

# iE 250 ML 300

CAN bus communication

Engine interface communication



Improve  
Tomorrow



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# 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           |
|---------------------------------------------------------------------------------------------------------------|--------------------------|-------------------|
| <b>PICUS</b><br><a href="https://www.deif.com/products/picus/">https://www.deif.com/products/picus/</a>       | PC software              | 1.0.19.x or later |
| <b>iE 250</b><br><a href="https://www.deif.com/products/ie-250/">https://www.deif.com/products/ie-250/</a>    | Controller application   | 2.0.0.x or later  |
| <b>DU 300</b>                                                                                                 | Display unit application | 1.0.21.x or later |
| <b>GPC 300</b><br><a href="https://www.deif.com/products/gpc-300/">https://www.deif.com/products/gpc-300/</a> | Controller application   | 1.0.21.x or later |
| <b>PPM 300</b><br><a href="https://www.deif.com/products/ppm-300/">https://www.deif.com/products/ppm-300/</a> | Controller application   | 1.0.21.x or later |
| <b>PPU 300</b><br><a href="https://www.deif.com/products/ppu-300/">https://www.deif.com/products/ppu-300/</a> | Controller application   | 1.0.21.x or later |

## 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.

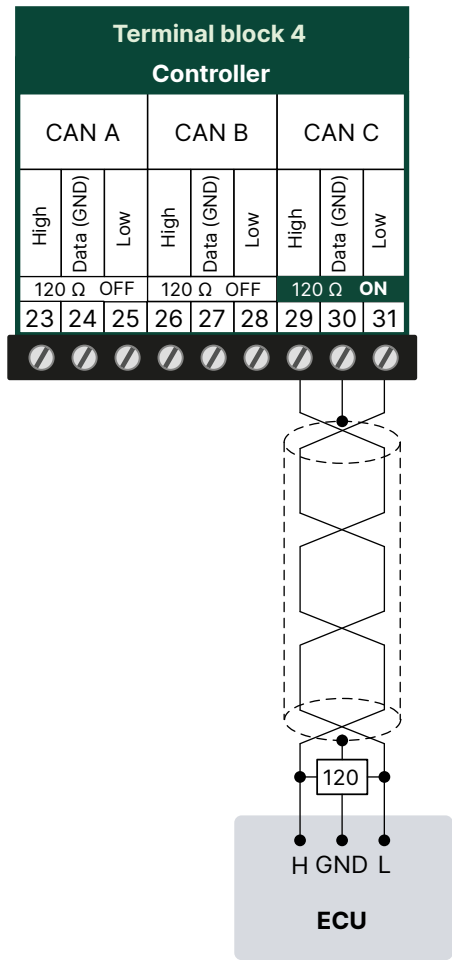
#### **Not supported engines**

If you have an engine that is not listed in this document, [contact DEIF](#).

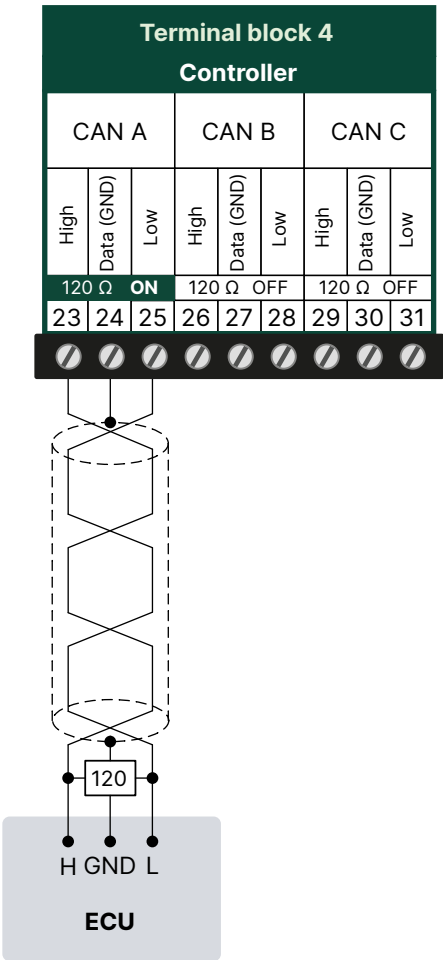
## 2.2 CAN bus communication wiring

### 2.2.1 CAN bus wiring for iE 250

iE 250 LAND



iE 250 MARINE



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.

