

# Tool Box – Data Analysis

This function allows various types of control modules mounted on the vehicle to confirm the parameter values, which control the sensor's signal input and movement of actuators, through vehicle communication.



# Mode

This is a description of sensor data indicating mode.

### Text Mode $\equiv$

This indicates the sensor data in text format.

J.	® 🔂 D	ata Analysis	٩	) (+) B
				F0 @
Ľ	Data Analysis (602)	Time 00:	:08:17	ΞΞ ΛΛΛ C
	Sensor Name	Value	Unit	Link Up
	1 Immobilizer Built-in	OF	F.	
	2 SMARTRA2 Built-in	01	4 -	
	3 SMARTRA3 Built-in	01	4.	
	4 SMART Key Built-in	10	4.	
	5 Fuel Level Sensor Built-in	10	4 -	
	6 Fuel Tank Press Sensor Built-in	10	4 -	
	7 Low Pressure Fuel Pump Relay() Closed)	Normal ON	4 -	
	8 MAP Sensor Built-in	10	4 -	
	9 MAF Sensor Built-in	10	4 -	· · · ·
	10 Alternator PWM Built-in	10	4 -	
	11 A/Con Pressure Sensor Built-in	10	4.	
	12 Linear O2 Sensor Built-in	10	4 -	
	13 ESP Built-in	10	4 -	
	14 CDA Built-in	10	4 -	
	15 VVL Built-in	10	4 -	
	16 Battery Sensor Built-in	10	4 -	
	17 Adapted Cruise Control Built-in	0	4 -	
	18 Leak Test Type - Under Pressur	e System Of	4.	
	19 Tank Leakage Detection by Uno Pressure System Supported	der ON	4 -	
	E+3 Data Captura	Charles Salar	Ē	

# Bar Graph Mode 😑

This indicates the sensor data in bar graph format.

-E	Data Analysis (602)	Time 00:0	0.05 🔳	Jin C
	Sensor Name	Value	Unit	Link Up
	410 EX-Cam Bank2 Actual Position	-255,590	DEG	
	411 EX-Cam Bankt Desired Position	256.583	DEG	
	412 EX-Cam Bank2 Desired Position	255.583	DEG	
	413 EX-Cam Phaser 1 Duty Cycle	0.000	×.	
	414 EX-Cam Phaser 2 Duty Cycle	0.000	<u>~</u>	
	415 Angle of iniet-camshaft edges relative to cambabaft	0.0	DEG	
	416 Angle of outlet-camshaft edges relative to cranicolaft	0.0	DEG	
	417 Angle of Inlet-Camshaft Edges of Bank2 Relative to Crankshaft	0.0	DEG	
	418 Angle of Outlet-Comphett Edges of Back2 Relative to Cracksheft	0.0	DEG	
	419 Misfire Cycle Delay Reason	NO_DELAY		
	420 Total Misfire Counts	0	Count	
	421 Wisfire Carrent Cylinder #1	0	Count	
	422 Misfire Current Cylinder #2	0	Count	
	423 Misfire Current Cylinder #3	0	Count	
	424 Mistire Current Cylinder #4	0	Count	
	425 Misfire Current Cylinder #5	0	Count	
	426 Misfire Current Cylinder #6	0	Count	
	427 Misfire Current Cylinder #7	0	Count	
	428 Misfire Current Cylinder #8	0	Count	

# Graph Mode 🕥

This indicates selected sensor data in graph format.



### Graph Mode – Function Buttons

### Wiggle Test On / Off

When Wriggle Test function is switched ON, the user can configure a desired data maximum/minimum value, and receive a notification if the sensor value exceeds or falls below the standard value.



#### Wiggle Test On – Hole Range On

If Hold Range is switched ON, it only shows the sensor values that exceed or fall below the standard value.



# Group/User Group

Through  $\overline{\Xi \square}$  button on the top-left corner, the user can use Group/User Group function.

	Data Analysis (602)	Time 00:0	0:37	≡ m C	=	R	Data Analy	sis (602)		Time 00:0	32	= =	M
	Sensor Name	Value	Unit	Link Up	G	Grou	ıp (43)	sor Nary		Value	Unit		Link Up
	Immobilizer Built-in	ON				lear	Croup	-in		OFF	-		
	PIRA2 Built-in	OFF				JSEI	Group	in		ON			
	' hit-in	OFF					3 SMARTRA3	Built-in		ON			
	in	OFF	-				4 SMART Key	Built-in		ON	-		
	Built-in	OFF	-		(		S Fuel Level S	ensor Built-in		DN	-		
	ensor Built-in	OFF			[		6 Fuel Tank Pr	ess Sensor Buil	t-in	ON	-		
	del Pump Relay(Normal	OFF	-		[		7 Low Pressur Closed)	e Fuel Pump Re	lay(Normal	ON			
	Built-in	OFF	-		[		8 MAP Sensor	Built-in		ON	-		
	Built-in	OFF	-				9 MAF Sensor	Built-in		ON	-		
10	Alternator PWM Built-in	OFF					10 Alternator I	PN9M Built-in		ON	-		
1	A/Con Pressure Sensor Built-in	OFF	-		[		11 A/Con Press	sure Sensor Bui	lt-in	ON	-		
1	2 Linear O2 Sensor Built-in	OFF	-		1		12 Lineer O2 S	ensor Built-in		ON	-		
	13 ESP Built-in	OFF	-		[		13 ESP Built-ir	1		ON	-		
	14 CDA Built-in	OFF					14 CDA Built-i	n		ON			
	15 VVL Built-in	OFF	-		1		15 VVL Built-ir			DN			
	16 Battery Sensor Built-in	OFF			1		16 Battery Ser	sor Built-in		ON			
,	7 Adapted Cruise Control Built-in	OFF			1		17 Adapteci Cr	uise Control Bu	ilt-in	ON			
1	8 Leak Test Type - Under Pressure System	OFF					18 Leak Test T	ype - Under Pre	ssure System	ON			
	19 Tank Leakage Detection by Under	OFF					19 Tank Leaka Protoco Sutto	ge Detection by	Under	DN			

