

DST4400

ModBus Register

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Revision

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1. General

Contains information of Modbus registers specific to this board.

General information (links, features etc.) are in the document **EAAS0341XX**, revision 1 or later.

2. Registers summary

2.1 Input Registers

Register	Rev.	Format		Parameter	Unit
30001	00.02	UL_08		Mains Line Voltage L1-L2	Volt
30003	00.02	UL_08	#	Mains Line Voltage L2-L3	Volt
30005	00.02	UL_08	#	Mains Line Voltage L3-L1	Volt
30007	00.02	UL_08		Generator Line Voltage L1-L2	Volt
30009	00.02	UL_08	#	Generator Line Voltage L2-L3	Volt
30011	00.02	UL_08	#	Generator Line Voltage L3-L1	Volt
30013	-	-		Reserved	-
30014	-	-		Reserved	-
30015	-	-		Reserved	-
30016	-	-		Reserved	-
30017	-	-		Reserved	-
30018	-	-		Reserved	-
30019	-	-		Reserved	-
30020	-	-		Reserved	-
30021	00.02	UL_08		Generator phase L1 current	Ampere
30023	00.02	UL_08	#	Generator phase L2 current	Ampere
30025	00.02	UL_08	#	Generator phase L3 current	Ampere
30027	-	-		Reserved	-
30028	-	-		Reserved	-
30029	00.02	UL_08		Generator frequency	Hertz
30031	00.02	SL_08		Generator phase L1 active power	kW
30033	00.02	SL_08		Generator phase L1 reactive power	kvar
30035	00.02	UL_08		Generator phase L1 apparent power	kVA
30037	-	-		Reserved	-
30038	-	-		Reserved	-
30039	00.02	SS_08		Generator phase L1 power factor	-
30040	-	-		Reserved	-
30041	00.02	SL_08	#	Generator phase L2 active power	kW
30043	00.02	SL_08	#	Generator phase L2 reactive power	kvar
30045	00.02	UL_08	#	Generator phase L2 apparent power	kVA
30047	-	-		Reserved	-
30048	-	-		Reserved	-
30049	00.02	SS_08	#	Generator phase L2 power factor	-
30050	-	-		Reserved	-
30051	00.02	SL_08	#	Generator phase L3 active power	kW
30053	00.02	SL_08	#	Generator phase L3 reactive power	kvar
30055	00.02	UL_08	#	Generator phase L3 apparent power	kVA
30057	-	-		Reserved	-
30058	-	-		Reserved	-
30059	00.02	SS_08	#	Generator phase L3 power factor	-
30060	-	-		Reserved	-

Register	Rev.	Format		Parameter	Unit
30061	00.02	SL_08		Generator total active power	kW
30063	00.02	SL_08		Generator total reactive power	kvar
30065	00.02	UL_08		Generator total apparent power	kVA
30067	-	-		Reserved	-
30068	-	-		Reserved	-
30069	00.02	SS_08		Generator total power factor	-
30070	00.02	BOOL_01		Load type (phases, total), direction of rotation	-
30071	00.02	UL_00		Engine operation hours count	HH
30073	00.02	US_08		Battery nominal Voltage (12/24V)	Volt DC
30074	00.02	US_08		Starter battery Voltage	Volt DC
30075	00.02	SS_08	#	Analogue reference Voltages	Volt DC
30076	-	-		Reserved	-
30077	00.02	US_08	#	Engine oil pressure	Bar
30078	00.02	SL_08	#	Engine coolant temperature	°C
30080	00.02	US_08	#	Fuel level	%
30081	00.02	US_00	#	Engine speed	Rpm
30082	00.02	SS_08		Board temperature	°C
30083	00.02	UL_00		Board operated hours	HH
30085	00.02	US_00		Parameters update index	
30101	00.02	BOOL_02		Digital inputs	-
30103	00.02	BOOL_02		Digital outputs	-
30105	00.02	-		Reserved	-
30106	00.02	BOOL_01		EEPROM type	-
30107	00.02	BOOL_01		EEPROM check result	-
30108	00.02	SHEX_03		BOARD serial number	-
30111	00.02	BOOL_06		Anomalies	-
30119	00.02	BOOL_01		Anomalies management status	-
30120	00.02	US_00		Key switch position	-
30121	00.02	US_00		Board operational mode	-
30122	00.02	US_00		Mains Line Voltage status L1-L2	-
30123	00.02	US_00	#	Mains Line Voltage status L2-L3	-
30124	00.02	US_00	#	Mains Line Voltage status L3-L1	-
30125	00.02	BOOL_01		Mains line status	-
30126	00.02	BOOL_01		Inhibition status	-
30127	00.02	US_00		Generator Line Voltage status L1-L2	-
30128	00.02	US_00	#	Generator Line Voltage status L2-L3	-
30129	00.02	US_00	#	Generator Line Voltage status L3-L1	-
30130	00.02	US_00		Generator frequency status	-
30131	00.02	BOOL_01		Generator status	-
30132	00.02	US_00		Engine status	-
30133	00.02	US_00		Changeover status	-
30134	00.02	BOOL_01		Maintenance request status	-
30135	00.02	US_00		Board programming access - current authorization level	-
30204	00.02	US_00		# of records in event archive	-
30241	00.02	BOOL_02		Event archive-date/hour	-
30243	00.02	US_00		Event archive-event code	-
30244	00.02	BOOL_01		Event archive-board status	-
30245	00.02	BOOL_02		Event archive-digital inputs	-
30247	00.02	BOOL_06		Event archive-alarms	-

Register	Rev.	Format		Parameter	Unit
30261	00.02	BOOL_02	#	Peak coolant temperature time - date/hour	-
30263	00.02	SL_08	#	Peak coolant temperature	°C
30265	00.02	BOOL_02		Peak lower board temperature time-date/hour	-
30267	00.02	SL_08		Peak lower board temperature value	°C
30269	00.02	BOOL_02		Peak higher board temperature time - date/hour	-
30271	00.02	SL_08		Peak higher board temperature value	°C
30273	-	-		Reserved	-
30274	-	-		Reserved	-
30275	00.02	BOOL_02		Peak power time-date/hour	-
30277	00.02	SL_08		Peak power value	kW
30279	00.02	SL_08		Peak engine temperature at peak power	°C
30281	00.02	BOOL_02		L1 peak current time-date/hour	-
30283	00.02	UL_08		L1 peak current value	Ampere
30285	00.02	SL_08		L1 peak cosφ at peak current	-
30287	00.02	BOOL_02	#	L2 peak current time-date/hour	-
30289	00.02	UL_08	#	L2 peak current value	Ampere
30291	00.02	SL_08	#	L2 peak cosφ at peak current	-
30293	00.02	BOOL_02	#	L3 peak current time-date/hour	-
30295	00.02	UL_08	#	L3 peak current value	Ampere
30297	00.02	SL_08	#	L3 peak cosφ at peak current	-
30351	00.02	US_08	#	CANBUS (spn91 accelerator pedal position) requested torque/ max torque	%
30352	00.02	US_08	#	CANBUS (spn92 - percent load at current speed) instant torque/max torque at instant speed	%
30353	00.02	SS_08	#	CANBUS (spn513- actual engine percent torque) instant torque	%
30354	00.02	US_08	#	CANBUS (spn102-boost pressure) turbo-compressor exhaust pressure	Bar
30355	00.02	US_08	#	CANBUS (spn111- coolant level) engine coolant level	%
30356	00.02	US_08	#	CANBUS (spn51- throttle position) position of fuel valve	%
30357	00.02	SL_08	#	CANBUS (spn174-fuel temperature) fuel temperature	°C
30359	00.02	SL_08	#	CANBUS (spn105- intake manifold temperature) temperature inside the intake manifold	°C
30361	00.02	SL_08	#	CANBUS (spn175-oil temperature) engine oil temperature	°C
30363	00.02	UL_08	#	CANBUS (spn183- fuel rate) instant fuel consumption rate	L/h
30365	00.02	UL_00	#	CANBUS (spn250- total fuel used) total quantity of fuel used in liters	L
30367	00.02	UL_00	#	CANBUS (spn247- total engine hours) total number of engine operation hours	h
30369	00.02	BOOL_02	#	CANBUS auxiliary statuses	-
30401	00.02	UL_00	#	CANBUS diagnostics 1st active code (SPN)	-
30403	00.02	US_00	#	CANBUS diagnostics 1st active code (FMI over 8 lower bits, OC over 8 higher bits)	-
30404	00.02	US_00	#	CANBUS diagnostics 1st active code (Engine Flash code)	-
30405	00.02	UL_00	#	CANBUS diagnostics 2nd active code (SPN)	-
30407	00.02	US_00	#	CANBUS diagnostics 2nd active code (FMI over	-

