Date: 07.09.2012

BE142 Software version: 6.0.XX
File version: 1.71

# MODBUS SPECIFICATIONS FOR BE142

## I.MODBUS general information

The communication protocol meets the MODBUS RTU convention and includes the following function codes:

| Code | Function |
|---|---|
| 01 | Read Coil Status |
| 02 | Read Input Status |
| 03 | Read Holding Register |
| 04 | Read Input Register |
| 05 | Force Single Coil |
| 06 | Preset Single Register |
| 0F | Force Multiple Coils |
| 10 | Preset Multiple Registers |

Communication speed: 9600 baud
Data bits: 8
Parity: none
Stop bits: 1
Flow control: none
Device address: 1 (default)

The Modbus address can be changed from the PC, setting register 40142 (RS485 Node Address).
Full information on the MODBUS RTU can be found at www.modbus.org

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# II.BE142 registers (sections A-B-C-D)

## A)-INPUT REGISTERS > Data Registers

| Registers address | BE142 Registers | DESCRIPTION | Units | Notes |
|---|---|---|---|---|
| 30000 | 0 | Voltage R-S | Vac | - |
| 30001 | 1 | Voltage S-T | Vac | - |
| 30002 | 2 | Voltage T-R | Vac | - |
| 30006 | 3 | Mains Frequency | Hz | *note1 |
| 30008 | 4 | KM Status | | *note7 |
| 30009 | 5 | Mains simulation status | | *note3 |
| 30010 | 6 | Generator L1-L2 | Vac | - |
| 30016 | 7 | Generator Current1 | Aac | - |
| 30019 | 8 | Generator Frequency | Hz | *note1 |
| 30021 | 9 | KG status | | *note7 |
| 30022 | 10 | Generator simulation status | | *note3 |
| 30040 | 11 | Battery Voltage | Vdc | *note1 |
| 30041 | 12 | Battery detection Flag (12 or 24) | - | *note4 |
| 30042 | 13 | Engine Speed | r.p.m. | |
| 30044 | 14 | Oil Pressure | bar | *note1 |
| 30045 | 15 | EngineTemperature | °C | |
| 30046 | 16 | Fuel Level | % | |
| 30047 | 17 | Hours Count | hours | |
| 30048 | 18 | Service 1 Remaining time | hours | |
| 30049 | 19 | Service 2 Remaining time | hours | |
| 30050 | 20 | Service 3 Remaining time | hours | |
| 30051 | 21 | Charger Alternator Voltage | Vdc | *note1 |
| 30053 | 22 | Operating modestatus | | *note5 |
| 30054 | 23 | Engine status | | *note6 |
| 30055 | 24 | Genset Test status (remote input) | | *note7 |
| 30056 | 25 | Engine Test status (remote input) | | *note7 |
| 30057 | | Genset remote test | | *note7 |
| 30058 | | Engine Remote Test | | *note7 |
| 30059 | 28 | Renting remaining | hours | |
| 30060 | 29 | Reference Ground voltage | mV | |
| 30061 | 30 | Internal reference voltage | mV | |
| 30062 | 31 | Sensors supply voltage | mV | |
| 30065 | 32 | NFPA – 110 level 1&2 | | *note8 |
| 30066 | 33 | Node Address | | |
| 30133 | 72 | Number of starts | | |
| 30134 | 73 | Session status | | |
| 30135 | 74 | Generator Current 2 | A | |
| 30136 | 75 | Generator Current 3 | A | |
| 30137 | 76 | Generator L2-L3 | VAC | |
| 30138 | 77 | Generator L1-L3 | VAC | |

