



Made in the United States of America

Workstation Monitor Checker Installation, Operation and Maintenance



Figure 1. SCS CTE701 Workstation Monitor Checker

Description

The SCS CTE701 Workstation Monitor Checker verifies the proper operation of the SCS [WS Aware Workstation Monitor](#), SCS [Ground Master Equipment Ground Monitor](#), SCS [Iron Man Plus Workstation Monitor](#) and SCS [Ground Man Plus Ground Monitor](#). The Workstation Monitor Checker simulates resistance, impedance and voltage signals so that you can see whether the response of your monitors complies with your specifications. It meets the ANSI/ESD S20.20 requirements for compliance verification of continuous monitors.

The Workstation Monitor Checker presents certain loads and signals to the monitor that simulate specific parameters of ground connections and wrist straps.

The Workstation Monitor Checker is available in one model:

Item	Description
CTE701	Workstation Monitor Checker, with 9V Alkaline Battery

Packaging

- 1 Workstation Monitor Checker
- 1 9V Alkaline Battery
- 1 Ground Cable (banana to alligator clip)
- 1 3.5 mm Male to Male cable

Features and Components

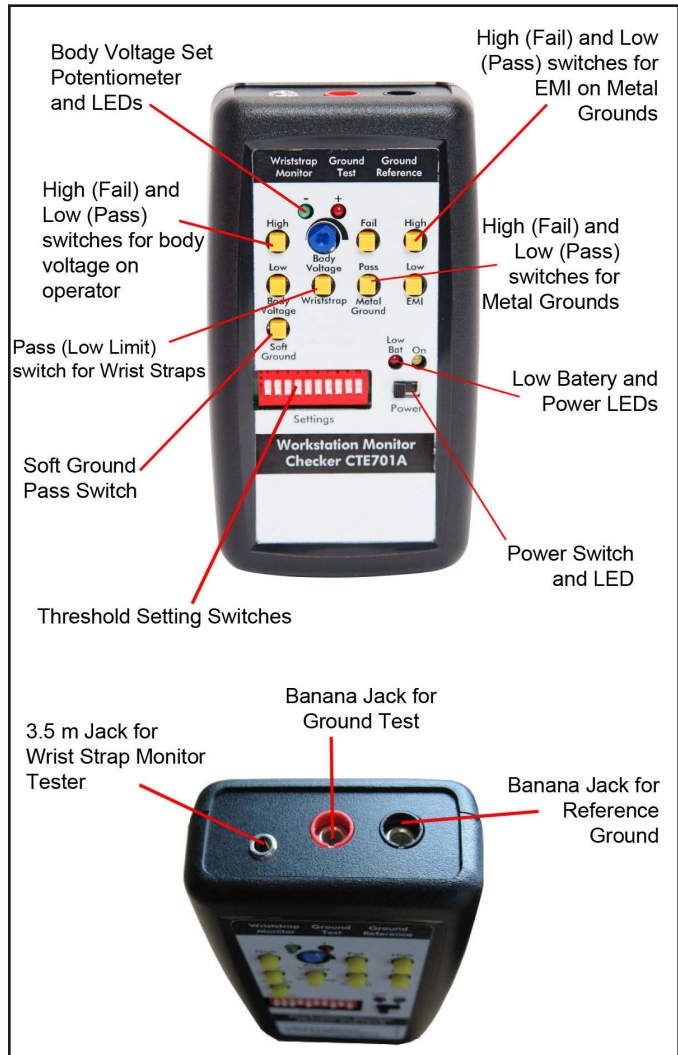


Figure 2. Workstation Monitor Checker features and components

The Workstation Monitor Checker uses a 9V alkaline battery. Make sure that a fresh battery is installed prior to performing any test. If you are not planning to use your Workstation Monitor Checker for a long time, please remove the battery from the device.

Basics

For all tests make sure that:

- Monitor under test is properly grounded and is operational.
- Disconnect all wires from the monitor under test that go to the monitored grounds. Leave ground connection of the monitor connected to a known good ground.

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- Connect banana end of the black grounding cable of the Workstation Monitor Checker into the Reference Ground jack of the Workstation Monitor Checker and the alligator clip end of this cable to a ground terminal of the monitor under test.
- Turn the Workstation Monitor Checker on.

