

Product Datasheet

Vehicle Data Recorder (VDR) system

Class 1

Unit of IDEX Corporation
607 NW 27th Avenue
Ocala, FL 34475 U.S.A

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SAE J1939 CAN

Description

The Class 1 Vehicle Data Recorder (VDR) system is comprised of a Vehicle Data Recorder and a Seat Belt Warning system.

The Vehicle Data Recorder (p/n 119914) monitors and records engine RPM, throttle percentage, vehicle speed, ABS events, transmission range information, parking brake position, master warning position, and seatbelt status via J1939 CAN messages in accordance with NFPA 1901-2009 requirements.

The Seat Belt Warning system utilizes an input module (p/n 118093) and a display (p/n 118620 or p/n 118551) to indicate the state of each seat.

Features (Vehicle Data Recorder)

- Utilizes the SAE J1939 CAN standard to record NFPA required data
- 32 bit ARM processor
- Retains the last 100 hours of stored data in memory (saved in one second intervals)
- Internal real-time clock with 10 year battery back-up
- Two discrete inputs: Park Brake (ground polarity) and Master Warning (positive polarity)
- USB connector for data retrieval via VDR management software (p/n 119206)

Features (Seat Belt Warning)

- Monitor up to 20 seats and 20 seat belts (ground polarity inputs) *
- Each input is selectable for Normally Open (N.O.) or Normally Closed (N.C.) switch contacts (inputs are default set to N.O.)
- Validates seat/seatbelt sequencing
- Enhanced "seat bounce" error validation
- Small display fits into standard switch cutout (20 seats)
- Large display shows all seat states simultaneously (10 seats)

* Requires 2 Seat Belt Warning input modules. Each input module can monitor 10 seat and 10 seat belts.

Vehicle Data Recorder



p/n 119914

Seat Belt Warning



p/n 118093

p/n 118620

p/n 118551

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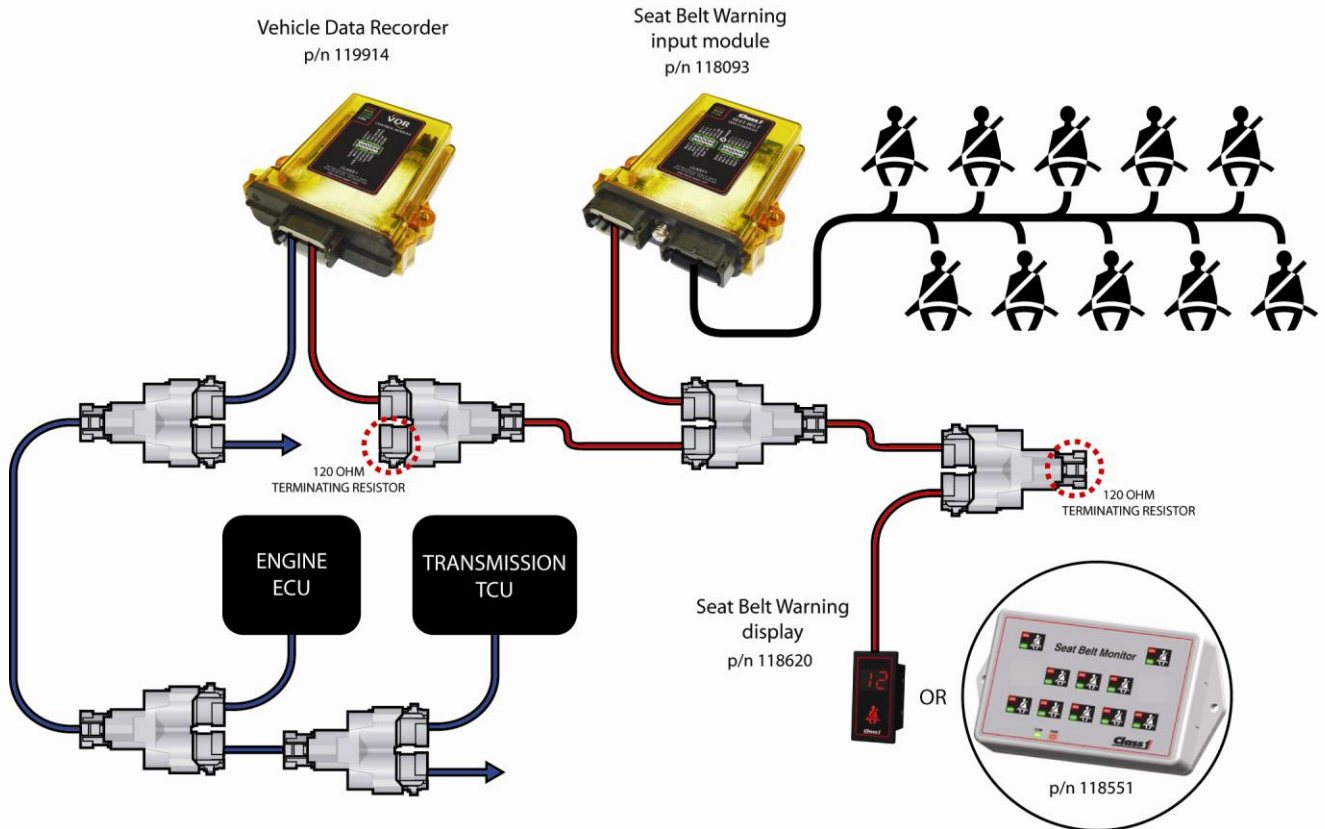
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System Diagram