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# A)-INPUT REGISTERS > Alarms Registers

| Registers Address | BE142 | DESCRIPTION | Notes |
|---|---|---|---|
| 30079 | 34 | Under Frequency Shutdown | *note9 |
| 30080 | 35 | Over Frequency Shutdown | *note9 |
| 30082 | 36 | Generator Over Voltage Shutdown | *note9 |
| 30083 | 37 | Generator Under Voltage Shutdown | *note9 |
| 30084 | 38 | Generator failure Shutdown | *note9 |
| 30089 | 39 | Over Current Shutdown | *note9 |
| 30090 | 40 | Over Current Warning | *note9 |
| 30091 | 41 | Overload Shutdown (External Switch) | *note9 |
| 30092 | 42 | Overload warning | *note9 |
| 30093 | 43 | Low Oil pressure Warning | *note9 |
| 30094 | 44 | Low Oil pressure Shutdown (switch) | *note9 |
| 30095 | 45 | Oil Pressure sensor failure warning | *note9 |
| 30097 | 46 | High Engine Temperature Warning | *note9 |
| 30099 | 47 | Temperature sensor failure warning | *note9 |
| 30100 | 48 | High Temperature-Switch Shutdown | *note9 |
| 30102 | 49 | Low Battery voltage warning | *note9 |
| 30103 | 50 | High Battery voltage warning | *note9 |
| 30104 | 51 | No Fuel shutdown (switch) | *note9 |
| 30105 | 52 | Low Fuel warning (sensor) | *note9 |
| 30106 | 53 | Fuel Reserve warning (switch) | *note9 |
| 30107 | 54 | High Fuel level warning (sensor) | *note9 |
| 30108 | 55 | Fuel Sensor Failure | *note9 |
| 30109 | 56 | Fail to start Shutdown | *note9 |
| 30110 | 57 | Fail to stop Shutdown | *note9 |
| 30111 | 58 | Remote Emergency Shutdown | *note9 |
| 30112 | 59 | Local Emergency Shutdown | *note9 |
| 30113 | 60 | Belt break | *note9 |
| 30114 | 61 | Service 1 warning | *note9 |
| 30115 | 62 | Service 2 warning | *note9 |
| 30116 | 63 | Service 3 warning | *note9 |
| 30117 | 64 | Rent contract < 48h | *note9 |
| 30118 | 65 | Rent contract Expired | *note9 |
| 30121 | 66 | Configurable INPUT 1 Alarm | *note9 |
| 30122 | 67 | Configurable INPUT 2 Alarm | *note9 |
| 30123 | 68 | Configurable INPUT 3 Alarm | *note9 |
| 30124 | 69 | Configurable INPUT 4 Alarm | *note9 |
| 30131 | 70 | Parameter error warning | *note9 |
| 30132 | 71 | Remote Lock | *note9 |

