VEHICLE SAFETY CONTROLLER

Datasheet

FORT Foundation Series

Safety Sender, Receiver & Bridge Device

- ✓ Send and receive reliable wireless commands
- ✓ Transmit over long distances with ISM radio
- ✓ Communicate with multiple machines simultaneously
- ✓ Embedded options available

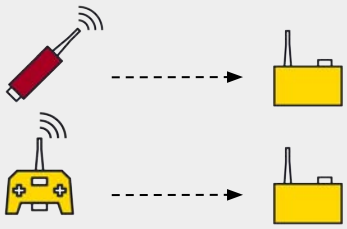
Functionally Safe Machine Control

FORT's Vehicle Safety Controller (VSC), part of the FORT Foundation Series, is a rugged device that sends and and receives wireless commands over ISM radio using FORT's patented technology for reliable communication.

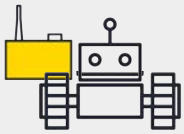
The Vehicle Safety Controller functions as the receiver for other FORT Foundation Series devices such as the Safe Remote Control and Wireless E-Stop. It can also be integrated with safety inputs to use as a sending device, or used as a CAN bus bridge.

Wireless Sender, Receiver, or Bridge

Integrate safety input devices such as buttons, sensors or door switches to send a wireless command.



Pair with other FORT Foundation Series devices such as Wireless E-Stop and Safe Remote Control.



Receivers can be embedded or bolted on machines, and wired into the CAN bus and E-Stop circuit.

VEHICLE SAFETY CONTROLLER FEATURES

Wireless Safety

FORT's patented communication technology is designed for safety and dependability. Devices transmit heartbeat signals to the receiver, and trigger a safety command if the connection is lost for any reason.

Easy Integration

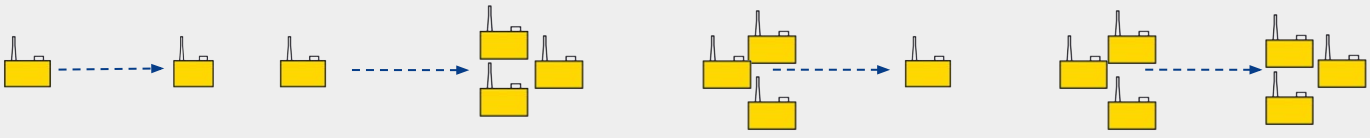
Integrate with machines using the CAN J1939 protocols and a variety of connectors. You can also integrate input devices such as buttons, door switches, or sensors to trigger commands.

CAN Bridge Functionality

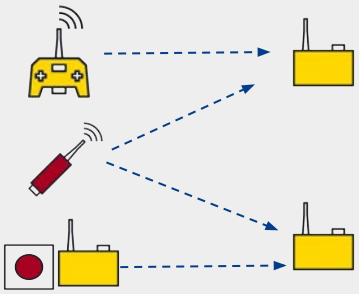
Two Vehicle Safety Controllers can be configured as a wireless CAN bus bridge between any two CAN networks, transmitting up to 35 messages per second.

Flexible Pairing

Communicate with multiple machines simultaneously using multipoint pairing. Pair devices using FORT's drag-and-drop configuration tool for Windows and Linux.
Combine different Foundation Series devices for multipoint configurations:



One to One **One to Many** **Many to One** **Many to Many**



Combine Foundation Series Devices
FORT's Wireless E-Stop, Vehicle Safety Controller, and Safe Remote Control can be combined in various multipoint configurations for comprehensive safety and control.

Radio Options

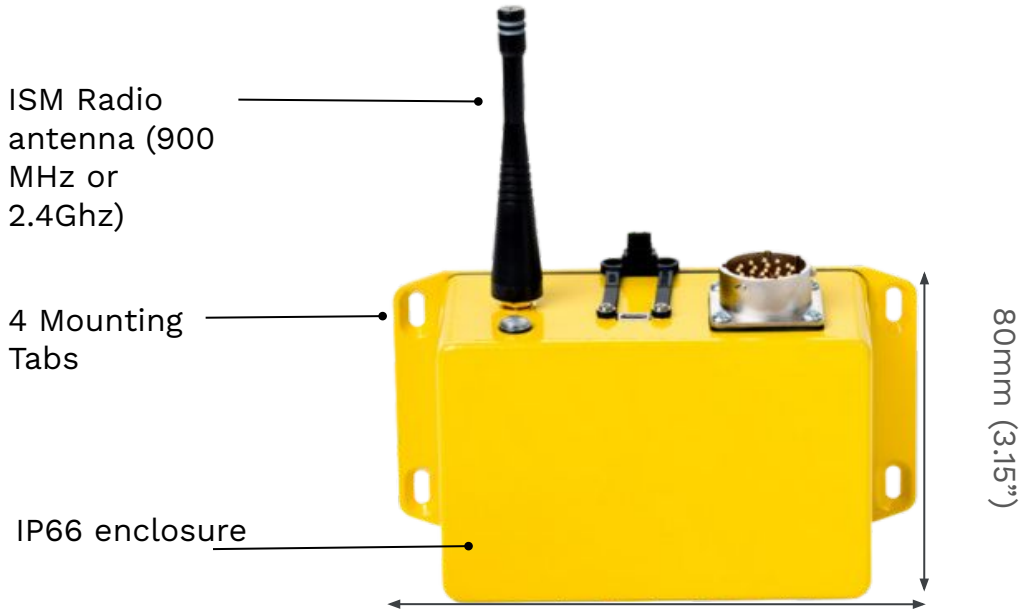
900 MHz:
Line of sight range up to 2km.
Combine up to 12 or more devices per configuration.*