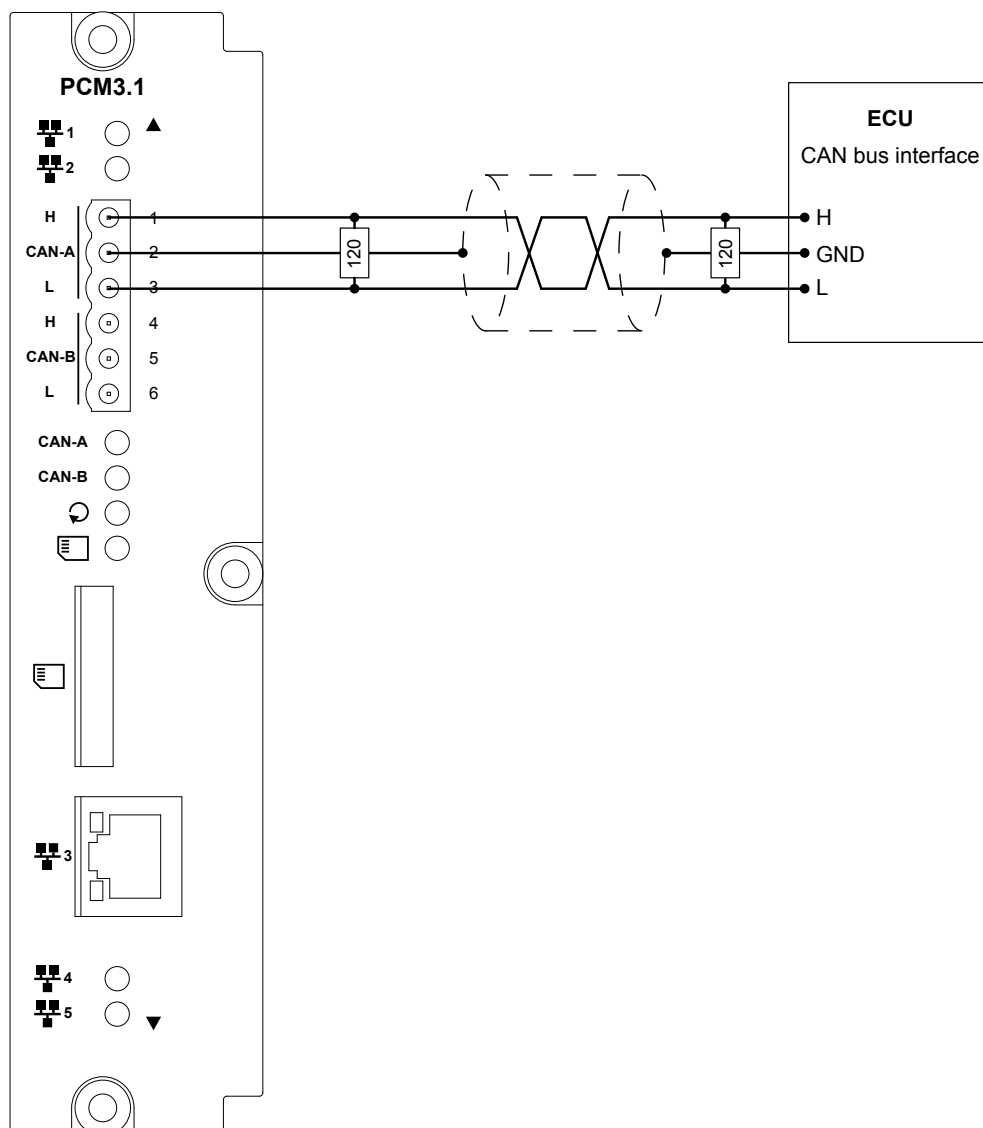


#### Example cable

Belden 3105A or equivalent, 22 AWG (0.33 mm<sup>2</sup>) twisted paid, shielded, impedance 120 Ω (Ohm), < 40 mΩ/m, min. 95 % shield coverage.

## 2.2.2 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 mm<sup>2</sup>) twisted paid, shielded, impedance 120 Ω (Ohm), < 50 mΩ/m, min. 95 % shield coverage.

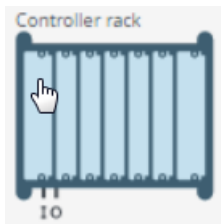
## 2.3 Example configuration for an ECU

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

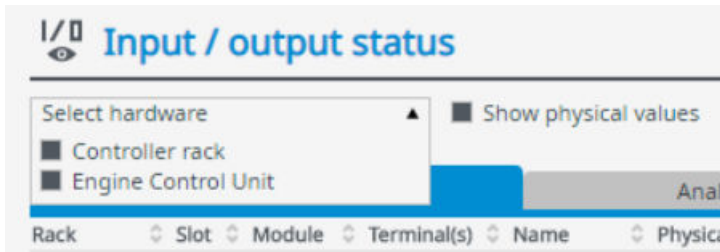
The ECU can now be accessed on different pages in PICUS or the display as an additional hardware selection.

- 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:

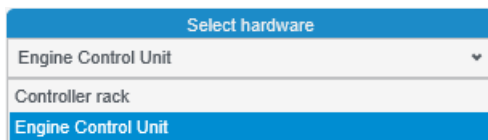
|                     |   |               |                                          |
|---------------------|---|---------------|------------------------------------------|
| Engine Control Unit | 1 | Generic J1939 | Engine fuel filter differential pressure |
| Engine Control Unit | 1 | Generic J1939 | Water in fuel indicator                  |
| Engine Control Unit | 1 | Generic J1939 | Engine oil level                         |
| Engine Control Unit | 1 | Generic J1939 | Engine oil filter differential pressure  |

## 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 the hardware selection:



3. The ECU information is now shown.

4. You can now:

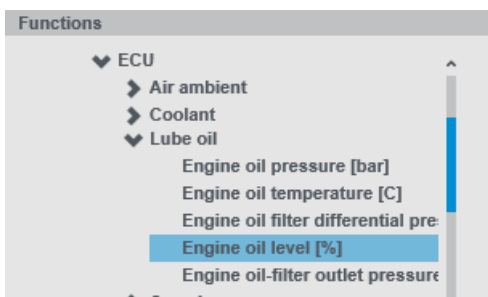
- Configure functions
- Configure the sensor setup for the curve/function
- Create and configure custom alarms

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)

### 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. The page can be configured to automatically display on changes to the data with the View designer.

#### Automatic display on data changes

The Exhaust after-treatment dashboard can be configured to automatically display on changes to the data.

#### For iE 250:

Use PICUS and the Display designer to configure the Auto jump.



#### More information

See **Display designer (iE 250)** 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.

