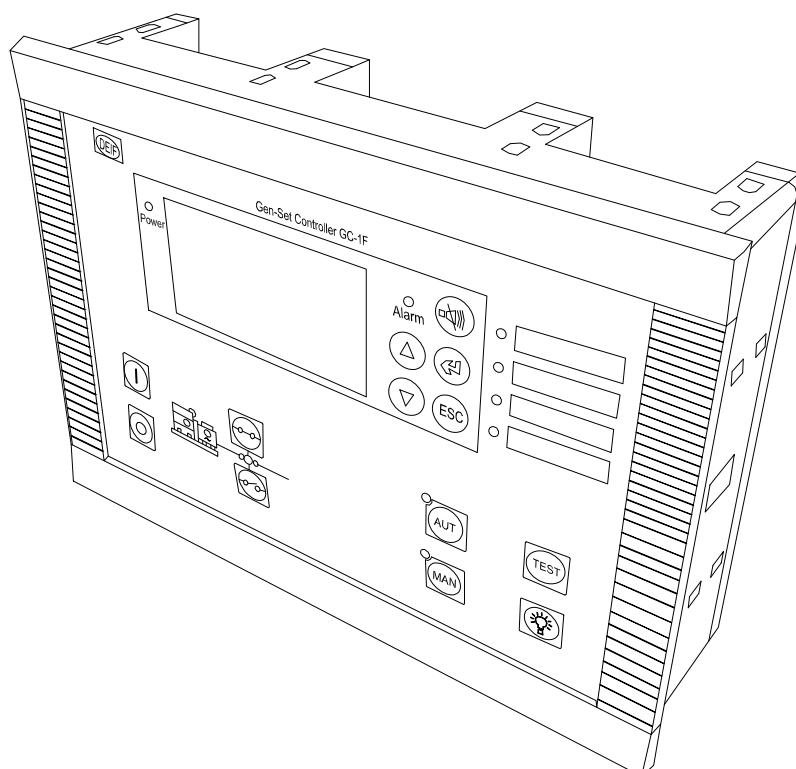


Description of options



Option H5, CANbus J1939 Generator Controller GC-1F

4189340474C
SW 1.1X.X



- *Description of option*
- *Functional descriptions*
- *Parameter list*



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1. Warnings and legal information

Legal information and responsibility

DEIF takes no responsibility for installation or operation of the engine set. If there is any doubt about how to install or operate the engine controlled by the unit, the company responsible for the installation or the operation of the set must be contacted.

The units are not to be opened by unauthorised personnel. If opened anyway, the warranty will be lost.

Electrostatic discharge awareness

Sufficient care must be taken to protect the terminals against static discharges during the installation. Once the unit is installed and connected, these precautions are no longer necessary.

Safety issues

Installing the unit implies work with dangerous currents and voltages. Therefore, the installation should only be carried out by authorised personnel who understand the risks involved in working with live electrical equipment.



Be aware of the hazardous live currents and voltages. Do not touch any AC measurement inputs as this could lead to injury or death.

Factory settings

The unit is delivered with certain factory settings. Given the fact that these settings are based on average values, they are not necessarily the correct settings for matching the individual engine. Thus precautions must be taken to check the settings before running the engine.

Definitions

Throughout this document a number of notes and warnings will be presented. To ensure that these are noticed, they will be highlighted in order to separate them from the general text.

Notes



The notes provide general information, which will be helpful for the reader to bear in mind.

Warning



The warnings indicate a potentially dangerous situation, which could result in death, personal injury or damaged equipment, if certain guidelines are not followed.

2. Description of option

Option H5

Option H5 is a hardware option. If H2 Modbus is present, option H5 is a software option. Option H5 contains a communication slot with the possibility of connecting the unit to a variety of CANbus engine communication systems.

Option H5 extracts information from the Electronic Control Module (ECM) of an engine equipped with a CANbus interface from one of the following engine manufacturers:

- Detroit Diesel (DDEC communication)
- Deutz (EMR CANbus communication)
- John Deere (JDEC communication)
- MTU (MDEC for MTU engines)
- Volvo (Volvo Penta D12 AUX/EMS 2 communication)
- Scania (Scania EMS communication)

The controller unit needs to be set up for the engine communication type required in the individual application. This is done in parameter menu 4771 via the PC utility software. The engine type can also be selected from the display.

All these protocols are based on the CANbus communication system. The Baud rate is fixed by the engine manufacturer at:

DDEC	EMR	MDEC	JDEC	Volvo Penta/EMS 2	Scania EMS
250kBit/s	250kBit/s	125 kBit/s	250kBit/s	250kBit/s	250kBit/s

When the GC-1F is equipped with option H5, it will be able to dedicate some relay outputs controlled by the level detection or binary information of selected information:

- Communication error
- EIC shutdown (Engine Interface Communication)
- Overspeed
- Coolant temperature (2 levels)
- Oil pressure (2 levels)
- Lube temp (2 levels)

Engine types

Data can be read from the following engine types:

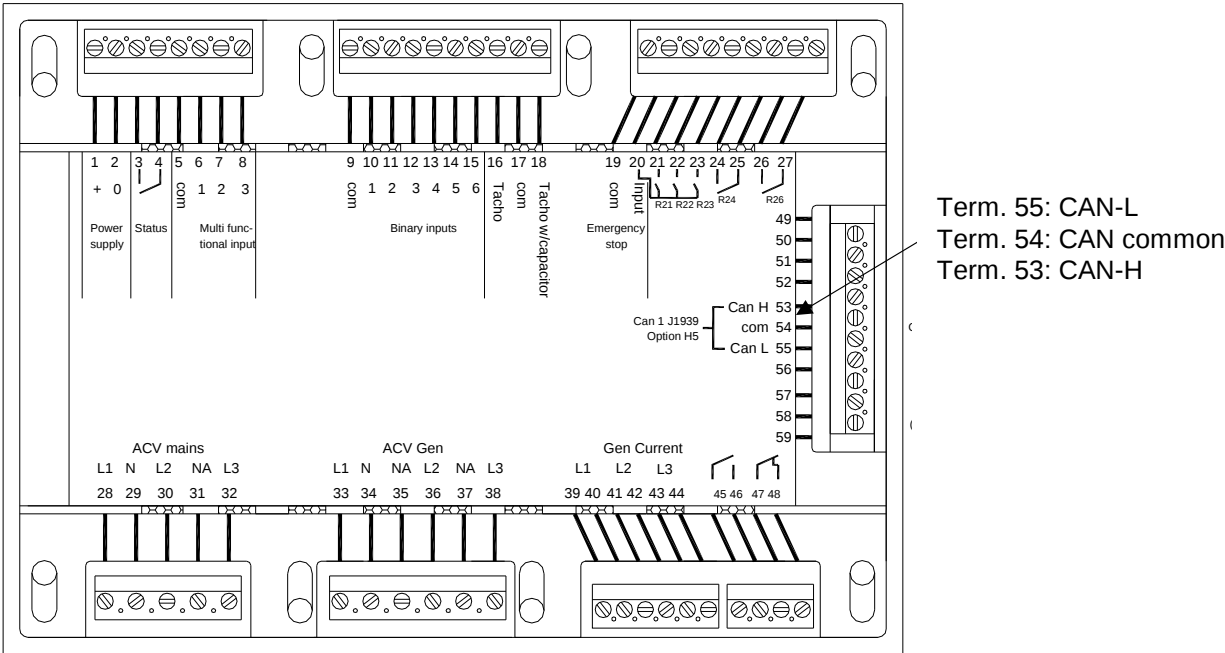
Engine manufacturer	Controller/engine type	Comment
Detroit Diesel	DDEC	
Deutz	EMR 2	
John Deere	JDEC	
MTU	MDEC, module M.302 or M.303 / series 2000 and 4000	
MTU	MDEC, module M.201 or M.304 / series 2000 and 4000	Select M.303
Scania	EMS	
Volvo Penta	EMS	
Volvo Penta	EMS 2	

Hardware

The EIC (Engine Interface Communication) is performed via terminals 55, 54 and 53:

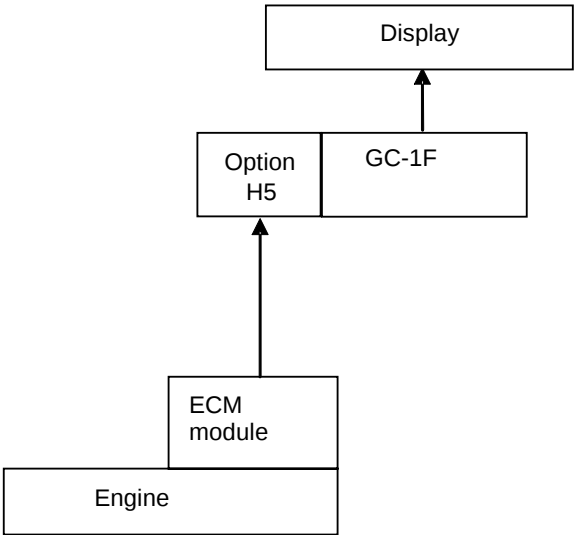
Terminal	Description
55	CAN-L
54	CAN common
53	CAN-H

An overview of the terminals can be seen below. The slots are positioned in the unit as follows (rear of the unit):

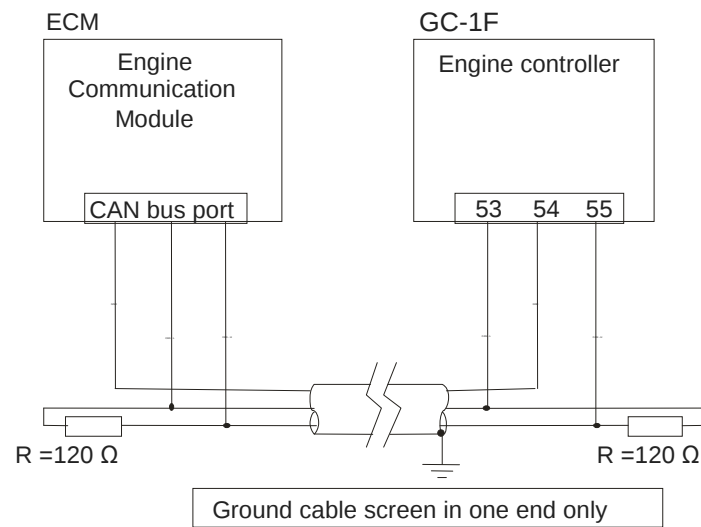


Wirings

Principle diagram:



Connection diagram:



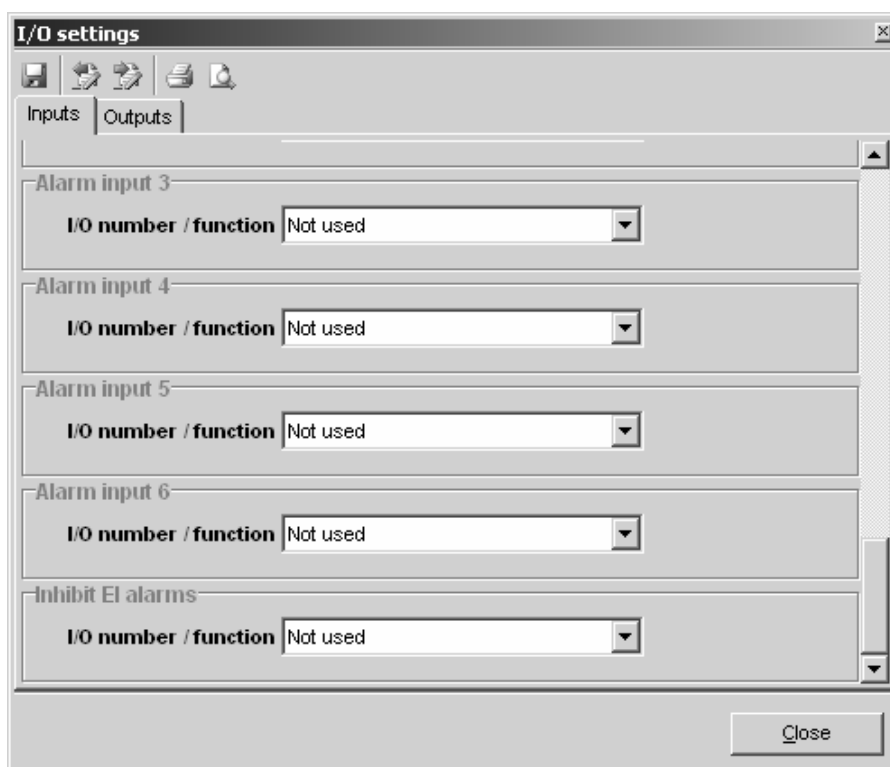
3. Functional descriptions

Alarm enabling/disabling

Refer to the Installation Instructions and Reference Handbook, chapter Utility software configuration.

If an alarm is enabled, it can be inhibited. The configuration of this inhibit function is selectable by means of the utility software in the menu line Settings/Inhibits.

The illustration below shows the inhibit EI alarms located in the I/O settings.



Views available on the display

Object	DDEC	EMR	JDEC	Volvo Penta/EMS 2	Scania EMS	MDEC: Module 302/303
Speed	Available	Available	Available	Available	Available	Available
Coolant temp.	Available	Available	Available	Available	Available	Available
Oil pressure	Available	Available	Available	Available	Available	Available
EIC: Faults	N. A.	Available	Available	N. A.	N. A.	Available
EIC: Oil temp.	Available	N. A.	N. A.	Available	Available	Available
EIC: Fuel temp.	Available	N. A.	Available	N. A.	N. A.	Available
EIC: Boost pressure	Available	N. A.	N. A.	Available	Available	N. A.
EIC: Air inlet temp.	Available	N. A.	Available	N. A.	N. A.	N. A.
EIC: Coolant level	Available	N. A.	N. A.	Available	Available	N. A.
EIC: Fuel rate	Available	N. A.	Available	Available	Available	N. A.
EIC: Charge air pressure	Available	N. A.	N. A.	N. A.	N. A.	Available
EIC: Charge air temp.	Available	N. A.	Available	Available	Available	Available
EIC: Air inlet pressure	N. A.	N. A.	N. A.	Available	N. A.	N. A.
EIC: Exhaust gas temp.	Available	N. A.	N. A.	Available	N. A.	N. A.
EIC: Engine hours	N. A.	N. A.	N. A.	Available	N. A.	N. A.
EIC: Oil f. diff. press.	N. A.	N. A.	N. A.	Available	N. A.	N. A.
EIC: Battery voltage	Available	N. A.	N. A.	Available	N. A.	N. A.
EIC: Fuel del. press.	Available	N. A.	N. A.	Available	N. A.	N. A.
EIC: Oil level	Available	N. A.	N. A.	Available	N. A.	N. A.
EIC: Crankcase press.	N. A.	N. A.	N. A.	Available	N. A.	N. A.
EIC: Coolant pressure	Available	N. A.	N. A.	Available	N. A.	N. A.
EIC: Water in. fuel	N. A.	N. A.	N. A.	Available	N. A.	N. A.



- All the display values corresponding to this option H5 have a description beginning with 'EIC'.
- If a view line is not available, it will not be shown.
- If the value for an available view line is not available due to some type of error in the sensor, sub-system or module, '--' is shown.
- If the value for an available view line is not available (e.g. due to a communication error), the value field is exchanged with '—'.
- The menu 6001 (Engine I. Comm.) is affecting the shown value on the display.

Warning

The below table lists warnings that can appear in the display. The warnings will appear as alarms in the alarm window. An alarm can be acknowledged from the display, but will remain visible until it disappears in the ECM module.