Register	Rev.	Format		Parameter	Unit
				8 lower bits, OC over 8 higher bits)	
30408	00.02	US_00	#	CANBUS diagnostics 2nd active code (Engine Flash code)	-
30409	00.02	UL_00	#	CANBUS diagnostics 3rd active code (SPN)	-
30411	00.02	US_00	#	CANBUS diagnostics 3rd active code (FMI over 8 lower bits, OC over 8 higher bits)	-
30412	00.02	US_00	#	CANBUS diagnostics 3rd active code (Engine Flash code)	-
30413	00.02	UL_00	#	CANBUS diagnostics 4th active code (SPN)	-
30415	00.02	US_00	#	CANBUS diagnostics 4th active code (FMI over 8 lower bits, OC over 8 higher bits)	-
30416	00.02	US_00	#	CANBUS diagnostics 4th active code (Engine Flash code)	-
30417	00.02	UL_00	#	CANBUS diagnostics 5th active code (SPN)	-
30419	00.02	US_00	#	CANBUS diagnostics 5th active code (FMI over 8 lower bits, OC over 8 higher bits)	-
30420	00.02	US_00	#	CANBUS diagnostics 5th active code (Engine Flash code)	-
30421	00.02	UL_00	#	CANBUS diagnostics 6th active code (SPN)	-
30423	00.02	US_00	#	CANBUS diagnostics 6th active code (FMI over 8 lower bits, OC over 8 higher bits)	-
30424	00.02	US_00	#	CANBUS diagnostics 6th active code (Engine Flash code)	-
30425	00.02	UL_00	#	CANBUS diagnostics 7th active code (SPN)	-
30427	00.02	US_00	#	CANBUS diagnostics 7th active code (FMI over 8 lower bits, OC over 8 higher bits)	-
30428	00.02	US_00	#	CANBUS diagnostics 7th active code (Engine Flash code)	-
30429	00.02	UL_00	#	CANBUS diagnostics 8th active code (SPN)	-
30431	00.02	US_00	#	CANBUS diagnostics 8th active code (FMI over 8 lower bits, OC over 8 higher bits)	-
30432	00.02	US_00	#	CANBUS diagnostics 8th active code (Engine Flash code)	-
30433	00.02	UL_00	#	CANBUS diagnostics 9th active code (SPN)	-
30435	00.02	US_00	#	CANBUS diagnostics 9th active code (FMI over 8 lower bits, OC over 8 higher bits)	-
30436	00.02	US_00	#	CANBUS diagnostics 9th active code (Engine Flash code)	-
30437	00.02	UL_00	#	CANBUS diagnostics 10th active code (SPN)	-
30439	00.02	US_00	#	CANBUS diagnostics 10th active code (FMI over 8 lower bits, OC over 8 higher bits)	-
30440	00.02	US_00	#	CANBUS diagnostics 10th active code (Engine Flash code)	-

2.2 Holding Registers

Register	Rev	Format		Parameter	Units
40001	00.02	US_00		Clock – seconds	-
40002	00.02	US_00		Clock – minutes	-
40003	00.02	US_00		Clock - hours	-
40004	00.02	US_00		Clock – day of the month	-
40005	00.02	US_00		Clock – day of the week	-
40006	00.02	US_00		Clock – month	-
40007	00.02	US_00		Clock – year	-
40008	00.02	BOOL_01		Clock validity status	-
40009	00.02	UL_00		Engine operational hours count	HH

Register	Rev	Format		Parameter	Units
40011	00.02	UL_00		Number of engine starts	-
40013	00.02	UL_00	#	Hours to next maintenance	HH
40015	00.02	UL_00		Active energy metering counter	kWh
40017	00.02	UL_00		Reactive energy metering counter	kvarh
40019	00.02	US_00		Archived records to read selection	-
40020	00.02	US_00	#	Commands	-
40021	00.02	US_00		Data calls acceptance	-
40111	00.02	BOOL_06	#	Anomalies	-
40119	00.02	BOOL_01	#	Anomalies management status	-
40201	00.02	STR_04	#	Login password	-
40301	00.02	US_00		P 000 Programming access code	-
40302	00.02	US_00	#	P 001 Programming access code - producer code value	-
40303	00.02	US_00	#	P 002 Programming access code - installer code value	-
40304	00.02	US_00	#	P 003 Programming access code - user code value	-
40305	00.02	US_00	#	P 101 number of mains line phases	-
40306	00.02	US_00	#	P 102 Generator nominal voltage	V
40307	-	-		Reserved	-
40308	-	-		Reserved	-
40309	00.02	US_00	#	P 105 generator nominal frequency	Hz
40310	00.02	US_00	#	P 106 generator nominal power	KVA
40311	00.02	US_00	#	P 107 TA generator primary	A
40312	-	-		Reserved	-
40313	-	-		Reserved	-
40314	00.02	US_00	#	P 110 pick up gear box teeth number	-
40315	00.02	US_08	#	P 111 W ratio	-
40316	00.02	US_00	#	P 112 oil pressure sensor type	-
40317	00.02	US_00	#	P 113 coolant temperature sensor type	-
40318	00.02	US_00	#	P 114 fuel level sensor type	-
40319	00.02	US_00	#	P 115 D+ input enable	-
40320	00.02	US_00	#	P 116 mains nominal voltage	V
40321	-	-		Reserved	-
40322	-	-		Reserved	-
40323	00.02	US_08	#	P 201 mains voltage hysteresis	%
40324	00.02	US_08	#	P 202 generator voltage hysteresis	%
40325	00.02	US_08	#	P 203 mains min voltage threshold	%
40326	00.02	US_08	#	P 204 mains max voltage threshold	%
40327	00.02	US_00	#	P 205 mains presence delay	s
40328	00.02	US_00	#	P 206 mains fault delay	s
40329	00.02	US_00	#	P 207 inhibition activation delay	s
40330	00.02	US_00	#	P 208 inhibition disable delay	s
40331	00.02	US_00	#	P 209 glow plugs preheating cycle delay	s
40332	00.02	US_00	#	P 210 starter pulse duration	s
40333	00.02	US_00	#	P 211 number of start up attempts	-
40334	00.02	US_00	#	P 212 delay among start up attempts	s
40335	00.02	US_00	#	P 213 stop command duration	s
40336	00.02	US_00	#	P 214 stop cycle duration	s
40337	00.02	US_00	#	P 215 cooling cycle duration	s
40338	00.02	US_00	#	P 216 engine protection mask time	s

