Sensata IN

CRXS

8-channel AHD mobile
digital video recorder

Installation guide

Model: CRX3108 | Version 1.1.1 | Last updated 2/16/2023

Table of contents

Please read this entire guide before installation and use.

CRXS
Installation guide

Package contents

CRXS digital video recorder (DVR)

GPS antenna module	**SSD and decal pack (removable case)**	**L brackets and rear cable cover**	**Screws**
Keys for internal lock (Turns on device and locks SSD case in the CRXS unit)	**Keys for external lock** (Locks main unit's front cover)	**Camera cable harness (x2) connects 4 cameras each. 4-pin aviation connector.**	**Alarm I/O trigger harness and A/V output for connecting an LCD monitor**
Power cable 400mm	**Car signal input cable: left, right, brake, speed (VSS). Analog input only.** (Optional use)	**External LTE modem + antenna** (Optional accessory)	**External Wi-Fi/LTE modem case** (Optional accessory)
Wire splice clip and velcro sticker	**BB900 backup power device**		

Overview

The Sensata INSIGHTS CRXS is a super HD-capable, in-vehicle CCTV that offers high-definition recording for up to 8 camera channels. The CRXS provides fleet operators with an effective way to monitor and manage their remote assets while in the field. In the event of an incident and/or allegation, the CRXS HD mobile will aid in the investigation process while reducing potential cost and exposure. In-vehicle CCTV delivers actual video footage in the event of a claim, encourages safer, more fuel-efficient driving, monitors driving behaviors and enhances the overall safety and security for the driver, the fleet operator and other road users.

The solution includes a built-in 3-axis G-sensor, GPS, 8 alarm input triggers, flexible and powerful storage using a solid-state drive (SSD) and SD card backup storage. The CRXS is slim and compact, only 7" x 7" x 2", and is connected directly to the vehicle's battery power and ignition for fully automated operation. Optionally, connect a dashboard-mounted LCD display to provide the driver with a real-time 360º view of the interior and exterior of the vehicle.

WARNING:

Sensata INSIGHTS installations should be performed by a qualified individual or installation professional only. Working with a vehicle's power system can be dangerous to both you and your vehicle. This installation is intended only to be a guide since vehicle designs and power/input sources can vary significantly from vehicle to vehicle.
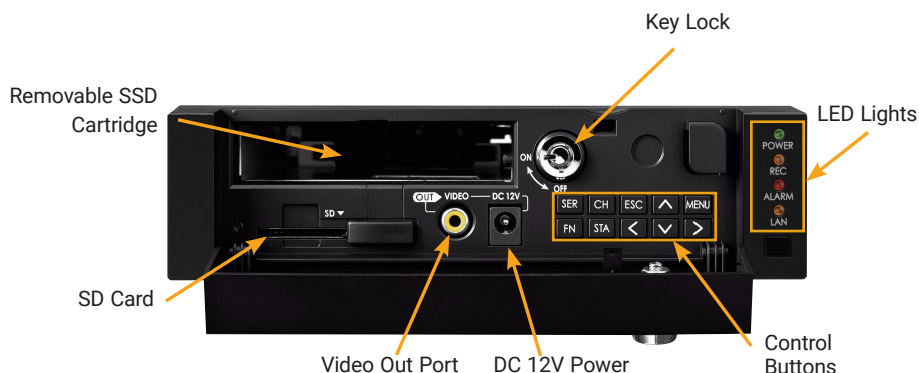
If you need to schedule a professional installation service in the USA for your Sensata INSIGHTS device(s), please visit https://sensatainsights.com/contact/request-installation/ and submit the online form.

All cellular-enabled CRXS devices must use the installation wizard for proper onboarding and activation. Please visit SmartOPS to register, log in and use the install wizard.
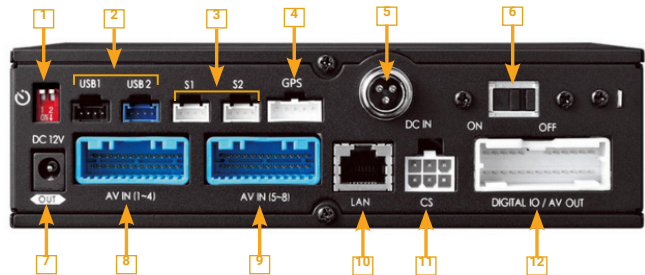
Hardware overview

Front view

Key Lock

Removable SSD Cartridge

LED Lights

SD Card

Video Out Port   DC 12V Power

Control Buttons

1. **Power ON delay dip switch**

2. **USB connector**
   USB 1: Optional serial connector accessory

   USB 2 (blue connector): Connect USB dongle (3G, LTE, Wi-Fi)

3. **Serial ports**
   Port 1: Connect external device usually used for system maintenance.

