



SOFTWARE VARIABLES

CRE TECHNOLOGY
130 allée Charles-Victor Naudin
Zone des Templiers – SOPHIA ANTIPOLIS
06410 BIOT – FRANCE
Phone: + 33 (0)4.92.38.82.82
www.cretechnology.com
info@cretechnology.com

A56_AMF_90020-A-EN Software Variables
COPYRIGHT © BY CRE TECHNOLOGY ALL RIGHT RESERVED.

List of variables

General	12
Power plant	12
Synchronization mode (2050)	12
Voltage system (2003)	12
Generator phase control (2805)	12
Mode	13
Switch on mode (2012)	13
Test mode (2014)	13
Test active timer on (2015)	13
Test active timer (2016)	13
Mains timers	13
Mains back timer (2009)	13
Change over timer (2007)	14
Generator	14
Generator	14
Nominal kW active power (2105)	14
Nominal kVAR reactive power (2106)	14
Nominal AC voltage (2102)	14
PT ratio (2100)	14
CT ratio (2101)	15
Electrical fault	15
Synchronization back timer (2806)	15
Synchronization Back attempts number (2807)	15
Mains	15
Mains	15
Mains kW measure type (2155)	15
CT ratio (2151)	15
PT ratio (2150)	16
Nominal Frequency (2152)	16
Nominal AC voltage (2153)	16
Electrical fault	16
Selection of breaker to open after mains electrical fault (2311)	16
Authorization to start on mains electrical fault (2309)	17
Mains breaker tripping mode on mains fault (2312)	17
Timer to open mains breaker on mains fault (2313)	17
Engine	17
Start/Stop settings	17
Start sequence	17
External start sequence (3452)	17
Fail to start engine (3453)	17
Warm up selection (3479)	17
Engine type (3477)	18
Crank settings	18
Maximum starting attempts by starter (3461)	18
Minimum cranking (3466)	18
Starter order (3459)	18
Default starter number (3460)	18
Crank 1 drop out (3462)	18
Check before start	19
Preheating coolant temperature threshold (3474)	19
Minimum oil prelubrication threshold (3473)	19
Cooling fan activation threshold (3475)	19

Excit. speed (2053)	19
Excit. volt. (2054)	19
Stop sequence	19
Cooling speed selection (3476)	19
Control settings	20
Speed common settings	20
Speed sensor type (2200)	20
Number of poles pair (2202)	20
Number of teeth for pick-up (2201)	20
Idle speed (3468)	20
Speed setpoint (2207)	20
Speed setpoint (2) (2208)	20
Oil pressure monitoring	21
Oil pressure switch (3450)	21
Water temperature control	21
Coolant temperature switch (3451)	21
J1939	21
J1939 engine selection	21
Manufacturer (3100)	21
ECU type (3101)	21
J1939 protections	21
Control on high speed (3104)	21
Control on very high speed (3105)	22
Control on high coolant temperature (3106)	22
Control on very high coolant temperature (3107)	23
Control on low oil pressure (3108)	23
Control on very low oil pressure (3109)	23
Control on DM1 smoke (3110)	24
Control on DM1 engine protection (3111)	24
Control on DM1 warning (3112)	24
Control on DM1 alarm (3113)	25
Protections	25
Generator protections	25
Over/under frequency	25
Over frequency protection	25
Threshold (2400)	25
Timer (2401)	26
Control (2402)	26
Under frequency protection	26
Threshold (2403)	26
Timer (2404)	26
Control (2405)	26
Over frequency protection 2	27
Threshold (2436)	27
Timer (2437)	27
Control (2438)	27
Under frequency protection 2	28
Threshold (2439)	28
Timer (2440)	28
Control (2441)	28
Over/under voltage	28
Over voltage protection	28
Threshold (2406)	28
Timer (2407)	28
Control (2408)	29
Under voltage protection	29
Threshold (2409)	29

Timer (2410)	29
Control (2411)	29
Over voltage protection 2	30
Threshold (2442)	30
Timer (2443)	30
Control (2444)	30
Under voltage protection 2	31
Threshold (2445)	31
Timer (2446)	31
Control (2447)	31
Over current/neutral	31
Over current protection	31
Threshold (2430)	31
Timer (2431)	31
Control (2432)	32
Neutral current protection	32
Threshold (2433)	32
Timer (2434)	32
Control (2435)	32
Over current protection 2	33
Threshold (2466)	33
Timer (2467)	33
Control (2468)	33
Neutral current protection 2	34
Threshold (2469)	34
Timer (2470)	34
Control (2471)	34
Reverse kW/kVar	34
Reverse kW	34
Threshold (2418)	34
Timer (2419)	34
Control (2420)	35
Reverse kVAR	35
Threshold (2427)	35
Timer (2428)	35
Control (2429)	35
Reverse kW 2	36
Threshold (2454)	36
Timer (2455)	36
Control (2456)	36
Reverse kVAR 2	36
Threshold (2463)	36
Timer (2464)	36
Control (2465)	37
Maxi kW/mini kW	37
Maxi kW	37
Threshold (2415)	37
Timer (2416)	37
Control (2417)	37
Mini kW	38
Threshold (2412)	38
Timer (2413)	38
Control (2414)	38
Maxi kW 2	39
Threshold (2451)	39
Timer (2452)	39
Control (2453)	39

Mini kW 2	39
Threshold (2448)	39
Timer (2449)	39
Control (2450)	40
Maxi kVAR/mini kVAR	40
Maxi kVAR	40
Threshold (2424)	40
Timer (2425)	40
Control (2426)	40
Mini kVAR	41
Threshold (2421)	41
Timer (2422)	41
Control (2423)	41
Maxi kVAR 2	42
Threshold (2460)	42
Timer (2461)	42
Control (2462)	42
Mini kVAR 2	42
Threshold (2457)	42
Timer (2458)	42
Control (2459)	43
Voltage/Current unbalance	43
Voltage unbalance	43
Threshold (2486)	43
Timer (2487)	43
Control (2488)	43
Voltage unbalance 2	44
Threshold (2489)	44
Timer (2490)	44
Control (2491)	44
Current unbalance	45
Threshold (2492)	45
Timer (2493)	45
Control (2494)	45
Current unbalance 2	45
Threshold (2495)	45
Timer (2496)	45
Control (2497)	46
Short circuit protection	46
Short circuit protection setting	46
Generator Short Circuit Control (2477)	46
Single phase nominal current (2103)	46
Short Circuit K constant characteristic (2472)	46
Short Circuit C constant characteristic (2473)	46
Short Circuit Alpha constant characteristic (2474)	47
Short Circuit Is constant (2476)	47
Short Circuit TMS (Time Multiplier Setting) (2475)	47
Earth fault protection	47
Earth fault ratio	47
Earth Current CT ratio (2485)	47
Earth fault protection	47
Threshold (2479)	47
Timer (2480)	47
Control (2481)	48
Earth fault protection 2	48
Threshold (2482)	48
Timer (2483)	48

Control (2484)	48
Mains protections	49
Over/under frequency	49
Over frequency protection	49
Threshold (2500)	49
Timer (2501)	49
Control (2502)	49
Under frequency protection	49
Threshold (2503)	49
Timer (2504)	49
Control (2505)	50
Over frequency protection 2	50
Threshold (2530)	50
Timer (2531)	50
Control (2532)	50
Under frequency protection 2	51
Threshold (2533)	51
Timer (2534)	51
Control (2535)	51
Over/under voltage	52
Over voltage protection	52
Threshold (2506)	52
Timer (2507)	52
Control (2508)	52
Under voltage protection	52
Threshold (2509)	52
Timer (2510)	52
Control (2511)	53
Over voltage protection 2	53
Threshold (2536)	53
Timer (2537)	53
Control (2538)	53
Under voltage protection 2	54
Threshold (2539)	54
Timer (2540)	54
Control (2541)	54
Reverse kW/kVar	54
Reverse kW	54
Threshold (2518)	54
Timer (2519)	54
Control (2520)	55
Reverse kVAR	55
Threshold (2527)	55
Timer (2528)	55
Control (2529)	55
Reverse kW 2	56
Threshold (2548)	56
Timer (2549)	56
Control (2550)	56
Reverse kVAR 2	56
Threshold (2557)	56
Timer (2558)	56
Control (2529)	57
Maxi kW/mini kW	57
Maxi kW	57
Threshold (2515)	57
Timer (2516)	57

Control (2517)	57
Mini kW	58
Threshold (2512)	58
Timer (2513)	58
Control (2514)	58
Maxi kW 2	58
Threshold (2545)	58
Timer (2546)	58
Control (2547)	59
Mini kW 2	59
Threshold (2542)	59
Timer (2543)	59
Control (2544)	59
Maxi kVAR/mini kVAR	60
Maxi kVAR	60
Threshold (2524)	60
Timer (2525)	60
Control (2526)	60
Mini kVAR	60
Threshold (2521)	60
Timer (2522)	60
Control (2523)	61
Maxi kVAR 2	61
Threshold (2554)	61
Timer (2555)	61
Control (2556)	61
Mini kVAR 2	62
Threshold (2551)	62
Timer (2552)	62
Control (2553)	62
Voltage unbalance	62
Voltage unbalance	62
Threshold (2565)	62
Timer (2566)	62
Control (2567)	63
Voltage unbalance 2	63
Threshold (2568)	63
Timer (2569)	63
Control (2570)	63
Engine/battery protections	64
Speed protection	64
Over speed protection	64
Threshold (2350)	64
Timer (2351)	64
Validation (2352)	64
Under speed protection	65
Threshold (2353)	65
Timer (2354)	65
Validation (2355)	65
Over speed protection 2	66
Threshold (2368)	66
Timer (2369)	66
Validation (2370)	66
Under speed protection 2	67
Threshold (2371)	67
Timer (2372)	67
Validation (2373)	67

Water/oil protection	68
Water temperature protection	68
Threshold (2365)	68
Timer (2366)	68
Validation (2367)	68
Oil pressure protection	69
Threshold (2362)	69
Timer (2363)	69
Validation (2364)	69
Water temperature protection 2	70
Threshold (2383)	70
Timer (2384)	70
Validation (2385)	70
Oil pressure protection 2	71
Threshold (2380)	71
Timer (2381)	71
Validation (2382)	71
Analog inputs protection	72
Analog input 1 protection	72
Label (4206)	72
Threshold (2600)	72
Timer (2601)	72
Validation (2602)	73
Threshold (level 2) (2603)	73
Timer (level 2) (2604)	73
Validation (level 2) (2605)	73
Direction (2606)	74
Analog input 2 protection	74
Label (4207)	74
Threshold (2608)	74
Timer (2609)	74
Validation (2610)	75
Threshold (level 2) (2611)	75
Timer (level 2) (2612)	75
Validation (level 2) (2613)	75
Direction (2614)	76
Analog input 3 protection	76
Label (4208)	76
Threshold (2616)	76
Timer (2617)	76
Validation (2618)	77
Threshold (level 2) (2619)	77
Timer (level 2) (2620)	77
Validation (level 2) (2621)	77
Direction (2622)	78
Battery protection	78
Maximum battery voltage protection	78
Threshold (2359)	78
Timer (2360)	78
Validation (2361)	79
Minimum battery voltage protection	79
Threshold (2356)	79
Timer (2357)	79
Validation (2358)	79
Maximum battery voltage protection 2	80
Threshold (2377)	80
Timer (2378)	80

