AiM Infotech

Syvecs S Series ECUs

Release 1.03

1 Models

This document explains how to connect AiM devices to Syvecs S-Series ECUs.
Supported models are:

- S6GP
- S6PNP
- S6-I
- S6Plus
- S7-I
- S8
- GDi-4
- S12

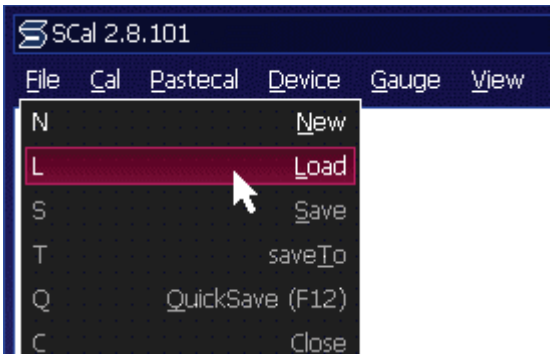
2 Software configuration

Syvecs ECUs need software configuration via SCal software, in order to correctly communicate with AiM devices.
These ECUs feature two bus communication protocol: one based on CAN and the other on RS232 communication. They need different software settings.

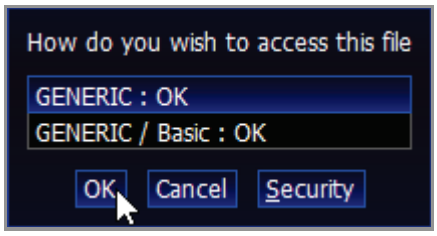
After software installation, 6 icons appear on the PC desktop. Double click on “SCal” icon as shown here below.

Solaris “SCal” main page shows up. Here below its the top menu bar. The rest of the page is empty.

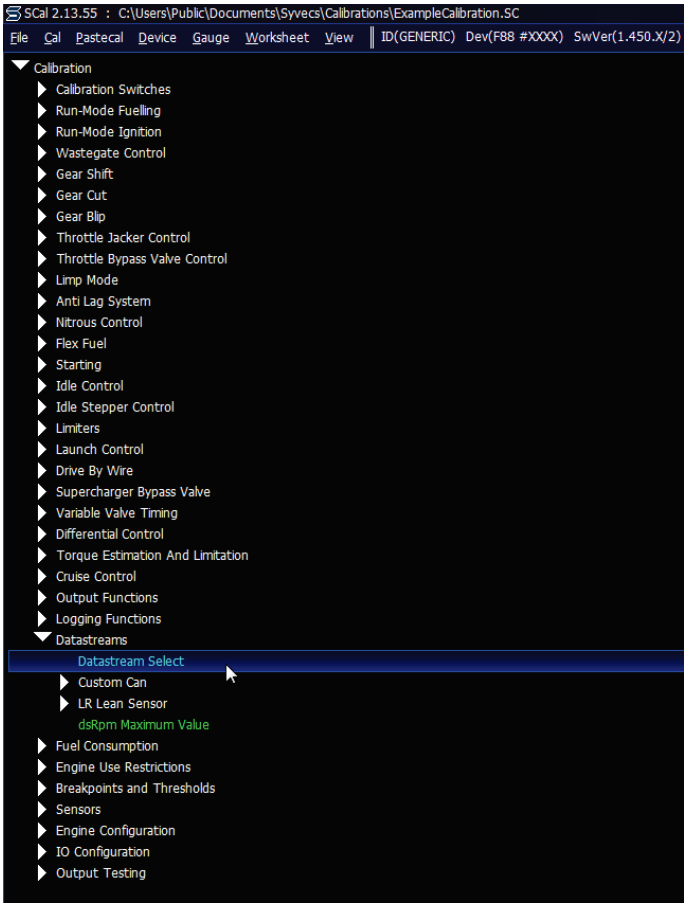
- Click “File –> Load”.



- Browse the PC to find the folder where you stored the calibration file and select it. This panel appears. Press “OK”.



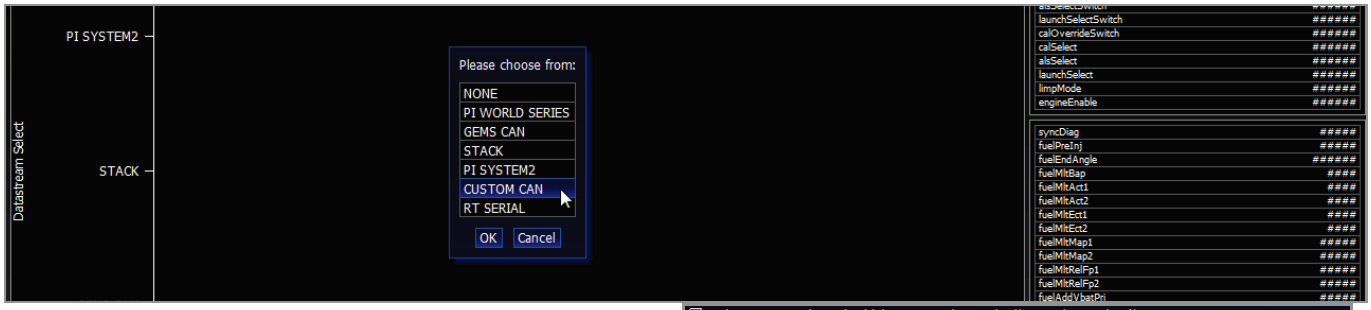
- Scroll the list up to “Datastreams” and press “enter”;
- select “Datastream Select” press enter.