A typical Vehicle Data Recorder system is shown in the diagram below.



Note: Proper CAN bus termination is required
Each CAN bus should have a 120 Ohm terminating resistor located at its ends (2 resistors per bus).

Connections

The Vehicle Data Recorder (p/n 119914) has one connector and a USB port (*Type A to Type B USB cable required*)

Mating connector: Deutsch DTM06-12SA GRAY		
Mating sockets: 0462-201-20141 (gold for CAN 0462-201-2031)		
Wedge lock: W12S Recommended wire gage: 20-24 AWG		
PIN	CIRCUIT	DESCRIPTION
1	SUPPLY (+)	(INPUT) – Battery voltage (+9VDC...+32VDC)
2	CAN HIGH	(DATA) – Seatbelt CAN data, 250Kbits/s
3	CAN SHIELD	(DATA) – Seatbelt CAN data, 250Kbits /s
4	CAN HIGH	(DATA) – VDR SAE J1939 CAN, 250Kbits/s
5	INPUT 2	(INPUT) – Park Brake, ground polarity
6	OUTPUT 2	(OUTPUT) – Alarm, ground polarity (switched)
7	OUTPUT 1	(OUTPUT) – Alarm, positive polarity (switched)
8	INPUT 1	(INPUT) – Master Warn, positive polarity
9	CAN LOW	(DATA) – VDR SAE J1939 CAN, 250Kbits /s
10	CAN SHIELD	(DATA) – VDR SAE J1939 CAN, 250Kbits /s
11	CAN LOW	(DATA) – Seatbelt CAN data, 250Kbits /s
12	SUPPLY (-)	(INPUT) – Battery ground



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SAE J1939 CAN

The Seat Belt Warning input module (p/n 118093) has two connectors and a power stud

Mating connector: Deutsch DTM06-12SA GRAY
Mating sockets: 0462-201-20141 (gold for CAN 0462-201-2031)
Wedge lock: W12S Recommended wire gage: 20-24 AWG

PIN	CIRCUIT	DESCRIPTION
1	SEAT 10	(INPUT) – Seat input (ground polarity)
2	CAN HIGH	(DATA) – Seatbelt CAN data, 250Kbits/s
3	CAN SHIELD	(DATA) – Seatbelt CAN data, 250Kbits/s
4	SEAT 9	(INPUT) – Seat input (ground polarity)
5	SEAT 8	(INPUT) – Seat input (ground polarity)
6	SEAT 7	(INPUT) – Seat input (ground polarity)
7	BELT 7	(INPUT) – Belt input (ground polarity)
8	BELT 8	(INPUT) – Belt input (ground polarity)
9	BELT 9	(INPUT) – Belt input (ground polarity)
10	BELT 10	(INPUT) – Belt input (ground polarity)
11	CAN LOW	(DATA) – Seatbelt CAN data, 250Kbits/s
12	SUPPLY (-)	(INPUT) – Battery ground

