Synercon Technologies

Making it easy to obtain digital forensic data from heavy vehicle crashes.

Using and Understanding the Smart Sensor Simulator 2



Understanding the Need for the SSS2: Connecting to Electronic Control Units



A crash test conducted by Dr. Jeremy Daily at The University of Tulsa

- A working vehicle with power, ECUs and communications may not be available.
- Simulating sensors and actuators for an ECU is important to reduce new Fault Codes.
- Criminal and civil litigation would like to see reduced fault or fault-free data from ECUs.



Smart Sensor Simulator 2 Problem – Solution Fit



- Developing and testing with actual trucks is expensive
 - Rental/Leasing
 - Storage and maintenance
 - Limited access (one at a time)
- Stationary trucks don't give rich data sets.
- Cutting edge research risks "bricking" a truck
- Expensive wiring harnesses
- Need Fault-Free Environment

Smart Sensor Simulator Solutions

- No rental or storage fees.
- Simple USB-to-Serial command interface with a GUI
- Can rapidly adjust settings to clear or set various fault codes
- Use one truck ECU at a time
- Multiple SSS2 are easy to deploy
- Can piggy-back ECUs for complete truck build out
- The SSS2 fits in your pants pocket
- Common Molex connector interface for easy wiring

The SSS2 as a Tool in the Toolbox

vnercon

- Interfacing with Heavy Vehicle Electronic Control Units requires cables and connections.
- The SSS2 Provides:
 - Power

5

- Ignition Key Switch
- Communications
 - ► CAN/J1939
 - ► J1708
- Analog Sensor Simulation
- Actuators Emulation
- Part of an Investigative System
 - Computer with Diagnostics Software
 - RP1210 Device or Forensic Link Adapter



Detroit Diesel DDEC 13 Common Powertrain Controller connected to the SSS2

Truck Simulation using the Smart Sensor Simulator 2



Smart Sensor Simulator 2 Origins

7



Goal: Provide researchers and investigators easy access to Electronic Control Modules outside the heavy vehicle.

The Value Proposition for the Smart Sensor Simulator 2



- "Truck-in-a-box" technology to simulate sensors and actuators on a heavy truck
- Enables fault-free downloading conditions for forensic examination.
- Establishes power and communication for electronic control units (ECUs) from heavy vehicles
- Composable networking connections to build out multiple module systems.
- Software controllable interface to adapt to multiple ECUs
- Open source hardware and software

How the SSS2 Works

- An ECU reads electrical signals from sensor systems.
 - Two wire sensors
 - Three wire sensors
 - Actuators or Solenoids to +12V
 - Actuators or Solenoids to Ground
 - Pulse or Square Wave signals
 - Controller Area Network (CAN)
 - Switches
- The SSS2 can generate all these signal or connection types.



Smart Sensor Simulator 2 Pinouts



Some pins are multiplexed – they can do more than one thing.

Two Wire Sensors: Resistance Based Temperature Sensors

11



Images from Wikipedia. The original uploader was Psanderson at English Wikipedia - Transferred from en.wikipedia to Commons by JohnnyMrNinja using CommonsHelper., GFDL 1.2, https://commons.wikimedia.org/w/index.php?curid=6030373

Resistor To Ground

- Settings driven through the SSS2 Interface Application
- Terminal A is disconnected.
- Minimum Wiper to Ground resistance is about 260 ohms.
- Can be used to let the ECU detect current flow for some actuators.
- Simulate switches to ground (like Idle Validation)
- Typically use 100k potentiometers for temperature.
- Use 10k potentiometers for actuators and digital signals (pull-down resistors).



The SSS2 uses the Microchip MCP41HV51 Digital Potentiometer. http://ww1.microchip.com/downloads/en/DeviceDoc/20005207B.pdf

Simulating a Three Wire Sensor

Port

- Voltage dividers produce a voltage signal based the wiper position.
- Common for pressure sensors.
- Half Bridge sensors are voltage dividers.





APP snip taken from the Navistar MaxxForce schematic.

Pulse Width Modulated Signals

14

- Emulate Accelerator Pedal Positions
- Can generate speed and RPM (not for forensic use)

F	LUKE 1928 SCOPEMETER	60MHz 500MS/s
	^e +3,44 v≕ ^e 250,1 Hz	-C: [1/2] AUTO
		1 Marine
	A	
	A=1 V 500µs Trig: A1	Probe 10:1
	READINGS READING 1 READING	2 WAVEFORM

PWM5 (J24:2)	PWM6 (J24:1)
Duty Cycle (%)	Duty Cycle (%)
10 Set Duty Cycle	90 Set Dut
Frequency (Hz)	Frequency (Hz)
200 Set Frequency	200 Set Fre
-ECU Application	ECU Application
Pin CPC1-7 BRN/WHT ~	Pin CPC4-14 PPL/
Throttle Position 1	Throttle Position 2
Connect PWM5 Output to J24:2	Connect PWM6 Output to J24:1

Connect PWM5 Output to J24:2

WW0 ()24(1)		
Outy Cycle (%)		
1	90	Set Duty Cycle
Frequency (Hz)		
	200	Set Frequency
CU Application		
in CPC4-14		PPL/WHT 🗸
hrottle Position	2	

MCS Digital (PWM) Electronic Throttle Controls for Caterpillar ACERT Engines ect Drive Hand Throttle Rotary Throl 973 000 seri Side Mounted Hand T 975 000 serie Inted Hand Thro 972 000 series Suspended Throotle Pe 963 000 series Floor Mounted Throttle Per 965 000 series Floor Mounted Throttle Peda 962 000 series ttle Position Senso We make your engine run

Analog Outputs

Produce steady voltage	e from 0 to 5 VDC.
rioduce sieddy vollage	

- Emulates pressure sensors
- ► If set to 0V, the ECU sees a small resistor to ground.



Snip from the Cummins CM870 Fault Information System

Vout A (J18:2)			
Mean Value		_	
	Ш	4.25	Set Voltage
ECU Application			
Pin P2-14			\ \
Atmospheric pressure			

High Current Adjustable Regulator

- 5.0 Amp Adjustable Linear Regulator
 - 1.9V to 11VDC
 - Pins J18:11 and J24:19
- Low Power Testing
- Example: Bendix Brake Controllers
 - Power on with 8.0 VDC
 - Low Power Fault Code present
 - No existing faults are overwritten

High Current Adjustable Regulator	
High Current Regulator (J24:19)	
Mean Value	
4.	0 Set Voltage
ECU Application	
Pin CPC4-16	Tan 🗸
Multifunction	
	· · · · · · · · · · · · · · · · · · ·



- Available in 3.3-V, 5.0-V, and Adjustable Versions
- Current Limiting and Thermal Protection
- Output Current 5 A
- Industrial Temperature Range -40°C to 125°C
- Line Regulation 0.015% (Typical)
- Load Regulation 0.1% (Typical)

2 Applications

- Post Regulator for Switching DC-DC Converter
- High-Efficiency Linear Regulators
- Battery Chargers

3 Description The LM1084 is a regulator with a maximum dropout of 1.5 V at 5 A of load current. The device has the same pinout as TI's industry standard LM317.

LM1084

Two resistors are required to set the output voltage of the adjustable output voltage version of the LM1084. Fixed output voltage versions integrate the adjust resistors.

The LM1084 circuit includes a zener trimmed bandgap reference, current limiting, and thermal shutdown.

Refer to LM1085 for the 3A version, and the LM1086 for the 1.5A version.

	Device Inform	ation ⁽¹⁾
PART NUMBER	PACKAGE	BODY SIZE (NOM)
LM1084	TO-263 (3)	10.18 mm × 8.41 mm
LIVIIOOT		

14.986 mm × 10.16 mm

(1) For all available packages, see the orderable addendum a the end of the datasheet

TO-220 (3)



Adjusting the SSS2 Settings

Hard Way

Type in serial commands

List SSS2 Settings Command: 16,5

INFO 60, I	Dig. Pot. 10 Terminal Connect, Port 10 (J24-10) = 3, 0 Nothing connected
INFO 61, I	Dig. Pot. 11 Terminal Connect, Port 11 (J24-11) = 0, 0 Nothing connected
INFO 62, I	Dig. Pot. 12 Terminal Connect, Port 12 (J24-12) = 0, 0 Nothing connected
INFO 63, I	Dig. Pot. 13 Terminal Connect, Port 13 (J18-11) = 3, 0 Nothing connected
INFO 64, I	Dig. Pot. 14 Terminal Connect, Port 14 (J18-12) = 7, 0 Nothing connected
INFO 65, I	Dig. Pot. 15 Terminal Connect, Port 15 (J24-15) = 7, 0 Nothing connected
INFO 66, I	Dig. Pot. 16 Terminal Connect, Port 16 (J24-16) = 7, 0 Nothing connected
INFO 67, H	PWM1 Connect, Port 13 (J24-13) = 1 Connected
INFO 68, H	PWM2 Connect, Port 14 (J24-14) = 0 Open
INFO 69, H	PWM3 Connect, Port 27 (J18-10) = 1 Connected
INFO 70, H	PWM4 Connect, Port 17 (J18- 1) = 1 Connected
INFO 71, I	LIN to Shield Connect, (J10- 5) = 0 Open
INFO 72, I	LIN to Port 16 Connect, Port 16 (J24-16) = 0 Open
INFO 73, U	U28 (U1-U8) POA Enable, (J24-1 to J24-8) = 1 Connected
INFO 74, U	U31 (U9-U16) POA Enable, (J24-9 to J24-16) = 1 Connected
INFO 75, I	Digital Potentiometer 28 Wiper, Port 28 (J18-12) = 2, 2
INFO 76, I	Digital Potentiometer 29 Wiper, Port 29 (J18-13) = 22, 22
INFO 77, I	Digital Potentiometer 30 Wiper, Port 30 (J18-14) = 2, 2
INFO 78, I	Dig. Pot. 28 Terminal Connect, Port 28 (J18-12) = 3, 3 (TCON_WIPER_AND_B)
INFO 79, I	Dig. Pot. 29 Terminal Connect, Port 29 (J18-13) = 3, 3 (TCON_WIPER_AND_B)
INFO 80, I	Dig. Pot. 30 Terminal Connect, Port 30 (J18-14) = 3, 3 (TCON_WIPER_AND_B)
INFO 81, H	PWM 1 Frequency, Port 13 (J24-13) = 500
INFO 82, H	PWM 2 Frequency, Port 14 (J24-14) = 500
INFO 83, H	PWM 3 Frequency, Port 27 (J18-10) = 0
INFO 84, H	PWM 4 Frequency, Port 17 (J18-1) = 0
INFO 85, H	PWM 5 and 6 Frequency, Ports 1 and 2 $(J24-1 \text{ and } 2) = 0$
INFO 86, H	PWM 4 Connect, Port 28 (J18-12) = 0 Open
INFO 87, H	PWM 5 Value, Port 2 (J24-2) = 0
INFO 88, H	PWM 6 Value, Port 1 (J24-1) = 0
INFO 89, H	PWM 5 Connect, Port 2 (J24-2) = 0 Open
INFO 90, H	PWM 6 Connect, Port 1 (J24-1) = 0 Open
INFO 91, 0	CAN1 Connect, Ports 3 and 4 (J24-3 and 4) = 0 Open
INFO 92, C	CAN2 Connect, (J18-15 and J18-16) = 0 Open
SET 16 5	

Easy Way

 Smart Sensor Simulator Interface Application



Example of Adjusting the SSS2

 Slide to adjust voltage 	Wiper Position 100k 20 Set Position Wiper Connected So Wiper Connected Wiper Connected Connected to Ground Wiper Connected FCU Application Connected to Ground Pin ECU Pins TAN/BLK Application Description Pin ECU Pins BROWN Application Description
	High Current Adjustable Regulator High Current Regulator (J24:19) Mean Value ECU Application Pin ECU Pins Application Description
Synercon Technologies Herry Velide Correct Sensor Farmer	High Current Adjustable Regulator High Current Regulator (J24:19)
Smart Strate Applications for Universal Applications with states with states with states	Mean Value ECU Application Pin ECU Pins TAN

Example of Adjusting the SSS2

See the the sli	meter match lider value.
THE ALL ALL ALL ALL ALL ALL ALL ALL ALL AL	Can also directly type voltage and press the Set Voltage button.
	High Current Adjustable Regulator High Current Regulator (J24:19) Mean Value 1.9 Set Voltage
Synercon Technologies Meavy Value Smart Sensor Simulator 2 Gruniversal Applications (The Krew 2 Service) (The Krew 2 Service) (The Krew 2 Service) (The Krew 2 Service) (The Krew 2 Service) (The Krew 2 Service) (The Constitution of the Constitutio	EV Application Pin V Pins TAN ~ Appli Description
Probe connected to J24:19 and	d Ground Move the slider to a minimum value.

Adjust Digital Potentiometer as a Voltage Divider

43/255

210/255

H	Pote	entiometers 1	though 8					
6	2 T	erminal A Vo	ltage Enabled					
F	Teri	minal A Volta	ge for U1 and l	J2-				
			○ +12 ¹	(•	5V		
	Po	tentiometer	1 (J24:1)	1 1	Po	tentiometer	2 (J24:2)-	
		🗹 Termina	I A Connected			🗹 Termina	I A Conn	ected
\rangle		Wiper Posit	ion 10k			Wiper Posit	ion	10k
		210	Set Position			200	Set Pos	ition
		Wiper C	onnected			Wiper C	onnected	
		Connect	ted to Ground			Connec	ted to Gro	ound
	EC	CU Applicatio	n		-EC	U Applicatio	n	
	Pir	n ECU Pins	ppl/wht 🗸		Pin	ECU Pins	BRN/WH	HT ~
	Ар	plication Des	cription		Ap	plication Des	cription	

4003V-



-Terminal A Voltage for U1 and U2-○ +12V ● +5V Potentiometer 1 (J24:1)-Potentiometer 2 (J24:2)-Terminal A Connected Terminal A Connected Wiper Position Wiper Position 10k 10k 43 200 Set Position Set Position Wiper Connected Wiper Connected Connected to Ground Connected to Ground ECU Application ECU Application-Pin ECU Pins PPL/WHT V Pin ECU Pins BRN/WHT \ Application Description Application Description

Low Level Access to the SSS2

- Based on the Teensy 3.6 USB development platform from PJRC.com
- Source Code and Schematics are available on Github:

https://github.com/jeremy-daily/SSS2

- Complete listing of all the Serial commands
- Examples for CAN and sensor simulation
- Useful for building your own applications

jeremy-daily/SSS2: The cox				
This repository Search	ps://github.com/jeremy-daily/SSS2 Pull requests Issues M	larketplace Explore		x ₩ × × :::
jeremy-daily / SSS2 ⇔Code ① Issues ◎ ۩ Pu	Il requests 0 🔲 Projects 0 💷 Wiki	Settings Insig	Unwatch - 6	★ Star 0 ¥ Fork 1
The code base for the Teensy 3.6	based Smart Sensor Simulator 2.			Edit
7 commits	ទ្រ 5 branches	♡ 3 releases		2 contributors
⑦ 57 commits Branch: master ▼ New pull request	ي 5 branches €	S releases	Upload files Fin	L 2 contributors
57 commits Branch: master New pull request jeremydaily Fixed Thread Name use	∲ 5 branches n library	S releases Create new file	Upload files Fin	2 contributors Glone or download + test commit 38a9c22 on Jul 20
 57 commits Branch: master New pull request jeremydaily Fixed Thread Name use Libraries 		S releases Create new file	Upload files Fin	2 contributors d file Clone or download ~ test commit 38a9c22 on Jul 20 2 months ago
 57 commits Branch: master New pull request jeremydaily Fixed Thread Name use Libraries SSS2_Firmware 	Image: Signal Stress	S releases Create new file	Upload files Fin	2 contributors d file Clone or download test commit 38a9c22 on Jul 20 2 months ago 3 months ago
 57 commits Branch: master New pull request jeremydaily Fixed Thread Name use Libraries SSS2_Firmware docs 	Ibrary Fixed Thread Name use in library Added Hash to Firmware Fixes after Testing PWMs Fixes after Testing PWMs	S releases Create new file	Upload files Fin	2 contributors d file Clone or download test commit 38a9c22 on Jul 20 2 months ago 3 months ago 4 months ago
57 commits Branch: master New pull request jeremydaily Fixed Thread Name use Libraries SSS2_Firmware docs .gitignore	Image: S branches Image: S branches <t< td=""><td>S releases Create new file</td><td>Upload files Fin</td><td>2 contributors Clone or download clone or download commit 38a9c22 on Jul 20 2 months ago 3 months ago 4 months ago 4 months ago</td></t<>	S releases Create new file	Upload files Fin	2 contributors Clone or download clone or download commit 38a9c22 on Jul 20 2 months ago 3 months ago 4 months ago 4 months ago
Image: State of the state	Image: Signal Stress	S releases Create new file	Upload files Fin	2 contributors Clone or download test commit 38a9c22 on Jul 20 2 months ago 3 months ago 4 months ago 4 months ago 4 months ago 4 months ago

SSS2

The code base for the Teensy 3.6 based Smart Sensor Simulator 2. This SSS2 is primarily designed to simulate sensors for heavy vehicle electronic control units; however, it can be used for many other things. It is a multitool for vehicle systems. It can be used in a forensic context to simulate the presence of a vehicle and reduce the number of fault codes present when turning on the system again.

Software Design

There are three sets of files needed to make the SSS2 work. All the software in this repository is for Arduino.

SSS2 Interface Application

- Download from <u>http://synercontechnologies.com/sss2/</u>
- Controls the adjustable analog signal generation in the SSS2
 - Analog Voltage Output for Pressure Sensors
 - Pulse Width Modulated Output Tone ring generation and Accelerator Pedals
 - Digital Potentiometers Temperature sensors, Accelerator Pedals
- Low Level CAN/J1939 message generation
 - Simulate network traffic from other ECUs
 - Create multi-packet bursts
 - Send individual CAN frames
- CAN Frame Data Logger
 - Sorts by ID

22

Exports to CSV file



Step 1: Download the SSS2 Interface Application

Synercon Technologies ×	0			>
← → C ① synercontechnologies.com/sss2/	@ ☆			1
		FLA Po	rtal	

Synercon

Home Product Lines Services FAQs Resources Downloads About Blog Contact Q.

Smart Sensor Simulator 2

The Smart Sensor Simulator 2 is a small package to simulate a big truck. The SSS2 creates an electrically equivalent system to emulate the sensors, actuators, power and communications found on an actual vehicle. You can use any RP1210 device to connect to the SSS2 through its built-in 9pin connector. You can also use the Forensic Link Adapter to perform a benchtop download with the SSS2.



Smart Sensor Simulator Interface

A Graphical User Interface (GUI) to set configurations for the SSS2 to accommodate different ECUs for the entire fleet. This enables you to have just one Smart Sensor Simulator 2 for all your electronic control unit interface needs.



Current Release:

SetupSSS2Interface-1.0.7.exe

SetupSSS2Interface-1.0.7.zip (Try this in case your computer restricts downloading executable files.)

This installer includes a serial driver to communicate with SSS2 from Windows 7 and 8. Windows 10 should already have the driver installed.



Step 3: Connect Power, USB, VDA and an Exemplar ECU



Don't turn on the key switch yet.

