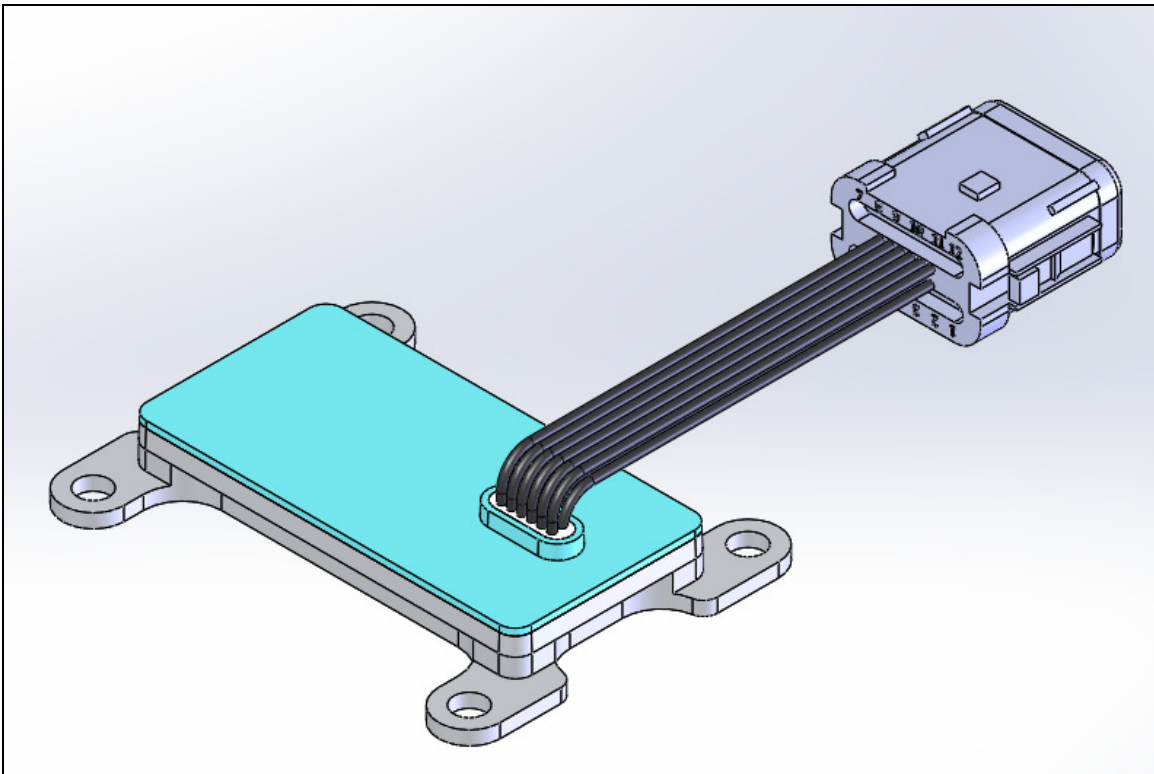




**VELOCITY SENSING CONTROLLER**  
**MODEL 100 (VSC100)**  
**OWNER'S MANUAL**



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## **Document Revision History**

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- Working Draft
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## **1 Introduction**

These instructions provide important information to the users of the ViaSat Velocity Sensing Controller Model 100, or VSC100. By following these instructions, the VSC100 will function properly over its lifetime. If these instructions are not followed, the VSC100 may malfunction and/or have a limited lifetime.