The available warnings depend on the actual communication type:

Warning list	MDEC: Module 302/303	Scania EMS	DDEC/ Volvo Penta	Volvo Penta EMS 2	EMR	JDEC
MDEC yellow alarm	X	-	-	-	-	-
Low oil pressure warning	X	-	-	X	X	-
High coolant temp. warning	X	-	-	X	-	-
High intercooler temp.	X	-	-	-	-	-
Defective cool. level switch	X	-	-	-	-	-
EMR warning	-	-	-	-	X	-
JDEC warning	-	-	-	-	-	X
Oil pressure	-	-	-	-	-	X
Intake manifold	-	-	-	-	-	X
Boost pressure	-	-	-	-	-	-
Coolant temperature	-	-	-	-	-	X
Fuel injection pump	-	-	-	-	-	X
EMS warning	-	X	-	-	-	-
Charge 61 alarm	-	X	-	-	-	-
Stop limit warning	-	X	-	-	-	-
Overspeed	-	-	-	X	-	-
Oil temp.	-	-	-	X	-	-
Coolant level	-	-	-	X	-	-
Battery voltage	-	-	-	X	-	-
ECM yellow lamp	-	-	-	X	-	-
Intake manifold temp.	-	-	-	X	-	-
Intake boost temp.	-	-	-	X	-	-
Intake charge air temp.	-	-	-	X	-	-

Shutdown

All shutdown alarms appear from the below table. In the system setup, the 'EIC shutdown' can be configured to place the unit in a shutdown state and/or to activate relay outputs, if necessary. The shutdown state is present until it disappears in the ECM module.

The table lists the alarms included in this group depending on engine communication type:

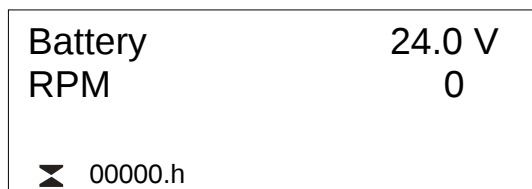
Alarm type	MDEC: Module 302/303	Scania EMS	DDEC/ Volvo Penta	Volvo Penta EMS 2	EMR	Iveco	JDEC
Overspeed shutdown	X	-	-	-	X	X	-
MDEC red alarm	X	-	-	-	-	-	-
Low oil pressure shutdown	X	-	-	-	X	X	X
Low coolant level shutdown	X	-	-	-	-	-	-
MDEC ECU failure	X	-	-	-	-	-	-
High coolant temp. shutdown	X	X	-	-	X	X	X
High oil temp. shutdown	X	-	-	-	-	-	-
High charge air temp. shutdown	X	-	-	-	-	-	-
EMR shutdown	-	-	-	-	X	-	-
JDEC shutdown	-	-	-	-	-	-	X
Fuel temperature	-	-	-	-	-	-	X
Fuel control valve	-	-	-	-	-	-	X
ECU failure	-	-	-	-	-	-	X
ECM red lamp	-	-	-	X	-	X	-
EMS shutdown	-	X	-	-	-	-	-

Display functions

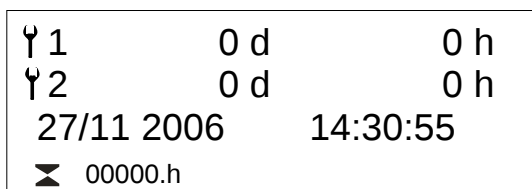
The display indicates both readings and alarms. Illustrated below are examples with icons and English language.



Type and software version.

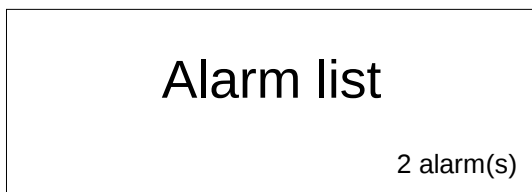


Battery voltage, RPM and running hours counter.

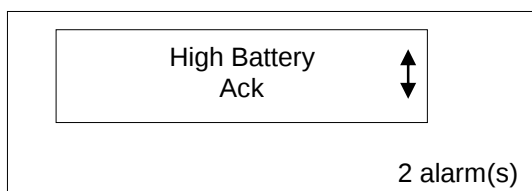


Service timer 1 and 2.

Date and time.



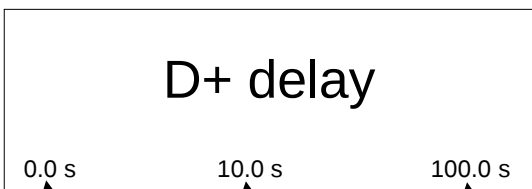
Press  to enter the list of active alarms.



Active alarm list. The alarm list pops up automatically, when an alarm appears. When the arrow is present, more alarms are active. Press  to scroll through the list. Exit the list by pressing ESC.



Press  to enter the parameter setting.



0.0 s

10.0 s

100.0 s

Min. value

Actual value

Max. value

Parameter example: D+ delay setting. Use  or  to scroll through the settings list. If change of settings is necessary, press  and enter the password. Then use  or  to change values. Use ESC to leave settings.



The available parameters depend on the set options. Some parameters can only be changed using the PC utility software (USW) for GC-1F. The parameter list will automatically be abandoned, if no button is pressed during a 30 sec. period.

Icon list



The list covers all available icons including those not related to the engine communication.