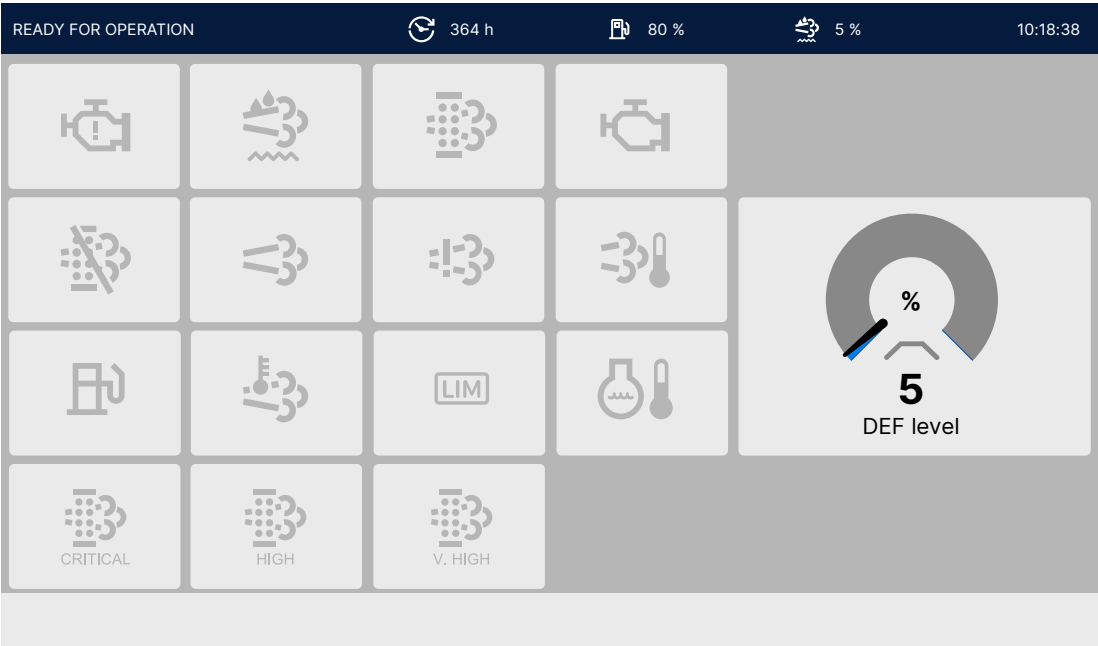


#### More information

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 Dashboard

Exhaust after-treatment dashboard



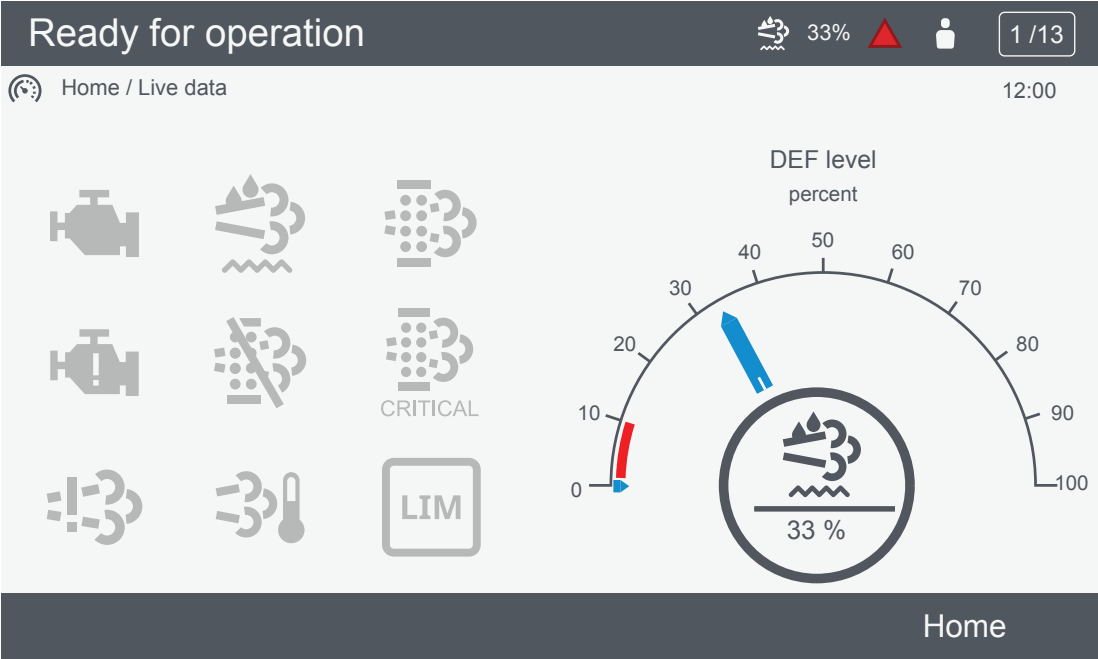
| Symbol information                                                                  |                                            |
|-------------------------------------------------------------------------------------|--------------------------------------------|
|   | Shows an engine shutdown.                  |
|   | 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.<br>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



| 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. |  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

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 > Control > ECU Power | Continuous | Connect this to the ECU power control. |

#### Parameter

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

| Range           | Default | Comment                                                                                                                                                                                                                                                                  |
|-----------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Auto, Always ON | Auto    | <b>Auto</b> : 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.<br><br><b>Always ON</b> : The controller expects the ECU is powered externally and is always powered on. |

### 3.2 ECU reset input

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  | Details |
|--------------------------------|-------|---------|
| Engine > ECU > ECU reset input | Pulse |         |

## 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                | Default     |
|--------------|----------------------|-------------|
| Enable       | Not enabled, Enabled | Enabled     |
| Delay        | 0 s to 120 s         | 1 s         |
| Latch        | Not enabled, Enabled | Not enabled |
| Alarm action |                      | Warning     |

#### 4.1.2 ECU CAN bus off

##### Alarm parameters

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

| Parameter    | Range                | Default     |
|--------------|----------------------|-------------|
| Enable       | -                    | Enabled     |
| Latch        | Not enabled, Enabled | Not enabled |
| Alarm action |                      | Warning     |

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

| Parameter    | Range                | Default     |
|--------------|----------------------|-------------|
| Enable       | -                    | Enabled     |
| Latch        | Not enabled, Enabled | Not enabled |
| Alarm action |                      | Warning     |

### 4.2 Engine

#### 4.2.1 ECU Red stop lamp alarm

Engine > ECU > Diagnostic alarms > ECU Red stop lamp

| Parameter    | Range | Default                                    |
|--------------|-------|--------------------------------------------|
| Enable       | -     | Enabled *                                  |
| Latch        | -     | Enabled *                                  |
| Alarm action |       | Trip generator breaker and shutdown engine |

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

| Parameter    | Range | Default                                    |
|--------------|-------|--------------------------------------------|
| Enable       | -     | Enabled *                                  |
| Latch        | -     | Enabled *                                  |
| Alarm action |       | Trip generator breaker and shutdown engine |

**NOTE** \* Always enabled and cannot be changed.

## 4.2.2 ECU Amber warning lamp alarm

Engine > ECU > Diagnostic alarms > ECU Amber warning lamp

| Parameter    | Range                | Default     |
|--------------|----------------------|-------------|
| Enable       | -                    | Enabled *   |
| Latch        | Not enabled, Enabled | Not enabled |
| Alarm action |                      | Warning     |

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

| Parameter    | Range                | Default     |
|--------------|----------------------|-------------|
| Enable       | -                    | Enabled *   |
| Latch        | Not enabled, Enabled | Not enabled |
| Alarm action |                      | Warning     |

**NOTE** \* Always enabled and cannot be changed.

## 4.2.3 ECU Protect lamp alarm

Engine > ECU > Diagnostic alarms > ECU Protect lamp

| Parameter    | Range | Default   |
|--------------|-------|-----------|
| Enable       | -     | Enabled * |
| Latch        | -     | Enabled * |
| Alarm action |       | Warning   |

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

| Parameter    | Range | Default   |
|--------------|-------|-----------|
| Enable       | -     | Enabled * |
| Latch        | -     | Enabled * |
| Alarm action |       | Warning   |

**NOTE** \* Always enabled and cannot be changed.

## 4.2.4 ECU Malfunction indicator lamp alarm

Engine > ECU > Diagnostic alarms > ECU Malfunction indicator lamp

| Parameter    | Range                | Default     |
|--------------|----------------------|-------------|
| Enable       | -                    | Enabled *   |
| Latch        | Not enabled, Enabled | Not enabled |
| Alarm action |                      | Warning     |

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

| Parameter    | Range                | Default     |
|--------------|----------------------|-------------|
| Enable       | -                    | Enabled *   |
| Latch        | Not enabled, Enabled | Not enabled |
| Alarm action |                      | Warning     |

