Texys International
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SCU-CAN User Guide

Contents

Introduction

Welcome to the user guide for the SCU-CAN, this guide is designed to provide you with a comprehensive understanding of the SCU-CAN, its capabilities and both programming and assembly instructions for efficient and effective use.

The guide also includes assembly instructions, which will guide you through the process of integrating the sensor into your system. These instructions are easy to follow and include illustrations to help you every step of the way.

However, it is important to note that the SCU-CAN is a sensor that should be used responsibly and with caution. This guide includes a disclaimer outlining the proper uses of the sensor and emphasizing the importance of following safety protocols to avoid accidents or injuries.

So, whether you are a seasoned programmer or a newcomer to the field, this user guide is the perfect resource for learning how to effectively use the SCU-CAN sensor.

Description of equipment

1. The Sub controller receives the following CAN signals from the ECU
    - Engine RPM
    - Throttle Position (from the APS - Accelerator Position Sensor)
    - Gear Position
2. When all received parameters are equal or greater than the configured thresholds, the device sends a continuous analog signal of +12V to the VAI which raises the intake funnel.
3. When one/all received parameters are less than the configured thresholds, the device sends a continuous analog signal of -12V to the VAI which lowers the intake funnel.

Electrical assembly instructions:

To check the sensor before mounting it on the motorcycle, please follow the steps below, otherwise refer to the mechanical installation instructions below.

1- Connect solenoids to the VAI output. Be careful to isolate the 2 terminals from each other, and not to short circuit the outputs.
2- Connect SCU-CAN (CANL / CANH) to the ECU CAN bus for normal use or to the KVASER tool for programming (you can connect all to one bus).
3- Connect supply VCC + and GND to an external 12V supply or to the vehicle +12V while in normal use.
4- Switch power on and check the direction of default movement of the intake funnel.
5- If opposite movement, please switch off and cross the VAI output wires, before repeating step 4.
6- SCU is ready for normal run/programming.

Programming

Programming with the KVASER tool attached to tWIST [(1)] Texys software is a straightforward and efficient way to program the SCU-CAN sensor. With this combination, you can quickly and easily configure the sensor to meet your specific needs and requirements.

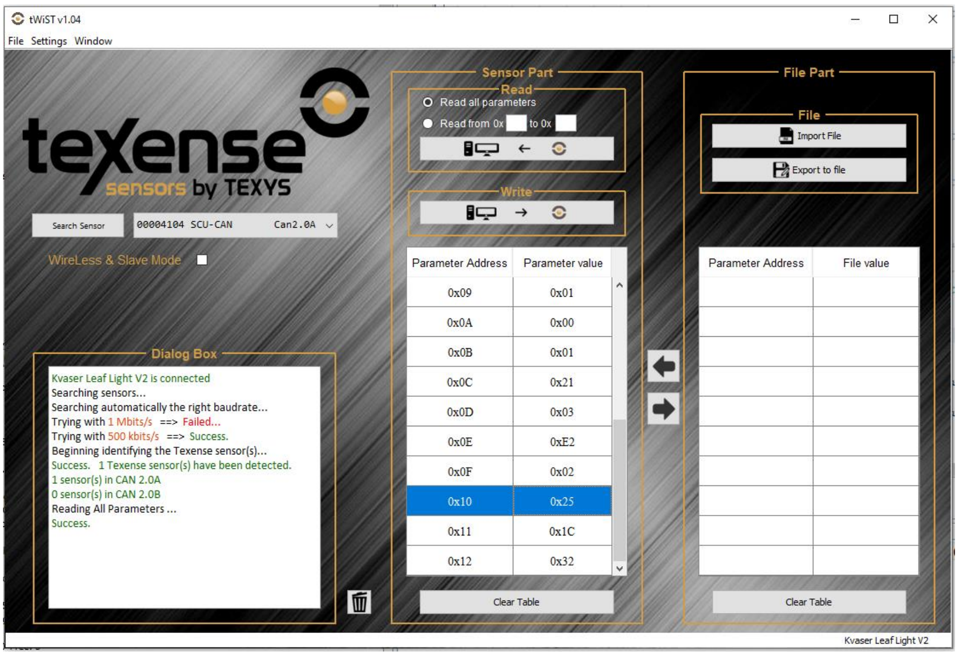
To assist with programming, this document includes a table of hexadecimal values and their respective limits in the appendix. This table is an essential resource to configure the SCU-CAN. By using these values and limits you will ensure the good functioning mode, while also avoiding errors and other issues that can arise during run.

tWiST interface

1. Install tWIST [(1)] software on your computer.

2. After connecting the SCU-CAN to the KVASER tool (see connection below), launch the tWiST application on your computer. Then click on the "Search sensor" button.

