-power in control

CE

PARAMETER LIST

DELOMATIC 4, DM-4 GAS CHP CONTROLLER

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1. About this document

General purpose

This document is the parameter list for DEIF's Delomatic 4, DM-4 Gas Combined Heat and Power (CHP) plant controller. The document mainly includes the parameter list.

The general purpose is to give the service engineer important information to be used in the daily operation of the unit.

Please make sure to read this handbook before working with the DM-4 Gas controller and the gen-set to be controlled. Failure to do this could result in damage to the equipment or human injury.

Intended users

This parameter list is mainly intended for design and service engineers.

Contents/overall structure

The document is divided into chapters, and in order to make the structure simple and easy to use, each chapter will begin from the top of a new page.

2. Warnings and legal information

Legal information and responsibility

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

In order to obtain safe and trouble-free use of the DM-4 Gas, it is important that transport, storage, mounting and commissioning is done according to standards.

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

Electrostatic discharge awareness

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

Safety issues

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

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

Extra care must be taken that components are not replaced with power on the system.

Definitions

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

Notes

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

Warnings

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

3. Parameters

General

Parameter can be changed, also if the system is running. The parameters are used to adapt the system to the plant in question.

Each parameter is password-protected to prevent unauthorised change of parameter value.

Each parameter has a specific number which is shown in the parameter editor and in the logs.

The following table shows the parameters of the system. In the parameter pages, the number is increasing from left to right and from top to bottom.

Parameter change is only possible for access level 2. Exceptions from this rule can be seen in the column “access level”.

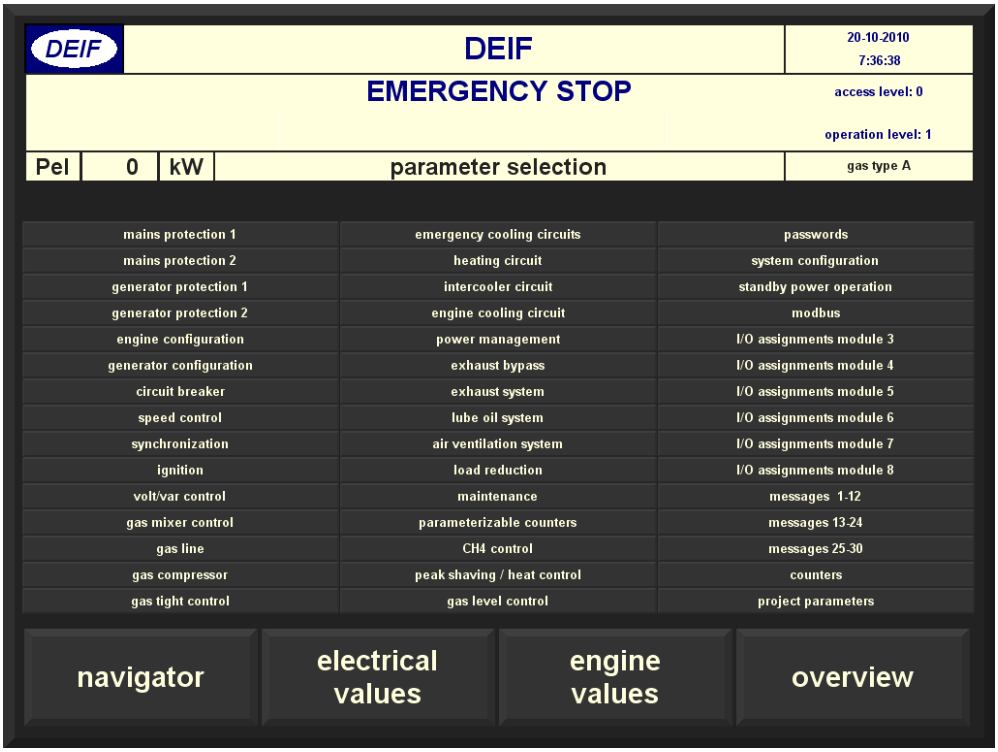
The following tables are examples; the parameter lists can be expanded to adapt the system to the plant in question.

Parameter pages

Via the parameter button in the navigator page, the parameter selection page is chosen. Here it is possible to adapt the parameters to the system in question.

First of all, a password must be entered to allow for change of parameters. The password button is on the top right of the page.

Without logging in, all parameters can be read but not changed.



Hints to parameter editor:

- Only values between “min” and “max” are valid
- Opening the editor (click on the value you want to change) activates the key-in field
- The sign is always shown
- The “,” (decimal point) can only be set once and only if the value in question has a decimal value.
- It is not possible to use more decimal values than shown
- The “factory settings” selection is on the project parameters page. Warning: all parameters will return to factory settings if the selection is made.
- If a value outside the acceptable range is selected (MAX<value<MIN), the value will be MAX or MIN. By pressing ENTER, this value is then selected.
- If you want to leave the editor without changing parameters, press “X” in the top right corner
- With the pin (next to X), you can pin the editor, i.e. you can enter a value and the editor remains open. This is for the situation where a parameter is to be determined by testing. Once the parameter is found, close the editor by pressing “X”.
- All parameter changes can be seen in the log “parameter-change”. Both new and old value will be shown.

Passwords

The passwords are in 3 levels, user (level 1), service (level 2) or master (level 3).

Log on is made using the log on button on the overview page.

The accessible parameters are dependent on which level is entered, where the level 3 is the highest access level and can change all parameters.

The passwords for level 1 and 2 can be changed. If logged on, only the password of the present login level and lower levels can be changed, i.e. logging in with e.g. level 1 does not give access to change of the level 2 password.

When parameters have been changed, it is recommended to log out to prevent unauthorized change of parameters. Logging out is done by selecting level 0. Log out will in any case take place automatically when no actions have been taken for a certain time.

Defining password in parameter editor

When clicking the “define password” button (after logon), the level 1 and 2 passwords are accessible.

The passwords are 4 digits and can be selected between 1000 and 9999.

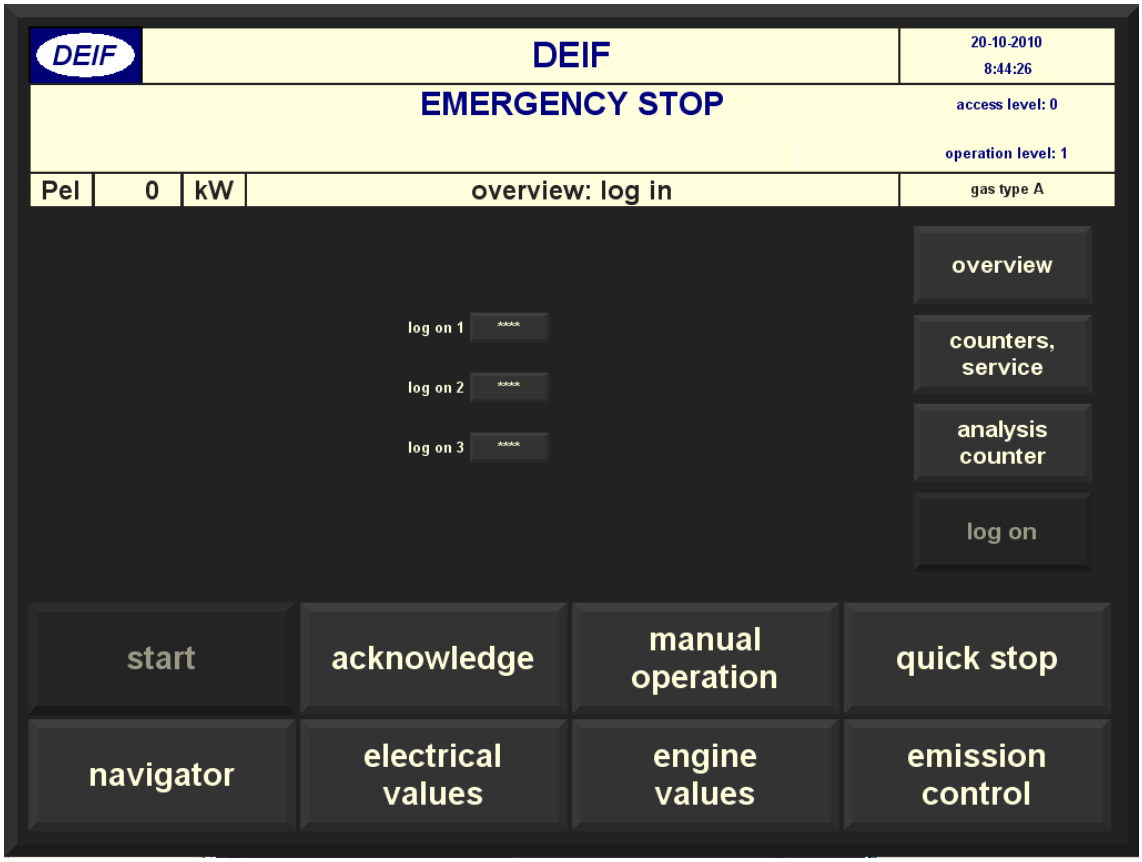
It is very important that the selected password is kept safe somewhere, since it will only be possible to log on at a later stage using this new password.

