

## Arbiter Systems Test Leads: Engineered for Optimum Performance and Safety

Arbiter Systems<sup>®</sup>, Inc. test equipment offers outstanding performance, flexibility, and value. Our test leads offer nothing less. Carefully engineered from the ground up, they combine performance, safety, and economy, to make your job simpler. All components are carefully selected to work well together, resulting in long life and excellent reliability.

Arbiter Systems' test lead products improve operator safety and ease of use. The Fused Safety Voltage Probe Lead Sets offer in-line, class CC fuse holders with 200,000 ampere interrupting capacity to help prevent hazardous high-energy arc faults. The Universal Test Plug Current Lead Sets, compatible with all common series make-before-break test jacks, offer improved ruggedness for long life and color coding by phase to simplify test setups. The test lead sets are made with rope-lay, ultra-fine stranded wire and your choice of silicone or Santoprene insulation for flexibility over a wide range of temperatures. As an added feature, the flame-retardant PET monofilament armor protects the test leads from damage, such as abrasion and cut-through, a particularly important feature when testing high-energy feeder or service entry circuits and relaying CT secondaries.

Only the highest-quality components are used in our test lead assemblies. All current-carrying hardware is made of copper-based alloys for the best conductivity. Mechanical hardware is stainless steel for strength and corrosion resistance. Crimp terminals are made from seamless copper tubing, and a copper foil wrap ensures proper termination of finely-stranded wires. Heat-shrink tubing is top-quality clear fluoroplastic, not cheaper alternatives. All connections are provided with strain relief for the wire insulation, and all insulating materials are high-temperature, non-burning materials. Voltage lead sets have color-coded wire, connectors, and accessories, and every current test lead set includes color-coded heat shrink markers at each connection, with phase indication hot-stamped into the material. Where for other manufacturers test leads may be an afterthought, we have put the same care into designing and selecting the components for our test leads that we put into all of our products.

Arbiter Systems' lead sets are available as complete assemblies. Also, we will custom assemble test lead sets to your specification. Whether you choose our standard test lead sets, or custom assemblies, you can buy with confidence, knowing that better safety and finer quality are not available at any price.

### Santoprene and Silicone Test Lead Wire

Arbiter Systems offers test lead wire with your choice of two insulation types, Santoprene and silicone. Both silicone and Santoprene insulated lead wires are made using finely-stranded rope-lay copper conductors for exceptional flexibility and limpness. Both insulations retain outstanding flexibility and insulation properties over a wide range of temperatures. We use extra-heavy insulation for an extra margin of safety, and both insulation types are available in colors to coordinate with the input connections on our instruments. Regardless of your choice in insulation, our test lead wires will deliver long, satisfactory service in the field.

Silicone is our premier test lead wire. Highly flexible over a wider range of temperatures (-70 to +150° C, -100 to +300° F) than any other flexible insulation material, with excellent resistance to damage due to flame and heat, our silicone wire is highly recommended where safe operation is required with the possibility of high-current through faults. Silicone is nonflammable, and will not emit toxic or irritating fumes at extreme temperatures or under overload conditions.

For most applications, our Santoprene insulated test lead wire is a cost-effective alternative to silicone, offering most of the same advantages at a price which compares favorably with PVC, neoprene, and other lower-quality insulations. Because Santoprene is a thermoplastic rubber, however, it will melt at a temperature of +216° C (+421° F), and it is primarily recommended for use in applications where high-current faults are less likely. Santoprene offers excellent resistance to arc ignition and good resistance to ignition by a hot wire. And, unlike PVC or halogenated rubber compounds, Santoprene does not emit toxic and irritating fumes when it is overheated or burned, and it is inherently self-extinguishing.

## Test Lead Specifications

### General Specifications

#### Silicone Insulated Lead Wire

AWG #10, 1064 x #40 stranding, 1.15 mm (0.045 in.) silicone insulation; 5.8 mm (0.230 in.) OD.

AWG #16, 665 x #44 stranding, 1.5 mm (0.060 in.) silicone insulation; 4.8 mm (0.187 in.) OD.

#### Santoprene Insulated Lead Wire

AWG #10, 1666 x #42 stranding, 1.15 mm (0.045 in.) Santoprene insulation; 6.1 mm (0.240 in.) OD.

AWG #16, 665 x #44 stranding, 1.5 mm (0.060 in.) Santoprene insulation; 4.8 mm (0.187 in.) OD.

#### Length

All lead sets are 2.5 m (8 feet) long, standard. For other lengths, consult the factory.

#### Color Code

Voltage leads: wire insulation color is; red/A $\emptyset$ , yellow/B $\emptyset$ , blue/C $\emptyset$ , white/N (three-phase); red/line, white/neutral (single-phase).

Current leads: wire insulation color is gray; leads are supplied in pairs with colored phase markers on each pair (red/A $\emptyset$ , yellow/B $\emptyset$ , blue/C $\emptyset$ ) and colored polarity markers on each (+) lead (red, yellow, or blue) and (-) lead (black).

#### PET Armor

Lead sets are cabled with an overall PET monofilament braided armor for protection against abrasion and cut-through, except where noted. Our PET armor is strong and highly flexible; when properly installed, it protects the enclosed wires while maintaining flexibility. Armor is medium gray color.