3. Once the search is done, the list next to the search button should contain all the Texense sensors detected on the CAN bus. Select the sensor you want to configure and click on the button in the read panel to display sensor's configuration:



4. Change the parameters according to the datasheet and click on the 'Write' button to send the parameters to the sensor. You can read it back to ensure the modification was acknowledged by the sensor. Any out-of-bounds writing will be replaced by the default value.

1: Texys will provide the download link of the tWIST upon request.

Example setting RPM threshold

1. Connect the SCU-CAN to the KVASER Tool (NB: a 120 Ohm termination is already present in the cable provided), see below for the connection then start tWIST application.
2. Converting raw value to hex value:
    a. Taking 9500 rpm as an example:
    (You can use this method or direct **int** to **hex** conversion website or calculator)

    The binary representation of 9500 is 0010010100011100.

    Dividing the binary representation into two groups, we get:

    MSBs: 00100101
    LSBs: 00011100

    Converting each group of bits to hexadecimal, we get:

    MSB: 0x25
    LSB: 0x1C

    Therefore, the hex MSB and LSB for the raw value of 9500RPM are 0x25and 0x1C, respectively.
3. Read all parameters by clicking on the 'Read' button.
4. Insert these values to the correct address box:
    a. In rpm threshold case 0x10 for MSB, 0x11 for LSB (defined in the **datasheet**)
5. Press 'Write' button to write this configuration. (You can do it once for all changed parameters).

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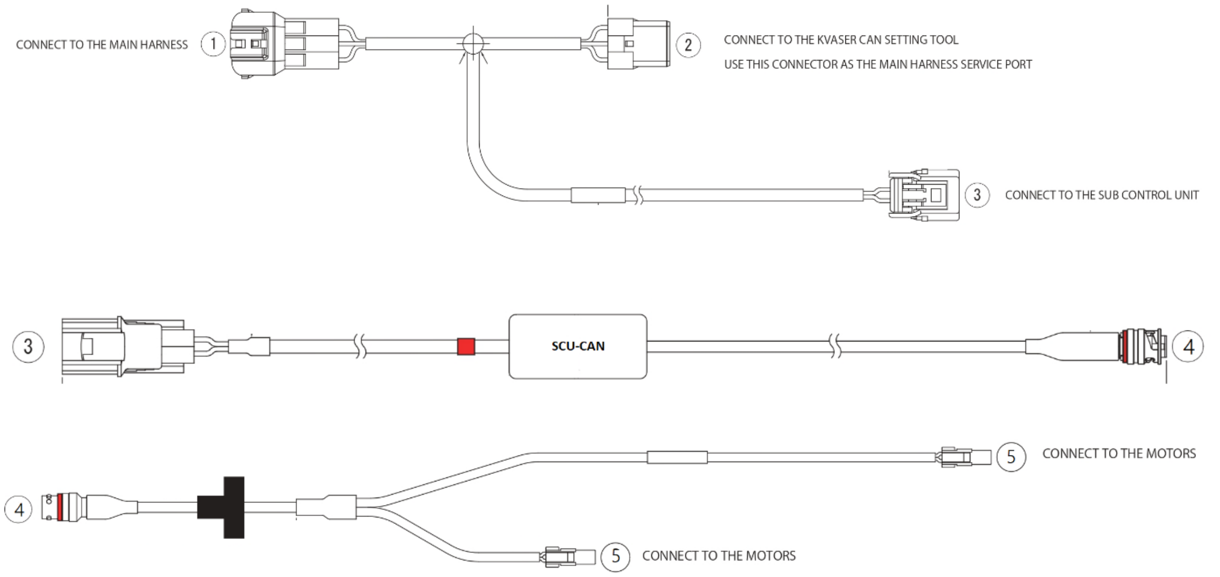
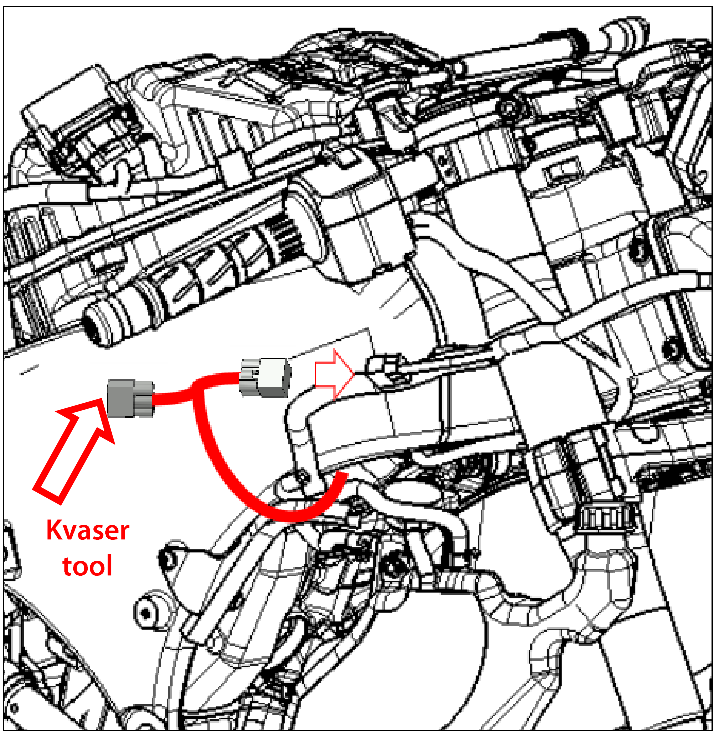
Mechanical installation (ZXR02T)

