SmartLog X³ ™
Hardware Setup and Installation

Made in America

Figure 1. SmartLog X³™

Description

The Vermason SmartLog X³™ is designed for fast, frequent, and accurate testing of ESD personnel grounding items. By depressing the electrode button once, the SmartLog X³™ tests the resistance path limits of the worn wrist strap and both worn ESD footwear independently within three seconds. Test results are electronically stored in the SmartLog X³™ and can easily be downloaded to a PC for logging records and evaluation. This product can be used as one of the tools to meet the audit and daily checks requirements of EN 61340-5-1.

Paperless data can enhance operator accountability by immediately identifying problems while reducing logging and auditing costs. There is no need to dedicate a computer. The SmartLog X³™ is a complete system including all required components. Operator identification can be accomplished by using the keypad, swiping a barcode card, or waving a proximity card (verify compatibility with the factory).

The SmartLog X³™ can test either single or dual-wire wrist straps; the split footplate design allows for individual footwear testing all in one test. If a resistance path is below or exceeds the set limits, failure will be noted via an audio and visual LED alarm. Passing tests can enable a relay for automated door openers.

32 SmartLogs can be daisy-chained and connected to one computer, allowing data to be collected to one central computer for all SmartLogs. The SmartLog X³™ can also be networked to a company's Intranet with the optional 222728 Ethernet Adapter. The SmartLog X³™ is calibrated to NIST traceable standards.

The SmartLog X³™'s default Wrist Strap test range is 1M - 35M Ohms, and the default Footwear test range is 1M - 35M Ohms. The ranges can be easily adjusted.

SmartLog X³™ Team Basic Software

Use the powerful versatile SmartLog X³™ Team Basic Software to collect and analyze records.

1) Specify tests and shifts for each employee in database
2) Auto or manual polling of data to computer
3) Auto archive and network data posting
4) Allow data to be saved and stored automatically
5) Data retrieval at selectable time intervals
6) Allow easy data analysis

See Technical Bulletin TB-7501 for more information.

ESD Standard EN 61340-5

"Wrist straps shall be checked before use. Each check shall be made with the wrist band worn in contact with the wearer's skin and with the ground cord attached to the appropriate tester." (EN 61340 5 1 paragraph 9.6 Daily checks, paragraph 9.6.2 Wrist strap)

"Where toe and heel straps are used as ESID footwear, once these are worn outside the EPA [ESD protected area], particularly on carpets, they are likely to accumulate fluff and become ineffective; this requires that they be checked or replaced on every visit to the EPA. …When ESD footwear is used, it should be noted that ESD footwear alone cannot achieve protection, but needs to be used in conjunction with a suitable ESID floor." (EN 61340-5-2 Paragraph 5.2.8 Footwear)

"All wearers shall check that their heel and toe straps meet requirements [of Table 1 NOTE 2 – 'When the footwear/floor systems are used as the primary means of grounding personnel, the resistance of the combination shall be determined by the ESD co-ordinator, and is recommended to be between 7.5 x 10E5 ohms and 3.5 x 10E7 ohms']. The check shall be made before entering the EPA." (EN 61340 5-1 Daily checks, paragraph 9.6.3 Non-permanent footwear)

Carefully unpack the Vermason SmartLog X³™. The SmartLog X³™ comes ready to install without any changes to the clock's configuration.

If multiple SmartLogs are to be installed in a daisy-chain configuration, refer to page 4 for instructions.

Please see the following technical bulletins for more information on the SmartLog X³™.

Number	Description
TB-7535	SmartLog X³™ Wrist Strap and Footwear Tester
TB-7502	Ethernet Adapter
TB-7501	SmartLog X³™ TEAM Basic Software

The Vermason SmartLog X³™ is available in two models:

Item	Description
222720	SmartLog X³™ 220V CE, Software Included
222721	SmartLog X³™ 220V CE, Hardware Only

Note: **SmartLog X³™ is not designed to work in high humidity environments above 70 RH%.**

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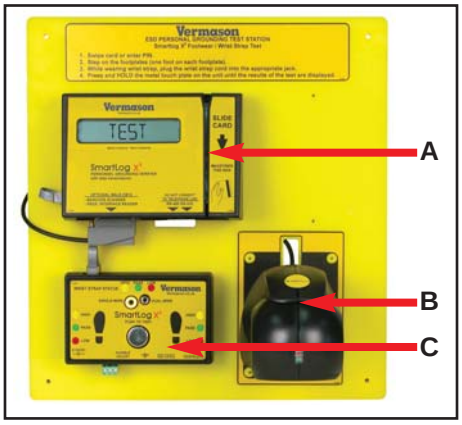