Validation (2379)	80
Minimum battery voltage protection 2	81
Threshold (2374)	81
Timer (2375)	81
Validation (2376)	81
Boost battery	82
Enable (2388)	82
Low threshold (2386)	82
*high threshold (2387)	82
Inputs	83
Digital inputs	83
Digital inputs	83
Timer ON Digital Input 1 (2709)	83
Timer OFF Digital Input 1 (2718)	83
Validity on DI 1 (2727)	83
Polarity NO/NC on DI 1 (2736)	83
Function configured on DI 1 (2700)	83
Hysteresis	83
Hysteresis 1 enable for DI (2769)	83
Timer ON Hysteresis 1 (2777)	84
Direction Hysteresis 1 (2785)	84
Analog inputs	84
Analog input	84
Analog Input 1 function if use in DI (2607)	84
Analog Input 1 Calibration point 1 (2624)	84
Analog Input 1 Calibration point 2 (2625)	84
Analog Input 1 Calibration point 3 (2626)	84
Analog Input 1 Calibration point 4 (2627)	84
Analog Input 1 Calibration point 5 (2628)	85
Analog Input 1 Calibration point 6 (2629)	85
Analog Input 1 Calibration point 7 (2630)	85
Analog Input 1 Calibration point 8 (2631)	85
Analog Input 1 Calibration point 9 (2632)	85
Analog Input 1 Calibration point 10 (2633)	85
Analog Input 1 Calibration point 11 (2634)	85
Hysteresis	86
Activating Hysteresis on Analog Input 1 (2657)	86
Low level threshold on Analog Input 1 Hysteresis (2660)	86
Timer on low level threshold (Hysteresis on AI 1) (2666)	86
High level threshold on Analog Input 1 Hysteresis (2663)	86
Timer on high level threshold (Hysteresis on AI 1) (2669)	86
Hysteresis Direction on Analog Input 1 (2672)	86
Outputs	86
Digital outputs/relays	86
Digital outputs	86
Status Digital Output 1 (4350)	87
Function configured DO 1 (2745)	87
Polarity NE/ND DO 1 (2751)	87
Pulse Lenght DO 1 (2761)	87
Relays	87
Status Relay Output 1 (4356)	87
Output function Relay 1 (2757)	87
Direction NO/NC Relay 1 (2759)	87
Pulse Lenght R 1 (2767)	88
Generator breaker	88
Generators breaker control	88

Generator circuit breaker control type (2300)	88
Fail to open/close breaker timer (2304)	88
Settings of pulses	88
Gen CB control Pulse length (2301)	88
Undervoltage coil hold time GCB (2302)	88
Undervoltage coil security timer GCB (2303)	88
Mains breaker	89
Mains breaker control	89
Mains circuit breaker control type (2307)	89
Fail to open/close breaker timer (2304)	89
Settings of pulses	89
Mains CB control Pulse length (2314)	89
Undervoltage coil hold time MCB (2315)	89
Undervoltage coil security timer MCB (2316)	89
CANopen	89
CANopen	89
CANopen	89
Configuration (3151)	89
Coupler ID # 1 (3153)	90
CANopen baud rate (3051)	90
Error timer (3152)	90
CANopen customer configuration	90
Coupler ID # 1 (3153)	90
CANopen IN 1 (3154)	90
CANopen OUT 1 (3155)	90
Inputs	91
CANopenVal I1 (3264)	91
CANopenTM I1 (3232)	91
CANopenDir I1 (3296)	91
CANopenFuncI1 (3200)	91
Outputs	91
CANopenModeO1 (3382)	91
CANopenFuncO1 (3350)	91
Time-outs et delays	92
Start sequence timers	92
Prelubrication (3455)	92
Preglow (3456)	92
Ignition ON delay (3480)	92
Gas ON delay (3481)	92
Maximum cranking (3457)	92
Time between start attempts (3458)	92
Warm up (3467)	92
Stabilisation (Speed and Voltage) (3469)	93
Safety on (2004)	93
Stop sequence timers	93
Cooling (3470)	93
Ignition OFF delay (3482)	93
Stop engine (3471)	93
Others timers	93
Timer remote start (3478)	93
Speed sensor lost (2203)	93
Horn Timer (2478)	94

Logger	94
Logger	94
Log on/off (3610)	94
Log Var 1 (3600)	94
Log1 period (3612)	94
Maintenance	94
Running hours meters	94
Cycle 1 in hours (3500)	94
Days meters	94
Cycle 1 in days (3505)	94
Modbus redirection	95
Modbus variables 0-99	95
Modbus redirection variables	95
Modbus 000 (10000)	95

Configuration

General

Power plant

Variable	Synchronization mode (2050)
Unit	-
Min	0
Max	1
Init	0
Description	This setpoint is used to select the synchronization mode. 2 setpoints can be used : - Dynamic (value 0) : The synchronization will be manage during on speed condition. - Static paralleling (value 1) : The synchronization is manage during engine start and without excitation condition.

Variable	Voltage system (2003)
Unit	-
Min	0
Max	2
Init	2
Description	This setpoint is used to select the alternator voltage architecture. 3 setpoints can be used : - Single phase (value 0) : Connection of 1 active phase wiring and 1 neutral wiring for generator and for Mains. - biphases 180° (value 1) : Connection of 2 active phases wiring and 1 neutral wiring for generator and for Mains. - three phases 180° (value 1) : Connection of 3 active phases wiring and 1 neutral wiring for generator and for Mains. If the neutral wiring is not connected , the product will internally recalculate a virtual one.

Variable	Generator phase control (2805)
Unit	-
Min	0
Max	7
Init	0
Description	This setpoint is used to select a protection if the module detects a wrong voltage apply on the product, if triphase system is set, and you apply a biphas system, this protection will detect it. Internally, it is a phase voltage detection. 6 setpoints can be used : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information.

Mode

Variable	Switch on mode (2012)
Unit	-
Min	0
Max	2
Init	0
Description	This setpoint is used to select the mode of the product when the power supply is applied. 3 setpoints can be used : - Manual (Value 0) : The product will switch-on on Manual mode - Test (Value 1) : The product will switch-on on Test mode - Auto (Value 2) : The product will switch-on on Auto mode

Variable	Test mode (2014)
Unit	-
Min	0
Max	2
Init	0
Description	This setpoint is used to select the actions for test mode on the product. 3 setpoints can be used : - On load (Value 0) : The generator will start as auto mode, and will manage sequence to close the breaker and manage the load. - Off load (Value 1) : The generator will start as auto mode, will manage sequences but will not close the generator breaker. - On load with timer (Value 2) : The generator will start as auto mode, will run without load during this timer and after to close the breaker to manage the load.

Variable	Test active timer on (2015)
Unit	-
Min	0
Max	1
Init	0
Description	This setpoint is used to activate a timer function for test mode. During this timer, the test mode is activated. At the end of this timer, the generator will stop, and product will be forced on auto mode.

Variable	Test active timer (2016)
Unit	s
Min	0.0
Max	6553.5
Init	6000
Description	This setpoint is a timer in seconds. During this timer, and if setpoint E2015 is ON (Test active timer on) the test mode is activated. At the end of this timer, the generator will stop, and product will be forced on auto mode.

Mains timers

Variable	Mains back timer (2009)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	This setpoint is a timer in seconds. If the mains is back (after a failure), start internally this timer. During it, mains voltage and frequency are controlled in term of stability, and availability. At this end of timer, if the mains is considered stable, the product, will change over to provide load from generator to the Mains (on synchronization, or in Change over, regarding settings).

Variable	Change over timer (2007)
Unit	s
Min	0.1
Max	999.9
Init	10
Description	This setpoint is a timer in seconds. This timer determinate the time of black out for the change over operation, it determinates the time between open the MAINS breaker and close the generator breaker, or the opposite. To set this setpoint, it is also important to check the breakers characteristics, in term of open/close response time.

Generator

Generator

Variable	Nominal kW active power (2105)
Unit	kW
Min	1
Max	32 500
Init	300
Description	This setpoint adjusts the kW nominal power of the generator. All the electrical protections for kW on %, load sharing calculation or power management with the mains will be calculated around this nominal value.

Variable	Nominal kVAR reactive power (2106)
Unit	kVAR
Min	1
Max	32 500
Init	220
Description	This setpoint adjusts the kVAR nominal power of the generator. All the electrical protections for kVAR on %, load sharing calculation or power management with the mains will be calculated around this nominal value.

Variable	Nominal AC voltage (2102)
Unit	V
Min	0
Max	65 535
Init	400
Description	This setpoint adjusts the alternator nominal voltage U (for phase-phase value).The value can be read on the alternator, or the voltage on the bus. All the electrical protections for U on % will be calculated around this nominal value. For low voltage application (400VAC, 440VAC, 480VAC,etc...) or High Voltage application (20.000 VAC, 33.000VAC, etc. ..), this setpoint must be adapted.

Variable	PT ratio (2100)
Unit	-
Min	0.00
Max	655.35
Init	100
Description	This setpoint adjusts the PT ratio to adapt alternator voltage measurement on the module. This setpoint is calculated with Bus Voltage / voltage measurement on the controller. Example : Voltage on bus 20.000Vac / voltage on controller 100 Vac : value of PT ratio = 20.000/100 = 200. This PT ratio can be calculated or indicated on the step down measurement transformer.

Variable	CT ratio (2101)
Unit	-
Min	0.1
Max	3250.0
Init	2000
Description	This setpoint adjusts the CT ratio to adapt alternator current measurement on the module. This setpoint is calculated with Bus power current / current measurement on the controller. Globally, standard current measurement will be 5 amps or 1 amp on CT secondary. Example : Current on bus 1000A / current on controller 5 amps : value of CT ratio = $1000/5 = 200$. This CT ratio can be calculated or indicated on the step down current measurement transformer.

Electrical fault

Variable	Synchronization back timer (2806)
Unit	s
Min	0.0
Max	999.9
Init	300
Description	This setpoint adjusts the synchronization back timer. This determinates the time to wait to start again a generator synchronization sequence after a "generator electrical fault" protection.

Variable	Synchronization Back attempts number (2807)
Unit	-
Min	0
Max	15
Init	3
Description	This setpoint adjusts the synchronization back attempts number. It determinates the attempts number to start again a generator synchronisation of the generator after a "generator electrical fault" protection.

Mains

Mains

Variable	Mains kW measure type (2155)
Unit	-
Min	0
Max	3
Init	0
Description	This setpoint is used to select the "Mains kW measure type" . This determinates the type of input to measure kW on the Mains. 3 setpoints can be used : - CT (Value 0) : kW mains will be read with a $\times 1$ Mains CT connected. - mA - Analog 1 (Value 1) : kW mains will be read with a 4-20mA signal connected on Analog input 1. - mA - Analog 2 (Value 2) : kW mains will be read with a 4-20mA signal connected on Analog input 2. - mA - Analog 3 (Value 3) : kW mains will be read with a 4-20mA signal connected on Analog input 3. - Unused : no kW mains read.

Variable	CT ratio (2151)
Unit	-
Min	0.1
Max	3250.0
Init	2000
Description	This setpoint adjusts the CT ratio to adapt Mains current measurement on the module. This setpoint is calculated with Mains Bus power current / current measurement on the controller. Globally, standard current measurement will be 5 amps or 1 amp on CT secondary. Example : Current on Mains bus 1000A / current on controller 5 amps : value of CT ratio = $1000/5 = 200$. This CT ratio can be calculated or indicated on the step down current measurement transformer.

Variable	PT ratio (2150)
Unit	-
Min	0.00
Max	655.35
Init	100
Description	This setpoint adjusts the PT ratio to adapt Bus/Mains voltage measurement on the module. This setpoint is calculated with Bus/Mains Voltage / voltage measurement on the controller. Example : Voltage on bus/Mains 20.000Vac / voltage on controller 100 Vac : value of PT ratio = $20.000/100 = 200$. This PT ratio can be calculated or indicated on the step down measurement transformer.

Variable	Nominal Frequency (2152)
Unit	V
Min	0
Max	65 535
Init	400
Description	This setpoint adjusts the bus/mains nominal frequency. All the electrical protections for F on % will be calculated around this nominal value. For industrial application, 50 or 60 Hz, this setpoint must be adapted.

Variable	Nominal AC voltage (2153)
Unit	Hz
Min	0.00
Max	100.00
Init	5000
Description	This setpoint adjusts the bus/mains nominal voltage U (for phase-phase value).The value can be read on the mains or the voltage on the bus. All the electrical protections for U on % will be calculated around this nominal value. For low voltage application (400VAC, 440VAC, 480VAC,etc...) or High Voltage application (20.000 VAC, 33.000VAC, etc. ..), this setpoint must be adapted.

Electrical fault

Variable	Selection of breaker to open after mains electrical fault (2311)
Unit	-
Min	0
Max	2
Init	0
Description	Circuit Breaker opened in case of Mains electrical fault (0= Mains /1=Generator/ 2=Both)

Variable	Authorization to start on mains electrical fault (2309)
Unit	-
Min	0
Max	1
Init	1
Description	Authorize to start after Mains electrical fault (Off=0; On=1)

Variable	Mains breaker tripping mode on mains fault (2312)
Unit	-
Min	0
Max	3
Init	0
Description	Mains breaker opening mode on Mains electrical fault (0 : Immediately/1 :After start/2 :After GE ready/3 :After timer)

Variable	Timer to open mains breaker on mains fault (2313)
Unit	s
Min	0.0
Max	999.9
Init	10
Description	Delay before MCB open command on fault if E2312 = 3

Engine

Start/Stop settings

Start sequence

Variable	External start sequence (3452)
Unit	-
Min	0
Max	1
Init	0
Description	The Module can make the start sequence of your engine. If you use an external start sequence, you need to activate this option. When the external start sequence is activated, the Module do not control the start sequence. (0 : Not activated / 1 : Activated)

Variable	Fail to start engine (3453)
Unit	s
Min	0.0
Max	999.9
Init	600
Description	If external start sequence is activated, you can set the timer of a fail to start. If the engine doesn't start in the delay, a fault appears.

