.) in from the forward cable-entry hole of the housing.
3. Terminate conductors using guidelines shown in Figure 12. For cable containing over 20 conductors, we also recommend installing one of the connector thumbscrews after about one-half of the conductors have been terminated.

CAUTION

To prevent housings from damaging the wires during assembly, keep wires away from all housing mating surfaces.

The SUBCON 15 high-density connector utilizes the Phoenix Contact COMBICON PCB Terminal Block because of its highly reliable screw-clamp termination method.

4. Insert a prestripped wire into the appropriate position of the PCB terminal block. Then using a blade-type screwdriver (2.5 mm wide), tighten the PCB terminal block screw to a maximum of 0.4 Nm. Refer to Figure 10. Continue terminating all remaining wires in this same manner until all wires have been terminated.

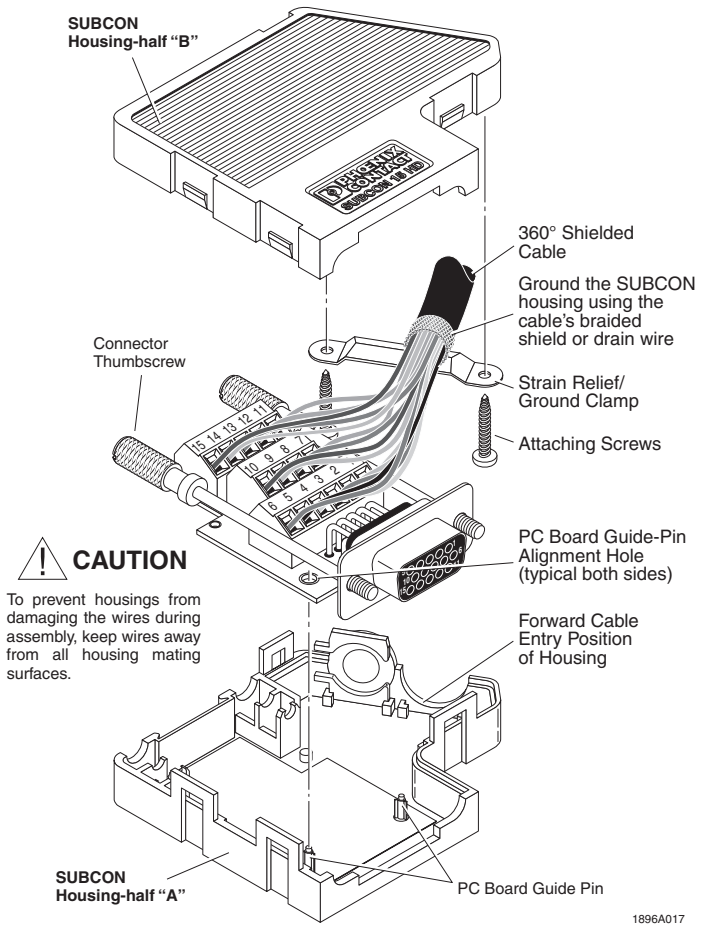

Figure 12. Assembling Connector for Right-side Cable Entry

5. Install any remaining connector thumbscrews.

If using only one of the cable-entry positions in the SUBCON 15 HD, proceed to Step 6. If both cable-entry positions are used, proceed to Step 7.

6. Obtain the cable-entry plug from the plastic bag that came with the SUBCON 15 HD connector. Refer to Figure 1. Then carefully install the plug as shown in Figure 11.
7. Determine the best ground clamp orientation for the cable diameter being used. Refer to Figure 6.
8. Install the strain-relief/ground clamp as shown in Figure 12.
9. Check that there are no conductors laying on the mating surfaces between the two housing halves. Next, carefully align the upper housing half with the lower housing half. Then push the housing halves together until all the latches of the one housing half are fully engaged with the locking tabs of the other housing half.