Register	Rev	Format		Parameter	Units
40339	00.02	US_00	#	P 217 time to engine steady state	s
40340	00.02	US_00	#	P 218 delay before supply	s
40341	00.02	US_00	#	P 219 contactors data exchange delay	s
40342	00.02	US_00	#	P 220 contactors holding delay	s
40343	-	-		Reserved	-
40344	-	-		Reserved	-
40345	00.02	US_00	#	P 223 min temperature to load	°C
40346	00.02	US_00	#	P 224 pick up engine stop threshold	Rpm
40347	00.02	US_00	#	P 225 pick up engine start threshold	Rpm
40348	00.02	US_00	#	P 226 generator voltage engine stop threshold	V
40349	00.02	US_00	#	P 227 generator voltage engine start threshold	V
40350	00.02	US_00	#	P 228 generator frequency engine stop threshold	Hz
40351	00.02	US_00	#	P 229 generator frequency engine start threshold	Hz
40352	-	-		Reserved	-
40353	-	-		Reserved	-
40354	00.02	US_08	#	P 301 minimum generator voltage threshold	%
40355	00.02	US_00	#	P 302 minimum generator voltage - delay	s
40356	00.02	US_08	#	P 303 max generator voltage threshold	%
40357	00.02	US_00	#	P 304 max generator voltage - delay	s
40358	00.02	US_08	#	P 305 minimum generator frequency threshold	%
40359	00.02	US_00	#	P 306 minimum generator frequency – delay	s
40360	00.02	US_08	#	P 307 max generator frequency threshold	%
40361	00.02	US_00	#	P 308 max generator frequency - delay	s
40362	00.02	US_08	#	P 309 max current threshold	%
40363	00.02	US_00	#	P 310 max current - delay	s
40364	00.02	US_00	#	P 311 short circuit current threshold	%
40365	00.02	US_08	#	P 312 short circuit current - delay	s
40366	00.02	US_08	#	P 313 power reverse threshold	%
40367	00.02	US_00	#	P 314 power reverse - delay	s
40368	00.02	US_08	#	P 331 frequency over-speed threshold	%
40369	00.02	US_08	#	P 332 frequency over-speed - delay	s
40370	00.02	US_00	#	P 333 pick up over-speed threshold	Rpm
40371	00.02	US_08	#	P 334 pick up over-speed - delay	s
40372	00.02	US_00	#	P 335 High coolant temperature threshold	°C
40373	00.02	US_00	#	P 336 High coolant temperature - delay	s
40374	00.02	US_00	#	P 337 max coolant temperature threshold	°C
40375	00.02	US_00	#	P 338 max coolant temperature - delay	s
40376	00.02	US_08	#	P 339 low oil pressure threshold	Bar
40377	00.02	US_00	#	P 340 low oil pressure - delay	s
40378	00.02	US_08	#	P 341 minimum oil pressure threshold	Bar
40379	00.02	US_00	#	P 342 minimum oil pressure - delay	s
40380	00.02	US_00	#	P 343 high fuel level threshold	%
40381	00.02	US_00	#	P 344 high fuel level - delay	s
40382	00.02	US_00	#	P 345 low fuel level threshold	%
40383	00.02	US_00	#	P 346 low fuel level - delay	s
40384	00.02	US_00	#	P 347 minimum fuel level threshold	%
40385	00.02	US_00	#	P 348 minimum fuel level delay	s
40386	00.02	US_00	#	P 349 belt break delay	s
40387	-	-		Reserved	-
40388	00.02	US_08	#	P 361 emergency stop delay	%
40389	00.02	US_00	#	P 362 low battery voltage threshold	s
40390	00.02	US_08	#	P 363 low battery voltage - delay	%

Register	Rev	Format		Parameter	Units
40391	00.02	US_00	#	P 364 high battery voltage threshold	s
40392	00.02	US_08	#	P 365 high battery voltage - delay	°C
40393	-	-		Reserved	-
40394	-	-		Reserved	-
40395	-	-		Reserved	-
40396	00.02	US_00	#	P 411 RTC year (use 40007)	-
40397	00.02	US_00	#	P 412 RTC: month (use 40006)	-
40398	00.02	US_00	#	P 413 RTC: day of the month (use 40004)	-
40399	00.02	US_00	#	P 414 RTC: day of the week (use 40005)	-
40400	00.02	US_00	#	P 415 RTC: hour (use 40003)	-
40401	00.02	US_00	#	P 416 RTC: minutes (use 40002)	-
40402	00.02	US_00	#	P 417 RTC: seconds (use 40001)	-
40403	00.02	US_00	#	P 418 test enable calendar	-
40404	00.02	US_00	#	P 419 test start up time	Hour: min
40405	00.02	US_00	#	P 420 test duration	Min
40406	00.02	US_00	#	P 421 automatic operations calendar	-
40407	00.02	US_00	#	P 422 automatic operation start time	Hour: min
40408	00.02	US_00	#	P 423 automatic operation end time	Hour: min
40409	00.02	US_00	#	P 424 total operation hours to maintenance	Hour
40410	-	-		Reserved	-
40411	-	-		Reserved	-
40412	-	-		Reserved	-
40413	00.02	US_00	#	P 451 serial link configuration	-
40414	00.02	US_00	#	P 452 serial communications address	-
40415	00.02	US_00	#	P 453 serial communications baud rate	Bps
40416	00.02	US_00	#	P 454 n. of parity bits	-
40417	00.02	US_00	#	P 455 data calls or SMS mode	-
40418	00.02	US_00	#	P 458 1st phone number type	-
40419	00.02	US_00	#	P 460 2nd phone number type	-
40420	00.02	US_00	#	P 462 3rd phone number type	-
40421	00.02	US_00	#	P 464 4th phone number type	-
40422	00.02	US_00	#	P 465 dial mode	-
40423	00.02	US_00	#	P 466 ring number before answer	-
40424	00.02	US_00	#	P 467 SMS number per event	-
40425	00.02	US_00	#	P 468 data call attempts	-
40426	00.02	US_00	#	P 491 horn on, time	s
40427	00.02	US_00	#	P 492 display screen saver delay	s
40428	00.02	US_00	#	P 481 load function type	-
40429	00.02	US_00	#	P 482 check time after loading	s
40430	00.02	US_08	#	P 483 low power threshold	%
40431	00.02	US_00	#	P 484 low power – delay	s
40432	00.02	US_08	#	P 485 high power threshold	%
40433	00.02	US_00	#	P 486 high power – delay	s
40434	-	-		Reserved	-
40435	-	-		Reserved	-
40436	-	-		Reserved	-
40437	00.02	US_00	#	P 507 digital input #01 -function	-
40438	00.02	US_08	#	P 508 digital input #01 - delay	s
40439	00.02	US_00	#	P 510 digital input #02 -function	-
40440	00.02	US_08	#	P 511 digital input #02 - delay	s
40441	00.02	US_00	#	P 513 digital input #03 -function	-
40442	00.02	US_08	#	P 514 digital input # 03 - delay	s
40443	00.02	US_00	#	P 516 digital input #04 -function	-
40444	00.02	US_08	#	P 517 digital input #04 - delay	s

Register	Rev	Format		Parameter	Units
40445	00.02	US_00	#	P 519 digital input #05 -function	-
40446	00.02	US_08	#	P 520 digital input #05 - delay	s
40447	00.02	US_00	#	P 522 digital input #06 -function	-
40448	00.02	US_08	#	P 523 digital input #06 - delay	s
40449	00.02	US_00	#	P 525 digital input #07 -function	-
40450	00.02	US_08	#	P 526 digital input #07 - delay	s
40451	00.02	US_00	#	P 528 digital input #08 -function	-
40452	00.02	US_08	#	P 529 digital input #08 - delay	s
40453	-	-		Reserved	-
40454	-	-		Reserved	-
40455	-	-		Reserved	-
40456	-	-		Reserved	-
40457	-	-		Reserved	-
40458	-	-		Reserved	-
40459	-	-		Reserved	-
40460	-	-		Reserved	-
40461	-	-		Reserved	-
40462	-	-		Reserved	-
40463	-	-		Reserved	-
40464	-	-		Reserved	-
40465	00.02	US_00	#	P.581: digital output #01 – function	-
40466	00.02	US_00	#	P.582: digital output #02 – function	-
40467	-	-		Reserved	-
40468	-	-		Reserved	-
40469	-	-		Reserved	-
40470	-	-		Reserved	-
40471	-	-		Reserved	-
40472	-	-		Reserved	-
40473	-	-		Reserved	-
40474	-	-		Reserved	-
40475	-	-		Reserved	-
40476	00.02	US_00	#	P 425 service function type	-
40477	00.02	US_00	#	P232 engine running by low and min. oil pressure identification enable	-
40478	-	-		Reserved	-
40479	-	-		Reserved	-
40480	-	-		Reserved	-
40481	-	-		Reserved	-
40482	-	-		Reserved	-
40483	-	-		Reserved	-
40484	00.02	US_00	#	P 119 number of mains phases	-
40485	00.02	US_00	#	P 319 expected phases sequence	-
40486	00.02	US_00	#	P 320 action toward wrong phase sequence	-
40487	00.02	US_00	#	P 700 CANBUS engine type	-
40488	00.02	US_00	#	P 701 engine nominal speed	rpm
40489	00.02	SS_00	#	P 702 motor speed fine control	r
40490	00.02	US_00	#	P 703 CANBUS control level	-
40491	00.02	US_08	#	P 705 Atmospheric pressure	Bar
40492	00.02	US_08	#	P 233 low engine speed duration	s
40493	-	-		Reserved	-
40494	-	-		Reserved	-
40495	-	-		Reserved	-
40496	-	-		Reserved	-
40497	00.02	US_00	#	P 708 droop/isochronous selection	-

