COAXTRAB Surge Voltage Protection Adapter CN-UB-280DC

For wireless data, signal and mobile phone system protection

Installation Instructions 2098A

June 2005

1. Introduction

The Phoenix Contact COAXTRAB CN-UB-280DC (see Figure 1) is a gas-filled surge protection device designed to protect wireless radio and module phone base stations from surge voltages caused by lightning or other electrical sources that are induced onto antenna cables.

The CN-UB-280DC is available in two configurations; one with N-type male/female connectors and the other with N-type female/female connectors.

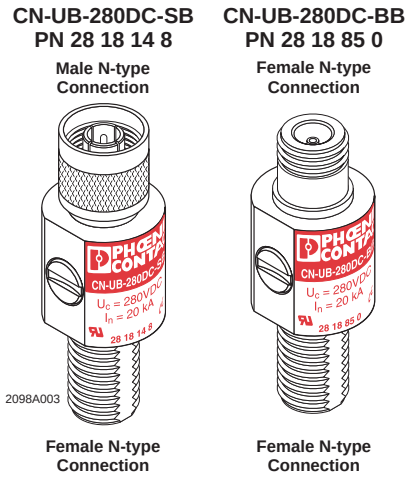


Figure 1. CN-UB-280DC Configurations

The CN-UB-280DC features a gas-filled discharge arrester between the inner and outer conductor. See Figure 2.

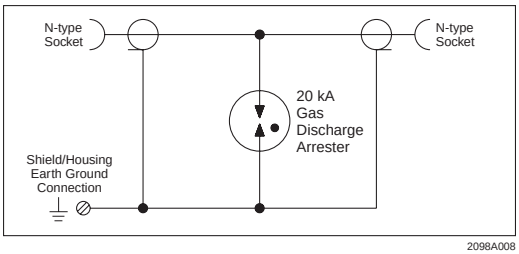


Figure 2. CN-UB-280DC Schematic Diagram

The gas discharge tube can be replaced in the event that a direct lightning strike causes a failure. See Figure 3.

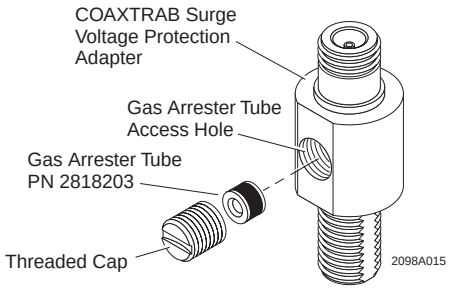


Figure 3. CN-UB-280DC Gas Discharge Arrester

The CN-UB-280DC has a separate ground terminal for installations where nonmetallic enclosures are used or where a reliable grounding surface is not present. See Figure 4.

CAUTION

Always keep the ground wire as short as possible and, when possible, make all ground connections to a single common point. Without a single-point ground system, lightning becomes a critical concern for base stations. The single-point ground insures that no ground loops are created.

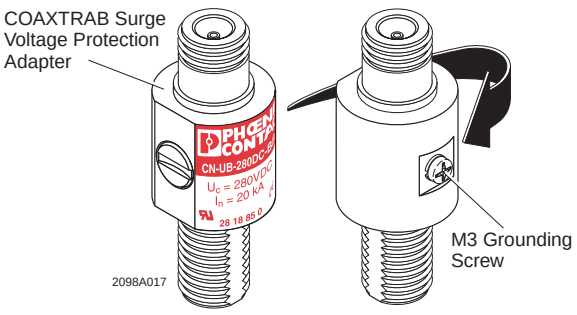


Figure 4. CN-UB-280DC Ground Connection

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2. Typical Applications

Figure 5 shows the various ways that you can install the CN-UB-280DC adapter.