Variable	Warm up selection (3479)
Unit	-
Min	0
Max	1
Init	1
Description	When starting the engine, choice to select the warm up speed (0 = Nominal speed / 1 = Idle speed) .

Variable	Engine type (3477)
Unit	-
Min	0
Max	1
Init	0
Description	Engine type (0 = Diesel / 1 = Gas).

Crank settings

Variable	Maximum starting attempts by starter (3461)
Unit	-
Min	0
Max	15
Init	3
Description	Setting of the number of start for one starter.

Variable	Minimum cranking (3466)
Unit	s
Min	0.0
Max	999.9
Init	20
Description	Minimum delay of cranking.

Variable	Starter order (3459)
Unit	-
Min	0
Max	1
Init	0
Description	Starter command : Alternative (0) : One test per starter alternately. The starters take hands one after the other and start again. Consecutive (1) : Each starter performs several consecutive attempts before reaching out to the next starter.

Variable	Default starter number (3460)
Unit	-
Min	1
Max	3
Init	1
Description	In the case where are 2 or 3 starter, you can parameter the first starter to be used.

Variable	Crank 1 drop out (3462)
Unit	RPM
Min	0
Max	10 000
Init	400
Description	number of rpm max to drop out the starter.

Check before start

Variable	Preheating coolant temperature threshold (3474)
Unit	°C
Min	-3276.7
Max	3276.7
Init	0
Description	Minimum Preheating coolant temperature threshold before engine start. (0 = no check)

Variable	Minimum oil prelubrication threshold (3473)
Unit	mBar
Min	0
Max	6553.5
Init	0
Description	Minimum oil pre-lubrication threshold before engine start. (0 = no check)

Variable	Cooling fan activation threshold (3475)
Unit	°C
Min	-32767
Max	32767
Init	40
Description	The cooling fan activates when the coolant temperature is above this setting.

Variable	Excit. speed (2053)
Unit	%
Min	-200.0
Max	200.0
Init	900
Description	Percentage of speed to allow excitation for static paralleling. For a PRIME module, the threshold need to be the same with all module PRIME.

Variable	Excit. volt. (2054)
Unit	%
Min	-200.0
Max	200.0
Init	200
Description	Percentage of voltage to allow closing breaker in static paralleling. For a PRIME module, the threshold need to be the same with all module PRIME.

Stop sequence

Variable	Cooling speed selection (3476)
Unit	-
Min	0
Max	1
Init	0
Description	Before the complete stop of the engine, the engine make a cooling speed. Select the cooling speed adapted with your installation : nominal speed (variable 2207) or idle speed (variable 3468). (0 = Nominal speed / 1 = Idle speed).

Control settings

Speed common settings

Variable	Speed sensor type (2200)
Unit	-
Min	0
Max	2
Init	0
Description	Type of speed measurement for the engine (0=pick-up/1= alternator/2=J1939)

Variable	Number of poles pair (2202)
Unit	-
Min	0
Max	20
Init	2
Description	pole pair number of your alternator. It will be used to measure the speed of your engine.

Variable	Number of teeth for pick-up (2201)
Unit	-
Min	1
Max	65 535
Init	100
Description	Number of teeth for the magnetic pick-up. It will be used to measure the speed of the engine. Only use if you choose a pick-up measurement (Variable : 2200).

Variable	Idle speed (3468)
Unit	RPM
Min	0
Max	10 000
Init	700
Description	define the idle speed.

Variable	Speed setpoint (2207)
Unit	RPM
Min	0
Max	10 000
Init	1500
Description	Enter the instruction of speed has to respect. The Engine do not exceed this set point. For an electricity network of 50Hz put 1500 rpm and for a electricity network of 60Hz put 1800 rpm.

Variable	Speed setpoint (2) (2208)
Unit	RPM
Min	0
Max	10 000
Init	1800
Description	Enter the instruction of speed has to respect. The Engine do not exceed this set point. For an electricity network of 50Hz put 1500 rpm and for a electricity network of 60Hz put 1800 rpm.

Oil pressure monitoring

Variable	Oil pressure switch (3450)
Unit	-
Min	0
Max	4
Init	0
Description	Oil pressure selection. You can read the oil pressure with the analog input 1,2,3 or you can read the oil pressure with the J1939 if you use it. (0= Analog 1 // 1=Analog 2 // 2=Analog 3 // 3=J1939)

Water temperature control

Variable	Coolant temperature switch (3451)
Unit	-
Min	0
Max	4
Init	1
Description	Water temperature selection. You can read the water temperature with the analog input 1,2,3 or you can read the water temperature with the J1939 if you use it. (0= Analog 1 // 1=Analog 2 // 2=Analog 3 // 3=J1939)

J1939

J1939 engine selection

Variable	Manufacturer (3100)
Unit	-
Min	0
Max	32
Init	0
Description	Choose the Manufacturer of you engine. If the manufacturer is not in the list, choose "Generic".

Variable	ECU type (3101)
Unit	-
Min	0
Max	32
Init	0
Description	Choose the model of your ECU. If your ECU is not in the list, choose "Generic".

J1939 protections

Variable	Control on high speed (3104)
Unit	-
Min	0
Max	7
Init	0
Description	<p>Put an alarm or a fault. If your engine is in overspeed, the alarm or the fault will be activated. You can choose what do you need in the drop-down list. (alarm level 1) - Unused : no action.</p> <ul style="list-style-type: none"> - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Variable	Control on very high speed (3105)
Unit	-
Min	0
Max	7
Init	0
Description	<p>Put an alarm or a fault. If your engine is in overspeed, the alarm or the fault will be activated. You can choose what do you need in the drop-down list. (alarm level 2) - Unused : no action.</p> <ul style="list-style-type: none"> - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Variable	Control on high coolant temperature (3106)
Unit	-
Min	0
Max	7
Init	0
Description	<p>Put an alarm or a fault. If your engine is in overheat, the alarm or the fault will be activated. You can choose what do you need in the drop-down list. (alarm level 1) - Unused : no action.</p> <ul style="list-style-type: none"> - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Variable	Control on very high coolant temperature (3107)
Unit	-
Min	0
Max	7
Init	0
Description	<p>Put an alarm or a fault. If your engine is in overheat, the alarm or the fault will be activated. You can choose what do you need in the drop-down list. (alarm level 2) - Unused : no action.</p> <ul style="list-style-type: none"> - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Variable	Control on low oil pressure (3108)
Unit	-
Min	0
Max	7
Init	0
Description	<p>Put an alarm or a fault. If your engine have a low oil pressure, the alarm or the fault will be activated. You can choose what do you need in the drop-down list. (alarm level 1) - Unused : no action.</p> <ul style="list-style-type: none"> - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Variable	Control on very low oil pressure (3109)
Unit	-
Min	0
Max	7
Init	0
Description	<p>Put an alarm or a fault. If your engine have a very low oil pressure, the alarm or the fault will be activated. You can choose what do you need in the drop-down list. (alarm level 2) - Unused : no action.</p> <ul style="list-style-type: none"> - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Variable	Control on DM1 smoke (3110)
Unit	-
Min	0
Max	7
Init	0
Description	<p>Put an alarm or a fault. If your engine loses control of a functionality, the alarm or the fault will be activated. You can choose what do you need in the drop-down list. - Unused : no action.</p> <ul style="list-style-type: none"> - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Variable	Control on DM1 engine protection (3111)
Unit	-
Min	0
Max	7
Init	0
Description	<p>Put an alarm or a fault. If your engine send an information about a problem with a protection, the alarm or the fault will be activated. You can choose what do you need in the drop-down list. - Unused : no action.</p> <ul style="list-style-type: none"> - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Variable	Control on DM1 warning (3112)
Unit	-
Min	0
Max	7
Init	0
Description	<p>Put an alarm or a fault. If your engine have an alarm, the alarm or the fault Module will be activated. You can choose what do you need in the drop-down list. - Unused : no action.</p> <ul style="list-style-type: none"> - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Variable	Control on DM1 alarm (3113)
Unit	-
Min	0
Max	7
Init	0
Description	<p>Put an alarm or a fault. If your engine have a fault, the alarm or the fault Module will be activated. You can choose what do you need in the drop-down list. - Unused : no action.</p> <ul style="list-style-type: none"> - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Protections

Generator protections

Over/under frequency

Over frequency protection

Variable	Threshold (2400)
Unit	%
Min	0.0
Max	200.0
Init	1050
Description	Over-frequency Generator Protection Threshold

Variable	Timer (2401)
Unit	s
Min	0.0
Max	999.9
Init	300
Description	Timer acceptance before protection activation when Generator Frequency has reached the over-frequency protection threshold

Variable	Control (2402)
Unit	-
Min	0
Max	7
Init	5
Description	Control selection when Generator Over-frequency protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Under frequency protection

Variable	Threshold (2403)
Unit	%
Min	0.0
Max	200.0
Init	900
Description	Under-frequency Generator Protection Threshold

Variable	Timer (2404)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer acceptance before protection activation when Generator Frequency has reached the Under-frequency protection threshold

Variable	Control (2405)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Generator Under-frequency protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Over frequency protection 2

Variable	Threshold (2436)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	Over-frequency Generator Protection Threshold 2

Variable	Timer (2437)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer 2 acceptance before protection activation when Generator Frequency has reached the over-frequency protection threshold

Variable	Control (2438)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Over-frequency protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Under frequency protection 2

Variable	Threshold (2439)
Unit	%
Min	0.0
Max	200.0
Init	900
Description	Under-frequency Generator Protection Threshold 2

Variable	Timer (2440)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer 2 acceptance before protection activation when Generator Frequency has reached the Under-frequency protection threshold

Variable	Control (2441)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Under-frequency protection become active. The selections are the following : <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Over/under voltage

Over voltage protection

Variable	Threshold (2406)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	Over-voltage Generator Protection Threshold

Variable	Timer (2407)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer acceptance before protection activation when Generator voltage has reached the over-voltage protection threshold

Variable	Control (2408)
Unit	-
Min	0
Max	7
Init	5
Description	Control selection when Generator Over-voltage protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Under voltage protection

Variable	Threshold (2409)
Unit	%
Min	0.0
Max	200.0
Init	900
Description	Under-voltage Generator Protection Threshold

Variable	Timer (2410)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	Timer acceptance before protection activation when Generator voltage has reached the Under-voltage protection threshold

Variable	Control (2411)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Generator Under-voltage protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Over voltage protection 2

Variable	Threshold (2442)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	Over-voltage Generator Protection Threshold 2

Variable	Timer (2443)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer 2 acceptance before protection activation when Generator voltage has reached the over-voltage protection threshold

Variable	Control (2444)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Over-voltage protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Under voltage protection 2

Variable	Threshold (2445)
Unit	%
Min	0.0
Max	200.0
Init	900
Description	Under-voltage Generator Protection Threshold 2

Variable	Timer (2446)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	Timer 2 acceptance before protection activation when Generator voltage has reached the Under-voltage protection threshold

Variable	Control (2447)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Under-voltage protection become active. The selections are the following : <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Over current/neutral

Over current protection

Variable	Threshold (2430)
Unit	A
Min	0
Max	65 535
Init	500
Description	Over-Current Generator Protection Threshold

Variable	Timer (2431)
Unit	s
Min	0.0
Max	999.9
Init	30
Description	Timer acceptance before protection activation when Generator Current has reached the over-Current protection threshold

Variable	Control (2432)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Generator Over-Current protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Neutral current protection

Variable	Threshold (2433)
Unit	A
Min	0
Max	65 535
Init	300
Description	Over Neutral Current Generator Protection Threshold

Variable	Timer (2434)
Unit	s
Min	0.0
Max	999.9
Init	1200
Description	Timer acceptance before protection activation when Generator Neutral Current has reached the Over Neutral Current protection threshold

Variable	Control (2435)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Generator Over Neutral Current protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Over current protection 2

