AT207

Návod k použití

Project: v2.0.0

TECNOELETTRA S.r.l.

INDEX

1- VŠEOBECNÉ POŽADAVKY A INSTALACE

1- 1 Všeobecné poznámky

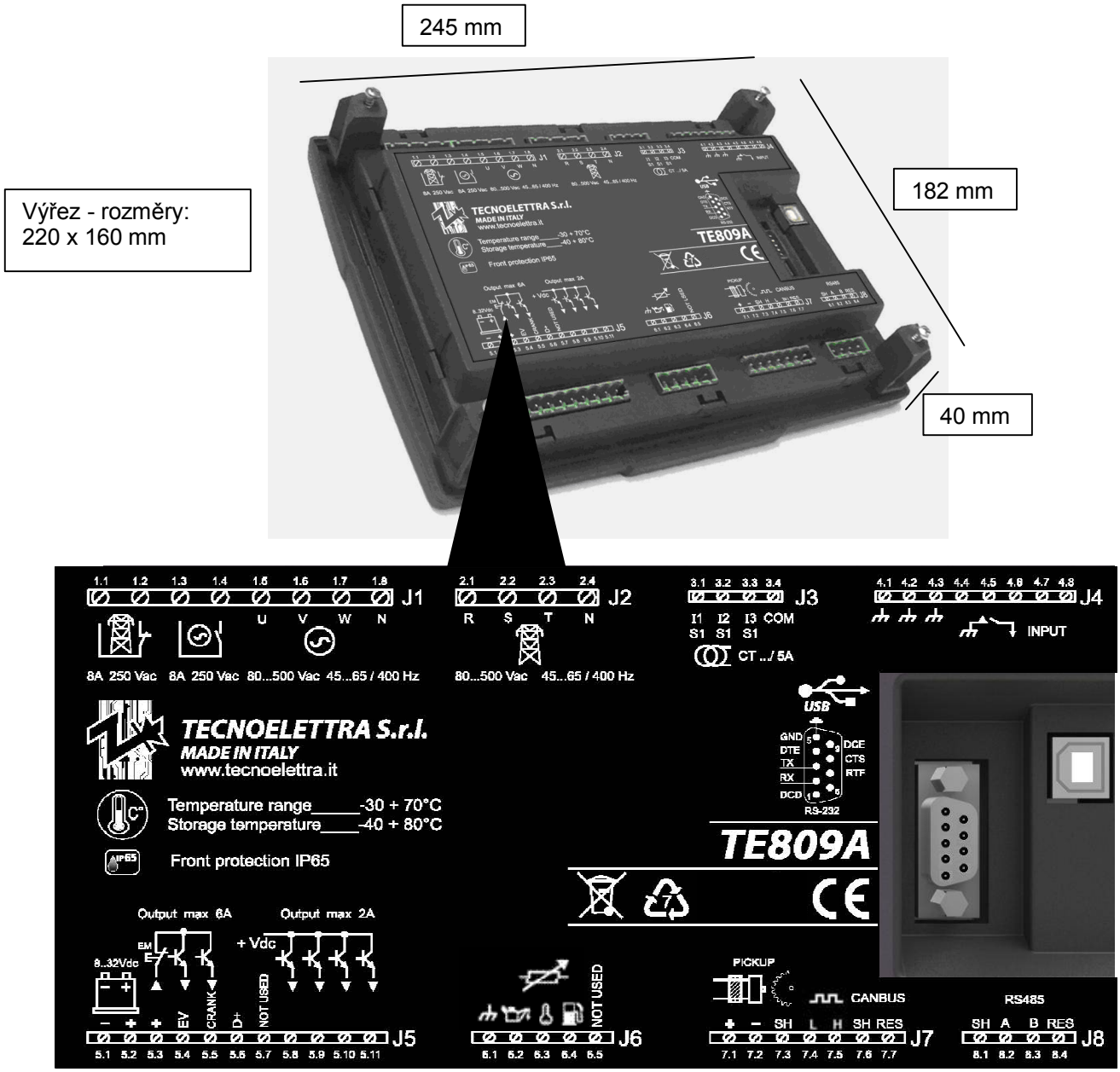
VAROVÁNÍ!

- Pečlivě si přečtěte návod před instalací nebo použitím.
- Toto zařízení musí být instalováno kvalifikovaným personálem, v souladu se současnými standardy, aby se předešlo poškození nebo ohrožení bezpečnosti.

- Před každou operací údržby na zařízení, odpojte všechna napětí
- Obrázky výrobků nelze použít bez předchozího upozornění výrobci
- Technické údaje a popisy v dokumentaci jsou pravdivé dle našeho nejlepšího svědomí, neneseme žádnou zodpovědnost za chyby, opomenutí nebo nepředvídané události vyplývající z toho, že tyto údaje nejsou akceptovány.
- Jistící prvek musí být zahrnut v elektrické instalaci budovy. Musí být instalován v blízkosti zařízení a v dosahu operátora. Musí být označen jako odpojovací prvek zařízení: IEC / EN 61010-1 § 6.12.2.1.
- Přístroj čistěte měkkým suchým hadříkem; Nepoužívejte abraziva, tekuté prací prostředky nebo rozpouštědla

1- 2 Označení výrobku a štítek

Obecné identifikace každé jednotky jsou sledovány na štítku níže a umístěna na kontroléru.



NOTE!

<u>Před žádostí o technické specifikace nebo informace o zařízení, sdělte výrobci obecné identifikační údaje uvedené na etiketě.</u>

1- 3 Údaje o zařízení

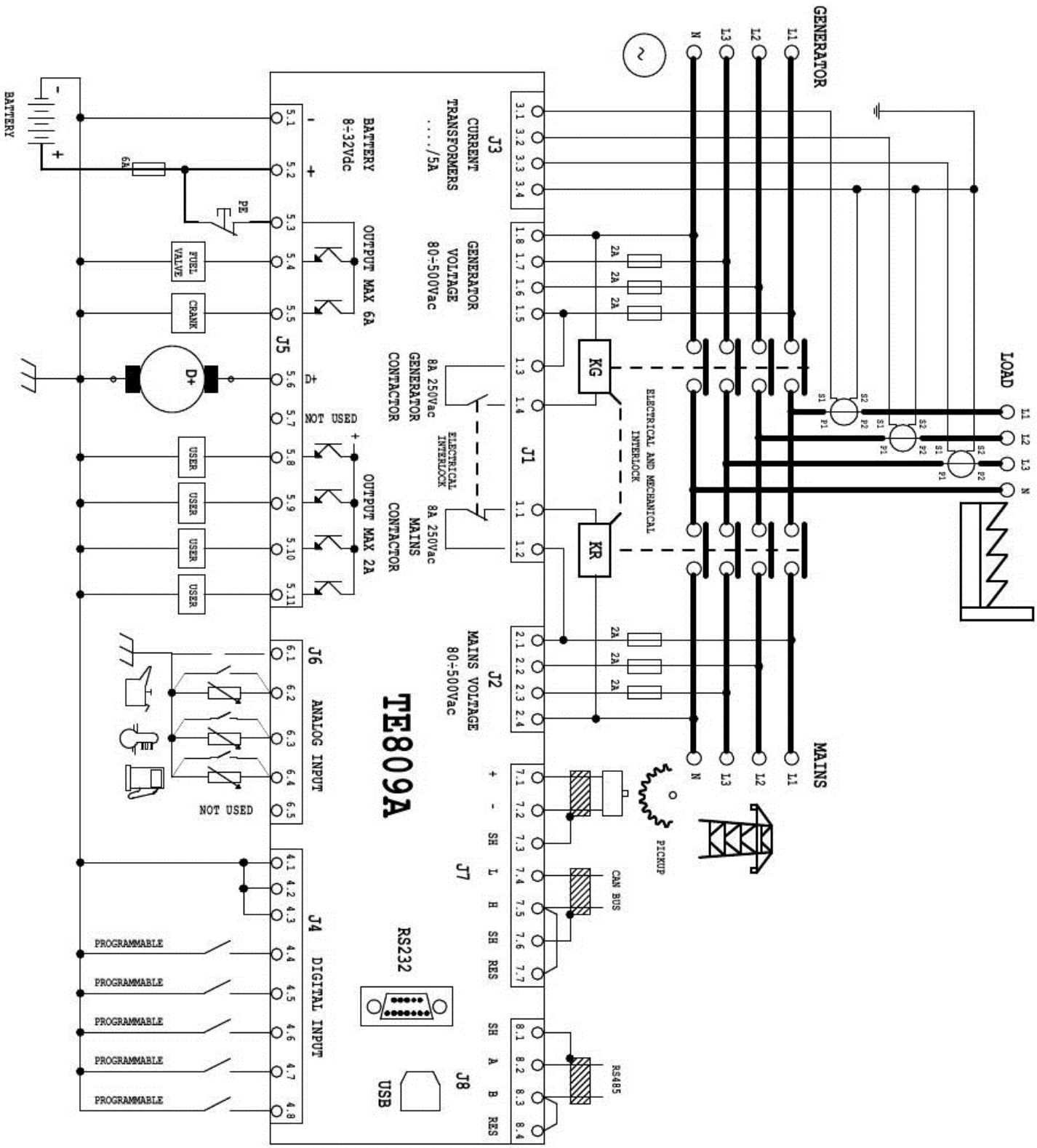
OBECNÉ VLASTNOSTI	
Jmenovité napětí Vdc	12Vdc (24Vdc)
Povolené napětí Vdc	od 6Vdc do 33Vdc
Odolnost při výpadku napětí	0V for 150 ms
Jmenovité napětí Vac	400 Vac
Povolené napětí Vac	až do 500 Vac
Povolená frekvence	až do75 Hz
Max spotřeba s podsvícením display	250 mA
Teplotní rozsah	-30 °C + 70 °C (funkční bez zobrazování na display)
	-20 °C + 70 °C (funkční i se zobrazováním na display)
	-30 °C + 80 °C (skladování)
DISPLAY	128x64 pixel ; 66x33mm
Digitální vstupy	
Počet	5
Vstupy - rychlé	
Rozsah napětí	od 1 do 36 V
Rozsah frekvence	až do 8 kHz
Stavové výstupy	
Počet	6 (2x6A ; 4x2A)
Analogové vstupy	
Počet	3
Typ vstupů	Odporový na zem
SERIAL COMMUNICATION INTERFACE	
Typ interface	Serial RS -232
Délka kabelu	< 3 m
Baud rate	až do 115200 bps
Typ interface	Serial RS485
Baud rate	až do 115200 bps
Can Bus	1 Canbus interface
Spínače relé	
Počet výstupů	2
Typ kontaktů	1x N.O. stykač generátoru - 1x N.C. stykač sítě
Zatížení kontaktů	8 A / 250 VAC
Vstupy – zatěžovací proudy	
Počet	3
Rozsah měření	Up to 5A
Citlivost	< 1% F.S. + 1 znaků
Vstupy - napěťové	
Počet	8
Typ vstupů	odporová vazba
Rozsah napětí	230 Vac (L-N) - 400 Vac (L-L)
Rozsah měření	TRMS od 0 do 300 Vac (L-N) - od 0 do 500 Vac (L-L)
Citlivost	< 1% F.S. + 1 znaků
Aktivní měření sítě	
Typ měření	integrované
HARDWARE	
Počet kláves	15
Počet LED	10
Rozšíření TE6010	
Serial interface	2x RJ11 4c4p konektor neizolovaný
Napájení	od 6Vdc do 33Vdc
Instalace	vnitřní panel, montáž na DIN lištu
vstupy	8x konfigurovatelný 0-500 ohm / 4-20 mA / 0-5 Vdc