VDA = Vehicle Diagnostic Adapter (like the FLA or Nexiq)

26

Step 4: Load the SSS2 Setting File

6	Sm	nart Sensor Simula	ator I	nterface									– 🗆 X
F	ile	SSS2 Settings File										×	
F	сш	Look in:		SSS2	▼ ← 1								
-E	lect	₹_	Na	me		Date modified	Туре	Size				^	
F	cur			CPC Only	y - DDEC 10 - DD15 - 2011 Freightliner Ca	9/4/2017 7:49 PM	SSS2 File	44 KB					-
	~~	QUICK access		DDEC 13	CPC4 for 250k J1939 with a TCM.SSS2	9/1/2017 7:27 PM	SSS2 File	43 KB					Suparaon
E	ngir			DDEC 10	CPC for 250k J1939.SSS2	9/1/2017 5:45 PM	SSS2 File	43 KB					, Synercon
E	cu:	Desktop		CPC2 On	ly - DD15 - 2009 Freightliner Cascadia.SSS2	8/28/2017 6:07 AM	SSS2 File	38 KB					
		-		CPC2 On	ly - DD15 - 2010 Freightliner Cascadia.SSS2	8/28/2017 6:07 AM	SSS2 File	38 KB					🐧 l'echnologies
V	eh.	-		CPC2 On	ly - S60 - 2010 Freightliner Cascadia.SSS2	8/28/2017 6:07 AM	SSS2 File	38 KB					
v	ehic	Libraries		Cummin	s CM2350 250k Vehicle and Engine Conne	8/28/2017 6:07 AM	SSS2 File	38 KB					
				Cummin	s CM2350 500k Partial Vehicle and Engine	8/28/2017 6:07 AM	SSS2 File	38 KB					
E	CU	This PC		Cummin	s CM2350 500k Vehicle and Engine Conne	8/28/2017 6:07 AM	SSS2 File	38 KB					
E	CU			Cummin	s CM2350 500k Vehicle Only Connector.S	8/28/2017 6:07 AM	SSS2 File	38 KB					-
	mai			Cummin	s CM2350 Vehicle and Engine Connector	8/28/2017 6:07 AM	SSS2 File	38 KB					
		Network		Cummin	s CM2350 Vehicle Connector Only.SSS2	8/28/2017 6:07 AM	SSS2 File	38 KB					
S	552		$\mathbf{\nabla}$	DDEC 13	CPC4 (yellow label) for 500k J1939 with a	8/28/2017 6:07 AM	SSS2 File	43 KB					10 8 1510
					J only.5552	8/28/2017 6:07 AM	SSS2 File	37 KB					and the second
s	SS2			Caterpilla	A DEM3 0NZ.SSS2	8/20/2017 3:09 PIVI	5552 File	37 KB					Star 1
				Caterpilla	AF ADEM2 057 5552	8/20/2017 3:01 PIVI 9/26/2017 2:01 DM	SSS2 File	37 KB					5500 (Star 1)
S	SS2				ADEM2 PSV SS2	0/20/2017 5:01 PIVI	SSS2 File	27 KD					
s	SS2				CBC4 from 2014 DD15 5552	0/20/2017 5:01 PIVI	SSS2 File	37 KD					
Ŀ				MRE SSS	2	8/20/2017 8:54 DM	SSS2 File	43 KB					
- r	Jurre			Caternilla	ΔDEM2 \$\$\$2	8/15/2017 1-52 AM	SSS2 File	37 KB					
				Caternilla	ar ADEM3 CKM SSS2	8/15/2017 1:52 AM	SSS2 File	37 KB					12
	.urre			Caterpilla	ar ADEM4 SDP (2 Wire Coolant sensor). SSS2	8/15/2017 1:52 AM	SSS2 File	37 KB					
L	Sav			Caterpill	ar ADEM4 SDP (4 Wire Coolant sensor).SSS2	8/15/2017 1:52 AM	SSS2 File	37 KB					
-9	mai			Cummin	s CM870.SSS2	8/15/2017 1:52 AM	SSS2 File	38 KB					
F	ile S			DDEC 4.S	SS2	8/15/2017 1:52 AM	SSS2 File	37 KB				1	
F	ile S			DDEC 6.S	SS2	8/15/2017 1:52 AM	SSS2 File	37 KB					Open Settings File
				DDEC 13	CPC4 Example.SSS2	8/15/2017 1:52 AM	SSS2 File	38 KB					Save Settings File
				DDEC 13	CPC4 for 500k J1939 with TCM.SSS2	8/15/2017 1:52 AM	SSS2 File	44 KB					
-١	Narr			DDEC 13	CPC4 from 2016 DD15 with a TCM.SSS2	8/15/2017 1:52 AM	SSS2 File	43 KB					Save Settings File As
1	Usi			defaults.	5552	8/15/2017 1:52 AM	SSS2 File	37 KB					Get SSS2 Unique ID
	of			VIN Broa	dcast Example.SSS2	8/15/2017 1:52 AM	SSS2 File	36 KB				× -	·
	acc		File	name:	DDEC 13 CPC4 (yellow label) for 500k J1939 w	vith a TCM.SSS2			•		Open		Visit: http://www.synercontechnologies.com/SSS2/
			Files	s of type:	Smart Sensor Simulator 2 Settings Files (*.SSS)	2)			•		Cancel		
D	efau.				,					_			SSS2 Connected on COM9

Step 5: Confirm Settings (Forensic Use)

- If performing a Forensic Investigation connect an Exemplar ECU with the same programming as the Subject ECU.
- Turn on the key switch and verify operation.
 - Adjust settings if necessary
 - Add CAN messages if needed
- Turn key switch off, wait until the messages turn off
- Unplug the exemplar module, but not the SSS2 (this keeps the settings loaded)
- Plug in the Subject ECU (Settings will hold from the previous session)
- Turn on the Key Switch and perform the download.

Note: Failure to do this step may result in undesired Fault Codes being set on the Subject ECU

Step 6: Turn the Key Switch On

File Connection Tools			
Ignition Key Switch		USB/Serial Monitor: SET 75,0	
ECU Profile Settings Digital Potentiometers Extra Outputs Voltage Output Net	twork Message Generator Data Logger SSS2 Command Interface		
Buffer Size: 1000000	Caution: Using the datalogger features can set fault codes. CAN mess	sages may be faster than USB and messages may be dropped.	
-J1939 Messages	CAN1 Messages	AN2 Messages	
Stream CAN0 (J1939) Clear Buffer Save Buffer Save Buffer As	Stream CAN1 (MCPCAN) Clear Buffer Save Buffer Save Buffer As	Stream CAN2 (PTCAN) Clear Buffer Save Buffer Save Buffer As	
J1939 Bit Rate: 250000 🗸 Set	CAN1 Bit Rate: 250000 V Set	CAN2 Bit Rate: 125000 V Set	
CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count	CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count	CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count	

CAN Data Logger – Check Connection

Connection Tools USB/Serial Monitor. SET CAN1 baudrate set to 50000 USB/Serial Monitor. SET CAN1 baudrate set to 50000 CAN1 Messages CAN1 Messages Generator Data Logger SSS2 Command Interface Office Settings Digital Potentione ters Extra Output Voltage Output Network Message Generator Data Logger SSS2 Command Interface Office Settings Digital Potentione ters Extra Output Voltage Output Network Message Generator Data Logger SSS2 Command Interface CAN1 Messages CAN1 Messages CAN1 Messages CAN1 Messages CAN1 Messages CAN1 Messages CAN1 Messages CAN1 Deriod DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN1 Ib Rate: 250000 · Set Set CAN1 D Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN1 Ib Rate: 250000 · Set CAN1 D Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN1 D Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN1 D Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B
USB/Serial Monitor: SET CAN1 baudrate set to 500000 USB/Serial Monitor: SET CAN1 baudrate set to 500000 Orfile Settings Digital Potentiometers Extra Outputs Voltage Output Network Message Generator Data Logger SSS2 Command Interface Orfile Settings Digital Potentiometers Extra Outputs Voltage Output Network Message Generator Data Logger SSS2 Command Interface Orfile Settings Outputs Save Buffer S
Profile Settings Digital Potentioneters Extra Outputs Voltage Output Network Message Generator Data Logger SSS2 Command Interface r Size: 1000000 Caution: Using the datalogger features can set fault codes. CAN messages may be faster than USB and messages may be dropped. 9 Messages CAN1 Messages CAN1 Messages CAN1 Messages CAN1 Messages CAN1 Messages J 1939 Bit Rate: 250000 Set CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CF00400 0.009844 8 F8 FE FE FE 700 FF
Caution: Using the datalogger features can set fault codes. CAN messages may be faster than USB and messages may be dropped. Caution: Using the datalogger features can set fault codes. CAN messages may be faster than USB and messages may be dropped. CAN1 Messages CAN1 Messages J1939 Bit Rate: Save Buffer Save Buffer As CAN1 Bit Rate: Save Buffer Save Buffer As CAN1 D Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CF00300 0.050031 8 DD FE FF
All bit Rate: CAN1 Messages CAN1 Messages
Clear Buffer Save Buffer
Instance Area (01533) Clear band Site band Si
J1939 Bit Rate: 25000 v Set CAN1 Bit Rate: 25000 v Set CAN2 Bit Rate: 50000 v Set CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count COUnt 085F0100 0.009979 8 FF FF FF FF 4025 CF00300 0.050031 8 DF FF FF FF 1441 FF FF 1441 FF
CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CF00400 0.009844 8 F8 FE FE FE 0 FF 7104 Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CF00400 0.009844 8 F8 FE FE FE 7104 Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count C600300 0.050031 8 DF FE FF FF 7104 Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count SFEF100 0.099990 8 C3 00 00 00 75 75 76 76 76 4033 8FF0300 0.010027 8 FF FF FF FF 4068 8FE2000 0.099990 8 18 00 00 761 FF FF
CF00400 0.009844 8 F8 FE FE FE FE 7104 08FF0100 0.009979 8 FF FF 5C 5D A6 0E FF FF 4025 08FF0100 0.009979 8 FF FF FF FF FF 4025 08FF0100 0.010027 8 FF FF FF FF FF 4026 08FF0200 0.010027 8 FF FF FF FF FF 4026 08FF0200 0.010027 8 FF FF FF FF F0 4033 08FF0300 0.010027 8 FF FF FF FF FF 4068
CF00300 0.050031 8 DD FE FF
8FEF100 0.099990 8 C3 00 00 00 00 30 765 8FEE000 0.099990 8 18 00 00 00 00 765 8FEE000 0.099990 8 18 00 00 00 761 08FF0300 0.010027 8 FF F
8FEE000 0.099990 8 18 00 00 00 18 00 00 00 761 08FF0300 0.010027 8 FF FF FF FF FF FF FF FF 4068
8FEDF00 0.050067 8 FE FE FE FF FF FF FF FF 1415 08FF0400 0.010025 8 01 FF FF FF 48 28 FC FF 4073
8FD0700 0.999996 8 07 F1 C0 FF FF FF FF FF FF 77 14FF0200 0.099996 8 0F 64 FF 00 1F FF F3 FF 438
4FD3E00 0.4999992 8 FF F
8F00100 0.099996 8 FF F
8FDA100 0.499990 8 FF F
8F0000F 0.100061 8 00 7D FF FF 0F FF FF FF 688 10FF0200 0.049775 8 FF FF FF FF FF FF 688
8FDB300 0.500067 8 FF F
0FE6F00 0.100025 8 FF F
8FEEF00 0.499967 8 FF FF FF FF FF FF FF FF FF FA 153
CECFF0F 4.999825 8 20 13 00 03 FF E1 FE 00 17
8FEF200 0.09997Z 8 00 00 00 00 00 00 FF FF 689
8FEF600 0.499976 8 FF 00 FF FF FF FF FF FF FF 153
8FF3000 0.100068 8 00 00 FF
8FF7400 0.999977 8 4F 01 FF FF FF FF FF FF 77



 \times



What is an SSS2 Settings File?

- A JSON text file to store settings data used for a particular session.
- Uses a SHA-256 check to ensure file has not been altered outside the SSS2 Interface App.
- Stores all the adjustable parameters (including CAN).
- Can store case file information.
- Open and view with a text editor.
- Synercon Technologies provides example .SSS2 files.
- Users should generate their own files for each case.

📔 с	:\Users\dailya	dmin\Documents\GitHub\SSS2-GUI\DDEC 13 CPC4 for 250k J1939 with a TCM.SSS2 - Notepad++	-		\times
File	Edit Search	View Encoding Language Settings Tools Macro Run Plugins Window ?			х
b	8 8 6) 🕼 🚔 🕹 🛍 🌔 Ə C # 🏂 🤏 🛸 🖫 🖼 🔚 1 📜 🖾 🔊 🗉 🗉			J »
🔡 RE	ADME.md 🗷	🗄 DDEC 13 CPC4 for 250k J1939 with a TCM.SSS2 🔀			
111		<pre>.".31.001":."TCM.FF0903,31,2,1,1,50,0,0,1,10FF0903,8,00,00,00,00,00,00,1F,</pre>	30,Ye	s",	^
112		-"-31.002": -"TCM-FF0903,31,16,2,1,50,0,0,1,10FF0903,8,00,00,00,00,00,00,2F	,66,Y	es",	
113		-"-31.003": "TCM-FF0903,31,16,3,1,50,0,0,1,10FF0903,8,00,00,00,00,00,00,3	,54,Y	es",	
114		-" 31.004": "TCM FF0903,31,16,4,1,50,0,0,1,10FF0903,8,00,00,00,00,00,00,4F	,CA,Y	es",	
115		" 31.005": "ICM FF0903,31,16,5,1,50,0,0,1,10FF0903,8,00,00,00,00,00,00,5	, 18, 19	es",	
117		.".31.000": "TCM.FE0903.31.16.7.1.50.0.0.1.10FE0903.8.00.00.00.00.00.00.7	, AE, I	es",	
118		" 31.008": "TCM FF0903.31.16.8.1.50.0.0.1.10FF0903.8.00.00.00.00.00.00.8	.09.Y	es".	
119		".31.009": "TCM FF0903.31.16.9.1.50.0.0.1.10FF0903.8.00.00.00.00.00.00.9	. 3B. Y	es".	
120		".31.010": "TCM FF0903.31.16.10.1.50.0.0.1.10FF0903.8.00.00.00.00.00.00.00.	F.6D.	Yes",	
121		-"-31.011": "TCM FF0903,31,16,11,1,50,0,0,1,10FF0903,8,00,00,00,00,00,00,00	F, 5F,	Yes",	
122		.".31.012": ."TCM.FF0903,31,16,12,1,50,0,0,1,10FF0903,8,00,00,00,00,00,00,00,00	F, C1,	Yes",	
123		.".31.013": . "TCM.FF0903, 31, 16, 13, 1, 50, 0, 0, 1, 10FF0903, 8, 00, 00, 00, 00, 00, 00, 00, 00, 00,	F, F3,	Yes",	
124		-"-31.014": • TCM • FF0903, 31, 16, 14, 1, 50, 0, 0, 1, 10 FF0903, 8, 00, 00, 00, 00, 00, 00, 00, 00, E	F, A5,	Yes",	
125		.".31.015": "TCM.FF0903, 31, 16, 15, 1, 50, 0, 0, 1, 10FF0903, 8, 00, 00, 00, 00, 00, 00, 00, 00	F,97,	Yes"	
126	····},				
127	····"CA	N.Config": {			
128		<pre>"Buffer Size": 1000000,</pre>			
129		•"CAN0 •Baudrate": •"250000",			
130		."CANI.Baudrate": "6666666",			
131		"MCPCAN Baudrate": "250000"			
132		ee.Number""CNSF.IDENTIFIED"			
134	"Co	mpany": "COMPANY NAME".			
135	"Co	mponent. ID": ."SYNER*SSS2-R05*0034*UNIVERSAL".			
136	· · · · "DA	Cs": {			
137		-"Vout1": {			
138		"Alt. Pin": "J24:15",			
139		·····"Alt. ·Pin ·Connect": ·false,			
140		····"Amplitude": 0,			
141		"Application":."Coolant",			
142		·····"Average ·Voltage": ·0.0,			
143		"ECU.Pins":."",			
144		"Frequency": ·0,			
145		"Levest Voltage": 5,			
147		Name			
148					
149		"Port": ."18".			
150		"SSS2.setting": 17,			
151		"Shape":."Constant",			
152		·····"Show Amplitude": false,			
153	• • • • • • • •	·····"Show·Frequency": false,			
154	•••••	····"Wire Color": •""			
155	• • • • • • • •	·},			
156	••••	-"Vout2": {			
157		"AltPin":."J24:10",			~

Normal text file length : 44,001 lines : 986 Ln : 1 Col : 1 Sel : 0 | 0

INS

32

Saving Files

- The SSS2 Interface App can save settings files
 - SSS2 should be connected.
 - The correct Unique ID is needed.
- File keeps track of dates and times automatically.

- Status bar shows file location.
 - Current settings are checked against the saved settings with a Secure Hash Algorithm (SHA).
 - Green Box = settings match the file
 - Red Box = Settings have changed

Current Settings Information	
Settings File: test.SSS2	
Current SHA-256 Digest: 92386a23d3c721993e05e5b28dee38abde0efee9b191ea4bf62503f7cd18c37f	
Saved SHA-256 Digest: 92386a23d3c721993e05e5b28dee38abde0efee9b191ea4bf62503f7cd18c37f	
Smart Sensor Simulator Interface Information	
File Saved with Smart Sensor Simulator Interface Version: 1.0.7	
File Saved with Smart Sensor Simulator Interface Release: 4 September 2017	
Current Smart Sensor Simulator Interface Version: 1.0.7	
Current Smart Sensor Simulator Interface Release: 4 September 2017	
- Warnings and Cautions-	
Using the Smart Sensor Simulator 2 cannot guarantee a fault free environ of fault codes is critical, then the user is encouraged to test the SSS accordingly. Only properly trained experts should use this software and	nment for all electronic o 2 settings with an exempla product.

Saved C:/Users/dailyadmin/Documents/SSS2/test.SSS2

Settings Unchanged

- ► Files open quickly, but load onto the SSS2 slowly.
- Press CTRL-O, Press the Open Settings File button or Select the File Menu and Open.
- Most Synercon Technologies provided files will have ECU data that was used for the test.
 - Engine Serial Number
 - Year, Make, Model
 - Other notes
- Files are saved per ECU and are not general across all ECUs in that family.
 - Exemplar Module testing is important to make sure the Synercon template file will work.
 - ECUs with similar outward appearance can have different software or internal circuits.

CAN Message Logging

Example of a CPC from a DDEC 10 with 500k CAN on the PT-CAN

Smart Sensor Simulator Interface			
ile Connection Tools			
✓ Ignition Key Switch		USB/Serial Monitor: FIRMWARE SSS2*REV05*1.0*master*c3b62b583f1	f7b22da9f3ec93ed09addc75a1d1e
CU Profile Settings Digital Potentiometers Extra Outputs Voltage Output	Network Message Generator Data Logger SSS2 Command Interface		
uffer Size: 1000000	Caution: Using the datalogger features can set fault codes. CAN	messages may be faster than USB and messages may be dropped.	
1939 Messages	CAN1 Messages	CAN2 Messages	
Stream CAN0 (J1939) Clear Buffer Save Buffer Save Buffer As	Stream CAN1 (MCPCAN) Clear Buffer Save Buffer Save Buffer As	Stream CAN2 (PTCAN) Clear Buffer Save Buffer Save Buffer As	
J1939 Bit Rate: 250000 V Set	CAN1 Bit Rate: 250000 V Set	CAN2 Bit Rate: 500000 V Set	
CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count	CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count	CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count	
	🔍 Turn Key Switch On 🛛 🕹 👋		
	Have you loaded or configured the desired settings?		
	Yes No		
	Connect CAN1 (MCPCAN) to J24:3 and J24:4	۳۱ J	
ened C:/Users/dailvadmin/Documents/SSS2/CPC Only - DDEC 10 - DD15 -	2011 Freightliner Cascadia.SSS2	ngs Unchanged	SSS2 Connected o

CPC from DDEC 10 CAN Traffic

The SSS2 logger only captures external traffic (not what it produces).