**NOTE** \* Always enabled and cannot be changed.

## 5. Generic J1939

### 5.1 Generic J1939

|                                      |               |                               |   |
|--------------------------------------|---------------|-------------------------------|---|
| <b>ECU(s)</b>                        | J1939         | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Generic J1939 | <b>Default source address</b> | 0 |

| EIC control                          |                |
|--------------------------------------|----------------|
| Start                                | ●              |
| Stop                                 | ●              |
| Speed control                        | ●              |
| Default speed control source address | 3              |
| J1939 message                        | TSC1, CM1, GC1 |
| Idle mode                            | ●              |
| 50/60 Hz frequency selection         | ●              |
| Shutdown override                    | -              |
| 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 values *    |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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 values from the Modbus table. 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  |

| 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   |
| 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        |

| Text                                                  | PGN   | S  | L  | P | SPN  | Unit | J1939-71 scaling             | Offset    |
|-------------------------------------------------------|-------|----|----|---|------|------|------------------------------|-----------|
| 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    | 0.00027777777777777778 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 |

| Text                                                   | PGN   | S  | L  | P | SPN  | Unit | J1939-71 scaling | Offset    |
|--------------------------------------------------------|-------|----|----|---|------|------|------------------|-----------|
| 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 |
| 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        |

| Text                                       | PGN   | S  | L    | P | SPN  | Unit | J1939-71 scaling | Offset    |
|--------------------------------------------|-------|----|------|---|------|------|------------------|-----------|
| 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 °  |
| 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   |
| 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 | <p>To enable speed regulation, configure:</p> <p>Regulators &gt; GOV general configuration &gt; Regulator output to Analogue / ECU</p> <p>By default, the governor offset is 50 % of the nominal speed. At 0 % it is -120 RPM, and at 100 % it is +120 RPM.</p> <p>The CAN bus ID for speed control is 0xC000003. J1939 TSC1 (transmission rate is 40 ms).</p> <p>You can use CustomLogic or the control parameter Speed control (TSC1 / Custom) to disable speed control.</p> |
| Idle speed    | <p>The controller can use speed control to regulate the ECU to run at idle speed (700 RPM).</p> <p> <b>More information</b><br/>See <b>Idle run</b> in the <b>Designer's handbook</b> for how this is configured.</p>                                                                                                                                                                       |
| Start/Stop    | <p>This is the standard J1939 command to start the engine if it is stopped, and stops the engine if it is running.</p> <p>The controller determines whether to start or stop the engine. The decision is based on the controller's inputs, logic and calculations.</p>                                                                                                                                                                                                         |

| Command                           | Description                                                                                                                                                                                                                                                                                                   |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EIC start/stop enable             | <p>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.</p> <p>The controller determines whether to start or stop the engine. The decision is based on the controller's inputs, logic and calculations.</p> |
| 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 <i>Shutdown override</i> (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](http://www.deif.com).

## 6. J1939 ECUs and engines

### 6.1 Baudouin

#### 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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

|                                      |              |                               |     |
|--------------------------------------|--------------|-------------------------------|-----|
| <b>ECU(s)</b>                        | WOODWARD PG+ | <b>Engine(s)</b>              | Gas |
| <b>Use engine interface protocol</b> | Baudouin Gas | <b>Default source address</b> | 0   |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

### 6.1.3 Baudouin Wise 10B

|                                      |                   |                               |   |
|--------------------------------------|-------------------|-------------------------------|---|
| <b>ECU(s)</b>                        | Wise10B           | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Baudouin Wise 10B | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.1.4 Baudouin Wise 15

|                                      |                  |                               |   |
|--------------------------------------|------------------|-------------------------------|---|
| <b>ECU(s)</b>                        | ECU WISE 15      | <b>Engine(s)</b>              | - |
| <b>Use engine interface protocol</b> | Baudouin Wise 15 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.1.5 Write commands

### Baudouin write command

| Command       | Description                                             |
|---------------|---------------------------------------------------------|
| Speed control | This is the same as the <a href="#">J1939 command</a> . |

## 6.2 Caterpillar

### 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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

|                                      |                     |                               |                                           |
|--------------------------------------|---------------------|-------------------------------|-------------------------------------------|
| <b>ECU(s)</b>                        | ADEM 3              | <b>Engine(s)</b>              | C4.4, C6.6, C9, C15, C18, C32, 3500, 3600 |
| <b>Use engine interface protocol</b> | Caterpillar generic | <b>Default source address</b> | 0                                         |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 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 ADEM 3

|                                      |                    |                               |                                           |
|--------------------------------------|--------------------|-------------------------------|-------------------------------------------|
| <b>ECU(s)</b>                        | ADEM 3             | <b>Engine(s)</b>              | C4.4, C6.6, C9, C15, C18, C32, 3500, 3600 |
| <b>Use engine interface protocol</b> | Caterpillar ADEM 3 | <b>Default source address</b> | 0                                         |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

#### 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 4

|                                      |                    |                               |                                           |
|--------------------------------------|--------------------|-------------------------------|-------------------------------------------|
| <b>ECU(s)</b>                        | ADEM 4             | <b>Engine(s)</b>              | C4.4, C6.6, C9, C15, C18, C32, 3500, 3600 |
| <b>Use engine interface protocol</b> | Caterpillar ADEM 4 | <b>Default source address</b> | 0                                         |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 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 Write commands

### Caterpillar write commands

| Command               | Description                                                                                                              |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------|
| Speed control         | In general, this is the same as the <a href="#">J1939 command</a> .<br><br><b>J1939 TSC1</b> transmission rate is 20 ms. |
| Idle speed            | See the <a href="#">J1939 command</a> .                                                                                  |
| Start/Stop            | See the <a href="#">J1939 command</a> .                                                                                  |
| EIC start/stop enable | See the <a href="#">J1939 command</a> .                                                                                  |