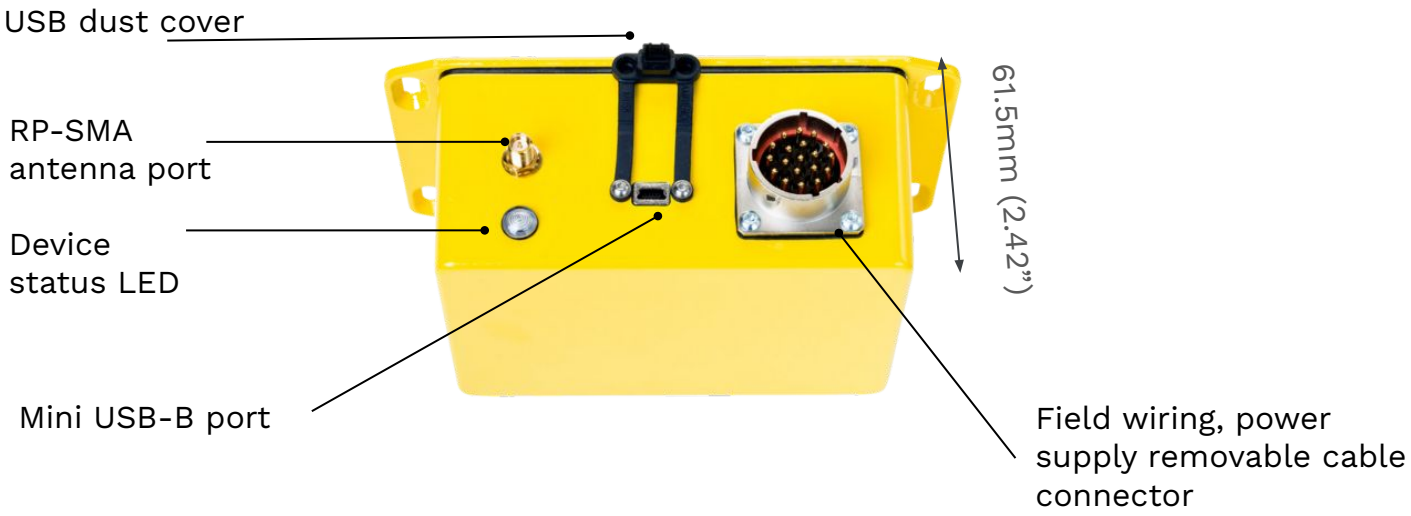
2.4GHz:
Line of sight range up to 200m.
Combine up to 3 devices per configuration.

**Exact limit determined by customer safety analysis.*

VEHICLE SAFETY CONTROLLER DETAILS

Unit pictured is the VSC-006





VSC TECHNICAL SPECIFICATIONS

Part Numbers	VSC-005	VSC-008	VSC-006	VSC-009
Device Description	Embedded sender/receiver (board only)	Embedded sender/receiver (includes breakout board and relays)	Bolt-on (enclosed) sender/receiver	Bolt-on (enclosed) sender/receiver for military use
Connectors	Embedded board with connector options		Mini-USB-B; Ecomate RM; RP-SMA antenna connector	MIL-DTL-38999 6 pin (USB) & 19 pin; RP-SMA antenna connector
Dimensions *Not including antenna*	63.5mm x 50.8mm x 21.6mm (2.5" x 2" x 0.85")	111mm x 71mm x 38mm (4.362" x 2.79"x 1.5")	179mm x 80mm x 61.5mm (5.87" x 3.15" x 2.24")	
Base Unit Weight	44g (0.10 lbs)	119g (0.26 lbs)	479g (1.06 lbs)	
Enclosure Rating	N/A		IP66	
Operating Temperature	-40°C to 70°C			
Operating Voltage	9 to 36V DC			
Wired Interface	RS-232 serial, CAN, USB HID			
CAN Supported Protocols	CAN J1939			
Safety Inputs	1 dual channel emergency stop input loop			
Safety Outputs	1 dual channel relay output			
Safety Standards	E-Stop functionality designed to meet SIL 2 (per IEC 61508) and Cat 3, PLd (per ISO 13849)			
Safety Timeout Period	**Configured by user** **Default TX Rate: 35 ms; Default RX Timeout: 332 ms (includes latency)**			
Regulatory	Radio modules FCC & IC compliant (US & Canada)			
Compatible Devices	FORT Safe Remote Control and FORT Wireless E-Stop			
Multipoint Pairing Options	Pair 1 or more sending devices with one or more receivers 900 MHz: Number of devices depends on customer safety analysis and timeout requirements (typically up to 12 per system.) 2.4GHz: Up to 3 devices per system			
Pairing Interface	FORT configuration tool for Linux and Windows			
ISM Radio Options	902-928 MHz (US, Canada) 915-928 MHz (Australia, New Zealand) 2.4 GHz			
Max ISM Range	900 MHz: 2km line of sight 2.4GHz: 200m line of sight			
Output Radio Transmission Power	20-30dBm Be sure to follow all local RF communication regulations while operating.			