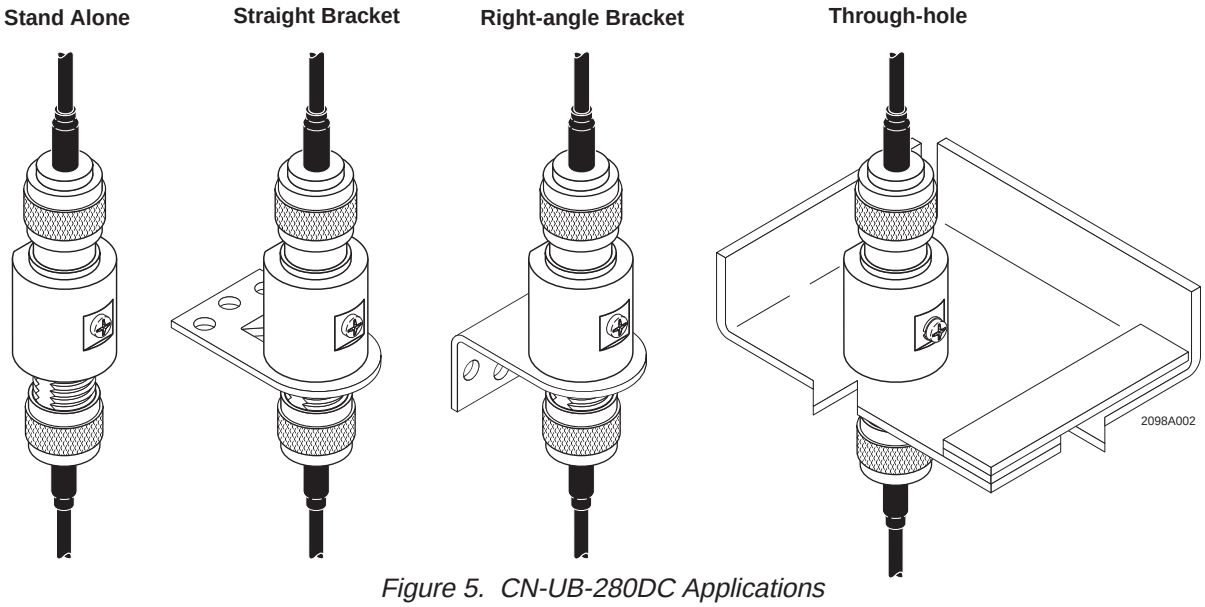


Figure 5. CN-UB-280DC Applications

3. Mounting Brackets and Assemblies

Phoenix Contact offers two mounting brackets (straight and right angle) and four mounting bracket assemblies, which include both the bracket and the adapter. Figure 6 shows a typical CN-UB-280DC adapter assembly using a straight mounting bracket.

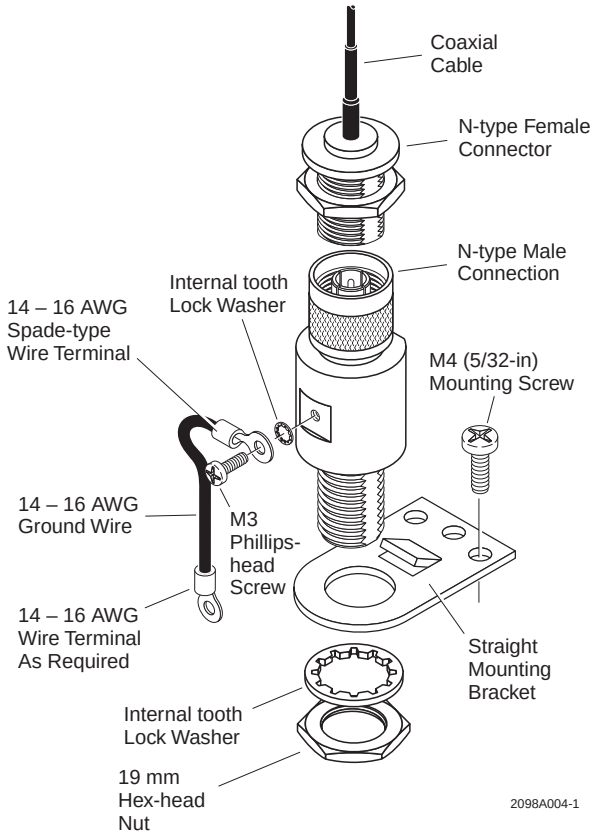


Figure 6. Straight Mounting Bracket Assembly

Figure 7 shows a typical adapter assembly using a right-angled mounting bracket. Refer to the Ordering Data at the back of these instructions for individual or assembly part numbers.