| Registers Address | BE142 | DESCRIPTION | Notes |
|---|---|---|---|
| 30079 | 34 | Under Frequency Shutdown | *note9 |
| 30080 | 35 | Over Frequency Shutdown | *note9 |
| 30082 | 36 | Generator Over Voltage Shutdown | *note9 |
| 30083 | 37 | Generator Under Voltage Shutdown | *note9 |
| 30084 | 38 | Generator failure Shutdown | *note9 |
| 30089 | 39 | Over Current Shutdown | *note9 |
| 30090 | 40 | Over Current Warning | *note9 |
| 30091 | 41 | Overload Shutdown (External Switch) | *note9 |
| 30092 | 42 | Overload warning | *note9 |
| 30093 | 43 | Low Oil pressure Warning | *note9 |
| 30094 | 44 | Low Oil pressure Shutdown (switch) | *note9 |
| 30095 | 45 | Oil Pressure sensor failure warning | *note9 |
| 30097 | 46 | High Engine Temperature Warning | *note9 |
| 30099 | 47 | Temperature sensor failure warning | *note9 |
| 30100 | 48 | High Temperature-Switch Shutdown | *note9 |
| 30102 | 49 | Low Battery voltage warning | *note9 |
| 30103 | 50 | High Battery voltage warning | *note9 |
| 30104 | 51 | No Fuel shutdown (switch) | *note9 |
| 30105 | 52 | Low Fuel warning (sensor) | *note9 |
| 30106 | 53 | Fuel Reserve warning (switch) | *note9 |
| 30107 | 54 | High Fuel level warning (sensor) | *note9 |
| 30108 | 55 | Fuel Sensor Failure | *note9 |
| 30109 | 56 | Fail to start Shutdown | *note9 |
| 30110 | 57 | Fail to stop Shutdown | *note9 |
| 30111 | 58 | Remote Emergency Shutdown | *note9 |
| 30112 | 59 | Local Emergency Shutdown | *note9 |
| 30113 | 60 | Belt break | *note9 |
| 30114 | 61 | Service 1 warning | *note9 |
| 30115 | 62 | Service 2 warning | *note9 |
| 30116 | 63 | Service 3 warning | *note9 |
| 30117 | 64 | Rent contract < 48h | *note9 |
| 30118 | 65 | Rent contract Expired | *note9 |
| 30121 | 66 | Configurable INPUT 1 Alarm | *note9 |
| 30122 | 67 | Configurable INPUT 2 Alarm | *note9 |
| 30123 | 68 | Configurable INPUT 3 Alarm | *note9 |
| 30124 | 69 | Configurable INPUT 4 Alarm | *note9 |
| 30131 | 70 | Parameter error warning | *note9 |
| 30132 | 71 | Remote Lock | *note9 |

# A)-INPUT REGISTERS > Events register

| Registers Address | DESCRIPTION | Notes |
|---|---|---|
| 30400 | Event 1 code | *note22 |
| ……. | …….. | ……. |
| 30499 | Event 100 code | *note22 |
| 30500 | Event 1 hour | 65535 = none |
| …… | …….. | …….. |
| 30599 | Event 100 hour | 65535 = none |

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# B)-DISCRETE INPUTS

| Registers Address | BE142 Discrete Inputs | DESCRIPTION | Note |
|---|---|---|---|
| 10000 | 0 | Configurable input 1 | *note9 |
| 10001 | 1 | Configurable input 2 | *note9 |
| 10002 | 2 | Configurable input 3 | *note9 |
| 10003 | 3 | Configurable input 4 | *note9 |

# B)-DISCRETE OUTPUTS

| Registers Address | BE142 Discrete Inputs | DESCRIPTION | Note |
|---|---|---|---|
| 10015 | 4 | Output 1 | *note9 |
| 10016 | 5 | Output 2 | *note9 |
| 10017 | 6 | Output 3 | *note9 |
| 10018 | 7 | Output 4 | *note9 |

# C)-Holding registers > Mains settings

| REGISTERS ADDRESS | BE142 registers | DESCRIPTION | Units | Min | Max | Note |
|---|---|---|---|---|---|---|
| 40000 | 0 | Mains over voltage | Vac | 60<br>(59 = OFF) | 998<br>(999=OFF) | |
| 40001 | 1 | Mains under voltage | Vac | 60<br>(59 = OFF) | 998<br>(999=OFF) | |
| 40002 | 2 | Mains over frequency | Hz | 200<br>(199=OFF) | 700<br>(701=OFF) | *note1 |
| 40003 | 3 | Mains under frequency | Hz | 200<br>(199=OFF) | 700<br>(701=OFF) | *note1 |
| 40004 | 4 | Mains breaker timing | | 0<br>1 | 59sec<br>59min | *note15 |
| 40005 | 5 | Mains failure time | | 0<br>1<br>1 | 59 sec<br>59 min<br>23 hours | *note21 |
| 40006 | 6 | Mains restore timing | | 0<br>1<br>1 | 59 sec<br>59 min<br>23 hours | *note21 |
| 40007 | 7 | Contactors changeover time (up to 15.0 seconds) | | 1 | 150 | *note1 |
| 40008 | 8 | Phase selection | | 0 | 3 | *note11 |

