



CA-70x

Modular SMU Cable Assemblies

INSTRUCTIONS



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For product information, sales, service, and technical support visit tek.com to find contacts in your area. For warranty information visit tek.com/warranty.

Description

The Tektronix CA-70x cable assemblies are designed for use with the source-measure unit (SMU) modules available for the MP5000 Series Modular Precision Mainframe.

Each assembly has 4 pin-to-triaxial connectors, allowing you to connect the screw terminal pins of your modular SMU to instruments such as probe stations and test fixtures.

This document applies to the following cable assemblies. Order by model number.

Part number	Model number	Length
CA-701-1A	MSMU-TRX-HI	1 m
CA-701-3A	MSMU-TRX-HI	3 m
CA-702-1A	MSMU-TRX-SLO	1 m
CA-702-3A	MSMU-TRX-SLO	3 m
CA-703-1A	MSMU-TRX-LO	1 m
CA-703-3A	MSMU-TRX-LO	3m
CA-705-1A	MSMU-TRX-SLO-CG	1 m
CA-705-3A	MSMU-TRX-SLO-CG	3 m
CA-707-1A	MSMU-TRX-LO-CG	1 m
CA-707-3A	MSMU-TRX-LO-CG	3 m

WARNING

Before making or breaking any connections to a module or a device under test (DUT), make sure that the instrument output power is turned off and power is removed from all external circuitry.

Characteristics

Impedance: 50 Ω

Maximum voltage: 450 V

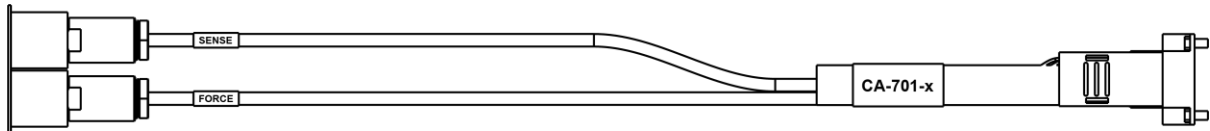
Maximum current: 1.5 A

Operating environment: 0 °C to 50 °C, up to 70% relative humidity at ≤ 35 °C

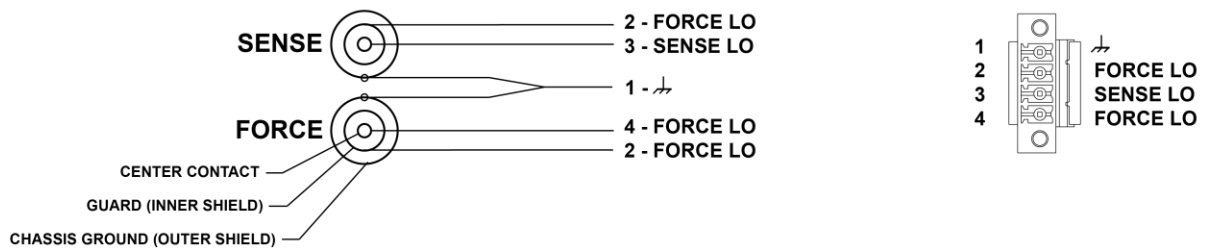
CA-701A

Part number	Model number	Length
CA-701-1A	MSMU-TRX-HI	1 m
CA-701-3A	MSMU-TRX-HI	3 m

This cable assembly converts the screw terminals on a SMU module to triaxial connectors. Connect this cable to either the LO or HI SMU terminal output connectors.