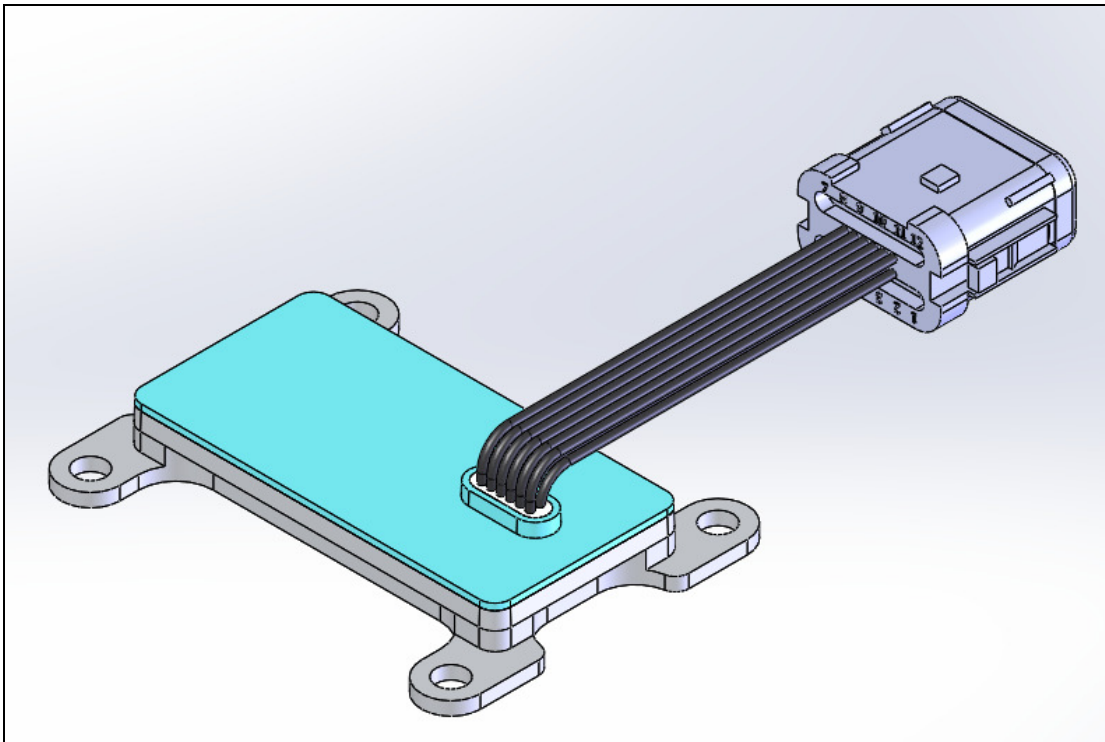
## **2 Precautions**

All installation, adjustment, or removal of the VSC100 should be undertaken by trained personnel who are trained in safety regulations for the system.

This device complies with Part 15 of the FCC rules and carries the FCC ID is **2ABLP-VSC100**. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. **Any unauthorized changes or modifications to the VSC100 could void the user's authority to operate the equipment in the system.**

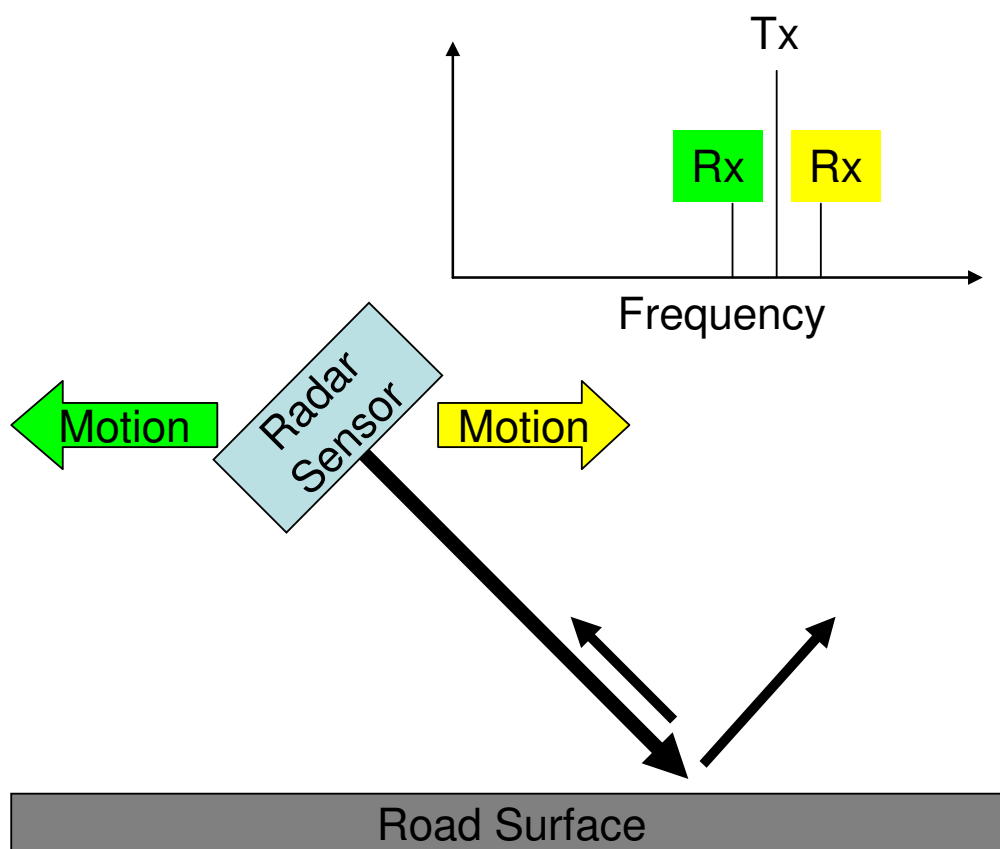
## **3 Product Description**

The VSC100 includes an environmentally protective metal housing and plastic cover with wire harness as shown in Figure 1.