## 6.2.6 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 <sup>1</sup>                  | 64870 | 6 | 1 | 1 | 4076 | °C/°F | 1 °C/bit         | -40 °C  |
| EIC Coolant Temp 3 <sup>1</sup>                  | 64870 | 6 | 8 | 1 | 6209 | °C/°F | 1 °C/bit         | -40 °C  |
| EIC Coolant Pump Outlet Temp <sup>1</sup>        | 64870 | 6 | 2 | 1 | 4193 | °C/°F | 1 °C/bit         | -40 °C  |
| EIC Filtered Fuel Delivery Pressure <sup>1</sup> | 64735 | 6 | 2 | 1 | 5579 | kPa   | 4 kPa/bit        | 0       |
| EIC Auxiliary Coolant Temp <sup>1</sup>          | 65172 | 6 | 2 | 1 | 1212 | kPa   | 4 kPa/bit        | 0       |
| EIC Turbo 1 Intake Temp <sup>1</sup>             | 65176 | 6 | 1 | 2 | 1180 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Turbo 2 Intake Temp <sup>1</sup>             | 65176 | 6 | 3 | 2 | 1181 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P1 Temp <sup>2</sup>             | 65187 | 7 | 1 | 2 | 1137 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P2 Temp <sup>2</sup>             | 65187 | 7 | 3 | 2 | 1138 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P3 Temp <sup>2</sup>             | 65187 | 7 | 5 | 2 | 1139 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P4 Temp <sup>2</sup>             | 65187 | 7 | 7 | 2 | 1140 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P5 Temp <sup>2</sup>             | 65186 | 7 | 1 | 2 | 1141 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P6 Temp <sup>2</sup>             | 65186 | 7 | 3 | 2 | 1142 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P7 Temp <sup>2</sup>             | 65186 | 7 | 5 | 2 | 1143 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P8 Temp <sup>2</sup>             | 65186 | 7 | 7 | 2 | 1144 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P9 Temp <sup>2</sup>             | 65185 | 7 | 1 | 2 | 1145 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P10 Temp <sup>2</sup>            | 65185 | 7 | 3 | 2 | 1146 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P11 Temp <sup>2</sup>            | 65185 | 7 | 5 | 2 | 1147 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P12 Temp <sup>2</sup>            | 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 <sup>2</sup> | 65184 | 7 | 1 | 2 | 1149 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P14 Temp <sup>2</sup> | 65184 | 7 | 3 | 2 | 1150 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P15 Temp <sup>2</sup> | 65184 | 7 | 5 | 2 | 1151 | °C/°F | 0.03125 °C/bit   | -273 °C |
| EIC Exhaust Gas P16 Temp <sup>2</sup> | 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.

## 6.2.7 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

### 6.3.1 Cummins parameters

#### 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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

|                                          |                                                           |                               |                                                   |
|------------------------------------------|-----------------------------------------------------------|-------------------------------|---------------------------------------------------|
| <b>ECU(s)</b>                            | CM 500, CM 558, CM 570,<br>CM 850, CM 2150 and CM<br>2250 | <b>Engine(s)</b>              | QSL, QSB5, QSX15 and 7,<br>QSM11, QSK 19/23/50/60 |
| <b>Use engine interface<br/>protocol</b> | Cummins Generic                                           | <b>Default source address</b> | 0                                                 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.3.3 Cummins CM 500

|                                      |                |                               |                                                |
|--------------------------------------|----------------|-------------------------------|------------------------------------------------|
| <b>ECU(s)</b>                        | CM 500         | <b>Engine(s)</b>              | QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60 |
| <b>Use engine interface protocol</b> | Cummins CM 500 | <b>Default source address</b> | 0                                              |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.3.4 Cummins CM 558

|                                      |                |                               |                                                |
|--------------------------------------|----------------|-------------------------------|------------------------------------------------|
| <b>ECU(s)</b>                        | CM 558         | <b>Engine(s)</b>              | QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60 |
| <b>Use engine interface protocol</b> | Cummins CM 558 | <b>Default source address</b> | 0                                              |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.3.5 Cummins CM 570

|                                      |                |                               |                                                |
|--------------------------------------|----------------|-------------------------------|------------------------------------------------|
| <b>ECU(s)</b>                        | CM 570         | <b>Engine(s)</b>              | QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60 |
| <b>Use engine interface protocol</b> | Cummins CM 570 | <b>Default source address</b> | 0                                              |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

### 6.3.6 Cummins CM 850

|                                      |                |                               |                                                |
|--------------------------------------|----------------|-------------------------------|------------------------------------------------|
| <b>ECU(s)</b>                        | CM 850         | <b>Engine(s)</b>              | QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60 |
| <b>Use engine interface protocol</b> | Cummins CM 850 | <b>Default source address</b> | 0                                              |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.3.7 Cummins CM 2150

|                                      |                 |                               |                                                |
|--------------------------------------|-----------------|-------------------------------|------------------------------------------------|
| <b>ECU(s)</b>                        | CM 2150         | <b>Engine(s)</b>              | QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60 |
| <b>Use engine interface protocol</b> | Cummins CM 2150 | <b>Default source address</b> | 0                                              |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.3.8 Cummins CM 2250

|                                      |                 |                               |                                                |
|--------------------------------------|-----------------|-------------------------------|------------------------------------------------|
| <b>ECU(s)</b>                        | CM 2250         | <b>Engine(s)</b>              | QSL, QSB5, QSX15 and 7, QSM11, QSK 19/23/50/60 |
| <b>Use engine interface protocol</b> | Cummins CM 2250 | <b>Default source address</b> | 0                                              |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.3.9 Write commands

### Cummins write commands

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

## 6.3.10 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

### 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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)              | Series 50, 60 and 2000 |
|-------------------------------|-----------------------------|------------------------|------------------------|
| Use engine interface protocol | Detroit Diesel DDEC generic | Default source address | 0                      |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.4.3 Detroit Diesel DDEC 3

|                                      |                       |                               |                        |
|--------------------------------------|-----------------------|-------------------------------|------------------------|
| <b>ECU(s)</b>                        | DDEC 3                | <b>Engine(s)</b>              | Series 50, 60 and 2000 |
| <b>Use engine interface protocol</b> | Detroit Diesel DDEC 3 | <b>Default source address</b> | 0                      |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.4.4 Detroit Diesel DDEC 4

|                                      |                       |                               |                        |
|--------------------------------------|-----------------------|-------------------------------|------------------------|
| <b>ECU(s)</b>                        | DDEC 4                | <b>Engine(s)</b>              | Series 50, 60 and 2000 |
| <b>Use engine interface protocol</b> | Detroit Diesel DDEC 4 | <b>Default source address</b> | 0                      |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.4.5 Write commands

Detroit Diesel DDEC write commands

| Command       | Description                             |
|---------------|-----------------------------------------|
| Speed control | See the <a href="#">J1939 command</a> . |
| Idle speed    | See the <a href="#">J1939 command</a> . |

## 6.5 Deutz

### 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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)                |
|-------------------------------|--------------------------|
| Use engine interface protocol | Deutz EMR generic        |
|                               | Default source address 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

### 6.5.3 Deutz EMR 2

|                                      |             |                               |   |
|--------------------------------------|-------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EMR 2       | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Deutz EMR 2 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.5.4 Deutz EMR 3

|                                      |             |                               |   |
|--------------------------------------|-------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EMR 3       | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Deutz EMR 3 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.5.5 Deutz EMR 4

|                                      |             |                               |   |
|--------------------------------------|-------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EMR 4       | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Deutz EMR 4 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.5.6 Deutz EMR 5

|                                      |             |                               |   |
|--------------------------------------|-------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EMR 5       | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Deutz EMR 5 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.5.7 Write commands

