Introduction

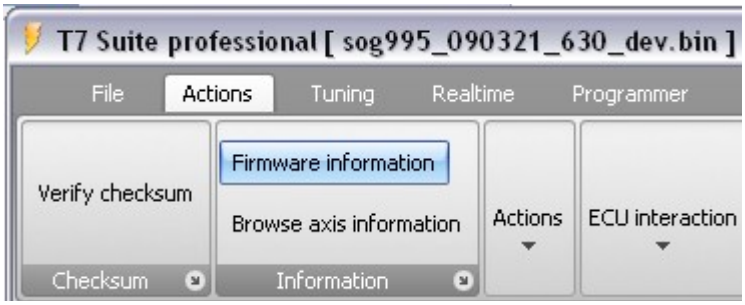
The Saab trionic 7 contains hidden functionality for displaying information from engine management on the SID, both sensor data and other calculated values. The guide describes how to enable this feature and how to change what can be displayed. Depending on whether the software is old or new, and if it is a BioPower software or not the type of information differs a bit so it is not certain that you see the same things as described here. The software used for examples here is a BioPower version from Saab 9-5 2005.

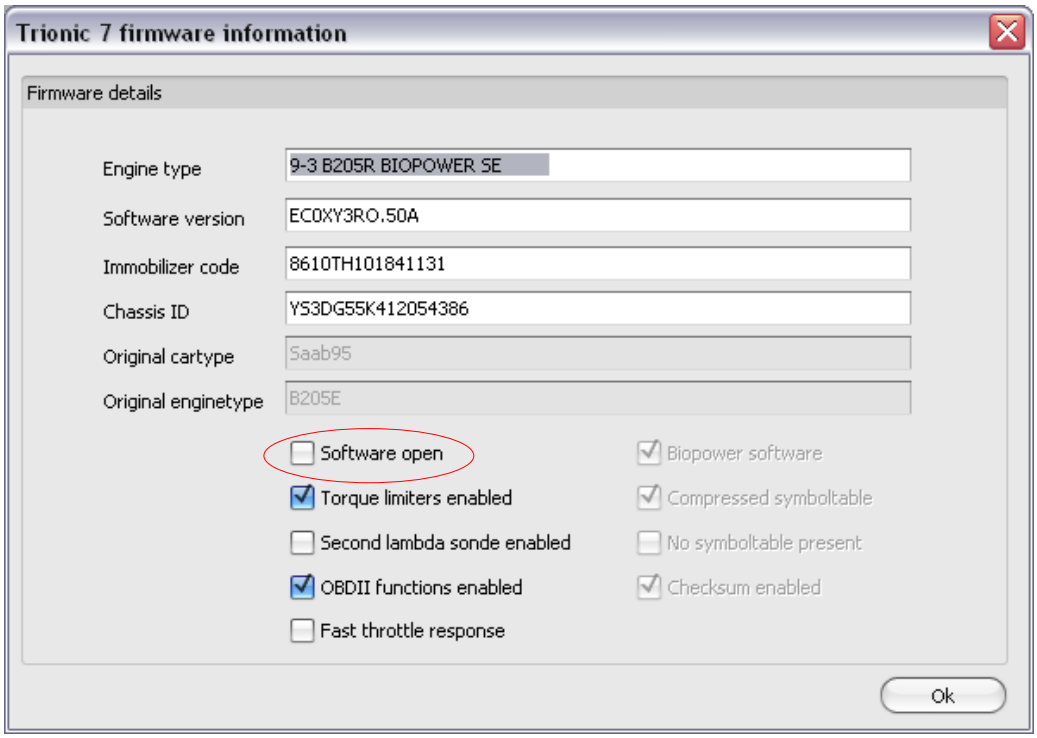
The information in this document is a summary of what is available on Ecuproject about SID-info and T7.

Enable function

In order to display info on SID you need to put the software in open mode. The easiest way to do this is by connecting to I-or P-bus and read out the software from the car using canusb adapter and T7 Suite. A guide connection to I-bus can be found here. One way to read from and write software is described in the B205R tuning guide.