Register	Rev	Format		Parameter	Units
40601	00.02	STR_12	#	P 457 first phone number	-
40613	00.02	STR_12	#	P 459 second phone number	-
40625	00.02	STR_12	#	P 461 third phone number	-
40637	00.02	STR_12	#	P 463 fourth phone number	-
40649	00.02	STR_12	#	P 469 serial port password	-
40661	00.02	STR_12	#	P 456 plant name	-
40673	-	STR_12		Reserved	-
40685	-	STR_12		Reserved	-
40697	-	STR_12		Reserved	-
40709	00.02	STR_12	#	P 509: text input #01	-
40721	00.02	STR_12	#	P.512: text input #02	-
40733	00.02	STR_12	#	P.515: text input #03	-
40745	00.02	STR_12	#	P.518: text input #04	-
40757	00.02	STR_12	#	P.521: text input #05	-
40769	00.02	STR_12	#	P.524: text input #06	-
40781	00.02	STR_12	#	P.527: text input #07	-
40793	00.02	STR_12	#	P.530: text input #08	-
40901	00.02	SHEX_04	#	P.601: output #01 mapping 1	-
40905	00.02	SHEX_04	#	P.602: output #01 mapping 2	-
40909	00.02	SHEX_04	#	P.603: output #02 mapping 1	-
40913	00.02	SHEX_04	#	P.604: output #02 mapping 2	-
40989	00.02	SHEX_01	#	P.704: CANBUS alarms disabling mask	-

2.3 Input Registers Description

2.3.1 Registers 30001-2, 30003-4, 30005-6

Contain the mains phase-to-phase voltages (respectively L1-L2, L2-L3, L3-L1). The registers are only usable in case the board is configured for internal phase sensors. In case the system is configured as single phase, the 30001-2 registers contain the L1 voltage respect to neutral, while the other registers have no valid value.

2.3.2 Registers 30007-8, 30009-10, 30011-12

Contain the generator phase-to-phase voltages (respectively L1-L2, L2-L3, L3-L1). In case the system is configured as single phase, the 30007-8 registers contain the L1 voltage respect to neutral, while the other registers have no valid value.

2.3.3 Registers 30021-22, 30023-24, 30025-26

Contain the generator phase currents (respectively L1, L2, L3). In case the system is configured as single phase, the 30023-24 and 30025-26 registers have no valid value.

2.3.4 Registers 30029-30

Contain the generator frequency value, as measured at L1 phase.

2.3.5 Registers 30031-32, 30041-42, 30051-52, 30061-62

Contain the generator active powers (respectively L1, L2, L3 phases and total power). In case the system is configured as single phase, registers 30041-42, 30051-52 have no valid value, while registers 30031-32 and 30061-62 contain the same values.

2.3.6 Registers 30033-34, 30043-44, 30053-54, 30063-64

Contain the generator reactive powers (respectively L1, L2, L3 phases and total reactive power). In case the system is configured as single phase, registers 30043-44, 30053-54 have no valid value, while registers 30033-34 and 30063-64 contain the same values.

2.3.7 Registers 30035-36, 30045-46, 30055-56, 30065-66

Contain the generator apparent powers (respectively L1, L2, L3 phases and total apparent power). In case the system is configured as single phase, registers 30045-46, 30055-56 have no valid value, while registers 30035-36 and 30065-66 contain the same values.

2.3.8 Registers 30039, 30049, 30059, 30069

Contain the generator power factors (respectively L1, L2, L3 phases and total power factor). A negative value indicates power reverse status. In case the system is configured as single phase, registers 30049, 30059 have no valid value, while registers 30039 and 30069 contain the same values.

2.3.9 Register 30070

Contains the information related to the load type related to each phase and the system total load. The phases rotation direction is also included.

Bit	Rev	Description	Value
0	00.02	Total load type	1= capacitive, 0= inductive
1	00.02	L1 load type	1= capacitive, 0= inductive
2	00.02	L2 load type (3 phases case)	1= capacitive, 0= inductive
3	00.02	L3 load type (3 phases case)	1=capacitive, 0=inductive
4			
5			
6			
7	00.02	Phases rotation direction	1= clockwise, 0= counter-clockwise
8			
9			
10			
11			
12			

Bit	Rev	Description	Value
13			
14			
15			

2.3.10 Registers 30071-72

Contain the absolute number of the engine operation hours. The register cannot reset.

2.3.11 Register 30073

Contains the nominal battery voltage defined by the board. The board might be supplied by 12 V or 24 V batteries and recognizes the power supply voltage. The register contains the result of the board nominal voltage supply recognition.

2.3.12 Register 30074

Contains the engine starter battery voltage.

2.3.13 Register 30075

Contains the engine sensors reference voltage. Actually it is the voltage difference among the engine-generator frame ground case and the board battery negative pole. This register is usable in case that the engine instrumentation is wired.

2.3.14 Register 30077

Contains the generator engine oil pressure. This register is usable in case that the engine instrumentation is wired or the information is available via CANBUS.

2.3.15 Registers 30078-30079

Contain the generator engine coolant temperature. These registers are usable in case that the engine instrumentation is wired or the information is available via CANBUS.

2.3.16 Register 30080

Contains the engine speed in rotations per minute. This register is usable in case that the engine instrumentation is wired.

2.3.17 Register 30081

Contains the engine speed in rotations per minute. This register is usable in case that the engine instrumentation is wired or the information is available by CANBUS.

2.3.18 Register 30082

Contains the board inner temperature.

2.3.19 Registers 30083-30084

Contain the board "power on" hours count. (independently from the engine-generator status: provides the number of hours the board is supplied).

2.3.20 Register 30085

Contains the board programming update index. The board calculates an increment at each parameter modification. Its absolute value is meaningless, while the relevant variation is useful.

2.3.21 Registers 30101-102

Contain the board digital inputs status.

Register	Bit	Rev	Description	Value
30101	0	00.02	Input 1 J208	1=active, 0=not active
30101	1	00.02	Input 2 J208	1=active, 0=not active
30101	2	00.02	Input 3 J208	1=active, 0=not active
30101	3	00.02	Input 4 J208	1=active, 0=not active
30101	4	00.02	Input 5 J208	1=active, 0=not active
30101	5	00.02	Input 6 J208	1=active, 0=not active
30101	6	00.02	Input 7 J208	1=active, 0=not active
30101	7	00.02	Input 8 J208	1=active, 0=not active
30101	8	00.02	D+ (Inputs6 or 7 J202)	1=active, 0=not active
30101	9		--	1=active, 0=not active
30101	10		--	1=active, 0=not active
30101	11		--	1=active, 0=not active
30101	12		--	1=active, 0=not active
30101	13		--	1=active, 0=not active
30101	14		--	1=active, 0=not active
30101	15		--	1=active, 0=not active
30102	0		--	1=active, 0=not active
30102	1		--	1=active, 0=not active
30102	2		--	1=active, 0=not active
30102	3		--	1=active, 0=not active
30102	4		--	1=active, 0=not active
30102	5		--	1=active, 0=not active
30102	6		--	1=active, 0=not active
30102	7		--	1=active, 0=not active
30102	8		--	1=active, 0=not active
30102	9		--	1=active, 0=not active
30102	10		--	1=active, 0=not active

Register	Bit	Rev	Description	Value
30102	11		--	1=active, 0=not active
30102	12		--	1=active, 0=not active
30102	13		--	1=active, 0=not active
30102	14		--	1=active, 0=not active
30102	15		--	1=active, 0=not active

2.3.22 Registers 30103-104

Contain the board digital output status.