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# C)-Holding registers > Genset settings

| Registes Address | BE142 Register | DESCRIPTION | Units | Min | Max | Note |
|---|---|---|---|---|---|---|
| 40010 | 9 | Current Transformer Size | Aac | 50 | 1000 | |
| 40011 | 10 | Current Warning Limit | Aac | 10<br>(9 =OFF) | 1000<br>(1001=OFF) | |
| 40012 | 11 | Bypass time | | 1<br>1 | 59 sec<br>15 min | *note15 |
| 40013 | 12 | Current Shutdown Limit | Aac | 10<br>(9 =OFF) | 1000<br>(1001=OFF) | |
| 40014 | 13 | Bypass time | | 1<br>1 | 59 sec<br>15 min | *note15 |
| 40015 | 14 | Over Voltage | Vac | 60<br>(59 = OFF) | 998 (999=OFF) | |
| 40016 | 15 | Bypass time | | 1 | 15 sec | *note15 |
| 40017 | 16 | Under Voltage | Vac | 60<br>(59 = OFF) | 998 (999=OFF) | |
| 40018 | 17 | Bypass time | | 1 | 15 sec | *note15 |
| 40021 | 20 | Over Frequency | Hz | 200<br>(199 = OFF) | 700<br>(701 = OFF) | *note1 |
| 40022 | 21 | Bypass time | Sec | 1 | 15 sec | |
| 40023 | 22 | Under frequency | Hz | 200<br>(199 = OFF) | 700<br>(701 = OFF) | *note1 |
| 40024 | 23 | Bypass time | Sec | 1 | 15 sec | |
| 40035 | 24 | Test Mode; Gen set timeout | min | 1 min<br>(0 = OFF) | 99 min<br>(100 = OFF) | *note15 |
| 40036 | 25 | Test mode contactor control | | 0 | 1 | *note 19 |
| 40037 | 26 | Alternator number of poles | | 2 | 4 | |
| 40038 | 27 | Rent contract | hours | 1h<br>(0 = OFF) | 9999h<br>(10000 = OFF) | |
| 40039 | 28 | Alternator failure options | | 0 | 1 | *note7 |

# C)-Holding registers > Input settings

| Registers Address | BE142 Registers | DESCRIPTION | Note |
|---|---|---|---|
| 40050 | 29 | Configurable input 1 | *note12 |
| 40051 | 30 | Contact type | *note13 |
| 40052 | 31 | Configurable input 2 | *note12 |
| 40053 | 32 | Contact type | *note13 |
| 40054 | 33 | Configurable input 3 | *note12 |
| 40055 | 34 | Contact type | *note13 |
| 40056 | 35 | Configurable input 4 | *note12 |
| 40057 | 36 | Contact type | *note13 |
| 40067 | 37 | Engine temperature Ch1 contact type | *note13 |
| 40069 | 38 | Emergency contact type | *note13 |

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# C)-Holding registers > Output settings

| REGISTES ADDRESS | BE142 registers | DESCRIPTION | Value | Note |
|---|---|---|---|---|
| 40070 | 39 | output 1 | 0 - 61 | *note14 |
| 40071 | 40 | output 2 | 0 - 61 | *note14 |
| 40072 | 41 | output 3 | 0 - 61 | *note14 |
| 40073 | 42 | output 4 | 0 - 61 | *note14 |
| 40093 | 43 | Horn time | 5-59secs<br>1-15 min | *note15 |