When you've read the software from car, open the file in T7 suite and check the box" Software "open" under the 'Actions - Firmware information ". See pictures below.





After you made the change above, write the software back to the car in the same way as when you read it.

Operating

Info on engine start

After the engine is started, the following information is displayed:

- t, time in seconds it took to start the engine.
- T, the engine temperature in degrees Celsius
- CA, the amount of ethanol in petrol
- M, unknown.

Press CLR once to get SID to look like it normally does.

Lists with information

To enable additional information, press buttons + and - simultaneously. (For the 9-5 models in 2006 or later, you press and hold the PLAY button and then the same with the button SRC). ..

A list will appear that you can scroll through with the + / - buttons. There is a summary on what the acronyms stand for here. Press the SET button once to freeze a value and keep it so that when you scroll only the lower value is replaced.

The newer software has six different modes (0-5) to display various information. To change the mode makes go to number 21 in the list and press the SET button once so that 21 is replaced with **, then press and hold SET button until the mode digit starts to flash. Choose number by using + / - keys, confirm by pressing SET once.

6 value overview

If you press the + and - keys simultaneously once again a view with six simultaneous values is shown.

Press and hold either + or - button to see which parameter is in each cell..

Configure overview.

You can change the values you see in the guide, change is effective only until the car is turned off.

Press and hold SET to access the setting mode.

Press and hold the SET button again to get to the setting of the cell

Press SET again to step to the cell you want to change

Use + / - buttons to select the value you want to see.

Press the "NIGHT PANEL" to save the selected value in the current cell

Press Clear to exit

Press the + / - at the same time to exit view

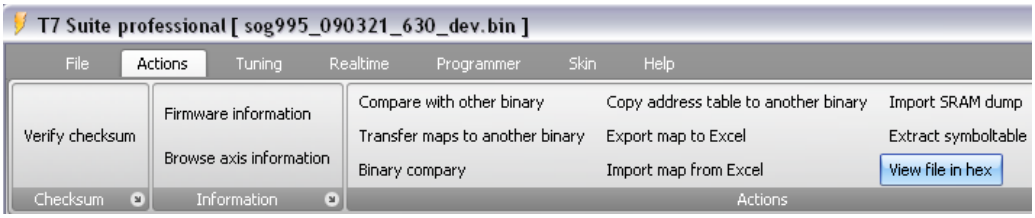
Each mode has different default values in this view.

Change how and what information is presented

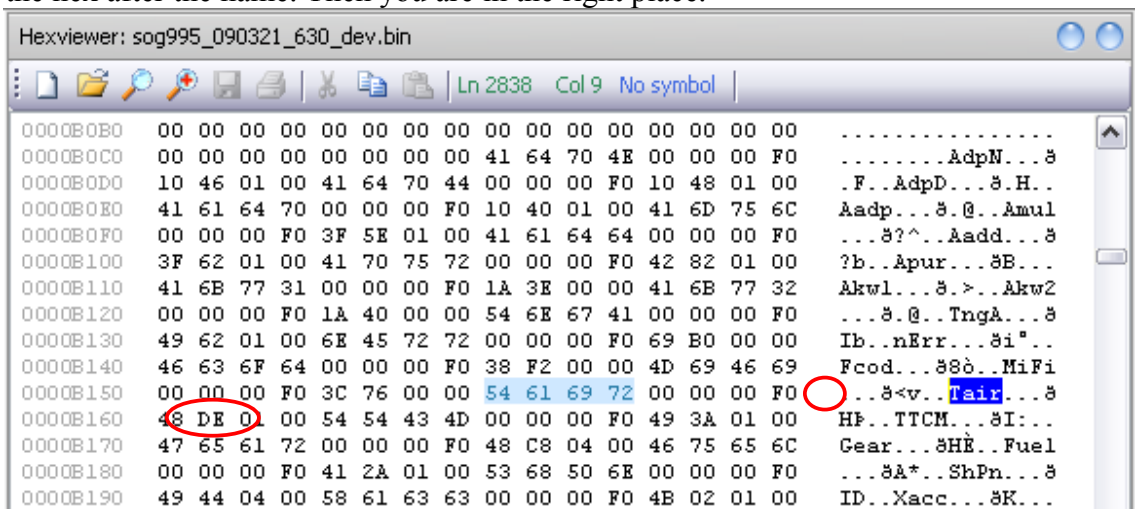
If you are pleaswed with the values that Saab chose to present in SID, you can change it asyou please. In the example below, we moved things around a bit so that airmass in mg / combustion, inlet temperature, and knock on each cylinder is displayed in an overview.