Register	Bit	Rev	Description	Value
30103	0	00.02	START (output 3 J202)	1=active, 0=not active
30103	1	00.02	AUX OUT 2 (output 2 J202)	1=active, 0=not active
30103	2	00.02	AUX OUT 1 (output 1 J202)	1=active, 0=not active
30103	3	00.02	Internal horn	1=active, 0=not active
30103	4		--	1=active, 0=not active
30103	5	00.02	KR (outputs 4-6 J200)	1=active, 0=not active
30103	6	00.02	KG (outputs 1-3 J200)	1=active, 0=not active
30103	7	00.02	FUEL SOLENOID (output 5 J202)	1=active, 0=not active
30103	8		--	1=active, 0=not active
30103	9		--	1=active, 0=not active
30103	10		--	1=active, 0=not active
30103	11		--	1=active, 0=not active
30103	12		--	1=active, 0=not active
30103	13		--	1=active, 0=not active
30103	14		--	1=active, 0=not active
30103	15		--	1=active, 0=not active
30104	0		--	1=active, 0=not active
30104	1		--	1=active, 0=not active
30104	2		--	1=active, 0=not active
30104	3		--	1=active, 0=not active
30104	4		--	1=active, 0=not active
30104	5		--	1=active, 0=not active
30104	6		--	1=active, 0=not active
30104	7		--	1=active, 0=not active
30104	8		--	1=active, 0=not active

Register	Bit	Rev	Description	Value
30104	9		--	1=active, 0=not active
30104	10		--	1=active, 0=not active
30104	11		--	1=active, 0=not active
30104	12		--	1=active, 0=not active
30104	13		--	1=active, 0=not active
30104	14		--	1=active, 0=not active
30104	15		--	1=active, 0=not active

2.3.23 Register 30106

Contains the result of the EEPROM self-detection.

Bit	Rev	Description	Value
0	00.02	2 Kbyte memory	1= available, 0= not available
1	00.02	1 st 8 Kbyte memory	1= available, 0= not available
2	00.02	2 nd 8 Kbyte memory	1= available, 0= not available
3		--	1= available, 0= not available
4		--	1= available, 0= not available
5		--	1= available, 0= not available
6		--	1= available, 0= not available
7		--	1= available, 0= not available
8		--	1= available, 0= not available
9		--	1= available, 0= not available
10		--	1= available, 0= not available
11		--	1= available, 0= not available
12		--	1= available, 0= not available
13		--	1= available, 0= not available
14		--	1= available, 0= not available
15		--	1= available, 0= not available

2.3.24 Register 30107

Contains the board EEPROM content self-check result.

Bit	Rev	Description	Value
0	00.02	LCD contrast area	1= error, 0= OK
1	00.02	Selected language area	1= error, 0= OK
2	00.02	Generic memory area	1= error, 0= OK
3	00.02	Calibration offset area	1= error, 0= OK
4	00.02	Calibration factors area	1= error, 0= OK
5	00.02	Specialized level measurement factors area	1= error, 0= OK
6	00.02	Peaks area	1= error, 0= OK
7	00.02	Counters area	1= error, 0= OK
8	00.02	Program parameters area	1= error, 0= OK
9	00.02	Hexadecimal parameters area	1= error, 0= OK
10		--	1= error, 0= OK
11		--	1= error, 0= OK
12		--	1= error, 0= OK
13		--	1= error, 0= OK
14		--	1= error, 0= OK
15		--	1= error, 0= OK

2.3.25 Registers 30108-110

Contain the board serial number.

2.3.26 Registers 30111-116

Contain the board anomalies data.

Register	Bit	Rev	Description	Value
30111	0	00.02	Overcrank alarm	1=present, 0=absent
30111	1	00.02	Engine not stopped alarm	1=present, 0=absent
30111	2	00.02	Belt break alarm	1=present, 0=absent
30111	3	00.02	Over-speed alarm (contact closure)	1=present, 0=absent
30111	4	00.02	Over-speed alarm (pick up)	1=present, 0=absent
30111	5	00.02	Over-speed alarm (frequency)	1=present, 0=absent
30111	6	00.02	Fuel empty alarm (contact closure)	1=present, 0=absent

Register	Bit	Rev	Description	Value
30111	7	00.02	Fuel empty alarm (analogue sensor)	1=present, 0=absent
30111	8	00.02	Low fuel level warning (contact closure)	1=present, 0=absent
30111	9	00.02	Low fuel level warning (analogue sensor)	1=present, 0=absent
30111	10	00.02	High fuel level warning (contact closure)	1=present, 0=absent
30111	11	00.02	High fuel level warning (analogue sensor)	1=present, 0=absent
30111	12	00.02	High coolant temperature warning (contact closure)	1=present, 0=absent
30111	13	00.02	High coolant temperature warning (analogue sensor)	1=present, 0=absent
30111	14	00.02	Max coolant temperature alarm (contact closure)	1=present, 0=absent
30111	15	00.02	Max coolant temperature alarm (analogue sensor)	1=present, 0=absent
30112	0	00.02	Minimum oil pressure alarm (contact closure)	1=present, 0=absent
30112	1	00.02	Minimum oil pressure alarm (analogue sensor)	1=present, 0=absent
30112	2	00.02	Low oil pressure warning (contact closure)	1=present, 0=absent
30112	3	00.02	Low oil pressure warning (analogue sensor)	1=present, 0=absent
30112	4	00.02	Max power warning	1=present, 0=absent
30112	5	00.02	CANBUS link error warning	1=present, 0=absent
30112	6		--	1=present, 0=absent
30112	7		--	1=present, 0=absent
30112	8	00.02	Steady state conditions not achieved alarm	1=present, 0=absent
30112	9	00.02	Disabling due to generator minimum voltage	1=present, 0=absent
30112	10	00.02	Disabling due to generator minimum frequency	1=present, 0=absent
30112	11	00.02	Disabling due to max generator voltage	1=present, 0=absent
30112	12	00.02	Disabling due to max generator frequency	1=present, 0=absent
30112	13	00.02	Overload alarm (contact closure)	1=present, 0=absent
30112	14	00.02	Overload alarm (current meter)	1=present, 0=absent
30112	15	00.02	Short circuit alarm (current meter)	1=present, 0=absent
30113	0	00.02	Power reverse alarm	1=present, 0=absent
30113	1		--	1=present, 0=absent
30113	2		--	1=present, 0=absent