PIN	CIRCUIT	DESCRIPTION
STUD	SUPPLY (+)	(INPUT) – Battery voltage (+9VDC...+32VDC)

Mating connector: Deutsch DTM06-12SB BLACK
Mating sockets: 0462-201-20141
Wedge lock: W12S Recommended wire gage: 20-24 AWG

PIN	CIRCUIT	DESCRIPTION
1	BELT 1	(INPUT) – Belt input (ground polarity)
2	BELT 2	(INPUT) – Belt input (ground polarity)
3	BELT 3	(INPUT) – Belt input (ground polarity)
4	BELT 4	(INPUT) – Belt input (ground polarity)
5	BELT 5	(INPUT) – Belt input (ground polarity)
6	BELT 6	(INPUT) – Belt input (ground polarity)
7	SEAT 6	(INPUT) – Seat input (ground polarity)
8	SEAT 5	(INPUT) – Seat input (ground polarity)
9	SEAT 4	(INPUT) – Seat input (ground polarity)
10	SEAT 3	(INPUT) – Seat input (ground polarity)
11	SEAT 2	(INPUT) – Seat input (ground polarity)
12	SEAT 1	(INPUT) – Seat input (ground polarity)



The Seat Belt Warning display (large – p/n 118551) has one connector

Mating connector: Deutsch DT06-6SA GRAY
Mating sockets: 0462-201-16141 (gold for CAN 0462-201-1631)
Wedge lock: W6S Recommended wire gage: 16-20 AWG

PIN	CIRCUIT	DESCRIPTION
1	SUPPLY (+)	(INPUT) – Battery voltage (+9VDC...+32VDC)
2	SUPPLY (-)	(INPUT) – Battery ground
3	----	Not used
4	CAN HIGH	(DATA) – Seatbelt CAN data, 250Kbits/s
5	CAN LOW	(DATA) – Seatbelt CAN data, 250Kbits/s
6	CAN SHIELD	(DATA) – Seatbelt CAN data, 250Kbits/s



The Seat Belt Warning display (small – p/n 118620) has one connector

Mating connector: AMP 794617-6
Mating sockets: AMP 794610-3
Recommended wire gage: 20-24 AWG

PIN	CIRCUIT	DESCRIPTION
1	SUPPLY (+)	(INPUT) – Battery voltage (+9VDC...+16VDC)
2	SUPPLY (-)	(INPUT) – Battery ground
3	----	Not used
4	CAN HIGH	(DATA) – Seatbelt CAN data, 250Kbits/s
5	CAN LOW	(DATA) – Seatbelt CAN data, 250Kbits/s
6	CAN SHIELD	(DATA) – Seatbelt CAN data, 250Kbits/s



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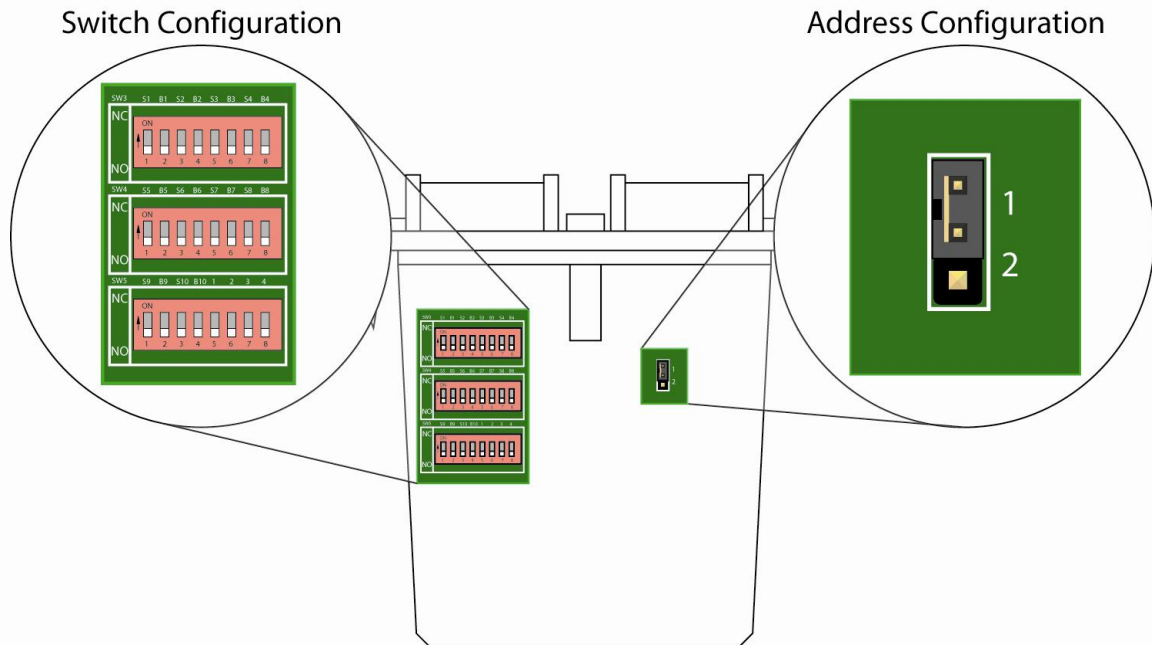
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Configuration