	Warning list	Icon
1	Low oil pressure warning	
2	EIC temp. lube oil	
3	High coolant temp. warning	
4	High intercooler temp.	
5	Defect coolant level switch	
6	EMR warning	
7	JDEC warning	
8	Oil pressure	
9	Intake manifold	
10	Coolant temperature	
11	Fuel injection pump	
12	EI Comm. error	
13	EIC warning	
14	Stop limit exceeded	
15	EMS warning	
16	Charge 61	

	Shutdown list	Icon
17	Overspeed shutdown	
18	Low oil pressure shutdown	
19	EIC temp. lube oil	
20	Low coolant level shutdown	
21	High coolant temp. shutdown	
22	High oil temp. shutdown	
23	High charge air temp. shutdown	
24	High coolant temp. shutdown	
25	EMR shutdown	
26	JDEC shutdown	
27	Fuel temperature	
28	Fuel control valve	
29	ECU failure	
30	EIC shutdown	
31	EMS shutdown	

	Analogue readings	Icon
32	EIC speed	
33	EIC coolant temp.	
34	EIC oil pressure	
35	EIC faults	
36	EIC oil temp.	
37	EIC fuel temp.	
38	EIC boost pressure	
39	EIC air inlet temp.	
40	EIC coolant level	
41	EIC fuel rate	
42	EIC charge air pressure	
43	EIC charge air temp.	
44	EIC air inlet pressure	
45	EIC exhaust gas temp.	
46	EIC engine hours	
47	EIC oil f. diff. press.	
48	EIC battery voltage	
49	EIC fuel del. press.	

50	EIC oil level	
51	EIC crankcase press.	
52	EIC coolant pressure	
53	EIC water in. fuel	

Running detection

During a start sequence the start relay is deactivated, if:

- the speed exceeds the RPM running setting
- the running feedback input is ON, or
- the measured frequency of the generator is above 30Hz, or
- the speed information given by the EIC communication is above the limit 7600 EIC overspeed

During a stop sequence the generator is considered to be stopped, if:

- the speed is below the running setting
- the running feedback input is OFF, or
- the measured frequency of the generator is below 30Hz, or
- the speed information given by the EIC communication is below the limit 7600 EIC overspeed

Start/stop (only Volvo penta EMS 2)

In the EMS 2 motor communication, you can send start and stop command to the engine via the canbus. But to make this function work correct, three output relays have to be configured as:

1. Start prepare
2. Starter
3. Stop coil

4. Parameter list

The engine communication setup is performed through the display or the PC utility software.



Please notice that only the engine type can be set on the display, other possible settings can only be set via the PC utility software.

Parameter table description

The table consists of the following possible adjustments:

Set point: The alarm set point is adjusted in the set point menu. The setting is a percentage of the nominal values.

Timer: The timer setting is the time that must expire from the alarm level is reached until the alarm occurs.

Relay output A: A relay can be activated by output A.

Relay output B: A relay can be activated by output B.

Enable: The alarm can be activated or deactivated. ON means always activated, RUN means that the alarm has run status. This means it is activated, when the running signal is present.

Fail class: When the alarm occurs, the unit will react depending on the selected fail class.



Small differences due to the character of the parameters may exist between the individual tables.

Overview table

7600 EIC overspeed	7660 EIC temp. lube 2
7610 EIC coolant temp. 1	7570 EI communication error
7620 EIC coolant temp. 2	7590 EIC shutdown
7630 EIC oil pressure 1	7580 EIC warning
7640 EIC oil pressure 2	7560 Engine communications
7650 EIC temp. lube 1	

Parameter tables

7600 EIC overspeed

No.	Setting		Min. setting	Max. setting	Factory setting
7601	EIC overspeed	Set point	0 RPM	2000 RPM	1600 RPM
7602	EIC overspeed	Delay	0.0 s	100.0 s	2.0 s
7603	EIC overspeed	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
7604	EIC overspeed	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
7605	EIC overspeed	Enable	OFF	RUN	OFF
7606	EIC overspeed	Fail class	See description of fail classes		Warning

7610 EIC coolant temp. 1

No.	Setting		Min. setting	Max. setting	Factory setting
7611	EIC cool w. t. 1	Set point	-40 deg.	210 deg.	100 deg.
7612	EIC cool w. t. 1	Delay	0.0 s	100.0 s	5.0 s
7613	EIC cool w. t. 1	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
7614	EIC cool w. t. 1	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
7615	EIC cool w. t. 1	Enable	OFF	RUN	OFF
7616	EIC cool w. t. 1	Fail class	See description of fail classes		Warning

7620 EIC coolant temp. 2

No.	Setting		Min. setting	Max. setting	Factory setting
7621	EIC cool w. t. 2	Set point	-40 deg.	210 deg.	110 deg.
7622	EIC cool w. t. 2	Delay	0.0 s	100.0 s	5.0 s
7623	EIC cool w. t. 2	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
7624	EIC cool w. t. 2	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
7625	EIC cool w. t. 2	Enable	OFF	RUN	OFF
7626	EIC cool w. t. 2	Fail class	See description of fail classes		Shutdown

7630 EIC oil pressure 1

No.	Setting		Min. setting	Max. setting	Factory setting
7631	EIC oil press. 1	Set point	0.0 bar	10.0 bar	2.0 bar
7632	EIC oil press. 1	Delay	0.0 s	100.0 s	5.0 s
7633	EIC oil press. 1	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
7634	EIC oil press. 1	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
7635	EIC oil press. 1	Enable	OFF	RUN	OFF
7636	EIC oil press. 1	Fail class	See description of fail classes		Warning

7640 EIC oil pressure 2

No.	Setting		Min. setting	Max. setting	Factory setting
7641	EIC oil press. 2	Set point	0.0 bar	10.0 bar	1.0 bar
7642	EIC oil press. 2	Delay	0.0 s	100.0 s	5.0 s
7643	EIC oil press. 2	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
7644	EIC oil press. 2	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
7645	EIC oil press. 2	Enable	OFF	RUN	OFF
7646	EIC oil press. 2	Fail class	See description of fail classes		Shutdown