#### Velcro Lead Straps

Lead sets are also provided with multipurpose Velcro lead straps. This strap may be used to lash the lead set when it is coiled for storage. It may also be used to support the lead set when in use, by tying off to a convenient anchor point. When not in use, the lead strap may be wrapped around itself to keep it from dangling.

### Safety Ground Leads

#### Model 812GC-8

##### Twist-Clamp Safety Ground Lead

Single lead equipped with 1/4 in. spade lug on one end and a twist-lock test clamp grounding connector on the other. Spade lug is gold-plated for long life in demanding service, and has an oversized barrel to accommodate our finely-stranded test lead wire. This lead is assembled with #10 Silicone lead wire.

#### Model 812HC-8

##### Clip-Type Safety Ground Lead

Single lead equipped with 1/4 in. spade lug on one end and a Mueller #27C copper grounding clip on the other. Spade lug is gold-plated for long life in demanding service, and has an oversized barrel to accommodate our finely-stranded test lead wire. This lead is assembled with #10 Silicone lead wire.



Model 812HC-8

## Test Lead Specifications

### Universal Test Plug Current Lead Sets

#### Model 811A - Santoprene

##### Universal Test Plug Current Lead Set

Single-phase current lead equipped with our Universal Test Plug (compatible with ABB/Westinghouse, Superior, Meter Devices, and States series test jacks) on one end and 1/4 in. spade lugs on the other. This lead set is assembled with #10 Santoprene lead wire; overall gray PET armor and Velcro lead strap.

Order Model 811AA (red/AØ), 811AB (yellow/BØ), 811AC (blue/CØ); or, for a three-phase set, 811AT (one 811AA, one 811AB, and one 811AC).

#### Model 811C - Silicone

##### Universal Test Plug Current Lead Set

Offers the same features as the Model 811A Universal Test Plug Current Lead Set. This lead set is assembled with #10 Silicone lead wire in place of the #10 Santoprene lead wire.

Order Model 811CA (red/AØ), 811CB (yellow/BØ), 811CC (blue/CØ); or, for a three-phase set, 811CT (one 811CA, one 811CB, and one 811CC).



### Spade Lug Current Lead Sets

#### Model 816A - Santoprene

##### Spade Lug Current Lead Set

Single-phase current lead equipped with our 0.25 in. spade lugs on the both ends. Spade lugs are gold-plated for long life in demanding service, and have oversized barrels to accommodate our finely-stranded test lead wire. This lead set is assembled with #10 Santoprene lead wire; overall gray PET armor and Velcro lead strap.

Order Model 816AA (red/AØ), 816AB (yellow/BØ), 816AC (blue/CØ); or, for a three-phase set, 816AT (one 816AA, one 816AB, and one 816AC).

#### Model 816C - Silicone

##### Spade Lug Current Lead Set

Offers the same features as the Model 816A Spade Lug Current Lead Set. This lead set is assembled with #10 Silicone lead wire in place of the #10 Santoprene lead wire.

Order Model 816CA (red/AØ), 816CB (yellow/BØ), 816CC (blue/CØ); or, for a three-phase set, 816CT (one 816CA, one 816CB, and one 816CC).



## Test Lead Specifications

### Safety Voltage Probe Lead Sets

#### Model 813AT - Santoprene

##### Three-Phase Safety Voltage Probe Lead Set

Three-phase, 4-wire lead set that provides safety-shrouded stackable 4 mm banana plugs on both ends of the lead, includes various plug-on accessories compatible with the 4 mm banana plugs. This lead set is assembled with #16 Santoprene lead wire; overall gray PET armor and Velcro lead strap.

Intended primarily for applications where high-energy faults are unlikely. For high-energy applications, see the Model 815AT Three-Phase Fused Safety Voltage Probe Lead Set.

#### Model 813BT - Silicone

##### Three-Phase Safety Voltage Probe Lead Set

Offers the same features as the Model 813AT Three-Phase Safety Voltage Probe Lead Set. This lead set is assembled with #16 Silicone lead wire in place of the #16 Santoprene lead wire.



### Fused Safety Voltage Probe Lead Sets

#### Model 815AT - Santoprene

##### Three-Phase Fused Safety Voltage Probe Lead Set

Three-phase, 4-wire, fused lead set that provides safety-shrouded stackable 4 mm banana plugs on both ends of the lead, includes various plug-on accessories compatible with the 4 mm banana plugs. This lead set is assembled with #16 Santoprene lead wire; overall gray PET armor and Velcro lead strap.

The fuse feature provides 200,000 amps interrupting capacity for improved safety with high fault energy feeder or service entrance circuits. Clear PVC barrel allows verification of installed fuse type. The neutral is not fused. Includes 1 amp fuse (spares sold separately). Accepts class-CC rejection fuses only. Rated current: 2 amps continuous. NOT for use in current-transformer circuits, except for burden voltage (non-current-carrying) tests.

#### Model 815BT - Silicone

##### Three-Phase Fused Safety Voltage Probe Lead Set

Offers the same features as the Model 815AT Three-Phase Fused Safety Voltage Probe Lead Set. This lead set is assembled with #16 Silicone lead wire in place of the #16 Santoprene lead wire.