Seat Belt Warning input module

The Seat Belt Warning input module (p/n 118093) must be configured for the seat and seatbelt switch operation (either Normally Open or Normally Closed) and the module address (either address 1 or address 2).

Open the Seat Belt Warning input module to gain access to the switch configuration switches and the address configuration jumper.



The inputs for the seats and the seatbelts are designed for ground polarity. The configuration switches set the input type: NC = Normally Closed, NO = Normally Open. The “seat” configuration switches are labeled with an “S” and the seat position number, and the “seatbelt” configuration switches are labeled with a “B” and the seat position number. For example, the seat and seatbelt switches for seat position 2 are labeled “S2” and “B2”.

- The Normally Closed (NC) configuration is for inputs that are *open* when the seat (or belt) switch is activated.
- The Normally Open (NO) configuration is for inputs that are *closed* when the seat (or belt) switch is activated.

The Seat Belt Warning input module can be set to address 1 (default) or address 2. This allows two Seat Belt Warning input modules to be used in applications where up to 20 seat/belt positions are required. Place the address configuration jumper into the desired position (1 or 2).

- The Seat Belt Warning display (small – p/n 118620) can display the seat status from two Seat Belt Warning input modules (up to twenty seats).
- Two Seat Belt Warning displays (large – p/n 118551) must be used to display the seat status from two Seat Belt Warning input modules (up to twenty seats).

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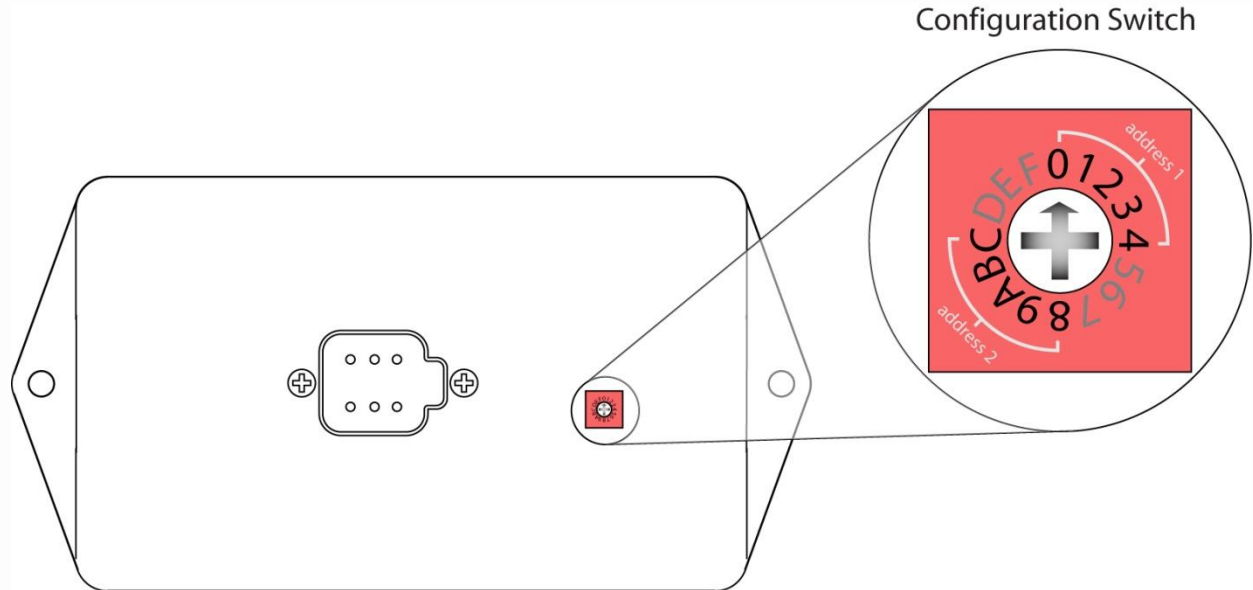
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Seat Belt Warning display large