CONNECTED TO SMU LO OUTPUT TERMINALS



CONNECTED TO SMU HI OUTPUT TERMINALS

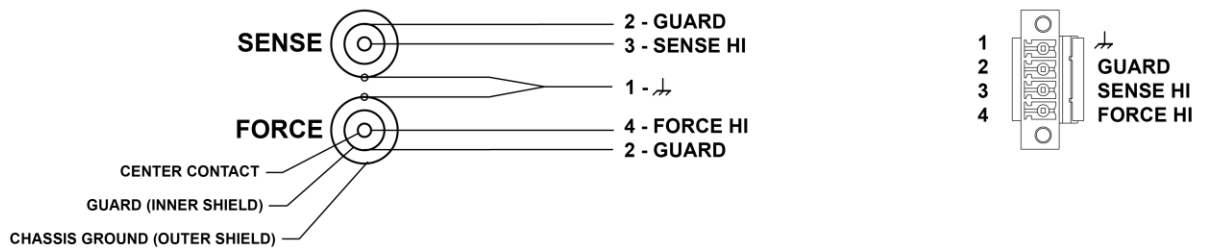


Figure 1: CA-701A cable assembly and pinouts

CA-702A

Part number	Model number	Length
CA-702-1A	MSMU-TRX-SLO	1 m
CA-702-3A	MSMU-TRX-SLO	3 m

This cable assembly allows you to use a single triaxial cable to transport both FORCE LO and SENSE LO signals. This cable assembly is only intended to be connected to the SMU LO output terminals of a SMU module.

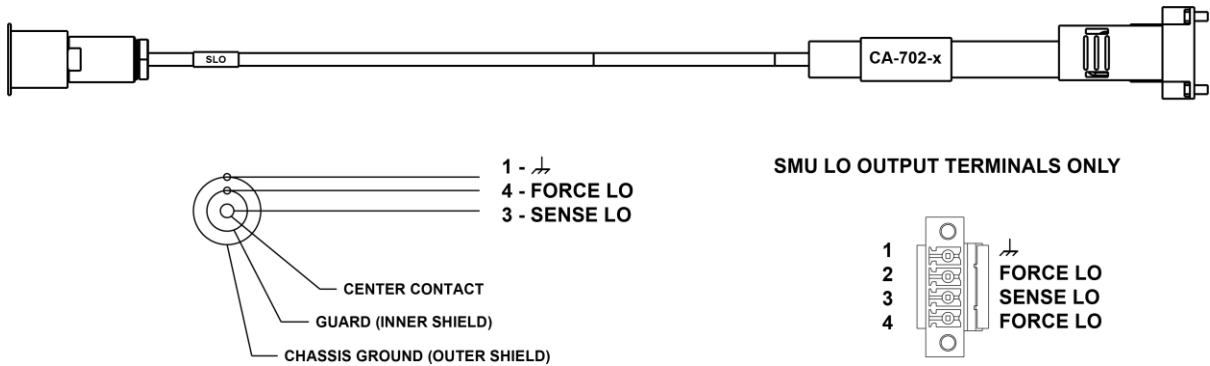


Figure 2: CA-702A cable assembly and pinouts

CA-703A

Part number	Model number	Length
CA-703-1A	MSMU-TRX-LO	1 m
CA-703-3A	MSMU-TRX-LO	3 m

This cable assembly allows you to use a single triaxial cable to transport FORCE LO to the center conductor. This cable assembly is only intended to be connected to the SMU LO output terminals of a SMU module.

A typical application for this cable is connecting FORCE LO to a manipulator on a probe station.

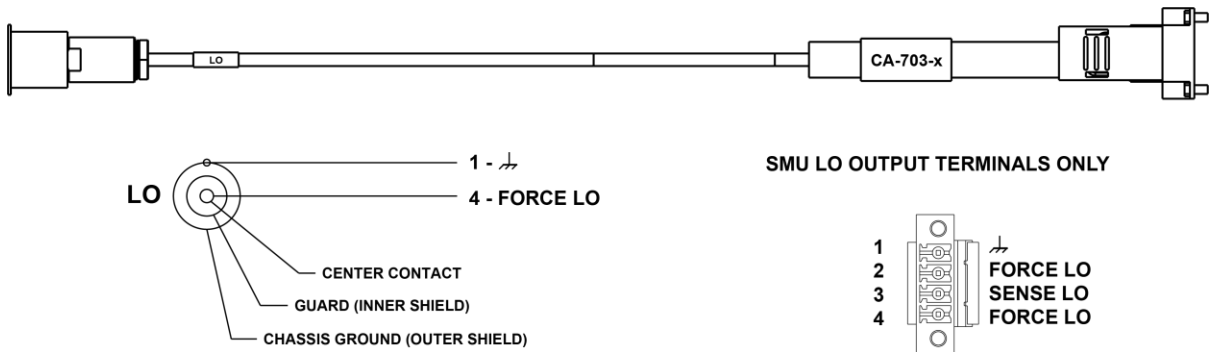


Figure 3: CA-703A cable assembly and pinouts

CA-705A

Part number	Model number	Length
CA-705-1A	MSMU-TRX-SLO-CG	1 m
CA-705-3A	MSMU-TRX-SLO-CG	3 m