# C)-Holding registers > Engine setting

| REGISTERS ADDRESS | BE142 registers | DESCRIPTION | Min | Max | Note |
|---|---|---|---|---|---|
| 40105 | 44 | Low Oil Pressure Warning | 1<br>(0=OFF) | 200<br>(201=OFF) | *note 1 |
| 40107 | 45 | EJP TIME | 1sec<br>1min | 59sec<br>99 min | *note15 |
| 40108 | 46 | High temperature warning | 40<br>(39 = OFF) | 250<br>(251=OFF) | |
| 40110 | 47 | Crank Termination VDC | 30<br>(29 = OFF) | 300<br>(301 = OFF) | *note 1 |
| 40111 | 48 | Crank Termination VAC | 60V<br>(59V=OFF) | 998V<br>(999V=OFF) | |
| 40112 | 49 | Crank Termination Frequency | 200<br>(199=OFF) | 700<br>(701 = OFF) | * note 1 |
| 40114 | 50 | Engine alarms bypass | 2 | 90secs | |
| 40115 | 51 | Crank start delay | 0 | 15secs | |
| 40116 | 52 | Crank timeout | 1 | 15secs | |
| 40117 | 53 | Crank attempts | 3 | 15 | |
| 40118 | 54 | Rest time | 3 | 15secs | |
| 40119 | 55 | Pre-glow time | 1sec<br>1 min<br>(0 = OFF) | 59secs<br>59 min<br>(60 = OFF) | *note15 |
| 40120 | 56 | Pre-glow Mode | 1 | 4 | |
| 40121 | 57 | Warm up time | 0 sec<br>1 min | 59 sec<br>59 min | *note15 |
| 40122 | 58 | Cooling time | 0 sec<br>1 min | 59 sec<br>59 min | *note15 |
| 40123 | 59 | Stop cycle(Stop solenoid timing) | 1 sec<br>1 min | 59 sec<br>59 min | *note15 |
| 40124 | 60 | Purge timing | 1 | 15 sec | |
| 40125 | 61 | Belt break settings(3.0 up to 30.0 V) | 30<br>(29 = OFF) | 300<br>(301 = OFF) | * note1 |
| 40126 | 62 | Fail to stop alarm control | 0 | 1 | *note7 |

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# C)-Holding registers > Service registers

| REGISTERS ADDRESS | BE142 registers | DESCRIPTION | Note |
|---|---|---|---|
| 40135 | 63 | Maintenance SERVICE1 | 1-9999h(0 = OFF; 10000 = OFF) |
| 40136 | 64 | Maintenance SERVICE2 | 1-9999h(0 = OFF; 10000 = OFF) |
| 40137 | 65 | Maintenance SERVICE3 | 1-9999h(0 = OFF; 10000 = OFF) |
| 40138 | 66 | Test interval | 2-9999h(1 = OFF; 10000 = OFF) |
| 40139 | 67 | Test duration | 1-99 min |
| 40141 | 68 | NFPA – 110 Level 1& 2 | [On]/[Off] |
| 40142 | 69 | RS485 Node Address | 1- 127 |
| 40144 | 70 | Hour counter set | 0 –50000h |

# C)-Holding registers > Fuel settings

| REGISTERS ADDRESS | BE142 registers | DESCRIPTION | Min | Max |
|---|---|---|---|---|
| 40145 | 71 | Fuel low | 1%<br>(0 = OFF) | 99%<br>(100 =OFF) |
| 40146 | 72 | Fuel high | 1%<br>(0 = OFF) | 99%<br>(100 =OFF) |
| 40149 | 75 | No fuel in the tank delay | (14 sec = OFF)<br>15 secs<br>1 min | 59 secs<br>99 mins(*note15)<br>(100 min = OFF) |