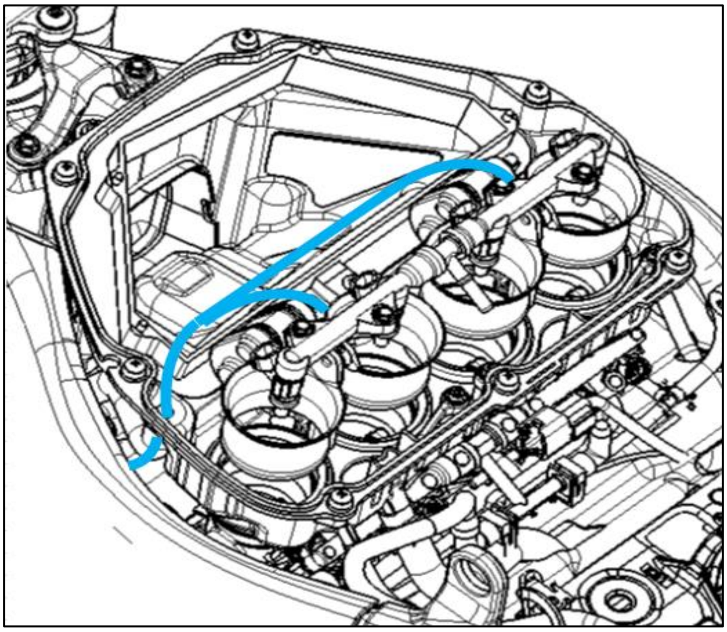
The following drawing shows how the different cables should be connected.

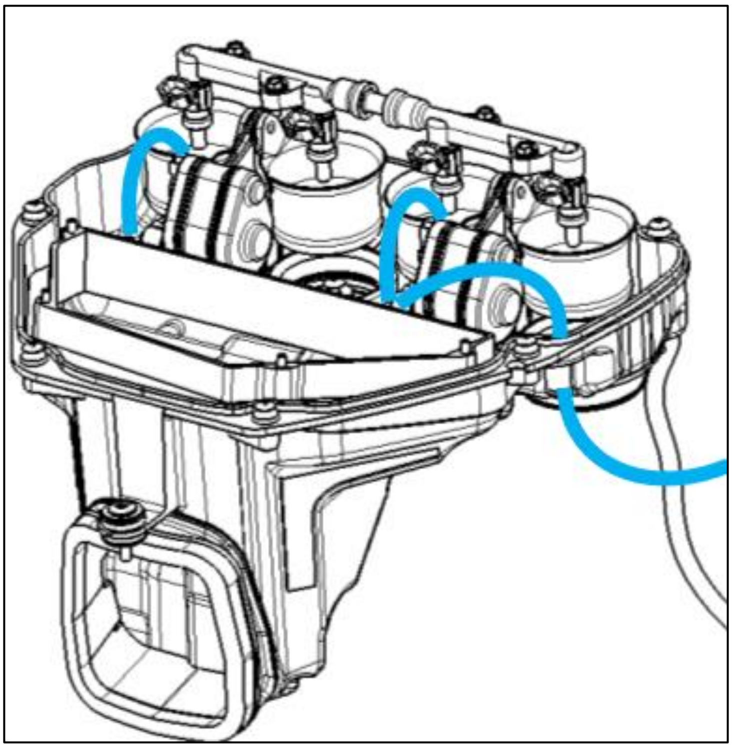


- Connect SCU sub harness to main harness, and cable routing (refer to WIRE, SUB (SCU) CKW0110 26031E32-032 for sub harness info).