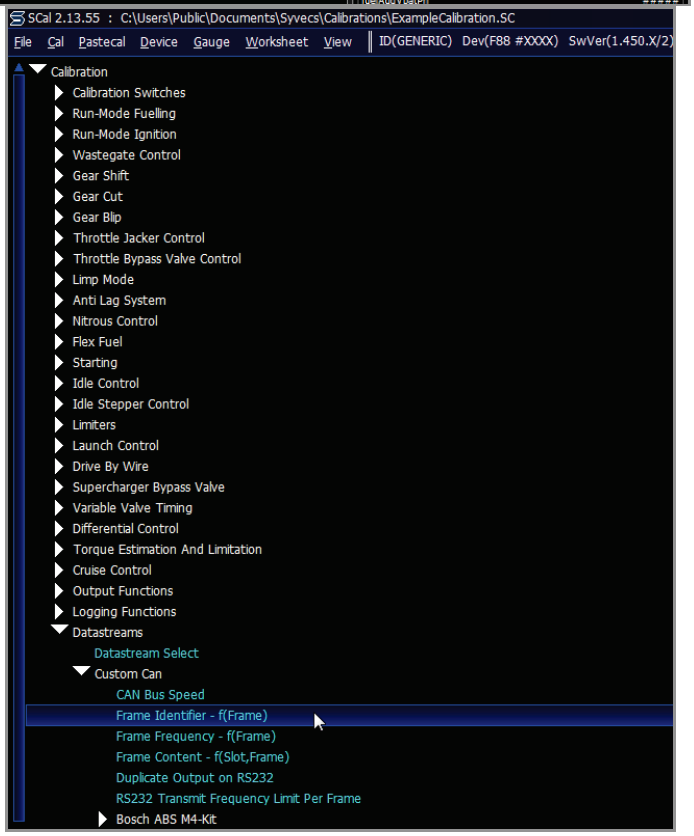
2.1
Software setting for CAN protocol

Once entered the Datastream selection page, press enter on the page and this window shows up:

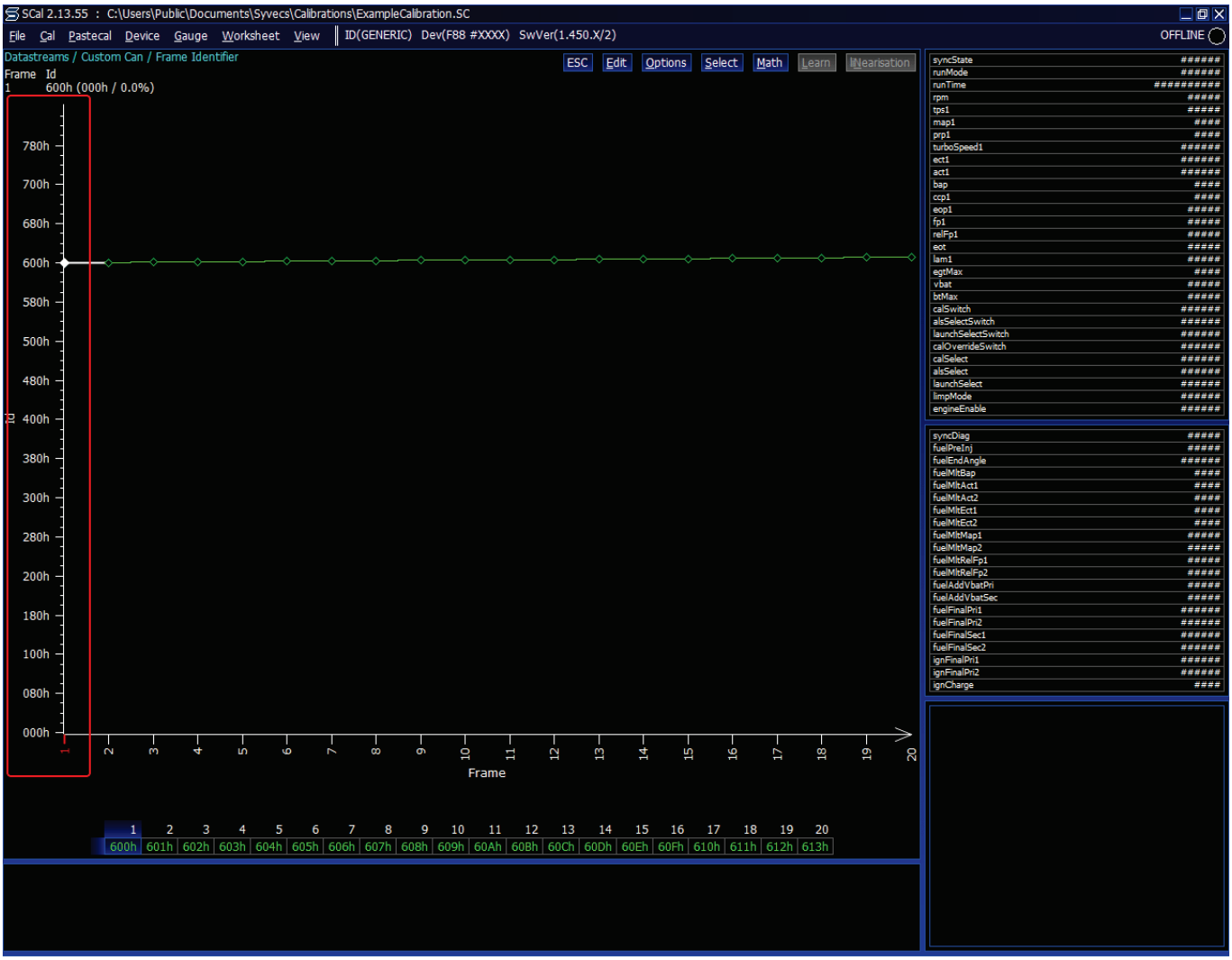
- Select "CUSTOM CAN" and press "OK"
- press ESC to come back to the previous page



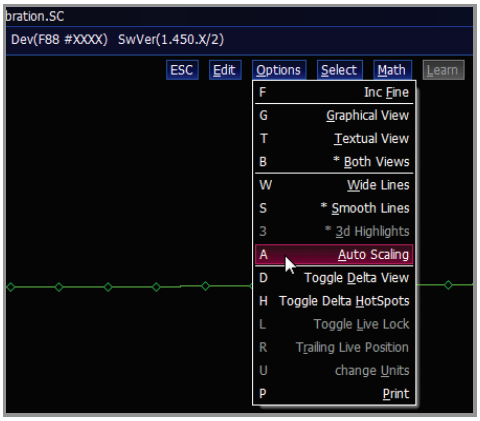
- Scroll the list up to:
  - "Datastreams –> Custom CAN –> Frame Identifier".
- Press ENTER