There is no factory setting for the passwords, so they are not affected by selecting the “factory settings”. The default value (0) lies deliberately outside the selectable area in order to prevent that more plants have the same password.

Logging on

To change parameters, it is necessary to log on. The log on page is selected by the “log on” button on the overview page.

The log in is done by selecting “user” or “service” log on. When clicking the “****” button, a pop-up editor field will open, with an empty value field. The operator now have to key in the 4-digit password in the field (number between 1000 and 9999). Each entry is shown by and asterix (*). If a wrong number is keyed in, it can be erased using the arrow, or you can erase all numbers using the “AC” button.
The password is written to the system using the “ENTER” button.



If the password is accepted, the “log on” button is changed to “log off”.

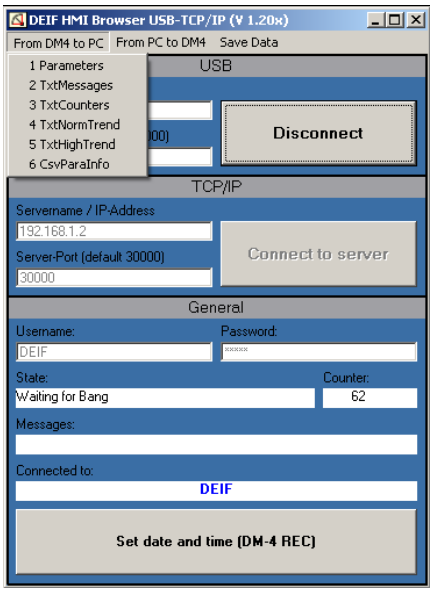
If the password is not accepted, the access level will be set to 0 (no access to parameters, logged off).

In the top right corner of the page, the present access level can be seen (in the example above: Access level 0).

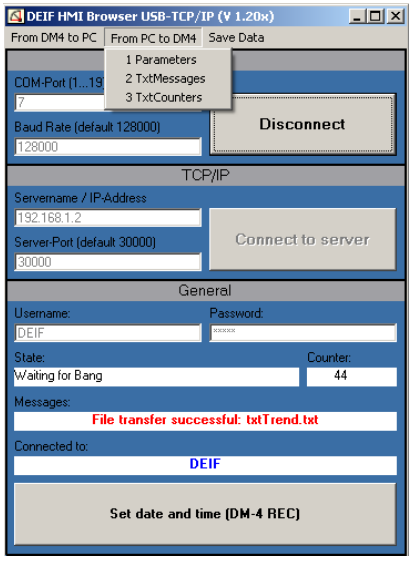
The master password is only intended for the producer of the system.

Saving parameters

The parameters can be saved using the “DEIF HMI Browser USB-TCP/IP”. Not only the parameters but also other information can be saved:



Saved data can at a later stage be sent to the DM-4 again:



4. Parameter list

Mains failure trip

Parameter number	Access level	Alarm
10010		Overvoltage
10020		Undervoltage
10030		Overfrequency
10040		Underfrequency
10050		df/dt
10060		df/dt periods
10070		Vector jump
10080		Short interruptions
10090		Recover time

Mains failure stop

Parameter number	Access level	Alarm
11010		Overvoltage
11020		Undervoltage
11030		Overfrequency
11040		Underfrequency
11050		Time delay
11060		Recover time

Generator protection 1

Parameter number	Access level	Alarm
12010		Overvoltage
12020		Overvoltage, time delay
12030		Undervoltage
12040		Undervoltage, time delay
12050		Reverse power (fast)
12060		Fast time delay
12070		Reverse power (slow)
12080		Slow time delay
12090		Slow recover time
12100		Minimum load
12110		Minimum load time delay
12120		Overcurrent 1
12130		Overcurrent 1 time delay
12140		Overcurrent 2
12150		Overcurrent 2 time delay
12160		Overcurrent 3 (I2t)
12170		Overcurrent 4
12180		Overcurrent 4 time delay
12190		Current asymmetry limit
12200		Current asymmetry time delay
12210		Current asymmetry reset time
12220		Current asymmetry max. no. of trips

Generator protection 2

Parameter number	Access level	Alarm
13010		Overload 1
13020		Overload 1 time delay
13030		Overload 1 reset time
13040		Overload 2
13050		Overload 2 time delay
13060		Overload 2 reset time
13070		Produced reactive power (C1)
13080		Produced reactive power (C2)
13090		Produced reactive power time delay
13100		Consumed reactive power
13110		Consumed reactive power (C1)
13120		Consumed reactive power (C2)
13130		Consumed reactive power time delay
13140		Generator overfrequency
13150		Generator overfrequency time delay
13160		Generator underfrequency
13170		Generator underfrequency time delay

Engine configuration

Parameter number	Access level	Function
14010		Cooldown time
14020	3	Nominal speed
14040		Overspeed
14045		Engine running speed
14050		Alarm activation speed
14080	1	Cranking time
14090		Cranking time in Test
14100	1	Crank pause
14110	1	Start attempts
14117		Flushing time
14120		Cranking pause
14140		Oil pressure at 20 mA
14150		Receiver pressure sensor
14160		Receiver pressure at 20 mA
14170		Oil pressure min. (close breaker)
14180		Oil pressure minimum
14190		Oil pressure min. activation delay
14200		Oil pressure max
14210		Min. oil temperature control
14220		Oil temperature max
14230		Oil temperature max delay time
14240		Oil temperature max recover time
14400		Min crankcase pressure
14410		Max crankcase pressure

Generator configuration

Parameter number	Access level	Function
15010	3	Generator nominal voltage
15020	3	Generator nominal frequency
15030	3	Generator nominal current
15040	3	Analogue power setpoint (0 = off/1 = on)
15050	3	Generator nominal power
15060	3	Current transformer primary side
15070	3	Current transformer secondary side (0 = 1A/1 = 5A)
15080	3	Voltage transformer primary side
15090	3	Voltage transformer secondary side

Circuit breakers

Parameter number	Access level	Function
16010		Generator breaker compact breaker
16020		Mains breaker compact breaker
16030		GCB operating time
16040		MCB operating time

Speed control

Parameter number	Access level	Function
17040		Analogue speed governor proportional
17050		Analogue speed governor integral
17060		Analogue speed governor differential
17080		Analogue power governor proportional
17090		Analogue power governor integral
17100		Analogue power governor differential
17110		Power ramp
17115		Warming load
17200		Analogue output power at 20 mA
17300		Number of teeth
17310		Filling at 0 RPM
17320		RPM throttle open
17330		Throttle pos feedback at 0% [V]
17340		Throttle pos feedback at 100% [V]
17350		Start value speed ramp
17360		Power reduction start value
17370		Analogue load sharing speed governor proportional
17380		Analogue load sharing speed governor integral
17390		Analogue load sharing speed governor differential
17400		Analogue load sharing power governor proportional
17410		Analogue load sharing power governor integral
17420		Analogue load sharing power governor differential

Synchronising

Parameter number	Access level	Function
18050		Sync timeout
18070		Speed governor proportional
18080		Speed governor integral
18090		Speed governor differential

Ignition

Parameter number	Access level	Function
19010		Ignition communication on/off (Altronic ignition system)
19020		Baud rate
19030		No. of cylinders (6/8/12)
19040		Ignition supervision on/off
19050		Min. spark reference
19060		Max. spark reference

Voltage-/Cos Phi control

Parameter number	Access level	Function
20010		Voltage regulator start value
20020		Voltage regulator upper limit
20030		Voltage regulator lower limit
20040		Voltage regulator integral
20050		Voltage regulator max deviation
20060		Voltage regulator timeout
20070		Cos Phi regulator integral
20080		Cos Phi regulator max deviation
20090		Cos Phi regulator timeout
20100		Setpoint Cos Phi
20110		Voltage regulator load sharing integral
20120		Cos phi regulator reactive load sharing integral

Gas line

Parameter number	Access level	Function
21010		Option 2 gas lines (YES/NO)
21020		Gas type in island (A/B)

Gas mixer control

Parameter number	Access level	Function
22010		Option Lambda control (on/off)
22020		Sensor receiver temperature (on/off)
22030		Sensor receiver pressure (on/off)
22040		Receiver pressure (20 mA)
22050		Setpoint lambda
22060		Max. no. of steps
22070		Release power control
22080		Mixer control Kp
22090		Mixer control Ki
22100		Mixer control Kd
22110		Max mixer control deviation
22120		Step offset (island)
22130		Max mixture temperature
22140		Min mixture temperature
Gas type A		
22150		Power (1A)
22160		Mixture temperature (1A)
22170		Mixture pressure (1A)
22180		Power (2A)
22190		Mixture temperature (2A)
22200		Mixture pressure (2A)
22210		Power (3A)
22220		Mixture temperature (3A)
22230		Mixture pressure (3A)
22240		Power (4A)
22250		Mixture temperature (4A)
22260		Mixture pressure (4A)
22270		p/T factor (A)
22280		Start position (A)
22290		Idle position (A)
22300		Parallel position (A)
22310		Island position (A)
Gas type B		
22320		Power (1B)
22330		Mixture temperature (1B)
22340		Mixture pressure (1B)
22350		Power (2B)
22360		Mixture temperature (2B)
22370		Mixture pressure (2B)
22380		Power (3B)
22390		Mixture temperature (3B)
22400		Mixture pressure (3B)
22410		Power (4B)
22420		Mixture temperature (4B)
22430		Mixture pressure (4B)
22440		p/T factor (B)
22450		Start position (B)
22460		Idle position (B)
22470		Parallel position (B)
22480		Island position (B)