7650 EIC temp. lube 1

No.	Setting		Min. setting	Max. setting	Factory setting
7651	EIC temp. lube 1	Set point	0 deg.	300 deg.	40 deg.
7652	EIC temp. lube 1	Delay	0.0 s	100.0 s	5.0 s
7653	EIC temp. lube 1	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
7654	EIC temp. lube 1	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
7655	EIC temp. lube 1	Enable	OFF	RUN	OFF
7656	EIC temp. lube 1	Fail class	See description of fail classes		Warning

7660 EIC temp. lube 2

No.	Setting		Min. setting	Max. setting	Factory setting
7661	EIC temp. lube 2	Set point	0 deg.	300 deg.	50 deg.
7662	EIC temp. lube 2	Delay	0.0 s	100.0 s	5.0 s
7663	EIC temp. lube 2	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
7664	EIC temp. lube 2	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
7665	EIC temp. lube 2	Enable	OFF	RUN	OFF
7666	EIC temp. lube 2	Fail class	See description of fail classes		Shutdown

7570 EI communication error

No.	Setting		Min. setting	Max. setting	Factory setting
7571	EI comm. error	Delay	0.0 s	100.0 s	0.0 s
7572	EI comm. error	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
7573	EI comm. error	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
7574	EI comm. error	Enable	OFF	RUN	OFF
7575	EI comm. error	Fail class	See description of fail classes		Warning

7590 EIC shutdown

No.	Setting		Min. setting	Max. setting	Factory setting
7591	EIC shutdown	Delay	0.0 s	100.0 s	0.0 s
7592	EIC shutdown	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
7593	EIC shutdown	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
7594	EIC shutdown	Enable	OFF	RUN	OFF
7595	EIC shutdown	Fail class	See description of fail classes		Shutdown

All shutdown alarms are grouped in this menu.

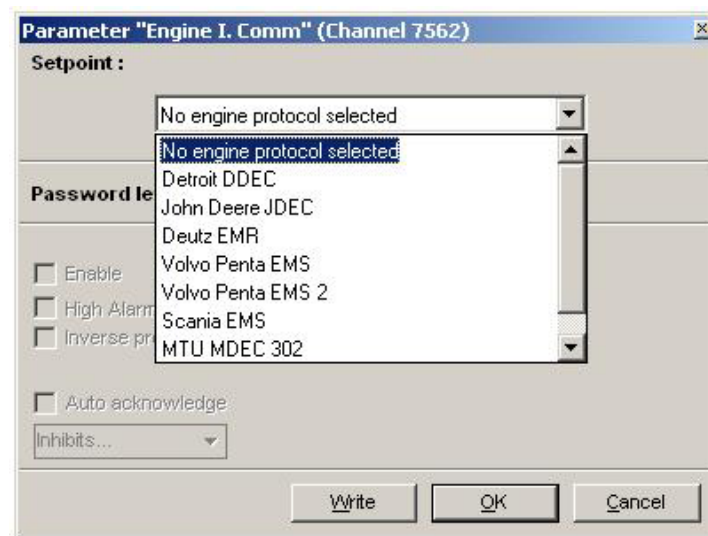
7580 EIC warning

No.	Setting		Min. setting	Max. setting	Factory setting
7581	EIC warning	Delay	0.0 s	100.0 s	0.0 s
7582	EIC warning	Relay output A	R0 (none)	R5 (relay 5)	R0 (none)
7583	EIC warning	Relay output B	R0 (none)	R5 (relay 5)	R0 (none)
7584	EIC warning	Enable	OFF	RUN	OFF
7585	EIC warning	Fail class	See description of fail classes		Warning

7560 Engine communications

7562	Engine comm.	OFF	MDEC M. 302 or 303	MDEC M. 201 or 304	DDEC	EMR	JDEC	Volvo Penta	Scania EMS
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The illustration below shows 7560 Engine communications in the PC utility software.



The engine communication collects data from the engine. Some of the data can be used as alarm inputs.

5. Modbus communication

This chapter is to be considered as additional information for option H2. Please refer to the ECM (Engine Communication Module) user manuals for more information about the ECM protocol technical description and the details of each communication value.

A certain amount of engine data can be transmitted from the engine communication module to the controller unit. They can be transmitted through Modbus option H2.

The available values depend on the selected type of engine communication.

MDEC series – 2000/4000 – module 302 & 303 – MTU engines

Alarm, status and measurement table (read only) function code 04h.

Addr.	Content	Type
1020	EIC alarms	Bit 0 EIC communication error Bit 1 EIC warning Bit 2 EIC shutdown Bit 3 EIC overspeed Bit 4 EIC coolant water temperature 1 Bit 5 EIC coolant water temperature 2 Bit 6 EIC oil pressure 1 Bit 7 EIC oil pressure 2 Bit 8 EIC oil temperature 1 Bit 9 EIC oil temperature 2
1024	EIC alarms	Bit 0 Overspeed, shutdown Bit 1 Low oil pressure, warning Bit 2 Low oil pressure, shutdown Bit 3 Low coolant level, shutdown Bit 4 MDEC ECU failure, shutdown Bit 5 High coolant temperature, warning Bit 6 High coolant temperature, shutdown Bit 7 High intercooler coolant temperature, warning Bit 8 High oil temperature, shutdown Bit 9 High charge air temperature, shutdown Bit 10 Defect coolant level switch, warning Bit 11 MDEC yellow alarm, warning Bit 12 MDEC red alarm, shutdown
593	EIC speed	Engine comm. speed [RPM]
594	EIC coolant temp.	Engine comm. coolant temperature [deg][F]
595	EIC oil pressure	Engine comm. engine oil pressure [bar/100][psi/100]
596	EIC faults	Engine comm. number of actual faults
597	EIC oil temp.	Engine comm. engine oil temperature [deg][F]
598	EIC fuel temp.	Engine comm. fuel temperature [deg/10][F/10]
603	EIC charge air pressure	Engine comm. charge air pressure [bar/100][psi/100]
604	EIC charge air temp.	Engine comm. charge air temperature [deg][F]

DDEC – Detroit engines

Alarm, status and measurement table (read only) function code 04h.