- VAI cable routing in blue (refer to CABLE DRAWING: WIRE, VAI CKW0111 26031E32-034 for VAI cable info)





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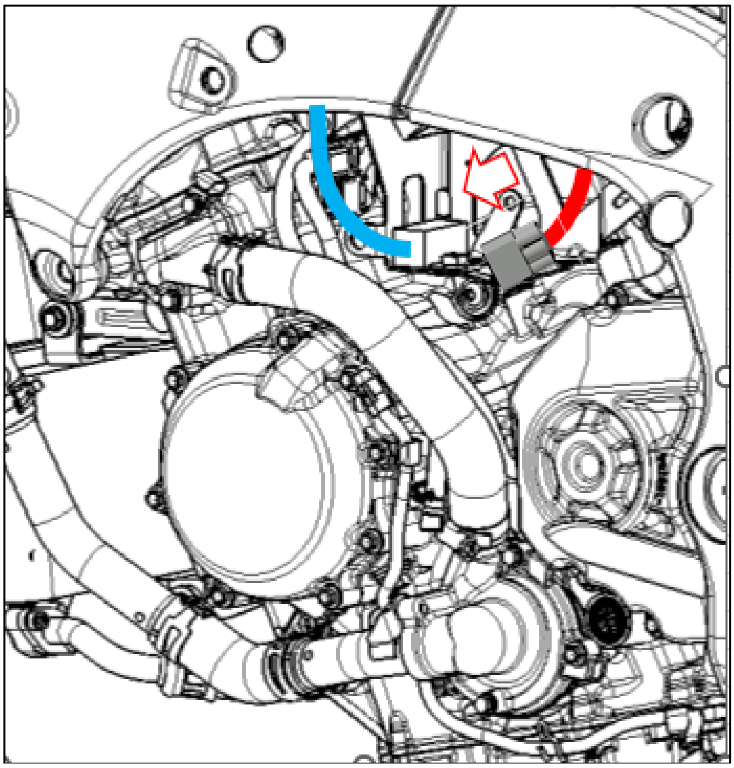
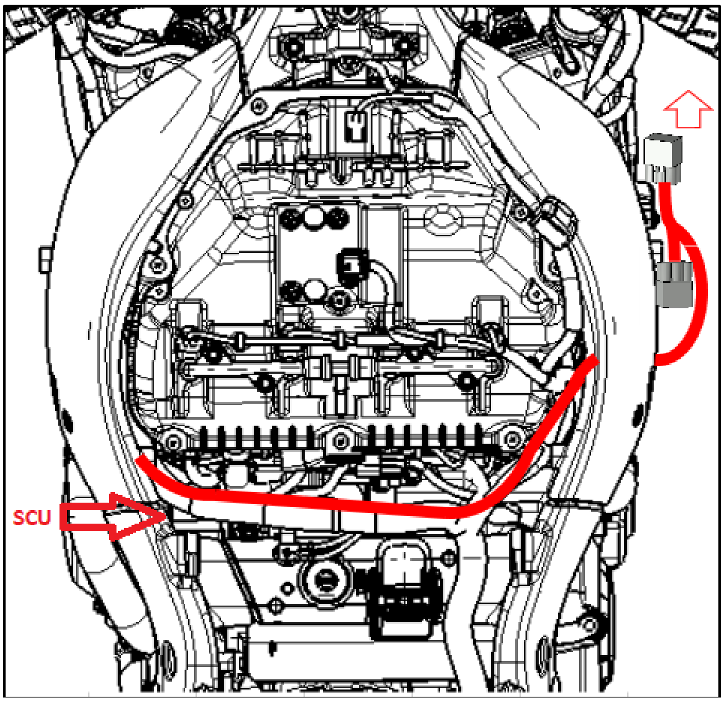
- Place SCU here and connect to SCU sub harness.



- SCU sub harness routing



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Disclaimer

1. Warming up

Under a permanent 12 V supply, in accordance with the specifications, the temperature of each solenoid reaches 95°C after one hour of operation, at an ambient temperature of 20°C, i.e. a self-heating of 75°C.
The electronics alone heat up to 35°C, i.e. a self-heating of 15°C, with a permanent rated current of 1.8A.

TEXYS INTERNATIONAL takes no responsibility for the risk of burning the user, of untimely ignition of the horns, or of premature ageing of the solenoids leading to a progressive reduction in their magnetic power.