Metal Ground

This test verifies proper operation of your monitor on metal ground monitoring as well as EMI detection.

Settings – Ground Resistance

Setup switches allow you to set the parameters in accordance with your specifications. Metal ground impedance setting is done using dip switches 5-8.

Resistance, Ohms	Switch Position			
	5	6	7	8
1	1	1	1	1
2	0	1	1	1
3	1	0	1	1
4	0	0	1	1
5	1	1	0	1
6	0	1	0	1
7	1	0	0	1
8	0	0	0	1
9	1	1	1	0
10	0	1	1	0
11	1	0	1	0
12	0	0	1	0
13	1	1	0	0
14	0	1	0	0
15	1	0	0	0
16	0	0	0	0

Pressing a “Fail” push-button switch will result in resistance that is 1 ohm higher than set above; pressing the “Pass” push-button switch will result in resistance that is 1 ohm lower. For example, if your factory is using 10 ohms as the specification for ground impedance, then the monitor set to 10 ohms should pass at 9 ohms and fail at 11 ohms.

EMI

The Workstation Monitor Checker provides high frequency signal to test EMI detection threshold. EMI level is set using dip switch 9. The Workstation Monitor Checker provides two different levels of high frequency signal – “elevated” and “normal.” In position 1 the EMI level is “elevated,” in position 0 the level is “normal.” Pressing “High” push button switch will result in high signal level within its range, pressing “Low” push button will result in low signal within its range.

Note: The internal EMI generator drive may be insufficient to drive extremely low load, such as 0 or 1 ohm.

Procedure – Metal Grounds

- Plug banana end of red cable of the Workstation Monitor Checker into the Ground Under Test jack of the Workstation Monitor Checker.
- Plug the thin tip of red cable into the ground terminal of your monitor. Make sure that the contact is good.
- Press the “Fail” button on the Workstation Monitor Checker. Ground monitor shall indicate failure (typically, red light on the monitor). A momentary “blink” of pass light on the monitor (typically green) when the button is pressed is acceptable.
- Press the “Pass” Metal Ground button on the Workstation Monitor Checker. Ground monitor shall indicate good ground (typically green light on the monitor).
- While keeping the “Pass” Metal Ground button pressed, simultaneously press EMI “High” button. On the Ground Master Equipment Ground Monitor you should see green light indicating good ground connection and blinking red light indicating presence of EMI. On the WS Aware Dual Workstation Monitor the ground light should be blinking yellow. Release “High” EMI button and press “Low” EMI button while keeping “Pass” Metal Ground button pressed. No EMI indication should be present on the monitor.

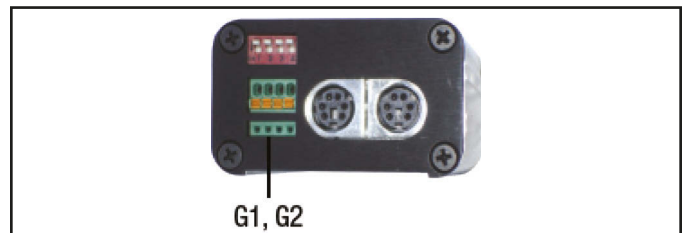


Figure 3. Metal ground contacts on the CTC061 WS Aware Monitor

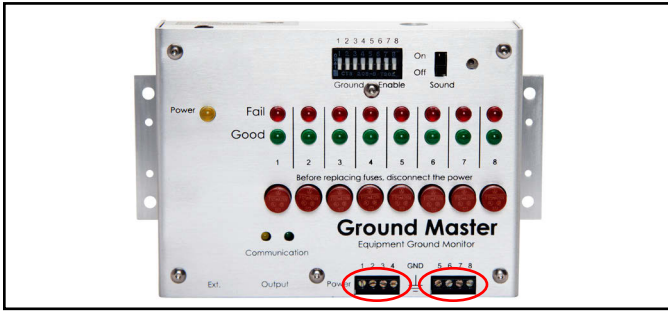


Figure 4. Metal ground contact on the CTC065 Ground Master Monitor. Do not use screw as contact point.

Dissipative (Soft) Grounds

This test verifies proper operation of soft (dissipative) ground monitoring such as of mats.