Gas compressor

Parameter number	Access level	Function
23010		Option gas compressor (YES/NO)

Gas tight control

Parameter number	Access level	Function
24010		Option gas tight control A (YES/NO)
24020		Option gas tight control B (YES/NO)

Emergency cooling circuits

Parameter number	Access level	Function
25008		Emergency cooler regulation on/off
25010		Off delay emergency cooler
25025		Signal valve % Yes/No
25065		Temperature setpoint emergency cooler
25066		Temperature minimum emergency cooler
25070		Emergency cooler Kp
25075		Emergency cooler Ki
25082		Stages emergency cooler
25083		Next stage above emergency cooler pos.
25084		Down stage below emergency cooler pos.
25085		Next stage above T rate

Heating circuit

Parameter number	Access level	Function
26082		Heating circuit on/off
26084		Signal for valve pos zero (0/4 mA)
26085		Heating circuit Kp
26086		Heating circuit Ki
26087		Heating circuit Kd
26150		Sensor temperature heating after exchanger (on/off)
26160		Overtemperature after heat exchanger
26170		Sensor temperature heating water flow (on/off)
26180		Overtemperature flow
26190		Sensor temperature heating water return on/off)

Intercooler circuit

Parameter number	Access level	Function
27010		Intercooler circuit on/off
27025		Control has effect on gas/water
27030		T setpoint intercooler
27031		Intercooler Kp
27032		Intercooler Ki
27040		Intercooler max temp
27050		Intercooler stages (1-3)
27051		Next stage above position
27052		Down stage below position
27055		Next stage above T rate
27058		Stage off delay

Engine cooling circuit

Parameter number	Access level	Function
14350		Water pressure sensor value at 20 mA
14360		Warning water pressure min
14370		Warning water pressure max
14380		Stop water pressure min
14390		Stop water pressure max
25090		Temperature curve engine entry setpoint cooling water in
25091		Temperature curve engine entry setpoint cooling water in at 50%
25115		Cooling water inlet temp max
25116		Cooling water inlet temp delay
25100		Cooling water outlet temp max
25110		Cooling water outlet temp delay
25120		Cooling water pump follow-up time
25130		Cooling water pump switch off temp
26094		Engine preheating on/off
26096		Engine preheating type (electric/water)

Power management

Parameter number	Access level	Function
29200		Power management mode (ID/hours)
29210		Running hours
29220		Interval
Island operation		
29230		Limit start
29240		Start delay
29250		Limit stop
29260		Stop delay
Grid parallel operation		
29270		Limit start
29280		Start delay
29290		Limit stop
29300		Stop delay
29310		Power setpoint
Regulation by ID		
29320		CH4 (ID)
29330		Gas level (ID)
29340		Peak shaving (ID)

On the power management page there is a “transfer” button. Clicking this button will transfer the settings to the other DM-4 Gas units in the system

Exhaust bypass

Parameter number	Access level	Function
30040		Option exhaust bypass on/off
Exhaust bypass regulation		
26010		Supervision limit stops on/off
26020		Period time
26030		Proportional
26040		Differential
26050		Setpoint heated water out
26060		T-max heated water out
26070		Open bypass with T> flow limit temp
26072		Open bypass with T> return limit temp
26071		Close bypass with T< flow limit T<
26073		Close bypass with T< return limit T<

Exhaust system

Parameter number	Access level	Function
Overtemperature after engine A		
31500		Option on/off
31501		Warning temp
31502		Stop temp
Overtemperature after engine B		
31510		Option on/off
31511		Warning temp
31512		Stop temp
Overtemperature before catalyst		
31520		Option on/off
31521		Warning temp
31522		Stop temp
Overtemperature after catalyst		
31530		Option on/off
31531		Warning temp
31532		Stop temp
Overtemperature after heat exchanger		
31540		Option on/off
31541		Warning temp
31542		Stop temp
Back pressure		
31550		Option on/off
31551		Delay time

Lube oil system

Parameter number	Access level	Function
Lube oil level sensor		
32040		Value at 20 mA
32050		Lube oil level min
32060		Lube oil level max

Air ventilation system

Parameter number	Access level	Function
33005		Acoustic hood on/off
Airflaps		
33010		Option on/off
33020		Timeout close
33030		Timeout open
Room air control		
33032		Option on/off
33033		Room temp setpoint
33035		Room air control Kp
33036		Room air control Ki
33038		Room temp max
33040		Limit stage 2 room air temperature
33050		Delay time off

Load reduction

Parameter number	Access level	Function
Engine cooling water outlet temperature		
34010		Power ramp (kW/K)
34020		Start value
Lube oil temperature		
34040		Power ramp (kW/K)
34050		Start value
Exhaust temperature		
34060		Power ramp (kW/K)
34070		Start value

Maintenance

Parameter number	Access level	Function
35010		Lube oil Interval time
35020		Spark plugs interval time
35030		Engine Interval time

The page also shows the actual counter value and holds for each of the three counters a reset button.

Parameterisable counters

Parameter number	Access level	Function
-		Counter 1 name
36010		Counter 1 pulse/unit
-		Counter 1 unit
-		Counter 2 name
36020		Counter 2 pulses/unit
-		Counter 2 unit
-		Counter 3 name
36030		Counter 3 pulses/unit
-		Counter 3 unit
-		Counter 4 name
36040		Counter 4 pulses/unit
-		Counter 4 unit

The page also shows the actual counter value and holds for each of the four counters a reset button.

CH_4 control

Parameter number	Access level	Function
37010		On/off
37020		Stop at CH4 value
37030		Full load above CH4 value
37040		Lowest load because of CH4
37060		Standard mixer position at CH4 (%)
37070		Mixer position adjustment
37080		Value at 20 mA

Peak shaving/heat control

Parameter number	Access level	Function
38010		Peak shaving On/Off
Mains power signal		
38020		Mains power at 4 mA
38030		Mains power at 20 mA
38040		Setpoint mains power import, day
38050		Setpoint mains power import, night
38055		Day begins at (hour)
38057		Day ends at (hour)
38060		Start gen-set above (kW)
38070		Start delay
38080		Stop gen-set below (kW)
38090		Stop delay
Heat control		
38100		On/off
38110		Flow min (temp)
38120		Return max (temp)
38130		Wait before on

Gas level control

Parameter number	Access level	Function
39020		Stop at gas level (0% = no stop)
39030		Full load at gas level (0% = no load reduction)
39040		Lowest load because of gas level (% nominal power)
39050		Gas level limit for lowest load (% gas level)

Passwords

Parameter number	Access level	Function
40020		Access level 1(operator)
40030		Access level 2 (service)

The access level 3 password is not configurable. Level 3 is for the system supplier only.

System configuration

Parameter number	Access level	Function
41010		Change language
41020		No. of I/O modules
41030		No. of SC modules (AC measuring, synchronising and protection)
41040		Engine number

Besides the settings, the presence of engines 1-14 and mains Delomatic (15) can be chosen via tick boxes.

Standby power operation

Parameter number	Access level	Function
42010		Standby power on/off
42020		Power failure under voltage
42025		Mains failure delay
42030		Back synchronisation (no/overlap/synchronisation)
42040		Mains recover time
42050		Sequence (open MCB immediately/disconnect MCB if engine running)
42060		Time delay when switching MCB/GCB
42070		Mains protection for MCB/GCB

Modbus

The Modbus configurator does not contain any parameters, but a number of tick boxes where write access can be given for specific settings/commands:

Analogue values:
- Demanded power
- Mains power
- CH_4 value
- Gas tank level

Digital commands:
- Start demand
- Fast stop
- Acknowledge
- Island operation
- Automatic operation
- CH_4 calibrating
- Demand gas B

I/O assignments, general

For the IOM 4-2 modules, a number of I/O assignments are fixed (greyed out in the pages), others are configurable. When clicking a configurable I/O, a list of possibilities will appear. Those possibilities already used are greyed out, the rest are free to use.

The assignment to terminals is made giving the terminal number a prefix which equals the IOM 4-2 module position in the rack (e.g. IOM module in pos #3, the terminal 23 is indicated with 323).