📎 Smart Sensor Simulator Interface	— —
File Connection Tools	
☑ Ignition Key Switch	USB/Serial Monitor: SET 50,1
ECI Profile Settings Digital Potentiometers Extra Outputs Voltage Output	Network Message Generator Data Logger ISS2 Command Interface
Buffer Size: 1000000	Caution View and the state of t
J1939 Messages	P CAN1 Messages
julean CANO (1939) Clear builer Save builer Save builer As	Stream CAIVE (VICECAIV) Clear builet Save
J1939 Bit Rate: 250000 V Set	CAN1 Bit Rate: 250000 Set CAN2 Bit Rate: 500000 Set
CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count	CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count
18FECA3D 0.999736 8 00 00 00 00 00 00 00 00 66	08FF0100 0.009984 8 FF FF 5C 5D A6 0E FF FF 8094
18FECA01 0.999738 8 00 00 00 00 00 00 00 00 66	08FF0000 0.009946 8 FF 70 0F FF FF FF FF FF 8091
18FECA03 1.001800 8 00 00 00 00 00 00 00 00 66	08FF0200 0.009638 8 FF FF FF FF FF FF F7 F0 8080
0CF00400 0.010000 8 F8 FE FE FE FE 00 FF FE 6082	08FF0300 0.009934 8 FF FF FF FF FF FF FF FF FF 8086
0CF00300 0.050022 8 DD FE FE FF FF FF 00 FF 1229	08FF0400 0.009938 8 01 FF FF FF 48 28 FC FF 8101
18FEF100 0.100046 8 C3 00 00 00 00 00 00 30 649	0CFF0000 0.019906 8 34 F3 FF FF FF FF FF 4041
18FEE000 0.099997 8 18 00 00 00 18 00 00 00 652	10FF0200 0.050001 8 FF FF FF FF 00 FF FF 1627
18FEDF00 0.049824 8 FE FE FE FF FF FF FF FF FF 1206	18FF0100 1.000001 8 FF FF 00 00 CD FF FF FF 88
14ED2E00 0.400711 0 EE	
14F00100 0.099977 8 FF F	18D 0200 5 0 10 11 11 11 10 11 11 11 0
18FDA100 0.499350 8 FF 131	10F00300 0.049891 8 DD FE FE FE FE 00 FE 1627
18F0000F 0.100090 8 00 7D FF FF 0F FF FF 587	18FEE617 0.999998 8 B0 19 0D 09 28 20 FF FF 88
18FDB300 0.499927 8 FF FF FF FF FF FF FF FF FF 130	14FF0200 0.100000 8 0F 64 FF 00 FF FF F3 FF 858
10FE6F00 0.100013 8 FF FF FF FF FF FF FF FF FF 584	14FF0300 0.099922 8 FF FF FF FF FF FF FF FF 844
18FEEF00 0.499750 8 FF FF FF FF FF FF FF FA 126	14FEF200 0.100084 8 00 00 FF FF FF FF FF 785
1CECFF0F 5.000044 8 20 13 00 03 FF E1 FE 00 15	18FECA00 1.000289 8 C7 FF 5B 00 04 01 FF FF 87
18FEF200 0.099992 8 00 00 00 00 00 00 FF FF 586	10FF0300 1.020298 8 A8 C2 00 FF FF FF FF 11 155
18FEF600 0.500042 8 FF 00 FF FF FF FF FF FF 130	1CECFF00 5.000067 8 20 27 00 06 FF E3 FE 00 17
18FF3000 0.099999 8 00 00 FF FF FF FF FF FF 641	1CEBFF00 0.050151 8 06 FF FF FF FF FF FF FF 102
18FEF500 0.999644 8 FF FF FF FF FF FF FF FF 59	
14FFA000 0.099986 8 FC FF FF FF FF FF FF FF 641	
18FEFUUU U.U99985 8 FF FF FF 00 00 FU 00 FF 645	
10FEELUU U.399090 0 FF FF FF FF FF FF FF FF	

Opened C:/Users/dailyadmin/Documents/SSS2/CPC Only - DDEC 10 - DD15 - 2011 Freightliner Cascadia.SSS2

35

Settings Unchanged

CAN Data Logger

- CAN data is streamed over USB in binary form.
- SSS2 Interface App decodes the binary and stores it in a list.
- Display tables are based on ID

36

- If a new CAN ID is found, it is entered into the display table
- Messages with existing CAN IDs add an increment to the ID counter
- ID rates are calculated.
- Saving the Buffer creates a CSV file and clears the list of messages.
- CSV file can be opened in Excel.
 - Use Text Import Wizard
 - Import columns as Text, not General
- CAN data is in Hexadecimal
- Timestamps are in seconds from Jan. 1, 1970

2	C:\User	s∖dailyadı	min\Do	cuments\Gi	itHub\SSS2-0	GUI\SSS2_C	AN2_Da	ata_Log_20	017-08	-1 –	- 🗆	×	
File	Edit	Search	View	Encoding	Language	Settings	Tools	Macro	Run	Plugins	Window	?	Х
	- 8	🖻 📑	īg 🖨	* 🖻	b 7 c	i i i i i i i i i i i i i i i i i i i	1 🔍	ຊ 🖪		≣ ⊋ ¶	JE 🥦 📡	Ø	>>
H 9	SS2 CA	N2 Data	Log 201	7-08-18 102	2104 WithVG1	F.csv 🔀							

Channel, Unix Timestamp, CAN ID (Hex), EXT, DLC, B1, B2, B3, B4, B5, B6, B7, B8 CAN2,1503051634.260673,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF CAN2,1503051634.270150,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF CAN2,1503051634.280090,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF CAN2,1503051634.290043,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF CAN2,1503051634.290639,15FF2500,1,8,FF,FF,F0,F0,FF,FF,FF,FF,FF CAN2,1503051634.300075,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF CAN2,1503051634.310117,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 9 CAN2,1503051634.320128,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 10 CAN2,1503051634.330083,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 11 CAN2,1503051634.340240,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 12 CAN2,1503051634.350096,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 13 CAN2,1503051634.360091,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF,FF 14 CAN2,1503051634.370140,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF,FF 15 CAN2,1503051634.380052,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 16 CAN2,1503051634.390043,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 17 CAN2,1503051634.390640,15FF2500,1,8,FF,FF,F0,F0,FF,FF,FF,FF,FF 18 CAN2,1503051634.400079,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 19 CAN2,1503051634.410111,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 20 CAN2,1503051634.420109,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 21 CAN2,1503051634.429922,18FD7C00,1,8,F8,83,05,00,D3,1F,03,FF 22 CAN2,1503051634.430515,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 23 CAN2,1503051634.440097,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 24 CAN2,1503051634.450012,18FEF600,1,8,FF,73,FE,FF,FF,FF,FF,FF 25 CAN2,1503051634.450601,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 26 CAN2,1503051634.460081,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 27 CAN2,1503051634.470140,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 28 CAN2,1503051634.480073,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 29 CAN2,1503051634.485134,18FEDF00,1,8,7D,A0,28,7D,7D,FF,FF,F0 30 CAN2,1503051634.490038,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 31 CAN2,1503051634.490634,15FF2500,1,8,FF,FF,F0,F0,FF,FF,FF,FF 32 CAN2,1503051634.500034,0CFD9200,1,8,F0,FF,FF,FF,FF,FF,FF,FF, 33 CAN2,1503051634.500623,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 34 CAN2,1503051634.510128,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 35 CAN2,1503051634.520127,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 36 CAN2,1503051634.530087,0CFFC600,1,8,32,00,01,FF,FF,FF,FF,FF 37 CAN2, 1503051634.540154, 0CFFC600, 1, 8, 32, 00, 01, FF, FF, FF, FF, FF

length: 337,584 Ln: 1 Col: 1 Sel: 0 | 0

Windows (CR LF) UTF-8

INS
CAN Message Logger Buffer Size

- If the number of CAN messages in memory exceeds the buffer space, logging will cease and the streaming data will be highlighted.
- The message lists take up memory, so they have to be constrained based on system resources.

	🔍 Smart Sensor Simulator Interface			– 🗆 🗙	
	File Connection Tools				
	☑ Ignition Key Switch		USB/Serial Monitor: SET 50,1		
	ECU Profile Settings Digital Potentiometers Extra Outputs Voltage Output	Network Message Generator Data Logger SSS2 Command Interface			
/	Buffer Size: 10000	Caution: Using the datalogger features can set fault codes. CAN	messages may be faster than USB and messages may be dropped.		
·	- J1939 Messages	CAN1 Messages	CAN2 Messages		
	Stream CAN0 (J1939) Clear Buffer Save Buffer Save Buffer As	Stream CAN1 (MCPCAN) Clear Buffer Save Buffer Save Buffer As	Stream CAN2 (PTCAN) Clear Buffer Save Buffer Save Buffer As		
	J1939 Bit Rate: 250000 🗸 Set	CAN1 Bit Rate: 250000 V Set	CAN2 Bit Rate: 500000 V Set		
	CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count	CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count	CAN ID Period DLC B0 B1 B2 B3 B4 B5 B6 B7 Count		Clearing or
	18FECA3D 0.999736 8 00 00 00 00 00 00 00 00 66		08FF0100 0.010142 8 FF FF 5C 5D A6 0E FF FF 30848		
	18FECA01 0.999738 8 00 00 00 00 00 00 00 00 66		08FF0000 0.009973 8 FF 70 0F FF FF FF FF FF 30792		Savina the
	18FECA03 1.001800 8 00 00 00 00 00 00 00 00 66		08FF0200 0.009971 8 FF FF FF FF FF F3 7F F0 30768		Suvingine
	0CF00400 0.010000 8 F8 FE FE FE FE 00 FF FE 6082		08FF0300 0.009973 8 FF FF FF FF FF FF FF F7 FF 30812		
	0CF00300 0.050022 8 DD FE FE FF FF FF 00 FF 1229		08FF0400 0.009946 8 01 FF FF FF 48 28 FC FF 30902		Butter will
	18FEF100 0.100046 8 C3 00 00 00 00 00 00 30 649		0CFF0000 0.019916 8 34 F3 FF FF FF FF FF FF FF 15417		Berrer
	18FEE000 0.099997 8 18 00 00 00 18 00 00 00 652		10FF0200 0.050003 8 FF FF FF FF FF FF 00 FF FF 61/6		onablo
	18FEDF00 0.049824 8 FE FE FE FF FE FF FF FF FF FF 1200		18FF0100 0.999982 8 FF FF 00 00 CD FF FF FF 334		ELIUDIE
	14ED2E00 0.499981 8 57 C0 00 FF FF FF FF FF 130		19F0021 0.030304 8 F2 FF FF FF FF FF FF FF FF 61/9		
	18E00100 0.099997 8 FE 585		180 A0100 0 119710 8 02 10 01 FE FE FE FE FE A9		continued
	18FDA100 0.499350 8 FF FF FF FF FF FF FF FF FF 131		10F00300 0.050069 8 DD FE FE FF FF FF 00 FF 6203		
	18F0000F 0.100090 8 00 7D FF FF 0F FF FF FF 587		18FEE617 0.999987 8 CC 1D 0D 09 28 20 FF FF 323		logging
	18FDB300 0.499927 8 FF FF FF FF FF FF FF FF FF 130		14FF0200 0.099990 8 0F 64 FF 00 FF FF F3 FF 3077		iogging.
	10FE6F00 0.100013 8 FF FF FF FF FF FF FF FF 584		14FF0300 0.099995 8 FF FF F3 FF FF FF FF FF 3215		
	18FEEF00 0.499750 8 FF FF FF FF FF FF FF FA 126		14FEF200 0.099626 8 00 00 FF FF FF FF FF FF 3166		
	1CECFF0F 5.000044 8 20 13 00 03 FF E1 FE 00 15		18FECA00 1.000011 8 C7 FF 5B 00 04 01 FF FF 334		
	18FEF200 0.099992 8 00 00 00 00 00 00 FF FF 586		10FF0300 0.509388 8 A8 C4 00 FF FF FF FF 02 596		
	18FEF600 0.500042 8 FF 00 FF FF FF FF FF FF 130		1CECFF00 4.999715 8 20 27 00 06 FF E3 FE 00 66		
	18FF3000 0.099999 8 00 00 FF FF FF FF FF FF 641		1CEBFF00 4.749664 8 01 00 00 FF 00 00 FF 00 392		
	18FEF500 0.999644 8 FF FF FF FF FF FF FF FF FF 59				
	14FFA000 0.099986 8 FC FF FF FF FF FF FF FF 641				
	10000000000000000000000000000000000000				
	18FEEE00 0.999690 8 FF FF FF FF FF FF FF FF FF 66				
	<u>n</u>	Connect CAN1 (MCPCAN) to J24:3 and J24:4	JI		
	Opened Cr/Users/dailyadmin/Decuments/SSS2/CBC Oply - DDEC 10 - DD15 -	2011 Ersightliner Cacadia SSS2	ngs Unshanged	0MO2 on betreenen 5222	

38

J1708 Message Logger

Connect J1708 to the external pins from the Network Message Generator tab.

📎 Smart Sensor Simulator Interface																			– 🗆 X
File Connection Tools																			
✓ Ignition Key Switch				2												US	SB/Se	erial N	Nonitor: SET 39,1
ECU Profile Settings Digital Potentic	meters Ex	tra Outpi	uts Volta	ge Outpu	t Network	Message G	ienerator	Data Log	ger	SSS2 Command	Inter	rface							
CAN Messages to Transmit				````															Transmit all CAN messages
Label	Thread	Count	Index	Send	Channel	Period	Restart	Total	Ext	CAN HEX ID D	DLC	B1 F	32 B	3 B	4 B5	B6	B7	B8	
DDEC MCM 01	1	1	0	Yes	CAN2	10	0	0	1	8FF0001	8	00 (0 00	0 0	00 00	00	00	00	Stop Sending all CAN messages SVnercon
DDEC TCM 01	2	1	0	Yes	CAN2	10	0	0	1	CFF0203	8	00 (0 00	0 0	0 00	00	00	00	
DDEC TCM 02	3	1	0	Yes	CAN2	10	0	0	1	8FF0303	8	FF F	FFF	FF	F FF	FF	FF	FF	J1939 Bit Rate: 250000 V Set Iecnnologies
DDEC TCM 03	4	1	0	Yes	CAN2	100	0	0	1	18F00503	8	00 (0 00	0 0	0 00	00	00	00	
HRW from Brake Controller	5	1	0	Yes	J1939	20	0	0	1	CFE6E0B	8	00 (0 00	0 0	0 00	00	00	00	CAN1 Bit Rate: 250000 V Set
EBC1 from Cab Controller	6	1	0	Yes	J1939	100	0	0	1	18F00131	8	00 (0 00	0 0	0 00	00	00	00	CAN2 Bit Rater 500000 V Set
EBC1 from Brake Controller	7	1	0	Yes	J1939	100	0	0	1	18F0010B	8	00 (0 00	0 0	0 00	00	00	00	
CCVS1 from Instrument Cluster	8	1	0	Yes	J1939	100	0	0	1	18FEF117	8	00 (0 00	0 0	0 00	00	00	00	CAN Message Editor
CCVS1 from Cab Display 1	9	1	0	Yes	J1939	100	0	0	1	18FEF128	8	00 (0 00	0 0	0 00	00	00	00	Description: TCM FF0903
CCVS1 from Body Controller	10	1	0	Yes	J1939	100	0	0	1	18FEF121	8	00 (0 00	0 0	0 00	00	00	00	Thready 21 Sequence County 16 Sequence Index 15
CCVS1 from Cab Controller	11	1	0	Yes	J1939	100	0	0	1	18FEF131	8	00 (0 00	0 0	0 00	00	00	00	Thread, 51 Sequence Count, 10 Sequence Index. 15
CM1 from Instrument Cluster	12	1	0	Yes	J1939	100	0	0	1	18E00017	8	00 (0 00	0 0	0 00	00	00	00	Hex CAN ID: 10FF0903 DLC: 8 🗸 🗹 Use Extended (29-bit) ID
CM1 from Climate Control 1	13	1	0	Yes	J1939	100	0	0	1	18E00019	8	00 (0 00	0 0	0 00	00	00	00	
CM1 from Body Controller	14	1	0	Yes	J1939	100	0	0	1	18E00021	8	00 (0 00	0 0	0 00	00	00	00	Channel: O J1939 O CAINT @ CAIN2 Phable Transmission (Send)
CM1 from Cab Display	15	1	0	Yes	J1939	100	0	0	1	18E00028	8	00 (0 00	0 0	0 00	00	00	00	Period (msec): 50 Restart (msec): 0 Total to Send: 0
CM1 from Cab Controller	16	1	0	Yes	J1939	100	0	0	1	18E00031	8	00 (0 00	0 0	0 00	00	00	00	Data Putor (Hard) P1 0 P2 0 P2 0 P4 0 P5 0 P5 0 P5 0 P7 EE P0 07
PTO from Instrument Cluster	17	1	0	Yes	J1939	100	0	0	1	18FEF017	8	00 (0 00	0 0	0 00	00	00	00	Data Bytes (Flex): B1: 0 B2: 0 B3: 0 B4: 0 B3: 0 B0: 0 B7: FF B0: 97
PTO from Body Controller	18	1	0	Yes	J1939	100	0	0	1	18FEF021	8	00 (0 00	0 0	0 00	00	00	00	Modify Selected Message Create New CAN Message
PTO from Cab Display	19	1	0	Yes	J1939	100	0	0	1	18FEF028	8	00 (0 00	0 0	0 00	00	00	00	
PTO from Cab Controller	20	1	0	Yes	J1939	100	0	0	1	18FEF031	8	00 (0 00	0 0	0 00	00	00	00	Send Selected Message Delete Selected Message
AMB from Body Controller	21	1	0	Yes	J1939	1000	0	0	1	18FEF521	8	00 (0 00	0 0	0 00	00	00	00	
DDEC Fault Codes from ACM	22	1	0	Yes	CAN2	1000	0	0	1	10FECA3D	8	00 (0 00	0 0	0 00	00	00	00	Add Sequential Message
DDEC Fault Codes from MCM	23	1	0	Yes	CAN2	1000	0	0	1	10FECA01	8	00 (0 00	0 0	0 00	00	00	00	Network Configurations
DDEC Fault Codes from TCM	24	1	0	Yes	CAN2	1000	0	0	1	10FECA03	8	00 (0 00	0 0	0 00	00	00	00	Connect LIN to Round Pin E (J10:5)
😑 TCM Output Shaft Speed	26	3	0	Yes	CAN2	10	0	0	1	8FF0103	8	FF I	FF 0	0 0	0 FF	DF	0F	33	Connect LIN to Port 16 (J24:16)
TCM Output Shaft Speed	26	3	1	Yes	CAN2	10	0	0	1	8FF0103	8	FF I	F 0	0 0	0 FF	DF	1F	01	Connect LIN Master Pullup Resistor
TCM Output Shaft Speed	26	16	2	Yes	CAN2	10	0	0	1	8FF0103	8	FF I	F 0	0 0	0 FF	DF	2F	57	Connect CAN0 (FlexCAN0) Termination Resistor (J1939)
TCM Output Shaft Speed	26	16	3	Yes	CAN2	10	0	0	1	8FF0103	8	FF /	FF 0	0 0	0 FF	DF	3F	65	Connect CAN2 (FlexCAN1) Termination Resistor (E-CAN)
TCM Output Shaft Speed	26	16	4	Yes	CAN2	10	0	0	1	8FF0103	8	FF /	FF 0	0 0	0 FF	DF	4F	FB	Connect CAN1 (MCP-CAN) Termination Resistor
TCM Output Shaft Speed	26	16	5	Yes	CAN2	10	0	0	1	8FF0103	8	FF /	FF 0	0 0	0 FF	DF	5F	C9	© Connect J1708 to J24:17 and J24:18
TCM Output Shaft Speed	26	16	6	Yes	CAN2	10	0	0	1	8FF0103	8	FF F	FF 0	0 0	0 FF	DF	6F	9F	O Connect CAN2 to J24:17 and J24:18
Opened C:/Users/dailyadmin/Docum	ents/SSS2/	CPC Onl	V - DDEC	10 - DD15	- 2011 Fre	ightliner Ca	scadia SS	2						Setti	ings Al	tered		1	SSS2 Connected on COM

J1708 Logger

- J1708 Messages are passed with a checksum
- The buffer contains a timestamp
- All data is in hex

I IN Message

Stream LIN

Enable LIN on SSS2

Clear Buffer Save Buffer Save As...