Setup – Ground Resistance

Setup switches to allow you to set the parameters in accordance with your specification. Dissipative ground resistance setting is done using switches 1-4.

	Switch Position			
Monitor Alarm Threshold	1	2	3	4
1000 megohms	0	0	0	1
400 megohms	0	0	1	1
100 megohms	0	1	1	1
10 megohms	1	1	1	1

All other switch positions are unused for this purpose. Pressing “Soft Ground” push-button switch will result in load with slightly lower resistance than the alarm threshold.

Procedure

When measuring dissipative grounds, there could be up to a 30 second delay before the alarm is triggered. This eliminates any false alarms due to temporary noise.

- Plug banana end of red cable of the Workstation Monitor Checker into the Ground Under Test jack of the Workstation Monitor Checker.
- Plug the thin tip of red cable into soft ground terminal of your monitor. Make sure that the contact is good.
- Ground monitor shall indicate failure (typically, red light on the monitor). A momentary “blink” of pass light on the monitor (typically green) when the button is pressed is acceptable.
- Press “Soft Ground” button on your Workstation Monitor Checker. Ground monitor shall indicate good ground (typically green light). Allow up to 30 seconds for alarm to trigger for some monitors.
- After release of “Soft Ground” button the ground monitor shall indicate failure. Allow up to 30 seconds for alarm to trigger for some monitors.

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Wrist Strap

The Workstation Monitor Checker verifies proper operation of dual conductor wrist strap monitors.

Setup

The Workstation Monitor Checker provides resistance of a certain value across the wrist strap terminal input in order to simulate a wrist strap. A good quality dual wrist strap has a 1 megohm resistor in each half. The Workstation Monitor Checker is designed to test cords with and without resistors. The default is set to no resistor. A dip switch will configure the Checker to be used with a 1 megohm resistor cord. (2 megohms resistance in series.)

Resistance (megohms) Switch Position 10

12	0
10	1

Procedure

- Connect 3.5 mm test cable to both the Workstation Monitor Checker and to the Operator jack of your monitor. At this point the monitor should indicate failure.
- Press the “Wrist strap” button. Your monitor LED will turn from red to green and your audible-alarm will turn off.

Body Voltage

For monitors capable of measuring body voltage, first set the body voltage threshold by pressing the Body Voltage button and turning the blue potentiometer while measuring the voltage to ground on the tip of the 3.5 mm plug. Red and green LEDs alternatively blink indicating either positive and negative voltage.

The voltage applied directly to the terminal of the monitor is 1/2 of the voltage on the operator due to 1 megohm resistors in the wrist strap. Set Body Voltage on the Workstation Monitor Checker slightly higher than your monitor. Monitors are calibrated to 2.5V body voltage. Press the Wrist strap and Body Voltage High buttons simultaneously and set your Workstation Monitor Checker to 1.35V which is slightly higher than 1/2 of 2.5V. Your Workstation Monitor Checker can be set up to 5V.

Procedure

- Connect 3.5 mm test cable to both the Workstation Monitor Checker CTE701A and to the Operator jack of your monitor.
- Press and keep pressed the “Wrist strap” button. Your monitor LED will turn from red to green and your audible-alarm will turn off.
- While keeping Pass button, press and keep pressed Body Voltage “High” button.
- Your monitor should provide indication of excessive body voltage in each polarity – positive and negative. When Body Voltage Low button is pressed, no Body Voltage indication should be present in the monitor.

Regulatory Information

e-Waste Disposal-Recycle according to applicable local, state and federal laws for electrical/electronic waste.

WEEE Statement

The following information is only for EU-member States: The mark shown to the right is in compliance with Waste Electrical and Electronic Equipment Directive 2002/96/EC (WEEE). The mark indicates the requirement NOT to dispose the equipment as unsorted municipal waste, but use the return and collection systems according to local law.

ICES Statement

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la NMB-003 du Canada.

FCC

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Note: Modifications to this device shall not be made without the written consent of SCS. Unauthorized modifications may void the authority granted under Federal Communication Rules and Industry Canada Rules permitting the operation of this device.

CE Statement

Meets CE (European Conformity) requirements.

Battery Disposal

Dispose of batteries in accordance with state and local requirements.