Register	Bit	Rev	Description	Value
30113	3	00.02	Wrong phase sequence alarm	1=present, 0=absent
30113	4		--	1=present, 0=absent
30113	5		--	1=present, 0=absent
30113	6		--	1=present, 0=absent
30113	7		--	1=present, 0=absent
30113	8	00.02	Mains breaker not closed warning	1=present, 0=absent
30113	9	00.02	Generator breaker not closed warning	1=present, 0=absent
30113	10	00.02	Mains breaker not open warning	1=present, 0=absent
30113	11	00.02	Generator breaker not open warning	1=present, 0=absent
30113	12		--	1=present, 0=absent
30113	13		--	1=present, 0=absent
30113	14		--	1=present, 0=absent
30113	15		--	1=present, 0=absent
30114	0		--	1=present, 0=absent
30114	1		--	1=present, 0=absent
30114	2		--	1=present, 0=absent
30114	3	00.02	Emergency stop alarm	1=present, 0=absent
30114	4	00.02	Low starter battery voltage warning	1=present, 0=absent
30114	5	00.02	High starter battery voltage warning	1=present, 0=absent
30114	6	00.02	Manual stop alarm while in auto mode	1=present, 0=absent
30114	7	00.02	Generator set operations inhibition alarm	1=present, 0=absent
30114	8	00.02	Maintenance request warning	1=present, 0=absent
30114	9		--	1=present, 0=absent
30114	10	00.02	High board temperature warning	1=present, 0=absent
30114	11		--	1=present, 0=absent
30114	12	00.02	Invalid time setting warning	1=present, 0=absent
30114	13		--	1=present, 0=absent
30114	14		--	1=present, 0=absent
30114	15		--	1=present, 0=absent
30115	0	00.02	Anomaly from Input #01	1=present, 0=absent
30115	1	00.02	Anomaly from Input #02	1=present, 0=absent
30115	2	00.02	Anomaly from Input #03	1=present, 0=absent
30115	3	00.02	Anomaly from Input #04	1=present, 0=absent

Register	Bit	Rev	Description	Value
30115	4	00.02	Anomaly from Input #05	1=present, 0=absent
30115	5	00.02	Anomaly from Input #06	1=present, 0=absent
30115	6	00.02	Anomaly from Input #07	1=present, 0=absent
30115	7	00.02	Anomaly from Input #08	1=present, 0=absent
30115	8		--	1=present, 0=absent
30115	9		--	1=present, 0=absent
30115	10		--	1=present, 0=absent
30115	11		--	1=present, 0=absent
30115	12		--	1=present, 0=absent
30115	13		--	1=present, 0=absent
30115	14		--	1=present, 0=absent
30115	15		--	1=present, 0=absent
30116	0	00.02	Low oil pressure warning from CAN	1=present, 0=absent
30116	1	00.02	Minimum oil pressure alarm from CAN	1=present, 0=absent
30116	2	00.02	High oil temperature warning from CAN	1=present, 0=absent
30116	3	00.02	Max oil temperature alarm from CAN	1=present, 0=absent
30116	4	00.02	High coolant temperature warning from CAN	1=present, 0=absent
30116	5	00.02	Max coolant temperature alarm from CAN	1=present, 0=absent
30116	6	00.02	Low coolant level warning from CAN	1=present, 0=absent
30116	7	00.02	Minimum coolant level alarm from CAN	1=present, 0=absent
30116	8	00.02	Fuel water content alarm from CAN	1=present, 0=absent
30116	9	00.02	Low battery voltage warning from CAN	1=present, 0=absent
30116	10	00.02	Overspeed alarm from CAN	1=present, 0=absent
30116	11		--	1=present, 0=absent
30116	12		--	1=present, 0=absent
30116	13		--	1=present, 0=absent
30116	14	00.02	Cumulative warning from CAN	1=present, 0=absent
30116	15	00.02	Cumulative alarm from CAN	1=present, 0=absent

2.3.27 Register 30119

Contains the status of the anomalies management on the board.

Bit	Rev	Description	Value
0	00.02	At least one warning is present	1=true, 0=false
1	00.02	At least one disabling is present	1=true, 0=false
2	00.02	At least one alarm is present	1=true, 0=false
3	00.02	At least one not acknowledged warning is present	1=true, 0=false
4	00.02	At least one not acknowledged inhibition is present	1=true, 0=false
5	00.02	At least one not acknowledged alarm is present	1=true, 0=false
6		--	1=true, 0=false
7	00.02	Reserved	1=true, 0=false
8		--	1=true, 0=false
9		--	1=true, 0=false
10		--	1=true, 0=false
11		--	1=true, 0=false
12		--	1=true, 0=false
13		--	1=true, 0=false
14		--	1=true, 0=false
15		--	1=true, 0=false

2.3.28 Register 30120

Contains the key switch position: the following values are used:

- 0: Intermediate position
- 1: OFF/RESET position
- 2: MAN position
- 3: AUTO position
- 255: data acquisition error

In the current board version the value 1 is never acquired and substituted with 0.

2.3.29 Register 30121

Contains the board operation mode. The following values apply:

- 0: OFF
- 1: MAN
- 2: AUTO
- 3: TEST
- 4: REMOTE START

2.3.30 Registers 30122, 30123, 30124

Contain the instantaneous mains phase-to-phase voltage status (respectively L1-L2, L2-L3, L3-L1). In case the system is configured as single phase, the 30122 register contains the L1 voltage, while the other registers have no value. The following values apply

- 0: lower than the live voltage threshold value
- 2: between the live voltage threshold and minimum value threshold
- 3: between the minimum and max values thresholds
- 4: higher than max value threshold.

2.3.31 Register 30125

Contains the summary status of the mains voltage.

Bit	Rev	Description	Value
0	00.02	Mains within the working window (instantaneous status)	1=true, 0=false
1		--	1=true, 0=false
2		--	1=true, 0=false
3		--	1=true, 0=false
4		--	1=true, 0=false
5		--	1=true, 0=false
6		--	1=true, 0=false
7	00.02	Mains within the working window, in accordance with planned switch off and restore times	1=true, 0=false
8		--	1=true, 0=false
9		--	1=true, 0=false
10		--	1=true, 0=false
11		--	1=true, 0=false
12		--	1=true, 0=false
13		--	1=true, 0=false

Bit	Rev	Description	Value
14		--	1=true, 0=false
15		--	1=true, 0=false

2.3.32 Register 30126

Contains the inhibition contact status.

Bit	Rev	Description	Value
0	00.02	Inhibition on (instantaneous, from digital input)	1=true, 0=false
1		--	1=true, 0=false
2		--	1=true, 0=false
3		--	1=true, 0=false
4		--	1=true, 0=false
5		--	1=true, 0=false
6	00.02	Clock activated inhibition	1=true, 0=false
7	00.02	Inhibition (from digital input) activated in accordance with planned switch off and restore times	1=true, 0=false
8		--	1=true, 0=false
9		--	1=true, 0=false
10		--	1=true, 0=false
11		--	1=true, 0=false
12		--	1=true, 0=false
13		--	1=true, 0=false
14		--	1=true, 0=false
15		--	1=true, 0=false

2.3.33 Registers 30127, 30128, 30129

Contain the instantaneous generator phase-to-phase voltages status (respectively L1-L2, L2-L3, L3-L1). In the case the system is configured as single phase, the 30127 registers contains the L1 voltage, while the other registers have no value. The following values apply:

- 0: lower than live voltage threshold value
- 2: between the live voltage threshold and minimum value threshold
- 3: between the lower and upper values thresholds
- 4: higher than max value threshold.

2.3.34 Register 30130

Contains the instantaneous generator frequency status. The following values apply:

- 0: lower than frequency presence acknowledgement threshold value
- 2: between the frequency presence acknowledgement threshold and lower value threshold
- 3: between the lower and upper values thresholds
- 4: between the upper and max value thresholds
- 5: higher than max value threshold

2.3.35 Register 30131

Contains the alternator status

Bit	Rev	Descripton	Value
0	00.02	Generator within its working window (instantaneous)	1=true, 0=false
1		--	1=true, 0=false
2		--	1=true, 0=false
3		--	1=true, 0=false
4		--	1=true, 0=false
5		--	1=true, 0=false
6		--	1=true, 0=false
7	00.02	Generator within the window in accordance with planned switch off and restore times.	1=true, 0=false
8		--	1=true, 0=false
9		--	1=true, 0=false
10		--	1=true, 0=false
11		--	1=true, 0=false
12		--	1=true, 0=false
13		--	1=true, 0=false
14		--	1=true, 0=false
15		--	1=true, 0=false

2.3.36 Register 30132

Contains the engine status. The following values apply:

- 0: stop sequence running
- 1: stop sequence halted
- 2: engine stopped
- 3: stop sequence completed but engine still running
- 4: diesel engines glow plugs preheating
- 5: delay between fuel electro-valve activation and engine start
- 6: engine start attempt
- 7: stand by time between engine start up attempts
- 8: manual mode engine start verification
- 9: auto mode engine start verification
- 10: started
- 11: cooling cycle
- 12: washing cycle (gas engines)
- 13: waiting for stop status
- 14: idle speed status

2.3.37 Register 30133

Contains the changeover status. The following values apply:

- 0: loads supplied by mains
- 1: loads transfer to motor generator
- 2: loads supplied by motor generator
- 3: loads transfer to mains

2.3.38 Register 30134

Contains the maintenance requests.