Variable	Threshold (2466)
Unit	A
Min	0
Max	65 535
Init	500
Description	Over-Current Generator Protection Threshold 2

Variable	Timer (2467)
Unit	s
Min	0.0
Max	999.9
Init	30
Description	Timer 2 acceptance before protection activation when Generator Current has reached the over-Current protection threshold

Variable	Control (2468)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Over-Current protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Neutral current protection 2

Variable	Threshold (2469)
Unit	A
Min	0
Max	65 535
Init	300
Description	Over Neutral Current Generator Protection Threshold 2

Variable	Timer (2470)
Unit	s
Min	0.0
Max	999.9
Init	1200
Description	Timer 2 acceptance before protection activation when Generator Neutral Current has reached the Over Neutral Current protection threshold

Variable	Control (2471)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Over Neutral Current protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Reverse kW/kVar

Reverse kW

Variable	Threshold (2418)
Unit	%
Min	0.0
Max	200.0
Init	100
Description	Reverse KW Generator Protection Threshold

Variable	Timer (2419)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer acceptance before protection activation when Generator Active Power has reached the Reverse KW protection threshold

Variable	Control (2420)
Unit	-
Min	0
Max	7
Init	5
Description	Control selection when Generator Reverse KW protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Reverse kVAR

Variable	Threshold (2427)
Unit	%
Min	0.0
Max	200.0
Init	200
Description	Reverse KVAR Generator Protection Threshold

Variable	Timer (2428)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	Timer acceptance before protection activation when Generator Reactive Power has reached the Reverse KVAR protection threshold

Variable	Control (2429)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Generator Reverse KVAR protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Reverse kW 2

Variable	Threshold (2454)
Unit	%
Min	0.0
Max	200.0
Init	100
Description	Reverse KW Generator Protection Threshold 2

Variable	Timer (2455)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	Timer 2 acceptance before protection activation when Generator Active Power has reached the Reverse KW protection threshold

Variable	Control (2456)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Reverse KW protection become active. The selections are the following : <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Reverse kVAR 2

Variable	Threshold (2463)
Unit	%
Min	0.0
Max	200.0
Init	100
Description	Reverse KVAR Generator Protection Threshold 2

Variable	Timer (2464)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	Timer 2 acceptance before protection activation when Generator Reactive Power has reached the Reverse KVAR protection threshold

Variable	Control (2465)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Reverse KVAR protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Maxi kW/mini kW

Maxi kW

Variable	Threshold (2415)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	Maximum KW Generator Protection Threshold

Variable	Timer (2416)
Unit	s
Min	0.0
Max	999.9
Init	600
Description	Timer acceptance before protection activation when Generator Active Power has reached the Maximum KW protection threshold

Variable	Control (2417)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Generator Maximum KW protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Mini kW

Variable	Threshold (2412)
Unit	%
Min	0.0
Max	200.0
Init	100
Description	Minimum KW Generator Protection Threshold

Variable	Timer (2413)
Unit	s
Min	0.0
Max	999.9
Init	1200
Description	Timer acceptance before protection activation when Generator Active Power has reached the Minimum KW protection threshold

Variable	Control (2414)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Generator Minimum KW protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Maxi kW 2

Variable	Threshold (2451)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	Maximum KW Generator Protection Threshold 2

Variable	Timer (2452)
Unit	s
Min	0.0
Max	999.9
Init	600
Description	Timer 2 acceptance before protection activation when Generator Active Power has reached the Maximum KW protection threshold

Variable	Control (2453)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Maximum KW protection become active. The selections are the following : <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Mini kW 2

Variable	Threshold (2448)
Unit	%
Min	0.0
Max	200.0
Init	100
Description	Minimum KW Generator Protection Threshold 2

Variable	Timer (2449)
Unit	s
Min	0.0
Max	999.9
Init	1200
Description	Timer 2 acceptance before protection activation when Generator Active Power has reached the Minimum KW protection threshold

Variable	Control (2450)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Minimum KW protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Maxi kVAR/mini kVAR

Maxi kVAR

Variable	Threshold (2424)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	Maximum KVAR Generator Protection Threshold

Variable	Timer (2425)
Unit	s
Min	0.0
Max	999.9
Init	300
Description	Timer acceptance before protection activation when Generator Reactive Power has reached the Maximum KVAR protection threshold

Variable	Control (2426)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Generator Maximum KVAR protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Mini kVAR

Variable	Threshold (2421)
Unit	%
Min	0.0
Max	200.0
Init	100
Description	Minimum KVAR Generator Protection Threshold

Variable	Timer (2422)
Unit	s
Min	0.0
Max	999.9
Init	1200
Description	Timer acceptance before protection activation when Generator Reactive Power has reached the Minimum KVAR protection threshold

Variable	Control (2423)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Generator Minimum KVAR protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Maxi kVAR 2

Variable	Threshold (2460)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	Maximum KVAR Generator Protection Threshold 2

Variable	Timer (2461)
Unit	s
Min	0.0
Max	999.9
Init	300
Description	Timer 2 acceptance before protection activation when Generator Reactive Power has reached the Maximum KVAR protection threshold

Variable	Control (2462)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Maximum KVAR protection become active. The selections are the following : <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Mini kVAR 2

Variable	Threshold (2457)
Unit	%
Min	0.0
Max	200.0
Init	100
Description	Minimum KVAR Generator Protection Threshold 2

Variable	Timer (2458)
Unit	s
Min	0.0
Max	999.9
Init	1200
Description	Timer 2 acceptance before protection activation when Generator Reactive Power has reached the Minimum KVAR protection threshold

Variable	Control (2459)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Minimum KVAR protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Voltage/Current unbalance

Voltage unbalance

Variable	Threshold (2486)
Unit	%
Min	0.0
Max	200.0
Init	50
Description	Voltage Unbalance Generator Protection Threshold

Variable	Timer (2487)
Unit	s
Min	0.0
Max	999.9
Init	30
Description	Timer acceptance before protection activation when Generator voltage has reached the Voltage Unbalance protection threshold

Variable	Control (2488)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Generator Voltage Unbalance protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Voltage unbalance 2

Variable	Threshold (2489)
Unit	%
Min	0.0
Max	200.0
Init	100
Description	Voltage Unbalance Generator Protection Threshold 2

Variable	Timer (2490)
Unit	s
Min	0.0
Max	999.9
Init	30
Description	Timer 2 acceptance before protection activation when Generator voltage has reached the Voltage Unbalance protection threshold

Variable	Control (2491)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Voltage Unbalance protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Current unbalance

Variable	Threshold (2492)
Unit	%
Min	0.0
Max	200.0
Init	400
Description	Current Unbalance Generator Protection Threshold

Variable	Timer (2493)
Unit	s
Min	0.0
Max	999.9
Init	30
Description	Timer acceptance before protection activation when Generator Current has reached the Current Unbalance protection threshold

Variable	Control (2494)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Generator Current Unbalance protection become active. The selections are the following : <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Current unbalance 2

Variable	Threshold (2495)
Unit	%
Min	0.0
Max	200.0
Init	600
Description	Current Unbalance Generator Protection Threshold 2

Variable	Timer (2496)
Unit	s
Min	0.0
Max	999.9
Init	30
Description	Timer 2 acceptance before protection activation when Generator Current has reached the Current Unbalance protection threshold

Variable	Control (2497)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Generator Current Unbalance protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Short circuit protection

Short circuit protection setting

Variable	Generator Short Circuit Control (2477)
Unit	-
Min	0
Max	5
Init	0
Description	Control selection when Generator Short Circuit Current protection become active.

Variable	Single phase nominal current (2103)
Unit	A
Min	0
Max	65 535
Init	250
Description	Genset Nominal Current

Variable	Short Circuit K constant characteristic (2472)
Unit	s
Min	0
Max	655.35
Init	14
Description	Generator Current Short Circuit Protection : K constant characteristic

Variable	Short Circuit C constant characteristic (2473)
Unit	s
Min	0
Max	65.535
Init	0
Description	Generator Current Short Circuit Protection : C constant characteristic

Variable	Short Circuit Alpha constant characteristic (2474)
Unit	-
Min	0
Max	655.35
Init	2
Description	Generator Current Short Circuit Protection : Alpha constant characteristic

Variable	Short Circuit Is constant (2476)
Unit	%
Min	0
Max	1000
Init	110
Description	Generator Current Short Circuit Protection : IS constant characteristic

Variable	Short Circuit TMS (Time Multiplier Setting) (2475)
Unit	-
Min	0.0
Max	1.0
Init	10
Description	Generator Current Short Circuit Protection : TMS (Time Multiplier Setting) constant characteristic

Earth fault protection

Earth fault ratio

Variable	Earth Current CT ratio (2485)
Unit	-
Min	0.1
Max	3250.0
Init	10
Description	Earth Current Transformers Ratio

Earth fault protection

Variable	Threshold (2479)
Unit	A
Min	0
Max	6553.5
Init	10
Description	Earth Current Protection Threshold

Variable	Timer (2480)
Unit	s
Min	0.0
Max	10.0
Init	10
Description	Timer acceptance before protection activation when Earth Current has reached the Earth Current protection threshold

Variable	Control (2481)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Earth Current protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Earth fault protection 2

Variable	Threshold (2482)
Unit	A
Min	0
Max	6553.5
Init	20
Description	Earth Current Protection Threshold 2

Variable	Timer (2483)
Unit	s
Min	0.0
Max	10.0
Init	5
Description	Timer 2 acceptance before protection activation when Earth Current has reached the Earth Current protection threshold

Variable	Control (2484)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Earth Current protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Mains protections

Over/under frequency

Over frequency protection

Variable	Threshold (2500)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	Over-frequency Mains Protection Threshold

Variable	Timer (2501)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer acceptance before protection activation when Mains Frequency has reached the over-frequency protection threshold

Variable	Control (2502)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Over-frequency protection become active. The selections are the following : <ul style="list-style-type: none">- Unused : no action.- Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807.- Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both.- Alarm : Notice as alarm on front panel.- Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop.- Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information.- +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Under frequency protection

Variable	Threshold (2503)
Unit	%
Min	0.0
Max	200.0
Init	900
Description	Under-frequency Mains Protection Threshold

Variable	Timer (2504)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer acceptance before protection activation when Mains Frequency has reached the Under-frequency protection threshold

Variable	Control (2505)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Under-frequency protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Over frequency protection 2

Variable	Threshold (2530)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	Over-frequency Mains Protection Threshold 2

Variable	Timer (2531)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer 2 acceptance before protection activation when Mains Frequency has reached the over-frequency protection threshold

Variable	Control (2532)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Mains Over-frequency protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Under frequency protection 2

Variable	Threshold (2533)
Unit	%
Min	0.0
Max	200.0
Init	900
Description	Under-frequency Mains Protection Threshold 2

Variable	Timer (2534)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer 2 acceptance before protection activation when Mains Frequency has reached the Under-frequency protection threshold

Variable	Control (2535)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Mains Under-frequency protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Over/under voltage

Over voltage protection

Variable	Threshold (2506)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	Over-voltage Mains Protection Threshold

Variable	Timer (2507)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer acceptance before protection activation when Mains voltage has reached the over-voltage protection threshold

Variable	Control (2508)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Over-voltage protection become active. The selections are the following : <ul style="list-style-type: none">- Unused : no action.- Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807.- Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both.- Alarm : Notice as alarm on front panel.- Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop.- Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information.- +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Under voltage protection

Variable	Threshold (2509)
Unit	%
Min	0.0
Max	200.0
Init	900
Description	Under-voltage Mains Protection Threshold

Variable	Timer (2510)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	Timer acceptance before protection activation when Mains voltage has reached the Under-voltage protection threshold

Variable	Control (2511)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Under-voltage protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Over voltage protection 2

Variable	Threshold (2536)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	Over-voltage Mains Protection Threshold 2

Variable	Timer (2537)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer 2 acceptance before protection activation when Mains voltage has reached the over-voltage protection threshold

Variable	Control (2538)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Mains Over-voltage protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Under voltage protection 2

Variable	Threshold (2539)
Unit	%
Min	0.0
Max	200.0
Init	900
Description	Under-voltage Mains Protection Threshold 2

Variable	Timer (2540)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	Timer 2 acceptance before protection activation when Mains voltage has reached the Under-voltage protection threshold

Variable	Control (2541)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Mains Under-voltage protection become active. The selections are the following : <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Reverse kW/kVar