Figure 2. SmartLog X³™ features and components

Features and Components (See Figure 2)

A. Magstripe Reader: Reads Track 2 Magstripe.

B. Laser Barcode Scanner: Can decode Code 39 (3 of 9) and Code 128 barcode.

C. SmartLog X³™ Wirst Strap / Footwear Tester: Default wrist strap test range is 1M - 35M Ohms. The default footwear test range is 1M - 35M Ohms. The default test ranges may be changed to suit personal ground device testing. See Technical Bulletin TB-7535 for instructions.

Packaging

1 SmartLog X³™, SmartLog X³™ Wrist Strap / Footwear Tester, and Laser Barcode Scanner on mounting plate
1 Dual Foot Plate
1 Stereo Cable for Dual Foot Plate
1 TEAM Basic Software Version 4.99 (222720 only)
1 DB9 Serial Adapter
1 7.6m RS-232 Non-inverted Data Cable
4 Mounting Anchors
4 Mounting Screws
1 Banana-to-Ring Terminal Cable
1 Shunt / Jumper
2 Ferrite Beads

Configuring the Clock, Mounting the Unit, and Cable Connections

A. Clock's Baud Rate, ID, Parity, Daylight Option and Port Expand (See Figure 3)

1. Plug the power supply into the unit and then to the appropriate AC source. Refer to Figure 3 to locate the power input jack. The SmartLog X³™ will cycle through a self diagnostic program. The time and date will appear on the screen when the diagnostics is complete. Do not continue until this step has been completed.

NOTE: If any of the below settings are not correct, procedure to step 2 and press the Advance button until the correct value appears on the display.

Power Requirement: It is highly recommended that these units are installed on power lines separate from other devices. The clock should not be installed on the same power line with devices containing electric motors. These units have a built-in self-healing fuse and surge, spike, and noise protection. The clock should be powered on a dedicated electrical circuit. If you are located in an area where there are frequent electrical storms, power surges, blackouts, or other similar problems, we strongly recommend that the unit be placed on a surge protector.

2. After the self diagnosis press the MENU button six times. (If you do not press the Menu button within 20 seconds the clock will exit out of the set-up menu and will need to be reset by disconnecting then reconnecting the power supply.) Refer to Figure 3 for button locations.

3. Baud Rate should be set at 9600 (factory default). Press Enter for the next screen.

4. Parity should be set for ODD (factory default). Press Enter for next screen.

5. The **SmartLog X³™ ID** is a 2 digit field with valid I.D. numbers 00 through 63. Each SmartLog X³™ should have a different I.D. number if they are connected to the same communication line. The SmartLog X³™ should be numbered sequentially starting with 00, so that automatic polling in the software will not be interrupted.

6. The **Daylight Option** is enables daylight savings in the clock.

7. Port Expand should be set to YES (factory default).

8. Press Enter button once more to cycle to the next setting before hitting the Menu button to exit.

NOTE: The setting will not change if you do not cycle to the next setting (by hitting the Enter button).

B. Terminator Jumper, RS-485 Switch, RS-232 Switch and Relay Terminal

1. The **Terminator Jumper** should be applied only when the clocks are in a daisy-chain. It only needs to be applied to the first and last SmartLog X³™ in the daisy-chain. A stand-alone SmartLog X³™ does not need the jumper.

2. The **RS-485** is set default on SLAVE position (right side) and does not need to be switched unless the unit is in a daisy-chain. For units in a daisy-chain, set the RS-485 of the first SmartLog X³™ to MASTER (left position).

3. The **Relay Terminal** connections can be made on the back of the SmartLog X³™ (See Figure 3). They can be used to control doors, gates, etc. The relay terminal is limited to a maximum of 5A 250 VAC / 30 VDC and 10A 125 VAC.

4. The **RS-232 Interface** is described by the Electronic Industries Association (EIA) as EIA-232 or RS-232. Special consideration should be used when installing the communications cable. Keep a 3 feet separation distance from any EMF source (power wires, fluorescent lights, etc.) The cable length shall not exceed 50 feet from PC to unit. The Vermason 222728 Ethernet Adapter should be used if distance requirements exceed 50 feet.