LIN Messages

C:\Users\dailyadmin\Documents\SSS2\SSS2 J1708 Data Log 2017-09-10 085658.csv - Notepad++ Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ? File :::e J 🕞 📭 🚔 I * **h h** Э. C 黹 h., 🔚 SSS2 J1708 Data Log 2017-09-10 085658.csv 🔀 Channel, Unix Timestamp, MID, PID, Data, Checksum, OK (Checksum Valid) J1708,1505033449.000001,80,54,00,BE,00,00,55,60,5C,00,5D,OK USB/Serial Monitor: SET 17.0 J1708,1505033449.048801,80,41,FD,44,C8,53,00,6E,BE,B7,OK 4 J1708,1505033449.099951,80,54,00,BE,00,00,55,60,5C,00,5D,OK ECU Profile Settings Digital Potentiometers Extra Outputs Voltage Output Network Message Generator Data Logger SSS2 Command Interface 5 J1708,1505033449.146712,80,B7,00,00,B8,00,00,11,0K Potentiometers 17 though 1 Terminal A Voltage is Fixed at +5V J1708,1505033449.199948,80,54,00,BE,00,00,55,60,5C,00,5D,OK -Port 28 Potentiometer (J18:12)-Port 29 Potentiometer (J18:13) Port 30 Potentio J1708, 1505033449.250865, 80, 66, FF, AE, 84, FF, AF, B1, 00, 30, A6, B4, OK Terminal A Connected Terminal A Connected Terminal J1708, 1505033449.299942, 80, 54, 00, BE, 00, 00, 55, 60, 5C, 00, 5D, OK 8 100k Wiper Position 10k Wiper Positi 9 J1708,1505033449.346703,80,B7,00,00,B8,00,00,11,OK Set Position 50 Set Position 50 10 J1708,1505033449.399943,80,54,00,BE,00,00,55,60,5C,00,5D,OK Wiper Connected Wiper Connected Wiper Co 11 J1708,1505033449.455088,80,46,00,47,08,59,60,5D,00,6A,BD,6C,E8,7A,00,E0,0K Connected to Ground Connected to Ground Connecte 12 J1708, 1505033449, 499942, 80, 54, 00, BE, 00, 00, 55, 60, 5C, 00, 5D, OK -ECU Application ECU Application J1708,1505033449.548795,80,79,00,B7,00,00,B8,00,00,98,OK 13 Pin Pin 14 J1708,1505033449.599937,80,54,00,BE,00,00,55,60,5C,00,5D,OK J1708,1505033449.649767,80,A8,F5,00,AC,7D,00,AB,1B,01,F3,OK 15 High Current Adjustable Regulator 16 J1708,1505033449.702033,80,54,00,BE,00,00,55,60,5C,00,2C,F4,3D,OK -High Current Regulator (J24:19) J1708,1505033449.737638,80,C2,12,64,A4,01,5B,A4,01,33,B3,01,34,B3,01,3A,B4,01,3B,B4,01,F5,0K 18 J1708,1505033449.747435,80,B7,00,00,B8,00,00,11,OK 4.0 Set Voltage 19 J1708, 1505033449.799936, 80, 54, 00, BE, 00, 00, 55, 60, 5C, 00, 5D, OK 20 J1708, 1505033449.842402, 80, 66, FF, 1B, OK Tan 21 J1708,1505033449.899930,80,54,00,BE,00,00,55,60,5C,00,5D,OK J1708,1505033449.946693,80,B7,00,00,B8,00,00,11,OK 23 J1708,1505033450.000001,80,54,00,BE,00,00,55,60,5C,00,5D,OK 24 J1708, 1505033450.048852, 80, 41, FD, 44, C8, 53, 00, 6E, BE, B7, OK 25 J1708,1505033450.099999,80,54,00,BE,00,00,55,60,5C,00,5D,OK 26 J1708,1505033450.146762,80,B7,00,00,B8,00,00,11,OK J1708,1505033450.199994,80,54,00,BE,00,00,55,60,5C,00,5D,OK 28 J1708,1505033450.250908,80,66,FF,AE,84,FF,AF,B1,00,30,A6,B4,OK 29 J1708,1505033450.299994,80,54,00,BE,00,00,55,60,5C,00,5D,OK J1708,1505033450.346755,80,B7,00,00,B8,00,00,11,OK

80 66 FF AE 84 FF AF B1 00 30 A6 B4 80 54 00 BE 00 00 55 60 5C 00 5D 80 B7 00 00 B8 00 00 11 80 54 00 BE 00 00 55 60 5C 00 5D 80 46 00 47 08 59 60 5D 00 6A BD 6C E8 7A 00 E0 80 54 00 BE 00 00 55 60 5C 00 5D 80 79 00 B7 00 00 B8 00 00 98 80 54 00 BE 00 00 55 60 5C 00 5D -80 A8 F2 00 AC 7D 00 AB 1B 01 F6 31 J1708,1505033450.399993,80,54,00,BE,00,00,55,60,5C,00,5D,OK 80 54 00 BE 00 00 55 60 5C 00 2C F4 3D 32 J1708, 1505033450.455139, 80, 46, 00, 47, 08, 59, 60, 5D, 00, 6A, BD, 6C, E8, 7A, 00, E0, OK 80 C2 12 64 A4 01 5B A4 01 33 B3 01 34 B3 01 3A B4 01 3B B4 01 33 J1708, 1505033450.499987, 80, 54, 00, BE, 00, 00, 55, 60, 5C, 00, 5D, OK 80 B7 00 00 B8 00 00 11 34 J1708,1505033450.548832,80,79,00,B7,00,00,B8,00,00,98,0K 80 54 00 BE 00 00 55 60 5C 00 5D 35 J1708,1505033450.599986,80,54,00,BE,00,00,55,60,5C,00,5D,OK Saved log file to C:\Users\dailyadmin\Documents\SSS2\SSS2 J1708 Data Log 2017-09-10 085658.csv Normal text file length : 451,159 lines : 7,440 Ln:1 Col:1 Sel:010

Wiper Position

-ECU Application

Mean Value

-ECU Application

Pin CPC4-16

Multifunction

Pin

 \times

INS

Smart Sensor Simulator Interface

Clear Buffer | Save Buffer | Save Buffer As...

80 54 00 BE 00 00 55 60 5C 00 5D

80 54 00 BE 00 00 55 60 5C 00 5D

80 54 00 BE 00 00 55 60 5C 00 5D

80 54 00 BE 00 00 55 60 5C 00 5D

80 54 00 BE 00 00 55 60 5C 00 5D

80 54 00 BE 00 00 55 60 5C 00 5D

80 41 FD 44 C8 53 00 6E BF B6

80 B7 00 00 B8 00 00 11

80 B7 00 00 B8 00 00 11

80 B7 00 00 B8 00 00 11

80.66 FE 1B

80 A8 F2 00 AC 7D 00 AB 1B 01 F6

80 54 00 BE 00 00 55 60 5C 00 2C F4 3D

J1708 Messages

80 C2 12 64 A4 01 5B A4 01 33 B3 01 34 B3 01 3A B4 01 3B B4 01

File Connection Tools

Ignition Key Switch

J1708 Messages

Stream J1708

Local Interconnect Network (LIN)

- The LIN messages for a DDEC 13 with a shifter are hard-coded into the SSS2.
- SSS2 acts as a LIN Slave node.



Image of Detroit Diesel Self-Shift Lever http://www.truckinginfo.com/fc_images/articles/m-img-0029.jpg

xtra Outputs Voltag	ge Output Network Message Generator Data Log
	LIN Messages
	Stream LIN
	Clear Buffer Save Buffer Save As
	Enable LIN on SSS2
	LIN Messages
	20 14 41 02 0D 7B 7B
	20 14 51 02 0D 6B 6B
	20 14 61 02 0D 5B 5B
	20 14 71 02 0D 4B 4B
	20 14 81 02 0D 3B 3B
	20 14 91 02 0D 2B 2B
	20 14 A1 02 0D 1B 1B
	20 14 B1 02 0D 0B 0B
	20 14 C1 02 0D FA FA
	20 14 D1 02 0D EA EA
	20 14 E1 02 0D DA DA
	20 14 F1 02 0D CA CA
	20 14 01 02 0D BB BB
	20 14 11 02 0D AB AB
	20 14 21 02 0D 9B 9B
	20 14 31 02 0D 8B 8B
	20 14 41 02 0D 7B 7B
	20 14 51 02 0D 6B 6B
	20 14 61 02 0D 5B 5B
	20 14 71 02 0D 4B 4B
	20 14 81 02 0D 3B 3B
	20 14 91 02 0D 2B 2B
	20 14 AT 02 0D 1B 1B 20 14 B1 02 0D 0B 0B
	20 14 C1 02 0D C6 C6
	20 14 D1 02 0D FA FA
	20 14 E1 02 0D DA DA
ork Configuratio	DNS

Network Configurations
 Connect LIN to Round Pin E (J10:5)
 Connect LIN to Port 16 (J24:16)
 Connect LIN Master Pullup Resistor
 Connect CAN0 (FlexCAN0) Termination Resistor (J1939)
 Connect CAN2 (FlexCAN1) Termination Resistor (E-CAN)
 Connect CAN1 (MCP-CAN) Termination Resistor
 Connect J1708 to J24:17 and J24:18
 Connect CAN2 to J24:17 and J24:18

SSS2 Serial Command Interface

📎 Smart Sensor Simulator Interface		- 0
File Connection Tools		
Ignition Key Switch	USB/Serial Action: SET Str	ream analog In data off.
ECU Profile Settings Digital Potentiometers Extra Outputs Voltage Output Network Message Gene SSS2 Settings	erator Data Logger SSS2 Command Interface	Analog Voltage Readings
INFO 61, Dig. Pot. 11 Terminal Connect, Port 11 (J24-11) = 5, 0 No	othing connected	Clear Buffer Save Buffer Save Buffer As
INFO 62, Dig. Pot. 12 Terminal Connect, Port 12 (J24-12) = 3, 0 No INFO 63, Dig. Pot. 13 Terminal Connect, Port 13 (J18-11) = 7, 0 No	othing connected othing connected	Time J24:10 J24:9 J24:8 J18:13
INFO 64, Dig. Pot. 14 Terminal Connect, Port 14 (J18-12) = 7, 0 No	othing connected	0.000 0.001 4557.873 6.182
$C \rightarrow \text{liction}$	othing connected	0.100 0.000 4557.873 3.750
INFO 67, FWM1 Connect, Port 13 (J24-13) = 0 Open		0.300 0.000 4557.873 6.182
of current INFO 68, FWM2 Connect, Fort 14 (J24-14) = 0 Open INFO 69, FWM3 Connect, Fort 27 (J18-10) = 1 Connected	Last line of Serial	0.400 0.000 4557.873 5.303
INFO 70, FWM4 Connect, Port 17 (J18-1) = 1 Connected		0.500 0.000 4570.464 3.750
INFO 71, LIN to Shield Connect, (J10-5) = 0 Open	Console is printed in	0.600 0.000 4570.464 7.128
INFO 73, U28 (U1-U8) POA Enable, (J24-1 to J24-8) = 0 Open		0.700 0.000 4570.464 5.303
Settings INFO 74, U31 (U9-U16) POA Enable, (J24-9 to J24-16) = 1 Connected	the USB/Serial Monitor	r 0.800 0.001 4570.464 3.074
INFO 75, Digital Potentiometer 28 Wiper, Port 28 (J18-12) = 20, 20 INFO 76, Digital Potentiometer 29 Wiper, Port 29 (J18-13) = 50, 50		
INFO 77, Digital Potentiometer 30 Wiper, Port 30 (J18-14) = 50, 50		1.000 0.000 4592.072 7.128
INFO 78, Dig. Pot. 28 Terminal Connect, Port 28 (J18-12) = 7, 7 (T	ICON_CONN_LT_ALL)	1.200 0.001 4570.464 6.192
INFO 79, Dig. Pot. 29 Terminal Connect, Port 29 (J18-13) = 7, 7 (T INFO 80, Dig. Pot. 30 Terminal Connect, Port 30 (J18-14) = 7, 7 (T	TCON CONFICT ALL)	1.200 0.001 4570.404 0.162
<pre>INFO 81, FWM 1 Frequency, Port 13 (J24-13) = 245 INFO 82, FWM 2 Frequency, Port 14 (J24-14) = 245 INFO 83, FWM 3 Frequency, Port 27 (J18-10) = 0 INFO 84, FWM 4 Frequency, Port 17 (J18-1) = 0 INFO 85, FWM 5 and 6 Frequency, Ports 1 and 2 (J24-1 and 2) = 473 INFO 86, FWM 4 Connect, Port 28 (J18-12) = 1 Connected INFO 87, FWM 5 Value, Port 2 (J24-2) = 2048 INFO 88, FWM 6 Value, Port 1 (J24-1) = 2048</pre>		
INFO 89, PWM 5 Connect, Port 2 (J24-2) = 0 Open		Quadratic Voltage Calibrations
INFO 90, FWM 6 Connect, Fort 1 (J24-1) = 0 Open INFO 91, CAN1 Connect, Ports 3 and 4 (J24-3 and 4) = Open		J24:10 J24:9 J24:8 J18:13
INFO 92, CAN2 Connect, (J18-15 and J18-16) = 1 C rected		a2 8.42e-06 8.42e-06 8.42e-06 8.42e-06
SET Stream analog in data on.		a1 0.0086833 0.0086833 0.0086833 0.0086833
SEI Stream analog in data oir.		a0 0.03378 0.03378 0.03378 0.03378

41

Settings Altered

Generating CAN Messages

A strength of the SSS2 is the ability to send periodic CAN messages

 File Connection Tools 																		
✓ Ignition Key Switch															USB/	Serial	Monit	itor: SET CAN message 11 with ID 0x18FEF131 on.
COLDerfile Settingen Disited Determin			4- V-la		 Network 	Message (enerator	Data La sa			1							
-CAN Messages to Transmit	meters Ex	ara Outpu	its voltag	ge Outpu	IT INCLINITY	wiessage c	relator	Data Logg	er 5552 Co	mmand	Inten	ace						
Label	Thread	Count	Index	Send	Channel	Period	Restart	Total E	t CAN H	EX ID T	DLC	B1 B3	2 B3	B4	B5 B	6 B7	B8	Transmit all CAN messages
DDEC MCM 01	1	1	0	Yes	CAN2	10	0	0	1 8F	F0001	8	00 00	່໐	00	00 0	ວ່ວ	00	Stop Sending all CAN messages
DDEC TCM 01	2	1	0	Yes	CAN2	10	0	0	I CF	F0203	8	00 00	00 00	00	00 0	00 00	00	
DDEC TCM 02	3	1	0	Yes	CAN2	10	0	0	1 8F	F0303	8	FF FI	FFF	FF	FF F	F FF	FF	J1939 Bit Rate: 250000 V Set Set Set
DDEC TCM 03	4	1	0	Yes	CAN2	100	0	0	1 18F	00503	8	00 00	00	00	00 0	00 00	00	
HRW from Brake Controller	5	1	0	Yes	J1939	20	0	0	I CF	E6E0B	8	00 00	00 (0	00	00 0	00 00	00	CAN1 Bit Rate: 250000 V Set
EBC1 from Cab Controller	6	1	0	No	J1939	100	0	0	1 18F	00131	8	00 00	00 (0	00	00 0	00 00	00	
EBC1 from Brake Controller	7	1	0	Yes	J1939	100	0	0	1 18F	J010B	8	00 00	00	00	00 0	0 00	00	CAINZ BIL Rate: 000000 V
CCVS1 from Instrument Cluster	8	1	0	Yes	J1939	100	0	0	1 18F	EF117	8	00 00	00 (0	00	00 0	00 00	00	CAN Message Editor
CCVS1 from Cab Display 1	9	1	0	No	J1939	100	0	0	1 18F	EF128	8	00 00	00	00	00 0	00 00	00	Description: CCVS1 from Cab Controller
CCVS1 from Body Controller	10	1	0	No	J1939	100	0	0	I 18F	EF121	8	00 00	00	00	00 0	00 00	00	Thread: 11 Sequence Count: 1 Sequence Index: 0
CCVS1 from Cab Controller	11	1	0	Yes	J1939	100	0	0	1 18F	EF131	8	00 00	00 (00	00 0	00 00	00	Thread: The Sequence Count: The Sequence Index.
CM1 from Instrument Cluster	12	1	0	Yes	J1939	100	0	0	I 18E	00017	8	00 00	00 (00	00 0	0 00	00	Hex CAN ID: 18FEF131 DLC: 8 🗸 🗹 Use Extended (29-bit) ID
CM1 from Climate Control 1	13	1	0	Yes	J1939	100	0	0	1 18E	00019	8	00 00	00 0	00	00 0	00 00	00	
CM1 from Body Controller	14	1	0	Yes	J1939	100	0	0	1 18E	00021	8	00 00	00	00	00 0	00 00	00	
CM1 from Cab Display	15	1	0	Yes	J1939	100	0	0	1 18E	00028	8	00 00	00 (0	00	00 0	00 00	00	Period (msec): 100 Restart (msec): 0 Total to Send: 0
CM1 from Cab Controller	16	1	0	Yes	J1939	100	0	0	1 18E	00031	8	00 00	00	00	00 0	00 00	00	Data Buter (Hev): B1:0 B2:0 B2:0 B4:0 B5:0 B6:0 B7:0 B9:0
PTO from Instrument Cluster	17	1	0	Yes	J1939	100	0	0	1 18F	EF017	8	00 00	00 (0	00	00 0	00 00	00	
PTO from Body Controller	18	1	0	Yes	J1939	100	0	0	1 18F	EF021	8	00 00	00 (0	00	00 0	00 00	00	Modify Selected Message Create New CAN Message
PTO from Cab Display	19	1	0	Yes	J1939	100	0	0	1 18F	EF028	8	00 00	00 (0	00	00 0	00 00	00	
PTO from Cab Controller	20	1	0	Yes	J1939	100	0	0	I 18F	EF031	8	00 00	00 (0	00	00 0	00 00	00	Send Selected Message Delete Selected Message
AMB from Body Controller	21	1	0	Yes	J1939	1000	0	0	1 18F	EF521	8	00 00	00 (0	00	00 0	00 00	00	Add Sequential Message
DDEC Fault Codes from ACM	22	1	0	Yes	CAN2	1000	0	0	1 10FE	CA3D	8	00 00	00 (0	00	00 0	00 00	00	Add Sequencial Message
DDEC Fault Codes from MCM	23	1	0	Yes	CAN2	1000	0	0	1 10FI	CA01	8	00 00	00 (0	00	00 0	00 00	00	Network Configurations
DDEC Fault Codes from TCM	24	1	0	Yes	CAN2	1000	0	0	1 10FI	CA03	8	00 00	00 00	00	00 0	00 00	00	Connect LIN to Round Pin E (J10:5)
TCM Output Shaft Speed	26	3	0	Yes	CAN2	10	0	0	1 8F	F0103	8	FF FI	F 00	00	FF D	F OF	33	Connect LIN to Port 16 (J24:16)
	27	16	0	Yes	CAN2	10	0	0	1 8F	F0003	8	FF FI	FFF	FF	FF F	F OF	70	Connect LIN Master Pullup Resistor
TCM Oil Temperature	28	1	0	Yes	CAN2	1000	0	0	1 18F	EF803	8	FF FI	FFF	FF	00 0	00 00	00	Connect CAN0 (FlexCAN0) Termination Resistor (J1939)
TCM Sys ID	30	16	0	Yes	CAN2	20	0	0	I CF	F0703	8	D0 20) C3	00	FF 5	i9 OF	02	Connect CAN2 (FlexCAN1) Termination Resistor (E-CAN)
	31	16	0	Yes	CAN2	50	0	0	1 10F	F0903	8	00 00	00 00	58	00 0	00 OF	02	Connect CAN1 (MCP-CAN) Termination Resistor
																		O Connect J1708 to J24:17 and J24:18
																		Connect CAN2 to J24:17 and J24:18
One and Collinson (deither darif, 10		0050 12	CDC44	2501-140	20	14 0000									_			

Network Message Generator Example

- Without CAN message generation, we get fault codes as seen in DDDL 8.
- Hardware configuration has a Detroit Diesel CPC4 connected to the SSS2.
- All SSS2 messages are set to not send at the beginning of this example.