2. Arcing at the guides

On several occasions, we have noticed an untimely blockage of the translation of the horns due to an arcing of the slide on the guide.

The electronics developed by TEXYS INTERNATIONAL do not limit the current in the solenoid, so it is a mechanical blockage that causes the malfunction.

3. Voltage drops in the wires

Be aware of the cross-section of the solenoid wires: too thin wires cause a voltage drop, and therefore a loss of power in the solenoids.

The sensor has been wired in 24 AWG; it would be advisable to use the same cross-section to connect the solenoids.

4. VAI output

To give maximum power to the solenoids, the VAI output is only protected by a 2A internal resettable fuse.

Be careful never to short-circuit the VAI output, as there is a risk of destroying the internal transistors.

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Appendix

RPM CONVERSION			
RPM (Decimal)	RPM (HEX)	MSB (0x10)	LSB (0x11)
9000	2328	0x23	0x28
9100	238C	0x23	0x8C
9200	23F0	0x23	0xF0
9300	2454	0x24	0x54
9400	24B8	0x24	0xB8
9500	251C	0x25	0x1C
9600	2580	0x25	0x80
9700	25E4	0x25	0xE4
9800	2648	0x26	0x48
9900	26AC	0x26	0xAC
10000	2710	0x27	0x10
10100	2774	0x27	0x74
10200	27D8	0x27	0xD8
10300	283C	0x28	0x3C
10400	28A0	0x28	0xA0
10500	2904	0x29	0x04
10600	2968	0x29	0x68
10700	29CC	0x29	0xCC
10800	2A30	0x2A	0x30
10900	2A94	0x2A	0x94
11000	2AF8	0x2A	0xF8
11100	2B5C	0x2B	0x5C
11200	2BC0	0x2B	0xC0
11300	2C24	0x2C	0x24
11400	2C88	0x2C	0x88
11500	2CEC	0x2C	0xEC
11600	2D50	0x2D	0x50
11700	2DB4	0x2D	0xB4
11800	2E18	0x2E	0x18
11900	2E7C	0x2E	0x7C
12000	2EE0	0x2E	0xE0
12100	2F44	0x2F	0x44
12200	2FA8	0x2F	0xA8
12300	300C	0x30	0x0C
12400	3070	0x30	0x70
12500	30D4	0x30	0xD4
12600	3138	0x31	0x38
12700	319C	0x31	0x9C
12800	3200	0x32	0x00
12900	3264	0x32	0x64
13000	32C8	0x32	0xC8

TPS THRESHOLD CONVERSION		
TPS THRESHOLD (%)	TPS THRESHOLD (HEX)	CAN (0x12)
30	1E	0x1E
31	1F	0x1F
32	20	0x20
33	21	0x21
34	22	0x22
35	23	0x23
36	24	0x24
37	25	0x25
38	26	0x26
39	27	0x27
40	28	0x28
41	29	0x29
42	2A	0x2A
43	2B	0x2B
44	2C	0x2C
45	2D	0x2D
46	2E	0x2E
47	2F	0x2F
48	30	0x30
49	31	0x31
50	32	0x32
51	33	0x33
52	34	0x34
53	35	0x35
54	36	0x36
55	37	0x37
56	38	0x38
57	39	0x39
58	3A	0x3A
59	3B	0x3B
60	3C	0x3C
61	3D	0x3D
62	3E	0x3E
63	3F	0x3F
64	40	0x40
65	41	0x41
66	42	0x42
67	43	0x43
68	44	0x44
69	45	0x45
70	46	0x46
71	47	0x47
72	48	0x48
73	49	0x49
74	4A	0x4A

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75	4B	0x4B
76	4C	0x4C
77	4D	0x4D
78	4E	0x4E
79	4F	0x4F
80	50	0x50
81	51	0x51
82	52	0x52
83	53	0x53
84	54	0x54
85	55	0x55
86	56	0x56
87	57	0x57
88	58	0x58
89	59	0x59
90	5A	0x5A
91	5B	0x5B
92	5C	0x5C
93	5D	0x5D
94	5E	0x5E
95	5F	0x5F
96	60	0x60
97	61	0x61
98	62	0x62
99	63	0x63
100	64	0x64

GEAR SELECTION CONVERSION		
GEAR POSITION (Decimal)	GEAR POSITION (HEX)	CAN (0x0F)
1	1	0x01
2	2	0x02
3	3	0x03
4	4	0x04
5	5	0x05
6	6	0x06