Addr.	Content	Type
1020	EIC alarms	Bit 0 EIC communication error Bit 1 EIC warning Bit 2 EIC shutdown Bit 3 EIC overspeed Bit 4 EIC coolant water temperature 1 Bit 5 EIC coolant water temperature 2 Bit 6 EIC oil pressure 1 Bit 7 EIC oil pressure 2 Bit 8 EIC oil temperature 1 Bit 9 EIC oil temperature 2
593	EIC speed	Engine comm. speed [RPM]
594	EIC coolant temp.	Engine comm. coolant temperature [deg][F]
595	EIC oil pressure	Engine comm. engine oil pressure [bar/100][psi/100]
597	EIC oil temp.	Engine comm. engine oil temperature [deg][F]
598	EIC fuel temp.	Engine comm. fuel temperature [deg][F]
599	EIC boost pressure	Engine comm. boost pressure [bar/100][psi/100]
601	EIC coolant level	Engine comm. coolant level [%/10]
602	EIC fuel rate	Engine comm. fuel rate [L/h/10]
604	EIC charge air temp.	Engine comm. charge air temperature [deg][F]
610	EIC exhaust gas temp.	Engine comm. exhaust gas temperature [deg][F]
613	EIC battery potential	Engine comm. battery voltage [V/10]
614	EIC fuel delivery press.	Engine comm. fuel delivery pressure [bar/10]
615	EIC engine oil level	Engine comm. engine oil level [%/10]
617	EIC coolant pressure	Engine comm. coolant pressure [bar/10]

EMR 2 – Deutz engines

Alarm, status and measurement table (read only) function code 04h.

Addr.	Content	Type
1020	EIC alarms	Bit 0 EIC communication error Bit 1 EIC warning Bit 2 EIC shutdown Bit 3 EIC overspeed Bit 4 EIC coolant water temperature 1 Bit 5 EIC coolant water temperature 2 Bit 6 EIC oil pressure 1 Bit 7 EIC oil pressure 2 Bit 8 EIC oil temperature 1 Bit 9 EIC oil temperature 2
1024	EIC alarms	Bit 0 High coolant temperature, shutdown Bit 1 Low oil pressure, shutdown Bit 2 Overspeed, shutdown Bit 3 EMR shutdown (LS: lamp status) Bit 4 EMR warning (LS: lamp status)
593	EIC speed	Engine comm. speed [RPM]
594	EIC coolant temp.	Engine comm. coolant temperature [deg][F]
595	EIC oil pressure	Engine comm. engine oil pressure [bar/100][psi/100]
596	EIC faults	Engine comm. number of actual faults

JDEC – John Deere engines

Alarm, status and measurement table (read only) function code 04h.

Addr.	Content	Type
1020	EIC alarms	Bit 0 EIC communication error Bit 1 EIC warning Bit 2 EIC shutdown Bit 3 EIC overspeed Bit 4 EIC coolant water temperature 1 Bit 5 EIC coolant water temperature 2 Bit 6 EIC oil pressure 1 Bit 7 EIC oil pressure 2 Bit 8 EIC oil temperature 1 Bit 9 EIC oil temperature 2
1024	EIC alarms	Bit 0 High coolant temperature, shutdown Bit 1 Low oil pressure, shutdown Bit 2 Fuel temperature, shutdown Bit 3 Fuel control valve, shutdown Bit 4 ECU failure, shutdown Bit 5 Oil pressure, warning Bit 6 Intake manifold, warning Bit 7 Coolant temperature, warning Bit 8 Fuel injection pump, warning Bit 9 JDEC shutdown (LS: lamp status) Bit 10 JDEC warning (LS: lamp status)
593	EIC speed	Engine comm. speed [RPM]
594	EIC coolant temp.	Engine comm. coolant temperature [deg][F]
595	EIC oil pressure	Engine comm. engine oil pressure [bar/100][psi/100]
598	EIC fuel temp.	Engine comm. fuel temperature [deg][F]
602	EIC fuel rate	Engine comm. fuel rate [L/h/10]
604	EIC charge air temp.	Engine comm. charge air temperature [deg][F]

Scania

Alarm, status and measurement table (read only) function code 04h.

Addr.	Content	Type
1020	EIC alarms	Bit 0 EIC communication error Bit 1 EIC warning Bit 2 EIC shutdown Bit 3 EIC overspeed Bit 4 EIC coolant water temperature 1 Bit 5 EIC coolant water temperature 2 Bit 6 EIC oil pressure 1 Bit 7 EIC oil pressure 2 Bit 8 EIC oil temperature 1 Bit 9 EIC oil temperature 2
1024	EIC alarms	Bit 0 Low oil pressure Bit 1 High coolant temperature warning Bit 2 Stop limit exceed shutdown Bit 3 Charge 61 warning Bit 4 EMS shutdown Bit 5 EMS warning

Volvo Penta

Alarm, status and measurement table (read only) function code 04h.