   Port 2: Connect external device usually used to connect EMS alert unit.

4. **GPS connector**
   Connect external device usually allotted for external GPS.

5. **Power connector**
   Use the included power cable bundle for this connection. The battery cable connects to the battery power (BAT+), and the ACC cable connects to the ignition (IGN+). The black wire connects to ground (BAT-).

6. **Main power switch**

7. **Power output**
   (Output voltage: DC 12V, 1A)

8. **AV in (1~4) connector**
   Cameras 1~4: Video, audio and 12V power supply

9. **AV in (5~8) connector**
   Cameras 5~8: Video, audio and 12V power supply

10. **Ethernet connector**
    Supports network connection

11. **Car Signal connector**
    Use the car signal cable bundle for this connection. Connect the appropriate car signals to the labeled cables.

12. **Digital IO / AV out connector**
    Digital input 1: Allotted for RPM signal

    Digital input 2~8: Connects to other signal inputs such as panic switch, horn, door open and close, etc.

    Digital output 1~2

    Audio/video out

Rear view

Hardware overview

Side view with mounting brackets

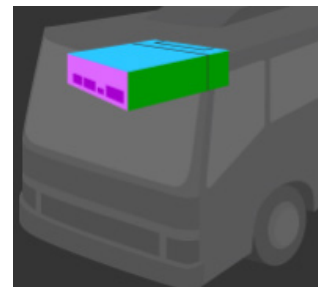## Rear view with secure cover

How to install your CRXS

1. Park the vehicle on a flat surface. Turn off the engine before installing the CRXS.

2. Insert the provided SD card into the SD card memory slot, and lock the SD card by sliding the SD locking switch.

3. Insert the CRXS into the locking case. If there isn't a locking case, use the provided adhesive.

> **NOTE:**
> Please make sure the surface is clean before applying. The adhesive will not stick well with dust or oil, etc.

4. Find an installation location for the device and its locking case.

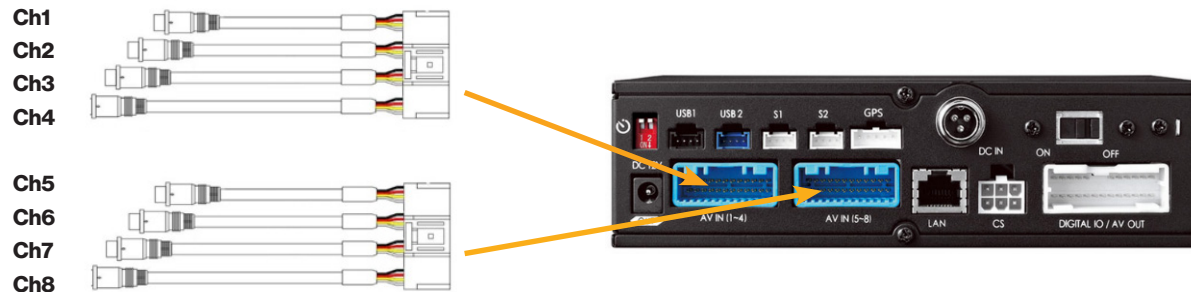5. The default access adjustments by device position are set as shown to the right.

(Purple = rear panel, Blue = top panel)

6. Before mounting the device, confirm with the customer their desired installation method and placement. Install all the interior and exterior cameras with 3M dual-sided adhesive or hard mounting screws.

7. All the cameras will be connected to the CRXS recorder via the **Camera Input Cable**.

How to install your CRXS

8. Run the camera cable(s) and secure in headliner and/or other area so no cables are exposed. Use provided wire clips if necessary.

9. Connect all cables to the CRXS recorder. Secure the windshield-mounted camera cables into the headliner and down the A-pillar.

10. Route the GPS cable up the side panel and on the dashboard, in view of the windshield (so it can have a view of the sky to acquire GPS signal).
    · Activate the product in an area without large buildings to improve GPS reception.
    · The temperature ranges for optimum operation of the GPS receiver in your vehicle is -10~50°C.

How to install your CRXS

GPS reception may be impaired under the following circumstances

1	If there is an object at the end of the GPS antenna
2	If the vehicle has metallic elements on the windshields
3	If equipment generating electromagnetic waves that interfere with the GPS signal is installed in the vehicle, e.g., other GPS devices such as certain types of wireless activated alarms, MP3/CD players and camera alarms using GPS
4	If you are using a receiver connected by cable, electric interference can be avoided by simply changing the location of the receiver (antenna)
5	On heavily overcast or cloudy days or if vehicle is in a covered location such as under a bridge or raised roadway, in a tunnel, underground roadway or parking area, inside a building or surrounded by high-rise buildings
6	If GPS signal reception is poor, it may take longer to locate your current position when the vehicle is moving than when it is stationary

