Omni

iE 250 │ iE 350

Engine interface communication

DEIF Improve Tomorrow
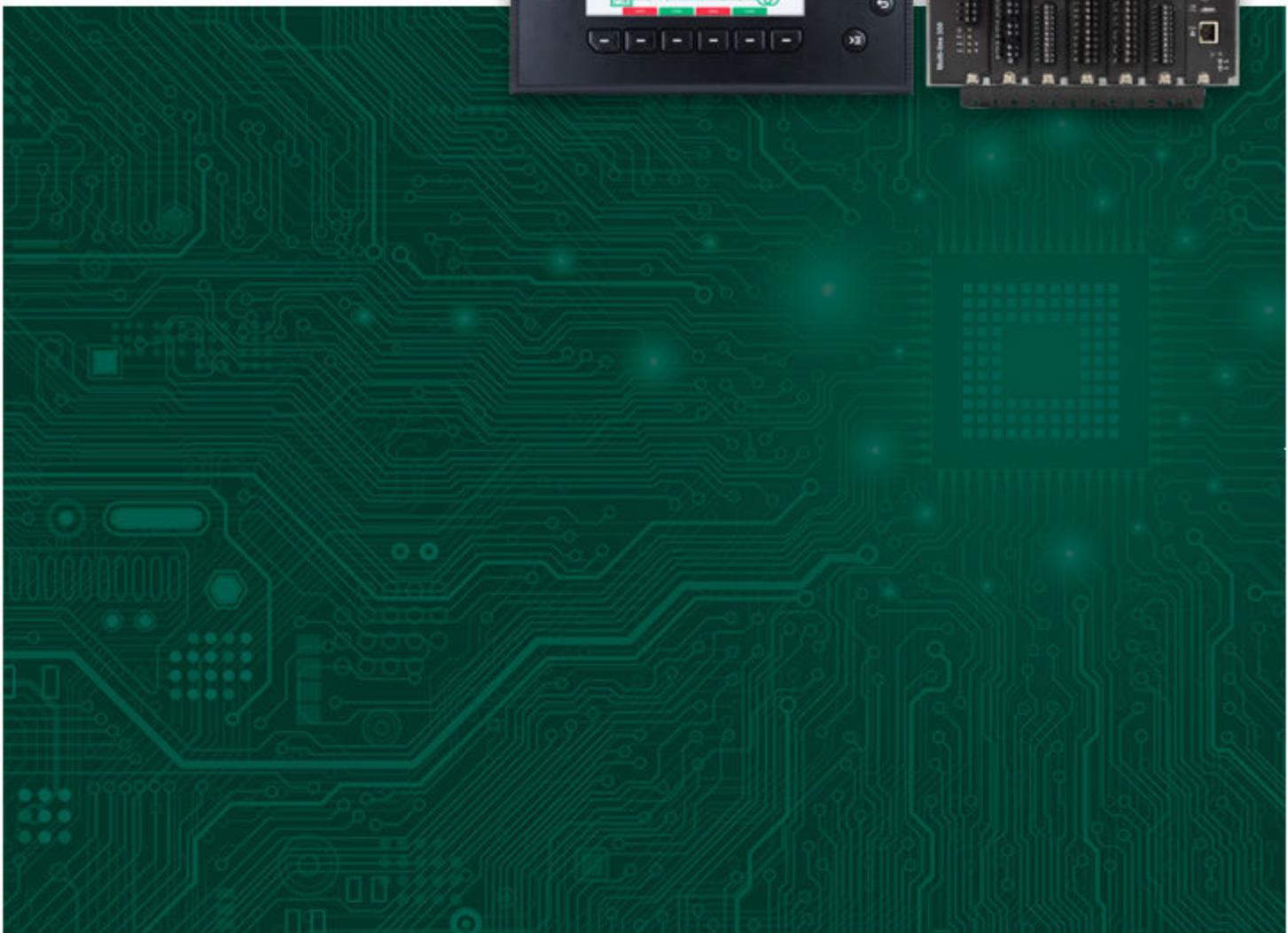
1. About this manual

1.1 Intended users of the Engine communication manual

This manual is for the designer or the commissioning engineer, who configures the controller with an ECU. The manual includes information about the supported protocols, support engine types, and other information.

⚠ CAUTION
Read this manual Read this manual before you configure your system. Failure to do this may result in personal injury and/or damage to the equipment.

1.2 Symbols for general notes

NOTE This shows general information.

More information
This shows where you can find more information.

Example This shows an example.

How to … This shows a link to a video for help and guidance.

1.3 Software versions

The information in this document relates to software versions:

Product	Details	Version
PICUS https://www.deif.com/products/picus/	PC software	1.0.25.x or later
iE 250 https://www.deif.com/products/ie-250/	Controller application	2.0.13.x or later
iE 250 Marine https://www.deif.com/products/ie-250-marine/	Controller application	2.0.13.x or later
iE 350 https://www.deif.com/products/ie-350/	Controller application	2.0.13.x or later
iE 350 Marine https://www.deif.com/products/ie-350-marine/	Controller application	2.0.13.x or later
DU 300	Display unit application	1.0.21.x or later
GPC 300 https://www.deif.com/products/gpc-300/	Controller application	1.0.28.x or later
PPM 300 https://www.deif.com/products/ppm-300/	Controller application	1.0.26.x or later
PPU 300	Controller application	1.0.26.x or later

Product	Details	Version
https://www.deif.com/products/ppu-300/		

1.4 Legal information

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2. About Engine interface communication

2.1   How it works

The controller can receive information from an ECU using the CAN bus communication. The information can be used as input for the controller functions. The controller also uses the information as display values, alarms, and as values to be transmitted through Modbus.

Most of the engine communication protocols are based on the SAE J1939 standard. The controller supports the engine relevant parts of J1939 as required/implemented by each ECU manufacturer.

The ECU is wired to the CAN bus communication on the controller. The ECU is added to the controller using the Fieldbus configuration and assigned the source address.

More information
See the PICUS manual for how to configure and supervise Fieldbus connections.

Once added to your controller, the ECU can be accessed from PICUS or the display as an additional hardware selection. For example, you can configure the ECU input or output settings, functions, or alarms. You can also include the ECU on the I/O status page to see the status of the analogue inputs, or see the ECU on Live data. Alarms (DM1) and logs (DM2) can also be accessed.

Not supported engines

If you have an engine that is not supported in the software, contact DEIF.

2.2 CAN bus communication wiring

2.2.1 CAN bus wiring for iE 250
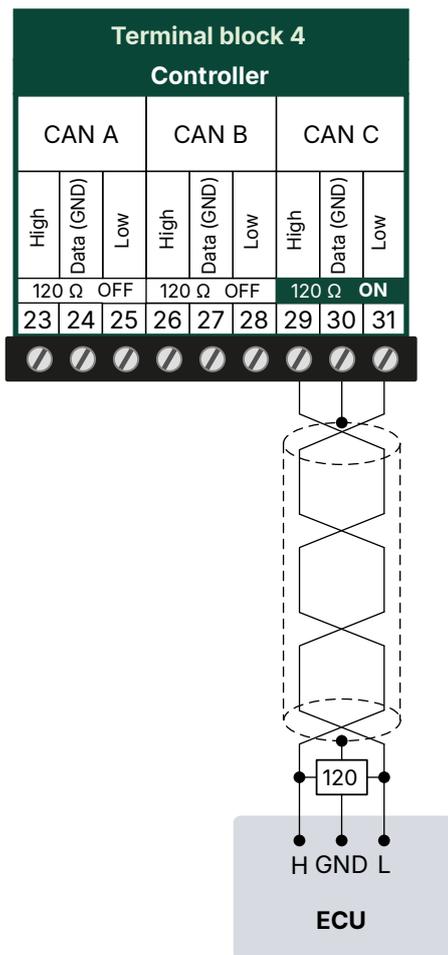
Use 120 Ω (Ohm) shielded twisted pair cable.

Terminating resistors at the ends of the cable or chain must be 120 Ω (Ohm). You can use the terminating resistor on the controller side if the controller is the end connection.

The terminating resistor at the engine side might not be needed, see the engine manufacturer's information.

CAN A, B, C are galvanically separated from the rest of the controller.

> ✎ **Example cable**
>
> Belden 3105A or equivalent, 22 AWG (0.33 mm²) twisted paid, shielded, impedance 120 Ω (Ohm), < 40 mΩ/m, min. 95 % shield coverage.

2.2.2 CAN bus wiring for iE 350

The CAN bus terminals on the PCM3.3 module are used for communication with an ECU.
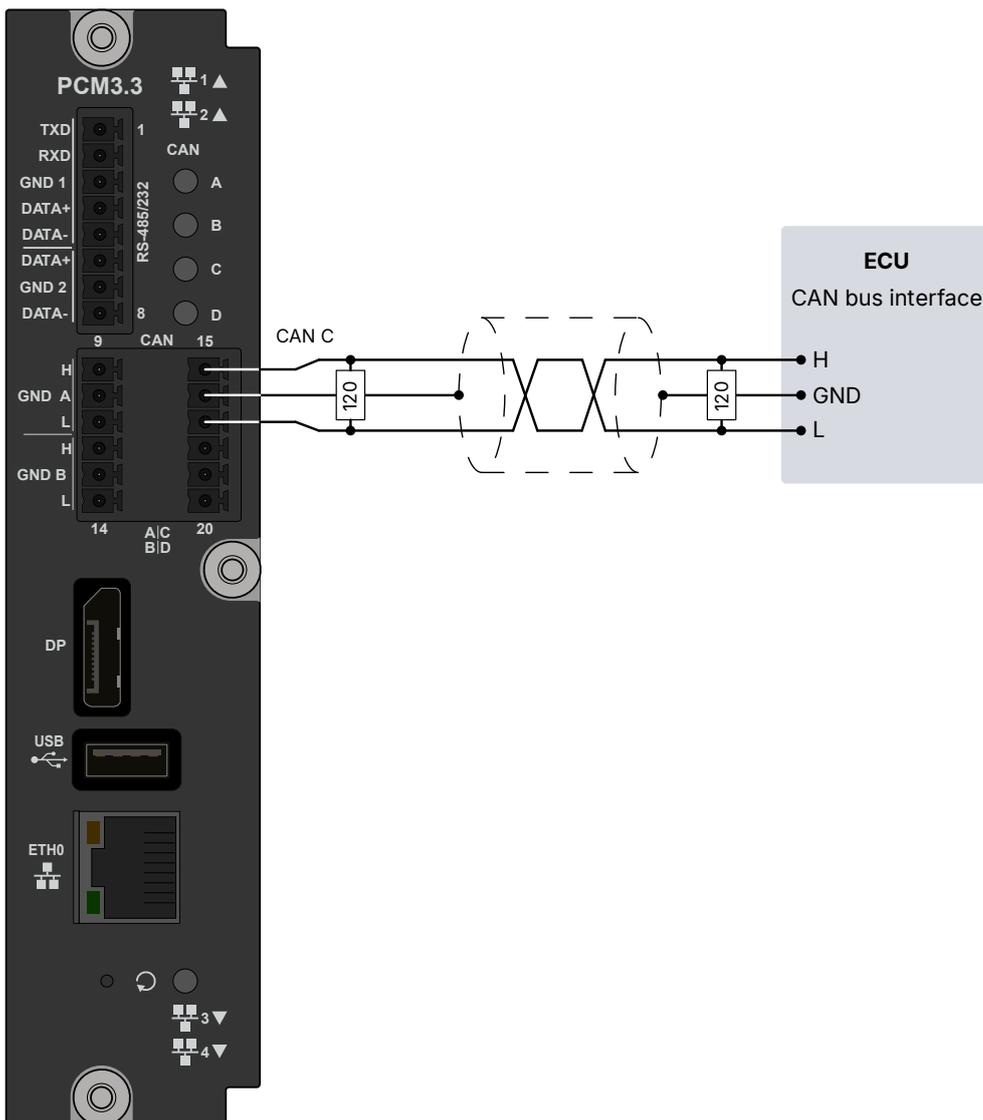
Use 120 Ω (Ohm) shielded twisted pair cable. Terminating resistors at the ends of the cable must be 120 Ω (Ohm).

The terminating resistor at the engine side might not be needed, see the engine manufacturer's information.

> ✎ **Example cable**
>
> Belden 3105A or equivalent, 22 AWG (0.33 mm²) twisted paid, shielded, impedance 120 Ω (Ohm), < 50 mΩ/m, min. 95 % shield coverage.