Použité normy
EN55011
EN55016-2-1
EN55016-2-3
EN60068-2-1
EN60068-2-2
EN60068-2-27
EN60068-2-30
EN60068-2-6
EN61000-4-2
EN61000-4-3
EN61000-4-4
EN61000-4-5
EN61000-4-6
EN61000-4-8
EN61000-6-2
EN61000-6-4
HBV Bureau Veritas NR320

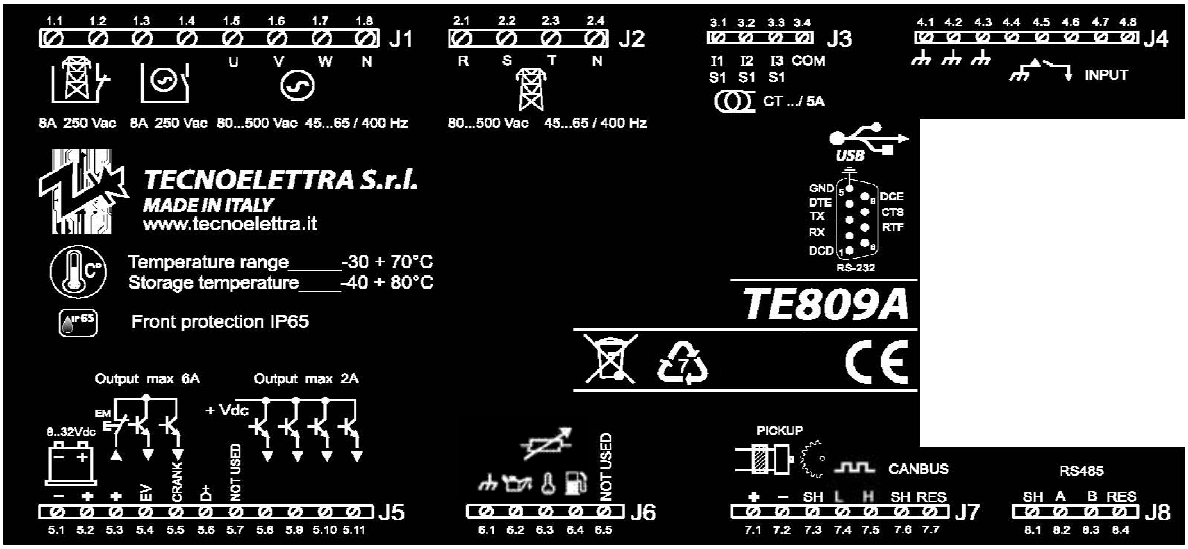
1- 4 Elektrická instalace

1- 4.1 Schéma

Pozor! Před vložením zástrčky se ujistěte, že připojení striktně dodržuje schéma zapojení níže.
Pro více informací o programovatelných vstupů / výstupů, viz par. 2-10.



1- 4.2 Zapojení



J1 – Generátor AC napětí a stykače
1.1 - Stykač sítě výstup (NC)
1.2 - Stykač sítě výstup (NC)
1.3 - Stykač generátoru výstup (NO)
1.4 - Stykač generátoru výstup (NO)
1.5 - Napětí generátoru fáze 1
1.6 - Napětí generátoru fáze 2
1.7 - Napětí generátoru fáze 3
1.8 - Nulový, střední vodič

J2 – Síť AC napětí
2.1 - Napětí sítě fáze 1
2.2 - Napětí sítě fáze 2
2.3 - Napětí sítě fáze
2.4 - Nulový, střední vodič

J3 – Generátor AC proud
3.1 - Proud generátoru I1
3.2 - Proud generátoru I2
3.3 - Proud generátoru I3
3.4 - Hallova sonda – společný kontakt

J4 – Digitální vstupy
4.1 - Gnd
4.2 - Gnd
4.3 - Gnd
4.4 - Programovatelný dig. vstup
4.5 - Programovatelný dig. vstup
4.6 - Programovatelný dig. vstup
4.7 - Programovatelný dig. vstup
4.8 - Programovatelný dig. vstup

J5 – Napájení a výstupy
5.1 - Batterie +kontakt
5.2 - Batterie -kontakt
5.3 - Společný kontakt pro palivový ventil a startér
5.4 - Palivový ventil - výstup
5.5 - Startér - výstup
5.6 - Nabíječ bateriií – výstup alternátoru (D+)
5.7 - Nepoužito
5.8 - Programovatelný dig. vstup
5.9 - Programovatelný dig. vstup
5.10 - Programovatelný dig. vstup
5.11 - Programovatelný dig. vstup

J6 – Digitální / Analogové vstupy
6.1 - Gnd
6.2 - Tlak oleje digitální / analogový
6.3 - Vysoká teplota motoru
6.4 - Úroveň hladiny paliva - procentuelní
6.5 - Nepoužito

J7 – Rpm and Canbus
7.1 - Snímač otáček vstup +
7.2 - Snímač otáček vstup -
7.3 - Snímač otáček shield
7.4 - Canbus Low
7.5 - Canbus High
7.6 - Canbus
7.7 - Canbus termination resistor (bridge with J7-7.5)

J8 - RS485 port
1- Stínění
2- A
3- B
4- Zakončovací odpor

RS232 – Komunikační porty
RS232 – zapojení dálkového ovládání

1- 5 Provozní režimy

Automatický režim

Motor se automaticky spustí v případě výpadku sítě (nebo mimo rozsah sítě) a zastaví se v případě obnovení sítě, s automatickým řízením stykače generátoru KG a stykače sítě KR. V počáteční fázi je možné zastavit motor pomocí tlačítka STOP. Na konci této fáze je STOP tlačítko zakázáno. Pomocí tlačítka RESET lze zastavit motor. Stiskněte tlačítko AUT pro zvolení tohoto režimu.

Manuální režim

Motor je možné nastartovat a zastavit stisknutím START a STOP tlačítka na panelu; připnutí zatížení k síti a generátoru je řízen pomocí tlačítek KG a KR. Stiskněte tlačítko MAN pro zvolení tohoto režimu.

Testovací režim

Manuální test: Stiskněte tlačítko TEST: motor začne okamžitě testovat generátor na naprogramovanou dobu. Je-li aktivována v režimu AUT, při absenci sítě během zkoušky se automatikaTE809 přepne zatížení na generátoru. Motor se zastaví po čase v parametru M4.3-C. Je-li aktivována v režimu MAN, spínací zatížení je možné ovládat pouze KG a KR tlačítka, i když je v síti chybné napětí. Zkouška se ukončí po době v parametru M4.3-C, pouze v případě, KG je otevřený, v opačném případě generátor musí být zastaven prostřednictvím tlačítka STOP. Zrušením testu (nebo po době testovací), automatika se vrátí do předchozího provozního režimu. Stiskněte tlačítko TEST pro výběr tomto režimu.
Automatický test: Pokud je naprogramovaný automatický test (viz par 2-6.3), bude spuštěn tehdy, pokud se nacházíte v automatickém režimu.

Reset režim

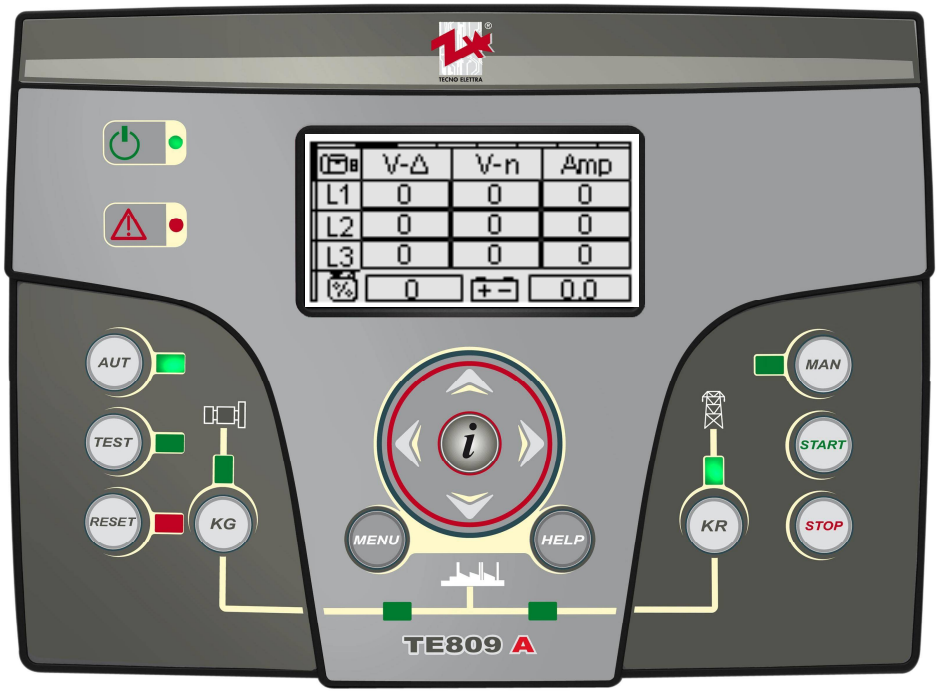
Motor nemůže pracovat. Pokud je v síti napětí a je připojen k zátěži. Pokud vyberete možnost RESET režim, alarmy se resetují a motor okamžitě zastaví, pokud funguje. V případě, že příčina alarmu zůstane, objeví se alarm znovu. Stiskněte tlačítko RESET pro výběr tomto režimu.

Alarmy

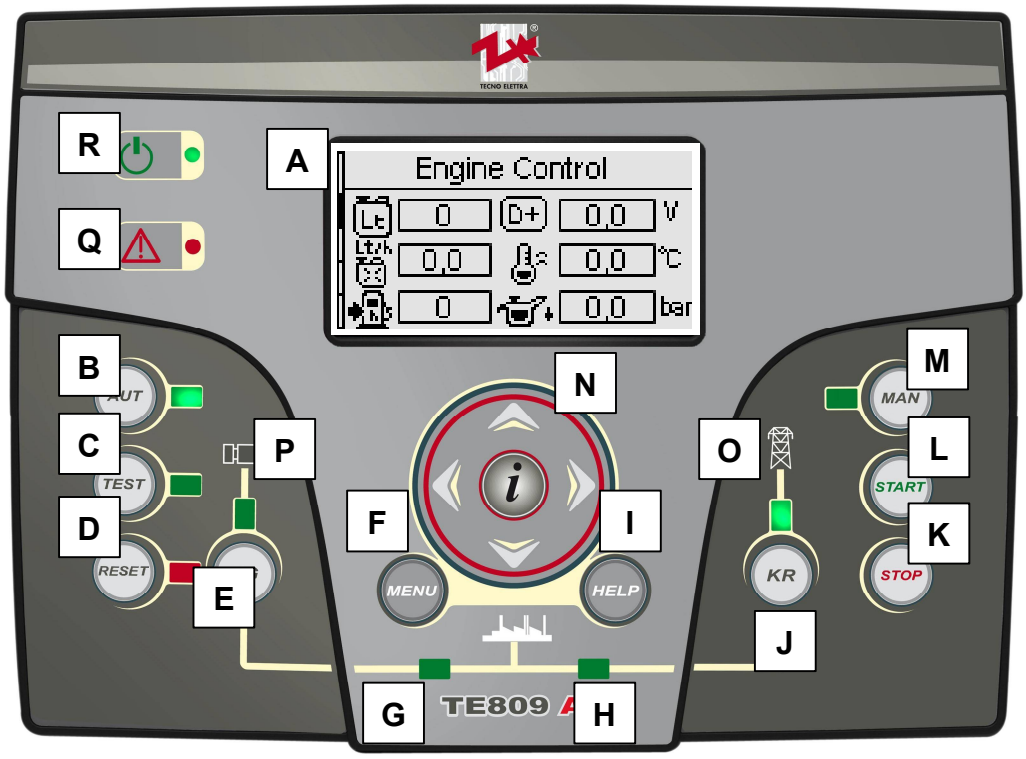
V případě alarmu se na displeji zobrazí její popis. Pokud je zjištěno více různých alarmů, zobrazí se jednotlivě za sebou. Pro každý alarm je k dispozici zpráva, která může pomoci identifikovat zdroj problému. Reset alarmu lze provést stisknutím tlačítka RESET; tím je alarm vymazán a automatika přejde do reset režimu, aby se zabránilo nechtěnému zahájení pokusů o start generátor. V případě, že alarm po resetu stále zůstává na displeji, příčina alarmu není odstraněna.