🚫 DiagnosticLink - Professional						- 0	\times
File Edit View Log Parameter	rs Actions Tools Help					Ful	l Screer
③ • ◎ • ≑ ♥ ▶ ■ 14 44 =						Find	6.6
Lidentification	Fault Codes All Faults Virtual Technician Data					Diagnosti	cLin
Fault Codes	Description	Number	Mode	Status	Tr	oubleshooting Type	
0	CPC04T - Common Powertrain Controller 4						
Co Troubleshooting	I1939 CCVS Message is missing from either	527	9	active	Ref	ier to PSL	
0	MCM PT-CAN DM1 Message Not Received or has Stopped Arriving	625	8	active	Ref	ier to PSL	
	🗉 🏂 ACM PT-CAN DM1 Message Not Received or has Stopped Arriving	625	9	active	Ad	vanced	
-	🗉 🔇 J1939 EBC1 Message is missing	973	9	active	Ref	er to PSL	
Connections	🗉 🔇 J1939 Message is missing from source address 11 (dec)	2011	9	active	Ref	er to PSL	
Common Powertrain Controller 4	🗉 🕴 J1939 Message is missing from source address 23 (dec)	2023	9	active	Ref	er to PSL	
CPC04T: Online	🗉 🟳 J1939-0 - Engine #1						ĺ –
Engine #2	🐵 🔇 Accelerator Pedal Position 1 - Abnormal frequency, pulse width or p	. 91	8	not active	Ref	er to OEM	
🔽 J1939-1: Online	Proprietary Network #1 - Special Instructions	625	14	not active	Ref	er to OEM	
	🐵 📀 Accelerator Pedal #1 Channel 2 - Data erratic, intermitteent or incorr	. 2623	2	not active	Ref	er to OEM	
	🐵 🔇 Engine Coolant Level - Voltage above normal or shorted high	111	3	not active	Ref	er to OEM	
	🗄 🕴 sensor supply voltage 2 - Mechanical system not responding properly	3510	7	not active	Ref	er to OEM	
	🗄 😳 Accelerator Pedal #1 Channel 2 - Abnormal frequency, pulse width o.	2623	8	not active	Ref	er to OEM	
O J1708	Clear <u>A</u> ll Faults <u>Clear</u> Fault				Troubleshoot Symptom	Troubleshoot <u>F</u> ault.	

Cruise Control Vehicle Speed Message

Based on SAE J1939, Hex ID is 18FEF1XX where XX is the source address.

Ignition Key Switch															USB/S	Serial N	Ionite	tor: [SET CAN message 8 with ID 0x18FEF117 on.
ECU Profile Settings Digital Poten	tiometers E	xtra Outp	uts Voltag	ge Outpu	t Network	Message G	ienerator	Data Logg	ger SSS2	2 Command	d Inter	rface						
CAN Messages to Transmit		<u> </u>			<u></u>			T . 1 F										Transmit all CAN messages
Label	Ihread	Count	Index	Send	Channel	Period	Restart	lotal E	xt CA	IN HEX ID	DLC	BIF	32 B	3 B4	82 B	36 B7	88	Supercon
DDEC MCM 01	1	1	0	No	CAN2	10	0	0	1	8FF0001	8	00 (0 00	0 00	00 0	00 00	00	Stop Sending all CAN messages
DDEC TCM 01	2	1	0	No	CAN2	10	0	0	1	CFF0203	8	00 (0 0	0 00	00 0	00 00	00	11020 Bit Pater 250000 V Set Technolog
DDEC TCM 02	3	1	0	No	CAN2	10	0	0	1	8FF0303	8	HF H	-+ +	+ ++	HF H	+ ++	FF	
DDEC TCM 03	4	1	0	No	CAN2	100	0	0	1	18F00503	8	00 0	0 0	0 00	00 0	00 00	00	CAN1 Bit Rate: 250000 V Set
HRW from Brake Controller	5	1	0	No	J1939	20	0	0	1	CFE6E0B	8	00 0	0 0	0 00	00 0	00 00	00	
EBC1 from Cab Controller	6	1	0	No	J1939	100	0	0	1	18F00131	8	00 (0 0	0 00	00 0	00 00	00	CAN2 Bit Rate: 6666666 V Set
EBC1 from Brake Controller	/	1	0	No	J1939	100	0	0	1	18F0010B	8	00 0	0 00	0 00	00 0	00 00	00	CAN Message Editor
CCVS1 from Instrument Cluste	r 8	1	0	Yes	J1939	100	0	0	1	18FEF117	8	00 0	0 0	0 00	00 0	00 00	00	Description: CCVS1 from Instrument Cluster
CCVS1 from Cab Display 1	9	1	0	No	J1939	100	0	0	1	18FEF128	8	00 0	0 00	0 00	00 0	00 00	00	Description, ecvor non instrument cluster
CCVS1 from Body Controller	10	1	0	No	J1939	100	0	0	1	18FEF121	8	00 0	0 0	0 00	00 0	00 00	00	Thread: 8 Sequence Count: 1 Sequence Index: 0
CCVSI from Cab Controller	11	1	0	No	11939	100	0	0	1	18FEF131	8	00 0	0 0	0 00	00 0	00 00	00	Hay CAN ID. 19555117 DI C. R. M. Filler Extended (20, bit) ID
CMT from Instrument Cluster	12	1	0	No	11939	100	0	0	1	18E00017	8	00 0	0 0	0 00	00 0	00 00	00	
CMT from Climate Control 1	13	1	0	No	11939	100	0	0	1	18E00019	8	00 0	0 0	0 00	00 0	00 00	00	Channel: J1939 CAN1 CAN2 Enable Transmission (Send)
CMI from Body Controller	14	1	0	No	J1939	100	0	0	1	18E00021	8	00 0	0 0	0 00	00 0	00 00	00	Derived (march) 100
CMI from Cab Display	15	1	0	No	11939	100	0	0	1	18E00028	8	00 0	0 0	0 00	00 0	00 00	00	Period (msec): 100 Restart (msec): 0 Total to Send: 0
CM1 from Cab Controller	16	1	0	No	J1939	100	0	0	1	18E00031	8	00 0	0 00	0 00	00 0	00 00	00	Data Bytes (Hex): B1: 0 B2: 0 B3: 0 B4: 0 0 B6: 0 B7: 0 B8: 0
PTO from Instrument Cluster	17	1	0	No	J1939	100	0	0	1	18FEF017	8	00 0	0 0	0 00	00 0	00 00	00	
PTO from Body Controller	18	1	0	No	J1939	100	0	0	1	18FEF021	8	00 0	0 0	0 00	00 0	00 00	00	Modify Selected Message Create New CAN Message
PTO from Cab Display	19	1	0	No	J1939	100	0	0	1	18FEF028	8	00 0	0 0	0 00	00 0	00 00	00	Send Selected Message Delete Selected Message
PTO from Cab Controller	20	1	0	No	J1939	100	0	0	1	18FEF031	8	00 0	0 00	0 00	00 0	00 00	00	
AMB from Body Controller	21	1	0	No	J1939	1000	0	0	1	18FEF521	8	00 0	0 0	0 00	00 0	00 00	00	Add Sequential Messa
DDEC Fault Codes from ACM	22	1	0	No	CAN2	1000	0	0	1 1	UFECA3D	8	00 0	0 0	0 00	00 0	00 00	00	Naturali Canfigurations
DDEC Fault Codes from MCM	23		0	NO	CANZ	1000	0	0		INFECANT	8	00 0	0 0	0 00	00 0	00 00	00	
TCM Output Sheft Second	24		0	INO N-	CAN2 CAN2	1000	0	0	1	OFECAUS	8 0	00 0	,0 0 56 0	0 00	Y		\ +	$\frac{1}{2}$
TCM Surters ID-	20	3 16	0	NO No	CAN2 CAN2	10	0	0	1	8FF0103	8 0		-r 0 -r -	0 00	1	LE	31	
TCM OILTerrenerations	27	10	0	NO No	CAN2 CAN2	1000	0	0	1	0FF0003	ð o			r FF				. (11020)
TCM Cirl Temperature	28	16	U	NO	CAN2 CAN2	1000	U	0	1	IGFEF803	ð	FF 1	n h	r FF	1		n	nessage on.
	30	10	0	NO	CAN2 CAN2	20	0	0	1	10550002	8	00 2	20 C	.5 00	r	0 05	02	
E TCM FF0903	31	16	U	No	CAN2	50	U	U	1	10FF0903	8	00 (0 0	0 58	00 0	0 01-	02	Connect CAN1 (MCP-CAN) Termination Resistor Connect J1708 to J24:17 and J24:18

44

Consult Consor Circulator Interface

Eliminate Two Fault Codes!



45_



Electronic Brake Controller Message

🗹 Ignition Key Switch															USE	3/Ser	ial Monit	tor: SET CAN message 7 with ID 0x18F0010B on.
Smart Service Simulates Interface File Connection Total ECU Profile Setting: Digital Potentiometers Extra Output: Voltage Output: Not Ressage Connection Data Logger SSS2 Command Interface CAM Message to Transmit Thread Count Index Send Chain Message Count Data Logger SSS2 Command Interface Label Thread Count Index Send Chain Message Count Send Chain Message Count Send																		
Number Stand Stream Standardine Interface File Connection Toda Use plane Stand Stream Use plane Use plane <t< th=""><th>Transmit all CAN messages</th></t<>			Transmit all CAN messages															
Label	Thread	Count	Index	Send	Channel	Period	Restart	Total	Ext	CAN HEX ID	DLC	B1	B2 E	33 B4	B5	B6	B7 B8	
DDEC MCM 01	1	1	0	No	CAN2	10	0	0	1	8FF0001	8	00	00 0	00 00	00	00	00 00	Stop Sending all CAN messages
DDEC TCM 01	2	1	0	No	CAN2	10	0	0	1	CFF0203	8	00	00 (00 00	00	00	00 00	
DDEC TCM 02	3	1	0	No	CAN2	10	0	0	1	8FF0303	8	FF	FF I	FF FF	FF	FF	FF FF	J1939 Bit Rate: 250000 V Set IECNNOIOg16
DDEC TCM 03	4	1	0	No	CAN2	100	0	0	1	18F00503	8	00	00 (00 00	00	00	00 00	
HRW from Brake Controller	5	1	0	No	J1939	20	0	0	1	CFE6E0B	8	00	00 (00 00	00	00	00 00	CAINT BIT Rate: 200000 V Set
EBC1 from Cab Controller	6	1	0	No	J1939	100	0	0	1	18F00131	8	00	00 (00 00	00	00	00 00	CAN2 Bit Rate: 6666666 V Set
EBC1 from Brake Controller				Yes	J1939	100				18F0010B	8	00	00 (00 00	00	00	00 00	CANINA
CCVS1 from Instrument Cluster	8	1	0	Yes	J1939	100	0	0	1	18FEF117	8	00	00 (00 00	00	00	00 00	CAN Message Editor
CCVS1 from Cab Display 1	9	1	0	No	J1939	100	0	0	1	18FEF128	8	00	00 (00 00	00	00	00 00	Description: EBC1 from Brake Controller
CCVS1 from Body Controller	10	1	0	No	J1939	100	0	0	1	18FEF121	8	00	00 (00 00	00	00	00 00	Thread: 7 Sequence Count: 1 Sequence Index: 0
CCVS1 from Cab Controller	11	1	0	No	J1939	100	0	0	1	18FEF131	8	00	00 (00 00	00	00	00 00	
CM1 from Instrument Cluster	12	1	0	No	J1939	100	0	0	1	18E00017	8	00	00 (00 00	00	00	00 00	Hex CAN ID: 18F0010B DLC: 8 🗸 🗹 Use Extended (29-bit) ID
CM1 from Climate Control 1	13	1	0	No	J1939	100	0	0	1	18E00019	8	00	00 (00 00	00	00	00 00	Channel: Ill 1939 CAN1 CAN2 Finable Transmission (Send)
CM1 from Body Controller	14	1	0	No	J1939	100	0	0	1	18E00021	8	00	00 (00 00	00	00	00 00	
CM1 from Cab Display	15	1	0	No	J1939	100	0	0	1	18E00028	8	00	00 (00 00	00	00	00 00	Period (msec): 100 Restart (msec): 0 Total to Send: 0
CM1 from Cab Controller	16	1	0	No	J1939	100	0	0	1	18E00031	8	00	00 (00 00	00	00	00 00	Data Bytes (Hex): B1: 0 B2: 0 B3: 0 B4: 0 B5: 0 B6: 0 B7: 0 B8: 0
PTO from Instrument Cluster	17	1	0	No	J1939	100	0	0	1	18FEF017	8	00	00 (00 00	00	00	00 00	
PTO from Body Controller	18	1	0	No	J1939	100	0	0	1	18FEF021	8	00	00 (00 00	00	00	00 00	Modify Selected Message Create New CAN Message
PTO from Cab Display	19	1	0	No	J1939	100	0	0	1	18FEF028	8	00	00 (00 00	00	00	00 00	
PTO from Cab Controller	20	1	0	No	J1939	100	0	0	1	18FEF031	8	00	00 (00 00	00	00	00 00	Send Selected Message Delete Selected Message
AMB from Body Controller	21	1	0	No	J1939	1000	0	0	1	18FEF521	8	00	00 (00 00	00	00	00 00	Add Sequential Message
DDEC Fault Codes from ACM	22	1	0	No	CAN2	1000	0	0	1	10FECA3D	8	00	00 (00 00	00	00	00 00	
DDEC Fault Codes from MCM	23	1	0	No	CAN2	1000	0	0	1	10FECA01	8	00	00 (00 00	00	00	00 00	-Network Configurations
DDEC Fault Codes from TCM	24	1	0	No	CAN2	1000	0	0	1	10FECA03	8	00	00 (00 00	00	00	00 00	Connect LIN to Round Pin E (J10:5)
TCM Output Shaft Speed	26	3	0	No	CAN2	10	0	0	1	8FF0103	8	FF	FF (00 00	FF	DF	0F 33	Connect LIN to Port 16 (J24:16)
TCM System IDs	27	16	0	No	CAN2	10	0	0	1	8FF0003	8	FF	FF I	FF FF	FF	FF	0F 70	Connect LIN Master Pullup Resistor
TCM Oil Temperature	28	1	0	No	CAN2	1000	0	0	1	18FEF803	8	FF	FF I	FF FF	00	00	00 00	Connect CAN0 (FlexCAN0) Termination Resistor (J1939)
TCM Sys ID	30	16	0	No	CAN2	20	0	0	1	CFF0703	8	D0	20 (C3 00	FF	59	0F 02	Connect CAN2 (FlexCAN1) Termination Resistor (E-CAN)
TCM FF0903	31	16	0	No	CAN2	50	0	0	1	10FF0903	8	00	00 (00 58	00	00	0F 02	Connect CAN1 (MCP-CAN) Termination Resistor
																		O Connect J1708 to J24:17 and J24:18

47

Two More Codes Cleared

	📎 DiagnosticLink - Professional						—	
	File Edit View Log Parameter	rs Actions Tools Help						Full Screen
	Ğ•©• ≑ ♥ ► ■ H H =						Find	\$ \$
	 Identification	Fault Codes 📀					Diagno	osticLink
ŀ		All Faults Virtual Technician Data				dre		
	Fault Codes	Description	Number	Mode	Status	CIECT	mooting Type	e
ŀ		CPC04T - Common Powertrain Controller 4			\wedge	re des		
	Vo Troubleshooting	🗉 🔇 MCM PT-CAN DM1 Message Not Received or has Stopped Arriving	625	8	active		Refer to PSL	
	0	🗉 🎾 ACM PT-CAN DM1 Message Not Received or has Stopped Arriving	625	9	active		Advanced	
	M Instrumentation	🗉 🕴 J1939 CCVS Message is missing from either	527	9	not active		Refer to PSL	
	~	🗉 😮 J1939 EBC1 Message is missing	973	9	not active		Refer to PSL	
Γ	Connections	🗉 🔇 J1939 Message is missing from source address 11 (dec)	2011	9	not active	\sim	Refer to PSL	
	Common Powertrain Controller 4	🗄 🔇 J1939 Message is missing from source address 23 (dec)	2023	9	not active		Refer to PSL	
	2 CPC04T: Online	😑 📁 J1939-0 - Engine #1						
Ι	Engine #2	🗄 🔇 Accelerator Pedal Position 1 - Abnormal frequency, pulse width or p	91	8	not active		Refer to OEM	
	J1939-1: Online	Proprietary Network #1 - Special Instructions	625	14	not active		Refer to OEM	
		Accelerator Pedal #1 Channel 2 - Data erratic, intermitteent or incorr	2623	2	not active		Refer to OEM	
		Engine Coolant Level - Voltage above normal or shorted high	111	3	not active		Refer to OEM	
		Sensor supply voltage 2 - Mechanical system not responding properly	3510	7	not active		Refer to OEM	
		🗄 🥴 😫 Accelerator Pedal #1 Channel 2 - Abnormal frequency, pulse width o	2623	8	not active		Refer to OEM	
	J1708 D1939 CAN	Clear <u>A</u> ll Faults <u>Clear Fault</u>				Troubleshoot Symptom.	🛞 Troubleshoot	: <u>F</u> ault

Engine or PT CAN Connections

- On many modern ECUs, there are multiple CAN channels
- For DDEC10 systems, the Common Powertrain Controller looks for messages from the Motor Control Module (MCM) and Aftertreatment Control Module (ACM)
- The SSS2 can simulate connections to the powertrain control modules
 - For DDEC13, Engine CAN is at 666,666 bits/sec
 - ► For DDEC10, Engine CAN is at 500,000 bits/sec
 - For DDEC 6 and Mercedes Benz, Engine CAN is at 125,000 bits/sec