2.2.3 CAN bus wiring for ML 300

The CAN bus terminals on the PCM3.1 module are used for communication with an ECU.
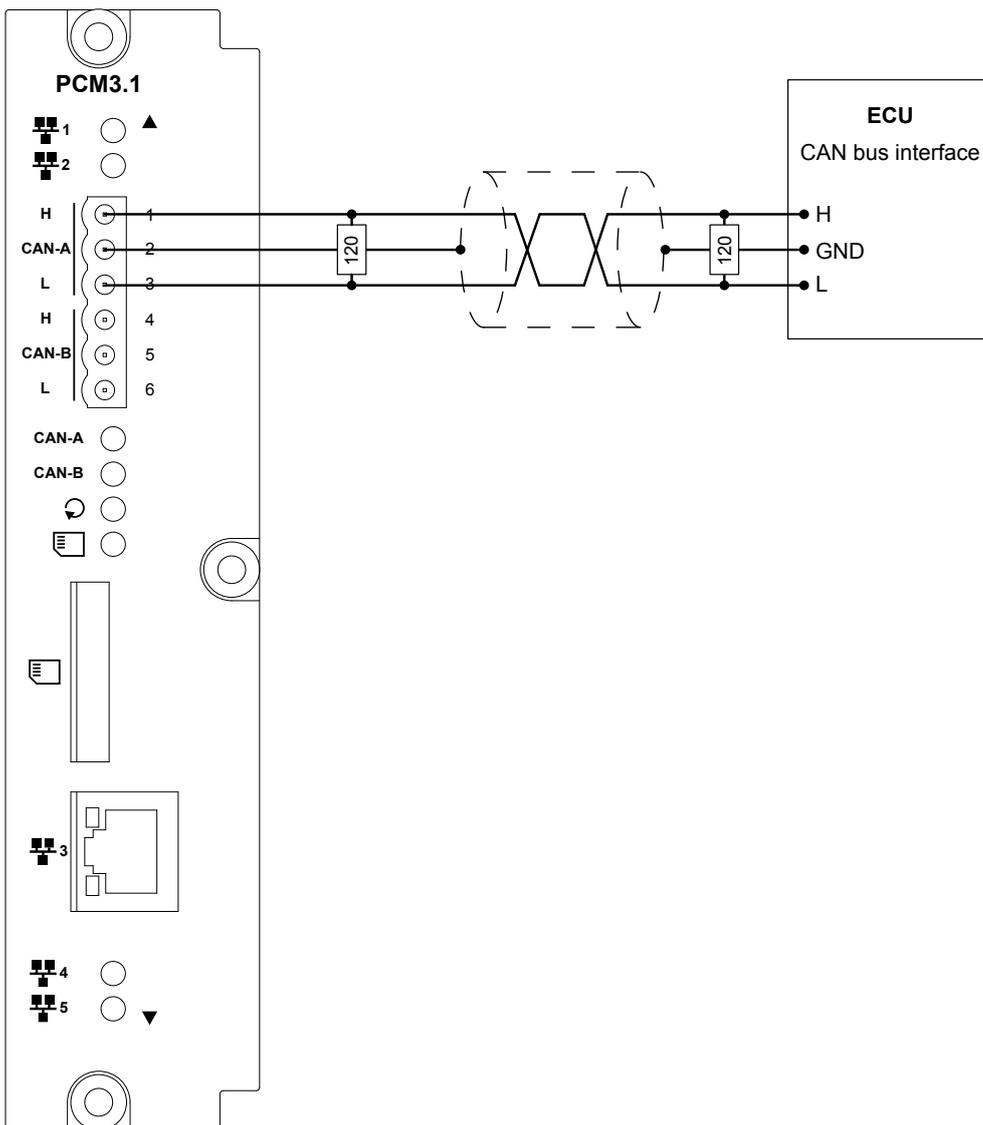
Use 120 Ω (Ohm) shielded twisted pair cable. Terminating resistors at the ends of the cable must be 120 Ω (Ohm).

The terminating resistor at the engine side might not be needed, see the engine manufacturer's information.

CAN A and CAN B are galvanically separated from the rest of the controller. No ground loops will be formed if the ECU CAN GND is connected to PE.

> **Example cable**
>
> Belden 3105A or equivalent, 22 AWG (0.33 mm²) twisted paid, shielded, impedance 120 Ω (Ohm), < 50 mΩ/m, min. 95 % shield coverage.

2.3 Example configuration for an ECU

This example shows how to configure an ECU to read and use the value of the **engine oil level** on a generic J1939 ECU.

Add the ECU

The ECU is added to the controller by using the **Fieldbus configuration**.

1. Launch **PICUS** and connect to the controller.

2. Open the **Fieldbus configuration** page:
   - `Configure > Fieldbus configuration`

3. Select the controller rack:
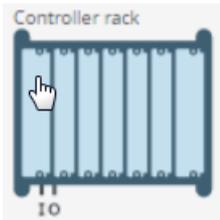
4. Under **CAN**, select the protocol **Generic J1939**.

5. Enter the source address, if different from the default address **0**.

6. Select **Write** to update the controller.

Configure the ECU power setting (optional)

The default ECU Power setting is **Auto**, which uses either the engine run coil setting, ECU Power digital output, or otherwise assumes the power is always on.

1. If required, use **PICUS** to configure the ECU Power configuration:
   - `Configure > Parameters > Communication > Fieldbus > CAN bus > ECU > ECU Power configuration`

2. Configure the setting as required.

3. Select **Write** to update the controller.

Access ECU information with PICUS or display

The ECU can now be accessed on different pages in PICUS or the display as an additional hardware selection.

- Live data
  - Additional panel for engine speed, coolant temperature, and oil pressure.
- Input/output functions
  - Digital inputs or Supervised binary inputs
  - Analogue outputs
- Alarms (DM1)
- Logs (DM2)

View the ECU values on I/O status

You can check if your ECU is now accessible by using PICUS and viewing the I/O status page.

1. Use **PICUS** to see the **I/O status page**.

2. Select the ECU under **Select hardware**, and also select **Show physical values**:
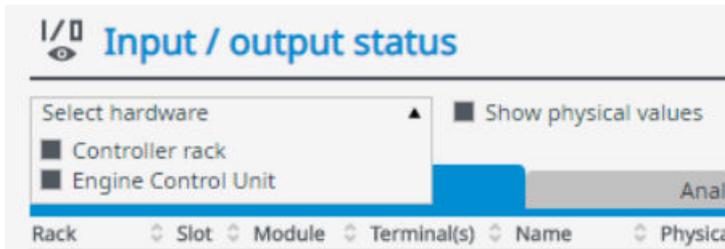
3. The ECU Engine oil level can be found in the list:

How to configure ECU functions and custom alarms on input/output

1. Use **PICUS** to access the Input/output page:
   - `Configure > Input/output`

2. Select the ECU under I/O configuration:
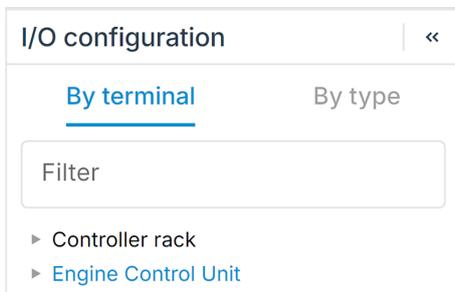
3. The ECU information is now shown.
4. You can now:
   - Configure functions
   - Configure the sensor setup for the curve/function
   - Create and configure custom alarms

5. Select **Save** to save the changes in PICUS.

6. Select **Write** to update the controller.

Use the ECU values in CustomLogic

You can also use the ECU Engine oil level in CustomLogic as a function, for example with a Compare block:
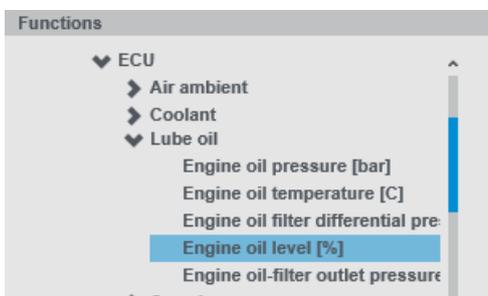
 More information
See **Fieldbus configuration** in the PICUS manual for how to configure and supervise Fieldbus.

2.4 Exhaust After-Treatment Dashboard (Tier 4/Stage V)

2.4.1 About After-treatment dashboard

When an ECU is configured on a controller, the controller can read and display the Tier 4/Stage V information. In some countries, Tier 4 after-treatment support must be active during power production.

View the Exhaust after-treatment dashboard on the display. The Exhaust after-treatment items are only visible if engine data is available. Not all engines support all the items shown.

NOTE   On iE 250 and iE 350, the Exhaust after-treatment dashboard (the Stage V page) is not shown automatically, even if the ECU is configured. The page must be manually added and enabled using the Display designer.

Automatic display on data changes
The Exhaust after-treatment dashboard can be configured to automatically display (Auto jump) on changes to the data.

For iE 250 and iE 350:
Use PICUS and the Display designer to configure the Auto jump.

More information
See **Display designer** in the PICUS manual for how to configure the automatic display of the page.

For ML 300:
Use the display and the View designer to configure the Live data page with the Auto jump.

More information
See **Configure Exhaust after-treatment dashboard** in the **Operator's manual** for how to configure the automatic display of the page.

2.4.2   iE 250 and iE 350 Dashboard

Exhaust after-treatment dashboard

READY FOR OPERATION	364 h	80 %	5 %	10:18:38
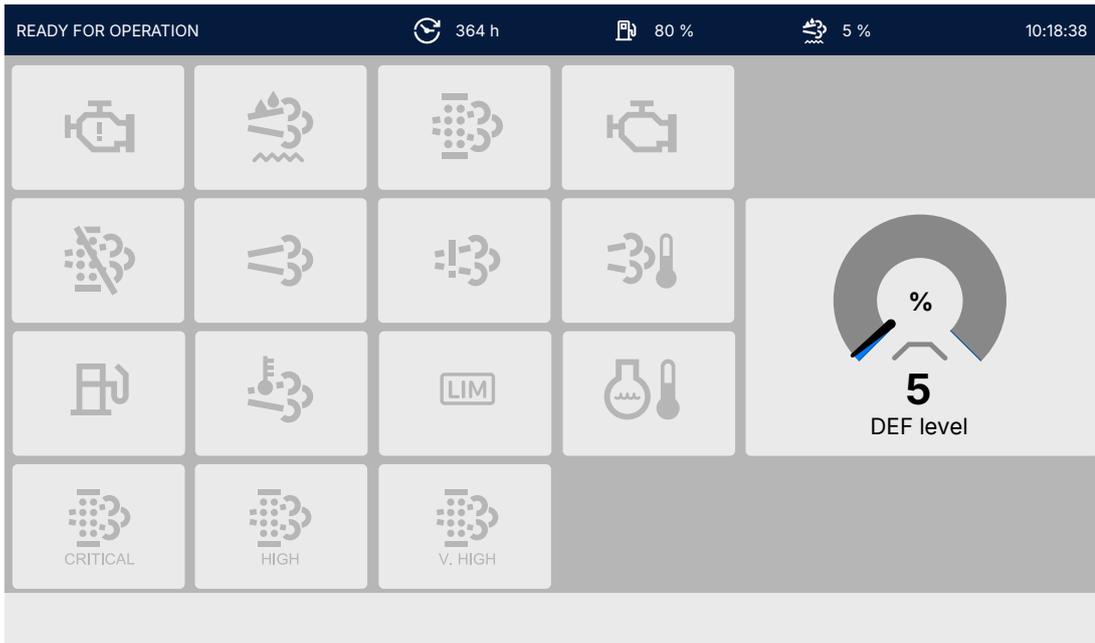
Symbol information		
Shows an engine shutdown.		Shows an engine warning.
Shows the DEF level is too low.		Shows an emission failure or malfunction.
Shows that regeneration is needed.		Shows that regeneration is inhibited.
Shows exhaust level		Shows a high temperature and regeneration.
Shows fuel level		Shows High temperature - regeneration
Shows LIMIT lamp.		Shows oil temperature
Shows HIGH severity failure level.		Shows VERY HIGH severity failure level.
Shows CRITICAL severity failure level.		

Gauge information	
DEF level	Shows the level (%) of the Diesel Exhaust Fluid. Red mark shows the minimum low level for the Diesel Exhaust Fluid.

NOTE   Grey symbols show normal operation. Amber symbols show an item needs attention. Red symbols show a potentially serious problem or malfunction, refer to your engine manufacturer's manual.