### **Group**

It forms a group of sensor data items to express only relevant data.



### **User Group**

The user can form or edit groups of desired sensor data items.

1. In User Group screen, select the sensor data items to be grouped.

		Fo 👁				Fo	•
ser Group		×	User Group	_			×
+ Add New Group	Sensor Name	Value	+ Add New Group		Sensor Name	Val	
	1 immobilizer Built-in	ON			1 Immobilizer Built-In		01
	2 SMARTRA2 Built-In	OFF			2 SMARTRA2 Built-In		01
	3 SMARTRA3 Built-in	OFF			3 SMARTRA3 Built-in		01
	4 SMART Key Bult-In	OFF			4 SMART Key Built-In		0
	5 Fuel Level Sensor Built-in	OFF			5 Fuel Level Sensor Built-in		01
	6 Fuel Tank Press Sensor Built-in	OFF			6 Fuel Tank Press Sensor Built-in		01
	7 Low Pressure Fael Pump Relay(Normal Closed)	OFF			7 Low Pressure Fuel Pump Relay(Normal Closed)		01
	8 MAP Sensor Built-in	OFF			8 MAP Sensor Built-In		01
	9 MAF Sensor Built-In	OFF			9 MAF Sensor Built-In		01
	10 Alternator PWM Built-In	OFF			10 Alternator FWM Built-In		01
	11 A/Con Pressure Sensor Built-in	OFF			11 A/Con Pressure Sensor Built-in		01
	12 Linear 02 Sensor Built-in	OFF			12 Linear O2 Sensor Built-In		01
	13 ESP Built-In	OFF			13 ESP Built-In		01
	14 CDA Built-in	OFF			14 CDA Built-In		ON
	15 VVL Built-in	OFF			15 VVL Built-In		ON
	16 Battery Sensor Built-In	OFF			16 Battery Sensor Built-In		ON
	17 Adapted Cruise Control Built-in	OFF			17 Adapted Cruise Control Built-In		ON
	18 Leak Test Type - Under Pressure System	OFF			16 Leak Test Type - Under Pressure		01
	19 Tank Leakage Detection by Under Pressure System Supported	OFF			19 Tank Leakage Detection by Under Pressure System Supported		ON

2. Once selection of items is made, form a group through 'Add a New Group'.



3. The group formation is completed.





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You can delete the formed group.

You can change the group order.

### Search

You can search the sensor data by entering a search word and touching  ${f Q}$  .



# Link-up

You can check the sensor information of the selected items by touching  $\operatorname{Fr}$  .

1	🎯 💽 Data Anal	ysis	<u>6</u>	8 8	fi)	® 6	Data A	nalysis	<u>۵</u>	E	8
4	Data Analysis (602)	Time 00:00:	15	E WY C	E	Data Analysi	s (602)	Time 00:0	00:14	E M	M C
]	Sensor Name	Value	Unit	Link Up			Sensor Name	Value	Unit	Link	tUp
1	1 Immobilizer Bult-in	ON -		1		1 Immobilizer B	uilt-in	OFF		-	
Ī	2 SMARTRA2 Built-in	ON -				2 SMARTRA2 B	allt-in	OFF			
	3 SMARTRA3 Built-in	ON -				3 SMARTRA3 B	alt-in	OFF			
	4 SMART Key Built-in	ON ·				4 SMART Key B	ulit-in	OFF	-		
	5 Fuel Level Sensor Built-in	ON -		EG	E E	5 Fuel Level Ser	sor Built-in	OFF		E	6
	6 Fuel Tank Press Sensor Built-in	ON -			I F	6 Fuel Tank Pre	is Sensor Built-in	OFF	21	E	6
	7 Low Pressure Fuel Pump Relay(Normal	ON -		66		7 Low Pressure	Fuel Pump Relay(Normal	OFF		E	6
	8 MAP Sensor Built-in	ON -		EG		Closed)		-		-	
1	9 MAF Sensor Built-in	ON -				9) °P 0	(+) ( ata Capture Clea	ु•े rData Select	三章 ive Display	Recorde	ed Da
,	IO Alternator PWM Built-in	ON -		$\gamma$	117		Data Informat	tion		+-	1.3
	11 A/Con Pressure Sensor Built-in	ON -		1'		ative Fasiasi	- Caston Decours		Destances	•	
	12 Linear O2 Sensor Built-in	ON -			or	ative Emissi	on system-Pressure	Sensor kange /	Performan	ce	
	13 ESP Built-in	ON -		$\mathbf{i}$	po	escription					
	14 CDA Built-In	ON -		$\backslash$	15100 ressure	is set when the sensor.	engine ECU receives an exc	essively high or low	signal value fr	om the fue	el tank
	15 VVL Built-in	ON -			DTC D	etecting C	ondition				
	16 Bettery Sensor Built-in	ON -		E6 I	Troul	ble Shocting	Condi	tion	Pt	ossible Cau	use
	17 Adapted Cruise Control Built-in	ON -			M	ain Action	Rationality check				
	18 Leak Test Type - Under Pressure System	ON -	1	Ð	المعون	Prerequisite Condition	The vehicle speed is low     The debouncing time for higher than 25 sec     The ambient Temp is hig     The APS 0%     The fuel level is between	or than 30km/h r CCV opening is gher than -10°C (14°F r 15% and 85%	)		
ş	Stop Data Capture Clear Dat	a Selective	Display	Recorded Data	Case	Threshold	•The difference of two co	insecutive Fuel Tank			

