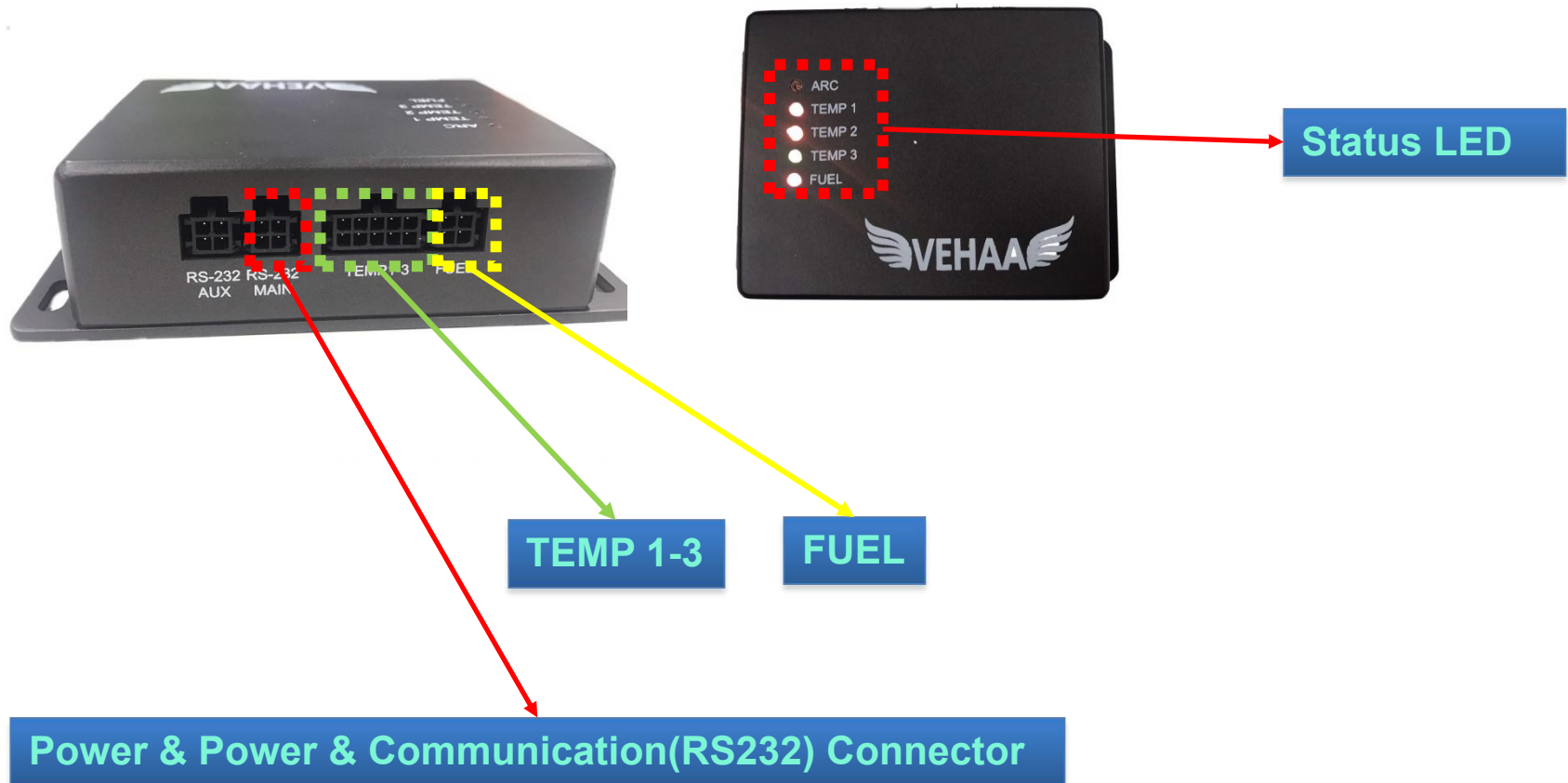
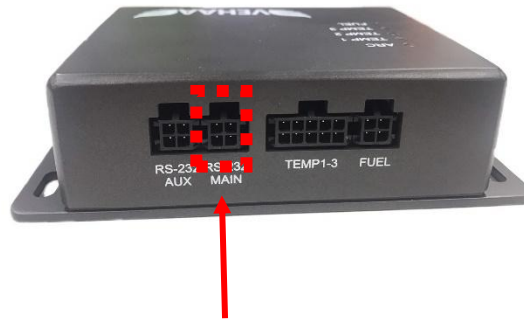


Hardware Description :



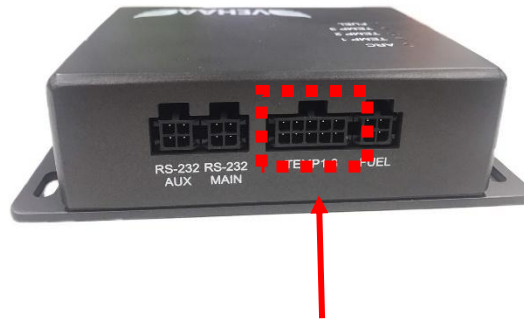
Power and RS232 Connector



4	2
3	1

PIN	ASSIGNMENT	I/O	I/O TYPE	DESCRIPTIONS
1	GND		Supply	
2	RX	Input	RS-232	UART-Receive
3	POWER 5V	Input	Supply	Power Supply Input
4	TX	output	RS-232	UART-Transmit