Reverse kW

Variable	Threshold (2518)
Unit	kW
Min	0
Max	65 535
Init	100
Description	Reverse KW Mains Protection Threshold

Variable	Timer (2519)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	Timer acceptance before protection activation when Mains Active Power has reached the Reverse KW protection threshold

Variable	Control (2520)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Reverse KW protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Reverse kVAR

Variable	Threshold (2527)
Unit	kVAR
Min	0
Max	65 535
Init	200
Description	Reverse KVAR Mains Protection Threshold

Variable	Timer (2528)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	Timer acceptance before protection activation when Mains Reactive Power has reached the Reverse KVAR protection threshold

Variable	Control (2529)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Reverse KVAR protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Reverse kW 2

Variable	Threshold (2548)
Unit	kW
Min	0
Max	65 535
Init	100
Description	Reverse KW Mains Protection Threshold 2

Variable	Timer (2549)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	Timer 2 acceptance before protection activation when Mains Active Power has reached the Reverse KW protection threshold

Variable	Control (2550)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Mains Reverse KW protection become active. The selections are the following : <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Reverse kVAR 2

Variable	Threshold (2557)
Unit	kVAR
Min	0
Max	65 535
Init	200
Description	Reverse KVAR Mains Protection Threshold 2

Variable	Timer (2558)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	Timer 2 acceptance before protection activation when Mains Reactive Power has reached the Reverse KVAR protection threshold

Variable	Control (2529)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Reverse KVAR protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Maxi kW/mini kW

Maxi kW

Variable	Threshold (2515)
Unit	kW
Min	0
Max	65 535
Init	110
Description	Maximum KW Mains Protection Threshold

Variable	Timer (2516)
Unit	s
Min	0.0
Max	999.9
Init	600
Description	Timer acceptance before protection activation when Mains Active Power has reached the Maximum KW protection threshold

Variable	Control (2517)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Maximum KW protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Mini kW

Variable	Threshold (2512)
Unit	kW
Min	0
Max	65 535
Init	100
Description	Minimum KW Mains Protection Threshold

Variable	Timer (2513)
Unit	s
Min	0.0
Max	999.9
Init	1200
Description	Timer acceptance before protection activation when Mains Active Power has reached the Minimum KW protection threshold

Variable	Control (2514)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Minimum KW protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Maxi kW 2

Variable	Threshold (2545)
Unit	kW
Min	0
Max	65 535
Init	110
Description	Maximum KW Mains Protection Threshold 2

Variable	Timer (2546)
Unit	s
Min	0.0
Max	999.9
Init	600
Description	Timer 2 acceptance before protection activation when Mains Active Power has reached the Maximum KW protection threshold

Variable	Control (2547)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Mains Maximum KW protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Mini kW 2

Variable	Threshold (2542)
Unit	kW
Min	0
Max	65 535
Init	100
Description	Minimum KW Mains Protection Threshold 2

Variable	Timer (2543)
Unit	s
Min	0.0
Max	999.9
Init	1200
Description	Timer 2 acceptance before protection activation when Mains Active Power has reached the Minimum KW protection threshold

Variable	Control (2544)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Mains Minimum KW protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Maxi kVAR/mini kVAR

Maxi kVAR

Variable	Threshold (2524)
Unit	kVAR
Min	0
Max	65 535
Init	100
Description	Maximum KVAR Mains Protection Threshold

Variable	Timer (2525)
Unit	s
Min	0.0
Max	999.9
Init	300
Description	Timer acceptance before protection activation when Mains Reactive Power has reached the Maximum KVAR protection threshold

Variable	Control (2526)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Maximum KVAR protection become active. The selections are the following : <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Mini kVAR

Variable	Threshold (2521)
Unit	kVAR
Min	0
Max	65 535
Init	200
Description	Minimum KVAR Mains Protection Threshold

Variable	Timer (2522)
Unit	s
Min	0.0
Max	999.9
Init	1200
Description	Timer acceptance before protection activation when Mains Reactive Power has reached the Minimum KVAR protection threshold

Variable	Control (2523)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Minimum KVAR protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Maxi kVAR 2

Variable	Threshold (2554)
Unit	kVAR
Min	0
Max	65 535
Init	100
Description	Maximum KVAR Mains Protection Threshold 2

Variable	Timer (2555)
Unit	s
Min	0.0
Max	999.9
Init	300
Description	Timer 2 acceptance before protection activation when Mains Reactive Power has reached the Maximum KVAR protection threshold

Variable	Control (2556)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Mains Maximum KVAR protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Mini kVAR 2

Variable	Threshold (2551)
Unit	kVAR
Min	0
Max	65 535
Init	200
Description	Minimum KVAR Mains Protection Threshold 2

Variable	Timer (2552)
Unit	s
Min	0.0
Max	999.9
Init	1200
Description	Timer 2 acceptance before protection activation when Mains Reactive Power has reached the Minimum KVAR protection threshold

Variable	Control (2553)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Mains Minimum KVAR protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Voltaget unbalance

Voltage unbalance

Variable	Threshold (2565)
Unit	%
Min	0.0
Max	200.0
Init	50
Description	Voltage Unbalance Mains Protection Threshold

Variable	Timer (2566)
Unit	s
Min	0.0
Max	999.9
Init	30
Description	Timer acceptance before protection activation when Mains voltage has reached the Voltage Unbalance protection threshold

Variable	Control (2567)
Unit	-
Min	0
Max	7
Init	0
Description	Control selection when Mains Voltage Unbalance protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Voltage unbalance 2

Variable	Threshold (2568)
Unit	%
Min	0.0
Max	200.0
Init	100
Description	Voltage Unbalance Mains Protection Threshold 2

Variable	Timer (2569)
Unit	s
Min	0.0
Max	999.9
Init	30
Description	Timer 2 acceptance before protection activation when Mains voltage has reached the Voltage Unbalance protection threshold

Variable	Control (2570)
Unit	-
Min	0
Max	7
Init	0
Description	Control 2 selection when Mains Voltage Unbalance protection become active. The selections are the following : - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. - +Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it.

Engine/battery protections

Speed protection

Over speed protection

Variable	Threshold (2350)
Unit	%
Min	0.0
Max	200.0
Init	1100
Description	This setpoint adjusts the threshold level for overspeed engine protection. This protection is mainly mechanical protection. This setpoint can be set from 0% to 200% of the nominal speed engine.(variable 2207) . 100% corresponding at nominal speed value.

Variable	Timer (2351)
Unit	s
Min	0.0
Max	999.9
Init	20
Description	This setpoint adjusts the delay of the overspeed engine detection. This setpoint can be set from 0s to 999,9s. If the overspeed is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2352) will be activated. If the overspeed is no more detected during the delay, then the delay will be reset.

Variable	Validation (2352)
Unit	-
Min	0
Max	7
Init	5
Description	<p>This setpoint define the action which will be activated if an overspeed engine is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Under speed protection

Variable	Threshold (2353)
Unit	%
Min	0.0
Max	200.0
Init	900
Description	<p>This setpoint adjusts the threshold level for underspeed engine protection. This protection is mainly mechanical protection.</p> <p>This setpoint can be set from 0% to 200% of the nominal speed engine (variable 2207). 100% corresponding at nominal speed value.</p>

Variable	Timer (2354)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	<p>This setpoint adjusts the delay of the underspeed engine detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the underspeed is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2355) will be activated.</p> <p>If the underspeed is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2355)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if an underspeed engine is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information.

Over speed protection 2

Variable	Threshold (2368)
Unit	%
Min	0.0
Max	200.0
Init	1150
Description	<p>This setpoint adjusts the second threshold level for overspeed engine protection. This protection is mainly mechanical protection.</p> <p>This setpoint can be set from 0% to 200% of the nominal speed engine.(variable 2207) . 100% corresponding at nominal speed value.</p>

Variable	Timer (2369)
Unit	s
Min	0.0
Max	999.9
Init	20
Description	<p>This setpoint adjusts the delay of the overspeed engine detection of the second threshold level.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the overspeed is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2370) will be activated.</p> <p>If the overspeed is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2370)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the second overspeed engine is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Under speed protection 2

Variable	Threshold (2371)
Unit	%
Min	0.0
Max	200.0
Init	850
Description	<p>This setpoint adjusts the second threshold level for underspeed engine protection. This protection is mainly mechanical protection.</p> <p>This setpoint can be set from 0% to 200% of the nominal speed engine (variable 2207). 100% corresponding at nominal speed value.</p>

Variable	Timer (2372)
Unit	s
Min	0.0
Max	999.9
Init	200
Description	<p>This setpoint adjusts the delay of the underspeed engine detection of the second threshold level.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the underspeed is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2373) will be activated.</p> <p>If the underspeed is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2373)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the second underspeed engine is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Water/oil protection

Water temperature protection

Variable	Threshold (2365)
Unit	°C
Min	-3276.7
Max	3276.7
Init	950
Description	<p>This setpoint adjusts the threshold level for maximal water temperature protection of the engine. This protection is mainly mechanical protection.</p> <p>This setpoint can be set from -3200°C to +3200°C.</p>

Variable	Timer (2366)
Unit	s
Min	0.0
Max	999.9
Init	300
Description	<p>This setpoint adjusts the delay of the maximal water temperature detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the maximal temperature is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2367) will be activated.</p> <p>If the maximal temperature is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2367)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the threshold of maximal water temperature is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Oil pressure protection

Variable	Threshold (2362)
Unit	mBar
Min	0
Max	6553.5
Init	30 000
Description	<p>This setpoint adjusts the threshold limit of the oil pressure of the engine.</p> <p>This protection is mainly mechanical protection.</p> <p>This setpoint can be set from 0mBar to 6553,5mBar.</p>

Variable	Timer (2363)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	<p>This setpoint adjusts the delay of the oil pressure limit detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the oil pressure limit is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2364) will be activated.</p> <p>If the oil pressure limit is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2364)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the oil pressure limit is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Water temperature protection 2

Variable	Threshold (2383)
Unit	°C
Min	-3276.7
Max	3276.7
Init	1200
Description	<p>This setpoint adjusts the second threshold level for maximal water temperature protection of the engine. This protection is mainly mechanical protection.</p> <p>This setpoint can be set from -3200°C to +3200°C.</p>

Variable	Timer (2384)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	<p>This setpoint adjusts the delay of the maximal water temperature detection of the second threshold level.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the maximal temperature is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2385) will be activated.</p> <p>If the maximal temperature is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2385)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the second threshold of maximal water temperature is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Oil pressure protection 2

Variable	Threshold (2380)
Unit	mBar
Min	0
Max	6553.5
Init	20 000
Description	<p>This setpoint adjusts the second threshold limit of the oil pressure of the engine.</p> <p>This protection is mainly mechanical protection.</p> <p>This setpoint can be set from 0mBar to 6553,5mBar.</p>

Variable	Timer (2381)
Unit	s
Min	0.0
Max	999.9
Init	50
Description	<p>This setpoint adjusts the delay of the oil pressure limit detection of the second threshold level.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the oil pressure limit is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2382) will be activated.</p> <p>If the oil pressure limit is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2382)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the second oil pressure limit is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Analog inputs protection

Analog input 1 protection

Variable	Label (4206)
Unit	-
Min	0
Max	3
Init	-
Description	<p>This value is to customize the label of analog input 1 protection.</p> <p>The maximum number of characters is of 14.</p> <p>This protection use the analog input 1 set in the "Analog inputs" chapter (variable 150).</p>

Variable	Threshold (2600)
Unit	-
Min	-32 767
Max	32 767
Init	0
Description	<p>This setpoint adjusts the threshold level for analog input 1 protection.</p> <p>The setting of this setpoint is according to the unit selected for the analog input 1 (variable 150).</p>

Variable	Timer (2601)
Unit	s
Min	0.0
Max	999.9
Init	0
Description	<p>This setpoint adjusts the delay of the threshold level for analog input 1 detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the threshold's analog input 1 is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2602) will be activated.</p> <p>If the threshold's analog input 1 is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2602)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the threshold level for analog input 1 is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Variable	Threshold (level 2) (2603)
Unit	-
Min	- 32 767
Max	32 767
Init	0
Description	<p>This setpoint adjusts the second threshold level for analog input 1 protection.</p> <p>The setting of this setpoint is according to the unit selected for the analog input 1 (variable 150).</p>