První instalace

Automatika TE809 může být napájena buď 12 nebo 24 V DC s automatickou detekcí. Musíte nastavit nebo ověřit parametry Menu alternátor a Menu startování v Menu "nastavení motoru", v závislosti na typu použitého motoru.



1- 6 Přehled zařízení

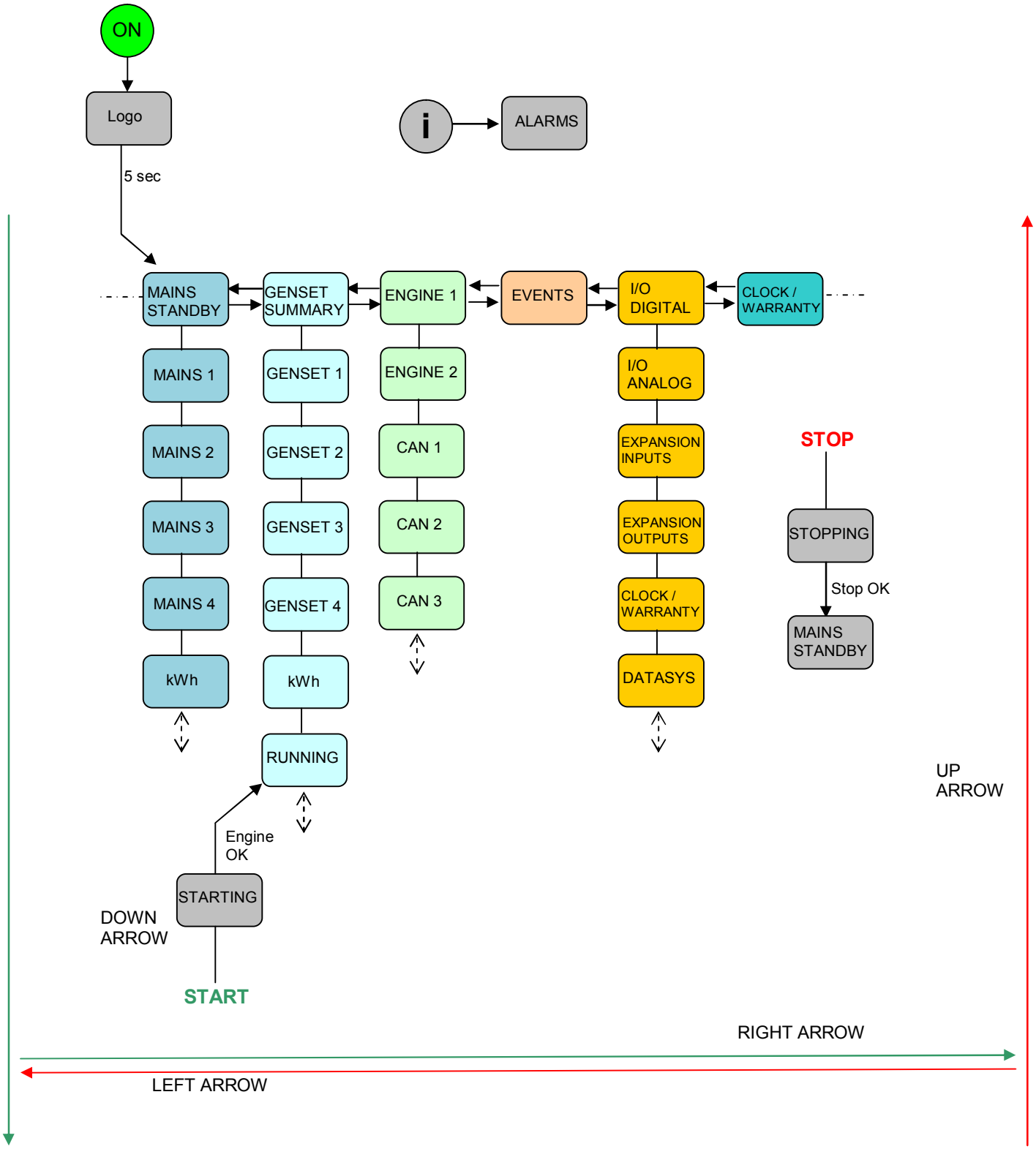


POS.	NAME	DESCRIPTION
A	Display	Podsvícený displej zobrazuje veškeré funkce, měření a alarmy o generátoru a sítě. Automatické vypínání podsvícení, při stisknutí tlačítka se opět zapne.
B	AUT	Tlačítko pro výběr automatického režimu.
C	TEST	Tlačítko pro výběr testovacího režimu.
D	RESET	Pro výběr Reset režimu/OFF mode. In this operative mode the engine is stopped without cooling and the alarms are deleted. If the cause of the alarm persists, the alarm will appear again.
E	KG	Tlačítko ovládání generátoru stykač KG. Aktivní pouze v manuálním režimu, pokud generátor běží a je v mezích napětí a frekvence.
F	Menu	Pro vstup do Menu programování. Unvitře menu je používán jako tlačítko zpět nebo „esc“
G	KG state led	Led indikuje sepnutí stykače KG (led on) nebo vypnutí KG (led off).
H	KR state led	Led indikuje sepnutí stykače KR (led on) nebo vypnutí KR (led off).
I	Help	HELP - pomoc
J	KR	Tlačítko ovládání síťového stykače KG. Aktivní pouze v manuálním režimu, pokud síť běží a je v mezích napětí a frekvence.
K	STOP	K okamžitému zastavení generátoru. Aktivní pouze v manuálním režimu.
L	START	K okamžitému spuštění generátoru. Aktivní pouze v manuálním režimu.
M	MAN	Tlačítko pro výběr manuálního režimu.
N	Navigation drive	Navigace v menu složena ze 4 šipek pro procházení stránek (šipkami vlevo a vpravo), a zvýšit nebo snížit parametry uvnitř PROGRAMMATION menu. Obsahuje také speciální tlačítko "i", pro výběr prvku na obrazovce nebo upravení parametru a potvrzení nové hodnoty. Viz bod 1-8.1 Další informace o navigaci na stránkách displeje a odstavce 2-2 pro více informací o navigaci v nabídkách.
O	Mains state led	Ukazuje stav sítě • LED nesvítí pokud není detekována síť • Blikání LED , pokud je napětí sítě detekováno mimo rozsah • LED svítí, pokud je síť v pořádku
P	Generator state led	Ukazuje stav sítě • LED nesvítí, pokud není detekováno napětí z generátoru • Blikání LED , pokud je napětí sítě detekováno mimo rozsah • LED svítí, pokud je napětí z generátoru v pořádku
Q	General alarm led	Bliká, pokud bylo zastaveno díky alarmu, zůstane svítit dokud je přítomen alarm 1
R	Battery state led	Rozsvítí se, pokud je automatika napájena.

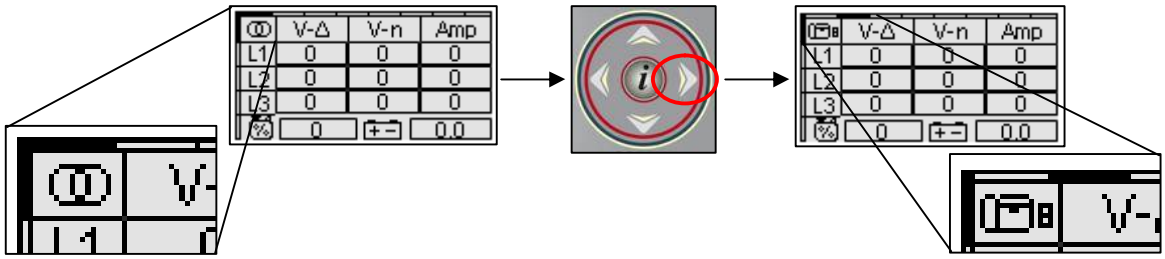
1- 7 Zobrazení stránek

1- 7.1 Navigační diagram

Když zapnete automatiku, uvidíte logo . Pak přejde do stand-by zobrazení sítě. Po spuštění generátoru se zobrazí stránka startu generátoru, která zmizí, když je start dokončen, a přesměruje vás na zobrazení běhu generátoru. Při zastavení motoru, uvidíte stránku zastavení generátoru, pak se automaticky vrátí na původní stránku , než jste stiskli tlačítko stop. Šipkami vlevo a vpravo se můžete pohybovat na další zobrazení a šipkami nahoru a dolů můžete procházet stránkami vybrané části. Stisknutím tlačítka "i" z navigačních stránek, můžete přejít na stránku stavu a alarmu. Zde si můžete prohlédnout organizační schéma stránek displeje. Stisknutím tlačítka HELP můžete zobrazit další indikaci o opatřeních li k dispozici.



1- 7.2 Navigační kurzory



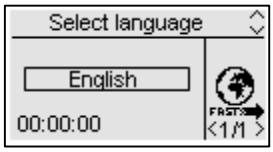
- Kurzory na horní a levé straně displeje indikují pozici stránky uvnitř navigačního schématu: pomocí levé a pravé šipky lze přesunout stránku spolu s horizontálním kurzorem.

- Levá šipka umožňuje návrat do předchozí části: v tomto případě z generátoru na sít

- Pokud je k dispozici na displeji vertikální kurzor je možné použít šipky nahoru a dolů pro zobrazení dalších stránek v sekciro sekci: v tomto případě ze síťového měření # 1 na síťové měřenír # 2.

- Nahoru šipkou se můžete vrátit na předchozí stránku sekce, v tomto případě z regulátoru paliva # 2 k regulátoru paliva # 1. Uvnitř hlavní stránce je také horizontální kurzor což znamená, že tlačítka levé a pravé šipky jsou k dispozici.

- V některých hlavních stránkách není vertikální kurzor. V tomto případě se pomocí nahoru a dolů šipek řídí kurzor výběru stejným způsobem jako nastavení stránky.

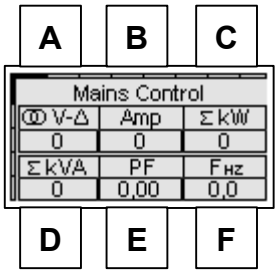


- Když je automatika poprvé spuštěna, zobrazí se obrazovka pro výběr jazyka. Pokud je vybrán jazyk, odlišný od "default", tato obrazovka se již neobjeví při příštím spuštění.