Addr.	Content	Type
1020	EIC alarms	Bit 0 EIC communication error Bit 2 EIC shutdown Bit 3 EIC overspeed Bit 4 EIC coolant water temperature 1 Bit 5 EIC coolant water temperature 2 Bit 6 EIC oil pressure 1 Bit 7 EIC oil pressure 2
1024	EIC alarms	Bit 0 Overspeed, warning Bit 1 Oil pressure, warning Bit 2 Oil temperature, warning Bit 3 High coolant temperature, warning Bit 4 Low coolant level, warning Bit 5 Fuel pressure, warning Bit 6 ECM yellow lamp, warning Bit 7 ECM red lamp, shutdown Bit 8 High inlet air temperature, warning Bit 10 Battery voltage, warning Bit 11 Low oil level, warning
593	EIC speed	Engine comm. speed [RPM]
594	EIC coolant temp.	Engine comm. coolant temperature [deg][F]
595	EIC oil pressure	Engine comm. engine oil pressure [bar/100][psi/100]
597	EIC oil temp.	Engine comm. engine oil temperature [deg][F]
599	EIC boost pressure	Engine comm. boost pressure [bar/100][psi/100]
600	EIC air inlet temp.	Engine comm. air inlet temperature [deg][F]
602	EIC fuel rate	Engine comm. fuel rate [L/h/10]
604	EIC charge air temp.	Engine comm. charge air temperature [deg][F]
605	EIC d.d. % torque	Engine comm. driver's demand engine - percent torque [%]
606	EIC actual % torque	Engine comm. actual engine - percent torque [%]
607	EIC acc. pedal pos.	Engine comm. accelerator pedal position [%]
608	EIC % load, c. speed	Engine comm. percent load at current speed [%]
609	EIC air inlet pressure	Engine comm. air inlet pressure [bar/100][psi/100]
700	EIC exhaust gas temp.	Engine comm. exhaust gas temperature [deg/10][F/10]
701	EIC engine hours	Engine comm. ENGINE HOURS [H]
702	EIC oil f. diff. press.	Engine comm. engine oil filter diff. press. [bar/100][psi/100]
703	EIC battery voltage	Engine comm. battery potential [V/10], switched
704	EIC fuel del. press.	Engine comm. fuel delivery pressure [bar/100][psi/100]
705	EIC oil level	Engine comm. engine oil level [%]
706	EIC crankcase press.	Engine comm. crankcase pressure [bar/100][psi/100]
707	EIC coolant pressure	Engine comm. coolant pressure [bar/100][psi/100]
708	EIC water in. fuel	Engine comm. water in. fuel indicator [ON/OFF]

Volvo Penta EMS 2

Alarm, status and measurement table (read only) function code 04h.

Addr.	Content	Type
1020	EIC alarms	Bit 0 EIC communication error Bit 2 EIC shutdown Bit 3 EIC overspeed Bit 4 EIC coolant water temperature 1 Bit 5 EIC coolant water temperature 2 Bit 6 EIC oil pressure 1 Bit 7 EIC oil pressure 2
1024	EIC alarms	Bit 0 Overspeed, warning Bit 1 Oil pressure, warning Bit 2 Oil temperature, warning Bit 3 High coolant temperature, warning Bit 4 Low coolant level, warning Bit 5 Charge air, warning Bit 6 Fuel pressure, warning Bit 7 ECM yellow lamp, warning Bit 8 ECM red lamp, shutdown Bit 10 Oil level, warning Bit 11 Charge temp., warning Bit 12 Intake manifold temp/boost temp/charge air temp, warning
593	EIC speed	Engine comm. speed [RPM]
594	EIC coolant temp.	Engine comm. coolant temperature [deg][F]
595	EIC oil pressure	Engine comm. engine oil pressure [bar/100][psi/100]
597	EIC oil temp.	Engine comm. engine oil temperature [deg][F]
599	EIC boost pressure	Engine comm. boost pressure [bar/100][psi/100]
600	EIC air inlet temp.	Engine comm. air inlet temperature [deg][F]
602	EIC fuel rate	Engine comm. fuel rate [L/h/10]
604	EIC charge air temp.	Engine comm. charge air temperature [deg][F]
605	EIC d.d. % torque	Engine comm. driver's demand engine - percent torque [%]
606	EIC actual % torque	Engine comm. actual engine - percent torque [%]
607	EIC acc. pedal pos.	Engine comm. accelerator pedal position [%]
608	EIC % load, c. speed	Engine comm. percent load at current speed [%]
609	EIC air inlet pressure	Engine comm. air inlet pressure [bar/100][psi/100]
700	EIC exhaust gas temp.	Engine comm. exhaust gas temperature [deg/10][F/10]
701	EIC engine hours	Engine comm. ENGINE HOURS [H]
702	EIC oil f. diff. press.	Engine comm. engine oil filter diff. press. [bar/100][psi/100]
703	EIC battery voltage	Engine comm. battery potential [V/10], switched
704	EIC fuel del. press.	Engine comm. fuel delivery pressure [bar/100][psi/100]
705	EIC oil level	Engine comm. engine oil level [%]
706	EIC crankcase press.	Engine comm. crankcase pressure [bar/100][psi/100]
707	EIC coolant pressure	Engine comm. coolant pressure [bar/100][psi/100]
708	EIC water in. fuel	Engine comm. water in. fuel indicator [ON/OFF]



Resolution hours (98) - approx. 3.75 years supported.

DEIF A/S reserves the right to change any of the above