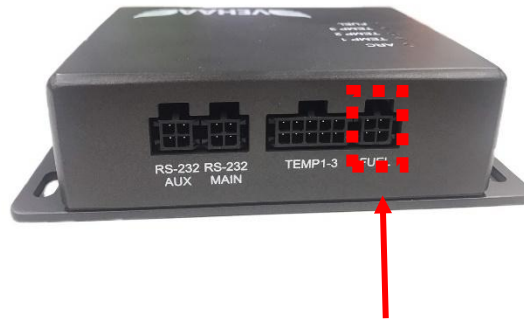
Communication Connector (Temp 1, 2, 3)



10	8	6	4	2
9	7	5	3	1

PIN	ASSIGNMENT	I/O	I/O TYPE	DESCRIPTIONS
1	GND		Supply	
2	1Wire3	Input/Output	Data	1Wire Protocol
3	POWER 5V	Output	Supply	Output Power Supply
4	POWER 5V	Output	Supply	Output Power Supply
5	GND		Supply	
6	1Wire2	Input/Output	Data	1Wire Protocol
7	POWER 5V	Output	Supply	Output Power Supply
8	GND		Supply	
9	GND		Supply	
10	1Wire1	Input/Output	Data	1Wire Protocol

Communication Connector (FUEL)



4	2
3	1

PIN	ASSIGNMENT	I/O	I/O TYPE	DESCRIPTIONS
1	GND		Supply	
2	FUEL2	Input	13V	Input (Analog/Digital)
3	GND		Supply	
4	FUEL 1	Input	13V	Input (Analog/Digital)

Display



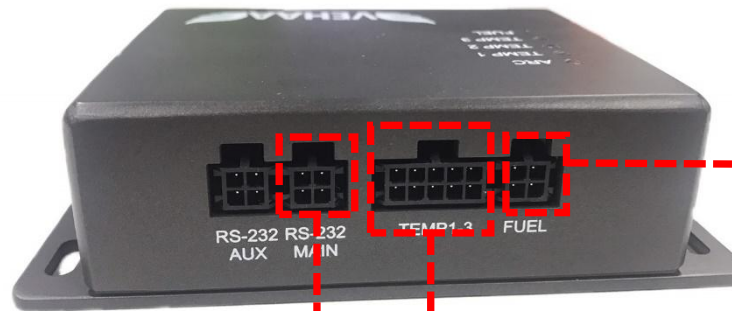
Display results by 1 channel change every 5 second

A = Temperature channel 1

B = Temperature channel 2

C = Temperature channel 3

Applications:



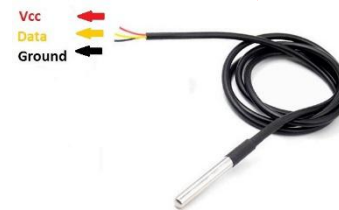
ANALOG

DIGITAL

OR



DS18B20 Pinout



DS18B20 Pinout



DS18B20 Pinout

Data Format

Frame Data in JSON Format. Connect with RS232 (Baud rate : 115200 , Data bits : 8 , Parity : None , Stop bits : 1)

```
{ "EXP1W":10, "T1":2999, "T2":2999, "T3":2999, "F1D":11825, "F2D":1034, "SUM": "57" }  
{ "EXP1W":10, "T1":2999, "T2":2999, "T3":2999, "F1D":11832, "F2D":1034, "SUM": "51" }  
{ "EXP1W":10, "T1":2999, "T2":2999, "T3":2999, "F1D":11837, "F2D":1034, "SUM": "54" }  
{ "EXP1W":10, "T1":2999, "T2":2999, "T3":2999, "F1D":11842, "F2D":1034, "SUM": "56" }  
{ "EXP1W":10, "T1":2999, "T2":2999, "T3":2999, "F1D":11846, "F2D":1034, "SUM": "52" }  
{ "EXP1W":10, "T1":2999, "T2":2999, "T3":2999, "F1D":11848, "F2D":1034, "SUM": "5C" }  
{ "EXP1W":10, "T1":2999, "T2":2999, "T3":2999, "F1D":11849, "F2D":1034, "SUM": "5D" }  
{ "EXP1W":10, "T1":2999, "T2":2999, "T3":2999, "F1D":11850, "F2D":1034, "SUM": "55" }  
{ "EXP1W":10, "T1":2999, "T2":2999, "T3":2999, "F1D":11850, "F2D":1034, "SUM": "55" }
```

Label	Values
EXP1W	FIRMWARE Version 10
T1	Temp Ch.1 / 10
T2	Temp Ch.2 / 10
T3	Temp Ch.3 / 10
F1D	Analog,Digital Fuel Ch.1 / 1000 , Average in 60 second.
F2D	Analog,Digital Fuel Ch.2 / 1000 , Average in 60 second.
SUM	Check Sum (calculate to "SUM": by XOR)

Calculation Check Sum 8 Bit Xor

to check the accuracy of the information received by taking the information to Exclusive Or (Xor)

Example of calculation data

```
{"EXP1W":10,"T1":2999,"T2":2999,"T3":2999,"F1D":11846,"F2D":1034,"SUM":"52"}
```

Calculation
initiator

Calculation
end

	symbol	Has the values in the ASCII
Position 1	({)	0x7B
Position 2	(")	0x22
Position 3	(E)	0x45

Calculate Value 0x7B
Xor 0x22 = 0x59

Calculate Value 0x59
Xor 0x45 = 0x1C

Calculate until last charactor (") Value is 0x52

To validate data

Compare calculated data to "SUM":"52"

Is it the same value	Is it not equal
Data can use able	Data is wrong ,Can't use