ACM and MCM Diagnostic Messages

These proprietary CAN messages still use the J1939 DM1 message ID

Smart Sensor Simulator Interface																		- 0
✓ Ignition Key Switch															US	SB/Ser	rial Mon	nitor: SET CAN message 1 with ID 0x08FF0001 off.
CU Profile Settings Digital Potentio	meters E	dra Outpu	ts Voltag	je Outpu	t Network	Message (Generator	Data Logo	ger SSS	2 Comman	d Inte	erface						
CAN Messages to Transmit			-															Transmit all CAN moreogon
.abel	Thread	Count	Index	Send	Channel	Period	Restart	Total I	Ext CA	AN HEX ID	DLC	B1	B2 E	33 B4	4 B5	B6	B7 B8	
DDEC MCM 01	1	1	0	No	CAN2	10	0	0	1	8FF0001	8	00	00 0	ວວ່ວ	00 00	00	00 00	0 Stop Sending all CAN messages Synercon
DDEC TCM 01	2	1	0	No	CAN2	10	0	0	1	CFF0203	8	00	00 (0 00	0 00	00	00 00	
DDEC TCM 02	3	1	0	No	CAN2	10	0	0	1	8FF0303	8	FF	FF I	FF FI	F FF	FF	FF FF	F J1939 Bit Rate: 250000 V Set Nr Iechnolog
DDEC TCM 03	4	1	0	No	CAN2	100	0	0	1	18F00503	8	00	00 (0 00	0 00	00	00 00	
HRW from Brake Controller	5	1	0	No	J1939	20	0	0	1	CFE6E0B	8	00	00 (0 00	0 00	00	00 00	0 CANT Bit Rate: 250000 V Set
EBC1 from Cab Controller	6	1	0	No	J1939	100	0	0	1	18F00131	8	00	00 (0 00	0 00	00	00 00	CAN2 Bit Rate: 6666666
EBC1 from Brake Controller	7	1	0	Yes	J1939	100	0	0	1	18F0010B	8	00	00 (0 00	0 00	00	00 00	
CCVS1 from Instrument Cluster	8	1	0	Yes	J1939	100	0	0	1	18FEF117	8	00	00 (0 00	0 00	00	00 00	0 CAN Message Editor
CCVS1 from Cab Display 1	9	1	0	No	J1939	100	0	0	1	18FEF128	8	00	00 (0 00	0 00	00	00 00	0 Description: DDEC Fault Codes from ACM
CCVS1 from Body Controller	10	1	0	No	J1939	100	0	0	1	18FEF121	8	00	00 (0 00	0 00	00	00 00	0 Thread: 22 Sequence Count: 1 Sequence Index: 0
CCVS1 from Cab Controller	11	1	0	No	J1939	100	0	0	1	18FEF131	8	00	00 (0 00	0 00	00	00 00	0
CM1 from Instrument Cluster	12	1	0	No	J1939	100	0	0	1	18E00017	8	00	00 (0 00	0 00	00	00 00	0 Hex CAN ID: 10FECA3D DLC: 8 🗸 🔽 Use Extended (29-bit) ID
CM1 from Climate Control 1	13	1	0	No	J1939	100	0	0	1	18E00019	8	00	00 0	0 00	0 00	00	00 00	
CM1 from Body Controller	14	1	0	No	J1939	100	0	0	1	18E00021	8	00	00 (0 00	0 00	00	00 00	Channel: O J1939 O CANT O CAN2 I Enable Transmission (send)
CM1 from Cab Display	15	1	0	No	J1939	100	0	0	1	18E00028	8	00	00 (0 00	0 00	00	00 00	0 Period (msec): 1000 Restart (msec): 0 Total to Send: 0
CM1 from Cab Controller	16	1	0	No	J1939	100	0	0	1	18E00031	8	00	00 (0 00	0 00	00	00 00	
PTO from Instrument Cluster	17	1	0	No	J1939	100	0	0	1	18FEF017	8	00	00 0	0 00	0 00	00	00 00	0
PTO from Body Controller	18	1	0	No	J1939	100	0	0	1	18FEF021	8	00	00 (0 00	0 00	00	00 00	0 Modify Selected Message Create New CAN Message
PTO from Cab Display	19	1	0	No	J1939	100	0	0	1	18FEF028	8	00	00 (0 00	0 00	00	00 00	
PTO from Cab Controller	20	1	0	No	J1939	100	0	0	1	18FEF031	8	00	00 (0 00	0 00	00	00 00	0 Send Selected Message Delete Selected Message
AMB from Body Controller	21	1	0	No	J1939	1000	0	0	1	18FEF521	8	00	00 0	0 00	0 00	00	00 00	0
DDEC Fault Codes from ACM	22	1	0	Yes	CAN2	1000	0	0	1 1	10FECA3D	8	00	00 (0 00	0 00	00	00 00	0 Add Sequential Message
DDEC Fault Codes from MCM	23	1	0	Yes	CAN2	1000	0	0	1	10FECA01	8	00	00 (0 00	0 00	00	00 00	0 Network Configurations
DDEC Fault Codes from TCM	24	1	0	No	CAN2	1000	0	0	1	10FECA03	8	00	00 0	0 00	0 00	00	00 00	0 Connect LIN to Round Pin E (J10:5)
TCM Output Shaft Speed	26	3	0	No	CAN2	10	0	0	1	8FF0103	8	FF	FF (0 00	0 FF	DF	0F 33	3 Connect LIN to Port 16 (J24:16)
TCM System IDs	27	16	0	No	CAN2	10	0	0	1	8FF0003	8	FF	FF I	FF FI	F FF	FF	0F 70	0 🔽 Connect LIN Master Pullup Resistor
TCM Oil Temperature	28	1	0	No	CAN2	1000	0	0	1	18FEF803	8	FF	FF I	FF FI	F 00	00	00 00	0 🔽 Connect CAN0 (FlexCAN0) Termination Resistor (J1939)
TCM Sys ID	30	16	0	No	CAN2	20	0	0	1	CFF0703	8	D0	20 0	C3 0	0 FF	59	0F 02	2 Connect CAN2 (FlexCAN1) Termination Resistor (E-CAN)
TCM FF0903	31	16	0	No	CAN2	50	0	0	1	10FF0903	8	00	00 (00 5	8 00	00	0F 02	2 Connect CAN1 (MCP-CAN) Termination Resistor
																		Connect 11708 to 124:17 and 124:18
																		Connect CAN2 to 124:17 and 124:18
													_	_	_			

50

All Codes are Cleared

DiagnosticLink - Professional					— Π	X
File Edit View Log Paramete	ers Actions Tools Help				Fi	ull Scree
G•©·≑ 😫 🕨 🖬 🕅					Find	(b)
Lidentification	Fault Codes ₍₂₎				Diagnost	:icLin
	All Faults Virtual Technician Data					
Fault Codes	Description	Number	Mode	Status	Troubleshooting Type	
6	😑 📁 CPC04T - Common Powertrain Controller 4					
CO Troubleshooting	🗄 🔇 J1939 CCVS Message is missing from either	527	9	not active	Refer to PSL	
0	🗉 🔇 MCM PT-CAN DM1 Message Not Received or has Stopped Arriving	625	8	not active	Refer to PSL	
1 Instrumentation	🗉 🎾 ACM PT-CAN DM1 Message Not Received or has Stopped Arriving	625	9	not active	Advanced	
~	🗄 🔇 J1939 EBC1 Message is missing	973	9	not active	Refer to PSL	
Connections	🗉 🔇 J1939 Message is missing from source address 11 (dec)	2011	9	not active	Refer to PSL	
Common Powertrain Controller 4	🗄 🔇 J1939 Message is missing from source address 23 (dec)	2023	9	not active	Refer to PSL	
CPC04T: Online	🖻 🟳 J1939-0 - Engine #1					
Engine #2	🗄 🔇 Accelerator Pedal Position 1 - Abnormal frequency, pulse width or p	91	8	not active	Refer to OEM	
🤝 J1939-1: Online	Proprietary Network #1 - Special Instructions	625	14	not active	Refer to OEM	
Exhaust Emission Controller	🗄 🕴 Accelerator Pedal #1 Channel 2 - Data erratic, intermitteent or incorr	2623	2	not active	Refer to OEM	
- 11959-01: Online	🗄 🔇 Engine Coolant Level - Voltage above normal or shorted high	111	3	not active	Refer to OEM	
	🗄 😮 Sensor supply voltage 2 - Mechanical system not responding properly	3510	7	not active	Refer to OEM	
	🗉 🕴 Accelerator Pedal #1 Channel 2 - Abnormal frequency, pulse width o	2623	8	not active	Refer to OEM	
O J1708 D J1939 CAN	Clear <u>A</u> ll Faults <u>Clear Fault</u>			Troublest	noot Symptom 🛞 Troubleshoot Faul	lt

51

Example Limitations



- This example worked for this particular module.
- Other CPC4 modules can be programmed to look for different CAN messages.
- Users can use Synercon Technologies' templates to build their own library of settings files.

Example of DDEC IV

- Connect the DDEC IV
- Connect Power
- Connect USB

52

 Open the SSS2 Interface App



Smart Sensor	SSS2 Settings	File						×	
File Connection	Look in:	SSS2	← 🗈	r* 					
ECII Drofile Sett	-	Name		Date modified	Turne	Size		~	
-CAN Messages	*				iype	3126			
Label	Quick access	test.SSS		9/10/2017 7:51 AM	SSS2 File	37 KB			es
		CPC On	ly - DDEC 10 - DD15 - 2011 Freightliner Ca	9/4/2017 7:49 PM	SSS2 File	44 KB			
DDEC MCM			nly - DD15 - 2009 Freightliner Cascadia.SSS2	8/28/2017 6:07 AM	SSS2 File	38 KB			ages
DDEC TCM (Desktop		nly - DD15 - 2010 Freightliner Cascadia.SSS2	8/28/2017 6:07 AM	SSS2 File	38 KB			C 1
DDEC TCM (nly - S60 - 2010 Freightliner Cascadia.SSS2	8/28/2017 6:07 AM	SSS2 File	38 KB			Set
DDEC TCM (Cummi	ns CM2350 250k Vehicle and Engine Conne	8/28/2017 6:07 AM	SSS2 File	38 KB			Set
HRW from E	Libraries	Cummi	ns CM2350 500k Partial Vehicle and Engine	8/28/2017 6:07 AM	SSS2 File	38 KB			JEL
EBC1 from C		Cummi	ns CM2350 500k Vehicle and Engine Conne	8/28/2017 6:07 AM	SSS2 File	38 KB			Set
EBC1 from E	This PC	Cummi	ns CM2350 500k Vehicle Only Connector.S	8/28/2017 6:07 AM	SSS2 File	38 KB			Jei
CCVS1 from	misrc	Cummi	ns CM2350 Vehicle and Engine Connector	8/28/2017 6:07 AM	SSS2 File	38 KB			-
CCVS1 from	1	Cummi	ns CM2350 Vehicle Connector Only.SSS2	8/28/2017 6:07 AM	SSS2 File	38 KB			des from
CCVS1 from	Network	DDEC 1	CPC4 (yellow label) for 500k J1939 with a	8/28/2017 6:07 AM	SSS2 File	43 KB			
CCVS1 from		MBE VC	U only.SSS2	8/28/2017 6:07 AM	SSS2 File	37 KB			quence C
CCV31 Irom		🗋 Caterpil	ar ADEM3 6NZ.SSS2	8/26/2017 3:09 PM	SSS2 File	37 KB			
CMI from Ir		📄 Caterpil	ar ADEM3 8YL.SSS2	8/26/2017 3:01 PM	SSS2 File	37 KB			
CM1 from C		📄 Caterpil	ar ADEM3 9SZ.SSS2	8/26/2017 3:01 PM	SSS2 File	37 KB			AN1 🖲 🕻
CM1 from B		📄 Caterpil	ar ADEM3 BSX.SSS2	8/26/2017 3:01 PM	SSS2 File	37 KB			-
CM1 from C		DDEC 13	CPC4 from 2014 DD15.SSS2	8/23/2017 8:32 AM	SSS2 File	43 KB			Restart (m
CM1 from C		MBE.SS	52	8/20/2017 8:54 PM	SSS2 File	37 KB			B3: 0
PTO from In		Caterpil	ar ADEM2.SSS2	8/15/2017 1:52 AM	SSS2 File	37 KB			00.0
PTO from B		Caterpil	ar ADEM3 CKM.SSS2	8/15/2017 1:52 AM	SSS2 File	37 KB			je
PTO from C		Caterpil	ar ADEM4 SDP (2 Wire Coolant sensor).SSS2	8/15/2017 1:52 AM	SSS2 File	37 KB			
PTO from C		Caterpil	ar ADEM4 SDP (4 Wire Coolant sensor).SSS2	8/15/2017 1:52 AM	SSS2 File	37 KB			2
AMB from B		Cummi	ns CM870.SSS2	8/15/2017 1:52 AM	SSS2 File	38 KB			
DDEC Fault		DDEC 4.	SSS2	8/15/2017 1:52 AM	SSS2 File	37 KB			e
DDEC Fault (DDEC 6.	SSS2	8/15/2017 1:52 AM	SSS2 File	37 KB			
DDEC Fault		DDEC 13	CPC4 Example,SSS2	8/15/2017 1:52 AM	SSS2 File	38 KB			110:5)
		DDEC 1	CPC4 for 500k J1939 with TCM.SSS2	8/15/2017 1:52 AM	SSS2 File	44 KB			5)
H TCM Outpu		DDEC 1	CPC4 from 2016 DD15 with a TCM.SSS2	8/15/2017 1:52 AM	SSS2 File	43 KB			
ICM System		defaults	SSS2	8/15/2017 1:52 AM	SSS2 File	37 KB			esistor
TCM Oil Ter			adcast Example.SSS2	8/15/2017 1:52 AM	SSS2 File	36 KB			erminatior
TCM Sys ID						50 10		×	ermination
TCM FF0903		-	DD50 / 0000						erminatio
		File name:	DDECESSS					en	24:18
		Files of type:	Smart Sensor Simulator 2 Settings Files (*.SSS	2)			▼ Can	cel	124:18

DDDL 6 Shows No Codes

File Calibration Snapshot Diagnostics Tools Window Help Image:	stic Link — L X
Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Seco	hot Diagnostics Tools Window Help
P C Codes	🛯 🔳 🕐 🖻 No Codes Connected
Fault Description Flash ECM ID FMI Start End Duration Count Start Time St	Flash ECM ID FMI Start End Duration Count Start Time SI
Engine Configuration Data	Engine Configuration Data
Image: Current Engine Route Engine ECM data Image: Current Engine Route 0.0 Image: Incubleshooting He 6067MK60 Image: Route 6067MK60 Image: Route 6007MK60 Image: Route 100 Image: Route 125 Image: Route 1200	Engine ECM data Engine Series Engine Series Engine seriel number: 06R0683224 Rated BHP: Hated Rated engine RPM: VIN: Rated engine RPM: Engine 6067MK60 Governed BHP: 430 Idle speed RPM: 600 LSG droop RPM: 125 Peak torque RPM: 1200
For Help, press E1	Print Close

Download Data With the Forensic Link Adapter and/or DDEC Reports

C:\Detroit Diesel\DDEC Rep	orts\Diagnostic\DATA PAGES\09	1017Dell1AA.XTR - DDEC Reports: Configuration	on	- 0
ie <u>C</u> onnect <u>V</u> iew <u>To</u> [ois <u>H</u> elp	4 b bl Et To Width		
🛩 😅 LQ, 🖂 A C	SI 🗮 L D 🦞 14	• • • • • • • • • • • • • • • • • • •		
	DDEC® Re	ports - Configu	iration	
	😤 current.elg - Communicati	on Manager	- 🗆 X]
	<u>F</u> ile <u>V</u> iew <u>T</u> ools <u>H</u> elp			
Vehicle ID	i 🔁 📥 🔊 🖾 🖾	R 🕜		
Driver ID:	Extract Extraction Log Applicat	ion Status		
Trip Dista		\bigcirc	Extraction Settings	
Trip Fuel		20 10 m	Reset Trip Reset Time	
Fuel Econo		-20 0 0-		
Avg Vehicl		(_n 🔍 n.)	Configuration File	
		100%	Config. File None ~	
Hard Brake		100 %	Extraction Results	
Stop Idle Top Gear L	J1708	DDEAL	✓ Extract Pages	
Top Gear-1	Extracted	DDEC4	Reset Data	
ECM S/W	Vehicle Information			
ECM Type Config Ch	Vehicle ID	999		
conrig. ch	SW Version	39.00	Keset Time	
Idle Metho Idle-Load	Odometer	1.7 mi	XTR File 091017Dell1AA.XTR	
Idle-RPM L	Trip Economy	0.00 mpg		
Reset Lock	Trip Distance	0.0 mi	Time Desults (LTC)	
Fleet Time	Trip Time	0:00:00		
Maintenanc Fnable	Sta	t Extraction	PC Time Reset	
Percent	Otal		ECU time was not reset.	
L	Waiting for Vehicle to disconned	t J1/08 8 extraction	s DPA4PMA	1

Using an SSS2 with the SSS2-DDEC4 cable and DDEC4.SSS2 Settings file yields a fault free download and preserves the Diagnostic Records in DDEC Reports.

Ready

Generating a New CAN Message

- Aftertreatment Systems communicate to ECMs over CAN.
- Use a Cummins CM2350 as an example to eliminate a fault code related to the Aftertreatment 1 Intake message.

🖳 INSITE 8.2.2.60 - ISX12 CM2350 X102/X103/X108/ISX15 CM2350 X101/X104/X109 - Engine Serial Number - 0 - ECM Code - EF10067.36