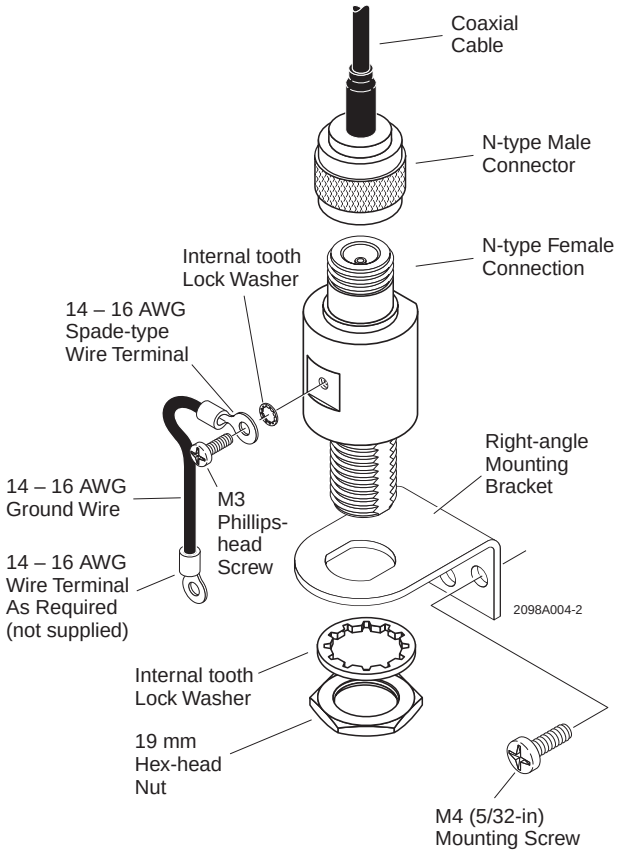


Figure 7. Right-angle Mounting Bracket Assembly

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4. Typical Cabinet Installation

Figure 8 shows a typical CN-UB-280DC installation inside a cabinet. To avoid problems, please observe the following guidelines when installing the CN-UB-280DC adapter.

- Install adapter as close as possible to the radio.
- Ensure cabinet is properly grounded to earth.
- Make sure adapter is grounded to cabinet. If necessary, install separate ground wire.
- Always make ground wire as short as possible.
- When possible, connect ground wire to single-point earth ground.
- Avoid loops in grounding wire.
- Avoid making sharp bends in wire.