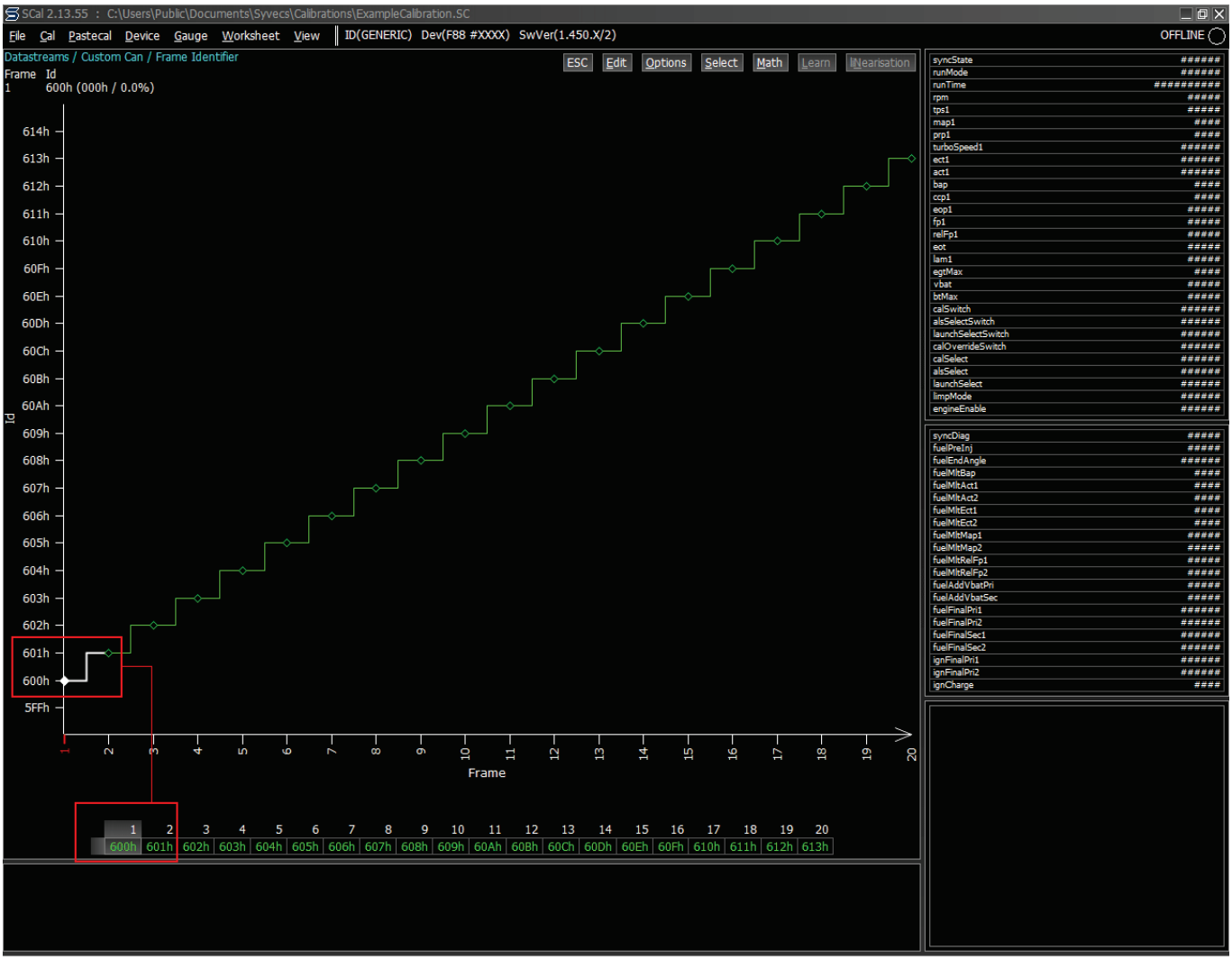
"Frame identifier" page shows the full frame scale as shown here below. As you can see the software shows on "Y" axle the full scale from 0 to 780. On the bottom horizontal bar – in green – is the range you are using: from 600 to 613. In case the range is not filled in you have to insert it manually. Please refer to your ECU user manual to know how to perform this operation.



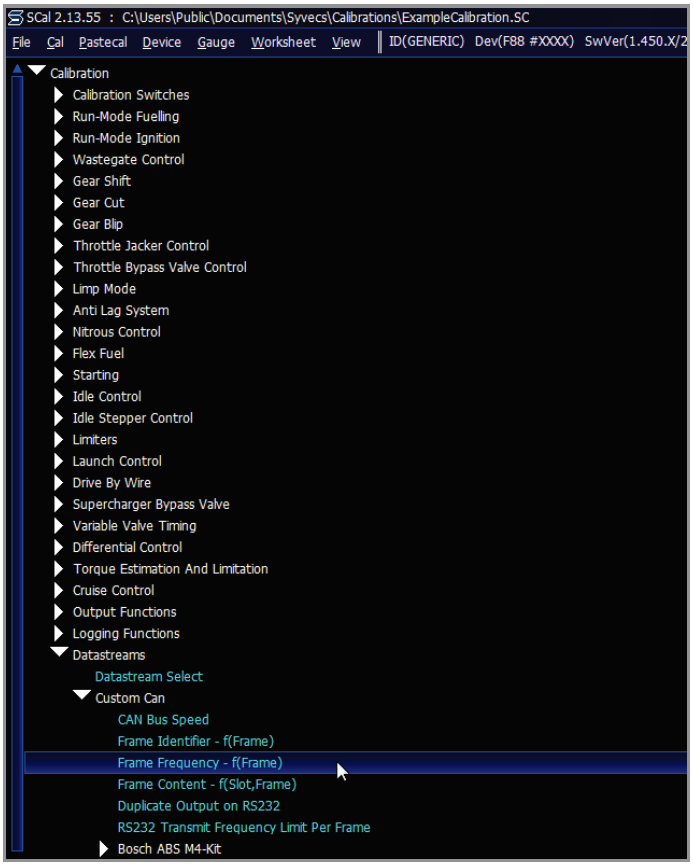
- To see a graph that shows only the value you are using press "Option" on the top menu bar and select "Auto Scaling".