2.4.3 ML 300 Dashboard

Display Live data : Exhaust after-treatment dashboard

Ready for operation   33%   ▲   👤   1 /13

Home / Live data   12:00

DEF level
percent

0 10 20 30 40 50 60 70 80 90 100

33 %

Home
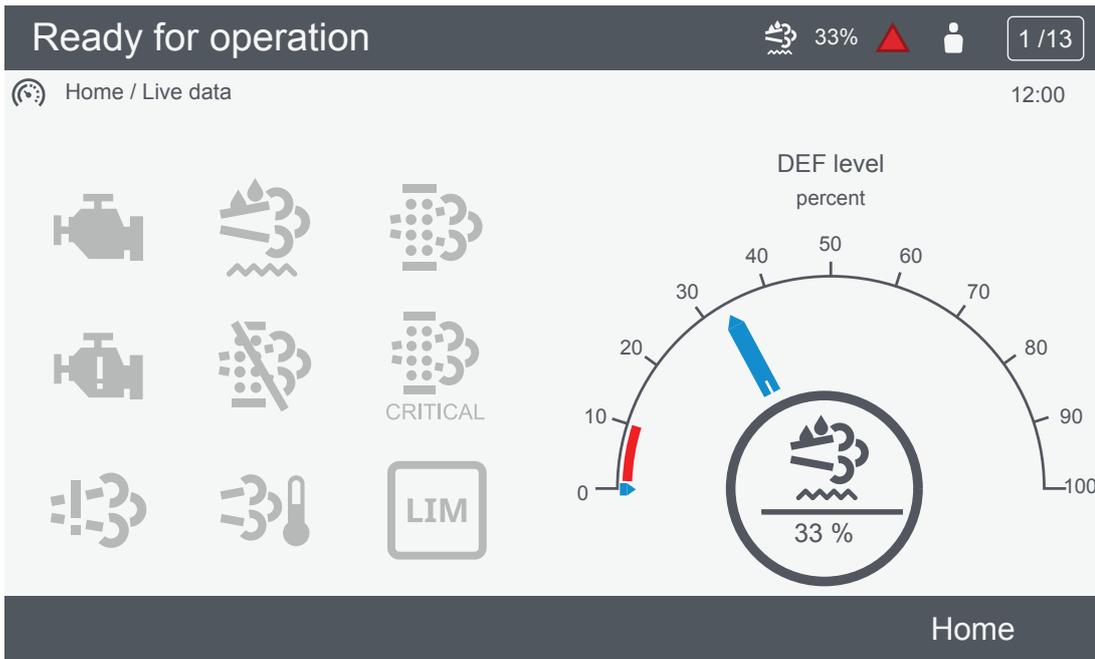
Symbol information		
	Shows an engine warning.		Shows an engine shutdown.
	Shows the DEF level is too low.		Shows an emission failure or malfunction.
	Shows that regeneration is needed.		Shows that regeneration is inhibited.
	Shows a high temperature and regeneration.	LIM	Shows LIMIT lamp.
	Shows HIGH severity failure level.		Shows VERY HIGH severity failure level.
	Shows CRITICAL severity failure level.		

Gauge information

Shows the level (%) of the Diesel Exhaust Fluid.

Red mark shows the minimum low level for the Diesel Exhaust Fluid.

NOTE   Grey symbols show normal operation. Amber symbols show an item needs attention. Red symbols show a potentially serious problem or malfunction, refer to your engine manufacturer's manual.

3. ECU Functions

3.1   ECU power configuration function

This configures how the controller expects the ECU to be powered. The ECU can be powered by:

- The engine run coil digital output
- The ECU power digital output function (see below)
- Externally powered

The ECU must be configured in the Fieldbus configuration for the functions and alarms to be shown.

Digital output

Function	Type	Details
`Engine > Controls > ECU power`	Continuous	Connect this to the ECU power control.

Parameter

Communication > Fieldbus > CAN bus > ECU > ECU Power configuration

Range	Comment
Auto Always ON	**Auto**: The controller expects either the engine run coil or ECU power digital output. If neither of these are configured it is expected to be always on. **Always ON**: The controller expects the ECU is powered externally and is always powered on.

3.2   ECU reset input function

Some ECUs need to be reset after they have run for a number of hours. If the ECU reset input function is enabled, when the controller gets a signal from the ECU, the controller disconnects the power to the ECU (if the engine is not running).

Digital input

Function	Type
`Engine > ECU > ECU reset input`	Pulse

3.3   ECU diagnostic function

The ECU diagnostic function allows the controller to read ECU diagnostic data when the engine is not running.

The function activates the run coil. If the ECU power is connected to the run coil, the ECU is powered up. This enables communication between the controller and the ECU while the engine is stopped.

Parameters

Engine > ECU diagnostic > ECU diagnostic

Parameter	Range	Notes
`Enable`	Not enabled, Enabled	**Enabled**: The ECU diagnostic function is enabled.
`Use timer`	Not enabled, Enabled	**Enabled**: The function is only active while the timer is running.

Parameter	Range	Notes
`Timer to enable function`	1 to 600 s	When the timer runs out, the controller changes the parameter `Engine > ECU diagnostic > ECU diagnostic > Enable` to *Not enabled*.
`Mode`	Disable at start Always on	**Disable at start**: When the engine is started, the controller changes the parameter `Engine > ECU diagnostic > ECU diagnostic > Enable` to *Not enabled*. **Always on**: If enabled, the function is always active. The function is suspended during an engine stop, but restarts after the engine stop is completed.

Inputs

`Engine > ECU diagnostic`

Function	I/O	Type	Details
`ECU diagnostic on`	Input	Pulse	When the input is activated, the controller changes the parameter `Engine > ECU diagnostic > ECU diagnostic > Enable` to *Enabled*.
`ECU diagnostic off`	Input	Pulse	When the input is activated, the controller changes the parameter `Engine > ECU diagnostic > ECU diagnostic > Enable` to *Not enabled*.

3.4 Pump logic function

Pump logic can be used to keep a tank level within the required range by starting and stopping a pump. A digital output is used to activate the pump*. You can configure three sets of pump logic functions.

NOTE * The digital output must be configured to see the corresponding pump logic parameters.

Inputs and outputs

`Auxiliary > Pump logic`

Function	I/O	Type	Details
`Activate pump [1 to 3] *`	Digital output	Continuous	Wire the pump so that it runs while this output is activated.
`Activate pump logic [1 to 3]`	Digital input	Pulse	When the input is activated, the controller changes the parameter `Engine > ECU diagnostic > ECU diagnostic > Enable` to *Enabled*.
`Deactivate pump logic [1 to 3]`	Digital input	Pulse	When the input is activated, the controller changes the parameter `Engine > ECU diagnostic > ECU diagnostic > Enable` to *Not enabled*.
`Custom analogue input [1 to 3] [%]`	Analogue input	-	You can use these inputs as the tank level for pump logic.
`Analogue input > Custom analogue input [1 to 3] [%]`	Analogue output	-	This is an analogue output of the corresponding analogue input.

Parameters

`Auxiliary > Pump logic [1 to 3]`

Parameter	Range	Notes
`Source selection > Pump source select`	Fuel level	**Fuel level**: The pump logic uses the fuel level from the engine interface communication (EIC).

Parameter	Range	Notes
	Coolant level Oil level Custom analogue input DEF level	**Coolant level**: The pump logic uses the coolant level from the EIC. **Oil level**: The pump logic uses the oil level from the EIC. **Custom analogue input**: The pump logic uses the analogue input value from `Auxiliary > Pump logic > Custom analogue input [1 to 3] [%]` **DEF level**: The pump logic uses the DEF level from the EIC.
`Fill alarm > Delay`	1 to 300 s	This alarm is based on the value in parameter `Auxiliary > Pump logic > Fill check slope`. The alarm is activated if the digital output is activated, but the level does not increase by at least the *Fill check slope* within the delay time.
`Fill check slope`	1.0 to 100.0 %	Used for the *Fill alarm*.
`Pump logic settings > Pump ON set point`	0 to 100 %	The controller activates the digital output `Auxiliary > Pump logic > Activate pump [1 to 3]` when the level is below this set point.
`Pump logic settings > Pump ON delay`	0.0 to 3600.0 s	Configurable delay before the pump is started.
`Pump logic settings > Pump OFF set point`	0 to 100 %	The controller deactivates the digital output `Auxiliary > Pump logic > Activate pump [1 to 3]` when the level is above this set point.
`Pump logic settings > Pump OFF delay`	0.0 to 3600.0 s	Configurable delay before the pump is stopped.

How it works

The diagram below shows an example of how a fuel pump is started when the fuel level is 20 % and stopped again when the level is 80 %.

Fuel level

Fuel service tank level

80%

20%

Time

Fuel pump start level

Fuel pump stop level
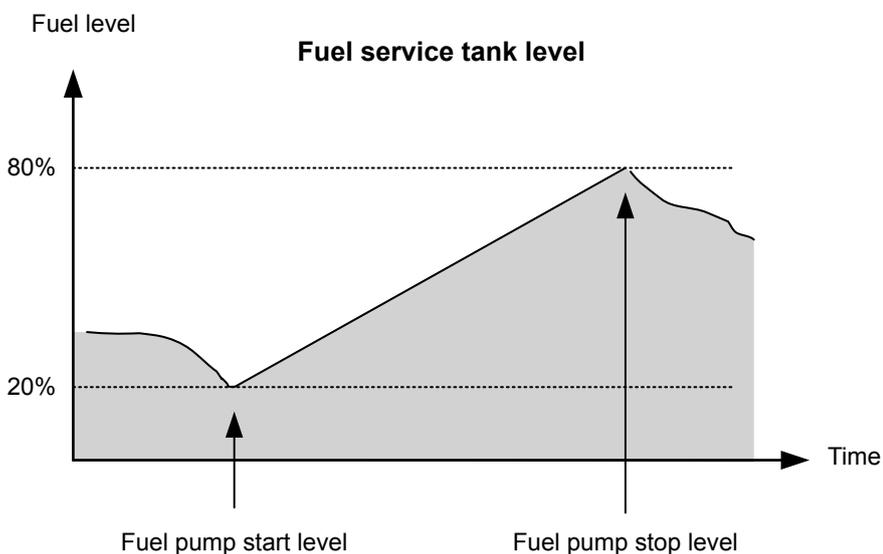
4. ECU Alarms and protections

4.1 Communication

4.1.1 ECU Communication failure alarm

`Communication > Fieldbus > CAN bus > ECU > ECU Communication failure`

Parameter	Range
Delay	0.0 s to 2 min

4.1.2 ECU CAN bus off

Alarm parameters

`Communication > Fieldbus > CAN bus > Bus off > CAN-A bus off`

`Communication > Fieldbus > CAN bus > Bus off > CAN-B bus off`

4.2 Engine

4.2.1 ECU Red stop lamp alarm

Always enabled and latched.

`Engine > ECU > Diagnostic alarms > ECU Red stop lamp`

`Engine > ECU > Diagnostic alarms > ECU Red stop lamp (ECU2) *`

NOTE   * Only shown if supported by selected protocol.

For Caterpillar with C7.1AT, this supports ECU3 alarms.

4.2.2 ECU Amber warning lamp alarm

Always enabled.

`Engine > ECU > Diagnostic alarms > ECU Amber warning lamp`

`Engine > ECU > Diagnostic alarms > ECU Amber warning lamp (ECU2) *`

NOTE   * Only shown if supported by selected protocol.

For Caterpillar with C7.1AT, this supports ECU3 alarms.

4.2.3 ECU Protect lamp alarm

Always enabled and latched.

`Engine > ECU > Diagnostic alarms > ECU Protect lamp`

`Engine > ECU > Diagnostic alarms > ECU Protect lamp (ECU2) *`

NOTE   * Only shown if supported by selected protocol.

For Caterpillar with C7.1AT, this supports ECU3 alarms.

4.2.4 ECU Malfunction indicator lamp alarm

Always enabled

Engine > ECU > Diagnostic alarms > ECU Malfunction indicator lamp

Engine > ECU > Diagnostic alarms > ECU Malfunction indicator lamp (ECU2) *

NOTE   * Only shown if supported by selected protocol.

For Caterpillar with C7.1AT, this supports ECU3 alarms.

5. Generic J1939

5.1 Generic J1939

ECU(s)	Engine(s)	Engine interface protocol
J1939		Generic J1939

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1, GC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

5.2 J1939 measurements

These are the J1939 measurements that the controller supports. Not all measurements are supported by all engines (see the specific engine description).

By default, the engine is expected to use source address **0** (the most commonly used setting on ECUs). If a different source address is required, you can configure it on the Fieldbus configuration page and assign a different source address. The range is 0 to 255.

PGN: Parameter group number

SPN: Suspect parameter number

P: J1939 priority

S: Object's start bit in the CAN telegram

L: Object's length. By default, the value is in bits.

Unit: Unit in display (bar/°C can be changed to psi/°F)

Measurements can be viewed in PICUS on the **I/O status** page by selecting the configured ECU.

Measurements can be read from the Modbus tables.