1- 7.3 Display stránky – síť

1- 7.3.1 Síť stand-by

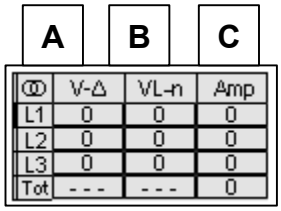
Když zapnete automatiku, uvidíte logo. Po 5 sekundách se objeví tato stránka



A) Síťové napětí Vac L1-L2
(nebo L1-N při 1-fáz systému)
B) Síťový proud L1
C) Celkový výkon zařízení na síti kW
D) Celkový příkon zařízení na síti kVA
E) Účiník
F) Frekvence sítě

1- 7.3.2 Síť 1

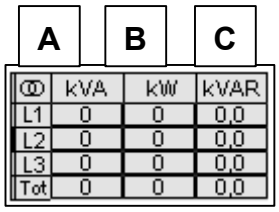
(zobrazuje se pouze v 3-fázovém systému)



A) Napětí sítě Vac L1-L2-L3
B) Napětí sítě Vac L1-L2-L3
C) Proud sítě L1-L2-L3 a celkový

1- 7.3.3 Síť 2

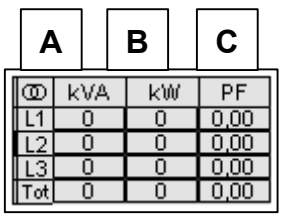
(zobrazuje se pouze v 3-fázovém systému)



A) Síťový příkon L1-L2-L3 a celkový
B) Síťový výkon L1-L2-L3 a celkový
C) Síťový jalový výkon L1-L2-L3 a celkový

1- 7.3.4 Síť 3

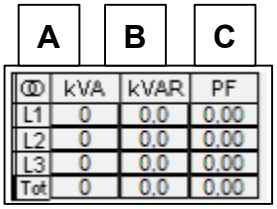
(zobrazuje se pouze v 3-fázovém systému)



A) Síťový příkon L1-L2-L3 a celkový
B) Síťový jalový výkon L1-L2-L3 a celkový
C) Účiník L1-L2-L3 a celkový

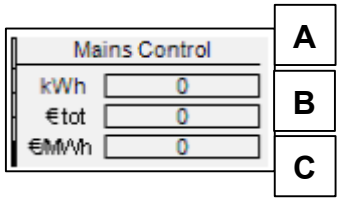
1- 7.3.5 Síť 4

(zobrazuje se pouze v 3-fázovém systému)



A) Síťový příkon L1-L2-L3 a celkový
B) Síťový jalový výkon L1-L2-L3 a celkový
C) Účiník L1-L2-L3 a celkový

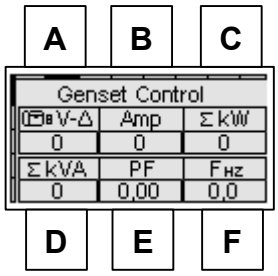
1- 7.3.6 Síť kWh



A) Celková energie ze sítě
B) Celková cena energie sítě
C) Cena sítě za 1MWh

1- 7.4 Display stránky - generátor

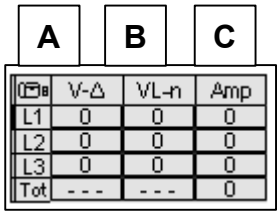
1- 7.4.1 Generátor shrnutí



A) Napětí generátoru Vac L1-L2
(nebo L1-N při 1-fáz systému)
B) Proud generátoru L1
C) Celkový výkon zařízení na generátoru kW
D) Celkový příkon zařízení na generátoru kVA
E) Účiník
F) Frekvence generátoru

1- 7.4.2 Generátor 1

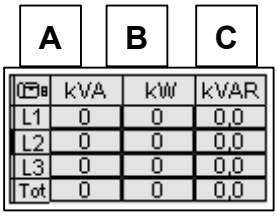
(zobrazuje se pouze v 3-fázovém systému)



A) Napětí generátoru Vac L1-L2-L3
B) Napětí generátoru Vac L1-L2-L3
C) Proud generátoru L1-L2-L3 a celkový

1- 7.4.3 Generátor 2

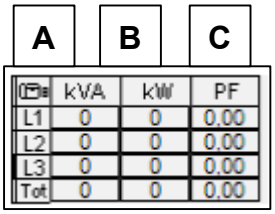
(zobrazuje se pouze v 3-fázovém systému)



A) Příkon generátoru L1-L2-L3 a celkový
B) Výkon generátoru L1-L2-L3 a celkový
C) Jalový výkon generátoru L1-L2-L3 a celkový

1- 7.4.4 Generátor 3

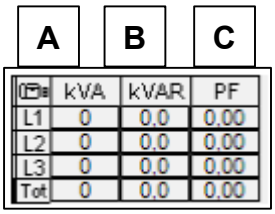
(zobrazuje se pouze v 3-fázovém systému)



A) Příkon generátoru L1-L2-L3 a celkový
B) Výkon generátoru L1-L2-L3 a celkový
C) Účiník generátoru L1-L2-L3 a celkový

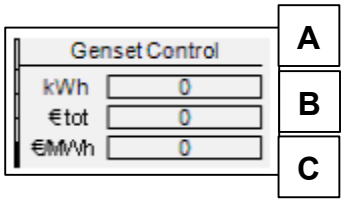
1- 7.4.5 Generátor 4

(zobrazuje se pouze v 3-fázovém systému)



A) Příkon generátoru L1-L2-L3 a celkový
B) Jalový výkon generátoru L1-L2-L3 a celkový
C) Účiník generátoru L1-L2-L3 a celkový

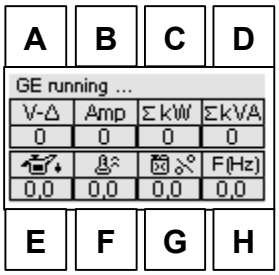
1- 7.4.6 Generátor kWh



A) Celková energie z genrátoru (sepnut KG)
B) Celková cena energie generátorusítě
C) Cena enrgie generátoru za 1MWh

1- 7.4.7 Stránka při běhu motoru diesel

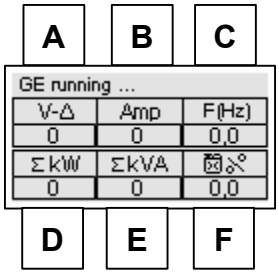
Po nastartování motoru diesel, uvidíte přímo tuto stránku.



A) Napětí generátoru Vac L1
B) Proud generátoru L1
C) Celkový výkon kW
D) Celkový příkon kVA
E) Tlak oleje
F) Teplota motoru
G) Úroveň hladiny paliva - procentuelně
H) Frekvence generátoru

1- 7.4.8 Stránka při běhu motoru benzín

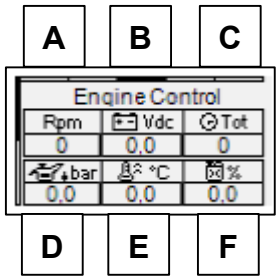
Po nastartování motoru benzín, uvidíte přímo tuto stránku.



A) Generator frequency
B) Total kW
C) Total kVA
D) Fuel level percentage
E) Napětí generátoru Vac L1
F) Proud generátoru L1
G) Frekvence generátoru
H) Celkový výkon kW
I) Celkový příkon kVA
J) Úroveň hladiny paliva - procentuelně

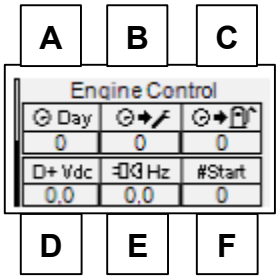
1- 7.5 Display stránky - motor

1- 7.5.1 Motor 1



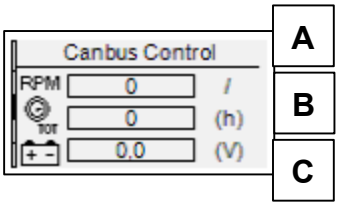
A) Otáčky Rpm
B) Napětí startovací baterie
C) Motohodiny
D) Tlak oleje – pokud je analogové čidlo
E) Teplota motoru – pokud je analogové čidlo
F) Úroveň hladiny paliva – pokud je analogové čidlo

1- 7.5.2 Motor 2



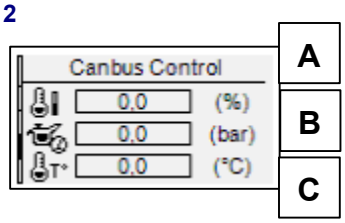
A) Denní motohodiny
B) Motohodiny do servisu
C) hodiny
D) D+ napětí (Vdc)
E) Pickup frekvence (Hz)
F) Celkový počet startů

1- 7.5.3 Canbus 1



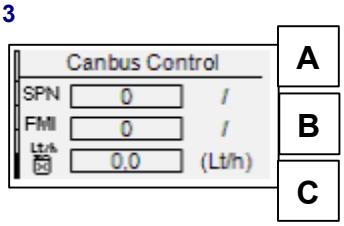
A) Indikátor otáček přes Canbus
B) Motohodiny přes Canbus
C) Napětí baterie přes Canbus

1- 7.5.4 Canbus 2



A) Úroveň chlazení – procentuálně přes Canbus
B) Tlak oleje přes Canbus
C) Teplota motoru přes Canbus

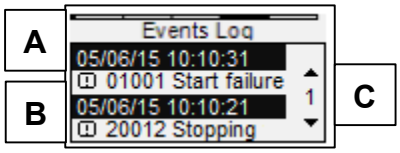
1- 7.5.5 Canbus 3



A) SPN – kód parametru chyby řídící jednotky
B) FMI – kód nápravy chyby řídící jednotky
C) Konstatní spotřeba paliva (Lt/h)

1- 7.6 Display stránky – log událostí

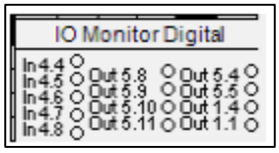
The events log page shows you the last alarms with the date and time.



A) First event inside selected page: each event records alarm ID, alarm name, date and hour.
B) Second event inside selected page.
C) Press the UP or DOWN button to select the up or down arrow, then press " I ". This way you can scroll the events (up to 250).

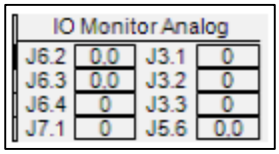
1- 7.7 Display stránky - systém

1- 7.7.1 I/O digitální



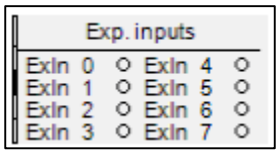
Na této stránce si můžete prohlédnout stav všech 5 digitálních vstupů (J4.4-J4.8 k) a výstupy KG(J1.4), KR (J1.1) plus 6 programovatelných výstupů (J5.8 - J5.11, J5.4 a J5.5).

1- 7.7.2 I/O analogové



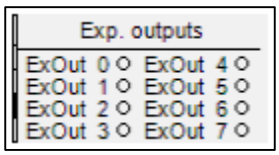
Na této stránce si můžete prohlédnout stav 8 analogových vstupů (kromně síťového napětí).

1- 7.7.3 Vstupy - rozšiřující



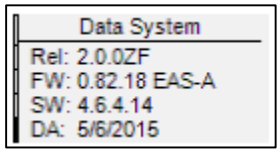
Zde si můžete prohlédnout stav 8 digitálních vstupů rozšiřující desky (jen pokud je povolena rozšiřující deska).

1- 7.7.4 Výstupy - rozšiřující



Zde si můžete prohlédnout stav 8 digitálních výstupů rozšiřující desky (jen pokud je povolena rozšiřující deska).

1- 7.7.5 Data info



Tato stránka obsahuje informace o souboru vydání:

REL: vydání Project verze

FW: vydání Firmware verze

SW: TE Utilities verze vydání

DA: Datum vydání

1- 7.8 Hodiny a záruka

A) Hodiny: datum a čas time
B) Controller warranty expiry date detected automatically by controller after 2 hours with mains voltage and frequency within limits
C) Datum platnosti záruky po automatickém detekování síťového napětí a frekvence ve správném rozsahu po dobu 2hodin

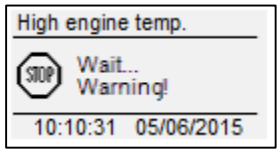
1- 7.9 Display stránka - Start a stop

1- 7.9.1 Stop stránka

Když je motor zastauje, uvidíte tuto stránku, která označuje, že motor zastavuje.

Pokud je aktivní postup chlazení, uvidíte text "cooling", jinak uvidíte text "stopping".

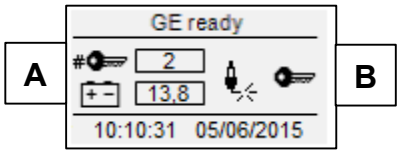
Pokud vidíte "warning" údaj, znamená to, že zastavuje kvůli alarmu. Ready znamená konec fáze zastavení.



