

# Dual-Wire Static Control Smock Installation, Operation and Maintenance



Made in the  
United States of America



Figure 1. SCS Dual-Wire Static Control Smock

## Description

The SCS Dual-Wire Static Control Smock is designed for use with dual-wire grounding systems. One conductive cuff is electrically bonded to the dissipative garment and one snap stud at the hip. The second conductive cuff uses an isolated conductive path to bond to a second snap stud at the hip. The smock's dual-wire circuit loop closes when its two conductive cuffs are bridged by the skin on the wearer's wrists.

The SCS Dual-Wire Static Control Smock creates a Faraday cage around the torso and arms of the wearer and protects ESD susceptible items from the electrostatic fields generated by the wearer's clothing. SCS Dual-Wire Static Control Smocks meet the requirement for Groundable Static Control Garment System per ANSI/ESD S20.20 required limit of  $< 3.5 \times 10^7$  ohms Rtg tested per ANSI/ESD STM2.1 and ESD TR53. The path-to-ground integrity of the SCS Dual-Wire Static Control Smock can be verified with constant monitors or personnel grounding testers.

"While a person may be grounded using a wrist strap or other grounding methods, that does not mean that insulative clothing fabrics can dissipate a charge to that person's skin and then to ground. Personnel clothing usually is electrically separate or isolated from the body. Groundable Static Control Garment System, Garments that are used to establish the primary ground path for a person shall provide a resistance of less than 35 megohms from the person to the groundable point of the garment." (ESD TR20.20-2008 section 5.3.13 Garments)

SCS Dual-Wire Static Control Smocks are constructed of a lightweight dissipative material which is made from texturized polyester and a minimum of 9% carbon nylon monofilament. The conductive nylon fibers are woven in a chain-link design throughout the material, providing continuous and consistent charge dissipation. All of the seams in the smocks are designed to maintain electrical continuity from panel to panel and from sleeve to sleeve in accordance with the ESD Association Garment Standard, ESD STM2.1.

SCS Dual-Wire Static Control Smocks incorporate a "hip-to-cuff" grounding feature which allows for hands-free grounding with no cord attached to the operator's wrist. This feature allows connection of a proprietary SCS magnetic dual-wire ground cord (sold separately) to two snap studs on the hip. A seam of carbon-suffused threads provides a secure and direct electrical connection from the snap studs on the hip to conductive elastic cuffs. The SCS Dual-Wire Static Control Smock grounds the operator when used in this manner. Dual-wire personnel grounding testers or continuous monitors can be used to verify the "hip-to-cuff" function.

The SCS Dual-Wire Static Control Smock is available in the following sizes:

Item	Color	Size	Chest	Sleeve
<a href="#">770100</a>	Blue	X-Small	30-32"	33-3/4"
<a href="#">770101</a>	Blue	Small	34-36"	34"
<a href="#">770102</a>	Blue	Medium	38-40"	34-3/8"
<a href="#">770103</a>	Blue	Large	42-44"	35"
<a href="#">770104</a>	Blue	X-Large	46-48"	35-1/2"
<a href="#">770105</a>	Blue	2X-Large	50-52"	35-1/2"
<a href="#">770106</a>	Blue	3X-Large	54-56"	37-1/2"
<a href="#">770107</a>	Blue	4X-Large	58-60"	36-1/2"
<a href="#">770108</a>	Blue	5X-Large	62-64"	36"
<a href="#">770109</a>	Blue	6X-Large	66-68"	36"

The magnetic dual-wire ground cord is not included with the SCS Dual-Wire Static Control Smock, and it must be purchased separately.

Item	Description
<a href="#">770110</a>	MagSnap® Dual-Wire Coil Cord, 6'
<a href="#">770111</a>	MagSnap® Dual-Wire Coil Cord, 12'



Figure 2. SCS [770110](#) MagSnap® Dual-Wire Coil Cord

## Installation

1. Put on the smock, and close the garment by fastening all of the snaps on the front. Verify that no clothing is exposed outside of the smock.



Figure 3. Proper wear of the Dual-Wire Static Control Smock

2. Fit the conductive knitted cuffs over the wrists. Ensure that the cuffs make contact with the skin. They should never be worn over the shirt sleeves.

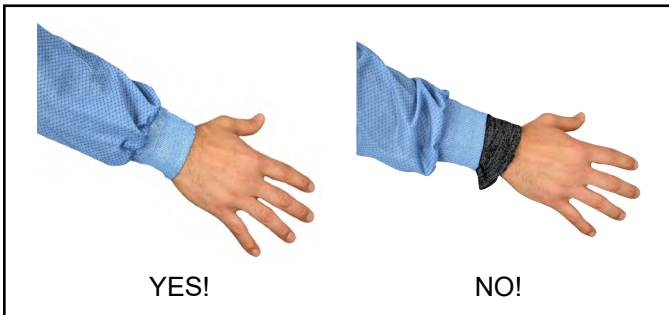


Figure 4. Proper wear of the conductive knitted cuff

## Operation

Use the following instructions to pair the SCS Dual-Wire Static Control Smock with an SCS dual-wire continuous monitor and use it as a Groundable Static Control Garment System.

1. Connect the MagSnap® Dual-Wire Coil Cord to the two snap studs located nearby the left-hand hip pocket.



Figure 5. Connecting the SCS MagSnap® Dual-Wire Coil Cord to the Dual-Wire Static Control Smock

2. Connect the opposite end of the MagSnap® Dual-Wire Coil Cord to a dual-wire continuous monitor.
3. The corresponding operator LED will illuminate solid green on the continuous monitor. This indicates that the operator is properly grounded.
4. If this does not happen, examine the wrist cord for continuity or damage and the smock's cuffs to ensure that they fit securely. If you have dry skin, apply an approved dissipative hand lotion such as [Menda Reztore® ESD Hand Lotion](#).