I/O assignments IOM 4-2 module #3

Assignment	Terminal	Access level	Function
Digital inputs			
Fixed	323		Smoke detector
Fixed	324		Emergency stop
Fixed	325		Watchdog
Fixed	326		Safety chain
Fixed	327		Low water level cooling system
Configurable	328		External loss of mains
Fixed	330/331		Pickup
Configurable	332/333		Par. message 1
Configurable	363		Generator fuse (gen voltage missing)
Configurable	364		Par. message 5
Fixed	365		GCB tripped
Fixed	366		Fault MK water flow (engine cooling system)
Fixed	367		Fault HK (heating circuit)
Fixed	368		Gas alarm fault
Configurable	370/371		Par. message 2
Configurable	372/373		Par. message 3
Digital outputs			
Fixed	335		Rearm safety chain
Fixed	336		Open safety chain
Fixed	337		CCB ON command
Fixed	338		GCB undervoltage coil
Fixed	339		GCB off command
Fixed	375		Open gas valve A1
Fixed	376		Ignition
Fixed	377		Starter (crank)
Configurable	378		PKG amplifier (throttle valve amplifier)
Configurable	379		Compressor on (Gas)
Analogue inputs, Pt100/NiCrNi			
Fixed	301-304		Cool. water temp. out (engine outlet)
Fixed	305-308		Lube oil temp
Fixed	309-312		Receiver temp (scavenge air)
Fixed	341-344		HK temp. bef. exchanger (hot water circuit)
Fixed	345-348		GK water temp. in (air intercooler water circuit inlet)
Configurable	349-352		Room air temp
Analogue inputs, +/-20 mA			
Fixed	313/314		Throttle position
Fixed	316/317		Lube oil pressure
Fixed	353/354		Lambda voltage
Fixed	356/357		Receiver pressure (scavenge air)
Analogue outputs +/- 20 mA			
Fixed	319/320		Speed governor (throttle)
Fixed	321/244		Voltage regulator
Fixed	359/360		Setpoint HK valve (hot water)
Fixed	361/362		Setpoint GK valve (intercooler water circuit valve)

I/O assignments IOM 4-2 module #4

Assignment	Terminal	Access level	Function
Digital inputs			
Configurable	423		Enable operation
Configurable	424		Not used
Configurable	425		Acknowledge
Configurable	426		Filter maintenance
Configurable	427		CH4 calibration
Fixed	428		Fault auxiliaries
Configurable	430/431		Par. counter 1
Configurable	432/433		Par. counter 2
Fixed	463		Gas pressure A
Fixed	464		Gas tight control A
Fixed	465		Gas temperature A
Fixed	466		Exhaust back pressure
Configurable	467		Room air limiter
Configurable	468		Fault emergency cooling system
Configurable	470/471		Par. counter 3
Configurable	472/473		Par. counter 4
Digital outputs			
Fixed	435		MK pump ON (engine cooling water pump)
Fixed	436		HK pump ON (hot water circuit pump)
Fixed	437		GK pump/stage 1 (engine cooling pump + fan stage 1)
Fixed	438		GK stage 2 (fan stage 2)
Fixed	439		GK stage 3 (fan stage 3)
Configurable	475		Emer. cooling pump/fan stage 1
Configurable	476		Emer. fan stage 2
Configurable	477		Emer. fan stage 3
Configurable	478		Waste oil pump
Configurable	479		Fresh oil pump/valve
Analogue inputs, Pt100/NiCrNi			
Fixed	401-404		Cool. water temperature in
Fixed	405-408		HK temp. after NK (hot water after emer. cooler)
Fixed	409-412		HK water temp. return (hot water circuit)
Fixed	441-444		HK water temp. flow (hot water inlet temperature)
Fixed	445-448		HK temp. after exchanger
Fixed	449-452		Cold junction
Analogue inputs, +/-20 mA			
Fixed	413/414		Demanded power
Fixed	416/417		Cooling water pressure
Configurable	453/454		Lube oil level
Fixed	456/457		Mains power
Analogue outputs +/- 20 mA			
Fixed	419/420		kW instrument
Fixed	421/444		Setpoint NK valve
Fixed	459/460		Setpoint air ventilation
Configurable	461/462		Setpoint air flap

I/O assignments IOM 4-2 module #5

Assignment	Terminal	Access level	Function
Digital inputs			
Fixed	523		Mixer position lean
Fixed	524		Fault intercooler (low water level)
Configurable	525		Winding temperature limit
Configurable	526		Lube oil level max.
Fixed	527		Lube oil level min.
Configurable	528		Not used
Configurable	530/531		Not used
Configurable	532/533		Not used
Configurable	563		Not used
Configurable	564		Not used
Configurable	565		Com. pressure (gas compressor limiter)
Fixed	566		Gas alarm warning
Fixed	567		Fault gas alarm device
Configurable	568		Com. temperature A
Configurable	570/571		Not used
Configurable	572/573		Not used
Digital outputs			
Fixed	535		Gas mixer clock
Fixed	536		Gas mixer direction
Fixed	537		Cooling water preheater
Fixed	538		Open air flaps
Configurable	539		Air regulator release
Fixed	575		Collective fault
Fixed	576		Collective warning
Configurable	577		Ready for operation
Fixed	578		Gas tight control A
Configurable	579		Kwh pulse
Analogue inputs, Pt100/NiCrNi			
Fixed	501-504		Exhaust temperature bank A
Fixed	505-508		Exhaust temperature bank B
Fixed	509-512		Exhaust temperature after catalyst
Configurable	541-544		Not used
Fixed	545-548		Exhaust temperature after AWT (heat exchanger)
Configurable	549-552		Not used
Analogue inputs, +/-20 mA			
Fixed	513/514		CH4 value
Fixed	516/517		Gas tank level
Fixed	553/554		Battery voltage
Configurable	556/557		Not used
Analogue outputs +/-20 mA			
Fixed	519/520		Mixer (intern)
Configurable	521/544		Not used
Configurable	559/560		Not used
Configurable	561/562		Not used

I/O assignments IOM 4-2 module #6

Assignment	Terminal	Access level	Function
Digital inputs			
Configurable	623		Island operation
Configurable	624		Demand gas B
Configurable	625		Fresh oil min storage tank
Configurable	626		Not used
Configurable	627		Waste oil max storage tank
Fixed	628		Fresh oil min day tank
Configurable	630/631		Gas tight control B
Configurable	632/633		Gas temperature B
Configurable	663		Fresh oil max day tank
Configurable	664		Bypass opened
Configurable	665		Bypass closed
Configurable	666		MCB opened
Configurable	667		MCB tripped
Configurable	668		Gas pressure B
Configurable	670/671		Not used
Configurable	672/673		Not used
Digital outputs			
Configurable	635		Close bypass
Configurable	636		MCB on command
Configurable	637		MCB trip command
Configurable	638		MCB off command
Configurable	639		Gas tight control B
Fixed	675		Open gas valve B1
Configurable	676		Island stage 1 (throw off, load trip)
Configurable	677		Island stage 2 (throw off, load trip)
Configurable	678		Island stage 3 (throw off, load trip)
Configurable	679		Island stage 4 (throw off, load trip)
Analogue inputs, Pt100/NiCrNi			
Configurable	601-604		Not used
Configurable	605-608		Not used
Configurable	609-612		Not used
Configurable	641-644		Not used
Configurable	645-648		Not used
Configurable	649-652		Not used
Analogue inputs, +/-20 mA			
Configurable	613/614		Not used
Configurable	616/617		Not used
Configurable	653/654		Not used
Configurable	656/657		Not used
Analogue outputs +/- 20 mA			
Configurable	619/620		Not used
Configurable	621/644		Not used
Configurable	659/660		Not used
Configurable	661/662		Not used

I/O assignments IOM 4-2 module #7 and #8

Prepared for future use, but not assigned.

Messages, general

The messages are configurable alarms with texts and functions selectable for each message.

Each message holds configuration for:

Function	Remarks
Message text:	Freely selectable (pop-up keypad)
Level 1…7 (alarm severity level/operation level)	1: Emergency stop (shutdown) 2: Fast stop 3: GCB trip 4: Synchronise but do not close breaker 5: Normal run (may be combined with regular stop dependent on the alarm in question) 6: Power reduction (reserved, not active) 7: Warning
Regular stop	Selection if the alarm shall cause a regular stop of the engine (ramp-down open breaker, cool-down, stop)
Alarm active	Low level or high level alarm activation
Delay time	0…600 sec
Automatic acknowledge	Yes/No
Recover time	0…600 sec (time delay for reset after normal condition has been established)
Enable alarm	Activation of alarm when no(never)/yes(always)/ engine running/parallel to grid

Messages 1-12

Parameter numbers for settings:

Message no.	Level	Regular stop	Alarm active	Delay time	Automatic acknowledge	Recover time	Enable alarm
1	50013	50012	50010	50015	50011	50016	50014
2	50023	50022	50020	50025	50021	50026	50024
. .							
12	50123	50122	50120	50125	50121	50126	50124

Messages 13-24

Parameter numbers for settings:

Message no.	Level	Regular stop	Alarm active	Delay time	Automatic acknowledge	Recover time	Enable alarm
13	51013	51012	51010	51015	51011	51016	51014
14	51023	51022	51020	51025	51021	51026	51024
. .							
24	51123	51122	51120	51125	51121	51126	51124

Messages 25-30

Parameter numbers for settings:

Message no.	Level	Regular stop	Alarm active	Delay time	Automatic acknowledge	Recover time	Enable alarm
25	52013	52012	52010	52015	52011	52016	52014
26	52023	52022	52020	52025	52021	52026	52024
. .							
30	52123	52122	52120	52125	52121	52126	52124

Counters

Counter values can be adjusted for the following counters:

Parameter number	Access level	Function
53020		Active energy counter (kWh)
53030		Operating hours
53040		GCB operations
53050		Start attempt counter
53060		MCB operations

Project parameters

Parameter number	Access level	Function
-		Factory setting (set all parameters to factory setting)
-		Project name (free text)
54010		SMS message on/off
-		SMS PIN number (free text)
-		SMS phone number (free text)

The generator set must be stopped when activating the factory setting button. The DM-4 Gas will reset without warning. Be sure that parameters are saved before clicking the factory setting button.