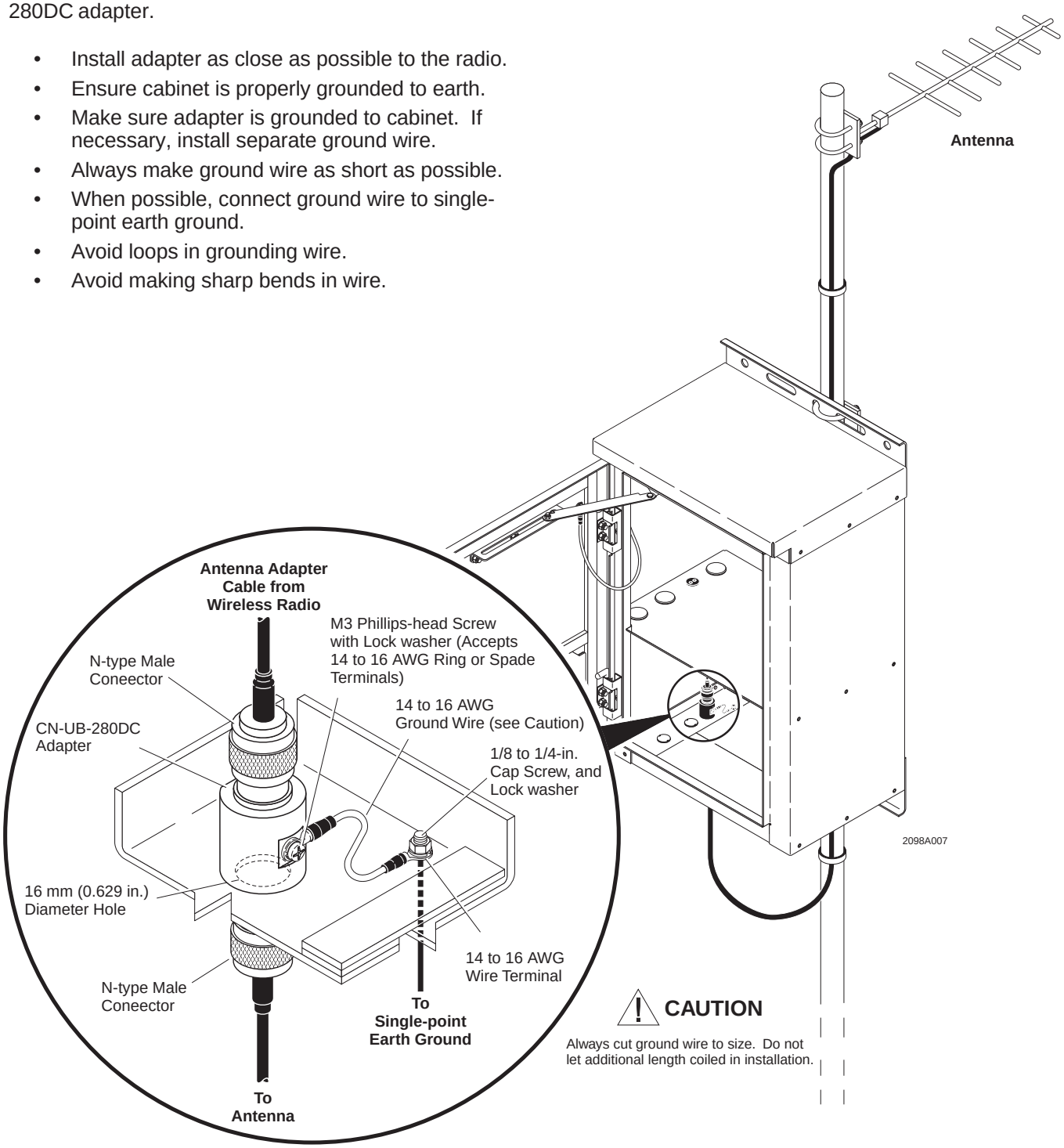


Figure 8. Typical Cabinet Installation

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5. Dimensions

Figures 9 through 12 provide dimensions for each mounting bracket and for each of the CN-UB-280DC mounting bracket assemblies.

