



Smart Telematics Recorder



User/Installation Manual

Model: CV90-JE305

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1 REVISION HISTORY

Date	Revision	Description	Created By
12/2/2022	1	Initial Draft	Ben Corpuz

2 TERMS & ABBREVIATIONS

Term	Description
DMM	Digital Multi-Meter
TD	Solera's Smart Telematics Recorder
OBD	On Board Diagnostics
ECU	Engine Control Unit
DLC	Diagnostic Link Connector
J-Bus	J1939/J1708 Data Bus

3 SCOPE OF DOCUMENT

This document describes how to install Solera's Smart Telematics Recorder Device (STR). This document is to be used by personnel that are assigned by Solera to install the STR in commercial vehicles.

4 STR DESCRIPTION

STR is a Smart Telematics Recorder for use in Commercial Vehicles.

It collects vehicle data via the ECU connection to the vehicle and other data wire connections.





STR includes a Wiring Harness that contains an ECU connection and other data wires. The Wiring Harness is connected to the Main I/O port, in back of the STR device.

STR is mounted to the dashboard of a vehicle (typically the passenger side) and includes a mounting bracket.



5 COMPONENTS

The Smart Telematics Recorder consists of the following components:

	Smart Telematics Recorder		Expansion Trigger Cable (optional)
	Wiring Harness (specific to the vehicle and ECU connector type)		Analog Camera Cable (optional)

Note: Cables will vary depending upon the type of installation performed

6 TOOLS REQUIRED

To install the Smart Telematics Recorder, you will need the following tools:

Solera Stock

- M4 Proprietary wrench
- Rubbing alcohol swabs
- Solera proprietary zip ties

Van Stock Supplies

- Zip ties (various lengths, 8" and 12" are the most common)
- 3m 33+ Electrical Tape
- #8 ½ inch Phillips Pan Head self-tapping Screws
- Star Washers
- Flat Spade, Fork, and Ring, #8 - #10 connectors for 16-gauge wire
- ¼ inch split loom

Power Tools

- Digital Multimeter
- Cordless drill and charger with multiple batteries
- Head lamp or flashlight

Hand Tools

- Quality wire crimping tool (Snap-on, Mac, Craftsman, Klein)
- Wire stripper/Ratchet stripper multi-gauge (Snap On, Mac, Craftsman, Klein)
- Flush cutting snips
- Proprietary Solera M4 security wrenches
- Phillips/Torx/Allen and flat head bits or drivers
- Panel puller tool
- Various pliers
- Combination wrench set
- Razor knife (utility knife)
- Skew-driver - right angle drill attachment
- Assorted sockets - 1/4 inch and 3/8 inch deep well and standard socket sets (SAE and Metric)
- Tape measure
- Wisk broom
- Windshield scraper
- 1 inch plastic putty knife
- Fish tape
- Small pocket level

7 STR INSTALLATION

7.1 Smart Telematics Recorder (STR) Installation Location

The STR includes a mounting bracket and is typically mounted on top of the passenger dashboard. Consider these points when determining the best location for the STR placement:

- Federal and/or state DOT regulations must be followed when choosing a proper mounting location for the STR.
- The STR should be mounted in a secure location on top of the dash with the top ventilation holes unobstructed to allow for heat dissipation.
- The STR should not obstruct the driver's view of the road.
- If you are unable to mount the STR on top of the passenger dashboard, you may mount it in an approved location by the customer.

7.2 STR Installation Procedure

1. Remove the mounting plate from the Smart Telematics Recorder.
2. Secure the mounting plate to the top of the dashboard, using the included velcro strips, or screwed down using the screw holes, or both.



3. Remove the cable protector screw from the back of the Smart Telematics Recorder.



4. Plug in the Wiring Harness into the Main I/O port, in back of the STR. If a DBC2 device is also being installed, plug in the DBC2 Cable into the ETH port. If applicable, plug in the Expansion Trigger Cable and Analog Camera cable, as well.
5. Install the Cable Protector cover and screw. Then tighten the screw to secure the cables in place.
6. Install the STR onto the mounting plate.
7. Route the cables securely around and into the dashboard to connect to the Diagnostic Link Connector of the vehicle.



8 VEHICLE DIAGNOSTIC LINK CONNECTOR (DLC) TYPES

Vehicle cable connections can only be made on qualified vehicles. Please check with Solera Program Managers to verify that the vehicle is on the qualified vehicle list. The vehicle type will dictate the type of installation performed. The installation will require that one of the following connections be used:

6 pin or 9 pin (J-Bus) Connection

If the installation requires a J-Bus plug connection:

1. Insert the Wiring Harness connector into the Smart Telematics Recorder.
2. Connect the Solera 6 or 9-pin male connector to the vehicle's 6 or 9-pin connector respectively.
In most common heavy-duty vehicles, the factory J-Bus port is located on the driver's side kick panel next to the driver's left foot



3. The Solera female replicator port replaces the vehicle's 6 or 9-pin OBD connector.



OBDDII Connection

Perform the following steps when an installation requires an OBDDII connection:

1. Insert the Wiring Harness connector into the Smart Telematics Recorder.
2. Detach the vehicle's factory OBDDII connector.



3. Connect the vehicle OBDDII connector to the mating Solera OBDDII connector





4. Secure a Solera zip tie around the base of the cable and two zip ties over the top of the connector. Cut any excess material from the zip ties.