Edit software in HEX-editor.

To rearrange the data shown or add your own choice of engine data you need to open the software file in T7 suite and select "View file in hex".

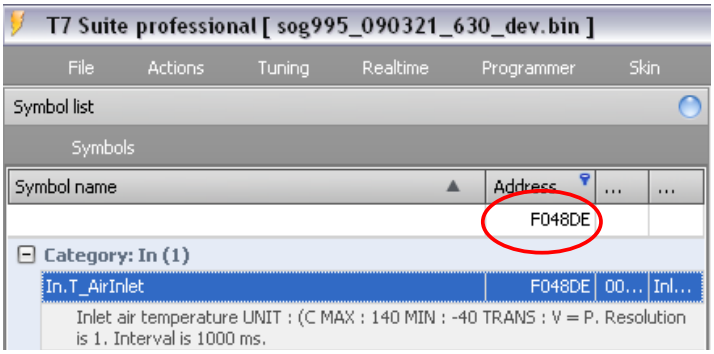


Locate the list of parameters. Search eg for "Tair", the second time it's found you have 00 00 00 in the hex after the name. Then you are in the right place.



How is SID-info connected to symbol in T7 suite

Symbol address is after the zeroes, for Tair above the F0 48 DE. If you enter the address in the field in T7 suite and the symbol with description appears, so you can actually look up the parameters that are in your version of the software, see image below.

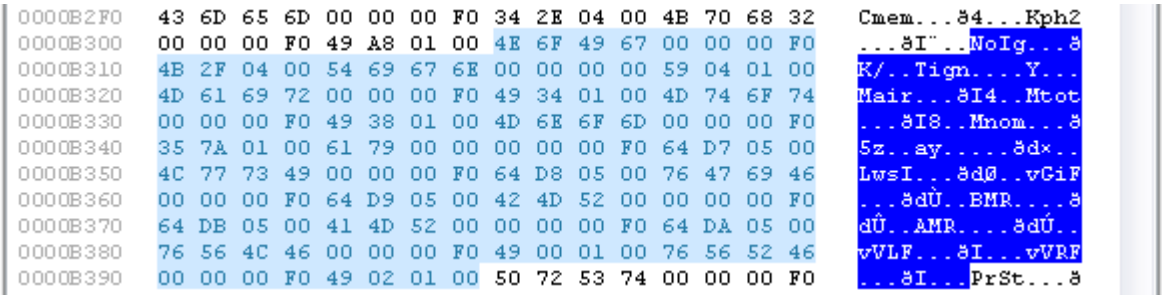


Adding your own symbols to SID

In the same way that you can look up the symbols in SID, you can instead replace the address and add a short name for a symbol you want to see. I have chosen to add knock for each cylinder and moved about so that the inlet temperature and air per combustion is shown in a overview.

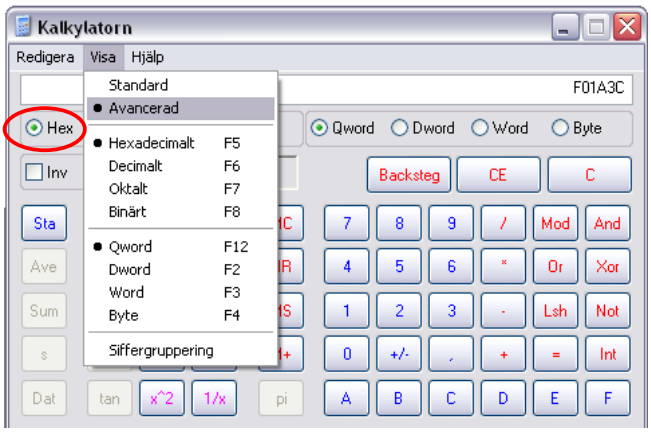
Mode 4 includes info about ESP system but since I do not have it on my car I have chosen to replace a few things there. Looking at the list on the last page of this document we see that the first six values in mode 4 is NoIg, Tigne, Mair, Mnom, ay, LwsI, and they appear in the overview of mode 4 in the original file.