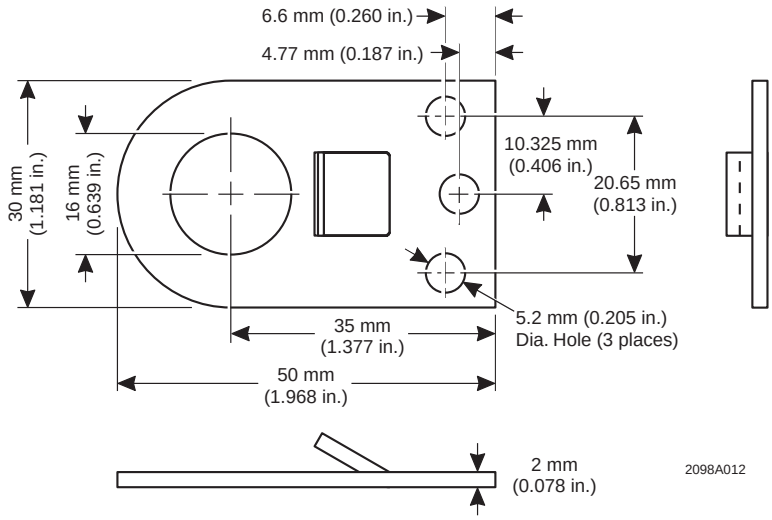


Figure 9. Straight Mounting Bracket Dimensions

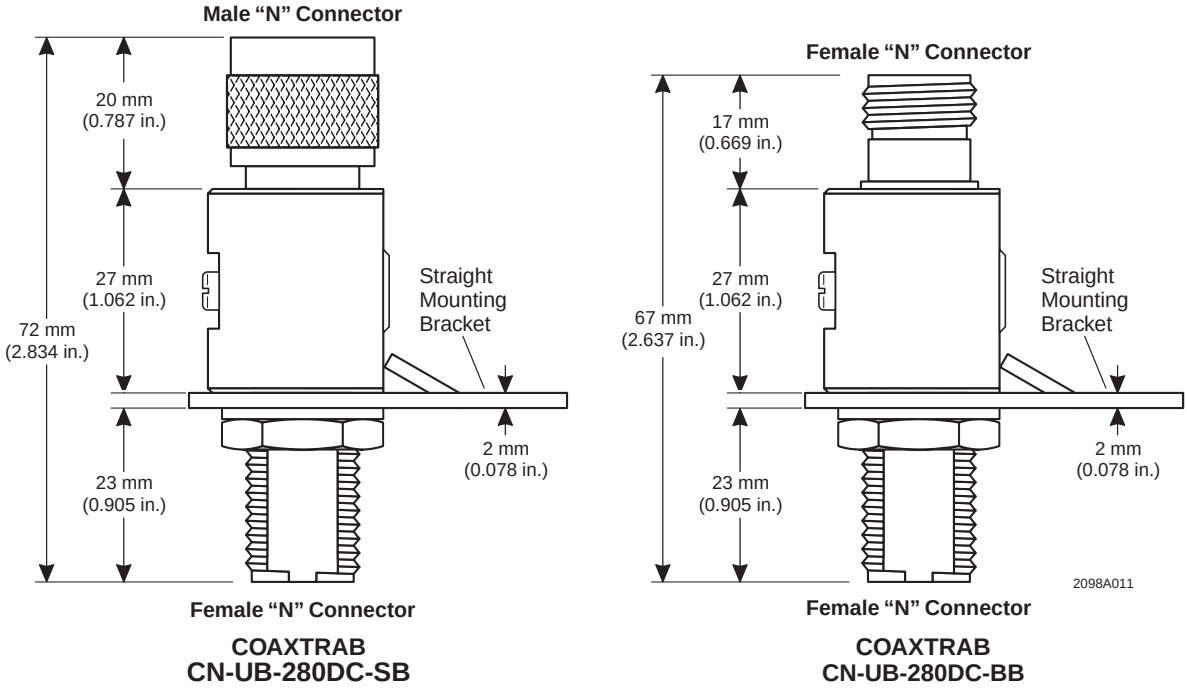


Figure 10. Adapter and Straight Mounting Bracket Assembly Dimensions

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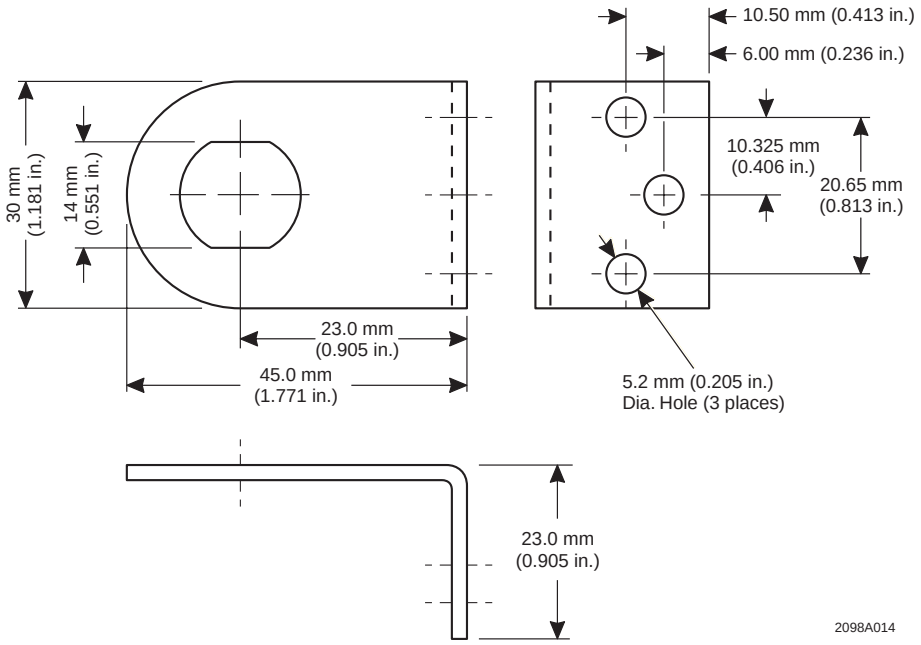