5. Connect the female replicator port to the original location of the OBDII connection.

Hardwire Connection

Perform the following steps when an installation requires a Hardwire connection:

1. Insert the Wiring Harness connector into the Smart Telematics Recorder.
2. **Constant Un-Interrupted Power:** *Solera Wiring Harness RED wire*
 - The red wire (5 amp fused constant power lead) is connected to a constant power source
 - Locate the constant 12v or 24v DC (depending on the system voltage) power source
 - Connect the red wire (5 amp fused constant lead power) to an uninterrupted constant power source
 - Test for constant 12v or 24v DC with the ignition ON/ OFF and while the starter is cranking - cranking -- the wire will have power all the time regardless of the key position
 - Location could be Key Cylinder, power distribution center, under the hood, or to the batteries

Locations:

- a. Power distribution center / Fuse panel
- b. Vehicle Battery
- c. Key Cylinder



Methods of power connections

- Bus bar or screw connections
- Poke and wrap method

3. Testing Uninterrupted Constant Power

The power wire is the constant [12V/24V (+)] wire and must be connected to a circuit that always has power regardless of the key position.

You can check this with a meter by connecting your black lead to Chassis Ground and the red lead to what you believe to be constant 12 volts. It will not lose current in the start or run key position.

4. True Ignition wire connection: *Solera Wiring Harness Orange wire*

The True Ignition wire (Orange) is connected to a true ignition source. A true ignition source is a circuit that is energized during the starter cranking process.

Get approval from the authorized onsite mechanic or vehicle manufacturer for acceptable wire connections.

1. Use a Digital Multi Meter (DMM) to find the switched power source. With the ignition OFF, you should read 0v DC. Turn the ignition ON and you should read 12v or 24v DC (depending on the system voltage).
2. Turn the key to the run position and verify that this is a true ignition source (not accessory) by making sure the voltage does not zero out during the starter cranking process.
3. Switch the ignition OFF and check for no residual voltage.
4. Connect the ignition wire to the true ignition power source only using approve connection methods

5. How to locate True Ignition with a Digital Multi Meter (DMM):

1. With the vehicle off your meter will show zero volts
2. With the key in the Run position your meter will show 11 to 14 volts
3. With the vehicles starter cranking your meter will show 9 to 11 volts
4. With the vehicle running your meter will show 12 to 24 volts

6. Testing True Ignition

Test an ignition wire by completing the following steps:

1. Set your multi-meter to VDC
2. Connect the black lead to chassis ground (-)
3. Connect the red lead to the ignition wire
 - i. It should show 0 volts while the key is Off
4. Cycle the key through the Run and Start positions
 - i. The multi-meter should show 12 or 24 volts in both positions
5. Crank and run the vehicle while watching the multi-meter
 - i. Voltage should never drop below 7 volts during cranking
6. If the multi-meter is displaying power while cranking, you've found a TRUE Ignition source. If it does not pass all 3 readings, select a different wire and start over.
7. Switch the ignition OFF and check for no residual voltage

7. Chassis Ground: *Solera Wiring Harness* **BLACK** wire

The ground connection is very important for reliable operation of the STR, therefore we recommend that you avoid grounding to the dash and avoid support brackets, under dash brackets, glued unibody panels, and isolated chassis components.

Check to see that the black wire is grounded to a:

- Ground terminal
- Metal part of the vehicle's body

Paint should be scraped prior making the connection. Use a star washer to make a solid connection and check the crimp on the ring terminal.

There are three ways to connect Chassis Ground

- Terminal Ring to chassis
- Connection to a power distribution/fuse panel
- Connection to a battery

9 WARNINGS & STATEMENTS

The intended environmental conditions of the Smart Telematics Recorder (STR) is from -30C to 70C ambient temperature.

This device complies with FCC Part 15 and Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate

the equipment.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment in order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation

Declaration sur l'exposition aux rayonnements RF : tout autre appareil doit être installé pour fournir une distance de séparation d'au moins 20 cm de toutes les personnes et ne doit pas être colocalisé ou fonctionner conjointement avec une autre antenne ou un autre émetteur.

- a. The device shall automatically discontinue transmission in cases of absence of information to transmit, or operational failure.
- b. Devices contain security features to protect against modification of software by unauthorized parties the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the

potential for harmful interference to co-channel mobile satellite systems; for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e. i.r.p. limit:



for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the eirp. limits as appropriate; and where applicable, antenna type(s), antenna models(s), and worst-case tilt angle(s) necessary to remain compliant with the eirp. elevation mask requirement set forth in section 6.2.2.3 shall be clearly indicated. ISED RF Radiation Exposure Statement.

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. To comply with ISED RF exposure compliance requirements, this grant applies to only Mobile Configurations. The antennas used for the transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Les changements ou modifications non expressément approuvés par la partie responsable de la conformité pourraient annuler l'autorité de l'utilisateur à utiliser cet équipement.

10 ADVERTENCIAS Y DECLARACIONES

Las condiciones ambientales previstas de Smart Telematics Recorder (STR) son de -30C to 70C de temperatura ambientales.

Este dispositivo cumple con la Parte 15 de la FCC y los estándares RSS exentos de licencia de Industry Canada. El funcionamiento está sujeto a las dos condiciones siguientes: (1) este dispositivo no puede causar interferencia, y (2) este dispositivo debe aceptar cualquier interferencia, incluida la interferencia que pueda causar un funcionamiento no deseado del dispositivo.

Los cambios o modificaciones no aprobados expresamente por la parte responsable del cumplimiento podrían anular la autoridad del usuario para operar el equipo.

Por la presente, Solera Inc declara que este dispositivo cumple con los requisitos esenciales y otras disposiciones relevantes de la Directiva 2014/53 / CE.