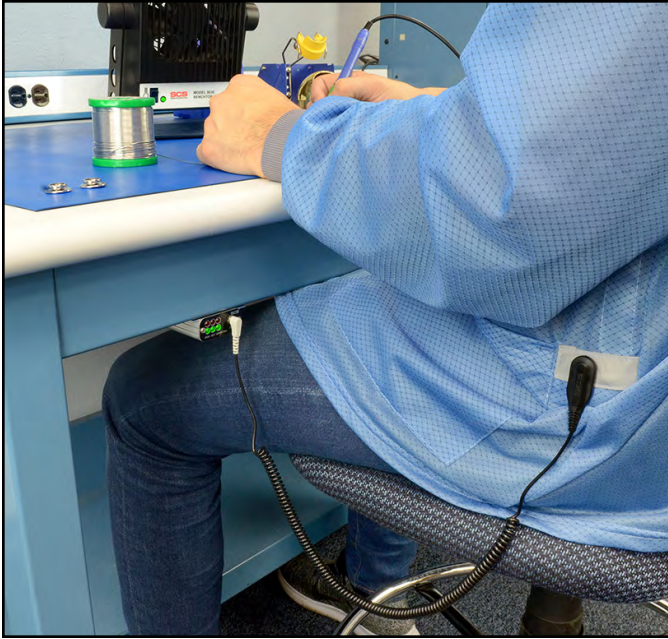


Figure 6. Using the Dual-Wire Static Control Smock with the SCS [CTC331-WW](#) Iron Man® Plus Workstation Monitor

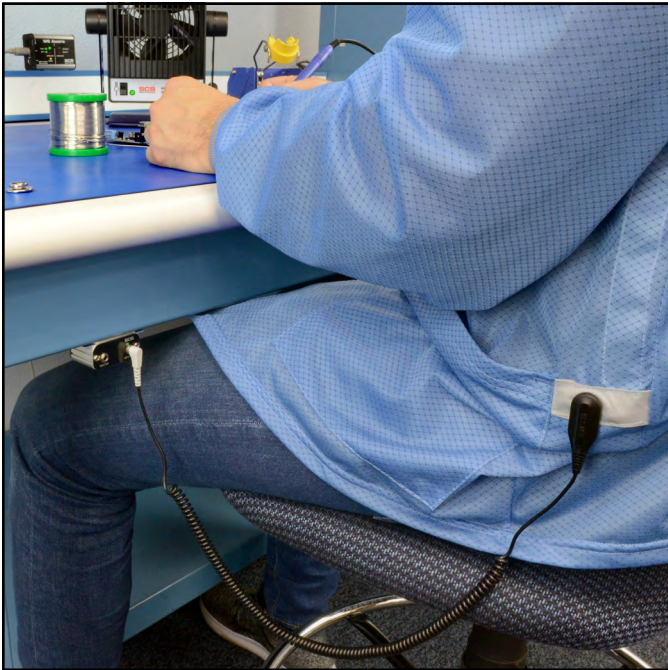


Figure 7. Using the Dual-Wire Static Control Smock with the SCS [770061](#) WS Aware Monitor

## Verification

Refer to ANSI/ESD STM2.1 for instructions on how to verify the SCS Dual-Wire Static Control Smock as a Static Control Garment, Groundable Static Control Garment and Groundable Static Control Garment System. SCS offers various meters, testers and continuous monitors that may be used to perform the tests outlined in ANSI/ESD STM2.1. Use the links below to learn more.

- SCS [701](#) Analog Surface Resistance Megohmmeter
- SCS [Personnel Grounding Tester Selection Guide](#)
- SCS [Workstation Monitor Selection Guide](#)
- SCS [Equipment Ground Monitor Selection Guide](#)

## Maintenance

Smocks must be laundered periodically for proper operation. Launder the smocks by hand or with a standard household washing machine using cold or warm water and non-ionic liquid detergent. SCS recommends using Woolite® Detergent. The smocks should be hung dry or tumbled dry using low heat.

### DO NOT USE:

- Hot water
- Dry detergent
- Bleach
- Fabric softener
- Industrial laundry machines

The carbon-suffused mono-filament nylon is sensitive to heat and should not be exposed to laundering heat in excess of 120°F. Under normal wearing and recommended washing conditions, SCS smocks will maintain their usefulness and effectiveness for a minimum of 100 washings. Other ESD smocks have as little as 1% suffused carbon and lose their ESD protective qualities after a few washings.

## Specifications

Fabric Weight*	2.2 oz per square yard
Fabric Content	Texturized polyester and a minimum of 9% carbon mono-filament nylon
Carbon Mono-Filament	Conductive at $1 \times 10^4$ ohms, non-flaking and non-sloughing
Surface Resistance	$1 \times 10^5$ to $< 1 \times 10^7$ ohms, per ANSI/ESD STM2.1 and ESD TR53 of Fabrics
Glass Transition Temperature	250°F
Flash Point	1040°F
Country of Origin	United States of America

*\*Fabric lots vary slightly in color and weight*

### Limited Warranty, Warranty Exclusions, Limit of Liability and RMA Request Instructions

See the SCS Warranty - [StaticControl.com/Limited-Warranty.aspx](http://StaticControl.com/Limited-Warranty.aspx)