### Arrangement and Unit Change

You can arrange the items by touching the sensor name, and change the unit by touching unit.

Touch 🖌 located at the bottom right corner of each title.



## **Bottom Function Buttons**

© Stop	This function collects sensor data values over a certain period of time, and stops the sensor data values. 'Start' and 'Stop' buttons operate in turn.
[+] Data Capture	This captures the sensor data screen.
Clear Data	This initializes the collected sensor data values, and recollects them.
Selective Display	This only shows the sensor values of the sensor data items, which were selected based on needs. The entire sensor data values are shown when Fixed Output function is turned off.
Recorded Data	This function analyzes the saved sensor data file. This is linked to Saved Data Analysis function.

### Screen Control

1. You can spread or fold the screen by dragging  $\ddagger$  button upwards or downwards.

ብ 🕲 🕻	👍 🛛 Data Ar	nalysis	<u>()</u>	2+3	88	n 🕸 f	Data Analysis	C (+)	88
				fo	•			Fo	۲
🕑 🛛 Data Ana	ilysis (602)	Time 00:01	14 🔳	E MA	Q		Data Information	¢.	) ×
	Sensor Name	Value 🖌	Unit	Link Up		1025 Heater Co	ntrol Circuit (Bank 1 / Sensor 1)		
1 Immobiliz	er Built-in	ON	8		1	OTC Descripti	on		
2 SMARTRA	A2 Built-in	OFF				1003000 is set when	there is an open in the Heated Oxygen Sensor (B	1S1) heater control circuit.	
3 SMARTRA	43 Built-in	OFF	-			DTC Detecting	g Condition		
4 SMART K	ey Built-in	OFF				Trouble Shooting	Condition	Possible Cau	se
5 Fuel Level	Sensor Built-in	OFF		E6		Main Action	-Electrical inspection	1 Pour contact of co	ennecto
6 Fuel Tank	Press Sensor Built-in	OFF	S1	EQ		Prerequisite Condition	*Battery voltage is between 10V and 16V *Engine is running	2. Open in Oxygen Se (8151) heater con citcuit	ensor trol
7 Low Press Closed)	sure Fuel Pump Relay(Normal	OFF		69	_	Threshold Value	<ul> <li>Open circuit in the Oxygen Sensor (H1S1) heat control circuit</li> </ul>	tar 3. Open in Oxygen Si (B1S1) hoster pow	ensor
	_ 33 - C	)	4	Ð		Diegnostic Time	·Continuously	circuit	
Stop	Data Capture Clear	Data Selectiv	e Display	Recorded	Data	MIL	<ul> <li>2nd driving cycles</li> </ul>	4 Oxygen Sensor (B	,151)
	Data Informati	on			×	depiter CDC	Data		
25 Heater Co	entrol Circuit (Bank 1 / Ser	nsor 1)		YY		wonitor GDS i			
C Descripti	on					E Monitor parameter	a in "Current Date" with GDS.		
3000 is set when	there is an open in the Heated 0.	xygen Sensor (B1S1)	heater contr	ol cel			Recorded Data		2
C Detecting	g Condition		1	1	· D		Item .		
ouble Shooting	Condition			/	•••	< Text	Selection A LIVED B		
Main Action	Electrical inspection		1. Po			8000	Actual Engine Speed	MAX: 4999	X
Prerequisite Condition	Battery voltage is between 10     Engine is running	V and 16V	2. Opd (B1S circuit					600 RPM	
Threshold Value	<ul> <li>Open circuit in the Oxygen Ser control circuit</li> </ul>	nsor (81S1) heater	3.0pen in (8151)	1		0		MIN: 0	1
						01	the second statement of the se		

2. You can maximize/minimize the items in Graph Mode.