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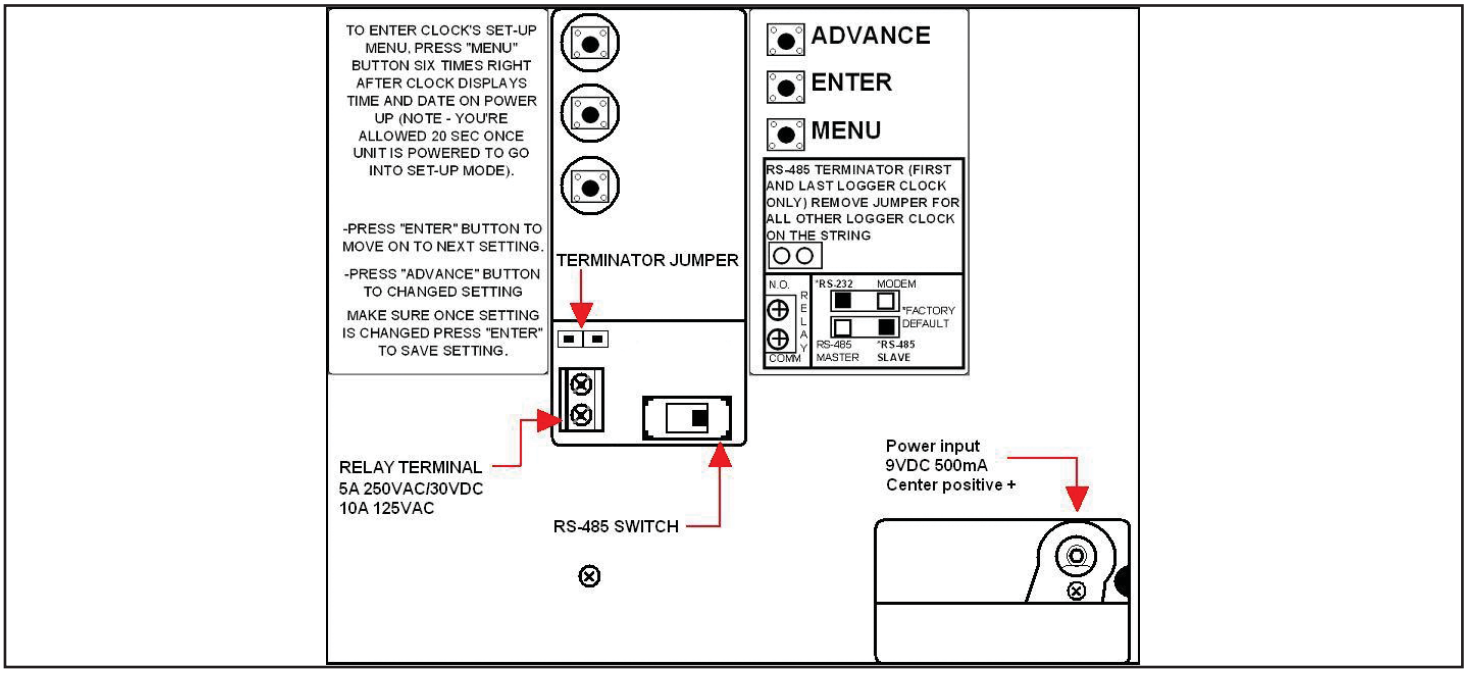