9 Connector Labeling

1. Obtain the blank connector identification label from the plastic bag that came with the SUBCON 15 high-density connector. Refer to Figure 1.
2. Using a permanent marker, mark the label with the appropriate connector information. Allow marker ink to dry. Then carefully bend the label and insert it into the label slot in the back of the connector. See Figure 13.

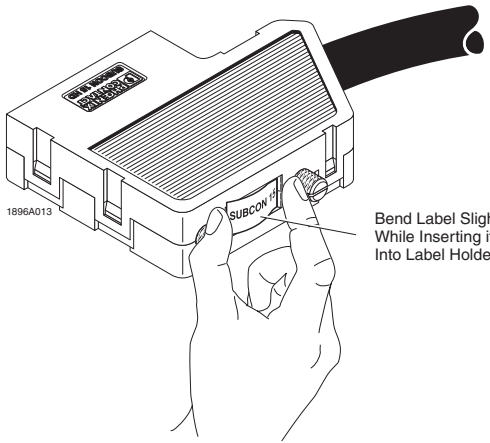

Figure 13. Inserting Connector ID Label

10 Opening the Housing

CAUTION

To prevent breaking the latches when separating the housings halves, You should exercise care while disengaging the latches. DO NOT apply too great of pressure on the latch or pry the latch open to far..

To open the SUBCON 15 high-density connector housing, use a blade-type screwdriver and "gently" pry out each of the four housing latches just until they disengage from their associated locking tabs. See Figure 14.

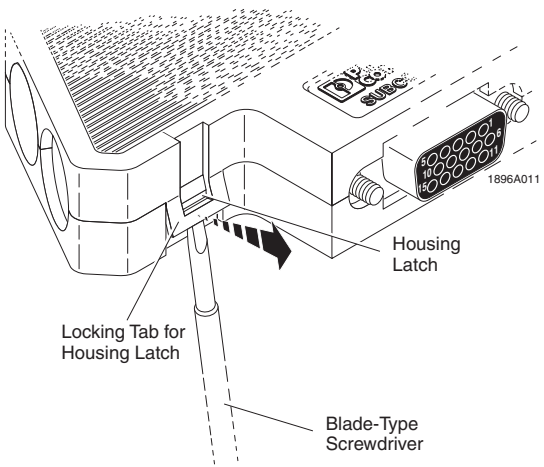

Figure 14. Opening the SUBCON 15 Housing

11 Ordering Data

Table 2. Ordering Data

Description	Type	Order No.	Pcs./Pkt.
D-sub connector, plug (15-position high density)	SUBCON 15HD/M-SH	5604602	1
D-sub connector, plug (15-position high density)	SUBCON 15HD/F-SH	5604603	1
Stripping tool for 30-12 AWG wire	QUICK-WIREFOX 2,5	1206667	1
Screwdriver, blade type, 2.5 mm	SZS 0,4 x 2,5	1205037	1
Label, white, unprinted	SBS 2,5/7,5	1007604	10
Marker pen for manual labeling, black, 0,5 mm	M-PEN	1051993	1

12 Technical Data

Table 3. Technical Data

General Data	
SUBCON housing material	ABS, metal plated
Operating temperature	-20 to 75°C
Maximum voltage	48 V AC/DC
Current rating	≤1 A
Durability (mating cycles)	50 (minimum)
Thumbscrew thread size	4-40 UNC

Printed Circuit Terminal Blocks	
Accepts wire sizes	0.14 mm² to 1.50 mm² (30 to 16 AWG
Terminal type	Screw-clamp
Screwdriver blade width	2.5 mm
Screw-terminal tightening torque	0.4 Nm (maximum)

Cable/Wires	
Cable diameter range	4 mm to 12.7 mm
Shielding requirement	
Braided	360°
Drain wire	360°
Foil wrapped	360°
Strip-length requirements	
Cable	55 mm
Shielding	45 mm
Individual wires	5 mm

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