You can also configure an Analogue Output function to read the measurement:

Engine > ECU > Air ambient

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Atmospheric pressure	65269	0	8	6	108	kPa	0.5 kPa/bit	0.0 kPa
Ambient air temperature	65269	24	16	6	171	°C	0.03125 °C/bit	-273.0 °C

Engine > ECU > Coolant

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Engine coolant temperature	65262	0	8	6	110	°C	1.0 °C/bit	-40.0 °C
Coolant level	65263	56	8	6	111	%	0.4 %/bit	0.0 %
Coolant pressure	65263	48	8	6	109	kPa	2.0 kPa/bit	0.0 kPa
Coolant filter differential pressure	65270	56	8	6	112	kPa	0.5 kPa/bit	0.0 kPa
Engine coolant temperature 2	64870	0	8	6	4076	°C	1.0 °C/bit	-40.0 °C
Engine coolant temperature 3	64870	56	8	6	6209	°C	1.0 °C/bit	-40.0 °C
Engine coolant pump outlet temperature	64870	8	8	6	4193	°C	1.0 °C/bit	-40.0 °C
Engine auxiliary coolant temperature	65172	8	8	6	1212	°C	1.0 °C/bit	-40.0 °C
Engine auxiliary coolant pressure	65172	0	8	6	1203	kPa	4.0 kPa/bit	0.0 kPa

Engine > ECU > DPF

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Diesel particulate filter lamp command	64892	0	3	6	3697		1.0 /bit	0.0
Diesel particulate filter active regeneration status	64892	10	2	6	3700		1.0 /bit	0.0
Diesel particulate filter regeneration status	64892	12	3	6	3701		1.0 /bit	0.0
Diesel particulate filter active regeneration inhibited	64892	18	2	6	3703		1.0 /bit	0.0
Aftertreatment 1 diesel exhaust fluid tank level	65110	0	8	6	1761	%	0.4 %/bit	0.0 %
Aftertreatment 1 diesel exhaust fluid tank temperature	65110	8	8	6	3031	°C	1.0 °C/bit	-40.0 °C

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Aftertreatment 1 intake NOx	61454	0	16	6	3216	ppm	0.05 ppm/bit	-200.0 ppm
Aftertreatment 1 outlet NOx	61455	0	16	6	3226	ppm	0.05 ppm/bit	-200.0 ppm
Aftertreatment 1 DEF actual dosing quantity	61475	0	16	3	4331	g/h	0.3 g/h/bit	0.0 g/h
Aftertreatment 1 DEF doser absolute pressure	61475	40	8	3	4334	kPa	8.0 kPa/bit	0.0 kPa
Aftertreatment 1 SCR dosing air assist valve	64833	8	8	6	4336	%	0.4 %/bit	0.0 %
Aftertreatment 1 DEF dosing requested quantity	61476	0	16	3	4348	g/h	0.3 g/h/bit	0.0 g/h
Aftertreatment 1 SCR catalyst intake gas temperature	64830	0	16	5	4360	°C	0.03125 °C/bit	-273.0 °C
Aftertreatment 1 SCR catalyst outlet gas temperature	64830	24	16	5	4363	°C	0.03125 °C/bit	-273.0 °C
Aftertreatment 2 intake NOx	61456	0	16	6	3255	ppm	0.05 ppm/bit	-200.0 ppm
Aftertreatment 2 outlet NOx	61457	0	16	6	3265	ppm	0.05 ppm/bit	-200.0 ppm
Aftertreatment 2 DEF actual dosing quantity	61478	0	16	3	4384	g/h	0.3 g/h/bit	0.0 g/h
Aftertreatment 2 DEF dosing absolute pressure	61478	40	8	3	4387	kPa	8.0 kPa/bit	0.0 kPa
Aftertreatment 2 SCR dosing air assist valve	64827	8	8	6	4389	%	0.4 %/bit	0.0 %
Aftertreatment 2 DEF dosing requested quantity	61479	0	16	3	4401	g/h	0.3 g/h/bit	0.0 g/h
Aftertreatment 2 SCR catalyst intake gas temperature	64824	0	16	6	4413	°C	0.03125 °C/bit	-273.0 °C
Aftertreatment 2 SCR catalyst outlet gas temperature	64824	24	16	6	4415	°C	0.03125 °C/bit	-273.0 °C
Aftertreatment SCR operator inducement active	65110	37	3	6	5245		1.0 /bit	0.0
Aftertreatment SCR operator inducement severity	65110	45	3	6	5246		1.0 /bit	0.0
Aftertreatment 1 DPF outlet gas temperature	64947	16	16	6	3246	°C	0.03125 °C/bit	-273.0 °C
Aftertreatment 1 DPF time to next active regeneration	64697	0	32	6	5978	h	0.0002777777777 7778 h/bit	0.0 h
Diesel particulate filter 1 soot load percent	64891	0	8	6	3719	%	1.0 %/bit	0.0 %
Aftertreatment 1 DEF average consumption	64878	0	16	6	3826	L/h	0.05 L/h/bit	0.0 L/h
Aftertreatment 1 intake percent oxygen 1	61454	16	16	6	3217	%	0.000514 %/bit	-12.0 %
Aftertreatment 1 outlet percent oxygen 1	61455	16	16	6	3227	%	0.000514 %/bit	-12.0 %

Engine > ECU > Engine counters

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Engine Hours	65253	0	32	6	247	h	0.05 h/bit	0.0 h
Trip engine running time	65200	64	32	7	1036	h	0.05 h/bit	0.0 h
Trip idle time	65200	16	32	7	1037	h	0.05 h/bit	0.0 h

Engine > ECU > Engine load

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Drivers demand engine percent torque	61444	8	8	3	512	%	1.0 %/bit	-125.0 %
Actual engine - percent torque	61444	16	8	3	513	%	1.0 %/bit	-125.0 %
Percent load at current speed	61443	16	8	3	92	%	1.0 %/bit	0.0 %
Nominal power	65214	0	16	7	166	kW	0.5 kW/bit	0.0 kW
Nominal friction - percent torque	65247	0	8	6	514	%	1.0 %/bit	-125.0 %
Engine demand - percent torque	61444	56	8	3	2432	%	1.0 %/bit	-125.0 %

Engine > ECU > Exhaust gas

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Exhaust gas temperature	65270	40	16	6	173	°C	0.03125 °C/bit	-273.0 °C
Particulate trap inlet pressure	65270	0	8	6	81	kPa	0.5 kPa/bit	0.0 kPa
Exhaust temperature right	65031	0	16	6	2433	°C	0.03125 °C/bit	-273.0 °C
Exhaust temperature left	65031	16	16	6	2434	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 01	65187	0	16	7	1137	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 02	65187	16	16	7	1138	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 03	65187	32	16	7	1139	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 04	65187	48	16	7	1140	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 05	65186	0	16	7	1141	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 06	65186	16	16	7	1142	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 07	65186	32	16	7	1143	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 08	65186	48	16	7	1144	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 09	65185	0	16	7	1145	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 10	65185	16	16	7	1146	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 11	65185	32	16	7	1147	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 12	65185	48	16	7	1148	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 13	65184	0	16	6	1149	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 14	65184	16	16	6	1150	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 15	65184	32	16	6	1151	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 16	65184	48	16	6	1152	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 17	65183	0	16	7	1153	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 18	65183	16	16	7	1154	°C	0.03125 °C/bit	-273.0 °C
Exhaust port temperature 19	65183	32	16	7	1155	°C	0.03125 °C/bit	-273.0 °C

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Exhaust port temperature 20	65183	48	16	7	1156	°C	0.03125 °C/bit	-273.0 °C
Engine exhaust gas oxygen sensor closed loop operation	64841	32	4	6	4240		1.0 /bit	0.0

Engine > ECU > Fuel

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Fuel temperature	65262	8	8	6	174	°C	1.0 °C/bit	-40.0 °C
Fuel rate	65266	0	16	6	183	L/h	0.05 L/h/bit	0.0 L/h
Fuel delivery pressure	65263	0	8	6	94	kPa	4.0 kPa/bit	0.0 kPa
Water in fuel indicator	65279	0	2	6	97		1.0 /bit	0.0
Engine trip fuel	65257	0	32	6	182	L	0.5 L/bit	0.0 L
Engine total fuel used	65257	32	32	6	250	L	0.5 L/bit	0.0 L
Trip fuel gaseous	65199	0	32	7	1039	kg	0.5 kg/bit	0.0 kg
Total fuel used gaseous	65199	32	32	7	1040	kg	0.5 kg/bit	0.0 kg
Mean trip fuel consumption	65203	32	16	7	1029	L/h	0.05 L/h/bit	0.0 L/h
Fuel supply pump inlet pressure	65130	8	8	6	1381	kPa	2.0 kPa/bit	0.0 kPa
Fuel filter (suction side) differential pressure	65130	16	8	6	1382	kPa	2.0 kPa/bit	0.0 kPa
Engine fuel filter differential pressure	65276	16	8	6	95	kPa	2.0 kPa/bit	0.0 kPa
Engine filtered fuel delivery pressure	64735	8	8	6	5579	kPa	4.0 kPa/bit	0.0 kPa

Engine > ECU > Information

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Number of actual faults	65230	0	8	6	1218		1.0 /bit	0.0
Battery potential voltage switched	65271	48	16	6	158	V DC	0.05 V DC/bit	0.0 V DC
Crankcase pressure	65263	32	16	6	101	kPa	0.0078125 kPa/bit	-250.0 kPa
Exhaust system high temperature lamp command	64892	50	3	6	3698		1.0 /bit	0.0
Engine ECU temperature	65188	16	16	6	1136	°C	0.03125 °C/bit	-273.0 °C
Ambient conditions 2 specific humidity	64992	16	16	6	4490	g/kg	0.01 g/kg/bit	0.0 g/kg
Engines desired operating speed	65247	8	16	6	515	RPM	0.125 RPM/bit	0.0 RPM
Engine operating state	64914	0	4	3	3543		1.0 /bit	0.0
Source address of controlling device	61444	40	8	3	1483		1.0 /bit	0.0
ECU identification information	64965	-8	1600	6	2902		1.0 /bit	0.0
Engine operating derate request	64914	56	8	3	3644	%	0.4 %/bit	0.0 %
SW identification	65242	8	1600	6	234		1.0 /bit	0.0
Engine throttle actuator 1 control command	61466	0	16	4	3464	%	0.0025 %/bit	0.0 %
Long-term fuel trim	64841	0	16	6	4237	%	0.1 %/bit	-100.0 %
Short-term fuel trim	64841	16	16	6	4236	%	0.1 %/bit	-100.0 %
Engine desired ignition timing no 1	65159	0	16	7	1433	°	0.0078125 °/bit	-200.0 °

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Engine actual ignition timing	65159	48	16	7	1436	°	0.0078125 °/bit	-200.0 °
Engine amber warning lamp command	64775	2	2	6	5078		1.0 /bit	0.0
Engine red stop lamp command	64775	4	2	6	5079		1.0 /bit	0.0

Engine > ECU > Intake

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Boost pressure	65270	8	8	6	102	kPa	2.0 kPa/bit	0.0 kPa
Air inlet temperature	65269	40	8	6	172	°C	1.0 °C/bit	-40.0 °C
Engine intake manifold 1 temperature	65270	16	8	6	105	°C	1.0 °C/bit	-40.0 °C
Air inlet pressure	65270	24	8	6	106	kPa	2.0 kPa/bit	0.0 kPa
Air filter differential pressure	65270	32	8	6	107	kPa	0.05 kPa/bit	0.0 kPa
Engine intercooler temperature	65262	48	8	6	52	°C	1.0 °C/bit	-40.0 °C
Engine intake manifold 1 absolute pressure	64976	32	8	6	3563	kPa	2.0 kPa/bit	0.0 kPa
Air filter differential pressure 2	64976	0	8	6	2809	kPa	0.05 kPa/bit	0.0 kPa
Engine intake manifold 2 temperature	65189	0	8	7	1131	°C	1.0 °C/bit	-40.0 °C
Engine charge air cooler 1 outlet temperature	65129	48	16	6	2630	°C	0.03125 °C/bit	-273.0 °C

Engine > ECU > Lube oil

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Engine oil pressure	65263	24	8	6	100	kPa	4.0 kPa/bit	0.0 kPa
Engine oil temperature	65262	16	16	6	175	°C	0.03125 °C/bit	-273.0 °C
Engine oil filter differential pressure	65276	24	8	6	99	kPa	0.5 kPa/bit	0.0 kPa
Engine oil level	65263	16	8	6	98	%	0.4 %/bit	0.0 %
Engine oil-filter outlet pressure	65130	32	8	6	3549	kPa	4.0 kPa/bit	0.0 kPa

Engine > ECU > Speed

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Engine speed	61444	24	16	3	190	RPM	0.125 RPM/bit	0.0 RPM
Accelerator pedal position	61443	8	8	3	91	%	0.4 %/bit	0.0 %
Engine rated speed	65214	16	16	7	189	RPM	0.125 RPM/bit	0.0 RPM
Engine speed at idle point 1	65251	0	16	6	188	RPM	0.125 RPM/bit	0.0 RPM

Engine > ECU > Turbo charger

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Turbo oil temperature	65262	32	16	6	176	°C	0.03125 °C/bit	-273.0 °C
Engine turbocharger 1 turbine intake temperature	65176	0	16	6	1180	°C	0.03125 °C/bit	-273.0 °C
Engine turbocharger 2 turbine intake temperature	65176	16	16	6	1181	°C	0.03125 °C/bit	-273.0 °C
Engine turbocharger 1 speed	65245	8	16	6	103	RPM	4.0 RPM/bit	0.0 RPM

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
Engine turbocharger 2 speed	65179	8	16	7	1169	RPM	4.0 RPM/bit	0.0 RPM
Engine turbocharger 3 speed	65179	24	16	7	1170	RPM	4.0 RPM/bit	0.0 RPM

5.3   Write commands

You can only write commands if the CAN controls parameter is enabled: *

`Engine > ECU > Controls > CAN controls`

NOTE   * When an ECU is configured with the Fieldbus configuration, this parameter is enabled by default.