Figure 3. Back-side of SmartLog X³™ plate

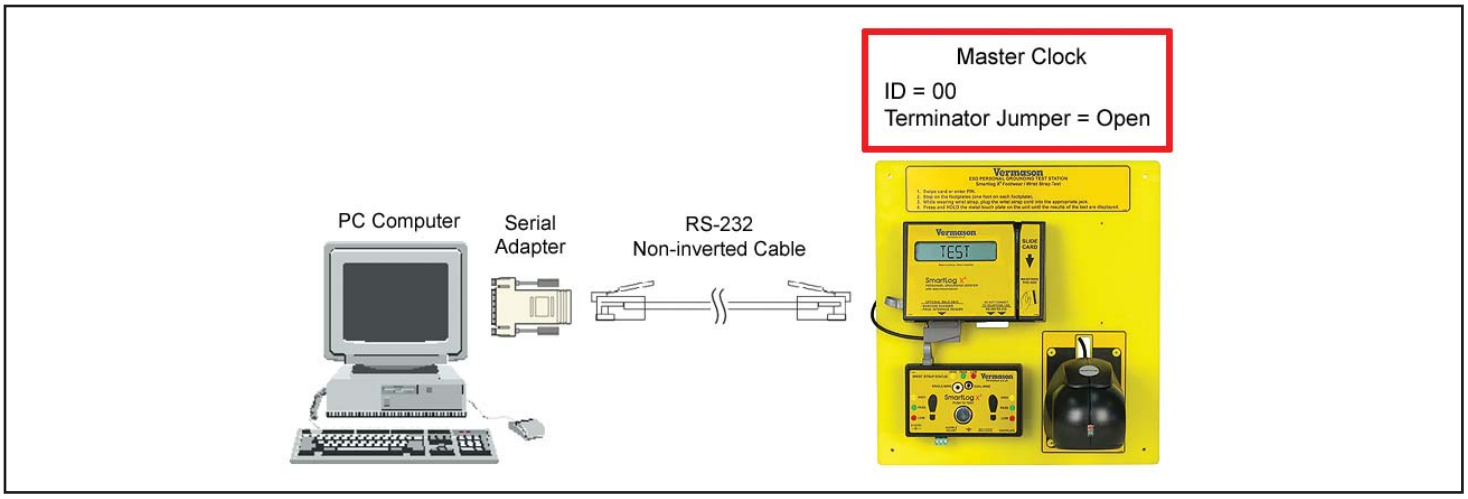

Figure 4. Connecting one SmartLog X³™

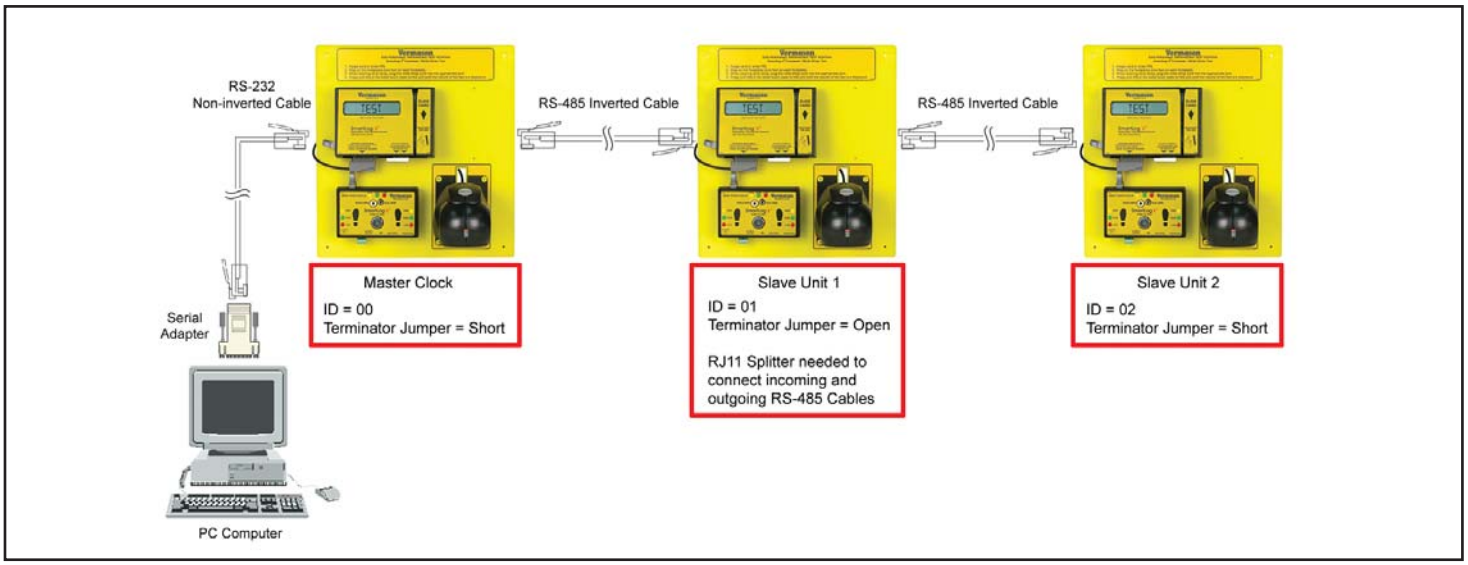

Figure 5. Connecting more than one SmartLog X³™

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C. Connecting the SmartLog X3™

NOTE: Both the SmartLog X3™ and computer should be turned off during the following procedures.