Figure 11. Right-angle Mounting Bracket Dimensions

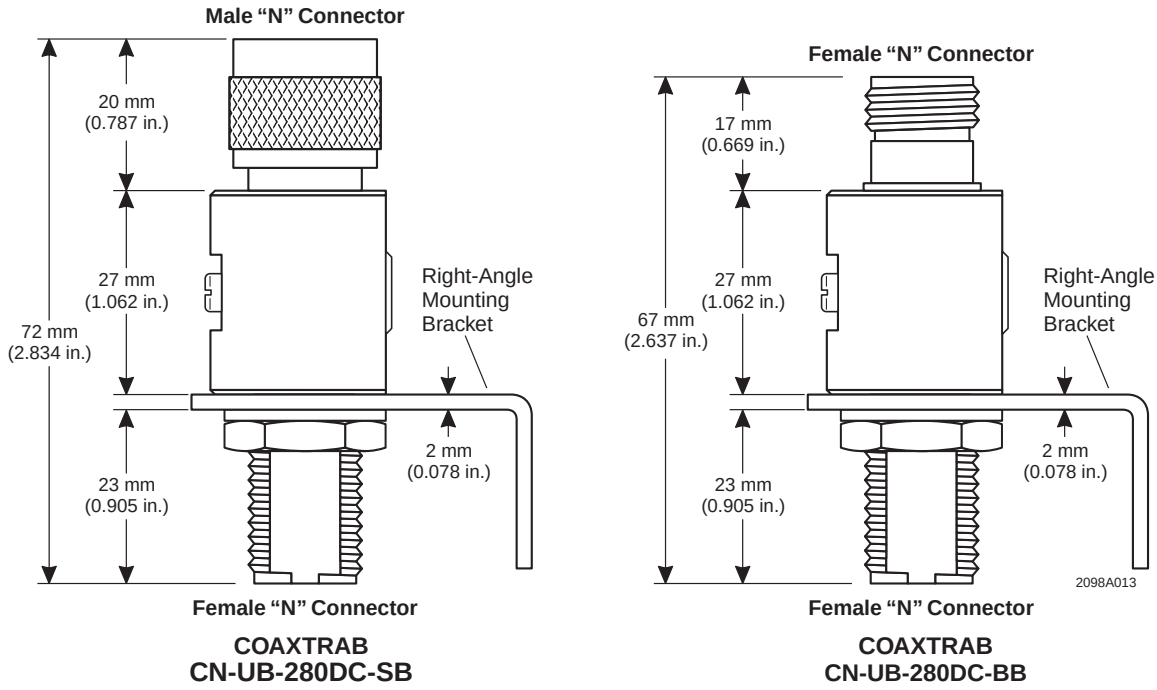


Figure 12. Adapter and Right-angle Mounting Bracket Assembly Dimensions

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6. Technical Data (see Table 1)