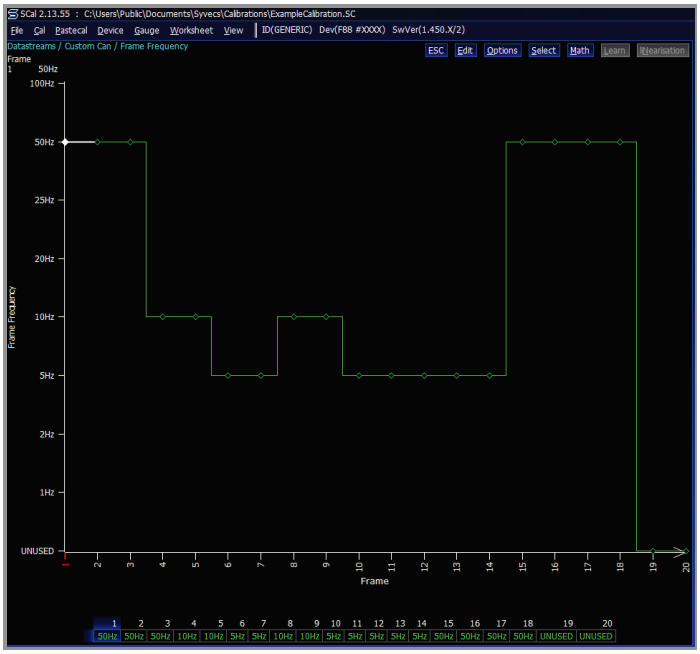
"Frame Identifier" page appears re-scaled. Selecting two values you can see the corresponding graph as here below.



- Press ESC to come back to the previous page
- Scroll the list up to
    - "Datastreams –> Custom CAN –> Frame Frequency"
- Press ENTER



- Here on the right you see "Frame frequencies" page correctly set.



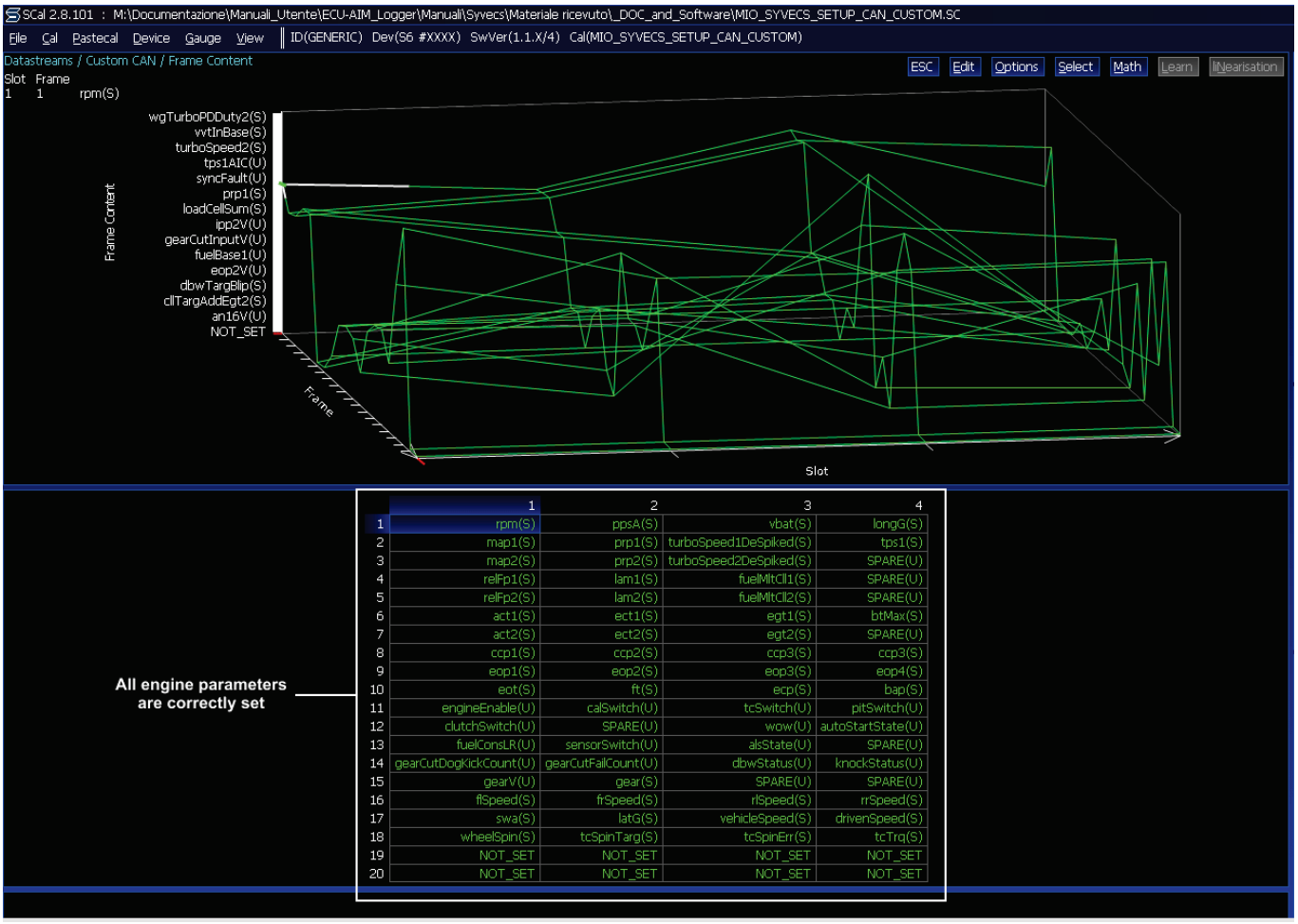
If the page appears with all frequencies unset (labelled as “UNUSED”) as below:

- select the first channel
- press “enter”
- select the desired frequency in the setting panel
- press “OK”

Please refer to your ECU user manual to know how to set each channel frequency.

- Press ESC to come back to the previous page
- Scroll the list up to
    - "Datastreams –> Custom CAN –> Frame Content"
- Press ENTER