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# C)-Holding registers > Sensor settings

| REGISTERS ADDRESS | BE142 Registers | DESCRIPTION | Default |
|---|---|---|---|
| 40155 | 76 | Pressure sensor point 1 – bar | 0 *note1 |
| 40156 | 77 | Pressure sensor point 1 – ohm | 10 |
| 40157 | 78 | Pressure sensor point 2 – bar | 20*note1 |
| 40158 | 79 | Pressure sensor point 2 – ohm | 51 |
| 40159 | 80 | Pressure sensor point 3 – bar | 40*note1 |
| 40160 | 81 | Pressure sensor point 3 – ohm | 86 |
| 40161 | 82 | Pressure sensor point 4 – bar | 60*note1 |
| 40162 | 83 | Pressure sensor point 4 – ohm | 122 |
| 40163 | 84 | Pressure sensor point 5 – bar | 80*note1 |
| 40164 | 85 | Pressure sensor point 5 – ohm | 152 |
| 40165 | 86 | Pressure sensor point 6 – bar | 100*note1 |
| 40166 | 87 | Pressure sensor point 6 – ohm | 180 |
| 40167 | 88 | Temperature sensor point 1 – C | 128 |
| 40168 | 89 | Temperature sensor point 1 – ohm | 19 |
| 40169 | 90 | Temperature sensor point 2 – C | 115 |
| 40170 | 91 | Temperature sensor point 2 – ohm | 26 |
| 40171 | 92 | Temperature sensor point 3 – C | 90 |
| 40172 | 93 | Temperature sensor point 3 – ohm | 46 |
| 40173 | 94 | Temperature sensor point 4 – C | 80 |
| 40174 | 95 | Temperature sensor point 4 – ohm | 67 |
| 40175 | 96 | Temperature sensor point 5 – C | 70 |
| 40176 | 97 | Temperature sensor point 5 – ohm | 95 |
| 40177 | 98 | Temperature sensor point 6 – C | 40 |
| 40178 | 99 | Temperature sensor point 6 – ohm | 287 |
| 40179 | 100 | Fuel sensor point 1 – % | 0 |
| 40180 | 101 | Fuel sensor point 1 – ohm | 10 |
| 40181 | 102 | Fuel sensor point 2 – % | 20 |
| 40182 | 103 | Fuel sensor point 2 – ohm | 50 |
| 40183 | 104 | Fuel sensor point 3 – % | 50 |
| 40184 | 105 | Fuel sensor point 3 – ohm | 100 |
| 40185 | 106 | Fuel sensor point 4 – % | 80 |
| 40186 | 107 | Fuel sensor point 4 – ohm | 150 |
| 40187 | 108 | Fuel sensor point 5 – % | 90 |
| 40188 | 109 | Fuel sensor point 5 – ohm | 200 |
| 40189 | 110 | Fuel sensor point 6 – % | 99 |
| 40190 | 111 | Fuel sensor point 6 – ohm | 250 |

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# D): Coils

| COIL | VALUE | DESCRIPTION |
|---|---|---|
| 0 | 1 | Clear alarms |
| 1 | 1 | Start engine test |
| 2 | 1 | Stop engine test |
| 3 | 1 | Genset start |
| 4 | 1 | Genset stop |
| 5 | 1 | MEM INIT |
| 6 | 1 | Clear the counter Number of starts |
| 7 | 1 | Auto Operating mode |
| 8 | 1 | Manual Operating mode |
| 9 | 1 | OFF Operating mode |
| 10 | 1 | Close KG |
| 11 | 1 | Close KM |
| 12 | 1 | Open contactors |
| 13 | 1 | Write parameters in EEPROM |