Variable	Timer (level 2) (2604)
Unit	s
Min	0.0
Max	999.9
Init	0
Description	<p>This setpoint adjusts the delay of the second threshold level for analog input 1 detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the second threshold's analog input 1 is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2605) will be activated.</p> <p>If the second threshold's analog input 1 is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (level 2) (2605)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the second threshold level for analog input 1 is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Variable	Direction (2606)
Unit	-
Min	0
Max	1
Init	0
Description	<p>This setpoint define if the both threshold level for analog input 1 are minimum or maximum limit.</p> <p>If the setpoint is on "Minimum" then the action of variables 2602 and 2605 will activate from thresholds level set and below.</p> <p>If the setpoint is on "Maximum" then the action of variables 2602 and 2605 will activate from thresholds level set and above.</p>

Analog input 2 protection

Variable	Label (4207)
Unit	-
Min	0
Max	3
Init	-
Description	<p>This value is to customize the label of analog input 2 protection.</p> <p>The maximum number of characters is of 14.</p> <p>This protection use the analog input 2 set in the "Analog inputs" chapter (variable 151).</p>

Variable	Threshold (2608)
Unit	-
Min	-32 767
Max	32 767
Init	0
Description	<p>This setpoint adjusts the threshold level for analog input 2 protection.</p> <p>The setting of this setpoint is according to the unit selected for the analog input 2 (variable 151).</p>

Variable	Timer (2609)
Unit	s
Min	0.0
Max	999.9
Init	0
Description	<p>This setpoint adjusts the delay of the threshold level for analog input 2 detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the threshold's analog input 2 is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2610) will be activated.</p> <p>If the threshold's analog input 2 is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2610)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the threshold level for analog input 2 is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Variable	Threshold (level 2) (2611)
Unit	-
Min	-32 767
Max	32 767
Init	0
Description	<p>This setpoint adjusts the second threshold level for analog input 2 protection.</p> <p>The setting of this setpoint is according to the unit selected for the analog input 2 (variable 151).</p>

Variable	Timer (level 2) (2612)
Unit	s
Min	0.0
Max	999.9
Init	0
Description	<p>This setpoint adjusts the delay of the second threshold level for analog input 2 detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the second threshold's analog input 2 is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2613) will be activated.</p> <p>If the second threshold's analog input 2 is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (level 2) (2613)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the second threshold level for analog input 2 is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Variable	Direction (2614)
Unit	-
Min	0
Max	1
Init	0
Description	<p>This setpoint define if the both threshold level for analog input 2 are minimum or maximum limit.</p> <p>If the setpoint is on "Minimum" then the action of variables 2610 and 2613 will activate from thresholds level set and below.</p> <p>If the setpoint is on "Maximum" then the action of variables 2610 and 2613 will activate from thresholds level set and above.</p>

Analog input 3 protection

Variable	Label (4208)
Unit	-
Min	0
Max	3
Init	-
Description	<p>This value is to customize the label of analog input 3 protection.</p> <p>The maximum number of characters is of 14.</p> <p>This protection use the analog input 3 set in the "Analog inputs" chapter (variable 152).</p>

Variable	Threshold (2616)
Unit	-
Min	-32 767
Max	32 767
Init	0
Description	<p>This setpoint adjusts the threshold level for analog input 3 protection.</p> <p>The setting of this setpoint is according to the unit selected for the analog input 3 (variable 152).</p>

Variable	Timer (2617)
Unit	s
Min	0.0
Max	999.9
Init	0
Description	<p>This setpoint adjusts the delay of the threshold level for analog input 3 detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the threshold's analog input 3 is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2618) will be activated.</p> <p>If the threshold's analog input 3 is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2618)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the threshold level for analog input 3 is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Variable	Threshold (level 2) (2619)
Unit	-
Min	-32 767
Max	32 767
Init	0
Description	<p>This setpoint adjusts the second threshold level for analog input 3 protection.</p> <p>The setting of this setpoint is according to the unit selected for the analog input 3 (variable 152).</p>

Variable	Timer (level 2) (2620)
Unit	s
Min	0.0
Max	999.9
Init	0
Description	<p>This setpoint adjusts the delay of the second threshold level for analog input 3 detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the second threshold's analog input 3 is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2621) will be activated.</p> <p>If the second threshold's analog input 3 is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (level 2) (2621)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if the second threshold level for analog input 3 is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Variable	Direction (2622)
Unit	-
Min	0
Max	1
Init	0
Description	<p>This setpoint define if the both threshold level for analog input 3 are minimum or maximum limit.</p> <p>If the setpoint is on "Minimum" then the action of variables 2618 and 2621 will activate from thresholds level set and below.</p> <p>If the setpoint is on "Maximum" then the action of variables 2618 and 2621 will activate from thresholds level set and above.</p>

Battery protection

Maximum battery voltage protection

Variable	Threshold (2359)
Unit	V
Min	0.0
Max	35.0
Init	300
Description	<p>This setpoint adjusts the warning level for battery overvoltage protection.</p> <p>This protection is mainly electrical protection.</p> <p>This setpoint can be set from 0V to 35V.</p>

Variable	Timer (2360)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	<p>This setpoint adjusts the delay of the battery overvoltage detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the overvoltage is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2361) will be activated.</p> <p>If the overvoltage is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2361)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if a battery overvoltage is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information.

Minimum battery voltage protection

Variable	Threshold (2356)
Unit	V
Min	0.0
Max	35.0
Init	180
Description	<p>This setpoint adjusts the warning level for battery under voltage protection.</p> <p>This protection is mainly electrical protection.</p> <p>This setpoint can be set from 0V to 35V.</p>

Variable	Timer (2357)
Unit	s
Min	0.0
Max	999.9
Init	600
Description	<p>This setpoint adjusts the delay of the battery under voltage detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the under voltage is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2358) will be activated.</p> <p>If the under voltage is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2358)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if a battery under voltage is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information.

Maximum battery voltage protection 2

Variable	Threshold (2377)
Unit	V
Min	0.0
Max	35.0
Init	320
Description	<p>This setpoint adjusts the warning level for battery 2 overvoltage protection.</p> <p>This protection is mainly electrical protection.</p> <p>This setpoint can be set from 0V to 35V.</p>

Variable	Timer (2378)
Unit	s
Min	0.0
Max	999.9
Init	50
Description	<p>This setpoint adjusts the delay of the battery 2 overvoltage detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the overvoltage is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2361) will be activated.</p> <p>If the overvoltage is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2379)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if a battery 2 overvoltage is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Minimum battery voltage protection 2

Variable	Threshold (2374)
Unit	V
Min	0.0
Max	35.0
Init	150
Description	<p>This setpoint adjusts the warning level for battery 2 under voltage protection.</p> <p>This protection is mainly electrical protection.</p> <p>This setpoint can be set from 0V to 35V.</p>

Variable	Timer (2375)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	<p>This setpoint adjusts the delay of the battery 2 under voltage detection.</p> <p>This setpoint can be set from 0s to 999,9s.</p> <p>If the under voltage is still detected at the end of the delay, then the action of the parameter "Validation" (variable 2358) will be activated.</p> <p>If the under voltage is no more detected during the delay, then the delay will be reset.</p>

Variable	Validation (2376)
Unit	-
Min	0
Max	7
Init	0
Description	<p>This setpoint define the action which will be activated if a battery 2 under voltage is detected until the end of the set delay.</p> <p>Possible actions are :</p> <ul style="list-style-type: none"> - Unused : no action. - Generator electrical fault : The protection opens the generator breaker and tries to re-synchronize again. Count of attempts set by variable 2807. - Mains electrical fault : The protection opens the Mains breaker and tries to re-synchronize again. With the variable 2311, breaker selection to open can change : Generator breaker, Mains breaker or both. - Alarm : Notice as alarm on front panel. - Fault (soft Shutdown) : Generator breaker opens allowing the engine to cool down of load for the duration of the cool down timer, then stop. - Security (hard Shutdown) : Generator breaker opens and engine stops immediately without cooling down ; "serious fault" shows as information. -+Help means the faulty generator will ask another genset to start through inter-module Bus can to replace it

Boost battery

Variable	Enable (2388)
Unit	-
Min	0
Max	1
Init	0
Description	<p>This setpoint activate the boost battery function.</p> <p>This function activate the boost battery output with a low threshold (variable 2386) of the battery voltage and deactivate the output with high threshold (variable 2387).</p>

Variable	Low threshold (2386)
Unit	V
Min	0.0
Max	35.0
Init	200
Description	<p>This setpoint adjusts the low threshold level to activate the boost battery output.</p> <p>This setpoint can be set only if the variable 2388 is activated.</p> <p>This setpoint can be set from 0V to 35V.</p>

Variable	*high threshold (2387)
Unit	V
Min	0.0
Max	35.0
Init	280
Description	<p>This setpoint adjusts the high threshold level to deactivate the boost battery output.</p> <p>This setpoint can be set only if the variable 2388 is activated.</p> <p>This setpoint can be set from 0V to 35V.</p> <p>This threshold have to be higher than the low threshold (variable 2386).</p>

Inputs

Digital inputs

Digital inputs

Variable	Timer ON Digital Input 1 (2709)
Unit	s
Min	0.0
Max	6553.5
Init	0
Description	Digital Input 1 activation timer

Variable	Timer OFF Digital Input 1 (2718)
Unit	s
Min	0.0
Max	6553.5
Init	0
Description	Digital Input 1 deactivation timer

Variable	Validity on DI 1 (2727)
Unit	-
Min	0
Max	3
Init	1
Description	Digital Input 1 activation validity (0=Never/1=Always/2=Post Starting/3= rpm & Volt Stabilized)

Variable	Polarity NO/NC on DI 1 (2736)
Unit	-
Min	0
Max	1
Init	0
Description	Direction of Digital Input 1 (0=Normally Open/1=Normally Close)

Variable	Function configured on DI 1 (2700)
Unit	-
Min	0
Max	65 535
Init	4501
Description	Digital Input 1 associated function (Default value : Generator breaker feedback)

Hysteresis

Variable	Hysteresis 1 enable for DI (2769)
Unit	-
Min	0
Max	1
Init	0
Description	Enable hysteresis 1 on digital inputs functions

Variable	Timer ON Hysteresis 1 (2777)
Unit	s
Min	0.0
Max	999.9
Init	0
Description	Timer at activation on digital input of Hysteresis 1

Variable	Direction Hysteresis 1 (2785)
Unit	-
Min	0
Max	1
Init	0
Description	Direction Hysteresis 1 : 0 = Set on low thresh. - Reset on high thresh. / 1 = Set on high thresh. - Reset on low thresh.

Analog inputs

Analog input

Variable	Analog Input 1 function if use in DI (2607)
Unit	-
Min	0
Max	65 535
Init	0
Description	Function associated to Analog input 2 if used as Digital input.