CRXS GPS and LTE antenna properly installed on the vehicle dash

DO NOT ATTACH THE LTE ANTENNA ONTO A METAL SURFACE.
(Provide a minimum of 5 inches of separation between the antennas.)
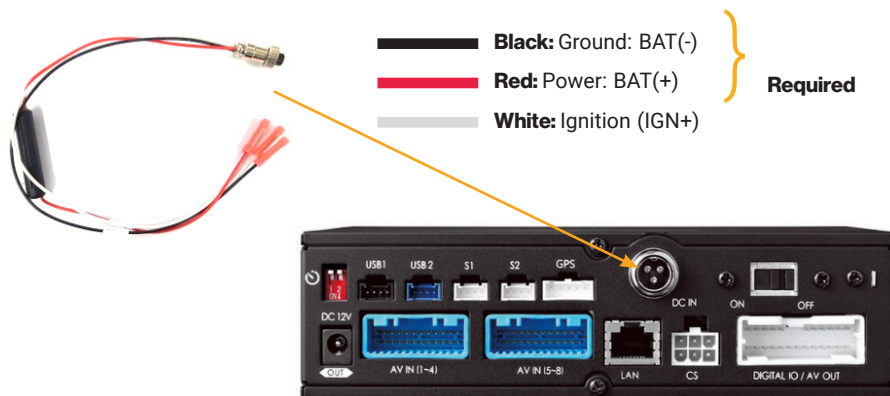
Accessory camera types

The CRXS has various accessory camera models available which should be installed in the appropriate location. A reference guide for the common camera models is below.

Model	Image	Installation location	Notes
SVA055-AM		Road + driver-facing dual camera	Road-facing camera is 1080p. Driver-facing camera is 720p. Driver camera has IR LEDs.
SVA027-A		Weatherproof side-mount camera	720p weatherproof camera, IR LEDs
SVA037-A		Rear view camera	720p weatherproof camera, IR LEDs
SVA050-A		Driver-facing camera	720p, IR LEDs
SVA035-A		Outside of vehicle, either side mount or rear backup view	IP69 weatherproof. Camera module can rotate 360° and tilt up and down as needed.
SVA041-AM		Road-facing camera	1080p

Power cable and wiring

Power connection

1. Lay out the power cable roughly where it will run once hidden behind the vehicle's interior panels. This gives you an idea of where to route the cable and how much slack to leave on the way down to the vehicle's power source.

2. Secure the power cable extension into the headliner and down the A-pillar.

3. Route the power cable around the side and behind the rest of the interior panels down toward the fuse box/power source.

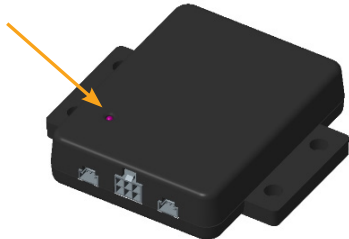4. Make sure the vehicle is off, then connect the required wires to the vehicle, as shown below in the wiring diagram.

Black: Ground: BAT(-)

Red: Power: BAT(+)

White: Ignition (IGN+)

} **Required**

Power Specifications
Input: 12V/24V DC 3A
Max Power Consumption: 96W

Power cable and wiring

Backup power device

Installation process for installing the backup power device

Status LED

RS-232 Serial Cable for CRXS (connect to S2 port)

Power cable port (power input/output)

RS-232 Serial Cable for external device (pass-through)
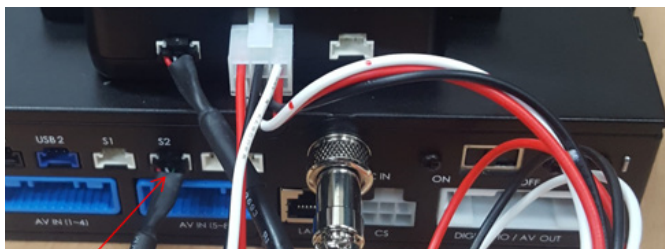

Connect 3 cables to vehicle

Black (Ground)
Red (Power B+)
White (IGN+)

Black (Ground)
Red (Power B+)
White (IGN+)

Connect this connector to CRXS

1. Use the included power cable bundle for the power connection. The battery cable connects to the battery power (BAT+), and the ACC cable connects to the ignition (IGN+). The black wire connects to ground (BAT-).

2. Connect DC OUT cable to DC IN port at the CRXS.

3. Connect the included serial cable to the DVR port and the S2 port at the CRXS.

4. Attach the CRXS-BB900 using the provided double-sided 3M tape. The surface must be clean and dry before you install. We recommend to install the product behind the rearview mirror on the front windshield.