Bit	Rev	Description	Value
0	00.02	Reserved	1=true, 0=false
1		--	1=true, 0=false
2	00.02	Maintenance request	1=true, 0=false
3		--	1=true, 0=false
4		--	1=true, 0=false
5		--	1=true, 0=false
6		--	1=true, 0=false
7		--	1=true, 0=false
8		--	1=true, 0=false
9		--	1=true, 0=false
10		--	1=true, 0=false
11		--	1=true, 0=false
12		--	1=true, 0=false
13		--	1=true, 0=false
14		--	1=true, 0=false
15		--	1=true, 0=false

2.3.39 Register 30135

Contains the current level of access to board programming. The following values apply.

- 0: No level.
- 1: user.
- 2: installer
- 3: maker

2.3.40 Register 30204

Contains the number of records stored inside the event registrations archive.

2.3.41 Registers 30241-242

Contain the date/hour information of the selected analogue registration. The value is given by two coupled registers intended to provide a 32-bit sequence. The bits represent the following information:

Bit	Rev	Description
0-5	00.02	Seconds (0..59)
6-11	00.02	Minutes (0..59)
12-16	00.02	Hours (0..23)
17-21	00.02	Day of the month(1..31)
22-25	00.02	Month (1..12)
26-31	00.02	Year (00..63 → 2000..2063)

2.3.42 Register 30243

Contains the code of the event memorized inside the selected record in the events archive.

Code	Rev	Description
1		Board in OFF mode
2		Board in MAN mode
3		Board in AUTO mode
4		Board in TEST mode
5		Board in REMOTE START mode
10		Mains absent
11		Mains present but not stable
12		Mains steady present
13		Inhibition active
14		Inhibition not active
20		Generator not present
21		Generator present but not steady
22		Generator steady present
30		KG closure command
31		KG opening command

Code	Rev	Description
32		KG closed
33		KG open
35		KR closure command
36		KR opening command
37		KR closed
38		KR open
40		Engine stopped
41		Engine starting
42		Engine running
43		Engine cooling
44		Engine stopping
50		Manual START command
51		Manual STOP command
52		Automatic START command
53		Automatic STOP command
54		Digital input START request
55		Digital input STOP request
56		Serial port START request
57		Serial port STOP request
58		Clock scheduled START request
59		Clock scheduled STOP request
60		SMS START request
61		SMS STOP request
70		Fuel pump running
71		Fuel pump stopped
76		Clock updated
77		New board power on

Code	Rev	Description
200+x	00.02	Anomaly (x is the unambiguous anomaly code)

2.3.43 Register 30244

Contains the status memorized in the selected record in the events archive. It is a set of boolean data.

Bit2	Bit1	Bit0	Rev	Description
0	0	0	00.02	Board in OFF mode
0	0	1	00.02	Board in MAN mode
0	1	0	00.02	Board in AUTO mode
0	1	1	00.02	Board in TEST mode
1	0	0	00.02	Board in REMOTE START mode

Bit5	Bit4	Bit3	Rev	Description
0	0	0	00.02	Engine stopped
0	0	1	00.02	Engine starting
0	1	0	00.02	Engine running
0	1	1	00.02	Engine cooling
1	0	0	00.02	Engine stopping

Bit7	Bit6	Rev	Description
0	0	00.02	Generator absent
0	1	00.02	Generator within the window
1	X	00.02	Generator within the window from configured time

Bit9	Bit8	Rev	Description
0	0	00.02	Mains absent
0	1	00.02	Mains within the window
1	X	00.02	Mains within the window from configured time

Bit10	Rev	Description
0	00.02	Generator breaker closure command not active
1	00.02	Generator breaker closure command active

Bit11	Rev	Description
0	00.02	Generator breaker open
1	00.02	Generator breaker closed

Bit12	Rev	Description
0	00.02	Mains breaker closure command not active
1	00.02	Mains breaker closure command active

Bit13	Rev	Description
0	00.02	Mains breaker open
1	00.02	Mains breaker closed

2.3.44 Registers 30245-246

Contain the status of digital inputs memorized in the selected record of the events archive. See the registers 30101 and 30102 for the format.

2.3.45 Registers 30247-252

Contain the status of the anomalies memorized in the selected record of the events archive. See the registers 30111-30116 for the format.

2.3.46 Registers 30261-262

Contain the date/hour when the maximum engine coolant temperature was memorized. See the registers 30241-242 for the format. They are significant only if the temperature is acquired (via sensor or CANBUS).

2.3.47 Registers 30263-264

Contain the updated maximum peak of the engine coolant temperature. They are significant only if the temperature is acquired (via sensor or CANBUS).

2.3.48 Registers 30265-266

Contain the date/hour when the minimum peak of the board internal temperature was recorded.

2.3.49 Registers 30267-268

Contain the updated minimum recorded inner board temperature.

2.3.50 Registers 30269-270

Contain the date/hour related to the max recorded inner board temperature.

2.3.51 Registers 30271-272

Contain the updated max recorded inner board temperature.

2.3.52 Registers 30275-276

Contain the date/hour related to the max recorded power peak. Ref. to registers 30241-242 format.

2.3.53 Registers 30277-278

Contain the updated max recorded power peak.

2.3.54 Registers 30279-280

Contain the engine temperature corresponding to the max recorded power peak. The register value is applicable only in case that the temperature sensor is installed or the temperature is available via CANBUS.

2.3.55 Registers 30281-282

Contain the date/hour corresponding to the max recorded L1 current peak. Ref. to registers 30241-242 format.

2.3.56 Registers 30283-284

Contain the updated max recorded L1 current peak.

2.3.57 Registers 30285-286

Contain the L1 power factor corresponding to the related max recorded current peak.

2.3.58 Registers 30287-288

Contain the date/hour corresponding to the L2 max recorded current peak. Ref. to registers 30241-242 format. The register value is applicable only to three phase systems.

2.3.59 Registers 30289-290

Contain the up dated L2 max recorded current peak. The register value is applicable only to three phase systems.

2.3.60 Registers 30291-292

Contain the L2 power factor corresponding to the related max recorded current peak. The register value is applicable only to three phase systems.

2.3.61 Registers 30293-294

Contain the date/hour corresponding to the L3 max recorded current peak. Ref. to registers 30241-242 format. The register value is applicable only to three-phases systems.

2.3.62 Registers 30295-296

Contain the updated L3 max recorded current peak. The register value is applicable only to three-phases systems.

2.3.63 Registers 30297-298

Contain the L3 power factor corresponding to the related max recorded current peak. The register value is applicable only to three-phases systems.

2.3.64 Register 30351

Contains the engine torque loop commanded value, used when the torque control is selected as an alternative to the speed control loop. It is only applicable to boards fitted with the CANBUS interface. The value 0xFFFF indicates that the value is not available.

2.3.65 Register 30352

Contains the current motor torque in percentage of the max engine torque relevant to the current motor speed status (in percentage). It is only applicable to boards fitted with the CANBUS interface. The value 0xFFFF indicates that the value is not available.

2.3.66 Register 30353

Contains the current motor torque in percentage of the reference torque. It is only applicable to boards fitted with the CANBUS interface. The value 0xFFFF indicates that the value is not available.