### Deutz write commands

| Command       | Description                                                                       |
|---------------|-----------------------------------------------------------------------------------|
| Speed control | In general, this is the same as the <a href="#">J1939 command</a> .               |
| Idle speed    | See the <a href="#">J1939 command</a> .                                           |
| Stop request  | When the controller wants to stop the engine, it sends this proprietary telegram. |

## 6.6 Doosan

### 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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

|                                      |                 |                               |   |
|--------------------------------------|-----------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EDC17           | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Doosan G2 EDC17 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.6.3 Doosan MD1

|                                      |            |                               |   |
|--------------------------------------|------------|-------------------------------|---|
| <b>ECU(s)</b>                        | MD1        | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Doosan MD1 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.7 FPT

### 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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

|                                      |                |                               |   |
|--------------------------------------|----------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EDC17          | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | FPT EDC 17CV41 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.7.3 FPT Stage 5

|                                      |             |                               |   |
|--------------------------------------|-------------|-------------------------------|---|
| <b>ECU(s)</b>                        | Bosch MD1   | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | FPT stage 5 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.8 Isuzu

### 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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

|                                      |           |                               |                         |
|--------------------------------------|-----------|-------------------------------|-------------------------|
| <b>ECU(s)</b>                        | ECM       | <b>Engine(s)</b>              | 4JJ1X, 4JJ1T, 6WG1X FT- |
| <b>Use engine interface protocol</b> | Isuzu ECM | <b>Default source address</b> | 0                       |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.8.3 Write commands

### Isuzu write commands

| Command       | Description                                                         |
|---------------|---------------------------------------------------------------------|
| Speed control | In general, this is the same as the <a href="#">J1939 command</a> . |

| Command               | Description                                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------------------------------------|
|                       | 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 <a href="#">J1939 command</a> .<br><br>However, the idle speed is 1000 RPM. |
| Start/Stop            | See the <a href="#">J1939 command</a> .                                                                         |
| EIC start/stop enable | See the <a href="#">J1939 command</a> .                                                                         |

#### 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

### 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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

|                                      |              |                               |   |
|--------------------------------------|--------------|-------------------------------|---|
| <b>ECU(s)</b>                        | CURSOR       | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Iveco CURSOR | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.9.3 Iveco EDC 7 (Bosch MS6.2)

|                                      |                           |                               |   |
|--------------------------------------|---------------------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EDC 7 (Bosch MS6.2)       | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Iveco EDC 7 (Bosch MS6.2) | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.9.4 Iveco Generic

|                                      |                                  |                               |   |
|--------------------------------------|----------------------------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EDC7 (Bosch MS6.2), and VECTOR 8 | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Iveco Generic                    | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.9.5 Iveco NEF

|                                      |           |                               |   |
|--------------------------------------|-----------|-------------------------------|---|
| <b>ECU(s)</b>                        | NEF       | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Iveco NEF | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.9.6 Iveco Stage 5

|                                      |               |                               |   |
|--------------------------------------|---------------|-------------------------------|---|
| <b>ECU(s)</b>                        | Bosch MD1     | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Iveco Stage 5 | <b>Default source address</b> | 0 |

| EIC control                          |                 |
|--------------------------------------|-----------------|
| Start                                | -               |
| Stop                                 | ●               |
| Speed control                        | ●               |
| Default speed control source address | 3               |
| J1939 message                        | TSC1, CM1       |
| Idle mode                            | ●               |
| 50/60 Hz frequency selection         | ●               |
| Shutdown override                    | -               |
| Proprietary message(s)               | CM2ECM, BC2EDC2 |

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.9.7 Iveco VECTOR 8

|                                      |                |                               |   |
|--------------------------------------|----------------|-------------------------------|---|
| <b>ECU(s)</b>                        | VECTOR 8       | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Iveco VECTOR 8 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 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 <sup>1</sup> | 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 <a href="#">J1939 command</a> . |
| Idle speed    | See the <a href="#">J1939 command</a> .                             |

### 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 <a href="#">J1939 command</a> .                                                 |

## 6.10 John Deere

### 6.10.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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 |          |

## 6.10.2 John Deere

|                                      |            |                               |                         |
|--------------------------------------|------------|-------------------------------|-------------------------|
| <b>ECU(s)</b>                        | JDEC       | <b>Engine(s)</b>              | PowerTech M, E and Plus |
| <b>Use engine interface protocol</b> | John Deere | <b>Default source address</b> | 0                       |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.10.3 Write commands

### John Deere JDEC write commands

| Command                           | Description                                                                                |
|-----------------------------------|--------------------------------------------------------------------------------------------|
| Speed control                     | See the <a href="#">J1939 command</a> .                                                    |
| Idle speed                        | See the <a href="#">J1939 command</a> .                                                    |
| Frequency selection (50 or 60 Hz) | See the <a href="#">J1939 command</a> .                                                    |
| Stationary regeneration           | The command is activated by the parameter: Engine > ECU > Manufacture specific > Controls. |

## 6.10.4 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.

## 6.11 Kohler

### 6.11.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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. |

## 6.11.2 Kohler KD62V12

|                                      |               |                               |         |
|--------------------------------------|---------------|-------------------------------|---------|
| <b>ECU(s)</b>                        | ECU2-HD       | <b>Engine(s)</b>              | KD62V12 |
| <b>Use engine interface protocol</b> | Kohler D62V12 | <b>Default source address</b> | 0       |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.11.3 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 <a href="#">J1939 command</a> . |
| EIC start/stop enable | See the <a href="#">J1939 command</a> . |

## 6.12 MAN

### 6.12.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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 MAN Generic

|                                      |                 |                               |   |
|--------------------------------------|-----------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EMC 2.0 and 2.5 | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | MAN Generic     | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.12.3 MAN EDC 17

|                                      |            |                               |   |
|--------------------------------------|------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EDC 17     | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | MAN EDC 17 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.12.4 MAN EMC Step 2.0

|                                      |                  |                               |   |
|--------------------------------------|------------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EMC 2.0          | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | MAN EMC Step 2.0 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.12.5 MAN EMC Step 2.5

|                                      |                  |                               |   |
|--------------------------------------|------------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EMC 2.5          | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | MAN EMC Step 2.5 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.13 MTU

### 6.13.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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 |          |

## 6.13.2 MTU J1939 ECU 8

| ECU(s)                        | ECU 8           | Engine(s)              |   |
|-------------------------------|-----------------|------------------------|---|
| Use engine interface protocol | MTU J1939 ECU 8 | Default source address | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

### 6.13.3 MTU J1939 ECU 9

| ECU(s)                        | ECU 9           | Engine(s)              |   |
|-------------------------------|-----------------|------------------------|---|
| Use engine interface protocol | MTU J1939 ECU 9 | Default source address | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.13.4 MTU J1939 Smart Connect

|                                      |                                 |                               |             |
|--------------------------------------|---------------------------------|-------------------------------|-------------|
| <b>ECU(s)</b>                        | J1939 Smart Connect, ECU8, ECU9 | <b>Engine(s)</b>              | Series 1600 |
| <b>Use engine interface protocol</b> | MTU J1939 Smart Connect         | <b>Default source address</b> | 0           |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.13.5 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.