J1939 write commands

Command	Description
Speed control	To enable speed regulation, configure: `Regulators > GOV general configuration > Regulator output` to `Analogue / ECU` By default, the governor offset is 50 % of the nominal speed. At 0 % it is -120 RPM, and at 100 % it is +120 RPM. The CAN bus ID for speed control is 0xC000003. J1939 TSC1 (transmission rate is 40 ms). You can use CustomLogic or the control parameter Speed control (TSC1 / Custom) to disable speed control.
Idle speed	The controller can use speed control to regulate the ECU to run at idle speed (700 RPM). **More information** See **Idle run** in the **Designer's handbook** for how this is configured.
Start/Stop	This is the standard J1939 command to start the engine if it is stopped, and stops the engine if it is running. The controller determines whether to start or stop the engine. The decision is based on the controller's inputs, logic and calculations.
EIC start/stop enable	This is a more advanced function than the standard J1939 Start/Stop commands. You can use the digital input functions for Engine start or Engine stop. The controller determines whether to start or stop the engine. The decision is based on the controller's inputs, logic and calculations.
Frequency selection (50 or 60 Hz)	The controller automatically writes the nominal frequency (50 or 60 Hz) to the ECU. In general, the controller uses the frequency to calculate the speed offset in TSC1.
Shutdown override	This command can be used in order to prevent shutdown actions from the ECU. The function is activated by the standard function *Shutdown override* (digital input on the controller).

5.4   Modbus analogue values

All the engine readings can be read in Modbus tables, use the *Input register* (function code 04) under **CAN bus measurements**.

More information
See the **Modbus tables** available on www.deif.com.

6. J1939 ECUs and engines

6.1 Baudouin (博杜安)

6.1.1 Baudouin parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.1.2　Baudouin Gas

ECU(s)	Engine(s)	Engine interface protocol
WOODWARD PG+	Gas	Baudouin Gas

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	-	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	-
Engine hours	-	Battery potential (voltage)	-

NOTE　* External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.1.3 Baudouin Wise 10B

ECU(s)	Engine(s)	Engine interface protocol
Wise10B		Baudouin Wise10B

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	-	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	-
Engine hours	-	Battery potential (voltage)	-

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.1.4 Baudouin Wise 15

ECU(s)	Engine(s)	Engine interface protocol
ECU WISE 15	-	Baudouin Wise15

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s):

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.1.5   Baudouin 6M33

ECU(s)	Engine(s)	Engine interface protocol
6M33		Baudouin 6M33

EIC control		
Start -	Stop -	Speed control -
Default speed control address -	Idle mode -	50/60 Hz frequency selection -
Shutdown override -	J1939 message: -	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect -	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	-	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	-
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	-	Battery voltage	●
Engine hours	-	Battery potential (voltage)	-

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.1.6 Write commands

Baudouin write command

Command	Description
Speed control	This is the same as the J1939 command.

6.2   Caterpillar (卡特彼勒)

6.2.1   Caterpillar parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.2.2 Caterpillar generic

ECU(s)	Engine(s)	Engine interface protocol
ADEM 3	C4.4, C6.6, C9, C15, C18, C32, 3500, 3600	Caterpillar generic

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 0	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): Heartbeat

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

General

DM1se: The secondary DM1 logs shows alarms from the EMCP 3.x genset controller.

Other: The controller sends a "heartbeat" telegram (broadcast PGN 61688 globally (255)) every second. This prevents a communication warning from the ECU.

6.2.3 Caterpillar A4

ECU(s)	Engine(s)	Engine interface protocol
A4	C4.4, C6.6, C9, C15, C18, C32, 3500, 3600	Caterpillar A4

EIC control		
Start	Stop	Speed control
●	●	●
Default speed control address	Idle mode	50/60 Hz frequency selection
0	●	●
Shutdown override	J1939 message:	Proprietary message(s):
-	TSC1	Heartbeat

Diagnostic messages				
DM1 Yellow lamp	DM1 Red lamp	DM1 Protect	DM1 Malfunction	DM2
●	●	●	●	-

Emissions		
Tier 4/Stage V	Force regeneration	Inhibit regeneration
-	-	-

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

General

DM1se: The secondary DM1 logs shows alarms from the EMCP 3.x genset controller.

Other: The controller sends a "heartbeat" telegram (broadcast PGN 61688 globally (255)) every second. This prevents a communication warning from the ECU.

6.2.4 Caterpillar ADEM 3

ECU(s)	Engine(s)	Engine interface protocol
ADEM 3	C4.4, C6.6, C9, C15, C18, C32, 3500, 3600	Caterpillar ADEM 3

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 0	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): Heartbeat

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

General

DM1se: The secondary DM1 logs shows alarms from the EMCP 3.x genset controller.

Other: The controller sends a "heartbeat" telegram (broadcast PGN 61688 globally (255)) every second. This prevents a communication warning from the ECU.

6.2.5 Caterpillar ADEM 4

ECU(s)	Engine(s)	Engine interface protocol
ADEM 4	C4.4, C6.6, C9, C15, C18, C32, 3500, 3600	Caterpillar ADEM 4

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 0	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): Heartbeat

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

General

DM1se: The secondary DM1 logs shows alarms from the EMCP 3.x genset controller.

Other: The controller sends a "heartbeat" telegram (broadcast PGN 61688 globally (255)) every second. This prevents a communication warning from the ECU.

6.2.6 Caterpillar with C7.1 AT

ECU(s)	Engine(s)	Engine interface protocol
ADEM 3, ADEM4	C4.4, C6.6, C9, C15, C18, C32, 3500, 3600	Caterpillar C7.1 AT

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 0	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): Heartbeat

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

General

Read and write: Read and write for C7.1 AT system.

DM1se: The secondary DM1 logs shows alarms from the EMCP 3.x genset controller.

DM1 third: Faults from AT system.

Other: The controller sends a "heartbeat" telegram (broadcast PGN 61688 globally (255)) every second. This prevents a communication warning from the ECU.

6.2.7 Write commands

Caterpillar write commands

Command	Description
Speed control	In general, this is the same as the J1939 command. **J1939 TSC1** transmission rate is 20 ms.
Idle speed	See the J1939 command.
Start/Stop	See the J1939 command.
EIC start/stop enable	See the J1939 command.

6.2.8 J1939 measurements

More information
See J1939 Modbus analogue values for Modbus scaling.

PGN: Parameter group number

P: J1939 priority

S: Object's start byte in CAN telegram

L: Object's length (bytes)

Unit: Unit in display (bar/°C can be changed to psi/°F)

Caterpillar/Perkins measurements

Object	PGN	P	S	L	SPN	Unit	J1939-71 scaling	Offset
EIC Coolant Temp 2[1]	64870	6	1	1	4076	°C/°F	1 °C/bit	-40 °C
EIC Coolant Temp 3[1]	64870	6	8	1	6209	°C/°F	1 °C/bit	-40 °C
EIC Coolant Pump Outlet Temp[1]	64870	6	2	1	4193	°C/°F	1 °C/bit	-40 °C
EIC Filtered Fuel Delivery Pressure[1]	64735	6	2	1	5579	kPa	4 kPa/bit	0
EIC Auxiliary Coolant Temp[1]	65172	6	2	1	1212	kPa	4 kPa/bit	0
EIC Turbo 1 Intake Temp[1]	65176	6	1	2	1180	°C/°F	0.03125 °C/bit	-273 °C
EIC Turbo 2 Intake Temp[1]	65176	6	3	2	1181	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P1 Temp[2]	65187	7	1	2	1137	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P2 Temp[2]	65187	7	3	2	1138	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P3 Temp[2]	65187	7	5	2	1139	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P4 Temp[2]	65187	7	7	2	1140	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P5 Temp[2]	65186	7	1	2	1141	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P6 Temp[2]	65186	7	3	2	1142	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P7 Temp[2]	65186	7	5	2	1143	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P8 Temp[2]	65186	7	7	2	1144	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P9 Temp[2]	65185	7	1	2	1145	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P10 Temp[2]	65185	7	3	2	1146	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P11 Temp[2]	65185	7	5	2	1147	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P12 Temp[2]	65185	7	7	2	1148	°C/°F	0.03125 °C/bit	-273 °C

Object	PGN	P	S	L	SPN	Unit	J1939-71 scaling	Offset
EIC Exhaust Gas P13 Temp[2]	65184	7	1	2	1149	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P14 Temp[2]	65184	7	3	2	1150	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P15 Temp[2]	65184	7	5	2	1151	°C/°F	0.03125 °C/bit	-273 °C
EIC Exhaust Gas P16 Temp[2]	65184	7	7	2	1152	°C/°F	0.03125 °C/bit	-273 °C

NOTE   1: Fixed to source address 0.
NOTE   2: Fixed to source address 241.

6.2.9   Modbus analogue values

Measurement table (read only) function code 04h

Address	Content	Unit	Scaling
6052	Exhaust port temperature 01	°C	1
6053	Exhaust port temperature 02	°C	1
6054	Exhaust port temperature 03	°C	1
6055	Exhaust port temperature 04	°C	1
6056	Exhaust port temperature 05	°C	1
6057	Exhaust port temperature 06	°C	1
6058	Exhaust port temperature 07	°C	1
6059	Exhaust port temperature 08	°C	1
6060	Exhaust port temperature 09	°C	1
6061	Exhaust port temperature 10	°C	1
6062	Exhaust port temperature 11	°C	1
6063	Exhaust port temperature 12	°C	1
6064	Exhaust port temperature 13	°C	1
6065	Exhaust port temperature 14	°C	1
6066	Exhaust port temperature 15	°C	1
6067	Exhaust port temperature 16	°C	1
6068	Exhaust port temperature 17	°C	1
6069	Exhaust port temperature 18	°C	1
6070	Exhaust port temperature 19	°C	1
6071	Exhaust port temperature 20	°C	1
6072	Engine filtered fuel delivery pressure	kPa	1/1000
6073	Engine coolant temperature 2	°C	1
6074	Engine coolant temperature 3	°C	1
6075	Engine coolant pump outlet temperature	°C	1
6076	Engine auxiliary coolant temperature	°C	1
6077	Engine turbocharger 1 turbine intake temperature	°C	1
6078	Engine turbocharger 2 turbine intake temperature	°C	1

6.3   Cummins (康明斯)

6.3.1   Cummins parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller. *
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

NOTE   * Only available for Cummins Industrial.

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

Shutdown override

Engine > Manufacture specific > Shutdown override

Range	Default	Comments
Not enabled, Enabled	Not enabled	

Cummins gain

Engine > ECU > Manufacture specific > Cummins gain

Range	Default	Comments
0 to 10	5	

6.3.2 Cummins generic

ECU(s)	Engine(s)	Engine interface protocol
CM 500, CM 558, CM 570, CM 850, CM 2150 and CM 2250	QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60	Cummins generic

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 220	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message:	Proprietary message(s): Governor gain, droop

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.3.3 Cummins Industrial

ECU(s)	Engine(s)	Engine interface protocol
		Cummins Industrial

EIC control

Start	Stop	Speed control
-	-	●
Default speed control address 33	**Idle mode** ●	**50/60 Hz frequency selection** ●
Shutdown override ●	**J1939 message:** TSC1, CM1, EBC1, CCVS1	**Proprietary message(s):** -

Diagnostic messages

DM1 Yellow lamp	DM1 Red lamp	DM1 Protect	DM1 Malfunction	DM2
●	●	●	●	●

Emissions

Tier 4/Stage V	Force regeneration	Inhibit regeneration
●	●	●

Analogue readings*

Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	-
Coolant pressure	-	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	-	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.3.4   Cummins CM 500

ECU(s)	Engine(s)	Engine interface protocol
CM 500	QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60	Cummins CM 500

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 220	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message:	Proprietary message(s): Governor gain, droop

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	-
Engine hours	-	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.3.5 Cummins CM 558

ECU(s)	Engine(s)	Engine interface protocol
CM 558	QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60	Cummins CM 558

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 220	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message:	Proprietary message(s): Governor gain, droop

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	-
Coolant pressure	-	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	-
Turbo pressure	-	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	-
Engine hours	-	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.3.6 Cummins CM 570

ECU(s)	Engine(s)	Engine interface protocol
CM 570	QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60	Cummins CM 570

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 220	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message:	Proprietary message(s): Governor gain, droop

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	-
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	-
Engine hours	-	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.3.7 Cummins CM 570 Industrial

ECU(s)	Engine(s)	Engine interface protocol
CM 570 Industrial		Cummins CM570 Industrial