Table 1. CN-UB-280DC Specifications

General Specifications	
Maximum continuous operating voltage	280 V dc
Maximum circuit operating current	≤ 5 A at 25 °C
Maximum high-frequency power with a Standing Wave Ratio (SWR) = 1.1in a 50 Ω system	700 W
Rated discharge surge current (8/20 µs test curve)	20 kA
Rated discharge surge current (10/1000 µs test curve)	100 A
Output voltage tested with 1 kV/µs waveform line to shield (ground)	≤ 700 V
Response time (common mode line to ground)	≤ 100 ns
Insertion loss (50 Ω systems)	≤ 0.1 dB up to 1.2 GHz ≤ 0.2 dB up to 2.2 GHz
DC cutoff frequency (3 dB)	> 3 GHz
Leakage current, line-ground	≤ 1 µA
Voltage Standing Wave Ratio (SWR)	≤ 1.1 to 2.0 GHz
Capacitance (common mode)	1.5 pF
Connector type	N, 50 Ω
Temperature range	-20 °C to + 80 °C

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7. Gas Arrester Replacement

1. Using a blade type screwdriver remove the threaded cap from the adapter housing. See Figure 13. Then remove and discard the gas arrester tube from the housing.

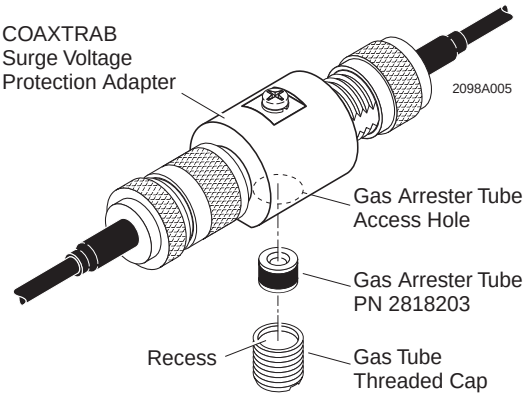


Figure 13. CN-UB280DC Gas Arrester Replacement

Note

The threaded cap contains a recess that positions the gas arrester tube in the center of the access hole. If the gas arrester tube is not positioned in this recess while installing the threaded cap, the arrester will not seat properly and the threaded cap will not screw completely into the housing.

If you experience a problem installing the gas arrester tube, remove the COAXTRAB adapter from the system. Then position the adapter as shown in Figure 13 and install the gas arrester tube.

2. Insert the replacement gas arrester tube in the recess of the threaded cap. Then carefully insert the gas arrester tube and cap into the access hole of the adapter and tighten the cap.

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8. Ordering Data

Figure 14 shows identifies the various parts, assemblies and accessories that are available for the COAXTRAB CN-UB-280DC adapter. Table 2 lists the order numbers for each of these component. To order, refer to the Phoenix Contact web site listed on the back of these instructions to locate a distributor near you.