5. Parameter list, numbered order

The below is all parameters in numbered order with indication of unit, max and min. setting value.

Param no.	Unit	min	max	Text	Run level	Parameter page
10010	V	380	460	overvoltage	2	Mains failure trip
10020	V	280	420	undervoltage	2	Mains failure trip
10030	Hz	49	52	upper frequency	2	Mains failure trip
10040	Hz	47	51	lower frequency	2	Mains failure trip
10050	Hz/s	0	10	df/dt	2	Mains failure trip
10060		1	10	df/dt periods	2	Mains failure trip
10070	Deg.	1	15	vector jump	2	Mains failure trip
10080		1	100	short interruptions	2	Mains failure trip
10090	s	0	100	recover time	2	Mains failure trip
10100	V	160	400	activation voltage	2	Mains failure trip
10110	s	0,1	90	upper frequency	2	Mains failure trip
10120	V	120	280	undervoltage 1	2	Mains failure trip
10130	ms	50	500	delay time 1	2	Mains failure trip
10140	V	120	400	undervoltage 2	2	Mains failure trip
10150	ms	50	10000	delay time 2	2	Mains failure trip
10160	V	120	400	undervoltage 3	2	Mains failure trip
10170	ms	100	10000	delay time 3	2	Mains failure trip
11010	V	380	460	overvoltage	2	Mains failure stop
11020	V	280	420	undervoltage	2	Mains failure stop
11030	Hz	49	52	upper frequency	2	Mains failure stop
11040	Hz	47	51	lower frequency	2	Mains failure stop
11050	s	0	600	delay time	2	Mains failure stop
11060	s	0	1800	recover time	2	Mains failure stop
11070		0	1	auto restart	2	Mains failure stop
12010	V	380	600	overvoltage	2	Generator protection 1
12020	s	0	3	delay time	2	Generator protection 1
12030	V	300	420	undervoltage	2	Generator protection 1
12040	s	0	600	delay time	2	Generator protection 1
12050	kW	-200	0	reverse power (fast)	2	Generator protection 1
12060	s	0	20	delay time	2	Generator protection 1
12070	kW	-200	0	reverse power (slow)	2	Generator protection 1
12080	s	0	300	delay time	2	Generator protection 1
12090	s	0	3600	recover time	2	Generator protection 1
12100	kW	0	500	min load	2	Generator protection 1
12110	s	0	600000	delay time	2	Generator protection 1
12120	A	1	5000	overcurrent 1	2	Generator protection 1
12130	s	0	20	delay time	2	Generator protection 1
12140	A	1	5000	overcurrent 2	2	Generator protection 1
12150	s	0	2	delay time	2	Generator protection 1
12160	A2s	0	4000000	overcurrent 3 (I2t)	2	Generator protection 1
12170	A	1	5000	overcurrent 4	2	Generator protection 1
12180	s	0	2	delay time	2	Generator protection 1

Param no.	Unit	min	max	Text	Run level	Parameter page
12190	A	0	2000	current asymmetry	2	Generator protection 1
12200	s	0	1	delay time	2	Generator protection 1
12210	s	0	100	recover time	2	Generator protection 1
12220		1	10	max number of trips	2	Generator protection 1
13010	kW	1	3000	overload 1	2	Generator protection 2
13020	s	0	150	delay time	2	Generator protection 2
13030	s	0	6000	recover time	2	Generator protection 2
13040	kW	1	3000	overload 2	2	Generator protection 2
13050	s	0	20	delay time	2	Generator protection 2
13060	kVAr	1	3000	reactive power export	2	Generator protection 2
13070		0,01	1	factor C1	2	Generator protection 2
13080		0,01	1	factor C2	2	Generator protection 2
13090	S	0	60	delay time	2	Generator protection 2
13100	kVAr	-3000	-1	reactive power import	2	Generator protection 2
13110		0,01	1	factor C1	2	Generator protection 2
13120		0,01	1	factor C2	2	Generator protection 2
13130	s	0	20	delay time	2	Generator protection 2
13140	Hz	45	65	upper frequency	2	Generator protection 2
13150	s	0	1	delay time	2	Generator protection 2
13160	Hz	30	55	lower frequency	2	Generator protection 2
13170	s	0	300	delay time	2	Generator protection 2
13180	%	1	110	power drop	2	Generator protection 2
13190	°C	30	200	winding temp. U	2	Generator protection 2
13200	°C	30	200	winding temp. V	2	Generator protection 2
13210	°C	30	200	winding temp. W	2	Generator protection 2
13220	°C	30	200	gen bearing A	2	Generator protection 2
13230	°C	30	200	gen bearing B	2	Generator protection 2
14010	s	0	600	cooldown time	1	Engine configuration
14030	rpm	1500	1500	nominal speed	3	Engine configuration
14040	rpm	1000	2000	overspeed	2	Engine configuration
14045	rpm	200	500	engine running	2	Engine configuration
14050	rpm	0	2000	activation speed	2	Engine configuration
14070		0	1	tooth on tooth:	3	Engine configuration
14080	s	0	20	cranking time	2	Engine configuration
14090	s	0	60	cranking time test	2	Engine configuration
14110		1	20	start attempts	2	Engine configuration
14115	s	30	600	waiting time	2	Engine configuration
14117	s	5	15	flushing time	2	Engine configuration
14120	s	5	600	cranking pause	2	Engine configuration
14140	bar	1	50	value at 20 mA	2	Engine configuration
14170	bar	0	16	oil press min (parallel)	2	Engine configuration
14180	bar	0	16	oil press min	2	Engine configuration
14190	s	1	20	activation delay	2	Engine configuration
14200	bar	0	16	oil pressure max	2	Engine configuration
14210	°C	0	120	min. oil temp control	2	Engine configuration
14220	°C	0	150	oil temperature max	2	Engine configuration
14230	s	0	20	delay time	2	Engine configuration
14350	bar	1	10	value at 20 mA	2	Engine cooling circuit

Param no.	Unit	min	max	Text	Run level	Parameter page
14360	bar	0	5	warn. water press min	2	Engine cooling circuit
14370	bar	1	10	warn. water press max	2	Engine cooling circuit
14380	bar	0	5	stop water pressure min	2	Engine cooling circuit
14390	bar	1	10	stop water pressure max	2	Engine cooling circuit
15010	V	300	500	nominal voltage	3	Generator config.
15020	Hz	50	50	nominal frequency	3	Generator config.
15040		0	1	load demanded as analogue input:	1	Generator config.
15050	kW	100	600	nominal load	2	Generator config.
15052	%	0	100	max power gas type A	2	Generator config.
15053	%	0	100	max power gas type B	2	Generator config.
15060	A	100	2000	curr.transf. primary	2	Generator config.
15070		0	1	curr.transf. secondary:	2	Generator config.
16010		0	1	compact breaker option:	2	Generator breaker
16020		0	1	compact breaker option:	2	Generator breaker
16030	ms	0	1000	GCB operating time	2	Generator breaker
16040	ms	0	1000	MCB operating time	2	Generator breaker
17040		1	10000	proportional	2	Speed/power regulator
17050		1	10000	Integral	2	Speed/power regulator
17060		1	10000	differential	2	Speed/power regulator
17080		0,01	1000	proportional	2	Speed/power regulator
17090		0,01	1000	Integral	2	Speed/power regulator
17100		0,01	1000	differential	2	Speed/power regulator
17110	kW/s	0,1	50	power ramp	2	Speed/power regulator
17115	kW	1	600	warming load	1	Speed/power regulator
17200	kW	100	1000	value at 20 mA	2	Speed/power regulator
17300		10	200	number of teeth	2	Speed/power regulator
17310	%	0	100	filling at 0 rpm	2	Speed/power regulator
17320	rpm	100	2000	rpm throttle open	2	Speed/power regulator
17330	V	0	2	throttle pos. 0% [V]	2	Speed/power regulator
17340	V	3	10	throttle pos. 100% [V]	2	Speed/power regulator
17350	rpm	350	1100	start val speed ramp	2	Speed/power regulator
17360	%	50	100	power reduction	2	Speed/power regulator
18030	s	0,01	10	integral time	3	Synchronising
18040	rpm	0,1	10	deadband	2	Synchronising
18050	s	30	600	synchronising timeout	1	Synchronising
19010		0	1	Modbus (0 = off/1 = on)	2	Ignition
19020		0	1	0 = 9600/1 = 57600	2	Ignition
19030		1	3	1 = 6/2 = 8/3 = 12	2	Ignition