The file looks like this before modification



Knocks are stored in the symbol KnkDetAdap.KnkCntCyl (in my file is the address of F01A36) is 8 bytes long (2 bytes per cylinder) and it's updated every time knock is detected. The value of the first cylinder has address F01A36, second cylinder (increase 2 bytes) is then F01A38, F01A3A third and fourth on F01A3C.

If you are not comfortable with counting in hexadecimal, you can use the calculator available in windows, just change to advanced mode and then select hex.



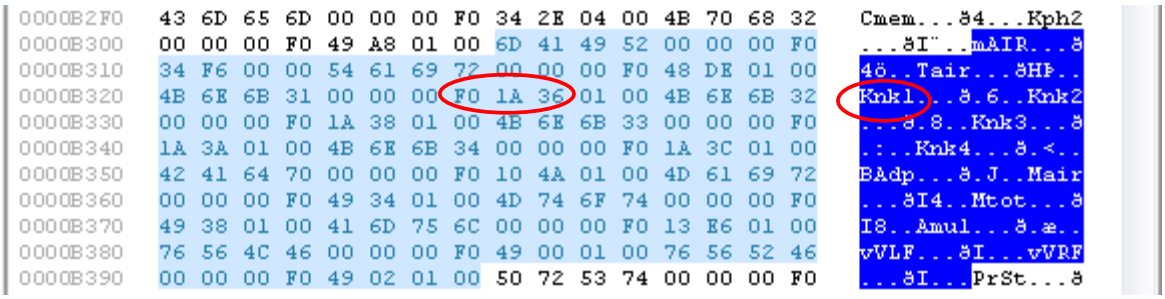
The values to be inserted into the file is:

Name	Address	Description
mAir	F0 34 F6	airmass / combustion
Tair	F0 48 DE	Inlet air temperature
Knk1	F0 1A 36	Knocks cylinder 1
Knk2	F0 1A 38	Knocks cylinder 2
Knk3	F0 1A 3A	Knocks cylinder 3
Knk4	F0 1A 3C	Knocks cylinder 4

Time to replace the values we do not want to see, the easiest is to start to write it short names. You do this by overwriting the old value with your text in the right hand column and then entering the hexadecimal address of the respective value in the left field..

It is important that you only write in exactly the right places and do not change elsewhere in the file, if you do it is possible to damage the car. If in doubt, try to help with validation of the file to eg Ecuproject..

After modification



The result

SID-abbreviations

Green are those that appear by default in overview- Red is unknown / dubious info..