This cable assembly allows you to use a single triaxial cable to transport both FORCE LO and SENSE LO signals and shorts FORCE LO to chassis ground. This cable assembly is only intended to be connected to the SMU LO output terminals of a SMU module.

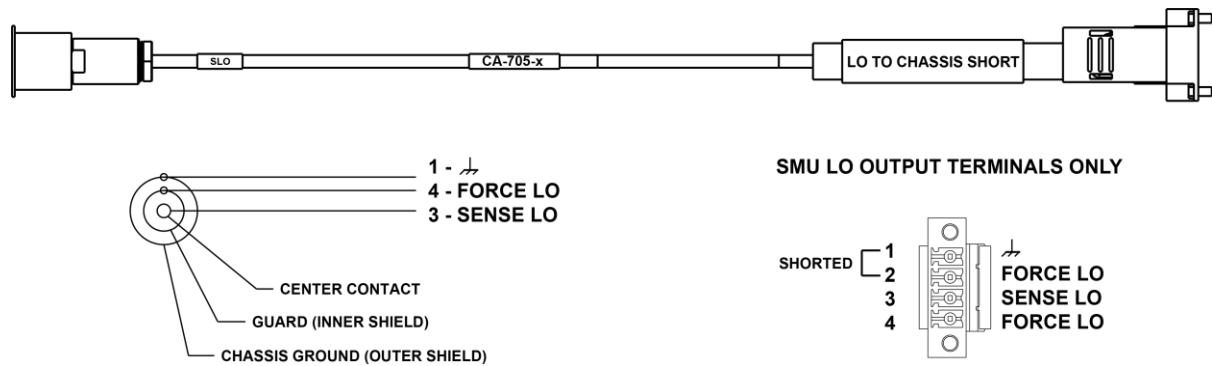


Figure 4: CA-705A cable assembly and pinouts

CA-707A

Part number	Model number	Length
CA-707-1A	MSMU-TRX-LO-C G	1 m
CA-707-3A	MSMU-TRX-LO-C G	3 m

This cable assembly allows you to use a single triaxial cable to transport FORCE LO signals on the center conductor and shorts FORCE LO to chassis ground. This cable assembly is only intended to be connected to the SMU LO output terminals of a SMU module.

A typical application for this cable is connecting FORCE LO to a manipulator on a probe station.

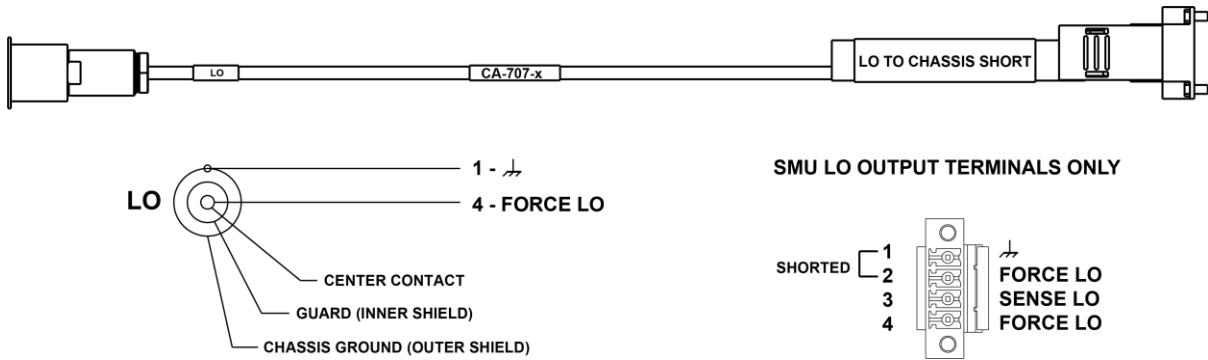


Figure 5: CA-707A cable assembly and pinouts

Safety Precautions

The following safety precautions should be observed before using this product and any associated instrumentation. Although some instruments and accessories would normally be used with nonhazardous voltages, there are situations where hazardous conditions may be present.