Param no.	Unit	min	max	Text	Run level	Parameter page
19040		0	1	supervision (1 = on)	2	Ignition
19050		0	200	min. spark ref	2	Ignition
19060		100	500	max. spark ref	2	Ignition
20010	mA	-20	16	start value	2	Voltage-/CosPhi regulator
20020	mA	-16	20	upper limit	2	Voltage-/ CosPhi regulator
20030	mA	-20	16	lower limit	2	Voltage-/ CosPhi regulator
20040		0,01	1	integral	2	Voltage-/ CosPhi regulator
20050	V	0	500	max control deviation	2	Voltage-/ CosPhi regulator
20060	s	1	600	timeout	2	Voltage-/ CosPhi regulator
20070		0,01	1	integral	2	Voltage-/ CosPhi regulator
20080	kVAr	0	3000	max control deviation	2	Voltage-/ CosPhi CosPhi regulator
20090	s	1	600	timeout	2	Voltage-/CosPhi regulator
20100		0,8	1	setpoint CosPhi	2	Voltage-/ CosPhi regulator
21010		0	1	option 2 gas lines:	2	Gas inlet system
21020		0	1	gas type in island:	2	Gas inlet system
22010		0	1	option Lambda control	2	Gas mixer control
22020		0	1	sensor receiver temp.	2	Gas mixer control
22030		0	1	sensor receiver press.	2	Gas mixer control
22040	bar	1	16	receiver press. (20 mA)	2	Gas mixer control
22050	mA	4	20	setpoint Lambda	2	Gas mixer control
22060		100	10000	max. number of steps	2	Gas mixer control
22070	kW	100	600	release power control	2	Gas mixer control
22080		0	10000	mixer ctrl Kp	2	Gas mixer control
22090		0	10000	mixer ctrl Ki	2	Gas mixer control
22100		0	10000	mixer ctrl Kd	2	Gas mixer control
22110	mbar	100	3000	max mixer ctrl deviation	2	Gas mixer control
22130	°C	20	100	max mixture temp.	2	Gas mixer control
22140	°C	0	50	min mixture temp.	2	Gas mixer control
22150	kW	0	720	power (1A)	2	Gas mixer control
22160	°C	0	100	mixture temp. (1A)	2	Gas mixer control
22170	mbar	0	4000	mixture pressure (1A)	2	Gas mixer control
22180	kW	0	720	power (2A)	2	Gas mixer control
22190	°C	0	100	mixture temp. (2A)	2	Gas mixer control
22200	mbar	0	4000	mixture pressure (2A)	2	Gas mixer control
22210	kW	0	720	power (3A)	2	Gas mixer control

Param no.	Unit	min	max	Text	Run level	Parameter page
22220	°C	0	100	mixture temp. (3A)	2	Gas mixer control
22230	mbar	0	4000	mixture pressure (3A)	2	Gas mixer control
22240	kW	0	720	power (4A)	2	Gas mixer control
22250	°C	0	100	mixture temp. (4A)	2	Gas mixer control
22260	mbar	0	4000	mixture pressure (4A)	2	Gas mixer control
22270		0,1	10	p/T-factor (A)	2	Gas mixer control
22280	%	1	90	start position (A)	1	Gas mixer control
22290	%	1	90	idle position (A)	1	Gas mixer control
22300	%	1	90	parallel position (A)	1	Gas mixer control
22310	%	1	90	island position (A)	1	Gas mixer control
22320	kW	0	720	power (1B)	2	Gas mixer control
22330	°C	0	100	mixture temp. (1B)	2	Gas mixer control
22340	mbar	0	4000	mixture pressure (1B)	2	Gas mixer control
22350	kW	0	720	power (2B)	2	Gas mixer control
22360	°C	0	100	mixture temp. (2B)	2	Gas mixer control
22370	mbar	0	4000	mixture pressure (2B)	2	Gas mixer control
22380	kW	0	720	power (3B)	2	Gas mixer control
22390	°C	0	100	mixture temp. (3B)	2	Gas mixer control
22400	mbar	0	4000	mixture pressure (3B)	2	Gas mixer control
22410	kW	0	720	power (4B)	2	Gas mixer control
22420	°C	0	100	mixture temp. (4B)	2	Gas mixer control
22430	mbar	0	4000	mixture pressure (4B)	2	Gas mixer control
22440		0,1	10	p/T-factor (B)	2	Gas mixer control
22450	%	1	90	start position (B)	1	Gas mixer control
22460	%	1	90	idle position (B)	1	Gas mixer control
22470	%	1	90	parallel position (B)	1	Gas mixer control
22480	%	1	90	island position (B)	1	Gas mixer control
23010		0	1	option gas compressor:	2	Gas compressor
24010		0	1	option gas tight control A:	2	Gas leak control
24020		0	1	option gas tight control B:	2	Gas leak control
25008		0	1	emergency cooler	2	Emer. cooling circuit
25010	s	10	600	off delay emerg. C	1	Emer. cooling circuit
25025		0	1	signal valve 0%	2	Emer. cooling circuit
25065	°C	10	90	T set emerg. cooler	1	Emer. cooling circuit
25066	°C	0	70	T min emerg. cooler	2	Emer. cooling circuit
25070		1	10000	emerg. cooler Kp	2	Emer. cooling circuit
25075		0	10000	emerg. cooler Ki	2	Emer. cooling circuit
25082		1	3	stages emerg. cooler	2	Emer. cooling circuit
25083	%	10	98	next stage above EC pos.	2	Emer. cooling circuit
25084	%	2	90	down stage below EC	2	Emer. cooling circuit

Param no.	Unit	min	max	Text	Run level	Parameter page
				pos.		
25090	°C	70	98	setpoint cool water in	1	Engine cooling circuit
25091	°C	72	100	setp cool water in at 50%	1	Engine cooling circuit
25100	°C	80	110	max temperature	2	Engine cooling circuit
25110	s	0	5	delay time	2	Engine cooling circuit
25115	°C	70	100	max temperature	2	Engine cooling circuit
25116	s	0	5	delay time	2	Engine cooling circuit
25120	s	0	600	follow-up time	2	Engine cooling circuit
25130	°C	0	110	switch-off temperature	2	Engine cooling circuit
26010		0	1	supervision limit stops:	2	Exhaust bypass
26050	°C	70	110	setpoint heat water out	1	Exhaust bypass
26060	°C	70	110	T max heat-water out	2	Exhaust bypass
26084		0	1	signal for valveposition zero	2	Heating circuit
26085		1	10000	heating circ. Kp	2	Heating circuit
26086		0	10000	heating circ. Ki	2	Heating circuit
26087		0	10000	heating circ. Kd	2	Heating circuit
26094		0	1	option preheating	2	Heating circuit
26096		0	1	type of preheating	2	Engine cooling circuit
26150		0	1	after heat exchanger	2	Heating circuit
26160	°C	50	105	overtemp. after h.exch.	1	Heating circuit
26170		0	1	water flow	2	Heating circuit
26180	°C	50	110	overtemp. flow	1	Heating circuit
26190		0	1	water return	2	Heating circuit
27010		0	1	intercooler circuit:	2	Intercooler circuit
27020		0	1	0 = (0-20 mA)/1 = (4-20 mA)	2	Intercooler circuit
27025		0	1	0 = gas/air, 1 = water	1	Intercooler circuit
27030	°C	10	60	T setpoint intercooler	1	Intercooler circuit
27031		1	10000	intercooler Kp	2	Intercooler circuit
27032		0	10000	intercooler Ki	2	Intercooler circuit
27040	°C	40	90	intercooler max temp	2	Intercooler circuit
27050		1	3	intercooler stages	2	Intercooler circuit
27051	%	10	98	next stage above pos.	2	Intercooler circuit
27052	%	2	90	down stage below pos.	2	Intercooler circuit
27055	K/min	6	600	next stage above T rate	2	Intercooler circuit
27058	s	0	1800	stage off delay	2	Intercooler circuit
30040		0	1	option exhaust bypass:	2	Exhaust bypass
31500		0	1	after engine A	2	Exhaust system
31501	°C	300	800	warning	2	Exhaust system