VSC PART NUMBERS & ACCESSORIES

Enclosed Vehicle Safety Controller (Ecomate) & Accessories	
Enclosed VSC (With Ecomate Connector)	
2.4Ghz radio	VSC-006-2401
902-928 MHz radio for US and Canada	VSC-006-901
915-928 MHz radio for Australia and New Zealand	VSC-006-903
Antennas	
750-950 MHz antenna, RP-SMA male *(US, Canada, Australia, New Zealand)*	275-0002
2.4 GHz antenna, RP-SMA male	275-0003
Antenna Bulkhead	
RP-SMA female to female, 50 ohm, o-ring seal	275-0024
Cables	
Antenna Cable, RP-SMA male to male, 50 ohm, 2 ft	275-0022
Antenna Cable, RP-SMA male to male, 50 ohm, 20 ft	275-0023
Integration Cable, Ecomate RM to flying leads, 3ft	100-0148
USB Cable, Type A to mini-B, 3 ft	100-0029
USB Cable, Type A to mini-B, 6ft	250-0160
Starter Kit Accessory Bundles	
Starter Kit for VSC-006-2401	**100-0162**
Includes all of the following:	
2.4 GHz antenna, RP-SMA male	*275-0003*
USB Cable, Type A to mini-B, 3 ft	*100-0029*
Integration Cable, Ecomate RM to flying leads, 3ft	*100-0148*
Starter Kit for VSC-006-901 and 903	**100-0161**
Includes all of the following:	
750-950 MHz antenna, RP-SMA male	*275-0002*
USB Cable, Type A to mini-B, 3 ft	*100-0029*
Integration Cable, Ecomate RM to flying leads, 3ft	*100-0148*

VSC PART NUMBERS & ACCESSORIES

Enclosed Vehicle Safety Controller (MIL Connector) & Accessories	
Enclosed VSC (With Ecomate Connector)	
2.4Ghz radio	VSC-009-2401
902-928 MHz radio for US and Canada	VSC-009-901
915-928 MHz radio for Australia and New Zealand	VSC-009-903
Antennas	
750-950 MHz antenna, RP-SMA male (*US, Canada, Australia, New Zealand*)	275-0002
2.4 GHz antenna, RP-SMA male	275-0003
Antenna Bulkhead	
RP-SMA female to female, 50 ohm, o-ring seal	275-0024
Cables	
Antenna Cable, RP-SMA male to male, 50 ohm, 2 ft	275-0022
Antenna Cable, RP-SMA male to male, 50 ohm, 20 ft	275-0023
USB Cable, VIC-004: Type A to 38999, 3ft	100-0089
Integration Cable, 38999 to flying leads, 3ft	100-0167

Embedded Vehicle Safety Controllers & Accessories	
Embedded VSC Core	
2.4Ghz radio	VSC-005-2401
902-928 MHz radio for US and Canada	VSC-005-901
915-928 MHz radio for Australia and New Zealand	VSC-005-901
Embedded VSC Core with Carrier Board	
2.4Ghz radio	VSC-008-2401
902-928 MHz radio for US and Canada	VSC-008-901
915-928 MHz radio for Australia and New Zealand	VSC-008-903
Antennas	
750-950 MHz antenna, RP-SMA male *(US, Canada, Australia, New Zealand)*	275-0002
2.4 GHz antenna, RP-SMA male	275-0003
Cables	
Antenna Cable, U.FL to RP-SMA female bulkhead, 50 ohm, 9 inches	275-0010
USB Cable, VIC-004: Type A to 38999, 3ft	100-0089
Integration Cable, 38999 to flying leads, 3ft	100-0167

FORT ROBOTICS CONTROL PLATFORM

Pro Series

Safe Remote Control Pro

Endpoint Controller

FORT Manager

Nano Safety Controller Pro
Coming Soon

Wireless E-Stop Pro
Coming Soon

Foundation Series

Safe Remote Control

Vehicle Safety Controller

Wireless E-Stop

Wired Remote Control

Professional Services

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