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# III.Notes

| Notes | DESCRIPTION | |
|---|---|---|
| *Note1 | The value should be divided by 10 (÷10). | |
| *Note2 | 0 = Open<br>1 = Closed | |
| *Note3 | 0 = Mains NOT simulated<br>1 = Mains IS simulated by a programmable input | |
| *Note4 | 1 – 12V<br>0 – 24V | |
| *Note5 | 0 = Mode OFF<br>1 = Mode MANUAL<br>2 = Mode AUTO<br>3 = Mode TEST<br>4 = Mode PROGRAM<br>5 = Mode CALIBRATION | |
| *Note6 | 0 = OFF<br>1 = STARTING<br>2 = RUNNING<br>3 = COOLING<br>4 = STOPPING<br>5 = STOPPED | |
| *Note7 | 0 = OFF<br>1 = ON | |
| *Note8 | 0 = NFPA mode OFF = KM will close according to the status of the mains<br>1= KM forced closed in case of shutdown = NFPA mode ON | |
| *Note9 | 0 = Not active<br>1 = Active | |
| *Note11 | 0 = 3M 3G<br>1 = 3M 1G<br>2 = 1M 3G<br>3 = 1M 1G | |
| *Note12 | Input Options List<br>[0] Off: disables the input<br>[1] Immediate<br>[2] Bypass and<br>[3] Cooling and Stop<br>[4] Bypass + cooling and Stop<br>[5] Warning only<br>[6] Bypass and Warning<br>[7] Remote Manual Mode<br>[8] Remote Auto Mode<br>[9] Remote Off Mode | [14] Generator simulation ON<br>[15] Mains Simulation ON<br>[16] Front panel LEDs test<br>[17] Alarm acknowledge<br>[18] Display Right Pushbutton<br>[19] Display Left Pushbutton<br>[20] Overload Input Warning<br>[21] Overload Input Shutdown<br>[22] KG Forced closed<br>[23] KM Forced closed |

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| | | |
|---|---|---|
| | [10] Remote Engine Test<br>[11] Remote Generator Test<br>[12] Ejp function<br>[13] Remote LOCK | [24] KG LED feedback<br>[25] KM LED feedback<br>[26] Idle Engine |
| *Note13 | 0 = Normally open<br>1 = Normally closed | |
| *Note14 | Outputs Options List<br>[0]Output is disabled<br>[1]Under frequency Shutdown<br>[2]Over frequency Shutdown<br>[3]Over Current Shutdown<br>[4]Over Current Warning<br>[5]Overload Warning or Shutdown<br>[6]Over voltage Shutdown<br>[7]Under voltage Shutdown<br>[8]Alternator Failure Shutdown<br>[9]Low Oil Pressure Warning<br>[10]Low Oil Pressure Shutdown<br>[11]Oil sender Failure Warning<br>[12]High Temperature Warning<br>[13]Temperature switch Shutdown<br>[14]Temperature sender Failure<br>[15]Low Battery voltage Warning<br>[16]High Battery voltage Warning<br>[17]Low Fuel Shutdown(switch)<br>[18]Fuel Low Warning(sensor)<br>[19]Fuel Reserve Warning(switch)<br>[20]High Fuel Warning(sensor)<br>[21]Fuel Sender Failure Warning<br>[22]Emergency Stop Shutdown<br>[23]Stop Pushbutton Used in Auto<br>[24]Maintenance SERVICE1<br>[25]Maintenance SERVICE2<br>[26]Maintenance SERVICE3<br>[27]Engine Belt Break Shutdown<br>[28]Fail to Start Shutdown<br>[29]Fail to Stop Shutdown<br>[30]Idle Speed | [31]Input1 Shutdown/Warning<br>[32]Input2 Shutdown/Warning<br>[33]Input3 Shutdown/Warning<br>[34]Input4 Shutdown/Warning<br>[35]Common Oil Alarms<br>[36]Common Temperature Alarms<br>[37]Common Alternator Alarms<br>[38]Common Fuel Alarms<br>[39]Horn output<br>[40]Start Delay Timing<br>[41]Presence of Nominal Mains<br>[42]Mains Failure Timing<br>[43]Mains Restore Timing<br>[44]KG Status<br>[45]KM Status<br>[46]Pre-glow<br>[47]PURGE(gas engine valve control)<br>[48]RENT<48h<br>[49]Rent = 0h(expired)<br>[50] Engine Running Status<br>[51]Presence of Nominal Generator<br>[52]BE142 in OFF MODE(status)<br>[53]BE142 in MANUAL MODE<br>[54]BE142 in AUTO MODE(status)<br>[55]BE142 in TEST MODE(status)<br>[56]BE142 in LOCK MODE(status)<br>\|[57]Automatic Periodic Test<br>\|[58]Cooling Timing Warning<br>\|[59]Warm up Timing<br>\|[60]Cycling Mode<br>\|[61]Start Pilot |
| *Note15 | Time encoding: -If the smallest unit of the parameters is seconds than:<br>* if the received value is <= 59 => the value represents seconds<br>* if the received value is > 59 => the value represents (value – 59)minutes<br>* if the received value is >= 119 => the value represents (value – 118)hours (only if the parameter can be measured in hours, otherwise the value represents | |