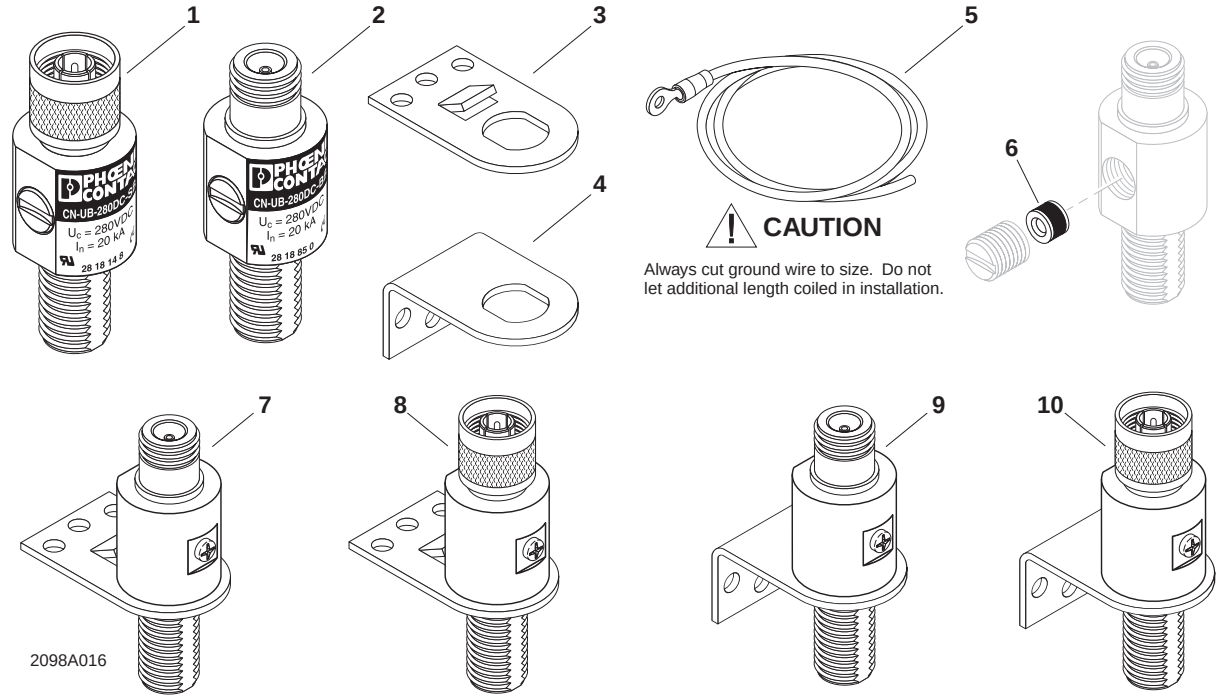


Figure 14. CN-UB280DC Surge Voltage Protector Parts and Accessories

Table 2. Parts List for Figure 14 (CN-UB-280DC)

	Item No.	Description	Type	Order No.
Components	1	COAXTRAB surge voltage adapter, coaxial N-type connectors, female/female	CN-UB-280DC-BB	28 18 85 0
	2	COAXTRAB surge voltage adapter, Coaxial N-type connectors, male/female	CN-UB-280DC-SB	28 18 14 8
	3	Mounting bracket, straight	CN-UB/MP	28 18 13 5
	4	Mounting bracket, right angle	CN-UB/MP-90 DEGREE	56 04 83 8
	5	Ground wire, 1.5 meter length, 16 AWG with ring lug	C-UFB-PA	27 62 36 2
	6	Gas arrester tube	CN-UB-G1	28 18 20 3*
Assemblies	7	COAXTRAB surge voltage adapter assembly, includes straight bracket (attached) with, Coaxial N-type connectors, female/female	CN-UB-280DC-BB-BH ASSY	56 03 85 9
	8	COAXTRAB surge voltage adapter assembly, includes straight bracket (attached) with, Coaxial N-type connectors, male/female	CN-UB-280DC-SB-BH ASSY	56 02 35 7
	9	COAXTRAB surge voltage adapter assembly, includes right-angle bracket (attached) with, Coaxial N-type connectors, female/female	CN-UB-280DC-BB-L ASSY	56 05 58 8
	10	COAXTRAB surge voltage adapter assembly, includes right-angle bracket (attached) with, Coaxial N-type connectors, male/female	CN-UB-280DC-SB-L ASSY	56 05 58 7

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*Recommended spare part

NOTE: COAXTRAB surge voltage protection adapters are available with 7/16-in. connectors upon request. Adapters are also available in F-type connectors. Contact Phoenix Contact Technical Services at 1-800-322-3225 or visit our web site at www.phoenixcon.com/trabtech.

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