Connecting One SmartLog X3™ (See Figure 4)

1. Connect the Serial Adapter to the desired PC computer.
2. Connect one end of the provided RS-232 Non-inverted Data Cable to the Serial Adapter.
3. Connect the other end of the RS-232 Non-inverted Data Cable to port labeled "RS-232" on the SmartLog X3™.

NOTE: Ensure that the SmartLog X3™ ID is set to 00 and its Terminator Jumper is left open.

Connecting More Than One SmartLog X3™ (See Figure 5)

The following procedure provides an example on connecting 3 SmartLogs

1. Connect the Serial Adapter to the desired PC computer.
2. Connect one end of the provided RS-232 Non-inverted Data Cable to the Serial Adapter.
3. Connect the other end of the RS-232 Non-inverted Data Cable to clock port labeled "RS-232" on the SmartLog X3™.
4. Apply a shunt across the 2 pin terminator jumper of the first SmartLog and set its ID to 00.
5. Connect one end of a RS-485 Inverted Data Cable to the clock port labeled "RS-485" on the first SmartLog X3™.
6. Connect the other end of the RS-485 Inverted Data Cable to the clock port labeled "RS-485" on the second SmartLog X3™.
7. Leave the terminator jumper of the second SmartLog X3™ open and set its ID to 01.
8. Connect one end of another RS-485 Inverted Data Cable to the clock port labeled "RS-485" on the second SmartLog X3™.
9. Connect the other end of the same RS-485 Inverted Data Cable to the clock port labeled "RS-485" on the third SmartLog X3™. (See **NOTE**)
10. Apply a shunt across the 2 pin terminator jumper of the third SmartLog X3™ and set its ID to 02. (A jumper is only needed on the first and last units of the daisy-chain)

NOTE: An RJ11 splitter will be needed for connecting more than two units to a daisy-chain. The RJ11 splitter attaches to the RS-485 clock port.

D. Mounting the SmartLog X3™

Use the provided anchors and screws to mount the entire SmartLog X3™ plate. Be sure to place the SmartLog X3™ at a height where all operators can clearly see the display and perform the necessary tests.

When the hardware installation has been completed, refer to TB-7501 for TEAM Basic Software installation. TB-7501 will take you through the necessary steps to begin using your new SmartLog X3™.

Troubleshooting

Problem: The host computer is not recognizing the SmartLog X3™.

a. Verify that the cable from the computer to the SmartLog X3™ is properly connected. The cable should be flat non-inverted (See Figure 4).

b. Verify that the communication setup on the clock is 9600 baud rate, parity ODD. Refer to the instructions on back of SmartLog X3™ plate to enter configuration mode.

c. If there are more than 2 units, verify that their IDs are unique by entering the SmartLog X3™ configuration mode.

d. Contact your local IT department to verify that the computer's comport is working properly.

e. Make sure that the SmartLog X3™ LED's are blinking during data transmission. If they are not blinking or remain on all the time, please contact Vermason technical support at 0044 (0) 1462 672005 for further support.

Limited Warranty

Vermason expressly warrants that for a period of one (1) year from the date of purchase, Vermason SmartLogs will be free of defects in material (parts) and workmanship (labour). Within the warranty period, a unit will be tested, repaired or replaced at Vermason's option, free of charge. Call Customer Service at 0044 (0) 1462 672005 for a Return Material Authorisation (RMA) and for proper shipping instructions and address. Any unit under warranty should be shipped prepaid to the Vermason factory. You should include a copy of your original packing slip, invoice, or other proof of purchase date. Warranty repairs will take approximately two weeks.

If your unit is out of warranty, Vermason will quote repair charges necessary to bring your unit to factory standards. Call Customer Service at 0044 (0) 1462 672005 for a Return Material Authorisation (RMA) and proper shipping instructions and address.

Warranty Exclusions

THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

Limit of Liability

In no event will Vermason or any seller be responsible or liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.

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