File Edit View Tools Manage License(s) Send To CSS Window Help

Ground

56

Connected to ECM

👋 🕸 🛍 | X 🖻 🛍 | 🖨 💁 🛤 | 🖸 🌮 | 🔍 🚅 🖴 | Bi 🖻 🍸 | 🙄 🍩 🕨 🗉 🔳 🖉

Fault Code	Status	Count	Lamp	Description	PID	SID	J1587 FMI	J1939 FMI	SPN	^
	Fault Parameters	First	Last	Units						
⊞ 1844	Active	1	Amber	Crankcase Pressure Circuit - Voltage Below Normal or Shorted to Low Source	101		4	4	101	
⊞ 2272	Active	1	Amber	EGR Valve Position Circuit - Voltage Below Normal or Shorted to Low Source	27		4	4	27	
■ ● 3232	Active	1	Amber	Aftertreatment 1 Intake NOx Sensor - Abnormal Update Rate			9	9	3216	
⊞ 277 1	Active	1	Amber	Aftertreatment 1 Outlet NOx Sensor - Abnormal Update Rate			9	9	3226	
⊞ 1928	Active	1	Amber	Aftertreatment Fuel Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source		332	4	4	3480	
⊮ 	Active	1	Amber	Aftertreatment Diesel Particulate Filter Differential Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source		324	4	4	3251	1
Eault Codes ⊕ 0 3134	Active	1	Amber	Aftertreatment 1 Diesel Particulate Filter Outlet Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source			4	4	3610	*
	Fault Code	Fault Code Status Fault Parameters Image: Optimized status Image: Optimized status	Fault Code Status Count Fault Parameters First Image: Optimized status Active Image: Optimized sta	Fault CodeStatusCountLampFault ParametersFirstLastImage: Image: Im	Fault Code Status Count Lamp Description Fault Parameters First Last Units Image: Instant Code Fault Parameters First Last Units Image: Instant Code Status Artise Image: Instant Code Crankcase Pressure Circuit - Voltage Below Normal or Shorted to Low Source Image: Instant Code Active 1 Amber Crankcase Pressure Circuit - Voltage Below Normal or Shorted to Low Source Image: Instant Code Active 1 Amber EGR Valve Position Circuit - Voltage Below Normal or Shorted to Low Source Image: Instant Code Active 1 Amber Aftertreatment 1 Intake NOX Sensor - Abnormal Update Rate Image: Instant Code 1 Amber Aftertreatment 1 Outlet NOX Sensor - Abnormal Update Rate Image: Instant Code 1 Amber Aftertreatment Fuel Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source Image: Instant Code 1 Amber Aftertreatment Diesel Particulate Filter Image: Instant Code 1 Amber Aftertreatment 1 Diesel Particulate Filter Image: Instant Code 1 Amber Aftertreatment 1 Diesel Particulate Filter	Fault Code Status Count Lamp Description PID Fault Parameters First Last Units Image: Constant of the status Image: Constatus Image: Constant of the st	Fault Code Status Count Lamp Description PID SID Fault Parameters First Last Units Image: Crankcase Pressure Circuit - Voltage Below Normal or Shorted to Low Source 101 Image: Crankcase Pressure Circuit - Voltage Below Normal or Shorted to Low Source 101 Image: Pault Parameters First Last Units Image: Crankcase Pressure Circuit - Voltage Below Normal or Shorted to Low Source 101 Image: Pault Parameters Active 1 Amber Crankcase Pressure Circuit - Voltage Below Normal or Shorted to Low Source 27 Image: Pault Parameters 1 Amber Aftertreatment 1 Intake NOX Sensor - Abnormal Update Rate 27 Image: Pault Parameters 1 Amber Aftertreatment 1 Outlet NOX Sensor - Abnormal Update Rate Image: Pault Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source 332 Image: Pault Parameters 1 Amber Aftertreatment Fuel Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source 332 Image: Pault Parameters 1 Amber Aftertreatment Diesel Particulate Filter Differential Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source 324 Image: Pault Parameters 1 Amber After	Fault Code Status Count Lamp Description PID SID J1587 FMI # 0 1844 Active 1 Amber Crankcase Pressure Circuit - Voltage Below Normal or Shorted to Low Source 101 4 # 0 2272 Active 1 Amber EGR Valve Position Circuit - Voltage Below Normal or Shorted to Low Source 27 4 # 0 3232 Active 1 Amber Aftertreatment 1 Intake NOx Sensor - Abnormal Update Rate 9 # 0 1928 Active 1 Amber Aftertreatment 1 Outlet NOx Sensor - Abnormal Update Rate 9 # 0 1928 Active 1 Amber Aftertreatment 1 Outlet NOx Sensor - Abnormal Update Rate 9 # 0 1928 Active 1 Amber Aftertreatment Fuel Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source 332 4 # 0 1881 Active 1 Amber Aftertreatment Diesel Particulate Filter Differential Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source 324 4 # 0 3134 Active 1 Amber Aftertreatment 1 Diesel Particulate Filter Differen	Fault CodeStatusCountLampDescriptionPIDSIDJ1587 FMIJ1939 FMIFault ParametersFirstLastUnitsImage: Crankcase Pressure Circuit - Voltage Below10144@ 1844Active1AmberCrankcase Pressure Circuit - Voltage Below Normal or Shorted to Low Source10144@ 2272Active1AmberEGR Valve Position Circuit - Voltage Below Normal or Shorted to Low Source2744@ 23232Active1AmberAftertreatment 1 Intake NOX Sensor - Abnormal Update Rate99@ 2771Active1AmberAftertreatment 1 Outlet NOX Sensor - Abnormal Update Rate33244@ 1928Active1AmberAftertreatment Fuel Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source33244@ 1881Active1AmberAftertreatment Diesel Particulate Filter Differential Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source32444@ 3134Active1AmberAftertreatment 1 Diesel Particulate Filter Outlet Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source32444	Fault CodeStatusCountLampDescriptionPIDSIDJ1587 FMIJ1939 FMISPNFault ParametersFirstLastUnitsImage: Count of the second seco

Plack

 \times

Look Up the Aftertreatment 1 Intake Messages in J1939

PGN	PGN (Hex)	Acronym	Parameter Group Label	Transmission Rate
61454	0xF00E	AT1IG1	Aftertreatment 1 Intake Gas 1	50 ms
64948	0XFDB4	AT1IG2	Aftertreatment 1 Intake Gas 2	500 ms

- Source address is decimal 81 (0x51) for the Aftertreatment #1 system gas intake module
- Priority will be 6 (typical).
- The CAN IDs on CAN2 will be
 - Ox18F00E51
 - Ox18FDB451

Create New CAN Message and Give a Descriptive Name

Ignition Key Switch															ISR/Serial N	Monitor SET 3.17
															SD/Senario	wonten per 3, 17
ECU Profile Settings Digital Potentio	meters Ex	tra Outpu	ts Voltag	ge Outpu	t Network	Message G	ienerator	Data Logger	SSS2 Commar	nd Inte	rface					
CAN Messages to Transmit	Thursd	Count	la dau	Canal	Channel	Desired	Destant	Tatal Da		DIC	D1 0	22 D			. DZ D0	Transmit all CAN messages
DDFC MCM 01	Inread	Count	index	Send	Channel	Penida	Restart		CAN HEA ID	DLC			D D4	00 00	00 00	Synercon
DDEC MCM 01	1		0	NO	CAN2	10	0	0 1	8FF0001	8	00 0	00 00	00 0	00 00		Stop Sending all CAN messages
DDEC TCM 01	2		0	NO	CAN2	10	0	0 1	CF00203	8	00 0	00 00		00 00		11030 Bit Rater 250000 V Set Technolog
DDEC TCM 02	3	1	0	No	CAN2	10	0	0 1	8FF0303	8	00 0	00 00	00 0	00 00	00 00	
DDEC TCM 03	4	1	0	No	CAN2	100	0	0 1	18F00503	8	00 (00 00	0 00	00 00	00 00	CAN1 Bit Rate: 250000 V Set
HRW from Brake Controller	5	1	0	No	J1939	20	0	0 1	CFE6E0B	8	00 (00 00	00 0	00 00	00 00	
EBC1 from Cab Controller	6	1	0	Yes	J1939	100	0	0 1	18F00131	8	00 (0 00	0 00	00 00	00 00	CAN2 Bit Rate: 250000 V Set
EBC1 from Brake Controller	7	1	0	Yes	J1939	100	0	0 1	18F0010B	8	00 (00 00	00 0	00 00	00 00	CAN Message Editor
CCVS1 from Instrument Cluster	8	1	0	Yes	J1939	100	0	0 1	18FEF117	8	00 (00 00	0 00	00 00	00 00	Description Address Chinesel (se 00
CCVS1 from Cab Display 1	9	1	0	Yes	J1939	100	0	0 1	18FEF128	8	00 - (<u>a</u>		00 0		Description: Address Claimed for UU
CCVS1 from Body Controller	10	1	0	Yes	J1939	100	0	0 1	18FEF121	8	00	φr in	put		^	Thread: 29 Sequence Count: 1 Sequence Index: 0
CCVS1 from Cab Controller	11	1	0	Yes	J1939	100	0	0 1	18FEF131	8	00	Nev	CAN N	/lessag	e Name:	
CM1 from Instrument Cluster	12	1	0	Yes	J1939	100	0	0 1	18E00017	8	00	AT1	IG1 fron	n Intak	e Gas 1	Hex CANID: 18EE0002 DLC: 8 V Use Extended (29-bit) ID
CM1 from Climate Control 1	13	1	0	Yes	J1939	100	0	0 1	18E00019	8	00			1		Channel: O 11939 O CAN O CAN2 Fnable Transmission (Send
CM1 from Body Controller	14	1	0	Yes	J1939	100	0	0 1	18E00021	8	00	(ж		Cancel	
CM1 from Cab Display	15	1	0	Yes	J1939	100	0	0 1	18E00028	8	00	0 00	00 0	00 00	00 00	Period (msec): 500 Restart (msec): 0 Total to Send: 0
CM1 from Cab Controller	16	1	0	Yes	J1939	100	0	0 1	18E00031	8	00 (0 00	00 0	00 00	00 00	Data Bytes (Hex): B1: 4C B2: 15 B3: 5D B4: 1 B5: 0 B6: 0C B7: 0 B8: 0
PTO from Instrument Cluster	17	1	0	Yes	J1939	100	0	0 1	18FEF017	8	00 (0 00	00 0	00 00	00 00	
PTO from Body Controller	18	1	0	Yes	J1939	100	0	0 1	18FEF021	8	00 (0 00	00 0	00 00	00 00	Modify Selected Message Create New CAN Message
PTO from Cab Display	19	1	0	Yes	J1939	100	0	0 1	18FEF028	8	00 (0 00	00 0	00 00	00 00 0	
PTO from Cab Controller	20	1	0	Yes	J1939	100	0	0 1	18FEF031	8	00 (0 00	00 0	00 00	00 00 0	Send Selected Message Delete Selected Message
AMB from Body Controller	21	1	0	Yes	J1939	1000	0	0 1	18FEF521	8	00 (0 00	00 0	00 00	00 00	Add Sequential Morrage
VGT Status	22	1	0	Yes	CAN2	20	0	0 1	18FFC502	8	00 (0 00	00 0	00 00	00 00	Add Sequential Message
Address Claimed from VGT	24	1	0	Yes	CAN2	500	0	0 1	18EEFF02	8	BD 8	82 A	4 12	00 8	5 00 00	Network Configurations
VGT Response	25	1	0	Yes	CAN2	5000	0	0 1	18FF0B02	8	82 6	5A D	F 9A	FC 0	I 8E 00	Connect LIN to Round Pin E (J10:5)
Stop Broadcast	26	2	0	Yes	J1939	1	5000	0 1	18DFFFF9	8	00 (00 31	F OF	FF FI	FF FF	Connect LIN to Port 16 (J24:16)
Stop Broadcast	26	2	1	Yes	J1939	1	5000	0 1	18DFFFF9	8	FF F	FF FI	F OF	FF FI	FF FF	Connect LIN Master Pullup Resistor
Stop Broadcast on CAN2	27	1	0	Yes	CAN2	5000	0	0 1	18DFFF00	8	00 (00 31	F OF	FF FI	FF FF	Connect CAN0 (FlexCAN0) Termination Resistor (J1939)
Address Claimed from 29	28	1	0	Yes	CAN2	500	0	0 1	18EE2902	8	4C 1	15 50	D 01	00 00	00 00	Connect CAN2 (FlexCAN1) Termination Resistor (E-CAN)
Address Claimed for 00	29	1	0	Yes	CAN2	500	0	0 1	18EE0002	8	4C	15 50	D 01	00 00	00 00	Connect CAN1 (MCP-CAN) Termination Resistor
																O Connect J1708 to J24:17 and J24:18
1																

Use the CAN Message Editor

	Address Claimed for VV	23	i v	1.62	CAINE	500	v	V 1	TOLLUUUZ	0 4	с I.	JU	V1	vv	υC	vv	vv
	AT1IG1 from Intake Gas 1	30	10	Yes	CAN2	50	0	01	18F00E51	8 0	0 00	00	00	00	00	00	00
								_									
	Description: AT1IG1 from Intake Gas 1						lab SSS2	or Ent 2	ter sends	; the	cha	ang	ges	10	the	е	
/	Thread: 30 Sequence Co	ount: 1	Sequence	Index:	0		Pres	ssing N	Aodify Se	electe	ed I	Мe	SSC	ige	se	enc	sk
	Hex CAN ID: 18F00E51	DLC: 8 🗸	🗹 Use Ex	tended (29)-bit) ID		chc	anges	to the SS	S2				•			
	Channel: O J1939 O CAN1 O C	AN2	🗹 Enable	e Transmis	sion (Send)	-	Sele Mes	ecting ssaae	the mes Editor	sage	fills	s th	e (1		
	Period (msec): 50 Restart (ms	sec): 0	Total to	Send: 0			Dori		ha tima		hat						
	Data Bytes (Hex): B1: 0 B2: 0 B3: 0	B4: 0 B5	5: 0 B6: 0	B7: 0 B	8: 0		seq	ventic	ne lime g al messag	gap ges	Dei	WE	en				
	Modify Selected Message		Create New	CAN Mess	age	-	Res	tart is t	the dela	y bei	ore	e sto	arti	ng	٥v	'er	
	Send Selected Message		Delete Selec	cted Messa	ge		ago	ain (leo	ave at 0	for si	ngle	e n	nes	sac	ges	5)	
	Add Sequential Message					-	If To	otal to	Send is	0, the	en t	he	re i	s no	o li	mi	t .

- Add Sequential Message sets up message bursts with potentially different contents (See upcoming VIN example).
- Individual messages can be toggled with the Enable Transmission box
 - Send Selected Message starts the Total counter over again.

Eliminated Fault Code from Missing CAN Message

 \times

INSITE 8.2.2.60 - ISX12 CM2350 X102/X103/X108/ISX15 CM2350 X101/X104/X109 - Engine Serial Number - 0 - ECM Code - EF10067.36

File Edit View Tools Manage License(s) Send To CSS Window Help

87 19 19 11 | X 19 18 | 🖨 🖪 | A | 🖸 🌮 | 🔍 🕂 🖴 | B 🖻 🍸 | 🗂 🗰 🔿 🕨 🗉 🖷 🖉

Disconnect from ECM	Fault Cod	e Status	Count	Lamp	Description	PID	SID	J1587 FMI	J1939 FMI	SPN
		Fault Parameter	s First	Last	Units					
Fault Codes	⊞ 	Active	1	Amber	Fuel Level (Main Tank) Sensor Circuit - Voltage Above Normal or Shorted to High Source	96		3	3	96
ECM Diagnostic	.	Active	1	Amber	Aftertreatment 1 Diesel Exhaust Fluid Dosing Valve 1 Circuit - Current Below Normal or Open Circuit			5	5	5394
Advanced ECM Data	⊞ 	Active	1	Amber	Aftertreatment 1 Diesel Exhaust Fluid Pressure Sensor Circuit - Voltage Below Normal or Shorted to Low Source			4	4	4334
Features and Parameters	⊞ 6261	Active	1	None	Engine Starter Motor Relay Circuit - Voltage Above Normal or Shorted to High Source			3	3	677
Calibration Selection	⊞ 6418	Active	1	None	Engine Brake Actuator Driver 1 Circuit - Voltage Above Normal or Shorted to High Source			3	3	1072
Work Orders		Inactive	1	Amber	VGT Actuator Driver Circuit - Abnormal Update Rate		27	9	9	641
ECM Templates		Inactive		Amber	Aftertreatment 1 Intake NOx Sensor - Abnormal Update Rate			9	9	3216
Connected to ECM.			Nome	U DG DPA 4	Plus (MA),USB - Auto Detect - RP1210A 💌 RP1210A (J1939) Firmwa	re: 5.00 6	4.017			
			Nore	fault						
				GUIT CO	Dde					

Generating a Burst of CAN Messages: Vehicle Identification Number Example

CAN Messages to Transmit																	Transmit all CAN messages
Label	Thread	Count	Index	Send	Channel	Period	Restart	Total E	t CAN HEX ID	DLC	B1	B2	B3 E	34 B3	B6	B7 B8	
DDEC MCM 01	1	1	0	No	J1939	10	0	0	8FF0001	8	00	00	00 0	00 00	00	00 00	Stop Sending all CAN messages
DDEC TCM 01	2	1	0	No	CAN2	10	0	0	CF00203	8	00	00	00 0	00 00	00	00 00	
DDEC TCM 02	3	1	0	No	CAN2	10	0	0	8FF0303	8	00	00	00 0	00 00	00	00 00	J1939 Bit Rate: 250000 V Set Iecnnologies
DDEC TCM 03	4	1	0	No	CAN2	100	0	0	18F00503	8	00	00	00 0	00 00	00	00 00	
HRW from Brake Controller	5	1	0	Yes	J1939	20	0	0	CFE6E0B	8	00	00	00 0	00 00	00	00 00	CAINT BIT Nate: 20000 V Set
EBC1 from Cab Controller	6	1	0	Yes	J1939	100	0	0	18F00131	8	00	00	00 0	00 00	00	00 00	CAN2 Bit Rate: 500000 V Set
EBC1 from Brake Controller	7	1	0	Yes	J1939	100	0	0	18F0010B	8	00	00	00 0	00 00	00	00 00	
💻 VIN Broadcast	8	4	0	Yes	J1939	5	5000	12	18ECFF01	8	20	11	00 0	03 FI	EC	FE 0	
VIN Broadcast	8	4	1	Yes	J1939	5	5000	12	18EBFF01	8	01	31	32 3	33 34	35	36 00	Description: VIN Broadcast
VIN Broadcast	8	4	2	Yes	J1939	5	5000	12	18EBFF01	8	02	38	39 3	SA 3E	3C	3D 31	Thread: 8 Sequence Count: 4 Sequence Index: 0
VIN Broadcast	8	4	3	Yes	J1939	5	5000	12	18EBFF01	8	03	3F	40 4	41 FI	FF	FF FI	
																	Hex CAN ID: 18ECFF01 DLC: 8 V Use Extended (29-bit) ID
																	Channel: J1939 CAN1 CAN2 Fnable Transmission (Send)
																	Period (msec): 5 Restart (msec): 5000 Total to Send: 12
																	Data Bytes (Hex): B1: 20 B2: 11 B3: 0 B4: 3 B5: FF B6: EC B7: FE B8: 0
																	Modify Selected Message Create New CAN Message
																	Send Selected Message Delete Selected Message
																	Add Sequential Message

VIN Broadcast Example.SSS2 is available with the SSS2 Interface Application.

💊 Smart Sensor Simulator Interface

File Connection Tools

Ignition Key Switch

USB/Serial Monitor: SET CAN message 8 with ID 0x18ECFF01 on.

ECU Profile Settings Digital Potentiometers Extra Outputs Voltage Output Network Message Generator Data Logger SSS2 Command Interface

CAN Messages to Transmit			- 10 - 7 M			115	10					11	- 10	10 10		-			DC DC	Techno		- DG Diagnostics (MD/HD RD)	1210)		
Label	Thread	Count	Index	Send	Channel	Period	Restart	Total E	ixt CA	N HEX ID	DLC	B1 8	B2 B3	B4	B5	B6 B	7 B8	8			luc	Secolarity Francis (MD/1D RF	1210)		
DDEC MCM 01	1	1	0	No	J1939	10	0	0	1	8FF0001	8	00	00 00	00	00	00 00	0 00	0	rile	Data Lin		Special Features Help			inter 1
DDEC TCM 01	2	1	0	No	CAN2	10	0	0	1	CF00203	8	00 0	00 00	00	00	00 00	0 00	0		Setup	1 2 1 8	39/J1587 Faults Componen	ts Dynamic D	ata Totais Reg	Ister
DDEC TCM 02	3	1	0	No	CAN2	10	0	0	1	8FF0303	8	00	00 00	00	00	00 00	0 00	0 J1		J1939	Con	ponent Information			
DDEC TCM 03	4	1	0	No	CAN2	100	0	0	1	18F00503	8	00 0	00 00	00	00	00 00	0 00	0		ECU	E	CU Description	12	VIN	
HRW from Brake Controller	5	1	0	Yes	J1939	20	0	0	1	CFE6E0B	8	00	00 00	00	00	00 0	0 00	0		1	E	Engine #2		123456 89:;<>>	?@A
EBC1 from Cab Controller	6	1	0	Yes	J1939	100	0	0	1	18F00131	8	00	00 00	00	00	00 00	0 00			11	E	Brakes - System Controller			
EBC1 from Brake Controller	7	1	0	Yes	J1939	100	0	0	1	18F0010B	8	00	00 00	00	00	00 0	0 00	0		49	(Cab Controller - Primary			
🚍 VIN Broadcast	8	4	0	Yes	J1939	5	5000	12	1 - 3	18ECFF01	8	20	11 00	03	FF	EC F	E 00	0	1						
VIN Broadcast	8	4	1	Yes	J1939	5	5000	12	1	18EBFF01	8	01	31 32	33	34	35 3	6 00	0							
VIN Broadcast	8	4	2	Yes	J1939	5	5000	12	1	18EBFF01	8	02	30 39	3A	3B	3C 3I	D 3E	E		-	-				
VIN Broadcast	8	4	3	Yes	J1939	5	5000	12	1	18EBFF01	8	03	3F 40	41	FF	FF F	F FF	F							
												4.3			~										
192,168,15,16 - Pully												_									-			-	
															1	^									
(1502635909 905996)	capl	LARCE	grep FF	UL 20 1	11 00 03	াৰ হাৰ	FF 00													•	1			1	
(1502635909,916053)	canl	18EBFI	F01 [8	1 01 3	31 32 33	34 35	36 00													2. 53 (8.5	81				
(1502635909.925980)	canl	18EBFI	F01 [8] 02 3	38 39 3A	3B 3C	3D 3E											Da		14507	Com	nonant Information			
(1502635909.936098)	canl	18EBFI	F01 [8] 03 3	3F 40 41	FF FF	FF FF											17		J 1507	Con	ponent information			
(1502635914.906219)	canl	18ECFI	F01 [8] 20]	11 00 03	FF EC	FE 00											1		MID	M	D Description	VIN		Make
(1502635914.916206)	canl	18EBFI	F01 [8] 01 3	31 32 33	34 35	36 00											1							
(1502635914.926206)	canl	18EBFI	F01 [8] 02 3	38 39 3A	3B 3C	3D 3E																		-
(1502635914.936521)	canl	18EBFI	F01 [8] 03 3	3F 40 41	FF FF	FF FF											I							
(1502635919.906442)	canl	18ECFI	F01 [8] 20]	11 00 03	FF EC	FE 00													-	-				
(1502635919.916430)	canl	18EBFI	F01 [8] 01 3	31 32 33	34 35	36 00											-N			_				
(1502635919.926436)	canl	18EBFI	F01 [8] 02 3	38 39 3A	3B 3C	3D 3E														_				
(1502635919.936457)	canl	18EBFI	F01 [8] 03 3	3F 40 41	FF FF	FF FF																		
																			1						
																							1		
																									1
																		\leq			1				-
)	-	1				
																		C		-					
11																-	-			Re	eset L	ists			
Saved																									

Link: http://www.synercontechnologies.com/files/Training/VIN%20Broadcast%20Example.mp4

Additional Ideas

- You can connect multiple SSS2 Units together and run them with the same computer.
 - Each SSS2 has a unique COM port.
 - Each SSS2 should have its own SSS2 Interface Application running.
 - May be useful to connect brake and body controller together.
- Detroit Diesel DDEC MCM and ACM cables connect 21 Pin Connectors to the SSS2 9-pin.
 - ACM and MCM will set new faults
 - Enables extraction of additional parameters and engine related data
 - Recommend to do CPC only first, then connect to MCM and ACM
 - CPC is required for ACM and MCM connections.
 - DDEC Reports data is on the CPC

64

A brief guide on making sure things work.