This product is intended for use by personnel who recognize shock hazards and are familiar with the safety precautions required to avoid possible injury. Read and follow all installation, operation, and maintenance information carefully before using the product. Refer to the user documentation for complete product specifications.

If the product is used in a manner not specified, the protection provided by the product warranty may be impaired.

The types of product users are:

Responsible body is the individual or group responsible for the use and maintenance of equipment, for ensuring that the equipment is operated within its specifications and operating limits, and for ensuring that operators are adequately trained.

Operators use the product for its intended function. They must be trained in electrical safety procedures and proper use of the instrument. They must be protected from electric shock and contact with hazardous live circuits.

Maintenance personnel perform routine procedures on the product to keep it operating properly, for example, setting the line voltage or replacing consumable materials. Maintenance procedures are described in the user documentation. The procedures explicitly state if the operator may perform them. Otherwise, they should be performed only by service personnel.

Service personnel are trained to work on live circuits, perform safe installations, and repair products. Only properly trained service personnel may perform installation and service procedures.

Tektronix products are designed for use with electrical signals that are measurement, control, and data I/O connections, with low transient overvoltages, and must not be directly connected to mains voltage or to voltage sources with high transient overvoltages. Measurement Category II (as referenced in IEC 60664) connections require protection for high transient overvoltages often associated with local AC mains connections. Certain Tektronix measuring instruments may be connected to mains. These instruments will be marked as category II or higher.

Unless explicitly allowed in the specifications, operating manual, and instrument labels, do not connect any instrument to mains.

Exercise extreme caution when a shock hazard is present. Lethal voltage may be present on cable connector jacks or test fixtures. The American National Standards Institute (ANSI) states that a shock hazard exists when voltage levels greater than 30 V RMS, 42.4 V peak, or 60 VDC are present. A good safety practice is to expect that hazardous voltage is present in any unknown circuit before measuring.

Operators of this product must be protected from electric shock at all times. The responsible body must ensure that operators are prevented access and/or insulated from every connection point. In some cases, connections must be exposed to potential human contact. Product operators in these circumstances must be trained to protect themselves from the risk of electric shock. If the circuit is capable of operating at or above 1000 V, no conductive part of the circuit may be exposed.

Do not connect switching cards directly to unlimited power circuits. They are intended to be used with impedance-limited sources. NEVER connect switching cards directly to AC mains. When connecting sources to switching cards, install protective devices to limit fault current and voltage to the card.

Before operating an instrument, ensure that the line cord is connected to a properly-grounded power receptacle. Inspect the connecting cables, test leads, and jumpers for possible wear, cracks, or breaks before each use.

When installing equipment where access to the main power cord is restricted, such as rack mounting, a separate main input power disconnect device must be provided in close proximity to the equipment and within easy reach of the operator.

For maximum safety, do not touch the product, test cables, or any other instruments while power is applied to the circuit under test. ALWAYS remove power from the entire test system and discharge any capacitors before connecting or disconnecting cables or jumpers, installing or removing switching cards, or making internal changes, such as installing or removing jumpers.

Do not touch any object that could provide a current path to the common side of the circuit under test or power line (earth) ground. Always make measurements with dry hands while standing on a dry, insulated surface capable of withstanding the voltage being measured.

When fuses are used in a product, replace with the same type and rating for continued protection against fire hazard.

For safety, instruments and accessories must be used in accordance with the operating instructions. If the instruments or accessories are used in a manner not specified in the operating instructions, the protection provided by the equipment may be impaired.

Do not exceed the maximum signal levels of the instruments and accessories. Maximum signal levels are defined in the specifications and operating information and shown on the instrument panels, test fixture panels, and switching cards.