Mode 0	AdpN	IdleAdap.Q_AirNeutral	Adaption value for idlespeed regulation (drive not activated). Resolution
Adaption	AdpD	IdleAdap.Q_AirDrive	Adaption value for idlespeed regulation (drive activated). Resolution 0.0
	Aadp	AreaAdap.A_Throttle	Adaption of throttle area. Interval is 250ms.
	Amul	AdpFuelProt.MulFuelAdapt	Multiplicative fuel adaption value. Resolution is 0.01%.
	Aadd	AdpFuelProt.AddFuelAdapt	Additive fuel adaption value. Resolution is 0.01%.
	Apur	Purge.HCCont	The content of HC in the purge air. Resolution is 0.1%.
	Akw1	KnkAdaptAdap.RefValueWin	
	Akw2		
	TngA	ActualIn.T_Engine	Engine coolant temperature Unit deg C MAX: 150 MIN: -40 TRANS: V=
	nErr	obdNoOfFaults	Number of error codes stored.
	Fcod	obdFaults	Codes for errors stored.
	MiFi	Missf.nrOfFilteredMisfir	Number of missfires occurred.
Mode 1	Tair	In.T_AirInlet	Inlet air temperature Unit deg C MAX: 140 MIN: -40 TRANS: V=P. Res
TCM/FUEL/DTI	TTCM	In.T_TCMOil	Oil temperature in automatic gearbox.
	Gear	In.X_ActualGear	Actual gear on automatic gearboxes. 2 – Reverse, 3 – Neutral, 5 - Gea
	Fuel	BfuelProt.CurrentFuelCon	Current fuel consumption?
	ShPn	In.ST_TCMShiftPattern	Active TCM shift pattern, 0=eco, 1=pwr, 2=Wusp, 3=Wnt, 4=US1, 5=U
	Xacc	Out.X_Accpedal	Pedal position Unit: %, Max 100, Min 0, Trans: V=P*1. Resolution is 0
	Iput	ActualIn.n_GearBoxIn	Transmission input rpm (turbine speed). Used to detect when the load
	DTI	Out.M_DTI	Drivers Torque Intention. The torque that the driver requests converted
	Pair	In.p_AirAmbient	Barometric air pressure
	Rpm	In.n_Engine	Engine speed. Unit rpm. Max 8000. Min 25. (Set to 10 when engine st
	Meng	Out.M_Engine	Engine torque. Unit Nm. Max 400. Min -100. Trans V=P. Resolution is
	Peng	ECMStat.P_Engine	Calculated engine power. Measured in horsepower.
Mode 2	Tair	In.T_AirInlet	Inlet air temperature Unit deg C MAX: 140 MIN: -40 TRANS: V=P. Res
TCM/GSI/CSLU	TTCM	In.T_TCMOil	Oil temperature in automatic gearbox.
	Gear	In.X_ActualGear	Actual gear on automatic gearboxes. 2 – Reverse, 3 – Neutral, 5 - Gea
	Peng	ECMStat.P_Engine	Calculated engine power. Measured in horsepower.
	GSI	Out.CMD_GearShiftInhibit	Prevent TCM from shifting
	Xacc	Out.X_Accpedal	Pedal position Unit: %, Max 100, Min 0, Trans: V=P*1. Resolution is 0
	Jerk	ECMStat.JerkFactor	This factor describes the jerking of the engine. The formula for calulatir
	Meng	Out.M_Engine	Engine torque. Unit Nm. Max 400. Min -100. Trans V=P. Resolution is
	CLUi	Out.CMD_CoastLUInhibit	Inhibit coast slip lock up.
	JeLi	JerkProt.JerkFactor	Treshold value for changing shift pattern to "no lockup".
	mAIR	MAF.m_AirInlet	Airmass in milligramper combustion. This airmass is the actual load va
	CSLU	In.ST_TCMCSLU	Coast Lock up slip state. 0=No request, 1=Fuel cut inhibit, 2=Fuel cut
Mode 3	Meng	Out.M_Engine	Engine torque. Unit Nm. Max 400. Min -100. Trans V=P. Resolution is
TCM/Torque/Speed	Gear	In.X_ActualGear	Actual gear on automatic gearboxes. 2 – Reverse, 3 – Neutral, 5 - Gea
	MTCM	ActualIn.M_TCMLimitReq	Maximum engine torque request from TCM. Unit Nm, Max 400, Min -1
	Mlow	TorqueProt.M_LowLim	By the Torque Master selected lowest torque limit request, corrected v