Troubleshooting Messages or Signals are not Present

- Check to be sure the pin multiplexing is not blocking a signal.
- Radio buttons and Checkboxes perform the multiplexing.
- Some pin settings are on different tabs than their signal settings.

0 0000000000000000000000000000000000000			Connect PWM4 Output to J18:12	
Connect PWM1 to J18:15 and PWM2 to J18:16				
Connect CAN2 to J18:15 and J18:16		Connect PWM3 Output to J18:10	Connect PWM4 Output to J18:1	
✓ Connect PWM1 Output to J24:13	nect PWM2 Output to J24:14	○ Connect J18:10 to +12VDC	○ Connect J18:1 to Ground	Connect PWM5 Output to J24:2

The following share a common frequency: PWM1 and PWM2, PWM3 and PWM4, PWM5 and PWM6. Adjusting one in the group will affect the other.

- The SSS2 Interface Application is designed to have the SSS2 connected by USB with the Virtual Serial driver installed.
 - Be sure the SSS2 has its own COM port.
 - Unplug SSS2 to see which port goes away (COM9 in this example)
- SSS2 Interface App detects missing communications.

 \times

OK

💊 SSS2 Serial Connection Error

The SSS2 serial connection is not present on the selected COM port. Please connect the SSS2 to the correct USB to Serial connection. You may have to restart the program and the SSS2 if the connection continues to fail.



- A red background in the USB/Serial Monitor indicates no SSS2 communications
- Resetting the USB on the SSS2 requires cycling SSS2 power.

\	📎 Smart Sensor Simulator Interface		×
	File Connection Tools		
	Ignition Key Switch	USB/Serial Monitor: SET Time to 2017-09-10 07:34:03	
	ECU Profile Settings Digital Potentiometers Extra Outputs Voltage Output Network Message Generator	or Data Logger SSS2 Command Interface	
Г	Electronic Control Unit (ECU) Settings	User Information	
۱	ECU Year: YEAR ECU Make: MAKE ECU Model: MODEL	Date Loaded: Sunday, 10 September 2017 07:34:02 Central Daylight Time	
- I	Engine Serial Number: SERIAL NUMBER	Date Saved: NOT SAVED Synercon	
- I	ECU Software Version: SOFTWARE VERSION	User Name: USER NAME	~
۰	Veh. Year: YEAR Vehicle Make: MAKE Vehicle Model: MODEL		S
· ·	Vehicle ID (VIN): VEHICLE IDENTIFICATION NUMBER	Location: ADDRESS, CITY, STATE, ZIP	
- I	ECU Component ID: COMPONENT IDENTIFICATION	Case Number: CASE IDENTIFIER	
	ECU Configuration: CONFIGURATION		
	-Smart Sensor Simulator 2 (SSS2) Settings		
	SSS2 Component ID: SYNER*SSS2-R05*0043*UNIVERSAL	User Notes:	
	Send SSS2 Component Information over J1939	USER ENTERED NOTES	21
	SSS2 Unique ID: UNIVERSAL		
:	SSS2 Software ID: SSS2*REV05*1.0*master*c3b62b583f1f7b22da9f3ec93ed09addc75a1d1e		
	SSS2 Cable Model: Supplemental Resistor Box Use	Jsed	
F	-Current Settings Information		
	Settings File: Default Settings Loaded		

Try reconnecting to the SSS2 with the correct COM Port.

📎 Smart Sensor Simulator Interface	— — >	×
File Connection Tools		_
Ignition Key Switch	USB/Serial Monitor: SET Time to 2017-09-10 07:34:03	
ECU Profile Settings Digital Potentiometers Extra Outputs Voltage Output Network Message Gen	ator Data Logger SSS2 Command Interface	
Electronic Control Unit (ECU) Setting	User Information	
ECU Year: YEAR ECU Make: MAKE ECU Model: MODEL	Date Loaded: Sunday, 10 September 2017 07:34:02 Central Daylight Time	
Engine Serial Number: SERIAL NUMBER	Date Saved: NOT SAVED Synercon	
ECU Software Version: SOFTWARE VERSION	User Name: USER NAME 1 1 •	
Veh. Year: YEAR Vehic Connect X /ehicle Model: MODEL		
Vehicle ID (VIN): VEHI SSS2 COM Port		
ECU Component ID: CON		
ECU Configuration: COM COM10	Case Number: CASE IDENTIFIER	
COM9	Date: DATE	
SSS2 Component ID: SVNER*SSS COM1	User Notes:	
Not Available Send SSS2 Component Information over J1939	USER ENTERED NOTES	
SSS2 Unique ID: UNIVERSAL		
SSS2 Software ID: SSS2*REV05*1.0*master*c3b62b583f1f7b22da9f3ec93ed09addc75a1d1e		
SSS2 Cable Model: V Supplemental Resistor B	x Used	
Current Settings Information		
Settings File: Default Settings Loaded		
Current SHA-256 Digest: 31999b9d55c9aa610e4e45f93555ba959209ec6777349d4122a9b4b5d0754342		
Saved SHA-256 Digest: Current Settings Not Saved.		
Smart Sensor Simulator Interface Information		
File Saved with Smart Sensor Simulator Interface Release: File Not Saved	Open Settings File	
Current Smart Sensor Simulator Interface Version: 1.0.7	Save Settings File	

 Data from the SSS2 will show up in theUSB/Serial Monitor, Component ID, and Software ID fields when connected.

/	🖕 Smart Sensor Simulator Interface 🦳 🗌 🕹							
/ .	e Connection Tools							
	USB/Serial Monitor: FIRMWARE SSS2*REV05*1.0*master*c3b62b583f1f7b22da9f3ec93ed09addc75a1d1e							
	ECU Profile Settings Digital Potentiometers Extra Outputs Voltage Output Network Message Generator Dat	iata Logger SSS2 Command Interface						
	Electronic Control Unit (ECU) Settings	User Information	on					
	ECU Year: YEAR ECU Make: MAKE ECU Model: MODEL	Date Loaded:	Sunday, 10 September 2017 07:44:44 Central Daylight Time					
	Engine Serial Number: SERIAL NUMBER	Date Saved:	NOT SAVED	Synercon				
	ECU Software Version: SOFTWARE VERSION	User Name:	USER NAME					
/	Veh. Year: YEAR Vehicle Make: MAKE Vehicle Model: MODEL	Company:		V lechnologies				
	Vehicle ID (VIN): VEHICLE IDENTIFICATION NUMBER	Location		n j				
	ECU Component ID: COMPONENT IDENTIFICATION	C N I						
	ECU Configuration: CONFIGURATION	Case Number:						
	Smart Sensor Simulator 2 (SSS2) Settings SSS2 Component ID: SYNER*SSS2-R05*0043*UNIVERSAL Send SSS2 Component Information over J1939 SSS2 Unique ID: UNIVERSAL		DATE					
				8 400				
			RED NOTES	S.S. It DIN				
				and the second s				
	SSS2 Software ID: SSS2*REV05*1.0*master*c3b62b583f1f7b22da9f3ec93ed09addc75a1d1e			50 1330				
	SSS2 Cable Model:							
	Current Settings Information			and a second sec				
	Settings File: Default Settings Loaded			13				
	Current SHA-256 Digest: 31999b9d55c9aa610e4e45f93555ba959209ec6777349d4122a9b4b5d0754342							
	Saved SHA-256 Digest: Current Settings Not Saved.							
	- Smart Sensor Simulator Interface Information File Saved with Smart Sensor Simulator Interface Version: 1.0.7 File Saved with Smart Sensor Simulator Interface Release: 4 September 2017 Current Smart Sensor Simulator Interface Version: 1.0.7 Current Smart Sensor Simulator Interface Release: 4 September 2017							
				Open Settings File				
			v	Save Settings File				
	-Warnings and Cautions			Save Settings File As				
	Using the Smart Sensor Simulator 2 cannot guarantee a fault free environme		l electronic control units. If the elimination	Get SSS2 Unique ID				
of fault codes is critical, then the user is encouraged to test the SSS2 s accordingly. Only properly trained experts should use this software and p			ith an exemplar module and adjust the settings	Visit: http://www.synercontechnologies.com/SSS2/				
	Default Settings Loaded	Default Setting	c	SSS2 Connected on COM9				

70

Troubleshooting

🔍 Incompatible SSS2 for Saving



The unique ID entered for the SSS2 does not match the unit. Please select Get ID from the Connection menu to get the SSS2 Unique ID to populate the form.

Saving and Opening requires the SSS2 Unique ID.

📎 Smart Sensor Simulator Interface		– 🗆 X		
File Connection Tools				
Ignition Key Switch	USB/Serial Monitor: FIRMWARE SSS2*REV05*1.0*master*c3b62b583f1f7b22da9f3ec93ed09addc75a1d1e			
ECU Profile Settings Digital Potentiometers Extra Outputs Voltage Output Network Message Generator I	Data Logger SSS2 Command Interface			
Electronic Control Unit (ECU) Settings	User Information			
ECU Year: YEAR ECU Make: MAKE ECU Model: MODEL	Date Loaded: Sunday, 10 September 2017 07:44:44 Central Daylight Time			
Engine Serial Number: SERIAL NUMBER	Date Saved: NOT SAVED SVD	con		
ECU Software Version: SOFTWARE VERSION	User Name: USER NAME			
Veh. Year: YEAR Vehicle Make: MAKE Vehicle Model: MODEL		nologies		
Vehicle ID (VIN): VEHICLE IDENTIFICATION NUMBER	Location: ADDRESS. CITY, STATE ZIP	0		
ECU Component ID: COMPONENT IDENTIFICATION				
ECU Configuration: CONFIGURATION				
Smart Sensor Simulator 2 (SSS2) Settings	Date: DATE			
SSS2 Component ID: SYNER*SSS2-R05*0043*UNIVERSAL	User Notes:	8 Incore		
Send SSS2 Component Information over J1939	USER ENTERED NOTES	the solo		
SSS2 Unique ID: UNIVERSAL		\$ 5 M		
SSS2 Software ID: SSS2*REV05*1.0*master*c3b62b583f1f7b22da9f3ec93ed09addc75a1d1e		(23) s/////		
SSS2 Cable Model: Supplemental Resistor Box Used	d	Con ////		
Current Settings Information				
Settings File: Default Settings Loaded		B		
Current SHA-256 Digest: 4a02018db263f554f77706d43a9969060aed217991521107ab98e7abfd89bb6e		-		
Saved SHA-256 Digest: Current Settings Not Saved.				
Smart Sensor Simulator Interface Information				
File Saved with Smart Sensor Simulator Interface Version: 1.0.7	Once Settin	es File		
File Saved with Smart Sensor Simulator Interface Release: 4 September 2017		js rite		
Current Smart Sensor Simulator Interface Release: 4 September 2017	Save Setting	js File		
Warnings and Cautions	Save Settings	ile As		
Using the Smart Sensor Simulator 2 cannot guarantee a fault free envir	comment for all electronic control units. If the elimination Get SSS2 Uni	que ID		
accordingly. Only properly trained experts should use this software an	nd product.	chnologies com/SSS2/		
	visic http://www.synetconte	ennologies.com/obse/		
File not saved.	Default Settings	SSS2 Connected on COM9		

OK

File not saved.

► The Unique ID is built into the SSS2 processor.

📎 Smart Sensor Simulator Interface		- 🗆		
File Connection Tools				
Ignition Key Switch	USB/Serial Monitor: ID: 000dffff-fffffff-4e453567-40090020	USB/Serial Monitor: ID: 000dffff-fffffff-4e453567-40090020		
ECU Profile Settings Digital Potentiometers Extra Outputs Voltage Output Network Message Generator Da	ata Logger SSS2 Command Interface			
ECU Year: YEAR ECU Make: MAKE ECU Model: MODEL Engine Serial Number: SERIAL NUMBER ECU Software Version: SOFTWARE VERSION Veh. Year: YEAR Vehicle Make: MAKE Vehicle Model: MODEL Vehicle ID (VIN): VEHICLE IDENTIFICATION NUMBER ECU Component ID: COMPONENT IDENTIFICATION ECU Configuration: CONFIGURATION Smart Sensor Simulator 2 (SSS2) Settings-	Date Loaded: Sunday, 10 September 2017 07:44:44 Central Daylight Time Date Saved: NOT SAVED User Name: USER NAME Company: COMPANY NAME Location: ADDRESS, CITY, STATE, ZIP Case Number: CASE IDENTIFIER Date: DATE	Synercon Technologies		
SSS2 Component ID: SYNER*SSS2-R05*0043*UNIVERSAL Send SSS2 Component Information over J1939 SSS2 Unique ID: D00dffff-ffffffff-4e453567-40090020 SSS2 Software ID: SSS2*REV05*1.0*master*c3b62b583f1f7b22da9f3ec93ed09addc75a1d1e SSS2 Cable Model: SSS2*REV05*1.0*master*c3b62b583f1f7b22da9f3ec93ed09addc75a1d1e SSS2 SSS2 Cable Model: SSS2*REV05*1.0*master*c3b62b583f1f7b22da9f3ec93ed09addc75a1d1e SSS2 SSS2 SSS2 SSS2 SSS2 SSS2 SSS2 SSS	USER ENTERED NOTES			
File Saved with Smart Sensor Simulator Interface Release: 4 September 2017		Open Settings File		
Current Smart Sensor Simulator Interface Version: 1.0.7		Save Settings File		
Current Smart Sensor Simulator Interface Release: 4 September 2017 - Warnings and Cautions		Save Settings File As		
Using the Smart Sensor Simulator 2 cannot guarantee a fault free enviror	nment for all electronic control units. If the elimination	Get SSS2 Unique ID		
of fault codes is critical, then the user is encouraged to test the SSS accordingly. Only properly trained experts should use this software and	2 settings with an exemplar module and adjust the settings product.	Virit: http://www.pupercontechnologies.com/SSS2/		

SSS2 Connected on COM9

Default Settings

 A permission error means there is likely another program (or instance of the SSS2) that is using the COM port.

📎 Smart Sensor Simulator Interface				
File Connection Tools				
Ignition Key Switch			USB/Serial Monit	tor:
ECU Profile Settings Digital Potentiometers	Extra Outputs Voltage Outpu	t Network Message Generator	Data Logger SSS2 Command Interfa	ce
Connect SSS2 COM9 Connect	COM Port	SSS2 Serial Connection Er SSS2 Serial Connection Er The new SSS2 seri gives the followin PermissionError(1	ror al connection did not respond proper g error: could not open port 'COM9': 3, 'Access is denied.', None, 5)	V ly. The program
Troubleshooting

- Open the Task Manager and End Tasks for all SSS2 Interface App instances.
- Restart the program.

73

^ me	10%				
me		74%	0%	0%	
	CPU	Memory	Disk	Network	
pps (16)					
\int A graphical user interface for the Smart Sensor Simulator 2 from Synercon Technologies. (32 bit)	0%	9.2 MB	0 MB/s	0 Mbps	
Adobe Acrobat Reader DC (32 bit)	0%	1.8 MB	0 MB/s	0 Mbps	
💒 DXP.EXE (32 bit)	0%	16.8 MB	0 MB/s	0 Mbps	
Oogle Chrome (2)	0%	41.1 MB	0 MB/s	0.1 Mbps	
Microsoft Excel (3)	0%	9.1 MB	0 MB/s	0 Mbps	
🚟 Microsoft Management Console	0%	4.9 MB	0 MB/s	0 Mbps	
P Microsoft PowerPoint (2)	0%	747.9 MB	0 MB/s	0 Mbps	
🕎 Microsoft Word (3)	0%	12.9 MB	0 MB/s	0 Mbps	
Notepad++ : a free (GNU) source code editor (32 bit)	0%	2.1 MB	0 MB/s	0 Mbps	
Slack	0%	32.4 MB	0 MB/s	0 Mbps	
鑃 Snipping Tool	0.4%	2.8 MB	0 MB/s	0 Mbps	
Sublime Text (2)	0.4%	2.7 MB	0 MB/s	0 Mbps	
🙀 Task Manager	1.1%	17.4 MB	0 MB/s	0 Mbps	
Windows Command Processor	0%	0.3 MB	0 MB/s	0 Mbps	
Windows Command Processor	0%	0.3 MB	0 MB/s	0 Mbps	
🐂 Windows Explorer (4)	1.1%	48.6 MB	0 MB/s	0 Mbps	
ackground process es (117)					
🔨 A graphical user interface for the Smart Sensor Simulator 2 from Synercon Technologies. (32 bit)	0%	12.9 MB	0 MB/s	0 Mbps	
🔨 A graphical user interface for the Smart Sensor Simulator 2 from Synercon Technologies. (32 bit)	0%	15.6 MB	0 MB/s	0 Mbps	
📎 A graphical user interface for the Smart Sensor Simulator 2 from Synercon Technologies. (32 bit)	0%	0.6 MB	0 MB/s	0 Mbps	
Adobe Acrobat Update Service (32 bit)	0%	0.8 MB	0 MB/s	0 Mbps	
Adobe RdrCEF (32 bit)	0%	1.0 MB	0 MB/s	0 Mbps	

Fewer details

For More Information

Contact:

Jeremy Daily CEO of Synercon Technologies, LLC 125 W. Third Street, First Floor Tulsa, OK 74103 PH: 937-238-4907 E-mail: jeremy@synercontechnologies.com

74