Chassis connections must only be used as shield connections for measuring circuits, NOT as protective earth (safety ground) connections.

If you are using a test fixture, keep the lid closed while power is applied to the device under test. Safe operation requires the use of a lid interlock.

Production of this equipment required the extraction and use of natural resources. The equipment may contain substances that could be harmful to the environment or human health if improperly handled at the product's end of life. To avoid release of such substances into the environment and to reduce the use of natural resources, we encourage you to recycle this product in an appropriate system that will ensure that most of the materials are reused or recycled appropriately.



The  symbol indicates that this product complies with the applicable European Union requirements according to Directives 2012/19/EU and 2006/66/EC on waste electrical and electronic equipment (WEEE) and batteries. For information about recycling options, check the Tektronix Web site (www.tek.com/productrecycling).

If a  screw is present, connect it to protective earth (safety ground) using the wire recommended in the user documentation.

The  symbol on an instrument means caution, risk of hazard. The user must refer to the operating instructions located in the user documentation in all cases where the symbol is marked on the instrument.

The  symbol on an instrument means warning, risk of electric shock. Use standard safety precautions to avoid personal contact with these voltages.

The  symbol on an instrument shows that the surface may be hot. Avoid personal contact to prevent burns.

The  symbol indicates a connection terminal to the equipment frame.

If this  symbol is on a product, it indicates that mercury is present in the display lamp. Please note that the lamp must be properly disposed of according to federal, state, and local laws.

The **WARNING** heading in the user documentation explains hazards that might result in personal injury or death. Always read the associated information very carefully before performing the indicated procedure.

The **CAUTION** heading in the user documentation explains hazards that could damage the instrument. Such damage may invalidate the warranty.

The **CAUTION** heading with the  symbol in the user documentation explains hazards that could result in moderate or minor injury or damage the instrument. Always read the associated information very carefully before performing the indicated procedure. Damage to the instrument may invalidate the warranty.

Instrumentation and accessories shall not be connected to humans.

Before performing any maintenance, disconnect the line cord and all test cables.

To maintain protection from electric shock and fire, replacement components in mains circuits — including the power transformer, test leads, and input jacks — must be purchased from Tektronix. Standard fuses with applicable national safety approvals may be used if the rating and type are the same. The detachable mains power cord provided with the instrument may only be replaced with a similarly rated power cord. Other components that are not safety-related may be purchased from other suppliers as long as they are equivalent to the original component (note that selected parts should be purchased only through Tektronix to maintain accuracy and functionality of the product). If you are unsure about the applicability of a replacement component, call a Tektronix office for information.

Unless otherwise noted in product-specific literature, Tektronix instruments are designed to operate indoors only, in the following environment: Altitude at or below 2,000 m (6,562 ft); temperature 0 °C to 50 °C (32 °F to 122 °F); and pollution degree 1 or 2.

To clean an instrument, use a cloth dampened with deionized water or mild, water-based cleaner. Clean the exterior of the instrument only. Do not apply cleaner directly to the instrument or allow liquids to enter or spill on the instrument. Products that consist of a circuit board with no case or chassis (e.g., a data acquisition board for installation into a computer) should never require cleaning if handled according to instructions. If the board becomes contaminated and operation is affected, the board should be returned to the factory for proper cleaning/servicing.

This product may contain a small installed lithium metal button cell. Please properly dispose of or recycle the cell at its end of life according to local government regulations.

This product may contain one or more type CR lithium batteries. According to the state of California, CR lithium batteries are classified as perchlorate materials and require special handling. See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate> for additional information.

If present, the small lithium primary button cell contained in this equipment does not exceed 1 gram of lithium metal content per cell, and the cell type has been shown by the manufacturer to comply with the applicable requirements of the UN Manual of Tests and Criteria Part III, Sub-section 38.3. Consult your carrier to determine which lithium battery transportation requirements are applicable to your configuration, including to its re-packaging and re-labeling, prior to reshipment of the product by any mode of transport.

Safety Precautions version April 2025