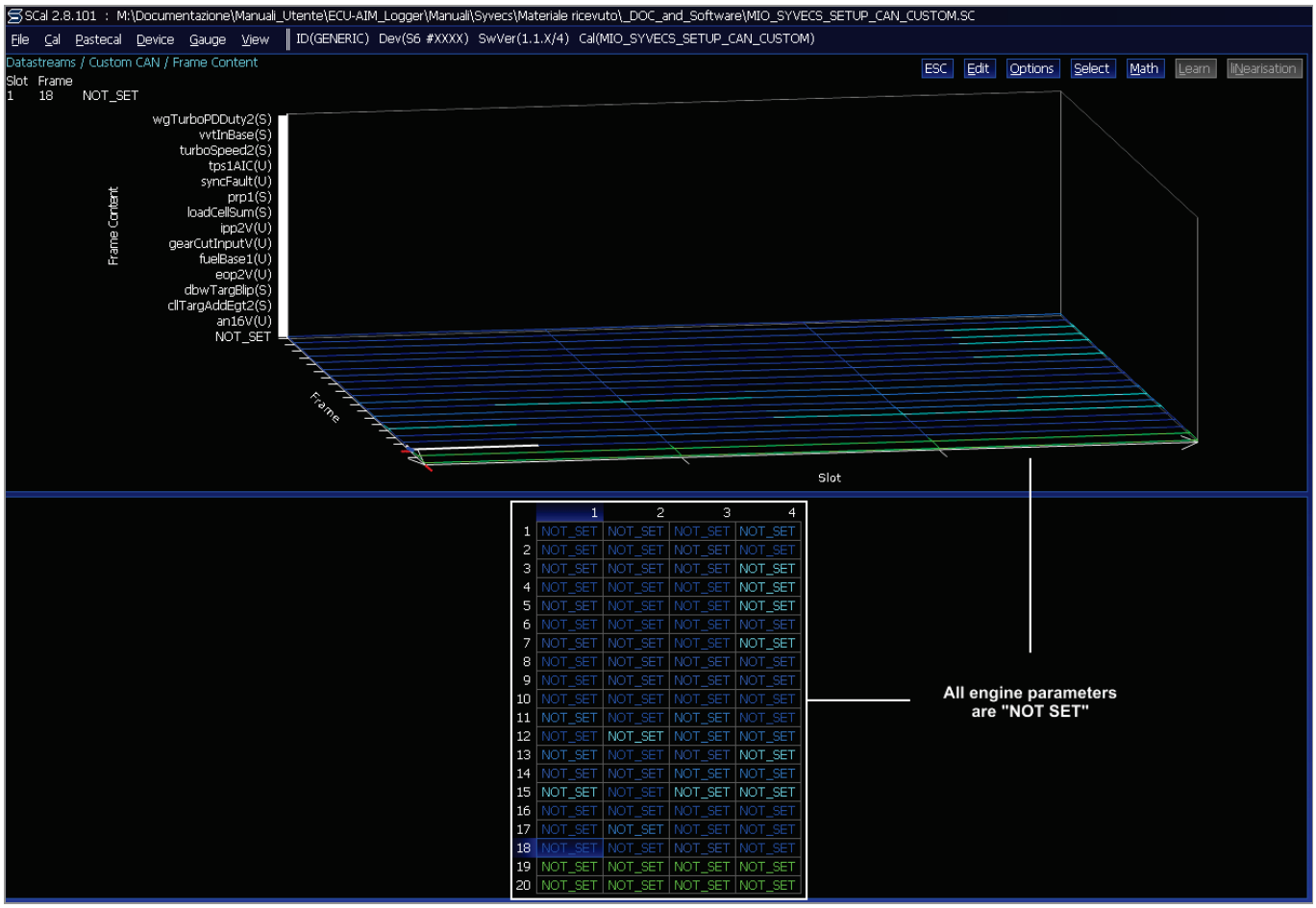
"Frame Content" page should be already set as below.



All engine parameters are correctly set

	1	2	3	4
1	rpm(S)	ppsA(S)	vbat(S)	longG(S)
2	map1(S)	prp1(S)	turboSpeed1DeSpiked(S)	tps1(S)
3	map2(S)	prp2(S)	turboSpeed2DeSpiked(S)	SPARE(U)
4	relFp1(S)	lam1(S)	fuelMltCll1(S)	SPARE(U)
5	relFp2(S)	lam2(S)	fuelMltCll2(S)	SPARE(U)
6	act1(S)	ect1(S)	egt1(S)	btMax(S)
7	act2(S)	ect2(S)	egt2(S)	SPARE(U)
8	ccp1(S)	ccp2(S)	ccp3(S)	ccp3(S)
9	eop1(S)	eop2(S)	eop3(S)	eop4(S)
10	eot(S)	ft(S)	ecp(S)	bap(S)
11	engineEnable(U)	calSwitch(U)	tcSwitch(U)	pitSwitch(U)
12	clutchSwitch(U)	SPARE(U)	wow(U)	autoStartState(U)
13	fuelConsLR(U)	sensorSwitch(U)	alsState(U)	SPARE(U)
14	gearCutDogKickCount(U)	gearCutFailCount(U)	dbwStatus(U)	knockStatus(U)
15	gearV(U)	gear(S)	SPARE(U)	SPARE(U)
16	flSpeed(S)	frSpeed(S)	rlSpeed(S)	rrSpeed(S)
17	swa(S)	latG(S)	vehicleSpeed(S)	drivenSpeed(S)
18	wheelSpin(S)	tcSpinTarg(S)	tcSpinErr(S)	tcTrq(S)
19	NOT_SET	NOT_SET	NOT_SET	NOT_SET
20	NOT_SET	NOT_SET	NOT_SET	NOT_SET