	Xacc	Out.X_Accpedal	Pedal position Unit: %, Max 100, Min 0, Trans: V=P*1. Resolution is 0
	ShPn	In.ST_TCMShiftPattern	Active TCM shift pattern, 0=eco, 1=pwr, 2=Wusp, 3=Wnt, 4=US1, 5=U
	Oput	DiffPSProt.v_GearBoxOut	TCM gearbox output speed converted to vehicle speed. Resolution is 0
	Kph1	ActualIn.v_Vehicle	Left front wheel speed. Unit km/h, Max 300, Min 0 (detection of min 1.
	In.X	In.X_AccPedal	Pedal position Unit: %, Max 130, Min 0, Trans: V=P*10. Resolution is
	Cmem	EngTip.ST_Active	Status flag showing if tipin is active. 0=Not active, 1=Tip-in active, 2=T
	Kph2	ActualIn.v_Vehicle2	Vehicle speed, measured on the rear wheel. Unit km/h, Max 300, Min
Mode 4	Nolg	Out.ST_NolgnitionRetard	Ignition retarding is not allowed due to overheating the catalytic conver
ESP	Tign		
	Mair	In.M_TCSTorqueReq	Maximum torque request from TCS system via CAN. Resolution is 1 N
	Mtot	In.M_TCSTotalReq	Total torque request from ESP equipped cars. The difference in torque
	Mnom	Torque.M_Nominal	Nominal output torque at a certain engine speed and inlet airmass. Re
	ay	CanIn.p_Brake	Brake pressure, ony implemented on cars with ESP. Resolution is 2 b
	Lwsl	CanIn.a_Lateral	Lateral acceleration, only implemented on cars with ESP. Resolution i
	vGiF	CanIn.fi_SteeringAngle	Stearing angle (LwsIn), only implemented on cars with ESP. Resolutic
	BMR	CanIn.ST_EngineInterv	Engine internvention is requested from ESP (AMR).
	AMR	CanIn.fi_YawVelocity	Yaw velocity (vGIF), only implemented on cars with ESP.Resolution is
	vWLF	In.v_Vehicle	Left front wheel speed. Unit km/h, Max 300, Min 0 (detection of min 1.
	vWRF	In.v_Vehicle3	Right front wheel speed UNIT : km/h MAX : 300 MIN : 0 (detection of m
Mode 5	PrSt	Purge.Status	Status of the purge function.
Purge	Ppwm	Purge.Valve	Purge valve PWM. Resolution is 0.1 %.
	Pdif	ECMStat.p_Diff	Differance between inlet manifold air pressure and external air pressure
	Flow	Purge.Flow	The actual purge flow. Resolution is 1 mg/s.
	ReqF	PurgeProt.ReqFlow	Requested purge flow. Resolution is 1 mg/s.
	Perc	PurgeProt.PurgePercent	Purge flow/Air mass flow ratio. Resolution is 0.01 %.
	FFac	Purge.FuelFac	The fuelfactor from the purge function. Resolution is 0.01 %.
	FFAd	Purge.m_FuelPrg	Fuel flow from purge. Resolution is 0.01 mg/c.
	HCnt	Purge.HCCont	The content of HC in the purge air. Resolution is 0.1 %.
	Frez	PurgeProt.AdpFreeze	Adaption freeze status.
	PMXF	PurgeProt.PdiffMaxFlow	Maximum flow allowed by the diff. pressure. Resolution is 1 mg/s.
	FMXF	PurgeProt.FuelFacMaxFlow	Maximum allowed purge flow in respect to maximum allowed fuel facto
Mode 6	Me85	In.X_EthanolSensor	
Biopower	Ad85	E85.X_EthanolActual	
	Lamb	Lambda.LambdaInt	Global closed loop integrator. Update : every combustion. V6: Bank 1.
	Ca85	E85Prot.X_EthanolActual	
	Amul	AdpFuelProt.MulFuelAdapt	Multicative fueladaption value. Resolution is ñ 0.01 %.
	FFac	Purge.FuelFac	The fuelfactor from the purge function. Resolution is 0.01 %.
	ReFu	E85Adap.ST_ReFuel	
	STAd	E85Adap.ST_Adap	
	Crnk	CrnkCas.ST_Fuel	
	MxLo	LambdaProt.MaxLoadNorm	Max load (airmass) for closed loop during normal conditions. Update :
	SFuL	E85Adap.V_SavedFuelLevel	
	VFue	In.V_FuelTank	Fuel level UNIT : l (litre) MAX : 100 MIN : 0 TRANS : V = P * 10. Resol