1- 7.9.2 Start stránka

Po spuštění generátoru uvidíte tuto stránku s počtem startovacích pokusů a napětí baterie, které zmizí po spuštění, a přesměruje vás na stránky běhu generátoruí.

Horní část této obrazovky zobrazuje aktuální fázi motoru (předehřívací, počínaje atd..)



A) Počet startů a napětí baterie
B) Indikuje fázi startu

1- 9 Příslušenství

1- 9.1 Serial cable code 95-050

Tento kabel se používá pro připojení automatiky TE809 s PC pro dálkové ovládání. Female DB9 - DB9 female modemový kabel.

1- 9.2 GSM modem code 1571806B

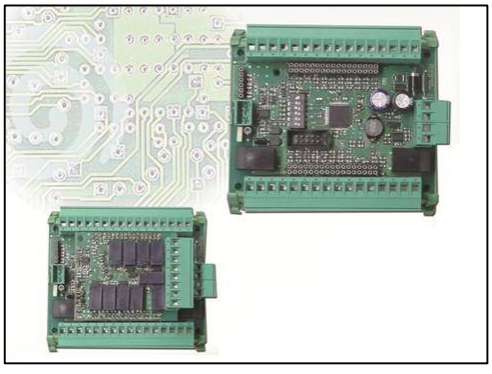
Tento GSM / GPRS modem se používá pro komunikaci GSM nebo GPRS. Pro GSM komunikaci, je třeba ji připojit k automatice TE809. Pro data GPRS přenos je nutné připojit jeden modem k počítači a druhý k TE809. V obou případech musí být spojení provedeno male-female sériovým kabelem s 9 póly (kód 51C3).

1- 9.3 TCP/IP converter Aport code 1571806G

Je možné připojit automatiku TE809 pomocí TCP / IP převodník (na jeden sériový port) pro umožnění dálkové monitorování automatiky například s aplikací TE Monitor.

1- 9.4 Expansion boards TE6010

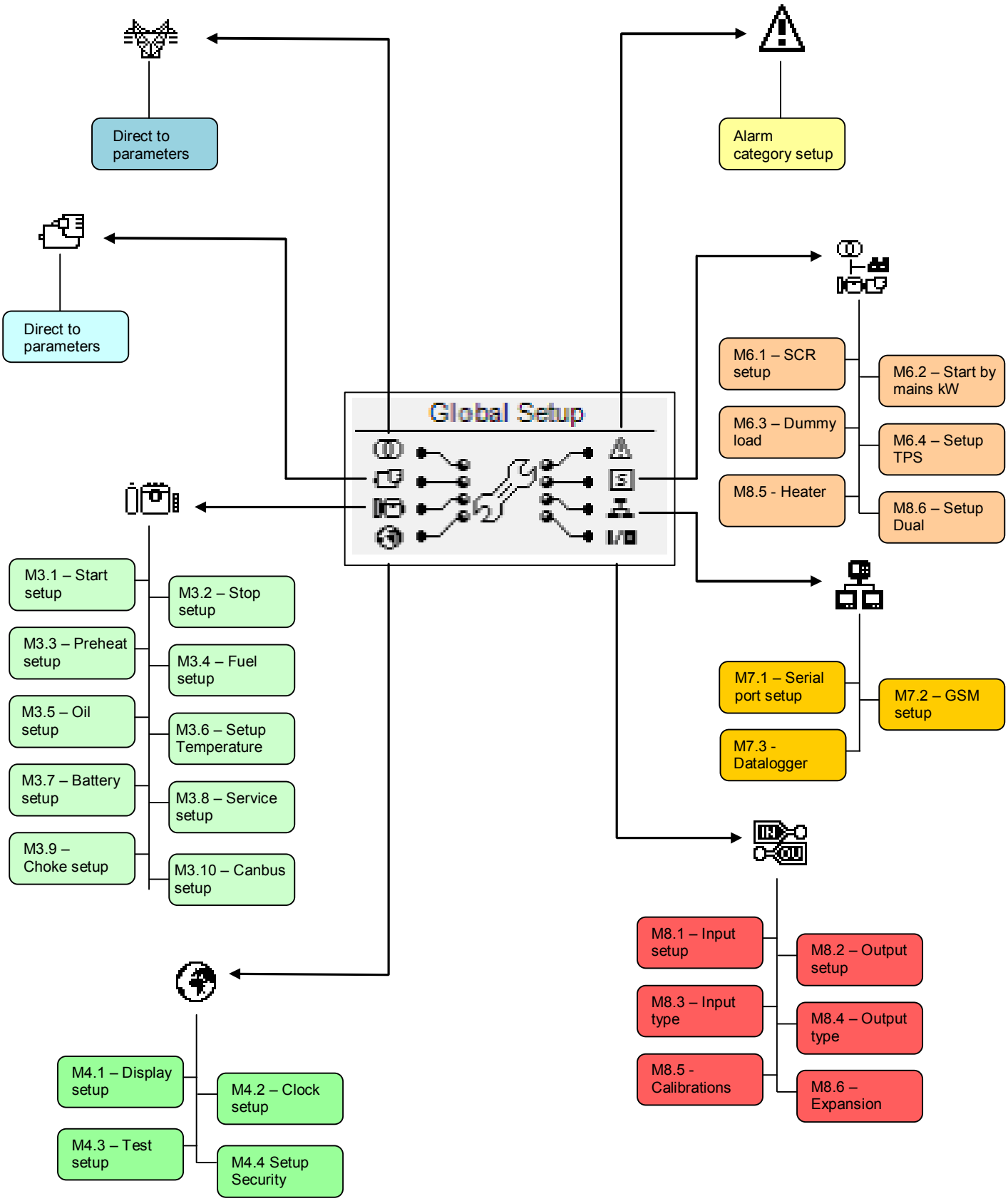
Je možné připojit jednu nebo více rozšiřujících karet do automatiky TE809 na RS232 nebo port RS485. Pro více informací viz odstavec 2- 10.7.



157: TE6010 base: base board for the connection of I/O
157: TE6010B: 8 digital inputs expansion
157: TE6010C: 5 relay outputs
157: TE6010M: 8 digital outputs expansion

2- Programovací menu

2- 1 Navigační graf - globální nastavení

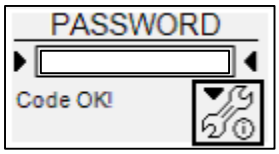


2- 2 Instrukce pro navigování

Pro vstup do globálního nastavení, stisknutím tlačítka MENU, musíte vložit správné heslo pro přístup do menu PROGRAMMATION. Stisknutím šipky dolů zvýrazněte čtvereček s heslem a stiskněte tlačítko "i" pro potvrzení. Změnit heslo lze pomocí šipek vlevo a vpravo, a pak potvrďte tlačítkem "i". Heslo, ve výchozím nastavení je 1. Pokud zadáte nesprávné heslo, zobrazí se indikace "nesprávný kód", a nebudete moci vstoupit dovnitř menu. Chcete-li změnit heslo, viz nastavení zabezpečení, M.4.4.

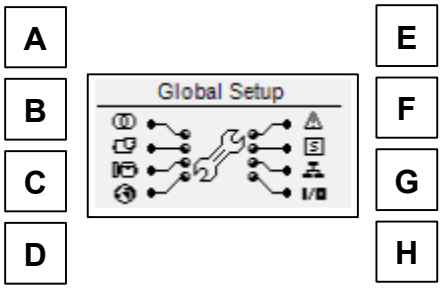
Pokud je heslo správné, stisknutím šipky dolů vyberte ikonu (A) a potvrďte tlačítkem "i" pro vstup do PROGRAMMATION menu.

Správné heslo ???
kontaktujte svého obchodníka nebo výrobce ALFA IN a.s.



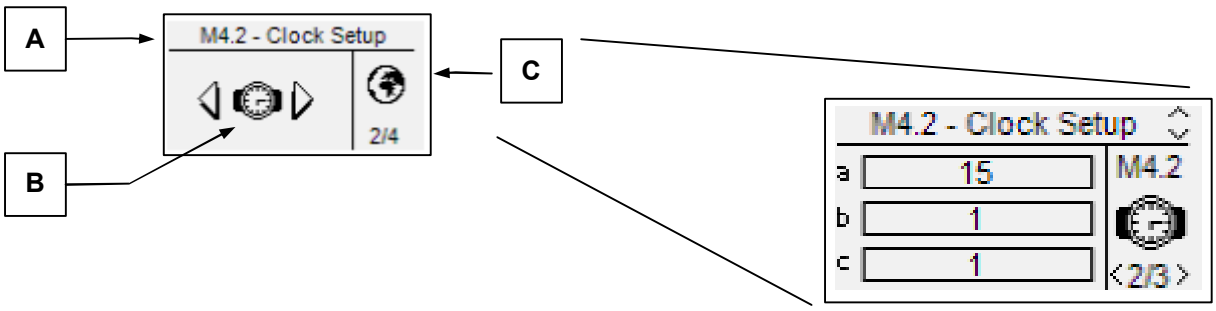
Z hlavní stránky můžete zvolit 8 různých menu:

A) Nastavení sítě
B) Nastavení alternátoru
C) Nastavení motoru
D) Nastavení hlavní
E) Nastavení alarmů
F) Speciální funkce
G) Připojení
H) Nastavení vstupy a výstupy



Pokud je přítomen HELP symbol, znamená to, že existuje alespoň jeden alarm aktivní. Stisknutím tlačítka HELP přejdete přímo na stránku alarmů. Pomocí šipek můžete vybrat menu. Po výběru požadované nabídky, stiskněte tlačítko "i" pro potvrzení a zadání nebo stiskněte tlačítko "Menu" pro návrat na předchozí obrazovku. Potom uvidíte obrazovku pro výběr podmenu (kromě alternátor, síť a alarmy, ve kterém uvidíte přímo PROGRAMMATION parametry).
Tato obrazovka se skládá ze 3 částí:

A) Název podmenu
B) Ikona podmenu
C) Stránka a ikona menu, která obsahuje podmenu



Stiskněte tlačítko "i" pro potvrzení a uložení, nebo stiskněte levou nebo pravou šipky pro zobrazení dalšího podmenu, nebo stiskněte tlačítko "Menu" pro návrat na předchozí obrazovku. V podmenu jsou parametry rozděleny do různých stránek; Vyberte stránku pomocí šipek vlevo a vpravo, a zvolte parametr pomocí šipek nahoru a dolů. Poté stiskněte tlačítko "i" k potvrzení a změnu parametr. Poté stiskněte tlačítko "i" pro potvrzení nebo "menu" pro anulování.