**Figure 1 – VSC100**

The VSC works using the Doppler principal. The sensor is pointed toward a road surface and transmits energy, some of which is scattered back to the VSC and received. If there is motion of the VSC with respect to the scatterers on the road surface, the received frequency will be offset from the transmitted frequency directly proportional to the velocity of the relative motion. As shown in Figure 2, the received frequency for motion "away" from the scatterers causes a decrease in frequency, while motion "toward" the scatterers causes an increase in frequency. The VSC100 measurement of frequency also depends on the installation angle with respect to the horizon, so care must be taken to ensure proper installation.



**Figure 2 – Velocity Sensing Using Doppler**

#### **4 Installation**

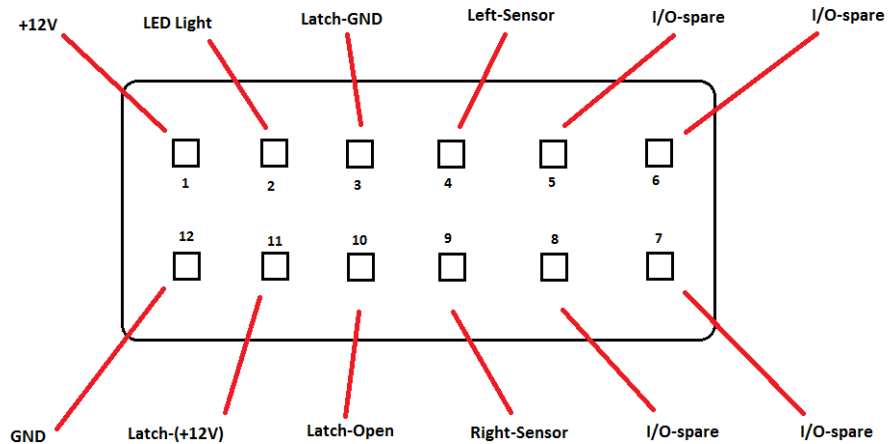
The VSC100 typically mounts 1 meter above the ground on a bracket firmly attached to the under structure of the vehicle. It is oriented so that the plastic cover is pointing towards the rear of the vehicle at an angle of 30 degrees with respect to horizontal with the cable harness tied so that it does not obstruct the path from the VSC100 to the ground, as shown below in Figure 3.



**Figure 3 – VSC100 Mounting**

## **5 Connector**

The VSC100 connector is shown below in Figure 4.



**Figure 4 – VSC100 Connector**

When used in a system, the VSC100 is connected to a 12 volt power system, an indicator light, and two electromechanical latches. The wiring diagram is shown below in Figure 5.

**LEGEND**

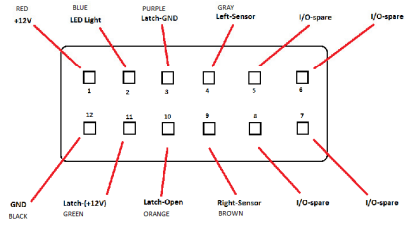
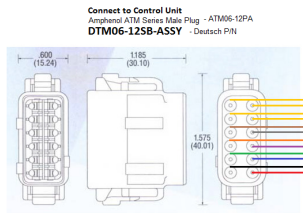
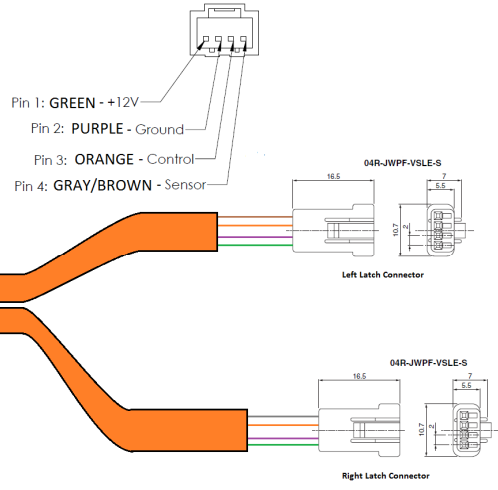
**Individual Conductors**

- MAIN GROUND
- MAIN POWER +12V - 5A MAX
- LED LIGHT +12V - 1A MAX
- LATCH POWER +12V - 3A MAX (2x 1.5A - 2 LATCHES)
- LATCH GROUND
- LATCH OPEN SIGNAL - 3A MAX (2x 1.5A - 2 LATCHES)
- LEFT LATCH SENSOR - 30mA MAX
- RIGHT LATCH SENSOR - 30mA MAX
- FUTURE AVAILABLE I/O

**Multi-Conductor Cables**

- 18Ga - 9 Wire - UV/OIL/ABRASION  
39 Feet - Main wire to ISO
- 22Ga - 4 Wire - UV/OIL/ABRASION - 9 ft Left - 17 Right  
Flexible 40k Cycles - 4" OD
- 18Ga - 5 Wire - UV/OIL/ABRASION  
Latch Signal Extension Wire - 31 ft

Note:  
Colors are for diagram  
only. Wires do not  
require to be matched  
colors.



**Figure 5 – Wiring Harness**