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| | |
|---|---|
| | (value-59) minutes)<br><br>-If the smallest unit of the parameters is minutes than:<br>* if the received value is <= 59 => the value represents minutes<br>* if the received value is > 59 => the value represents (value – 59)hours<br><br>-If the smallest unit of the parameters is hours:<br><br>The value represents the number of hours |
| *note 19 | 0 = do not switch the contactor KG ( it switches only if the mains fails)<br>1 = switch the KG contactor independent of the status of the mains ( it forces the load to the generator) |
| *note20 | The value is divided by 100 (÷100). |
| *note21 | * if the received value is <= 59 => the value represents seconds<br>* if the received value is > 59 => the value represents (value – 59)minutes<br>*if the received value is >= 119 and the value is <= 1380 => 1.the number of hours is the integer part of the division value/60.<br>2.the number of minutes is the equal with the rest of the division value/60.<br><br>Example: 1265 represents:<br>1265/60 = 21.08333 = 21 hours<br>1265%60 = 5 minutes |
| *note22 | [ 0] OVER FREQUENCY SHUTDOWN<br>[ 1] BELT BREAK SHUTDOWN<br>[ 2] REMOTE LOCK SHUTDOWN<br>[ 3] ALTERNATOR FAILURE SHUTDOWN<br>[ 4] FAIL TO STOP SHUTDOWN<br>[ 5] EMERGENCY SHUTDOWN<br>[ 6 EMERGENCY FROM PANEL SHUTDOWN<br>[ 7] FAIL TO START SHUTDOWN<br>[ 8] FUEL SHUTDOWN<br>[ 9] OIL SHUTDOWN<br>[10] TEMP SHUTDOWN<br>[11] OVER VOLTAGE SHUTDOWN<br>[12] RENT SHUTDOWN<br>[13] INPUT 1 SHUTDOWN<br>[14] INPUT 2 SHUTDOWN<br>[15] INPUT 3 SHUTDOWN<br>[16] INPUT 4 SHUTDOWN<br>[17] UNDER FREQUENCY SHUTDOWN |

| | |
|---|---|
| | [18] UNDER VOLTAGE SHUTDOWN<br>[19] OVER CURRENT SHUTDOWN<br>[20] OVERLOAD SHUTDOWN<br>[21] INPUT 1 WARNING<br>[22] INPUT 2 WARNING<br>[23] INPUT 3 WARNING<br>[24] INPUT 4 WARNING<br><br>[25] OVERLOAD WARNING<br>[26] MAINTENANCE SERVICE WARNING<br>[27] BATTERY HIGH LOW WARNING<br>[28] OVER CURRENT WARNING<br>[29] OIL WARNING<br>[30] TEMP WARNING<br>[31] FUEL WARNING<br>[32] RENT WARNING<br>[33] MEMORY ERROR WARNING<br>**[255] NONE** |
| | |

# IV. Saving Parameters in EEPROM

**Note:** the parameters may be ‘write protected’ by password

To program and save parameters you have to open first a session of programming. To do so write the correct password in the password holding register (40213). You can check that the session is opened by reading Flag register (Input register from address 30346). If the programming session is opened you will read the value 9 in this register.

If no password is used you have to skip the previous steps.

To save the desired parameters write the corresponding holding registers than set the coil 13(Write parameters in EEPROM).