2- 3 M1 - nastavení sítě

POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Mains rated V	Allows you to set the rated voltage of the mains.	0-600 [Vac]	400
B	Mains high V	You can set the high threshold voltage; if the voltage measured is higher than this value (% of the rated voltage), the mains is considered faulty and TE809 starts the generator (in automatic mode).	100-200 [%]	115
C	Mains low V	You can set the low threshold voltage; if the voltage measured is lower than this value (% of the rated voltage), the mains is considered faulty and TE809 starts the generator (in automatic mode).	0-100 [%]	85
D	Mains rated F	Allows you to set the rated frequency.	50-60 [Hz]	50
E	Mains high F	You can set the high frequency threshold; if the frequency measured is higher than this value (% of the rated frequency), the mains is considered faulty and TE809 starts the generator (in automatic mode).	100-200 [%]	110
F	Mains low F	You can set the low frequency threshold; if the frequency measured is lower than this value (% of the rated frequency), the mains is considered faulty and TE809 starts the generator (in automatic mode).	0-100 [%]	90
G	KR delay	You can set a delay time for the closure of the mains contactor. This time starts from when the TE809 opens the generator contactor (software interlock function).	0-100 [s]	1
H	Mains OK	It is the delay time after which, if the mains returns within the limits set (see parameters B, C, E, F), it's considered stable and the mains contactor is closed, then begins the stop phase of the generator (in automatic mode).	0-600 [s]	10
I	Faulty mains	It is the delay time after which the mains is considered faulty, compared with the limits specified in parameters B, C, E, F. This parameter is used to filter any temporary instability of the mains. Increase this parameter to avoid fast start/stop procedures due to mains flickering.	0-600 [s]	5
J	Phase sequence	Choose the sequence of the phases: R-S-T or T-S-R, or OFF	OFF-RST-TSR	RST
K	V Asymmetry	If the difference between the lower and the higher phase voltages is greater than this parameter, the asymmetry alarm (if enabled) is shown.	0-100 [%]	10
L	KR protection	Parameter to enable the protection on mains failure. If On, the alarms about the mains immediately open the mains contactor. If Off, the mains contactor is opened only when the generator is ready.	On-Off	On
M	System type	You can set the type of system of the mains: three-phase, single-phase or two-phase with neutral.	Three-phase Single-phase Two-phase+n	Three-phase
N	Cost for MWh	Set the cost for every Mega Watt per hour supplied by mains	1-999999	100
O	Start by KR	If On, if parameter "KR protection" is set to ON, every condition which activates KR protection (phase inversion, feedback KR, asymmetry alarm, ecc...) also triggers an engine start with changeover on generator until the mains returns ok.	On-Off	On

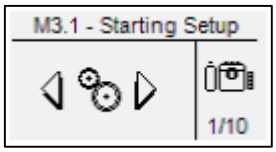
2- 4 M2 - nastavení alternátoru

POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	GE rated V	Rated voltage of the generator.	0-600 [VAC]	400
B	GE high V	You can set the high threshold voltage; if the voltage measured is higher than this value (% of the rated voltage), the generator is considered faulty and TE809 shows the “high GE voltage” alarm.	100-200 [%]	115
C	GE low V	You can set the low threshold voltage; if the voltage measured is lower than this value (% of the rated voltage), the generator is considered faulty and TE809 shows the “low GE voltage” alarm.	0-100 [%]	85
D	GE rated F	Rated frequency of the generator.	40-70 [Hz]	50
E	GE high F	You can set the high threshold frequency; if the frequency measured is higher than this value (% of the rated frequency), the generator is considered faulty and TE809 shows the “high GE frequency alarm”.	100-200 [%]	110
F	GE low F	You can set the low threshold frequency; if the frequency measured is lower than this value (% of the rated frequency), the generator is considered faulty and TE809 shows the “low GE frequency alarm”.	0-100 [%]	90
G	Rated current	You set the nominal operating current of the generator.	0-9999 [A]	100
H	Imax overload	You set the maximum overload admitted on the generator. If exceeded, an alarm message is shown.	0-1000 [%]	200
I	Imax short circuit	You set the value that permits to consider a short circuit on the generator. If exceeded, related alarm message is shown.	0-1000 [%]	300
J	KG delay	You can set a delay time for closing the generator contactor.This time starts from when the TE809 opens the mains contactor (software interlock function).	0-100 [s]	1
K	GE Ok delay	It is the delay time over which if the voltage and frequency are within limits (parameters B, C, E, F), the generator is considered stable and its contactor is closed.	0-65535 [s]	5
L	CT ratio	It sets the ratio of Current Transformers to read the current value (example: CT 100/5A, you must set it at 20, because 100: 5 = 20).	0-10000	20
M	System type	You can set the type of system of the generator: three-phase, single-phase or two-phase with neutral.	Three-phase Single-phase Two-phase+n	Three-phase
N	Set kWh	Here you can set the initial value of the kWh.	0-10E+8 [kWh]	0
O	Phase sequence	Choose the sequence of the phases: R-S-T or T-S-R, or OFF	OFF-RST-TSR	RST
P	Asymmetry	If the difference between the lower and the higher phase voltages is greater than this value, the asimmetry alarm (if enabled) is shown.	0-100 [%]	10
Q	GE Filter	Insert a 5-levels software filter on eventual disturbs on generator voltage and frequency. It can be set from 0 (no flitering) to 5 (high filtering), to avoid accidental opening of the generator contactor.	0-5	1
R	Neutral	Set if the system is with (On) or without (Off) neutral	On-Off	On
S	Single CT	If On, line 2 and line 3 load currents are the same value of line 1. In this case it is possible to calculate all 3-phase load measurements (kW, kVA, kVAR, PF) using a single current transformer. This feature is intended to be used only with balanced three-phase loads.	On-Off	Off

2- 5 M3 - nastavení motoru

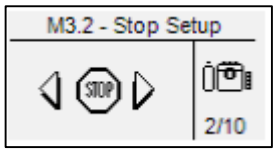
The engine setup is composed by 11 submenus:
A) Start setup: Submenu that contains all the parameters about the starting, like thresholds and times
B) Stop setup: Submenu for the settings of the stop procedure, like modalities, times and setting of the cooling
C) Preheat setup: Submenu for the settings of the preheating procedure, the modalites, times and types
D) Fuel setup: Submenu with all the parameters about the fuel control and management of the wastes
E) Oil setup: Submenu with all the parameters about the oil pressure, with the choice of the instrument and the thresholds
F) Temperature setup: Submenu with all the parameters about the temperature, with the choice of instrument and thresholds
G) Battery setup: Submenu where you can set the parameters about the battery, like the thresholds and time to battery service
H) Service: Submenu that allows the setting of the parameters and hours about the services and warranty
I) Choke setup: dedicated setup for the choke function on gasoline engines
J) CanBus: Submenu with the parameters for the CanBus communication

2- 5.1 M3.1 - nastavení startu



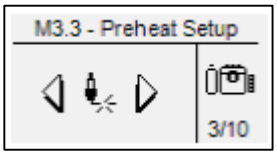
POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Digital pressure signal	Permits to detect engine running status by the digital oil pressure sensor. It works only if connected to input J4.8.	On/Off	Off
B	D+ threshold	Permits to set the voltage of D+ of a batterycharger alternator, over which the engine is considered started. Set to Off to disable the D+ threshold.	0-9999 [V]	Off
C	W Threshold signal / pickup /	You set the frequency value measured on a permanent by a pickup or a "W" tachimetric sensor, over which the engine is considered started. Note: The pickup input range is 1-36V. So it's not recommended to connect a Saprisa device, that normally has higher voltages.	0-9999 [Hz]	Off
D	GE volt. ON	You set the voltage (% of the nominal voltage, see alternator menu) value measured of the power alternator, over which the engine is considered started.	0-100 [%]	20
E	GE freq. ON	You set the frequency (% of the nominal frequency, see alternator menu) value measured of the power alternator, over which the engine is considered started.	0-100 [%]	20
F	Oil pressure	Threshold on analog oil pressure input to detect engine running.	Off-10 [bar]	Off
G	Attempts number	You set the number of start attempts; when expired, the "starting failure" alarm is activated.	1-10	5
H	Attempt time	It is the maximum duration time of each starting attempt. When the engine is detected running, the cranck output is de-activated.	1-30 [s]	5
I	Delay attempts	It is the time between a failed starting attempt and the next one.	1-10 [s]	5
J	RPM constant	This value multiplied with the frequency value of the engine gives you the RPM value.	0.00-100.00	30.00
K	ON alarm delay	It is the time delay from the engine running detection to the enable of the alarms; this time allows the generator to reach the nominal operating conditions.	0-1000 [s]	8
L	Siren time	It is the duration time of the acoustic advisor in case of alarm, if a programmable output is set for "Siren".	0-1000 [s]	20
M	Dec. delay	Time during which the output programmed for delecerator remains active at the starting of the generator after the detection of engine running. At the stopping, that output is active during the whole cooling phase and the stopping phase. It's also the time after the detection of engine running after which the output programmed for accelerator is activated.	Off-99 [s]	Off
N	High RPM	You set the maximum value over which the alarm for high engine rpm appears.	0-200 [%]	120
O	Low RPM	You set the minimum value beyond which the alarm for low engine rpm appears.	0-100 [%]	80
P	RPM nominal	It is the nominal speed of the engine, used also as reference to set the limits on points N and O.	0-10000	1500

2- 5.2 M3.2 - nastavení zastavení



POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Stop time	You set the maximum time of the stop phase, after which the engine must be completely stopped. It also coincides with the maximum time of supplying power to the stop electromagnet, to avoid problems due to permanent power supply.	0-99 [s]	8
B	Cooling time	It sets the cooling time after which the engine is stopped: after the generator contactor opening, the engine continues to run for the set time, to cool down without load. It works only in automatic mode. In manual mode, the cooling can be made opening the generator contactor KG and, after the desired time, stopping the engine with the “stop” button.	0-255 [s]	30

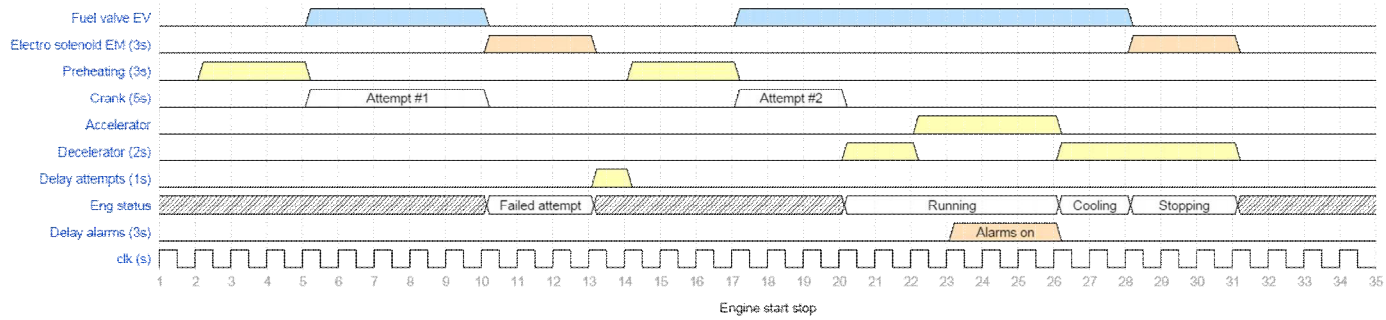
2- 5.3 M3.3 - nastavení předehřevu



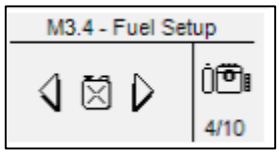
POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Preheat time	You set the glow plugs time before starting.	0-99 [s]	5
B	Preheat with EV	If ON, during preheating is also supplied the fuel electrovalve output. If OFF, during the preheating the fuel electrovalve output is not supplied.	On-Off	Off
C	Skip preheat	You can set the value of the engine temperature above which the preheat procedure is skipped, because the engine is already considered "warm".	-999 a 999 [°C]	70
D	Preheat type	You can select the type of procedure: **Before start**: the glow plugs output is active only before each starting attempt. **During start:** the glow plugs output is active before and during each starting attempt. **During attempts**: the glow plugs output is active before starting, during the starting and also during the pause between attempts.	- Before start - During start - During attempts	Before start

2- 5.3.1 Diesel motor start/stop graf

The chart below describes the logical activation of EV, EM, preheating, start, accelerator, decelerator outputs during starting procedure of diesel engine in auto mode. The first attempt is not successful, after the delay time between attempts, a second successful starting procedure is performed. After 6s with engine running the engine is stopped for example by remote stop activation.