Variable	Analog Input 1 Calibration point 1 (2624)
Unit	-
Min	-32 767
Max	32 767
Init	0
Description	Analog 1 :calibration point 1

Variable	Analog Input 1 Calibration point 2 (2625)
Unit	-
Min	-32 767
Max	32 767
Init	500
Description	Analog 1 :calibration point 2

Variable	Analog Input 1 Calibration point 3 (2626)
Unit	-
Min	-32 767
Max	32 767
Init	1000
Description	Analog 1 :calibration point 3

Variable	Analog Input 1 Calibration point 4 (2627)
Unit	-
Min	-32 767
Max	32 767
Init	1500
Description	Analog 1 :calibration point 4

Variable	Analog Input 1 Calibration point 5 (2628)
Unit	-
Min	-32 767
Max	32 767
Init	2000
Description	Analog 1 :calibration point 5

Variable	Analog Input 1 Calibration point 6 (2629)
Unit	-
Min	-32 767
Max	32 767
Init	2500
Description	Analog 1 :calibration point 6

Variable	Analog Input 1 Calibration point 7 (2630)
Unit	-
Min	-32 767
Max	32 767
Init	3000
Description	Analog 1 :calibration point 7

Variable	Analog Input 1 Calibration point 8 (2631)
Unit	-
Min	-32 767
Max	32 767
Init	3500
Description	Analog 1 :calibration point 8

Variable	Analog Input 1 Calibration point 9 (2632)
Unit	-
Min	-32 767
Max	32 767
Init	4000
Description	Analog 1 :calibration point 9

Variable	Analog Input 1 Calibration point 10 (2633)
Unit	-
Min	-32 767
Max	32 767
Init	4500
Description	Analog 1 :calibration point 10

Variable	Analog Input 1 Calibration point 11 (2634)
Unit	-
Min	-32 767
Max	32 767
Init	5000
Description	Analog 1 :calibration point 11

Hysteresis

Variable	Activating Hysteresis on Analog Input 1 (2657)
Unit	-
Min	0
Max	1
Init	0
Description	Enable hysteresis on analog input 1 with thresholds E2660(Low Level) & E2663(High Level)

Variable	Low level threshold on Analog Input 1 Hysteresis (2660)
Unit	-
Min	0
Max	65 535
Init	0
Description	Low level threshold for digital output activation on hysteresis (analog input 1)

Variable	Timer on low level threshold (Hysteresis on AI 1) (2666)
Unit	s
Min	0.0
Max	999.9
Init	30
Description	Timer before set/reset digital output on hysteresis low threshold (analog input 1)

Variable	High level threshold on Analog Input 1 Hysteresis (2663)
Unit	-
Min	0
Max	65 535
Init	0
Description	High level threshold for digital output activation on hysteresis (analog input 1)

Variable	Timer on high level threshold (Hysteresis on AI 1) (2669)
Unit	s
Min	0.0
Max	999.9
Init	30
Description	Timer before set/reset digital output on hysteresis high threshold (analog input 1)

Variable	Hysteresis Direction on Analog Input 1 (2672)
Unit	-
Min	0
Max	1
Init	0
Description	Hysteresis Direction on Analog Input 1 (0 : Set on low thresh. - Reset on high thresh. / 1 : Set on high thresh. - Reset on low thresh)

Outputs

Digital outputs/relays

Digital outputs

Variable	Status Digital Output 1 (4350)
Unit	-
Min	0
Max	1
Init	-
Description	Real time displayed status of Digital Output 1

Variable	Function configured DO 1 (2745)
Unit	-
Min	0
Max	65 535
Init	4652
Description	Output 1 Associated function (Default value = CRANK i.e. starter n°1)

Variable	Polarity NE/ND DO 1 (2751)
Unit	-
Min	0
Max	1
Init	0
Description	Polarity (0=Normally De-energized / 1=Normally Energized) Digital output 1

Variable	Pulse Length DO 1 (2761)
Unit	s
Min	0.0
Max	6553.5
Init	0
Description	Digital output 1 pulse timer (0 = no pulse, continuous activation)

Relays

Variable	Status Relay Output 1 (4356)
Unit	-
Min	0
Max	1
Init	-
Description	Real time displayed status of Relay Output 1

Variable	Output function Relay 1 (2757)
Unit	-
Min	0
Max	65 535
Init	4677
Description	Relay 1 Associated function (default : Open GE)

Variable	Direction NO/NC Relay 1 (2759)
Unit	-
Min	0
Max	1
Init	0
Description	Relay 1 Direction (0=Normally Open / 1=Normally Closed)

Variable	Pulse Length R 1 (2767)
Unit	s
Min	0.0
Max	6553.5
Init	0
Description	Relay output 1 pulse timer (0 = no pulse, continuous activation)

Generator breaker

Generators breaker control

Variable	Generator circuit breaker control type (2300)
Unit	-
Min	0
Max	5
Init	1
Description	Control type of the relay for the genset circuit breaker of the genset (pulse, hold, coil...)

Variable	Fail to open/close breaker timer (2304)
Unit	s
Min	0.0
Max	10.0
Init	50
Description	Circuit breaker max command delay (timer for discrepancy between command and feedback), identical for both generator circuit breaker and mains circuit breaker, is generating a fault.

Settings of pulses

Variable	Gen CB control Pulse length (2301)
Unit	s
Min	0.0
Max	999.9
Init	25
Description	Generator circuit breaker pulse length

Variable	Undervoltage coil hold time GCB (2302)
Unit	s
Min	0.0
Max	999.9
Init	10
Description	Generator circuit breaker : timer of the negative impulsion when low voltage coil

Variable	Undervoltage coil security timer GCB (2303)
Unit	s
Min	0.0
Max	999.9
Init	2
Description	Generator circuit breaker : delay between 2 attempts when low voltage coil negative pulse is used

Mains breaker

Mains breaker control

Variable	Mains circuit breaker control type (2307)
Unit	-
Min	0
Max	5
Init	1
Description	Control type of the relay for the Mains circuit breaker of the genset (pulse, hold, coil...)

Variable	Fail to open/close breaker timer (2304)
Unit	s
Min	0.0
Max	10.0
Init	50
Description	Circuit breaker max command delay (timer for discrepancy between command and feedback), identical for both generator circuit breaker and mains circuit breaker, is generating a fault.

Settings of pulses

Variable	Mains CB control Pulse length (2314)
Unit	s
Min	0.0
Max	999.9
Init	25
Description	Mains circuit breaker pulse length

Variable	Undervoltage coil hold time MCB (2315)
Unit	s
Min	0.0
Max	999.9
Init	10
Description	Mains circuit breaker : timer of the negative impulsion when low voltage coil

Variable	Undervoltage coil security timer MCB (2316)
Unit	s
Min	0.0
Max	999.9
Init	2
Description	Mains circuit breaker : delay between 2 attempts when low voltage coil negative pulse is used

CANopen

CANopen

CANopen

Variable	Configuration (3151)
Unit	-
Min	0
Max	5
Init	0
Description	CANOPEN configuration 8 I/O - 16 I/O - 32 I/O or client configuration

Variable	Coupler ID # 1 (3153)
Unit	-
Min	0
Max	255
Init	1
Description	Coupler identifier, In client Config mode, we can add several couplers and for each coupler a unique identifier is dedicated by the client

Variable	CANopen baud rate (3051)
Unit	-
Min	0
Max	65 535
Init	125
Description	CAN bus 2 baud speed (J1939/CANopen)

Variable	Error timer (3152)
Unit	s
Min	0.0
Max	6553.5
Init	100
Description	CANopen error timer

CANopen customer configuration

Variable	Coupler ID # 1 (3153)
Unit	-
Min	0
Max	255
Init	1
Description	Coupler identifier, In client Config mode, we can add several couplers and for each coupler a unique identifier is dedicated by the client

Variable	CANopen IN 1 (3154)
Unit	-
Min	0
Max	32
Init	0
Description	Each coupler is associated with an input number

Variable	CANopen OUT 1 (3155)
Unit	-
Min	0
Max	32
Init	0
Description	Each coupler is associated with output number

Inputs

Variable	CANopenVal I1 (3264)
Unit	-
Min	0
Max	3
Init	1
Description	Logic input usage mode Never / Always / Post starting / Stabilized

Variable	CANopenTM I1 (3232)
Unit	s
Min	0.0
Max	6553.5
Init	0
Description	Function execution delay, user can add execution delay after logic input status change

Variable	CANopenDir I1 (3296)
Unit	-
Min	0
Max	1
Init	0
Description	Direction of logic input Normally open or Normally closed

Variable	CANopenFuncI1 (3200)
Unit	-
Min	0
Max	65 535
Init	0
Description	selection of the function, which will be executed when the logic input changes state . (see functions on logic inputs for more details about functions)

Outputs

Variable	CANopenModeO1 (3382)
Unit	-
Min	0
Max	1
Init	0
Description	selection of the direction of the logic output, normally energized or de-energized

Variable	CANopenFuncO1 (3350)
Unit	-
Min	0
Max	65 535
Init	0
Description	Status change of the open or closed logic output, depending on the selected function

Time-outs et delays

Start sequence timers

Variable	Prelubrication (3455)
Unit	s
Min	0.0
Max	999.9
Init	0
Description	Pre-lubrication time, delay before engine start

Variable	Preglow (3456)
Unit	s
Min	0.0
Max	999.9
Init	0
Description	Glow plug warm-up time

Variable	Ignition ON delay (3480)
Unit	s
Min	0.0
Max	999.9
Init	20
Description	Ignition delay, self-ignition point delay

Variable	Gas ON delay (3481)
Unit	s
Min	0.0
Max	999.9
Init	20
Description	Starting before the gas valve is activated

Variable	Maximum cranking (3457)
Unit	s
Min	0.0
Max	999.9
Init	50
Description	Timer cranking

Variable	Time between start attempts (3458)
Unit	s
Min	0.0
Max	999.9
Init	50
Description	Timer between each cranking

Variable	Warm up (3467)
Unit	s
Min	0.0
Max	999.9
Init	0
Description	Engine warm-up delay time

Variable	Stabilisation (Speed and Voltage) (3469)
Unit	s
Min	0.0
Max	999.9
Init	50
Description	Speed and voltage stabilization time

Variable	Safety on (2004)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Timer inhibition, this timer allows to disable all the protection during the delay

Stop sequence timers

Variable	Cooling (3470)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Cooling delay after shutdown request

Variable	Ignition OFF delay (3482)
Unit	s
Min	0.0
Max	999.9
Init	40
Description	Ignition stop time

Variable	Stop engine (3471)
Unit	s
Min	0.0
Max	999.9
Init	100
Description	Generator shutdown delay

Others timers

Variable	Timer remote start (3478)
Unit	s
Min	0.0
Max	6553.5
Init	18 000
Description	Delay starting for a remote start with timer

Variable	Speed sensor lost (2203)
Unit	s
Min	0.0
Max	6553.5
Init	50
Description	Running time without speed sensor, once this delay is exceeded, a sensor loss alarm is activated

Variable	Horn Timer (2478)
Unit	s
Min	0.0
Max	6553.5
Init	10
Description	Trigger time Horn

Logger

Logger

Variable	Log on/off (3610)
Unit	-
Min	0
Max	3
Init	0
Description	Archiving mode OFF = NEVER / ALWAYS / POST STARTING / STABILIZED, event archiving can be activated depending on engine status.

Variable	Log Var 1 (3600)
Unit	-
Min	0
Max	65 535
Init	0
Description	Logger of the variable to archive

Variable	Log1 period (3612)
Unit	s
Min	0
Max	9999
Init	0
Description	Time in second of interval between each archiving

Maintenance

Running hours meters

Variable	Cycle 1 in hours (3500)
Unit	h
Min	0
Max	65 535
Init	0
Description	Running counter in hour, which activates the maintenance alarm after the delay time

Days meters

Variable	Cycle 1 in days (3505)
Unit	days
Min	0
Max	65 535
Init	0
Description	Running counter in Day, which activates the maintenance alarm after the delay time

Modbus redirection

Modbus variables 0-99

Modbus redirection variables

Variable	Modbus 000 (10000)
Unit	-
Min	0
Max	65 535
Init	50
Description	Modbus redirection variable, allows to redirect a variable to the Modbus address 10,000

List of inputs/outputs

List of inputs	99
Bus/Mains breaker feedback (4500)	99
Generator breaker feedback (4501)	99
Remote start on load (4502)	99
Oil pressure fault (4503)	99
Coolant temperature fault (4504)	99
Emergency stop (4505)	99
Fault reset (4506)	99
Generator fault request (4507)	99
Mains fault request (4508)	99
Manual start request (4509)	99
Manual stop request (4510)	99
Manual mode request (4511)	99
Manual mode inhibition (4512)	99
Auto mode request (4513)	99
Generator breaker opening in manual mode (4518)	100
Bus/Mains breaker opening in manual mode (4519)	100
Generator breaker closing in manual mode (4520)	100
Bus/Mains breaker closing in manual mode (4521)	100
Faults inhibition (4522)	100
Generator ready (4523)	100
Start inhibition (4524)	100
Remote hard shut down (4525)	100
Remote soft shut down (4526)	100
Remote alarm (4527)	100
Remote Fault + Help (4528)	100
Remote soft shutdown + help (4529)	100
Stop horn (4530)	100
Prelubrication request (4533)	100
Preglow request (4534)	100
Speed setpoint 2 selection (4535)	101
Remote non essential load (4537)	101
Manual mains back (4544)	101
Alternative selection DI 1 (4594)	101
Alternative selection DI 2 (4595)	101
Alternative selection DI 3 (4596)	101
Alternative selection DI 4 (4597)	101
Alternative selection DI 5 (4598)	101
Alternative selection DI 6 (4599)	101
Alternative selection DI 7 (4600)	101
Alternative selection DI 8 (4601)	101
Alternative selection DI 9 (4602)	101
Alternative selection DI 10 (4603)	101
Alternative selection DI 11 (4604)	101
Alternative selection DI 12 (4605)	101
Alternative selection DI 13 (4606)	102
Alternative selection DI 14 (4607)	102
Alternative selection DI 15 (4608)	102
Alternative selection DI 16 (4609)	102
Override (4610)	102
Remote start off load (4611)	102
Remote start with timer (4612)	102
Low threshold DI1 (4614)	102
Low threshold DI2 (4615)	102