Power cable and wiring

Remote panic button connection

1. Install the optional remote control onto the dash next to the steering wheel and within reach of the driver.

2. Connect the red wire to Sensor In #5 on the CRXS wiring harness.

3. Connect the black wire to ground (BAT-).

SW-Power Button Power

SW-Power Button Ground

Digital IO and A/V

Power cable and wiring

Wi-Fi or cellular modem connection

Connect the blue 4-pin Molex connector to the blue "USB 2" port on the rear side of the CRXS.

CIO LTE modem connection
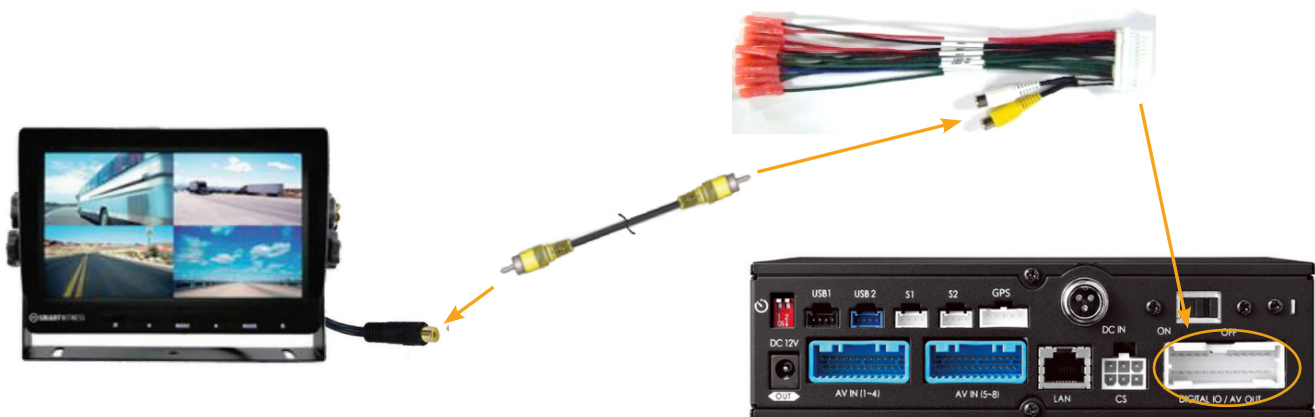
Power cable and wiring

SIM card insertion

If the customer or telematics service provider (TSP) has their own SIM card, then the SIM may first need to be inserted. If no SIM is provided, then it may be a Sensata INSIGHTS provided SIM card. In this case, the SIM will already be inserted.

Top of Unit   Bottom of Unit   SIM Card Inserted

LCD monitor connection

The LCD monitor is available with an optional video output cable, enabling the display of up to four views. The following display can be viewed only when the monitor is connected:

1. Connect the RCA male-to-male cable (not included) to the CRXS video output (RCA female) and LCD V1 input (RCA female).
2. The LCD monitor should be installed in the cab. (Download the LCD monitor guide from SmartOPS. A printed copy is also included in the LCD package.)
3. Connect the LCD power cable to the vehicle ignition (IGN+) and ground to BAT(-).

Final steps

After installation of the CRXS and accessories into the vehicle, you can lock the main cover of the CRXS using the external lock keys.

1. When the ignition is powered up, there will be an LED sequence of **green**, **orange** and **red** during the boot-up process of the CRXS.

2. The POWER LED will illuminate **green** immediately, and the CRXS will go into system check.

3. Once the device is operational, the REC LED will also illuminate **orange**. This usually takes about a minute, but in some cases, the device may need to reboot, which will take about 5 minutes.

4. If the Alarm LED is **red**, then there is an error. Please contact your supplier or visit support.smartwitness.com to create a support ticket.

> **NOTE:**
> The unit will not start recording immediately after power on. It takes around 30 seconds for the built-in power backup system to charge. Thereafter, the SD card will be ready to record.

Troubleshooting

REC LED is off.
- This means that the SSD is not inserted properly into the CRXS.

CRXS Alarm LED is blinking.
- Blinking **red** LED indicates that one of the connected cameras is not receiving a view signal.
  Please check the camera's connection.

CRXS Alarm LED is solid.
- There may be a problem with the camera connection or data storage device. Please contact your installer.

CRXS LAN LED is blinking or off.
- The SIM card is not registered with the cellular network. Please verify the SIM is inserted correctly.
- If it looks to be inserted correctly, please remove and reinsert the SIM card and try again.
- Cycle power to the unit.

LED specifications

[**POWER**]: Solid ON when the CRXS is powered (**Green** LED).

[**REC**]: Solid ON when recording (**Orange** LED).

[**ALARM**]: Solid ON when there are any failures such as missing camera input, bad SSD, etc. (**Red** LED).

[**LAN**]: Solid ON when connected to the network (**Orange** LED) and flashing if network/server error.