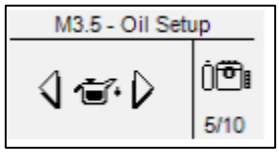
2- 5.4 M3.4 - nastavení palivo



The fuel setup contains all the parameters (shown in the table) about the fuel management. See Appendix A for the table of the most common sensors.

POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Analog tool type	You select the type of transmitter used.	Vdo-Veglia -Datcon-Custom	Vdo
B	Low fuel level	Value beyond which the display shows a warning message that normally does not stop the generator.	0-100 [%]	20
C	Lack of fuel	Value beyond which the display shows an alarm message that normally shuts down the generator.	0-100 [%]	10
D	Refueling enable	This parameter allows you to activate (On) or deactivate (Off) one of the programmable outputs designed to control a pump for the automatic refilling of fuel. This automatic fuel refilling works only if the TE809 is in AUT mode.	On-Off	Off
E	Start refuel	It sets the fuel level below which the automatic fuel refilling starts.	0-100 [%]	30
F	Start delay	It 's a time delay on the refilling starting detection to avoid false signals due to possible movements of fuel sensor in the tank.	0-59 [s]	10
G	Stop refuel	It sets the fuel level that, when reached, stops the automatic refilling.	0-100 [%]	100
H	Stop timer	You set a time limit after which the filling pump output is stopped, although the stop level was not reached. In this case an alarm (refueling timeout) will be displayed and the refueling function is stopped.	0-99 [min]	5
I	Refueling mode	You set the type of management for refueling pump: • Auto mode means that refueling pump will be activated with analog percentage level only in auto mode • Auto+Man means that refueling pump will be activated with analog percentage level in both manual and auto mode • Digital inputs means that refueling pump will be activated only with start pump input and stopped only with stop pump input (or full fuel tank input)	Auto mode - Auto+Man - Digital inptus	Auto
J	Refueling with engine On	If On, the refueling pump will be activated only with engine running.	Off-On	Off
K	Tank capacity	You set the capacity of the tank. Necessary for the fuel management.	0-20000 [Lt]	100
L	Cons. 75% L	You can set the hourly consumption of the engine declared by the manufacturer with 75% load. It is necessary for fuel management.	0-10000 [Lt/h]	8
M	Offset fuel	Adjust for the fuel level measure.	-10 – +10 [%]	0
N	Cost for MWh	Set the cost for every Mega Watt per hour supplied by generator	1-999999	100
O	Min. autonomy	If the autonomy level is under this value, the autonomy alarm appears.	0-1000 [h]	5

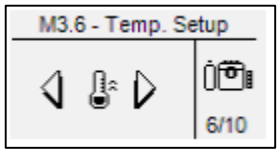
2- 5.5 M3.5 - nastavení tlak oleje



The oil setup contains all the parameters (shown in the table) about the lubricant system management. See Appendix B for the table of the most common sensors.

POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Analog tool type	You select the type of transmitter used.	Vdo-Veglia – Datcon-Custom	Vdo
B	Oil pres. prealarm	Value beyond which the display shows a warning message that normally doesn't stop the generator.	1-400 [bar]	3.0
C	Low oil pres.	Value beyond which the display shows an alarm message that normally stops the generator.	1-400 [bar]	2.0

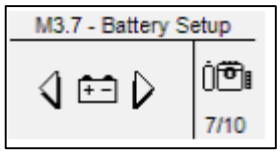
2- 5.6 M3.6 - nastavení teplota motoru



The oil setup contains all the parameters (shown in the table) about the coolant system management. See Appendix C for the table of the most common sensors.

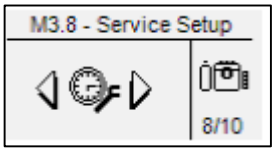
POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Analog tool type	You select the type of transmitter used.	Vdo-Veglia – Datcon-Custom	Vdo
B	Temp. prealarm	Value over which the display shows a warning message that normally does not stop the generator.	40-999 [°C]	90
C	High temp.	Value over which the display shows an alarm message that normally stops the generator.	40-999 [°C]	100

2- 5.7 M3.7 - nastavení baterie



POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	High Vdc	It sets the percentage of maximum battery voltage over rated value; if the battery value measured is higher than this value, the “High battery alarm” is shown.	100-200 [%]	130
B	Low Vdc	It sets the percentage of minimum battery voltage over rated value; if the battery value measured is lower than this value, the “Low battery alarm” is shown.	0-100 [%]	80
C	Rated Vdc	This parameters is programmed automatically by the controller at system startup.	12-24	-
D	Battery efficiency	You set the maximum voltage dropout during cranking to measure battery efficiency. If the battery voltage is detected lower than this value, an alarm will occur after engine start.	1-255 [V*10]	70

2- 5.8 M3.8 - nastavení servisu



POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Enable service	If Off, all service management will be disabled, inside navigation pages "hours to service" indicator will be 0. Service alarm will not be activated. If On, service management will be activated using parameters inside this menu. Inside navigation pages, "hours to service" indicator will show the hours to the next service calculated from running work hours. Service alarm will be activated when running hours will reach the service hours or by date if service type is "hours+date".	Off-On	Off
B	Service type	If Work hours, the service alarm will be activated only by running hours. If Hours + date, the service alarm will be also activated by programmed date limit.	Work hours - Hours+Date	Work hours
C	Next service	Confirm this option to upgrade service limits to the programmed ones.	-	Ok
D	Next service (h)	Set the hours for the next services. Every time a service upgrade is performed, this value will be the hours to the next one.	0-65535 [h]	250
E	Year	If Service type is "hours+date", this value will be stored during service upgrade procedure to give service alarm by date	1 - 99	15
F	Month	If Service type is "hours+date", this value will be stored during service upgrade procedure to give service alarm by date	1 - 12	1
G	Initial work hours	It is the starting value of generator working hours. Normally you can change this value when the controller is mounted on a generator that has already worked.	0-2000 [h]	0
H	Restore hours	By drive, you can confirm it to reset the working hours to the “initial work hours” value at point G.	-	Ok
I	Reset start #	It permits to reset the number of the engine start counter	-	Ok

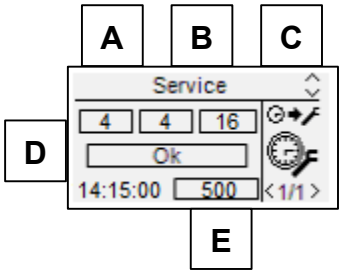
2- 5.8.1 - Fast Service upgrade

To upgrade service hours and date without entering system setup, follow this procedure:

1) If service alarm is active on display press RESET to activate OFF mode.

2) In OFF mode keep pressed START button for 10 seconds.

3) Fast service upgrade page will appear.



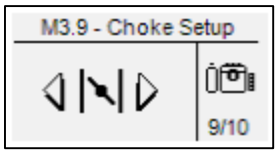
POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Next service (h)	Set the hours for the next services. Every time a service upgrade is performed, this value will be the hours to the next one. Same parameter as M3.8 - D.	0-65535 [h]	250
B	Month	If Service type is "hours+date", this value will be stored during service upgrade procedure to give service alarm by date	1 - 12	1
C	Year	If Service type is "hours+date", this value will be stored during service upgrade procedure to give service alarm by date	1 - 99	15
D	Next service	Confirm this option to upgrade service limits to the programmed ones.	-	Ok
E	Hours to next service	Shows the hours for the next service after upgrade	-	-

After service upgrade, press MENU to esc to the normal pages.

2- 5.9 M3.9 - nastavení sytič

(*) = New parameters for release 2.0.0
(!) = Modified parameters for release 2.0.0

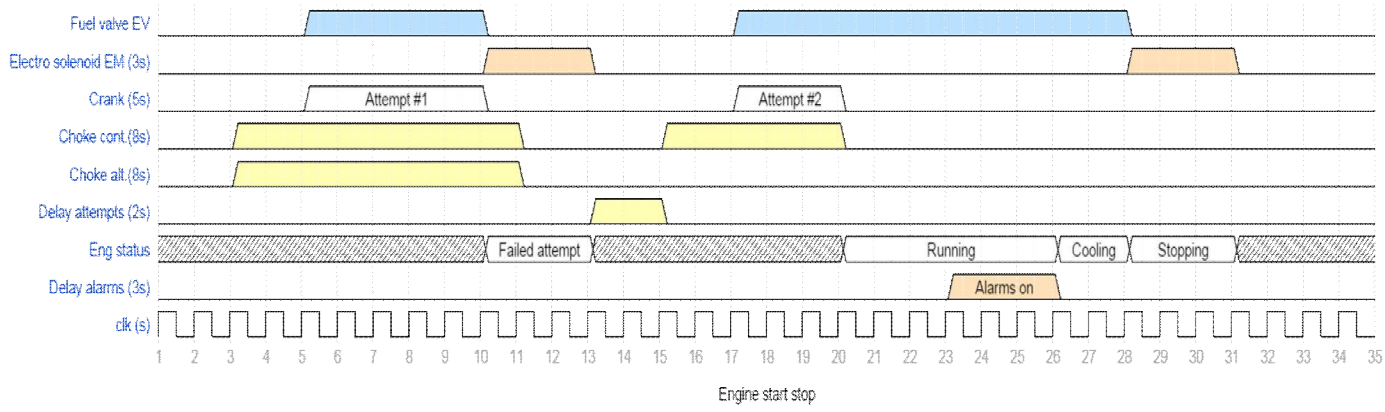
Opex setup is not included in release 2.0.0



POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Choke type	Choose the logic of activation of the choke output: Continuous: the choke output can be commanded during every starting attempt, in accordance with parameters B-C-D. Alternate: the choke output can be commanded only during the odd starting attempts, in accordance with parameters B-C-D.	Continuous - Alternate	Continuous
B	Choke time	It is the maximum time during which the Choke output is activated during the starting.	0-255 [s]	3
C	Threshold	Voltage threshold that must be reached at the starting to deactivate automatically the choke output.	Off-500 [V]	100
D	Temp. Inhibit	When a starting procedure is commanded, if the temperature is higher than this value, the choke output is not activated.	Off-255 [°C]	Off
E	Gasoline pages	If On, if one output is set for “choke”, the display pages are set properly for gasoline system. If Off, the display pages remain the standard ones.	On-Off	On

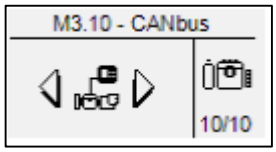
Notes: Remember to set one output for the choke function (see menu M8.2). This output is activated 2 seconds before the cranking output, and remains active until the value at parameter C is reached, or until the time at parameter B has passed. If the engine is not provided with a temperature sensor, our advice is to install a thermal circuit breaker in series with the control of the choke magnet. It’s also necessary to set a weekly test with minimum length of 5 minutes. For this function, see menu M4.3.

The chart below describes the logical activation of EV, EM, choke, start outputs during starting procedure of gasoline engine in auto mode. The first attempt is not successful, after the delay time between attempts, a second successful starting procedure is performed. During the second attempt with choke in alternate mode, the choke output is not activated. After 6s with engine running the engine is stopped for example by remote stop activation.



Note: the temperature and the voltage threshold have not been considered. If the temperature is higher than parameter D, the choke output is not activated. If parameter C is reached during the starting, the choke output is automatically de-activated.