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 33	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1, CM1, EBC1, CCVS1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	-
Coolant pressure	-	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	-	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.3.8 Cummins CM 850

ECU(s)	Engine(s)	Engine interface protocol
CM 850	QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60	Cummins CM 850

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 220	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message:	Proprietary message(s): Governor gain, droop

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.3.9 Cummins CM 2150

ECU(s)	Engine(s)	Engine interface protocol
CM 2150	QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60	Cummins CM 2150

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 220	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message:	Proprietary message(s): Governor gain, droop

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.3.10 Cummins CM 2250

ECU(s)	Engine(s)	Engine interface protocol
CM 2250	QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60	Cummins CM 2250

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 220	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message:	Proprietary message(s): Governor gain, droop

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	-
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	-
Engine hours	-	Battery potential (voltage)	-

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.3.11 Cummins CM 2350 Industrial

ECU(s)	Engine(s)	Engine interface protocol
CM 2350 Industrial		Cummins CM2350 Industrial

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 33	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1, CM1, EBC1, CCVS1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	-
Coolant pressure	-	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	-	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.3.12 Cummins CM 2880 Industrial

ECU(s)	Engine(s)	Engine interface protocol
CM 2880 Industrial		Cummins CM2880 Industrial

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 33	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1, CM1, EBC1, CCVS1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	-
Coolant pressure	-	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	-	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.3.13 Write commands

Cummins write commands

Command	Description
Speed control	In general, this is the same as the J1939 command. However, the CAN bus ID for speed control (engine with PCC controller): 0x**0FF69DC**.
Idle speed	See the J1939 command.
Frequency selection (50 or 60 Hz)	In general, see the J1939 command.
Governor gain	You can set the ECU governor gain with parameter `Engine > ECU > Manufacturer specific > Parameters > Cummins gain`. The default value is 5. The controller sends this value to the ECU.
Droop	Use parameter `Engine > ECU > Controls > Droop`.
Shutdown override	See the J1939 command.

6.3.14 Cummins After Treatment

If Cummins After Treatment equipment is installed in the exhaust line and the system is connected to the ECU, then the controller can receive the treatment system data. In addition, some regeneration can be controlled.

The table shows lamps and status indicators from the after treatment. This information is available in CustomLogic or Modbus.

Status indicator state	Source
OFF	Particulate filter lamp
OFF	High exhaust system temp.
ON solid	Particulate filter lamp
ON solid	High exhaust system temp.
ON fast blink	Particulate filter lamp
Inhibited	Regeneration disabled
Not inhibited	Regeneration disabled
Not Active	Diesel particulate filter regeneration status
Active	Diesel particulate filter regeneration status
Regeneration needed	Diesel particulate filter regeneration status
Regeneration not needed	Diesel particulate filter status
Regeneration lowest level	Diesel particulate filter status
Regeneration moderate level	Diesel particulate filter status
Regeneration highest level	Diesel particulate filter status

6.4 Detroit Diesel (底特律柴油机)

6.4.1 Detroit Diesel parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.4.2 Detroit Diesel DDEC generic

ECU(s)	Engine(s)	Engine interface protocol
	Series 50, 60, and 2000	Detroit Diesel DDEC generic

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.4.3 Detroit Diesel DDEC 3

ECU(s)	Engine(s)	Engine interface protocol
DDEC 3	Series 50, 60, and 2000	Detroit Diesel DDEC 3

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.4.4 Detroit Diesel DDEC 4

ECU(s)	Engine(s)	Engine interface protocol
DDEC 4	Series 50, 60, and 2000	Detroit Diesel DDEC 4

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.4.5 Write commands

Detroit Diesel DDEC write commands

Command	Description
Speed control	See the J1939 command.
Idle speed	See the J1939 command.

6.5 Deutz (道依茨)

6.5.1 Deutz parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
`Enabled`	Not enabled, Enabled	Enabled	
`Source address`	0 to 255	ECU default	The iE controller address used for speed control.
`Destination address`	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
`Use nominal RPM as reference`	Not enabled, Enabled	Not enabled	

Generator control (CG1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
`Enabled`	Not enabled, Enabled	Enabled	
`Source address`	0 to 255	ECU default	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
`Source address`	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
`Droop settings`	None, Engine Control Unit (ECU)	None	
`Droop value`	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
`Aftertreatment regeneration inhibit switch`	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active.

Parameter	Range	Default	Comments
			Not enabled: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

Communication > Fieldbus > CAN bus > ECU > ECU Powerup time

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.5.2 Deutz EMR generic

ECU(s)	Engine(s)	Engine interface protocol
		Deutz EMR generic

EIC control		
Start -	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): Engine Stop Request

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.5.3 Deutz EMR 2

ECU(s)	Engine(s)	Engine interface protocol
EMR 2		Deutz EMR 2

EIC control		
Start -	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): Engine Stop Request

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.5.4 Deutz EMR 3

ECU(s)	Engine(s)	Engine interface protocol
EMR 3		Deutz EMR 3

EIC control		
Start -	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): Engine Stop Request

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.5.5   Deutz EMR 4

ECU(s)	Engine(s)	Engine interface protocol
EMR 4		Deutz EMR 4

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1, GC1	Proprietary message(s): ●

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.5.6 Deutz EMR 5

ECU(s)	Engine(s)	Engine interface protocol
EMR 5		Deutz EMR 5

EIC control		
Start -	Stop ●	Speed control ●
Default speed control address 39	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1	Proprietary message(s): VCM2ECM, BC2EDC2

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.5.7 Write commands

Deutz write commands

Command	Description
Speed control	In general, this is the same as the J1939 command.
Idle speed	See the J1939 command.
Stop request	When the controller wants to stop the engine, it sends this proprietary telegram.

6.6 Doosan (斗山)

6.6.1 Doosan parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

Generator control (CG1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Source address	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active.

Parameter	Range	Default	Comments
			Not enabled: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

Communication > Fieldbus > CAN bus > ECU > ECU Powerup time

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.6.2   Doosan G2 EDC17

ECU(s)	Engine(s)	Engine interface protocol
EDC17		Doosan G2 EDC17

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1, GC1	Proprietary message(s): ●

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.6.3 Doosan MD1

ECU(s)	Engine(s)	Engine interface protocol
MD1		Doosan MD1

EIC control		
Start -	Stop ●	Speed control ●
Default speed control address 39	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1	Proprietary message(s): VCM2ECM, BC2EDC2

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.7 FPT (菲亚特)

6.7.1 FPT parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

Generator control (CG1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Source address	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active.

Parameter	Range	Default	Comments
			Not enabled: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

Communication > Fieldbus > CAN bus > ECU > ECU Powerup time

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.7.2 FPT EDC 17CV41

ECU(s)	Engine(s)	Engine interface protocol
EDC17		FPT EDC17CV41

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1, GC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.7.3   FPT Stage V (FPT Industrial Bosch MD1)

ECU(s)	Engine(s)	Engine interface protocol
Bosch MD1		FPT Stage V

EIC control		
Start -	Stop ●	Speed control ●
Default speed control address 39	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1	Proprietary message(s): VCM2ECM, BC2EDC2

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.8 Isuzu (五十铃)

6.8.1 Isuzu parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.8.2   Isuzu ECM

ECU(s)	Engine(s)	Engine interface protocol
ECM	4JJ1X, 4JJ1T, 6WG1X FT-	Isuzu ECM

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode 1000 RPM	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s):

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration -	Inhibit regeneration Escape mode

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	-	Exhaust temperature	●
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	-	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	-	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.8.3 Write commands

Isuzu write commands

Command	Description
Speed control	In general, this is the same as the J1939 command. By default, the governor offset is 50 % of the nominal speed. At 0 % it is -90 RPM, and at 100 % it is +90 RPM.
Idle speed	In general, this is the same as the J1939 command. However, the idle speed is 1000 RPM.
Start/Stop	See the J1939 command.
EIC start/stop enable	See the J1939 command.

6.8.4 Tier 4 after-treatment support

Tier 4 after-treatment is supported if the ECU is version 2.3 or later.

> **More information**
> See About After-treatment dashboard for how to view this on the display.

6.9 Iveco (依维柯)

6.9.1 Iveco parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Source address	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.9.2 Iveco CURSOR

ECU(s)	Engine(s)	Engine interface protocol
CURSOR		Iveco CURSOR

EIC control

Start	Stop	Speed control
-	-	●
Default speed control address 3	**Idle mode** ●	**50/60 Hz frequency selection** ●
Shutdown override -	**J1939 message:** TSC1	**Proprietary message(s):** -

Diagnostic messages

DM1 Yellow lamp	DM1 Red lamp	DM1 Protect	DM1 Malfunction	DM2
●	●	●	●	●

Emissions

Tier 4/Stage V	Force regeneration	Inhibit regeneration
-	-	-

Analogue readings*

Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	-
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.9.3 Iveco EDC 7 (Bosch MS6.2)

ECU(s)	Engine(s)	Engine interface protocol
EDC 7 (Bosch MS6.2)		Iveco EDC7 (Bosch MS6.2)

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s):

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	-
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.9.4 Iveco Generic

ECU(s)	Engine(s)	Engine interface protocol
EDC7 (Bosch MS6.2), and VECTOR 8		Iveco generic

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	-
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.9.5 Iveco NEF

ECU(s)	Engine(s)	Engine interface protocol
NEF		Iveco NEF

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	-
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.9.6 Iveco Stage V

ECU(s)	Engine(s)	Engine interface protocol
Bosch MD1		Iveco Stage V

EIC control		
Start -	Stop ●	Speed control ●
Default speed control address 39	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1	Proprietary message(s): VCM2ECM, BC2EDC2

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.9.7 Iveco VECTOR 8

ECU(s)	Engine(s)	Engine interface protocol
VECTOR 8		Iveco VECTOR 8

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): Engine control

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	-
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.9.8   J1939 measurements

See the J1939 description for the measurements that the controller supports. Values specific to Iveco are listed below.

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
EIC coolant temp.	65282	5	1	6	110	°C	1 °C/bit	-40 °C
EIC oil temp.	65282	6	1	6	175	°C	0.03125 °C/bit	-273 °C
EIC oil pressure[1]	65282	7	1	6	100	bar	8 kPa/bit	0

NOTE   1: Range: 0 to 2000 kPa.

6.9.9   Write commands

Iveco write commands

Command	Description
Speed control	In general, this is the same as the J1939 command.
Idle speed	See the J1939 command.

Iveco Vector 8 write commands

Command	Description
Frequency control	The controller regulates the frequency by adjusting the governor set point for the ECU.
EIC start/stop enable	See the J1939 command.

6.10 Jichai (济柴)

6.10.1 Jichai parameters

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.10.2 Jichai JC15T JG

ECU(s)	Engine(s)	Engine interface protocol
Jichai JC15T JG		Jichai JC15T JG

EIC control		
Start -	Stop -	Speed control -
Default speed control address -	Idle mode -	50/60 Hz frequency selection -
Shutdown override -	J1939 message: -	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp	DM1 Red lamp	DM1 Protect	DM1 Malfunction	DM2
●	●	●	●	●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	-	Exhaust temperature	-
Oil pressure	-	Fuel pressure	-
Oil temperature	-	Fuel temperature	-
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	-
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	-	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.11 John Deere (约翰迪尔)

6.11.1 John Deere parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Source address	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

Stationary regeneration

`Engine > ECU > Manufacture specific > Controls > Stationary regeneration`

Range	Default	Comments
Not enabled, Enabled	Not enabled	

6.11.2   John Deere

ECU(s)	Engine(s)	Engine interface protocol
JDEC	PowerTech M, E, and Plus	John Deere

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1	Proprietary message(s): Stationary Regeneration

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.11.3   John Deere Stage V

ECU(s)	Engine(s)	Engine interface protocol
FOCUS controls (version 2.1)		John Deere Stage V

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 17	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1	Proprietary message(s): Stationary Regeneration

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.11.4 Write commands

John Deere JDEC write commands

Command	Description
Speed control	See the J1939 command.
Idle speed	See the J1939 command.
Frequency selection (50 or 60 Hz)	See the J1939 command.
Stationary regeneration	The command is activated by the parameter: `Engine > ECU > Manufacture specific > Controls`.

6.11.5 Tier 4 after-treatment support

JDEC includes special handling for regeneration.

Configure parameter:

```
Engine > ECU > Manufacture specific > Controls > Stationary regeneration
```

More information
See About After-treatment dashboard for how to view this on the display.