## 6.13.6 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 <a href="#">J1939 command</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Idle speed                        | See the <a href="#">J1939 command</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Start/Stop                        | <p>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.</p> <p>The controller determines whether to start or stop the engine. The decision is based on the controller's inputs, logic and calculations.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| MTU alternate droop setting       | Use the parameter <code>Engine &gt; ECU &gt; Manufacture specific &gt; Alternative droop setting</code> to activate. The controller commands the ECU to activate droop.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Frequency selection (50 or 60 Hz) | <p>The controller automatically writes the nominal frequency (50 or 60 Hz) to the ECU. The nominal frequency is defined in parameters <code>Generator &gt; Nominal settings &gt; Nominal settings # *</code>. 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.</p> <p>Specifically, the controller sends PGN GC1 0xFD93. On byte 4, the controller writes 000 for 50 Hz, and 001 for 60 Hz.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Demand switch                     | <p>Use the parameters under <code>Engine &gt; ECU &gt; Manufacture specific &gt; Speed demand switch position</code> to select the speed control type for local and remote:</p> <ul style="list-style-type: none"><li>• Analogue CAN (default)<ul style="list-style-type: none"><li>◦ J1939 commands</li></ul></li><li>• Up/Down ECU</li><li>• Up/Down CAN</li><li>• Analogue ECU</li><li>• Analogue ECU relative<ul style="list-style-type: none"><li>◦ For analogue VDC control.</li></ul></li><li>• Frequency</li></ul> <p>See the MTU documentation for the ECU8 for more information about switching between normal and emergency operation in local or remote.</p> <p>If the MTU ECU cannot detect a valid speed demand signal, it sends <i>AI Speed deman def..</i> 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).</p> <p>When this happens, check the settings on the MTU ECU, PR500 (MTU SAM/Diasys reference)</p> <ul style="list-style-type: none"><li>0 - Default dataset ADEC</li><li>1 - ADEC Increase/Decrease Input</li><li>2 - CAN Increase/Decrease Input</li><li>3 - ADEC Analog Absolute</li><li>4 - ADEC Analog Relative</li><li>5 - ADEC Frequency Input</li><li>6 - CAN Analog</li><li>7 - CAN Speed Demand Switch</li></ul> |
| Reset trip fuel counter           | This command resets the trip fuel consumption counter. Use the parameter <code>Engine &gt; ECU &gt; Manufacture specific &gt; Controls &gt; Reset trip fuel</code> to activate.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Command                  | Description                                                                                                                                                                                                                        |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 <a href="#">J1939 command</a> .                                                                                                                                                                                            |
| 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.

### 6.13.7 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      |

## 6.14 Perkins

### 6.14.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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. |

## 6.14.2 Perkins Generic

|                                      |                 |                               |                                                   |
|--------------------------------------|-----------------|-------------------------------|---------------------------------------------------|
| <b>ECU(s)</b>                        | ADEM3, ADEM4    | <b>Engine(s)</b>              | Series 850, 1100, 1200, 1300, 2300, 2500 and 2800 |
| <b>Use engine interface protocol</b> | Perkins Generic | <b>Default source address</b> | 0                                                 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.14.3 Perkins A4

|                                      |            |                               |   |
|--------------------------------------|------------|-------------------------------|---|
| <b>ECU(s)</b>                        | ADEM4      | <b>Engine(s)</b>              | - |
| <b>Use engine interface protocol</b> | Perkins A4 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.14.4 Perkins ADEM 3

|                                      |                |                               |   |
|--------------------------------------|----------------|-------------------------------|---|
| <b>ECU(s)</b>                        | ADEM 3         | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Perkins ADEM 3 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.14.5 Perkins ADEM 4

|                                      |                |                               |   |
|--------------------------------------|----------------|-------------------------------|---|
| <b>ECU(s)</b>                        | ADEM 4         | <b>Engine(s)</b>              | - |
| <b>Use engine interface protocol</b> | Perkins ADEM 4 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.14.6 Perkins EDC 17C49

|                                      |                   |                               |   |
|--------------------------------------|-------------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EDC 17            | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Perkins EDC 17C49 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.14.7 Write commands

### Perkins write commands

| Command       | Description                                                         |
|---------------|---------------------------------------------------------------------|
| Speed control | In general, this is the same as the <a href="#">J1939 command</a> . |

| Command               | Description                             |
|-----------------------|-----------------------------------------|
|                       | J1939 TSC1 transmission rate is 20 ms.  |
| EIC start/stop enable | See the <a href="#">J1939 command</a> . |

## 6.15 PSI/Power solutions

### 6.15.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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 Power Solutions (PSI)

| ECU(s)                        |                       | Engine(s)              | PSI/Power solutions |
|-------------------------------|-----------------------|------------------------|---------------------|
| Use engine interface protocol | Power solutions (PSI) | Default source address | 0                   |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.15.3 Write commands

#### PSI/Power Solutions write commands

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

## 6.16 Scania

### 6.16.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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 |          |

## 6.16.2 Scania EMS

| ECU(s)                        | EMS        | Engine(s)                |
|-------------------------------|------------|--------------------------|
| Use engine interface protocol | Scania EMS | Default source address 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

### 6.16.3 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.

|                                      |                    |                               |                    |
|--------------------------------------|--------------------|-------------------------------|--------------------|
| <b>ECU(s)</b>                        | EMS 2 S6 (KWP2000) | <b>Engine(s)</b>              | Dx9x, Dx12x, Dx16x |
| <b>Use engine interface protocol</b> | Scania EMS 2 S6    | <b>Default source address</b> | 0                  |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.16.4 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.

|                                      |                 |                               |                 |
|--------------------------------------|-----------------|-------------------------------|-----------------|
| <b>ECU(s)</b>                        | Scania EMS 2 S8 | <b>Engine(s)</b>              | DC9, DC13, DC16 |
| <b>Use engine interface protocol</b> | Scania EMS 2 S8 | <b>Default source address</b> | 0               |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.16.5 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.