Low threshold DI3 (4616)	102
Low threshold DI4 (4617)	102
Low threshold DI5 (4618)	102
Low threshold DI6 (4619)	102
Low threshold DI7 (4620)	102
Low threshold DI8 (4621)	102
High threshold DI1 (4622)	103
High threshold DI2 (4623)	103
High threshold DI3 (4624)	103
High threshold DI4 (4625)	103
High threshold DI5 (4626)	103
High threshold DI6 (4627)	103
High threshold DI7 (4628)	103
High threshold DI8 (4629)	103
Digital output 1 forced (4630)	103
Digital output 2 forced (4631)	103
Digital output 3 forced (4632)	103
Digital output 4 forced (4633)	103
Digital output 5 forced (4634)	103
Digital output 6 forced (4635)	103
Relay 1 forced (4950)	103
Relay 2 forced (4951)	103
List of outputs	104
Order to close generator breaker (4650)	104
Order to close mains breaker (4651)	104
Starter n°1 (4652)	104
Starter n°2 (4653)	104
Starter n°3 (4654)	104
Fuel / Gas (4655)	104
Generator electrical faults summary (4656)	104
Mains electrical faults summary (4657)	104
Alarms summary (4658)	104
Soft shut down summary (4659)	104
Hard shut down summary (4660)	104
Horn (4663)	104
Default LED (4664)	104
Alarm LED (4665)	104
Automatic mode LED (4666)	105
Test mode LED (4667)	105
Manual mode LED (4668)	105
Generator LED (4669)	105
Generator ready (4670)	105
Generator voltage present (4671)	105
Generator active power flow (4672)	105
Generator stop (4673)	105
Energize to stop (4674)	105
Generator breaker close (4675)	105
Bus/Mains breaker close (4676)	105
Generator breaker open (4677)	105
Bus/Mains breaker mains (4678)	105
Excitation command (4680)	105
Protection valid (4681)	105
Prelubrication (4684)	106
Preglow (4685)	106
Smoke limit / Position limiting (4686)	106
Damper (4687)	106
Air conditionning (4688)	106

Bus/Mains voltage presence (4703)	106
Idle speed (4704)	106
Ignition (4707)	106
Inhibited faults summary (NFE 37-312) (4708)	106
Battery boost DO (4709)	106
Set on analog 1 threshold (4710)	106
Set on analog 2 threshold (4711)	106
Set on analog 3 threshold (4712)	106
Digital output activation on D11 (4713)	106
Digital output activation on D12 (4714)	106
Digital output activation on D13 (4715)	107
Digital output activation on D14 (4716)	107
Digital output activation on D15 (4717)	107
Digital output activation on D16 (4718)	107
Digital output activation on D17 (4719)	107
Digital output activation on D18 (4720)	107

List of inputs

Variable	Bus/Mains breaker feedback (4500)
Description	Mains breaker aux

Variable	Generator breaker feedback (4501)
Description	Generator breaker aux

Variable	Remote start on load (4502)
Description	Remote start on load

Variable	Oil pressure fault (4503)
Description	Oil pressure fault

Variable	Coolant temperature fault (4504)
Description	water temp fault

Variable	Emergency stop (4505)
Description	Emergency stop

Variable	Fault reset (4506)
Description	Fault reset request

Variable	Generator fault request (4507)
Description	Fault genset request

Variable	Mains fault request (4508)
Description	Fault mains request

Variable	Manual start request (4509)
Description	Manual start request

Variable	Manual stop request (4510)
Description	Manual stop request

Variable	Manual mode request (4511)
Description	Manual mode external request

Variable	Manual mode inhibition (4512)
Description	Manual mode inhibition

Variable	Auto mode request (4513)
Description	Auto mode external request

Variable	Generator breaker opening in manual mode (4518)
Description	Generator breaker opening key
Variable	Bus/Mains breaker opening in manual mode (4519)
Description	Mains breaker opening key
Variable	Generator breaker closing in manual mode (4520)
Description	Generator breaker closing key
Variable	Bus/Mains breaker closing in manual mode (4521)
Description	Mains breaker closing key
Variable	Faults inhibition (4522)
Description	Faults inhibition
Variable	Generator ready (4523)
Description	Generator OK (if start sequence is inhibited)
Variable	Start inhibition (4524)
Description	Start / crank inhibition
Variable	Remote hard shut down (4525)
Description	Remote Hard Shut Down
Variable	Remote soft shut down (4526)
Description	Remote Soft Shut Down
Variable	Remote alarm (4527)
Description	Remote alarm
Variable	Remote Fault + Help (4528)
Description	Remote Fault + help
Variable	Remote soft shutdown + help (4529)
Description	Remote SSD + help
Variable	Stop horn (4530)
Description	Remote stop horn
Variable	Prelubrication request (4533)
Description	Pre-lubrication request
Variable	Preglow request (4534)
Description	Preglow request

Variable	Speed setpoint 2 selection (4535)
Description	Speed setpoint 2 selection
Variable	Remote non essential load (4537)
Description	Remote non essential load
Variable	Manual mains back (4544)
Description	Function allowing to execute a manual main back
Variable	Alternative selection DI 1 (4594)
Description	Digital input 1 for alternative selection
Variable	Alternative selection DI 2 (4595)
Description	Digital input 2 for alternative selection
Variable	Alternative selection DI 3 (4596)
Description	Digital input 3 for alternative selection
Variable	Alternative selection DI 4 (4597)
Description	Digital input 4 for alternative selection
Variable	Alternative selection DI 5 (4598)
Description	Digital input 5 for alternative selection
Variable	Alternative selection DI 6 (4599)
Description	Digital input 6 for alternative selection
Variable	Alternative selection DI 7 (4600)
Description	Digital input 7 for alternative selection
Variable	Alternative selection DI 8 (4601)
Description	Digital input 8 for alternative selection
Variable	Alternative selection DI 9 (4602)
Description	Digital input 9 for alternative selection
Variable	Alternative selection DI 10 (4603)
Description	Digital input 10 for alternative selection
Variable	Alternative selection DI 11 (4604)
Description	Digital input 11 for alternative selection
Variable	Alternative selection DI 12 (4605)
Description	Digital input 12 for alternative selection

Variable	Alternative selection DI 13 (4606)
Description	Digital input 13 for alternative selection
Variable	Alternative selection DI 14 (4607)
Description	Digital input 14 for alternative selection
Variable	Alternative selection DI 15 (4608)
Description	Digital input 15 for alternative selection
Variable	Alternative selection DI 16 (4609)
Description	Digital input 16 for alternative selection
Variable	Override (4610)
Description	Override (NFE 37-312)
Variable	Remote start off load (4611)
Description	Remote start off load
Variable	Remote start with timer (4612)
Description	Remote start with timer
Variable	Low threshold DI1 (4614)
Description	Digital input : Low threshold 1
Variable	Low threshold DI2 (4615)
Description	Digital input : Low threshold 2
Variable	Low threshold DI3 (4616)
Description	Digital input : Low threshold 3
Variable	Low threshold DI4 (4617)
Description	Digital input : Low threshold 4
Variable	Low threshold DI5 (4618)
Description	Digital input : Low threshold 5
Variable	Low threshold DI6 (4619)
Description	Digital input : Low threshold 6
Variable	Low threshold DI7 (4620)
Description	Digital input : Low threshold 7
Variable	Low threshold DI8 (4621)
Description	Digital input : Low threshold 8

Variable	High threshold DI1 (4622)
Description	Digital input : High threshold 1
Variable	High threshold DI2 (4623)
Description	Digital input : High threshold 2
Variable	High threshold DI3 (4624)
Description	Digital input : High threshold 3
Variable	High threshold DI4 (4625)
Description	Digital input : High threshold 4
Variable	High threshold DI5 (4626)
Description	Digital input : High threshold 5
Variable	High threshold DI6 (4627)
Description	Digital input : High threshold 6
Variable	High threshold DI7 (4628)
Description	Digital input : High threshold 7
Variable	High threshold DI8 (4629)
Description	Digital input : High threshold 8
Variable	Digital output 1 forced (4630)
Description	Digital output 1 forced
Variable	Digital output 2 forced (4631)
Description	Digital output 2 forced
Variable	Digital output 3 forced (4632)
Description	Digital output 3 forced
Variable	Digital output 4 forced (4633)
Description	Digital output 4 forced
Variable	Digital output 5 forced (4634)
Description	Digital output 5 forced
Variable	Digital output 6 forced (4635)
Description	Digital output 6 forced
Variable	Relay 1 forced (4950)
Description	Relay 1 forced
Variable	Relay 2 forced (4951)
Description	Relay 2 forced

List of outputs

Variable	Order to close generator breaker (4650)
Description	Relay output energise to close generator breaker

Variable	Order to close mains breaker (4651)
Description	Relay output energise to close mains breaker

Variable	Starter n°1 (4652)
Description	Starter n°1

Variable	Starter n°2 (4653)
Description	Starter n°2

Variable	Starter n°3 (4654)
Description	Starter n°3

Variable	Fuel / Gas (4655)
Description	Energize to active fuel solenoid

Variable	Generator electrical faults summary (4656)
Description	Generator fault

Variable	Mains electrical faults summary (4657)
Description	Mains fault

Variable	Alarms summary (4658)
Description	Alarm

Variable	Soft shut down summary (4659)
Description	Soft shut down

Variable	Hard shut down summary (4660)
Description	Hard shut down

Variable	Horn (4663)
Description	Horn

Variable	Default LED (4664)
Description	Default LED

Variable	Alarm LED (4665)
Description	Alarm LED

Variable	Automatic mode LED (4666)
Description	Automatic mode LED
Variable	Test mode LED (4667)
Description	Test mode LED
Variable	Manual mode LED (4668)
Description	Manual mode LED
Variable	Generator LED (4669)
Description	Generator LED
Variable	Generator ready (4670)
Description	Genset ready
Variable	Generator voltage present (4671)
Description	Generator voltage present i.e. 3 phases > 10% of nominal voltage
Variable	Generator active power flow (4672)
Description	Indicate that GE kW flow (i.e. Voltage and GE breaker close)
Variable	Generator stop (4673)
Description	Genset is stopped
Variable	Energize to stop (4674)
Description	Energize to stop
Variable	Generator breaker close (4675)
Description	Generator breaker closing
Variable	Bus/Mains breaker close (4676)
Description	Bus/Mains breaker closing
Variable	Generator breaker open (4677)
Description	Generator breaker opening
Variable	Bus/Mains breaker mains (4678)
Description	Bus/Mains breaker opening
Variable	Excitation command (4680)
Description	Excitation control
Variable	Protection valid (4681)
Description	Safety ON

Variable	Prelubrication (4684)
Description	Pre-lubrication
Variable	Preglow (4685)
Description	Preglow
Variable	Smoke limit / Position limiting (4686)
Description	Smoke limit / Position limiting
Variable	Damper (4687)
Description	Damper
Variable	Air conditionning (4688)
Description	Air conditioning output
Variable	Bus/Mains voltage presence (4703)
Description	Bus/Mains voltage presence
Variable	Idle speed (4704)
Description	Activate to switch speed regulator in idle speed mode
Variable	Ignition (4707)
Description	Ignition (Gas sequence)
Variable	Inhibited faults summary (NFE 37-312) (4708)
Description	Inhibited faults summary (NFE 37-312)
Variable	Battery boost DO (4709)
Description	Battery boost digital output
Variable	Set on analog 1 threshold (4710)
Description	Analog 1 digital output
Variable	Set on analog 2 threshold (4711)
Description	Analog 2 digital output
Variable	Set on analog 3 threshold (4712)
Description	Analog 3 digital output
Variable	Digital output activation on DI1 (4713)
Description	Digital output activation on digital input 1
Variable	Digital output activation on DI2 (4714)
Description	Digital output activation on digital input 2

Variable	Digital output activation on DI3 (4715)
Description	Digital output activation on digital input 3

Variable	Digital output activation on DI4 (4716)
Description	Digital output activation on digital input 4

Variable	Digital output activation on DI5 (4717)
Description	Digital output activation on digital input 5

Variable	Digital output activation on DI6 (4718)
Description	Digital output activation on digital input 6

Variable	Digital output activation on DI7 (4719)
Description	Digital output activation on digital input 7

Variable	Digital output activation on DI8 (4720)
Description	Digital output activation on digital input 8