Param no.	Unit	min	max	Text	Run level	Parameter page
31502	°C	300	800	stop	2	Exhaust system
31510		0	1	after engine B	2	Exhaust system
31511	°C	300	800	warning	2	Exhaust system
31512	°C	300	800	stop	2	Exhaust system
31520		0	1	before catalyst	2	Exhaust system
31521	°C	300	800	warning	2	Exhaust system
31522	°C	300	800	stop	2	Exhaust system
31530		0	1	after catalyst	2	Exhaust system
31531	°C	300	800	warning	2	Exhaust system
31532	°C	300	800	stop	2	Exhaust system
31540		0	1	after heat exchanger	2	Exhaust system
31541	°C	300	800	warning	2	Exhaust system
31542	°C	300	800	stop	2	Exhaust system
31550		0	1	0 = off/1 = on	2	Exhaust system
31551	s	0	300	delay time	2	Exhaust system
32040	%	50	200	value at 20 mA	2	Lube oil system
32050	%	1	200	lube oil level min	2	Lube oil system
32060	%	1	200	lube oil level max	2	Lube oil system
33005		0	1	acoustic hood:	2	Air vent. system
33033	°C	10	60	room temp setpoint	1	Air vent. system
33035		1	10000	room air ctrl Kp	2	Air vent. system
33036		1	10000	room air ctrl Ki	2	Air vent. system
33038	°C	25	85	room temp max	2	Air vent. system
33050	s	0	3600	delay time off	2	Air vent. system
34010	kW/K	0	1000	power ramp	2	Load reduction
34020	°C	70	110	start value	2	Load reduction
34030	kW/K	0	1000	power ramp	2	Load reduction
34040	°C	70	150	start value	2	Load reduction
34050	kW/K	0	1000	power ramp	2	Load reduction
34060	°C	0	800	start value	2	Load reduction
35010	h	1	5000	lube oil	2	Service counter
35020	h	1	5000	spark plugs	2	Service counter
35030	h	1	5000	engine	2	Service counter
36010		1	1000	pulses/unit	2	Configurable counter
36020		1	1000	pulses/unit	2	Configurable counter
36030		1	1000	pulses/unit	2	Configurable counter
36040		1	1000	pulses/unit	2	Configurable counter
37010		0	1	CH4 control	2	CH_4 control
37020	%	15	45	stop at CH4-value	2	CH_4 control
37030	%	20	80	full load above CH4 value	2	CH_4 control
37040	%	0	100	min load (%) of CH4	2	CH_4 control
37050	%	0	70	lowest load < CH4 %	2	CH_4 control
37060	%	20	100	CH4 standard mixer pos	2	CH_4 control
37070	%	0	5	mixer pos adjustment	2	CH_4 control

Param no.	Unit	min	max	Text	Run level	Parameter page
37080	%	20	200	value at 20 mA	2	CH_4 control
38010		0	1	peak shaving	1	Peak shaving/heat control
38020	kW	-10000	0	mains power at 4 mA	2	Peak shaving/heat control
38030	kW	0	10000	mains power at 20 mA	2	Peak shaving/heat control
38040	kW	-10000	10000	setp mains power import, day	1	Peak shaving/heat control
38050	kW	-10000	10000	setp mains power import, night	1	Peak shaving/heat control
38055		0	24	day begins at	1	Peak shaving/heat control
38057		0	24	day ends at	1	Peak shaving/heat control
38060	kW	-10000	10000	start genset above ...	1	Peak shaving/heat control
38070	s	0	3600	start delay	1	Peak shaving/heat control
38080	kW	-10000	10000	stop genset below ...	1	Peak shaving/heat control
38090	s	0	3600	stop delay	1	Peak shaving/heat control
38100		0	1	heat control	1	Peak shaving/heat control
38110	°C	10	80	flow min	1	Peak shaving/heat control
38120	°C	10	90	return max	1	Peak shaving/heat control
38130	s	0	36000	wait before on	1	Peak shaving/heat control
39020	%	0	80	stop at gas level	2	Gas level control
39030	%	0	100	full load at gas level	2	Gas level control
39040	%	30	100	limit power	2	Gas level control
39050	%	0	100	limit gas level	2	Gas level control
41010		0	1	change language:	1	System configuration
41020		3	4	number of I/O modules	2	System configuration
41030		1	2	number of SC modules	2	System configuration
41040		1	16	engine number	2	System configuration
42010		0	1	standby power operation	2	Standby power
42020	V	280	420	power failure V <	2	Standby power
42025	s	0,5	600	mains failure delay	2	Standby power
42030		0	2	back synchronisation	2	Standby power
42040	s	1	600	mains recover time	2	Standby power
42050		0	1	sequence	2	Standby power
42060	s	0,5	30	delay time	2	Standby power
42070		0	1	0=GCB/1=MCB	2	Standby power
43010		0	4294967	Modbus configuration	2	Modbus

Param no.	Unit	min	max	Text	Run level	Parameter page
			295	(analogue)		
43010	Bit0	1	1	- demanded power	2	Modbus
43010	Bit1	2	2	- mains power	2	Modbus
43010	Bit2	4	4	- CH4 value	2	Modbus
43010	Bit3	8	8	- gas tank level	2	Modbus
43020		0	4294967295	Modbus configuration (digital)	2	Modbus
43020	Bit0	1	1	- start demand	2	Modbus
43020	Bit1	2	2	- fast stop	2	Modbus
43020	Bit2	4	4	- acknowledge	2	Modbus
43020	Bit3	8	8	- island operation	2	Modbus
43020	Bit4	16	16	- automatic operation	2	Modbus
43020	Bit5	32	32	- CH4 calibrating	2	Modbus
43020	Bit6	64	64	- demand gas B	2	Modbus
44101		0	97	I/O assignment	5	I/O assignments Module 3
44102		0	97	I/O assignment	5	I/O assignments Module 3
44103		0	97	I/O assignment	5	I/O assignments Module 3
44104		0	97	I/O assignment	5	I/O assignments Module 3
44105		0	97	I/O assignment	5	I/O assignments Module 3
44106		0	97	I/O assignment	2	I/O assignments Module 3
44107		0	97	I/O assignment	5	I/O assignments Module 3
44108		0	97	I/O assignment	2	I/O assignments Module 3
44109		0	97	I/O assignment	2	I/O assignments Module 3
44110		0	97	I/O assignment	2	I/O assignments Module 3
44111		0	97	I/O assignment	5	I/O assignments Module 3
44112		0	97	I/O assignment	5	I/O assignments Module 3
44113		0	97	I/O assignment	5	I/O assignments Module 3
44114		0	97	I/O assignment	5	I/O assignments Module 3
44115		0	97	I/O assignment	2	I/O assignments Module 3
44116		0	97	I/O assignment	2	I/O assignments Module 3
44201		0	53	I/O assignment	5	I/O assignments Module 3
44202		0	53	I/O assignment	5	I/O assignments Module 3
44203		0	53	I/O assignment	5	I/O assignments Module 3

Param no.	Unit	min	max	Text	Run level	Parameter page
44204		0	53	I/O assignment	5	I/O assignments Module 3
44205		0	53	I/O assignment	5	I/O assignments Module 3
44206		0	53	I/O assignment	5	I/O assignments Module 3
44207		0	53	I/O assignment	5	I/O assignments Module 3
44208		0	53	I/O assignment	5	I/O assignments Module 3
44209		0	53	I/O assignment	2	I/O assignments Module 3
44210		0	53	I/O assignment	2	I/O assignments Module 3
44301		0	39	I/O assignment	5	I/O assignments Module 3
44302		0	39	I/O assignment	5	I/O assignments Module 3
44303		0	39	I/O assignment	5	I/O assignments Module 3
44304		0	39	I/O assignment	5	I/O assignments Module 3
44305		0	39	I/O assignment	5	I/O assignments Module 3
44306		0	39	I/O assignment	2	I/O assignments Module 3
44401		0	13	I/O assignment	5	I/O assignments Module 3
44402		0	13	I/O assignment	5	I/O assignments Module 3
44403		0	13	I/O assignment	5	I/O assignments Module 3
44404		0	13	I/O assignment	5	I/O assignments Module 3
44501		0	9	I/O assignment	5	I/O assignments Module 3
44502		0	9	I/O assignment	5	I/O assignments Module 3
44503		0	9	I/O assignment	5	I/O assignments Module 3
44504		0	9	I/O assignment	5	I/O assignments Module 3
45101		0	97	I/O assignment	2	I/O assignments Module 4
45102		0	97	I/O assignment	2	I/O assignments Module 4
45103		0	97	I/O assignment	2	I/O assignments Module 4
45104		0	97	I/O assignment	2	I/O assignments Module 4
45105		0	97	I/O assignment	2	I/O assignments Module 4
45106		0	97	I/O assignment	5	I/O assignments

Param no.	Unit	min	max	Text	Run level	Parameter page
						Module 4
45107		0	97	I/O assignment	2	I/O assignments Module 4
45108		0	97	I/O assignment	2	I/O assignments Module 4
45109		0	97	I/O assignment	5	I/O assignments Module 4
45110		0	97	I/O assignment	5	I/O assignments Module 4
45111		0	97	I/O assignment	5	I/O assignments Module 4
45112		0	97	I/O assignment	5	I/O assignments Module 4
45113		0	97	I/O assignment	2	I/O assignments Module 4
45114		0	97	I/O assignment	2	I/O assignments Module 4
45115		0	97	I/O assignment	2	I/O assignments Module 4
45116		0	97	I/O assignment	2	I/O assignments Module 4
45201		0	53	I/O assignment	5	I/O assignments Module 4
45202		0	53	I/O assignment	5	I/O assignments Module 4
45203		0	53	I/O assignment	5	I/O assignments Module 4
45204		0	53	I/O assignment	5	I/O assignments Module 4
45205		0	53	I/O assignment	5	I/O assignments Module 4
45206		0	53	I/O assignment	2	I/O assignments Module 4
45207		0	53	I/O assignment	2	I/O assignments Module 4
45208		0	53	I/O assignment	2	I/O assignments Module 4
45209		0	53	I/O assignment	2	I/O assignments Module 4
45210		0	53	I/O assignment	2	I/O assignments Module 4
45301		0	39	I/O assignment	5	I/O assignments Module 4
45302		0	39	I/O assignment	5	I/O assignments Module 4
45303		0	39	I/O assignment	5	I/O assignments Module 4
45304		0	39	I/O assignment	5	I/O assignments Module 4
45305		0	39	I/O assignment	5	I/O assignments Module 4
45306		0	39	I/O assignment	5	I/O assignments Module 4