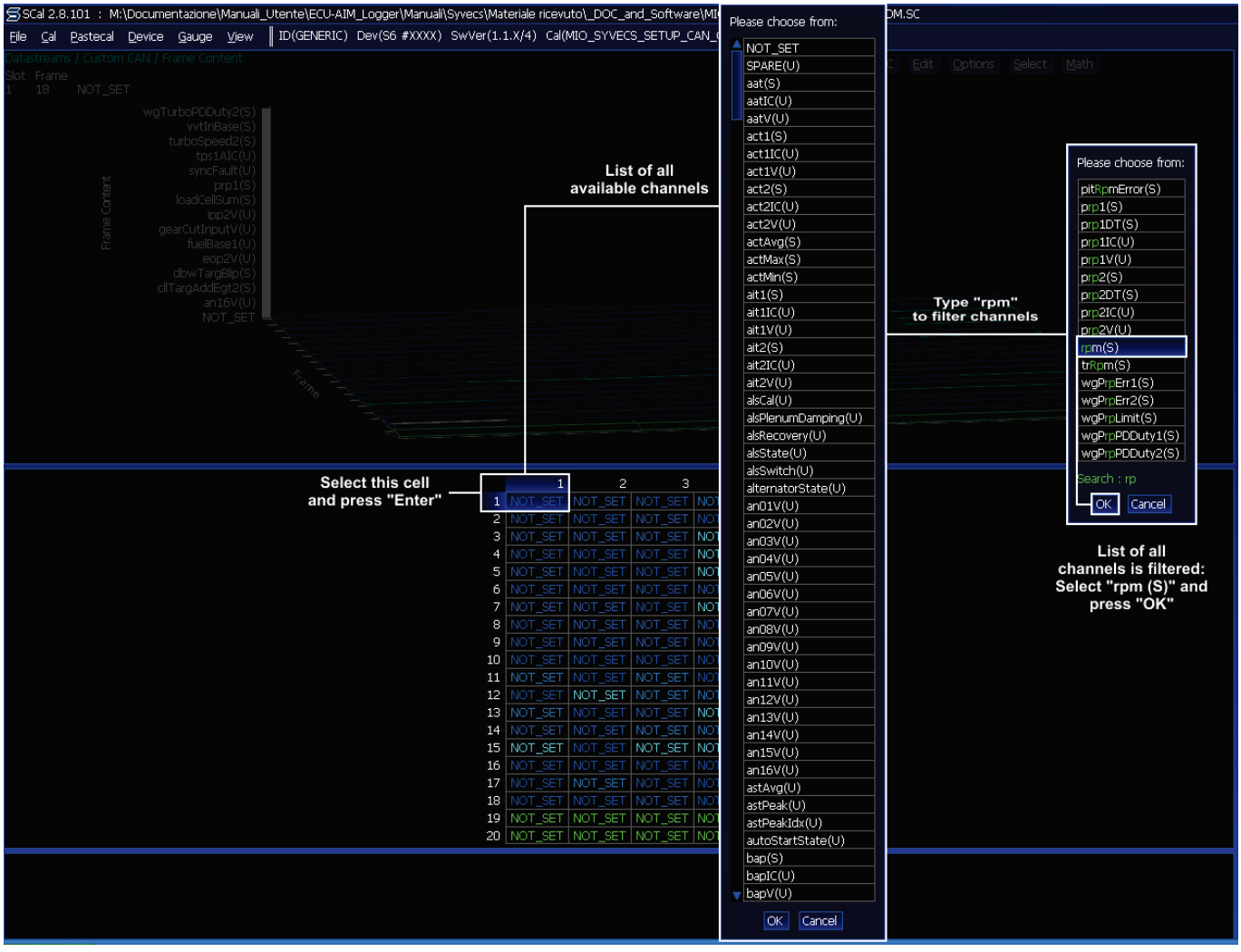
If the page appears with all frequencies NOT SET – as below – you need to set each engine parameter.



To set engine parameters:

- select the first cell and press “enter”;
- the panel showing all available channels appears;
- you can filter channels typing the name of the desired channel or part of it. The first cell is for “RPM” so type “rpm” and the panel resizes reducing the number of available channels. Select the desired RPM channel and press OK. Repeat this operation for all channels.

The graph below shows this operation using “RPM” channel as example.



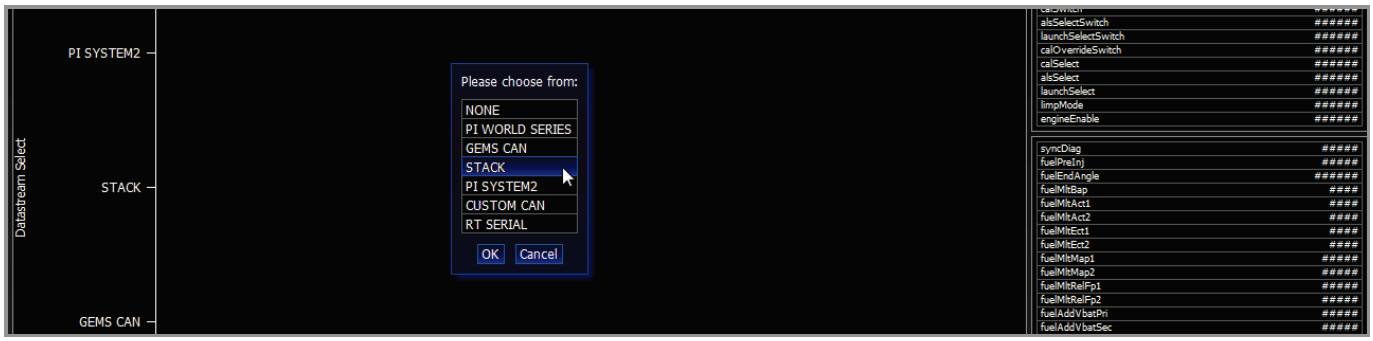
Here follows the table with all channels settings

	1	2	3	4
1	Rpm	ppsA	vbat_S	longG
2	NOT_SET	prp1	turboSpeed1DeSpiked	SPARE
3	NOT_SET	prp2	turboSpeed2DeSpiked	SPARE
4	relFp1	lam1	fuelMltCll1	SPARE
5	relFp2	lam2	fuelMltCll2	SPARE
6	act1	ect1	egt1	SPARE
7	act2	ect2	egt2	SPARE
8	ccp1	Ccp2	ccp3	Ccp4
9	eop1	eop2_Uo5	eop3_U06	eop4_U07
10	eot	ft1	Ecp	bap
11	engineEnable	calSelect	NOT_SET	pitSwitch
12	clutchSwitch	NOT_SET	wow	autoStartState
13	fuelConsVolLR	sensorSwitch	alsState	wgcStrategyActive
14	gearCutDogKickCount	gearCutFailCount	dbwStatus	NOT_SET
15	gearV	Gear	NOT_SET	gsp
16	flSpeed	frSpeed	rlSpeed	rrSpeed
17	Swa	latG	vehicleSpeed	drivenSpeed
18	wheelSpin	NOT_SET	NOT_SET	NOT_SET
19	NOT_SET	NOT_SET	NOT_SET	NOT_SET
20	NOT_SET	NOT_SET	NOT_SET	NOT_SET

2.2
Software setting for RS232 protocol

Once entered the Datastream selection page press enter on the page and this window shows up:

- Select "STACK" and press "OK"
- press ESC to come back to the previous page

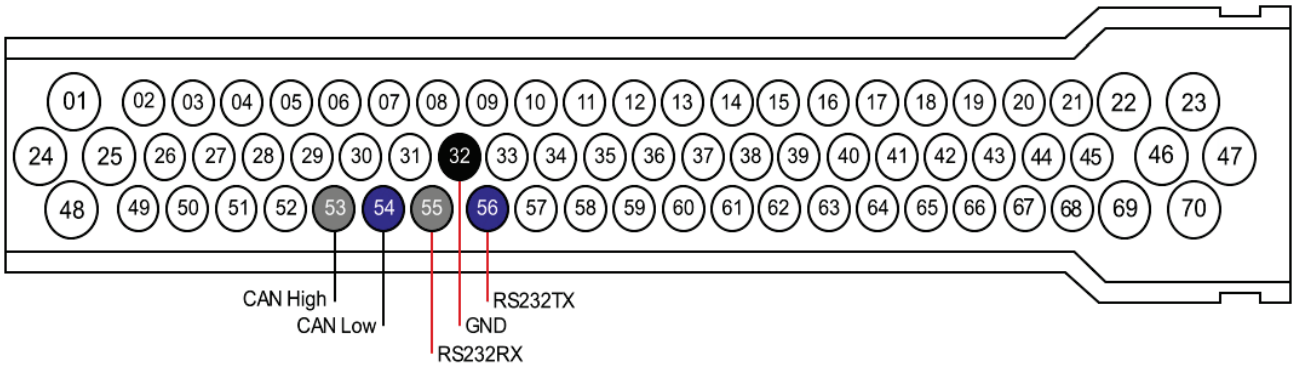


3
Wiring connection

Syvecs ECUs feature a communication protocol based on CAN or RS232, that can be accessed from different connectors, dependently from the model in use. In the following pages, each connector pinout is shown, with its connection table **(rear view)**.

3.1
Syvecs S6GP ECU

Syvecs S6GP ECU features a Bus communication protocol accessible through the 70pins connector, placed on the ECU main side. Here below the connector connection table is shown (rear view).



70 pins Connector pin	Pin function	AiM cable label
53	CAN High	CAN+
54	CAN Low	CAN-
55	RS232RX	RS232TX/ECU RS232RX
56	RS232TX	RS232RX/ECU RS232TX
32	COMGND	GND

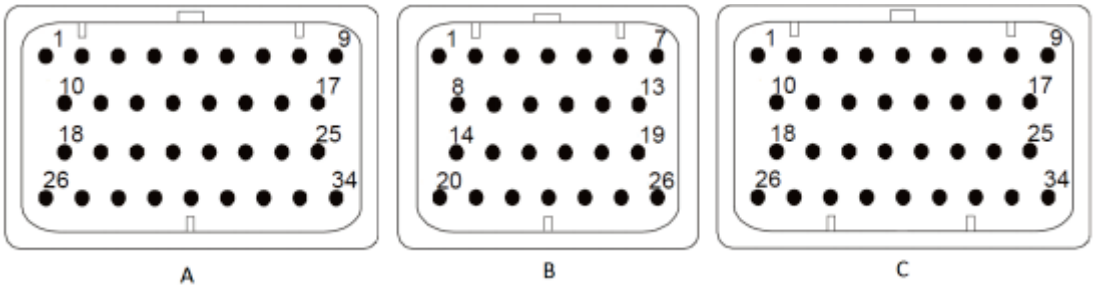
3.2
Syvecs S6PNP ECU

Syvecs S6PNP ECU features a Bus communication protocol accessible through the "Comms" connector, placed on the rear edge of the board (5 additional connectors are available). Here below the connector connection table is shown (front view).

Comms connector pin	Pin function	AiM cable
4	CAN High	CAN+
5	CAN Low	CAN-
1	RS232RX	RS232TX
2	RS232TX	RS232RX
3	Communication GND	GND

3.3
Syvecs S6-I/S6Plus ECUs

Syvecs S6-I and S6Plus ECUs feature a Bus communication protocol accessible through the B and C connectors placed on the ECUs main side. Here below the connectors connection tables are shown (rear view).

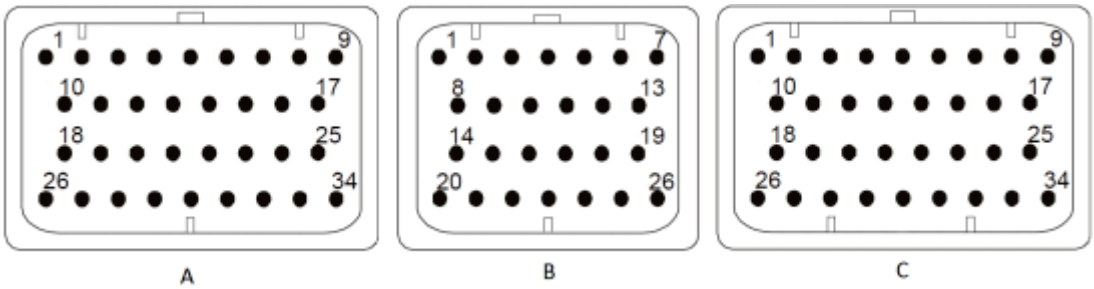


B connector pin	**Pin function**	**AiM cable**
B21 *	RS232RX/CAN2 Low	RS232RX/ECU RS232TX
B22 *	RS232TX/CAN2 High	RS232RX/ECU RS232TX
B1	PWRGND	GND
C connector pin	**Pin function**	**AiM cable**
C8	CAN Low	CAN -
C9	CAN High	CAN +

* for **SIPlus ECU,** to enable CAN2 H and CAN2 L, solder bridges adjustment must be done on the PCB. Refer to Syvecs website to know how to perform this operation. By default, these two pins are for RS232 connection.
N.B.: to make RS232 communication work, the AiM cable labelled GND (black) must be connected to the ECU power ground.

3.4
Syvecs S7-I ECU

Syvecs S7-I ECU feature a Bus communication protocol accessible through the B and C connectors placed on the ECU main side. Here below the connectors connection tables are shown (rear view).

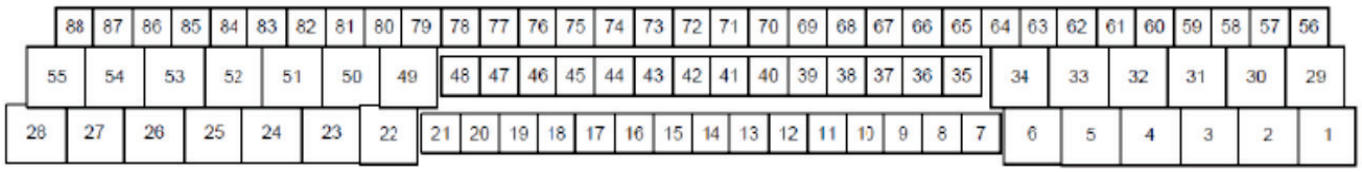


B connector pin	**Pin function**	**AiM cable**
B21	RS232RX	RS232RX/ECU RS232TX
B22	RS232TX	RS232RX/ECU RS232TX
B1	PWRGND	GND
C connector pin	**Pin function**	**AiM cable**
C8	CAN Low	CAN -
C9	CAN High	CAN +

N.B.: to make RS232 communication work, the AiM cable labelled GND (black) must be connected to the ECU power ground.