The Seat Belt Warning display large (p/n 118551) may be configured for a desired layout of the physical seat locations on the display (five different layouts) and the display's address (address 1 or address 2) by selecting a position on the configuration switch.

Remove the rubber plug from the rear of the Seat Belt Warning display to gain access to the configuration switch (*replace the rubber plug after setting the position of the switch*).



Configuration Switch positions 0, 1, 2, 3, and 4 set the Seat Belt Warning display to address 1 which receives seat belt data from a Seat Belt Warning input module set to address 1.

Configuration Switch positions 8, 9, A, B, and C set the Seat Belt Warning display to address 2 which receives seat belt data from a Seat Belt Warning input module set to address 2.

Configuration Switch position	Seat Belt Display indicator positions
0 = address 1 or 8 = address 2	
1 = address 1 or 9 = address 2	
2 = address 1 or A = address 2	

Configuration Switch position	Seat Belt Display indicator positions
3 = address 1 or B = address 2	
4 = address 1 or C = address 2	

The Seat Belt Display indicator positions directly correlate to the physical inputs of the address associated Seat Belt Warning input module.

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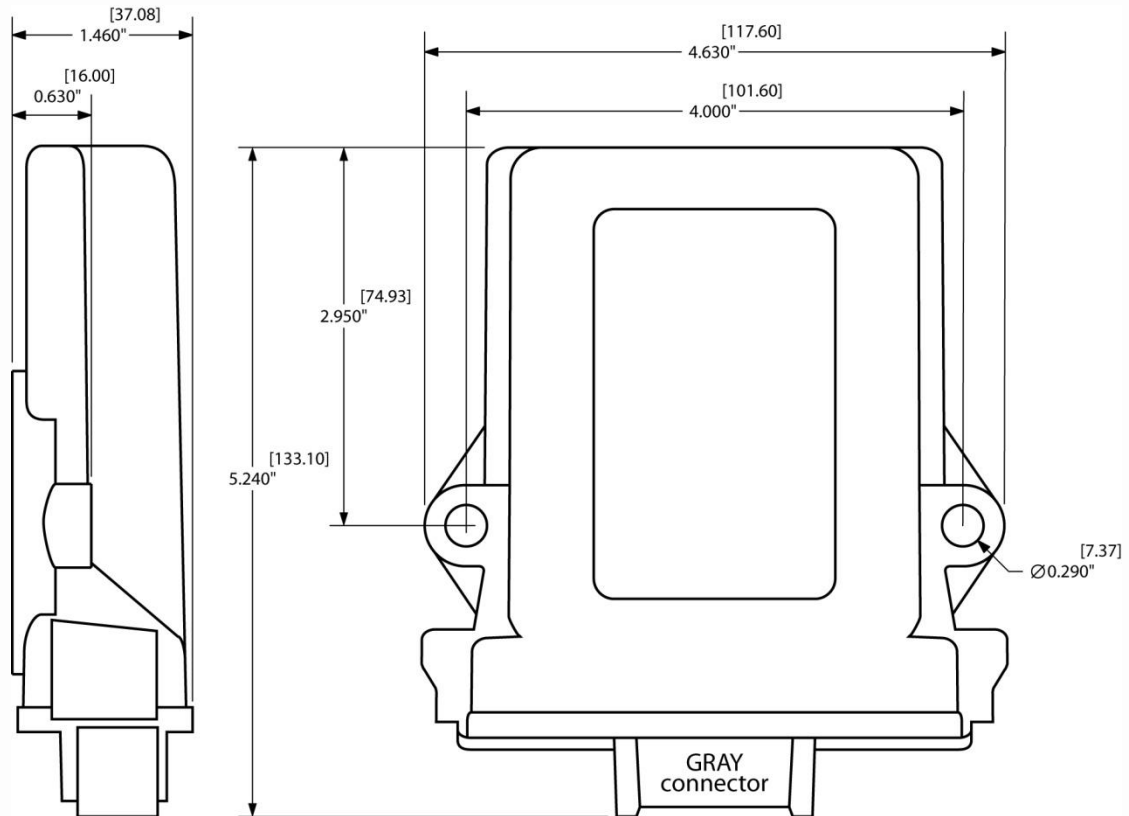
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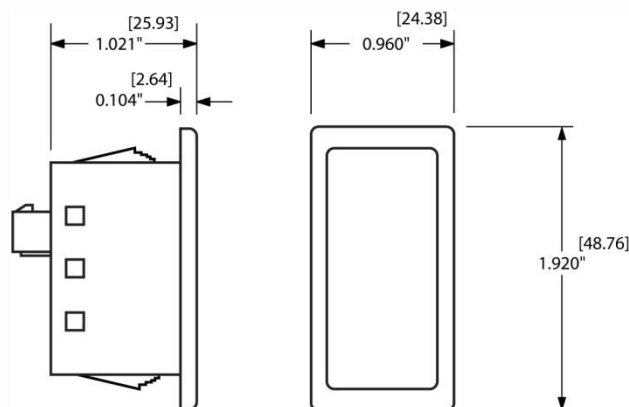
Mounting dimensions