6.12 Kohler (科勒)

6.12.1 Kohler parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Source address	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.12.2 Kohler KDI3404

ECU(s)	Engine(s)	Engine interface protocol
		Kohler KDI3404

EIC control

Start	Stop	Speed control
●	●	●
Default speed control address 3	**Idle mode** ●	**50/60 Hz frequency selection** ●
Shutdown override -	**J1939 message:** TSC1, CM1, GC1	**Proprietary message(s):** -

Diagnostic messages

DM1 Yellow lamp	DM1 Red lamp	DM1 Protect	DM1 Malfunction	DM2
●	●	●	●	●

Emissions

Tier 4/Stage V	Force regeneration	Inhibit regeneration
●	●	●

Analogue readings*

Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.12.3 Kohler KD62V12

ECU(s)	Engine(s)	Engine interface protocol
ECU2-HD	KD62V12	Kohler KD62V12

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1	Proprietary message(s):

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.12.4 Write commands

To use write commands, make sure to enable the ECU controls:

```
Engine > ECU > Controls > ECU CAN Tx controls enable
```

Kohler write commands

Command	Description
Speed control	See the J1939 command.
EIC start/stop enable	See the J1939 command.

6.13 MAN

6.13.1 MAN parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

Generator control (CG1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Source address	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active.

Parameter	Range	Default	Comments
			Not enabled: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.13.2 MAN Generic

ECU(s)	Engine(s)	Engine interface protocol
EMC 2.0 and 2.5		MAN generic

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message:	Proprietary message(s): KSM

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.13.3 MAN EDC 17

ECU(s)	Engine(s)	Engine interface protocol
EDC 17		MAN EDC17

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1, GC1	Proprietary message(s): ●

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.13.4 MAN EMC Step 2.0

ECU(s)	Engine(s)	Engine interface protocol
EMC 2.0		MAN EMC Step 2.0

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message:	Proprietary message(s): KSM

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.13.5 MAN EMC Step 2.5

ECU(s)	Engine(s)	Engine interface protocol
EMC 2.5		MAN EMC Step 2.5

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message:	Proprietary message(s): KSM

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	-
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.14 MTU

6.14.1 MTU parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

`Engine > ECU > Manufacture specific > Shutdown override`

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Controls

Engine > ECU > Manufacture specific > Engine overspeed test command

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Engine > ECU > Manufacture specific > Claim all cylinders

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Engine > ECU > Manufacture specific > Intermittent oil priming command

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Engine > ECU > Manufacture specific > Engine operating mode command

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Engine > ECU > Manufacture specific > Engine speed gov parameter command

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Engine > ECU > Manufacture specific > Reset trip fuel

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Engine > ECU > Manufacture specific > Alternative droop setting

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Engine > ECU > Manufacture specific > Rapid start enable

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Speed demand switch position

Engine > ECU > Manufacture specific > Speed demand switch position > MTU speed demand state

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Engine > ECU > Manufacture specific > Speed demand switch position > Local normal switch position

Range	Default	Comments
Analogue CAN, Up/Down ECU, Up/Down CAN, Analogue ECU, Analogue ECU relative, Frequency	Analogue CAN	

Engine > ECU > Manufacture specific > Speed demand switch position > Local emergency switch position

Range	Default	Comments
Analogue CAN, Up/Down ECU, Up/Down CAN, Analogue ECU, Analogue ECU relative, Frequency	Analogue CAN	

Engine > ECU > Manufacture specific > Speed demand switch position > Remote normal switch position

Range	Default	Comments
Analogue CAN, Up/Down ECU, Up/Down CAN, Analogue ECU, Analogue ECU relative, Frequency	Analogue CAN	

Engine > ECU > Manufacture specific > Speed demand switch position > Remote emergency switch position

Range	Default	Comments
Analogue CAN, Up/Down ECU, Up/Down CAN, Analogue ECU, Analogue ECU relative, Frequency	Analogue CAN	

6.14.2 MTU J1939 ECU 8

ECU(s)	Engine(s)	Engine interface protocol
ECU 8		MTU J1939 ECU8

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 234	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1, RESET, OHECS	Proprietary message(s): Speed Start/Stop, Droop

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	-	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	-
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	-	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.14.3 MTU J1939 ECU 9

ECU(s)	Engine(s)	Engine interface protocol
ECU 9		MTU J1939 ECU9

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 234	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1, RESET, OHECS	Proprietary message(s): Speed Start/Stop, Droop

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	-	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	-
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	-	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.14.4 MTU J1939 Smart Connect

ECU(s)	Engine(s)	Engine interface protocol
J1939 Smart Connect, ECU8, ECU9	Series 1600	MTU J1939 Smart Connect

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 234	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1, RESET, OHECS	Proprietary message(s): Speed Start/Stop, Droop

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ECU9 or later	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	-	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	-
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	-	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.14.5 Tier 4 after-treatment support

Tier 4 is supported if the MTU ECU is version 9 or later.

> **More information**
> See About After-treatment dashboard for how to view this on the display.

6.14.6 Write commands

MTU J1939 Smart Connect write commands

> **More information**
> See MTU parameters for a complete list of parameter controls.

Command	Description
Speed control	In general, this is the same as the J1939 command.
Idle speed	See the J1939 command.
Start/Stop	This sends the standard J1939 command to start the engine if it is stopped, and stops the engine if it is running. The controller also sends the required proprietary MTU start-stop commands. The controller determines whether to start or stop the engine. The decision is based on the controller's inputs, logic and calculations.
MTU alternate droop setting	Use the parameter `Engine > ECU > Manufacture specific > Alternative droop setting` to activate. The controller commands the ECU to activate droop.
Frequency selection (50 or 60 Hz)	The controller automatically writes the nominal frequency (50 or 60 Hz) to the ECU. The nominal frequency is defined in parameters `Generator > Nominal settings > Nominal settings #` *. The controller writes 50 Hz if the nominal frequency is less than 55 Hz, and 60 Hz if the nominal frequency is more than 55 Hz. Specifically, the controller sends PGN GC1 0xFD93. On byte 4, the controller writes 000 for 50 Hz, and 001 for 60 Hz.

Demand switch	Use the parameters under `Engine > ECU > Manufacture specific > Speed demand switch position` to select the speed control type for local and remote:
	• Analogue CAN (default)
	    ◦ J1939 commands
	• Up/Down ECU
	• Up/Down CAN
	• Analogue ECU
	• Analogue ECU relative
	    ◦ For analogue VDC control.
	• Frequency
	See the MTU documentation for the ECU8 for more information about switching between normal and emergency operation in local or remote.
	If the MTU ECU cannot detect a valid speed demand signal, it sends *AI Speed deman def.*. This alarm indicates that the MTU ECU may see a CAN speed bias signal, and is setup to 3 - ADEC Analog Relative or that 4 - ADEC Analog relative is used and the signal is out of range (not connected, and so on).
	When this happens, check the settings on the MTU ECU, PR500 (MTU SAM/Diasys reference)
	0 - Default dataset ADEC
	1 - ADEC Increase/Decrease Input
	2 - CAN Increase/Decrease Input

Command	Description
	3 - ADEC Analog Absolute 4 - ADEC Analog Relative 5 - ADEC Frequency Input 6 - CAN Analog 7 - CAN Speed Demand Switch
Reset trip fuel counter	This command resets the trip fuel consumption counter. Use the parameter `Engine > ECU > Manufacture specific > Controls > Reset trip fuel` to activate.
Intermittent oil priming	Engage the pre-lubrication oil pump (if installed). Use the parameter `Engine > ECU > Manufacture specific > Controls > Intermittent oil priming command` to activate.
Shutdown override	See the J1939 command.
Enable Cylinder Cutout	The command can be used to engage all cylinders if the engine is running with one bank only. Use the parameter `Engine > ECU > Manufacture specific > Controls > Claim all cylinders` to activate.
Speed increase	This command increases the speed of the engine by a small amount. The command is activated with CustomLogic or with the digital input `Engine > ECU > Speed increase`
Speed decrease	This command decreases the speed of the engine by a small amount. The command is activated with CustomLogic or with the digital input `Engine > ECU > Speed decrease`
Engine overspeed test	Use the parameter `Engine > ECU > Manufacture specific > Controls > Engine overspeed test command` to activate.
Engine operating mode	Switches the operating mode of the engine. Use the parameter `Engine > ECU > Manufacture specific > Controls > Engine operating mode command` to activate.
Speed gov. param command	Parameter switch for selection between: Default and Variant 1. Use the parameter `Engine > ECU > Manufacture specific > Controls > Engine speed gov parameter command` to select variant 1 parameters. The function is MTU-specific.
Binary speed enable	Not supported.
Fast engine start	Use the parameter `Engine > ECU > Manufacture specific > Controls > Rapid start enable` to activate. The function is MTU-specific.

NOTE   * Where Nominal settings # is 1, 2, 3, or 4.

6.14.7   J1939 measurement

See the J1939 description for the measurements that the controller supports. A value specific to MTU Smart Connect is listed below.

Text	PGN	S	L	P	SPN	Unit	J1939-71 scaling	Offset
EIC faults	65284	1	2	6	1218	–	1/bit	0

6.15 Perkins (帕金斯)

6.15.1 Perkins parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

Generator control (CG1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Source address	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active.

Parameter	Range	Default	Comments
			Not enabled: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

Communication > Fieldbus > CAN bus > ECU > ECU Powerup time

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.15.2 Perkins Generic

ECU(s)	Engine(s)	Engine interface protocol
ADEM3, ADEM4	Series 850, 1100, 1200, 1300, 2300, 2500, and 2800	Perkins generic

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 0	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, ETC1	Proprietary message(s): Heartbeat

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.15.3 Perkins A4

ECU(s)	Engine(s)	Engine interface protocol
ADEM4	-	Perkins A4

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 0	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, ETC1	Proprietary message(s): Heartbeat

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.15.4 Perkins ADEM 3

ECU(s)	Engine(s)	Engine interface protocol
ADEM 3		Perkins ADEM 3

EIC control

Start	Stop	Speed control
-	-	●
Default speed control address 0	**Idle mode** ●	**50/60 Hz frequency selection** ●
Shutdown override -	**J1939 message:** TSC1, ETC1	**Proprietary message(s):** Heartbeat

Diagnostic messages

DM1 Yellow lamp	DM1 Red lamp	DM1 Protect	DM1 Malfunction	DM2
●	●	●	●	●

Emissions

Tier 4/Stage V	Force regeneration	Inhibit regeneration
●	●	●

Analogue readings*

Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.15.5 Perkins ADEM 4

ECU(s)	Engine(s)	Engine interface protocol
ADEM 4	-	Perkins ADEM4

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 0	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, ETC1	Proprietary message(s): Heartbeat

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.15.6 Perkins EDC 17C49

ECU(s)	Engine(s)	Engine interface protocol
EDC 17		Perkins EDC17C49

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1, GC1	Proprietary message(s): ●

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.15.7 Write commands

Perkins write commands

Command	Description
Speed control	In general, this is the same as the J1939 command. J1939 TSC1 transmission rate is 20 ms.
EIC start/stop enable	See the J1939 command.

6.16 PSI/Power Solutions

6.16.1 PSI/Power Solutions parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.16.2 Power Solutions (PSI)

ECU(s)	Engine(s)	Engine interface protocol
	PSI/Power solutions	Power solutions (PSI)

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 234	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, ACS	Proprietary message(s):

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	●
Oil temperature	-	Fuel temperature	-
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.16.3 Write commands

PSI/Power Solutions write commands

Command	Description
Speed control	In general, this is the same as the J1939 command.
Idle speed	See the J1939 command.
Start/Stop	See the J1939 command.
EIC start/stop enable	See the J1939 command.
Shutdown override	See the J1939 command.
Breaker status	The controller sends these SPNs to indicate the measured state of the generator circuit breakers: SPN 3645: Generator circuit breaker status SPN 3546: Utility circuit breaker status Bit state 000 = Open Bit state 001 = Closed Bit state 010 = Locked out Bit state 011-101 = Available for SAE assignment Bit state 110 = Error Bit state 111 = Not available

6.17 Scania (斯堪尼亚)

6.17.1 Scania parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
`Enabled`	Not enabled, Enabled	Enabled	
`Source address`	0 to 255	ECU default	The iE controller address used for speed control.
`Destination address`	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
`Use nominal RPM as reference`	Not enabled, Enabled	Not enabled	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
`Source address`	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
`Droop settings`	None, Engine Control Unit (ECU)	None	
`Droop value`	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
`Aftertreatment regeneration inhibit switch`	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
`Aftertreatment regeneration force switch`	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

`Engine > ECU > Manufacture specific > Shutdown override`

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Parameters

`Engine > ECU > Manufacture specific > Scania speed setting`

Range	Default	Comments
Set with adjustable parameter, 1500 RPM, 1800 RPM, Low idling	Set with adjustable parameter	

Alarms

`Engine > ECU > Manufacture specific > Alarms > Action`

Range	Default	Comments
Warning, Block, PMS-controller stop, Trip generator breaker, Trip generator breaker and stop engine, Trip generator breaker and shutdown engine.	Warning	

6.17.2 Scania EMS

ECU(s)	Engine(s)	Engine interface protocol
EMS		Scania EMS

EIC control

Start	Stop	Speed control
●	●	●
Default speed control address 39	**Idle mode** ●	**50/60 Hz frequency selection** ●
Shutdown override ●	**J1939 message:** TSC1, CM1	**Proprietary message(s):** DLN1

Diagnostic messages

DM1 Yellow lamp	DM1 Red lamp	DM1 Protect	DM1 Malfunction	DM2
●	●	●	●	-

Emissions

Tier 4/Stage V	Force regeneration	Inhibit regeneration
-	-	-

Analogue readings*

Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	-
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.17.3 Scania EMS 2 S6

Scania EMS 2 S6 does not use the J1939 SPN/FMI (Suspect Parameter Number/Failure Mode Indicator) system for alarm handling. Instead the DLN2 system is used. For this reason, the alarm handling is also different.