2.3.67 Register 30354

Contains the (differential) pressure (Bar) at the turbo-compressor exhaust side. It is only applicable to boards fitted with the CANBUS interface. The value 0xFFFF indicates that the value is not available.

2.3.68 Register 30355

Contains the fuel level (% of max level). Some engines are equipped with a simple on/off sensor transferring 0% and 100% values only. It is only applicable to boards fitted with the CANBUS interface. The value 0xFFFF indicates that the value is not available.

2.3.69 Register 30356

Contains the fuel throttle valve position (%), and somehow it provides an indication of the fuel flow. It is only applicable to boards fitted with the CANBUS interface. The value 0xFFFF indicates that the value is not available.

2.3.70 Register 30357

Contains the fuel temperature (in °C). It is only applicable to boards fitted with the CANBUS interface. The value 0xFFFF indicates that the value is not available.

2.3.71 Register 30359

Contains the pre-combustion air temperature at the engine intake manifold. It is only applicable to boards fitted with the CANBUS interface. The value 0x7FFFFFFF indicates that the value is not available.

2.3.72 Register 30361

Contains the engine oil temperature. It is only applicable to boards fitted with the CANBUS interface. The value 0x7FFFFFFF indicates that the value is not available.

2.3.73 Register 30363

Contains the instantaneous engine fuel consumption (in l/h). It is only applicable to boards fitted with the CANBUS interface. The value 0xFFFFFFFF indicates that the value is not available.

2.3.74 Register 30365

Contains the total number of consumed fuel liters (from the start of service). It is only applicable to boards fitted with the CANBUS interface. The value 0xFFFFFFFF indicates that the value is not available.

2.3.75 Register 30367

Contains the total hour number of engine operations (from the start of service). It is only applicable to boards fitted with the CANBUS interface. The value 0xFFFFFFFF indicates that the value is not available.

2.3.76 Register 30369

Contains a number of information about the engine status as acquired by the CANBUS equipment. It is a string of Boolean data. It is only applicable to boards fitted with the CANBUS interface. The value 0xFFFFFFFF indicates that the value is not available.

Bit	Description	Value
0	Engine started	1=true, 0=false
1	Power reduced due to high temperature	1=true, 0=false
2	--	1=true, 0=false
3	--	1=true, 0=false
4	--	1=true, 0=false
5	--	1=true, 0=false
6	--	1=true, 0=false
7	--	1=true, 0=false
8	--	1=true, 0=false
9	--	1=true, 0=false
10	--	1=true, 0=false
11	--	1=true, 0=false
12	--	1=true, 0=false
13	--	1=true, 0=false
14	--	1=true, 0=false
15	--	1=true, 0=false

2.3.77 Registers 30401-402, 30403 e 30404

This block of four registers contains possible diagnostic information acquired from the engine via CANBUS. It is available only with the board equipped with CANBUS interface. The board manages up to ten contemporary diagnostic information acquired from the engine:

- 1st diagnostic information: registers 30401-402, 30403, 30404
- 2nd diagnostic information: registers 30405-406, 30407, 30408
- 3rd diagnostic information: registers 30409-410, 30411, 30412
- 4th diagnostic information: registers 30413-414, 30415, 30416
- 5th diagnostic information: registers 30417-418, 30419, 30420
- 6th diagnostic information: registers 30421-422, 30423, 30424
- 7th diagnostic information: registers 30425-426, 30427, 30428
- 8th diagnostic information: registers 30429-430, 30431, 30432
- 9th diagnostic information: registers 30433-434, 30435, 30436
- 10th diagnostic information: registers 30437-438, 30439, 30440

A block of four registers all set with zero states that there is no diagnostic information (information can also be random spread between the four-registers blocks, depending by the engine diagnostic activation/deactivation sequence). In details, each block contains:

- The standard SAE-J1939 SPN code, which identifies the engine component generating a diagnostic code (on 32 bit, registers 30401-30402).
- The standard SAE-J1939 FMI code, which identifies what is the problem on the component identified by the SPN (on the eight less significant bits of the registers 30403).
- How many times (OC, occurrence count) the anomaly previously identified was generated (on the eight more significant bits of the registers 30403).
- The possible diagnostic code specific of the engine (on the register 30404).

First three fields (SPN, FMI and OC) represent the standard for the SAE-J1939 diagnostic. It is implemented by many engine types. In addition, engines usually use also proprietary codes; they are different from different makers and also between the engines of the same maker. These codes are named "flash-code" because they are shown to the operator by the flashing of an apposite lamp (diagnostic lamp). Often the operator knows well these codes and not the standard SAE-J1939; by means of the register 30404 it is possible to read them. The two kinds of codes (flash-code and SAE-J1939) are implemented at the discretion of the engine maker: usually they are both implemented, some engine has implemented only the SAE-J1939 standard while just few engines have only the "flash-codes". If the value of the register 30404 is 0xFF it means that the engine doesn't implement the "flash codes", while if the value of the other 3 registers is at 0xFFFF it means that the engine doesn't implement the SAE-J1939 diagnostic standard.

2.4 Holding Registers description

2.4.1 Registers 40001- 40007

Contain the real time clock of the board

Register	Rev	Description
40001	00.02	Seconds (0..59)
40002	00.02	Minutes (0..59)
40003	00.02	Hours (0..23)
40004	00.02	Day of the month (1..31)
40005	00.02	Day of the week (0..6, 0=Sunday)
40006	00.02	Month (1..12)
40007	00.02	Year (0..99 → 2000..2099)

2.4.2 Register 40008

Contains the board real time clock status.

Bit	Rev	Description	Value
0		--	
1	00.02	Clock validity	0=valid, 1 = non valid
2		--	
3		--	
4		--	
5		--	
6		--	
7		--	
8		--	
9		--	
10		--	
11		--	
12		--	
13		--	
14		--	
15		--	

2.4.3 Registers 40009-10

Contain the engine working hours (resettable).

2.4.4 Registers 40011-12

Contains the engine cranks number (resettable).

2.4.5 Registers 40013-14

Contain the number of operation hours until the next maintenance. It is read only.

2.4.6 Registers 40015-16

Contain the generated active power counter.

2.4.7 Registers 40017-18

Contain the generated reactive power counter.

2.4.8 Register 40019

Allows the selection of the record to be read from the board archive logs. Possible values are:

- 0000..0xxx: record xxx of the event log or fast analogue data archive.
- 1000..1xxx: record xxx of the slow analogue data archive
- 2000..2xxx: record xxx of the analogue data upon event

2.4.9 Register 40020

Allows the transmission of commands to the generator set. Possible values are:

- 1: alarm reset
- 3: engine stop
- 4: loads changeover to mains
- 5: loads changeover to generator
- 6: engine test start (AUTO only)
- 7: engine test end (AUTO only)
- 8: inhibition start
- 9: inhibition end
- 10: archives inhibition
- 11: archives access restore
- 12: peaks clear

2.4.10 Register 40021

Allows the incoming data call recognition. In case that a non zero value is written, the board call sequence stops.

2.4.11 Registers 40111-116

Contain the board anomalies by replicating exactly the content of the 30111-116 registers. The data is reported in these registers in order to cope with the interface requirements of some commercial user panels. The registers are read only

2.4.12 Register 40119

Contains the status of the board anomalies data management by replicating exactly the content of the 30119 register. The data is reported in this register in order to cope with the interface requirements of some commercial interface panels. The register is read only

2.4.13 Registers 40201-204

Allow the board password setting during communication beginning (log in). In case that a password was set, not using these registers an error will result while attempting to write any holding register of the board

2.4.14 Registers 40301..40499

Allow to read/write the board numerical parameters as shown in the board handbook.

2.4.15 Registers 40601..40799

Allow to read/write the board string parameters, as shown in the board handbook

2.4.16 Registers 40901..41999



Allow to read/write the board hexadecimal parameters, as shown in the board handbook.

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