Param no.	Unit	min	max	Text	Run level	Parameter page
45401		0	13	I/O assignment	5	I/O assignments Module 4
45402		0	13	I/O assignment	5	I/O assignments Module 4
45403		0	13	I/O assignment	5	I/O assignments Module 4
45404		0	13	I/O assignment	5	I/O assignments Module 4
45501		0	9	I/O assignment	5	I/O assignments Module 4
45502		0	9	I/O assignment	5	I/O assignments Module 4
45503		0	9	I/O assignment	5	I/O assignments Module 4
45504		0	9	I/O assignment	2	I/O assignments Module 4
46101		0	97	I/O assignment	5	I/O assignments Module 5
46102		0	97	I/O assignment	5	I/O assignments Module 5
46103		0	97	I/O assignment	2	I/O assignments Module 5
46104		0	97	I/O assignment	2	I/O assignments Module 5
46105		0	97	I/O assignment	5	I/O assignments Module 5
46106		0	97	I/O assignment	2	I/O assignments Module 5
46107		0	97	I/O assignment	2	I/O assignments Module 5
46108		0	97	I/O assignment	2	I/O assignments Module 5
46109		0	97	I/O assignment	2	I/O assignments Module 5
46110		0	97	I/O assignment	2	I/O assignments Module 5
46111		0	97	I/O assignment	2	I/O assignments Module 5
46112		0	97	I/O assignment	5	I/O assignments Module 5
46113		0	97	I/O assignment	5	I/O assignments Module 5
46114		0	97	I/O assignment	2	I/O assignments Module 5
46115		0	97	I/O assignment	2	I/O assignments Module 5
46116		0	97	I/O assignment	2	I/O assignments Module 5
46201		0	53	I/O assignment	5	I/O assignments Module 5
46202		0	53	I/O assignment	5	I/O assignments Module 5
46203		0	53	I/O assignment	5	I/O assignments

Param no.	Unit	min	max	Text	Run level	Parameter page
						Module 5
46204		0	53	I/O assignment	5	I/O assignments Module 5
46205		0	53	I/O assignment	2	I/O assignments Module 5
46206		0	53	I/O assignment	2	I/O assignments Module 5
46207		0	53	I/O assignment	2	I/O assignments Module 5
46208		0	53	I/O assignment	2	I/O assignments Module 5
46209		0	53	I/O assignment	5	I/O assignments Module 5
46210		0	53	I/O assignment	2	I/O assignments Module 5
46301		0	39	I/O assignment	5	I/O assignments Module 5
46302		0	39	I/O assignment	5	I/O assignments Module 5
46303		0	39	I/O assignment	5	I/O assignments Module 5
46304		0	39	I/O assignment	2	I/O assignments Module 5
46305		0	39	I/O assignment	5	I/O assignments Module 5
46306		0	39	I/O assignment	2	I/O assignments Module 5
46401		0	13	I/O assignment	5	I/O assignments Module 5
46402		0	13	I/O assignment	5	I/O assignments Module 5
46403		0	13	I/O assignment	5	I/O assignments Module 5
46404		0	13	I/O assignment	2	I/O assignments Module 5
46501		0	9	I/O assignment	5	I/O assignments Module 5
46502		0	9	I/O assignment	2	I/O assignments Module 5
46503		0	9	I/O assignment	2	I/O assignments Module 5
46504		0	9	I/O assignment	2	I/O assignments Module 5
47101		0	97	I/O assignment	2	I/O assignments Module 6
47102		0	97	I/O assignment	2	I/O assignments Module 6
47103		0	97	I/O assignment	2	I/O assignments Module 6
47104		0	97	I/O assignment	2	I/O assignments Module 6
47105		0	97	I/O assignment	2	I/O assignments Module 6

Param no.	Unit	min	max	Text	Run level	Parameter page
47106		0	97	I/O assignment	5	I/O assignments Module 6
47107		0	97	I/O assignment	2	I/O assignments Module 6
47108		0	97	I/O assignment	2	I/O assignments Module 6
47109		0	97	I/O assignment	2	I/O assignments Module 6
47110		0	97	I/O assignment	2	I/O assignments Module 6
47111		0	97	I/O assignment	2	I/O assignments Module 6
47112		0	97	I/O assignment	2	I/O assignments Module 6
47113		0	97	I/O assignment	2	I/O assignments Module 6
47114		0	97	I/O assignment	2	I/O assignments Module 6
47115		0	97	I/O assignment	2	I/O assignments Module 6
47116		0	97	I/O assignment	2	I/O assignments Module 6
47201		0	53	I/O assignment	2	I/O assignments Module 6
47202		0	53	I/O assignment	2	I/O assignments Module 6
47203		0	53	I/O assignment	2	I/O assignments Module 6
47204		0	53	I/O assignment	2	I/O assignments Module 6
47205		0	53	I/O assignment	2	I/O assignments Module 6
47206		0	53	I/O assignment	5	I/O assignments Module 6
47207		0	53	I/O assignment	2	I/O assignments Module 6
47208		0	53	I/O assignment	2	I/O assignments Module 6
47209		0	53	I/O assignment	2	I/O assignments Module 6
47210		0	53	I/O assignment	2	I/O assignments Module 6
47301		0	39	I/O assignment	2	I/O assignments Module 6
47302		0	39	I/O assignment	2	I/O assignments Module 6
47303		0	39	I/O assignment	2	I/O assignments Module 6
47304		0	39	I/O assignment	2	I/O assignments Module 6
47305		0	39	I/O assignment	2	I/O assignments Module 6
47306		0	39	I/O assignment	2	I/O assignments

Param no.	Unit	min	max	Text	Run level	Parameter page
						Module 6
47401		0	13	I/O assignment	2	I/O assignments Module 6
47402		0	13	I/O assignment	2	I/O assignments Module 6
47403		0	13	I/O assignment	2	I/O assignments Module 6
47404		0	13	I/O assignment	2	I/O assignments Module 6
47501		0	9	I/O assignment	2	I/O assignments Module 6
47502		0	9	I/O assignment	2	I/O assignments Module 6
47503		0	9	I/O assignment	2	I/O assignments Module 6
47504		0	9	I/O assignment	2	I/O assignments Module 6
50010		0	1	alarm active	2	Messages 1-5
50011		0	1	automatic acknowledge	2	Messages 1-5
50012		0	1	regular stop	2	Messages 1-5
50013		1	7	level	2	Messages 1-5
50014		0	3	enable alarm	2	Messages 1-5
50015	s	0	600	delay time	2	Messages 1-5
50016	s	0	600	recover time	2	Messages 1-5
50020		0	1	alarm active	2	Messages 1-5
50021		0	1	automatic acknowledge	2	Messages 1-5
50022		0	1	regular stop	2	Messages 1-5
50023		1	7	level	2	Messages 1-5
50024		0	3	enable alarm	2	Messages 1-5
50025	s	0	600	delay time	2	Messages 1-5
50026	s	0	600	recover time	2	Messages 1-5
50030		0	1	alarm active	2	Messages 1-5
50031		0	1	automatic acknowledge	2	Messages 1-5
50032		0	1	regular stop	2	Messages 1-5
50033		1	7	level	2	Messages 1-5
50034		0	3	enable alarm	2	Messages 1-5
50035	s	0	600	delay time	2	Messages 1-5
50036	s	0	600	recover time	2	Messages 1-5
50040		0	1	alarm active	2	Messages 1-5
50041		0	1	automatic acknowledge	2	Messages 1-5
50042		0	1	regular stop	2	Messages 1-5
50043		1	7	level	2	Messages 1-5
50044		0	3	enable alarm	2	Messages 1-5
50045	s	0	600	delay time	2	Messages 1-5
50046	s	0	600	recover time	2	Messages 1-5
50050		0	1	alarm active	2	Messages 1-5

Param no.	Unit	min	max	Text	Run level	Parameter page
50051		0	1	automatic acknowledge	2	Messages 1-5
50052		0	1	regular stop	2	Messages 1-5
50053		1	7	level	2	Messages 1-5
50054		0	3	enable alarm	2	Messages 1-5
50055	s	0	600	delay time	2	Messages 1-5
50056	s	0	600	recover time	2	Messages 1-5
53020	kWh	0	4000000000	active energy counter	2	Counters
53030	h	0	4000000000	operating hours	2	Counters
53040		0	4000000000	GCB operations counter	2	Counters
53050		0	4000000000	start attempt counter	2	Counters
53060		0	4000000000	MCB operations counter	2	Counters
54010		0	1	SMS option	2	Project parameters

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