ECU(s)	Engine(s)	Engine interface protocol
EMS 2 S6 (KWP2000)	Dx9x, Dx12x, Dx16x	Scania EMS2 S6

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 39	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1, CM1	Proprietary message(s): DLN1

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	-
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.17.4 Scania EMS 2 S8

Scania EMS 2 S8 does not use the J1939 SPN/FMI (Suspect Parameter Number/Failure Mode Indicator) system for alarm handling. Instead the DLN2 system is used. For this reason, the alarm handling is also different.

ECU(s)	Engine(s)	Engine interface protocol
Scania EMS 2 S8	DC9, DC13, DC16	Scania EMS2 S8

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 39	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1, CM1	Proprietary message(s): ADC, DLN1, DLN2, DLN7, and DLN8

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	-
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.17.5 Warnings and shutdowns (DLN2 alarms)

For EMS 2 S8, this is a list of warnings and shutdowns that can be shown on the display. Each alarm will be shown as an alarm in the alarm window. The alarms can be acknowledged from the display, but they will be visible until the alarm disappears in the ECU.

Handling of alarms is only active when the engine is running.

Warning/shutdown	DLN2 warning	DLN2 shutdown
EMS warning	●	-
Low oil pressure	●	-
High coolant temp	●	-
Stop limit exceeded	-	●
Charge 61	●	-
EIC yellow lamp	●	-
EIC red lamp	-	●
EIC malfunction	●	-
EIC protection	●	-

NOTE If DLN2 is "-" the alarm is not supported.

6.17.6 Write commands for Scania EMS or Scania EMS 2

The controller can only write commands to the engine if the Scania Coordinator is NOT mounted.

> **More information**
> See Scania parameters for complete list of parameter controls.

Scania write commands

Command	Description
Speed control	In general, this is the same as the J1939 command. However, the CAN bus ID for speed control is 0xCFF8027, and the CAN bus ID for the offset is 0xCFFF727. J1939 TSC1.
Idle speed	See the J1939 command.
Start/Stop	See the J1939 command.
Shutdown override	See the J1939 command.
Droop	Use parameter `Engine > ECU > Controls > Droop`.
Frequency selection	Use the parameter `Engine > ECU > Manufacture specific > Scania speed setting` to select the nominal speed. The options are: • Set with adjustable parameter • 1500RPM • 1800RPM • Low idle If **Set with adjustable parameter** is selected, the controller bases the nominal speed on the nominal frequency.

The controller can send all the above commands to the Scania EMS. The EMS does not necessarily support all of the above commands.

6.17.7 Safe signal for regeneration

For EMS S8, to ensure safety, the following conditions must be met for the controller to send the proprietary telegrams that allow regeneration:

* The genset breaker is open.
* The engine is running.
* The controller is not in AUTO.
* Regeneration is not inhibited.

6.18   Steyr (斯太尔)

6.18.1   Steyr parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

Generator control (CG1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Source address	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active.

Parameter	Range	Default	Comments
			Not enabled: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

Communication > Fieldbus > CAN bus > ECU > ECU Powerup time

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.18.2 Steyr EDC 17

ECU(s)	Engine(s)	Engine interface protocol
EDC 17		Steyr EDC17

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1, GC1	Proprietary message(s): ●

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.19 Volvo Penta (沃尔沃遍达)

6.19.1 Volvo Penta parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Source address	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

Engine > ECU > Manufacture specific > Shutdown override

Range	Default	Comments
Enabled, Not enabled	Not enabled	

Engine > ECU > Manufacture specific > Speed control

Range	Default	Comments
Standard J1939, Volvo proprietary - Primary speed 50 Hz, Volvo proprietary - Primary speed 60 Hz	Standard J1939	

6.19.2 Volvo Penta generic

ECU(s)	Engine(s)	Engine interface protocol
EDC 3, EDC 4	TAD4x, TAD5x, TAD6x, TAD7x	Volvo Penta generic

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1	Proprietary message(s):

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.19.3 Volvo Penta EDC 3

ECU(s)	Engine(s)	Engine interface protocol
EDC 3		Volvo Penta EDC3

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1	Proprietary message(s):

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.19.4 Volvo Penta EDC 4

ECU(s)	Engine(s)	Engine interface protocol
EDC 4		Volvo Penta EDC4

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1	Proprietary message(s):

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.19.5 Volvo Penta EMS

ECU(s)	Engine(s)	Engine interface protocol
EMS	D6, D7, D9, D12, D16 (GE and AUX variants only)	Volvo Penta EMS

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1	Proprietary message(s): VP70

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V -	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	-
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.19.6 Volvo Penta EMS 2.3

ECU(s)	Engine(s)	Engine interface protocol
EMS, EMS 2.0 to EMS 2.3	D6, D7, D9, D12, D16 (GE and AUX variants only)	Volvo Penta EMS 2.3

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1	Proprietary message(s): VP70

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V ECU v 2.3 or later	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	-
Coolant pressure	●	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.19.7 Volvo Penta EMS 2.4

ECU(s)	Engine(s)	Engine interface protocol
EMS 2.4		Volvo Penta EMS 2.4

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override ●	J1939 message: TSC1, CM1	Proprietary message(s): VP70

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 -

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	-
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.19.8 Volvo Penta speed control

Use parameter `Engine > ECU > Manufacture specific > Parameters > Speed control` to configure how the speed control is configured. The default is `Standard J1939` (TSC1 (standard J1939) is used).

For a Volvo Penta ECU, select either `Volvo proprietary - Primary speed 50 Hz` or `Volvo proprietary - Primary speed 60 Hz`, depending on the primary speed of the Volvo engine. The primary speed is the speed configured for the engine at the factory. If either option is used, the controller disables standard J1939 speed control and uses the Volvo proprietary VP70 instead.

To change the frequency when parameter is set to `Volvo proprietary - Primary speed 50 Hz` or `Volvo proprietary - Primary speed 60 Hz`:

1. Power down the Volvo ECU/EMS.
2. Change the selection in the controller.
3. Power up the Volvo ECU/EMS.
4. After powering up the ECU/EMS, change the selection in the parameter `Engine > ECU > Manufacture specific > Parameters > Speed control` within 10 seconds. This ensures that the CAN signal is triggered within 10 seconds of ignition on, to allow detection of the signal edge.
5. Power down the Volvo ECU/EMS.
6. Power up the Volvo ECU/EMS.
7. Start the engine.

The selection is now changed.

6.19.9 Tier 4 after-treatment support

Tier 4 is supported if the ECU is version 2.3 or later.

> **More information**
> See About After-treatment dashboard for how to view this on the display.

6.19.10 Write commands

Volvo Penta write commands

Command	Description
Speed control	In general, this is the same as the J1939 command. However, the CAN bus ID for speed control is 0xCFF4611 (Volvo Penta proprietary telegram).
Idle speed	See the J1939 command.
Preheat	Before an engine start, the controller sends a preheat signal. The ECU determines whether preheating is needed. When the preheat is completed, the controller can start the engine.
Start/Stop	See the J1939 command.
Shutdown override	See the J1939 command.
Frequency selection (50 or 60 Hz)	In general, see the J1939 command. In addition, the controller meets the proprietary requirements for this command.

6.20 Weichai (潍柴)

6.20.1 Weichai parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active. **Not enabled**: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

`Communication > Fieldbus > CAN bus > ECU > ECU Powerup time`

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.20.2 Weichai Diesel

ECU(s)	Engine(s)	Engine interface protocol
WOODWARD PG+	Diesel	Weichai Diesel

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	-	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	-
Engine hours	-	Battery potential (voltage)	-

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.20.3 Weichai Gas

ECU(s)	Engine(s)	Engine interface protocol
WOODWARD PG+	Gas	Weichai Gas

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	-	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	-
Engine hours	-	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.20.4 Weichai Wise 10B

ECU(s)	Engine(s)	Engine interface protocol
Wise 10B	Diesel	Weichai Wise10B

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	-	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	-	Battery voltage	-
Engine hours	-	Battery potential (voltage)	-

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.21 YANMAR (洋马)

6.21.1 YANMAR parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

Generator control (CG1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Source address	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active.

Parameter	Range	Default	Comments
			Not enabled: The exhaust aftertreatment regeneration is active.
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

Communication > Fieldbus > CAN bus > ECU > ECU Powerup time

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.21.2 YANMAR EDC 17

ECU(s)	Engine(s)	Engine interface protocol
EDC 17		YANMAR EDC17

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1, GC1	Proprietary message(s): ●

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.21.3 YANMAR Stage V

ECU(s)	Engine(s)	Engine interface protocol
EDC 17		Yanmar stage V

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): FF18, FF1C

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	-
Percent load	●	Exhaust temperature	-
Oil pressure	-	Fuel pressure	-
Oil temperature	-	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	-	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	-

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.22 Yuchai (玉柴)

6.22.1 Yuchai parameters

Speed control (TSC1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	The iE controller address used for speed control.
Destination address	0 to 255	ECU default	The recipient address used for speed control messages by the iE controller.
Use nominal RPM as reference	Not enabled, Enabled	Not enabled	

Generator control (CG1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Enabled	Not enabled, Enabled	Enabled	
Source address	0 to 255	ECU default	

Cab message (CM1/Custom)

`Engine > ECU > Controls`

Parameter	Range	Default	Comments
Source address	0 to 255	ECU default	

CAN controls

`Engine > ECU > Controls > CAN Controls`

Range	Default	Comments
Not enabled, Enabled	Enabled	

Droop

`Engine > ECU > Controls > Droop`

Parameter	Range	Default	Comments
Droop settings	None, Engine Control Unit (ECU)	None	
Droop value	0 % to 25 %	4 %	

DPF controls

`Engine > ECU > DPF controls`

Parameter	Range	Default	Comments
Aftertreatment regeneration inhibit switch	Not enabled, Enabled	Not enabled	**Enabled**: The exhaust aftertreatment regeneration is not active.

Parameter	Range	Default	Comments
			Not enabled: The exhaust aftertreatment regeneration is active,
Aftertreatment regeneration force switch	Automatic, Forced	Automatic	

ECU Powerup time

Communication > Fieldbus > CAN bus > ECU > ECU Powerup time

Range	Default	Comments
0 s to 3600 s	2 s	If an ECU Communication failure is detected, after the delay period has expired, this alarm becomes active. After the delay the alarm is triggered.

6.22.2 Yuchai United Diesel

ECU(s)	Engine(s)	Engine interface protocol
YCGCU (Version 4.2)	Diesel	Yuchai United Diesel

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE   * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.22.3 Yuchai United Gas

ECU(s)	Engine(s)	Engine interface protocol
YCGCU (Version 4.2)	Gas	Yuchai United Gas

EIC control		
Start -	Stop -	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1	Proprietary message(s): -

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration -	Inhibit regeneration -

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	-
Oil pressure	●	Fuel pressure	-
Oil temperature	●	Fuel temperature	●
Coolant pressure	-	Water in fuel	-
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	-
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.22.4 Yuchai YC-BCR

ECU(s)	Engine(s)	Engine interface protocol
YC-BCR		Yuchai YC-BCR

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1, GC1	Proprietary message(s): ●

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.

6.22.5 Yuchai YC-ECU

ECU(s)	Engine(s)	Engine interface protocol
YC-ECU		Yuchai YC-ECU

EIC control		
Start ●	Stop ●	Speed control ●
Default speed control address 3	Idle mode ●	50/60 Hz frequency selection ●
Shutdown override -	J1939 message: TSC1, CM1, GC1	Proprietary message(s): ●

Diagnostic messages				
DM1 Yellow lamp ●	DM1 Red lamp ●	DM1 Protect ●	DM1 Malfunction ●	DM2 ●

Emissions		
Tier 4/Stage V ●	Force regeneration ●	Inhibit regeneration ●

Analogue readings*			
Engine speed	●	Inlet temperature	●
Percent load	●	Exhaust temperature	●
Oil pressure	●	Fuel pressure	●
Oil temperature	●	Fuel temperature	●
Coolant pressure	●	Water in fuel	●
Coolant temperature	●	Fuel consumption/rate (L/h)	●
Turbo pressure	●	Fuel used (L)	●
Atmospheric pressure	●	Battery voltage	●
Engine hours	●	Battery potential (voltage)	●

NOTE * External equipment can read all of these from the controller Modbus server. Other EIC analogue readings may also be available.