Vehicle Data Recorder (p/n 119914).



Dimensions in inches [millimeters]

Seat Belt Warning display (small – p/n 118620).



Dimensions in inches [millimeters]

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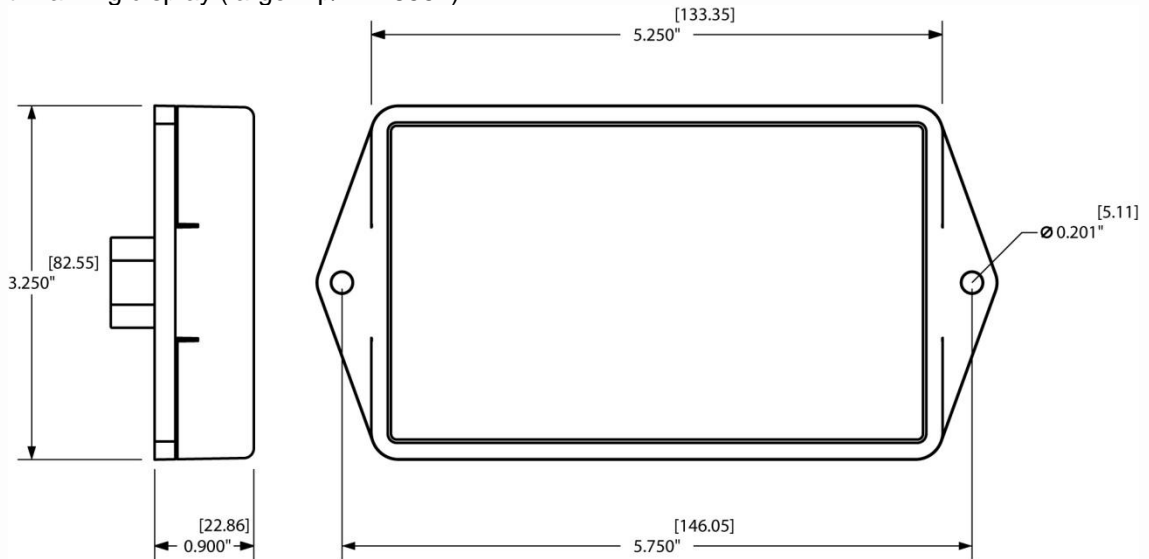
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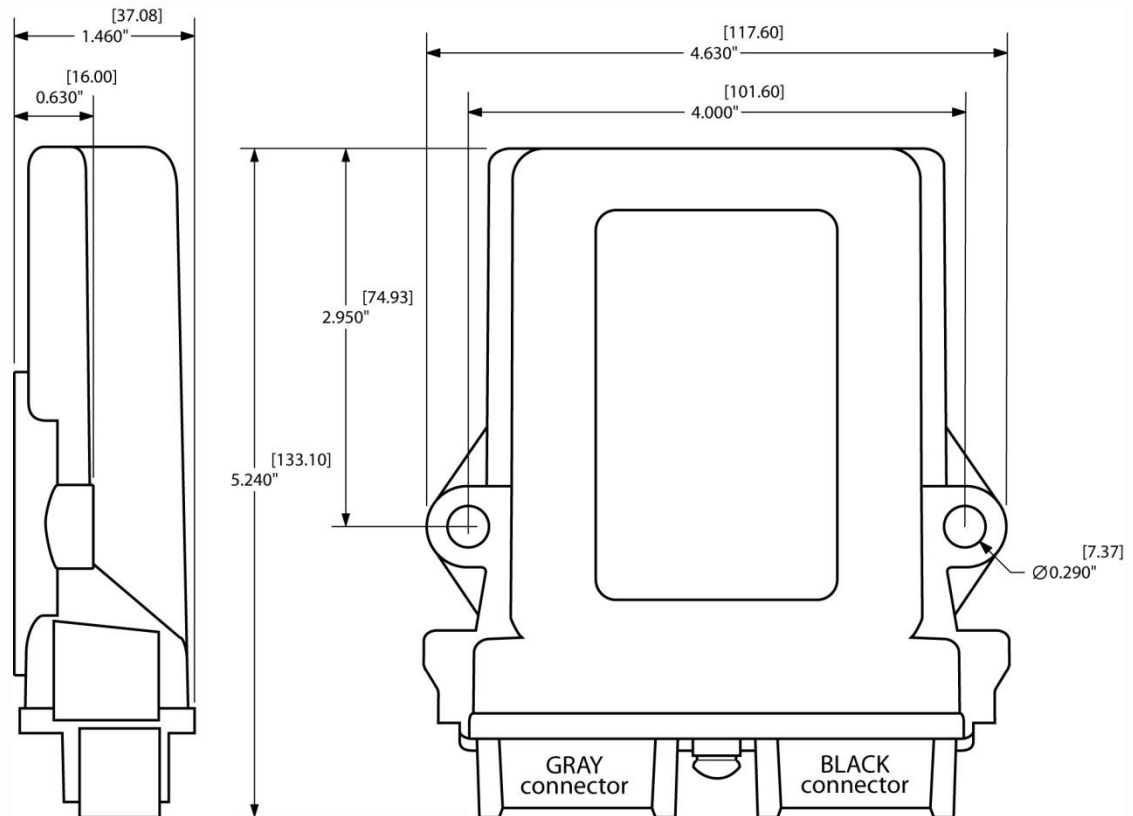
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Seat Belt Warning display (large – p/n 118551).



Dimensions in inches [millimeters]

Seat Belt Warning input module (p/n 118620).



Dimensions in inches [millimeters]

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Technical details

Vehicle Data Recorder (p/n 119914).

Product category	SAE J1939 CAN
Voltage range	+9VDC...+16VDC
Temperature range	-40°C...+85°C
Environmental range	IP 42
CAN specification	SAE J1939, 250 Kbits/second

Seat Belt Warning display (small – p/n 118620).

Product category	SAE J1939 CAN
Voltage range	+9VDC...+16VDC
Temperature range	-40°C...+85°C
Environmental range	IP 10
CAN specification	SAE J1939, 250 Kbits/second

Seat Belt Warning display (large – p/n 118551).

Product category	SAE J1939 CAN
Voltage range	+9VDC...+16VDC
Temperature range	-40°C...+85°C
Environmental range	IP 42
CAN specification	SAE J1939, 250 Kbits/second

Seat Belt Warning input module (p/n 118620).

Product category	SAE J1939 CAN
Voltage range	+9VDC...+16VDC
Temperature range	-40°C...+85°C
Environmental range	IP 67
CAN specification	SAE J1939, 250 Kbits/second