3.5
Syvecs S8/GDi-4 ECU

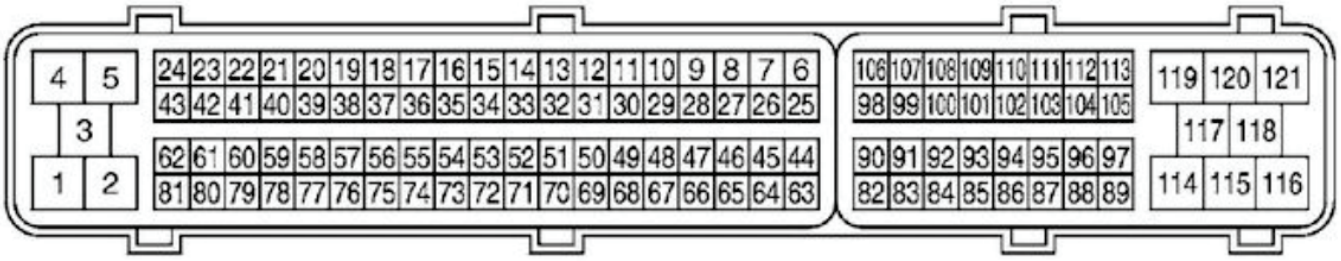
Syvecs S8 and GDi-4 ECUs feature a Bus communication protocol accessible through the 88pins main connector, placed on the ECUs main side. Here below the connector connection table is shown (rear view).



ECU connector pin	Pin function	AiM cable
82	CAN1 High	CAN+
81	CAN1 Low	CAN-
80	CAN2 High	CAN+
79	CAN2 Low	CAN-
48	RS232RX	RS232TX/ECU RS232RX
21	RS232TX	RS232RX/ECU RS232TX
78	COMGND	GND

3.6
Syvecs S12 ECU

Syvecs S12 ECU feature a Bus communication protocol accessible through the 121pins main connector, placed on the ECU main side. Here below the connector connection table is shown (rear view).



ECU connector pin	Pin function	AiM cable label
58	CAN1 H	CAN +
77	CAN1 L	CAN -
76	CAN2 H	CAN +
18	CAN2 L	CAN -
37	CAN3 H	CAN +
56	CAN3 L	CAN -
19	RS232 TX	RS232RX/ECU RS232TX
38	RS232 RX	RS232TX/ECU RS232RX
57	RS232 GND	GND

4
AiM device configuration

Before connecting the ECU to AiM device set it up using AiM Race Studio software. The parameters to select in the device configuration changes according to the protocol you are using.

To use the CAN bus set these parameters:
- ECU manufacturer: **SYVECS**
- ECU Model: **LR_F88_CAN** or **LR_F88_CAN_500k** (RS3 only)

To use the serial protocol set these parameters:
- ECU manufacturer: **SYVECS**
- ECU Model: **Stack_Datastream**

5 Channels

Channels received by AiM devices connected to Syvecs S Series ECUs change according to the selected protocol.

5.1 “SYVECS – LR_F88_CAN”/” SYVECS – LR_F88_CAN_500k” protocols

Channels received by AIM devices configured with "SYVECS – F88_CAN" and “SYVECS – F88_CAN_500k” protocols are:

CHANNEL NAME	FUNCTION
RPM	RPM
PPSA	A pedal position sensor
LONG ACC	Longitudinal accelerometer
VBATT	Battery voltage
MAP1	Manifold air pressure 1
TRBO SPD1	Turbo speed
TPS1	Throttle position sensor 1
OVERBOOST	Overboost pressure
MAP2	Manifold air pressure 2
TRBO SPD2	Turbo speed 2
PPSB	B pedal position sensor
FUEL PR1	Fuel pressure 1
AFR 1	Air/fuel ratio 1
AFR 2	Air/fuel ratio 2
FUEL PR2	Fuel pressure 2
ACT1	Air cooler temperature 1
ECT1	Engine coolant temperature 1
EGT1	Exhaust gas temperature 1
BTMAX	Maximum barometric temperature
ACT2	Air cooler temperature 2

ECT2	Engine coolant temperature 2
EGT2	Exhaust gas temperature 2
CRANK1 PR	Crank pressure 1
OIL P1	Oil pressure 1
OIL P2	Oil pressure 2
OIL P3	Oil pressure 3
OIL P4	Oil pressure 4
EOT	Engine oil temperature
FUEL T	Fuel temperature
BARO PR	Barometric pressure
COOL PRESS	Coolant pressure
ENG ENABLE	Engine enable
CAL SWITCH	Calibration switch
TC SWITCH	Traction control switch
PIT SWITCH	Pit lane switch
ALS STATE	Anti-lag system status
FUEL CONS	Fuel consumption
DBW STATUS	Drive-by-wire status
KNK STATUS	Knock status
GEAR	Active gear
GEAR VOLT	Gearbox voltage
GEAR PRESS	Gearbox pressure
SPEED FL	Front left wheel speed
SPEED FR	Front right wheel speed
SPEED RL	Rear left wheel speed
SPEED RR	Rear right wheel speed
STEER ANGLE	Steering angle position
LAT ACC	Lateral accelerometer
V SPEED	Vehicle speed
D SPEED	
WHEEL SPIN	Wheel spin ratio
ETOH CONT	Ethanol content

5.2 "SYVECS – Stack_Datastream" protocol

Channels received by AIM devices configured with "SYVECS – Stack_Datastream " protocol are

CHANNEL NAME	FUNCTION
RPM	RPM
SPEED	Vehicle speed
OIL PRESS	Oil pressure
OIL TEMP	Oil temperature
WATER TEMP	Water temperature
FUEL PRESS	Fuel pressure
BATT VOLT	Battery voltage
THRT ANGLE	Throttle angle
MAP	Manifold air pressure
AIR CHARGE	Intake air temperature
EXH TEMP	Exhaust temperature
LAMBDA	Air/fuel ratio
FUEL TEMP	Head temperature
GEAR	Gear
ERRORS	Errors counter
COUNTER	Odometer
FUEL USED	Fuel used