## 6.16.6 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 <a href="#">J1939 command</a> . 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 <a href="#">J1939 command</a> .                                                                                                                                                                                                                                                                                                                                                                       |
| Start/Stop          | See the <a href="#">J1939 command</a> .                                                                                                                                                                                                                                                                                                                                                                       |
| Shutdown override   | See the <a href="#">J1939 command</a> .                                                                                                                                                                                                                                                                                                                                                                       |
| Droop               | Use parameter <code>Engine &gt; ECU &gt; Controls &gt; Droop</code> .                                                                                                                                                                                                                                                                                                                                         |
| Frequency selection | Use the parameter <code>Engine &gt; ECU &gt; Manufacture specific &gt; Scania speed setting</code> to select the nominal speed. The options are: <ul style="list-style-type: none"><li>• Set with adjustable parameter</li><li>• 1500RPM</li><li>• 1800RPM</li><li>• Low idle</li></ul> If <b>Set with adjustable parameter</b> 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.

## 6.16.7 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.

## 6.17 Steyr

### 6.17.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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. |

## 6.17.2 Steyr EDC 17

|                                      |              |                               |   |
|--------------------------------------|--------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EDC 17       | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Steyr EDC 17 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.18 Volvo Penta

### 6.18.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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 |          |

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

## 6.18.2 Volvo Penta Generic

|                                      |                     |                               |                            |
|--------------------------------------|---------------------|-------------------------------|----------------------------|
| <b>ECU(s)</b>                        | EDC 3, EDC 4        | <b>Engine(s)</b>              | TAD4x, TAD5x, TAD6x, TAD7x |
| <b>Use engine interface protocol</b> | Volvo Penta Generic | <b>Default source address</b> | 0                          |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

### 6.18.3 Volvo Penta EDC 3

|                                      |                   |                               |   |
|--------------------------------------|-------------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EDC 3             | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Volvo Penta EDC 3 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.18.4 Volvo Penta EDC 4

|                                      |                   |                               |   |
|--------------------------------------|-------------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EDC 4             | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Volvo Penta EDC 4 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.18.5 Volvo Penta EMS

| ECU(s)                        | EMS             | Engine(s)              | D6, D7, D9, D12, D16 (GE and AUX variants only) |
|-------------------------------|-----------------|------------------------|-------------------------------------------------|
| Use engine interface protocol | Volvo Penta EMS | Default source address | 0                                               |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.18.6 Volvo Penta EMS 2.3

|                                      |                         |                               |                                                 |
|--------------------------------------|-------------------------|-------------------------------|-------------------------------------------------|
| <b>ECU(s)</b>                        | EMS, EMS 2.0 to EMS 2.3 | <b>Engine(s)</b>              | D6, D7, D9, D12, D16 (GE and AUX variants only) |
| <b>Use engine interface protocol</b> | Volvo Penta EMS 2.3     | <b>Default source address</b> | 0                                               |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.18.7 Volvo Penta EMS 2.4

|                                      |                     |                               |   |
|--------------------------------------|---------------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EMS 2.4             | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Volvo Penta EMS 2.4 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.18.8 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.

## 6.18.9 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.

## 6.18.10 Write commands

### Volvo Penta write commands

| Command                           | Description                                                                                                                                                                         |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Speed control                     | In general, this is the same as the <a href="#">J1939 command</a> . However, the CAN bus ID for speed control is 0xCFF4611 (Volvo Penta proprietary telegram).                      |
| Idle speed                        | See the <a href="#">J1939 command</a> .                                                                                                                                             |
| 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 <a href="#">J1939 command</a> .                                                                                                                                             |
| Shutdown override                 | See the <a href="#">J1939 command</a> .                                                                                                                                             |
| Frequency selection (50 or 60 Hz) | In general, see the <a href="#">J1939 command</a> . In addition, the controller meets the proprietary requirements for this command.                                                |

## 6.19 Weichai

### 6.19.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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. |

## 6.19.2 Weichai Diesel

|                                      |                |                               |        |
|--------------------------------------|----------------|-------------------------------|--------|
| <b>ECU(s)</b>                        | WOODWARD PG+   | <b>Engine(s)</b>              | Diesel |
| <b>Use engine interface protocol</b> | Weichai Diesel | <b>Default source address</b> | 0      |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

### 6.19.3 Weichai Gas

|                                      |              |                               |     |
|--------------------------------------|--------------|-------------------------------|-----|
| <b>ECU(s)</b>                        | WOODWARD PG+ | <b>Engine(s)</b>              | Gas |
| <b>Use engine interface protocol</b> | Weichai Gas  | <b>Default source address</b> | 0   |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.19.4 Weichai Wise 10B

|                                      |                  |                               |        |
|--------------------------------------|------------------|-------------------------------|--------|
| <b>ECU(s)</b>                        | Wise 10B         | <b>Engine(s)</b>              | Diesel |
| <b>Use engine interface protocol</b> | Weichai Wise 10B | <b>Default source address</b> | 0      |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | - |

## 6.20 YANMAR

### 6.20.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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 YANMAR EDC 17

|                                      |               |                               |   |
|--------------------------------------|---------------|-------------------------------|---|
| <b>ECU(s)</b>                        | EDC 17        | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | YANMAR EDC 17 | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.21 Yuchai

### 6.21.1 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 address used for the speed control. |
| 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 | <b>Enabled:</b> The exhaust aftertreatment regeneration is not active.<br><b>Not enabled:</b> 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 Yuchai United Diesel

|                                      |                      |                               |        |
|--------------------------------------|----------------------|-------------------------------|--------|
| <b>ECU(s)</b>                        | YCGCU (Version 4.2)  | <b>Engine(s)</b>              | Diesel |
| <b>Use engine interface protocol</b> | Yuchai United Diesel | <b>Default source address</b> | 3      |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

### 6.21.3 Yuchai United Gas

|                                      |                     |                               |     |
|--------------------------------------|---------------------|-------------------------------|-----|
| <b>ECU(s)</b>                        | YCGCU (Version 4.2) | <b>Engine(s)</b>              | Gas |
| <b>Use engine interface protocol</b> | Yuchai United Gas   | <b>Default source address</b> | 0   |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.21.4 Yuchai YC-BCR

|                                      |               |                               |   |
|--------------------------------------|---------------|-------------------------------|---|
| <b>ECU(s)</b>                        | YC-BCR        | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Yuchai YC-BCR | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |

## 6.21.5 Yuchai YC-ECU

|                                      |               |                               |   |
|--------------------------------------|---------------|-------------------------------|---|
| <b>ECU(s)</b>                        | YC-ECU        | <b>Engine(s)</b>              |   |
| <b>Use engine interface protocol</b> | Yuchai YC-ECU | <b>Default source address</b> | 0 |

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

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

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

| Analogue values      |   |                             |   |
|----------------------|---|-----------------------------|---|
| 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) | ● |