2- 5.10 M3.10 - nastavení Canbus



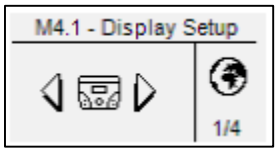
POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Canbus Protocol	Set the communication protocol of for engine canbus communication. Protocols available are: - J1939 - SCANIA EMS - SCANIA EMS6 (Start/Stop) - SCANIA EMS8 (Start/Stop) - VOLVO EMS - VOLVO EMS2 (Start/Stop) - VOLVO EDC4 - PERKINS ECM - JOHN DEERE JDEC - DEUTZ EMR1 - IVECO NEF / CURSOR - CUMMINS CM850 - MTU ECU7 (Start/Stop) - MTU ECU8 (Start/Stop) - DEUTZ EMR2 (Start/Stop) - JCB TIER2 - TE80x TE80x is a proprietary can protocol which allows the communication between different devices of TE809 and TE808 family. If set to “None”, the display pages about the CanBus are not shown. Protocols marked with “Start/Stop” allow to activate and shout down the engine directly from CANBUS communication. To start engine properly through CANBUS communication M3.1B needs to be programmed as “OFF” if no D+ signal is connected to TE809.	None-TE80x	None
B	CAN baud-rate	Communication speed in bits per second for Canbus port	100 to 1000 [kbps]	250
C	ECU delay	This is the time during which the ECU output (if one output is programmed for ECU) remains active after the turn-on of the controller or after the stopping of the generator. Set to Off to leave the output always active. The output activates also at the starting of the generator and remains active during the functioning, regardless of the programmation of this parameter.	Off to 59 [min]	5

2- 6 M4 - nastavení obecná

Obecná nastavení se skládá ze 4 podmenu:

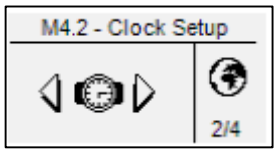
A) Nastavení displeje: Podmenu, které obsahuje všechny nastavení parametrů obrazovky: jazyk, kontrast, atd
B) Nastavení hodin: Podmenu s nastaveními datumu, času a dne v týdnu
C) Nastavení testu: Podmenu s nastavením testu funkčnosti, jako je délka testu a den testů
D) Nastavení hesel: Podmenu nastavení hesla pro různé úrovně, kterým lze zamknout a odemknout různá menu

2- 6.1 M4.1 - nastavení display



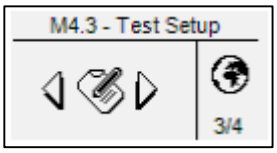
POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Language Výběr jazyka	Výběr jazyka	IT – EN – FR – Custom – Default	Default (EN)
B	Contrast Kontrast	Nastavení kontrastu dipleje automatiky.	0-15	10
C	Show warranty Zobrazení záruka	Pokud je On, ukazuje se doba záruky	Off - On	On
D	Show IO Zobrazení vstupy/výstupy	Pokud je On, ukazuje se stránka vstupů a výstupů.	Off - On	On

2- 6.2 M4.2 - nastavení hodiny



POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
-	Reset clock Nastav čas	Potvrzení nastaveného času	-	-
-	Current setting Aktuální nastavení	Zobrazuje aktuální datum a čas	-	-
A	Year Rok	Nastavení roku	0-99	12
B	Month Měsíc	Nastavení měsíce	0-12	1
C	Day Den	Nastavení dne	0-31	1
D	Day of the week Den v týdnu	Nastavení dne v týdnu	Sun - Sat	Sun
E	Hours Hodiny	Nastavení aktuálního času - hodiny	0-23	12
F	Minutes Minuty	Nastavení aktuálního času - minuty	0-59	0

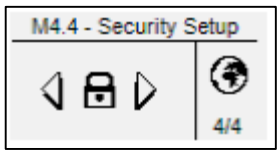
2- 6.3 M4.3 - nastavení Test



POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Start hour Start hodiny	Nastavení hodiny pro 1. start	0-23	9
B	Start min. Start minuty	Nastavení minuty pro 1. start	0-59	30
C	Test length Délka testu	Nastavení délky testu 1. startu	Off -255 [min]	5
D	Start hour Start hodiny	Nastavení hodiny pro 2. start	0-23	10
E	Start min. Start minuty	Nastavení minuty pro 2. start	0-59	30
F	Test length Délka testu	Nastavení délky testu 2. startu	Off -255 [min]	Off
G	Test with load Test se zátěží	On – test se zátěží, Off – bez zátěže	On-Off	Off
H	No remote stop Dálkový STOP	On – během testu dálkový stop signál není podporován Off – během testu dálkový stop signál je podporován	On-Off	Off

POS.	NAME	DESCRIPTION
-	Sunday Neděle	Pokud je zaškrtnuto, umožňuje test v neděli. Pokud není zaškrtnuto, v tento den se zkouška neprovede.
-	Monday Pondělí	Pokud je zaškrtnuto, umožňuje test v pondělí. Pokud není zaškrtnuto, v tento den se zkouška neprovede.
-	Tuesday Úterý	Pokud je zaškrtnuto, umožňuje test v úterý. Pokud není zaškrtnuto, v tento den se zkouška neprovede.
-	Wednesday Středa	Pokud je zaškrtnuto, umožňuje test ve středu. Pokud není zaškrtnuto, v tento den se zkouška neprovede.
-	Thursday Čtvrtek	Pokud je zaškrtnuto, umožňuje test ve čtvrtek. Pokud není zaškrtnuto, v tento den se zkouška neprovede.
-	Friday Pátek	Pokud je zaškrtnuto, umožňuje test v pátek. Pokud není zaškrtnuto, v tento den se zkouška neprovede.
-	Saturday Sobota	Pokud je zaškrtnuto, umožňuje test v sobotu. Pokud není zaškrtnuto, v tento den se zkouška neprovede.

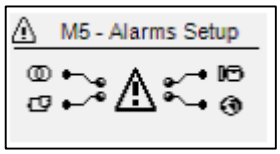
2- 6.4 M4.4 - nastavení Security



Menu nastavení přístupových kódů pro programování

POS.	NAME	DESCRIPTION	CODE
A	Global code	This is the password to access to the programmation menus. It's possible to change it, from 000 to 999.	1
B	Clear events log	Confirm to erase events log register	-
C	State password	Password to lock/unlock all the alarms except the mains, generator and engine ones.	70
D	Mains password	Enter the password that locks/unlocks the mains setup and the relative alarms. If you enter the code correctly to 60, the mains menu is completely unlocked. If you enter a wrong code, the menu is locked until the correct code will be inserted.	60
E	Genset password	Enter the password that locks/unlocks the alternator setup and the relative alarms. If you enter the code correctly to 50, the alternator setup is completely unlocked. If you enter a wrong code, the menu is locked.	50
F	Engine password	Enter the password that locks/unlocks the engine setup and the relative alarms. If you enter the code correctly to 40, the engine setup is completely unlocked. If you enter a wrong code, the menu is locked.	40
G	Special password	Enter the password that locks/unlocks the special functions setup. If you enter the code correctly to 30, the special functions setup is completely unlocked. If you enter a wrong code, the menu is locked.	30
H	Connectivity password	Enter the password that locks/unlocks the connectivity setup. If you enter the code correctly to 20, the connectivity setup is completely unlocked. If you enter a wrong code, the menu is locked.	20
I	I/O password	Enter the password that locks/unlocks the I/O setup. If you enter the code correctly to 10, the I/O setup is completely unlocked. If you enter a wrong code, the menu is locked.	10

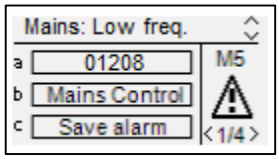
2- 7 M5 - výpis alarmů



The alarms setup is composed by 4 different alarm groups:

a) Mains alarms
b) Generator alarms
c) Engine alarms
d) General alarms

Select the category with the down and up arrows, then press “i” to confirm and enter.
You will see a general screen for the setup of the alarms, composed by 4 pages. In the first page, select and confirm the parameter “a” to choose the code of the alarm. In the upper part of the screen you will see the name of the correspondent alarm. Then modify the parameters from “d” to “l” as you prefer. Return then to the first page and confirm the parameter “c” to save the modifications.



For every alarm, you can program all the following parameters:

POS.	NAME	DESCRIPTION	RANGE
A	Alarm code	Select this parameter to choose the alarm that you want to set. All the parameters in the next pages refer to the alarm selected in this parameter. In the upper part of the screen you will see also the name correspondent to the code that you are selecting.	-
B	Category of the alarm	Name of the category selected from the first screen of the alarm setup. It’s not possible to modify it directly in this page.	-
C	Save alarm	Parameter that has to be confirmed with the “i” button to save all the parameters from D to L in the configuration of the alarm selected at parameter A.	-
D	Activation	It permits to choose when the alarm condition must be verified and make the alarm appear: Always (always enabled), Run (active only with engine running) or Disabled (disabled).	Always - Run- Disabled
E	Delay	Before the activation of the alarm, the cause must remain present for this time.	0-255 [s]
F	Retentive	Choose if the alarm must be retentive (ON: the alarm indication remains on display until you press the reset button, even if the cause has disappeared) or not (OFF: the alarm indications disappears when the cause disappears).	Off-On
G	Action	Select the action in consequence of the activation of the alarm: Warning (only indication), Stop (the alarm stops the engine immediately) or Cooling (the alarms stops the engine with cooling).	Warning - Stop - Cooling
H	Siren	Set if the activation of the alarms must also activate the output programmed for Siren. It can be set to ON (the output set for “siren” is activated when the alarm is present) or OFF.	Off-On
I	Remote	Set if the activation of the alarm must also send an SMS message if Remote APP option is enabled and one or more of programmed GMS numbers are correctly saved (see menu M7). It can be set to ON (if a modem is connected, the board sends a SMS when the alarm appears) or OFF. Enable also the single alarm flag inside modbus map.	Off-On
J	Global 1	Set if the activation of the alarms must also activate the output programmed for Global alarm 1. It can be set to ON (the output is activated when the alarm is present) or OFF.	Off-On
K	Global 2	Set if the activation of the alarms must also activate the output programmed for Global alarm 2. It can be set to ON (the output is activated when the alarm is present) or OFF.	Off-On
L	Global 3	Set if the activation of the alarms must also activate the output programmed for Global alarm 3. It can be set to ON (the output is activated when the alarm is present) or OFF.	Off-On

2- 7.1 M5 - parametry alarmů default

N.	Category	Alarm code	Alarm name	Activation			Delay	Retentive	Action			Siren	REMOTE	Global 1	Global 2	Global 3
				Always	Disabled	Run			Cooling	Stop	Warning					
1	Mains	1208	Mains: low freq.		☑		2				☑		☑			
2	Mains	1209	Mains: high freq.		☑		2				☑		☑			
3	Mains	1213	Mains: V asymmetry	☑			1				☑	☑	☑	☑		
4	Mains	20025	Faulty mains	☑			2				☑		☑			
5	Mains	20034	KR feedback	☑			5				☑	☑	☑	☑		
6	Mains	20052	Mains: phase seq.	☑			0				☑	☑	☑	☑		
7	Mains	20060	Mains: low voltage		☑		5				☑		☑			
8	Mains	20061	Mains: high voltage	☑			5				☑		☑			
9	Generator	1201	GE: low freq.			☑	5	☑		☑		☑	☑	☑		
10	Generator	1202	GE: high freq.			☑	5	☑		☑		☑	☑	☑		
11	Generator	1205	GE: phase seq.	☑			0	☑		☑		☑	☑	☑		
12	Generator	1206	GE: short circuit			☑	2	☑		☑		☑	☑	☑		
13	Generator	1207	GE: Imax overload			☑	5	☑	☑			☑	☑	☑		
14	Generator	1214	GE: V asymmetry			☑	1	☑			☑	☑	☑	☑		
15	Generator	20007	Ground protection	☑			2	☑		☑		☑	☑	☑		
16	Generator	20032	Emergency stop	☑			0	☑		☑		☑	☑	☑		
17	Generator	20033	KG feedback	☑			5	☑			☑	☑	☑	☑		
18	Generator	20036	User alarm 1	☑			3	☑			☑	☑	☑	☑		
19	Generator	20037	User alarm 2	☑			3	☑			☑	☑	☑	☑		
20	Generator	20038	User alarm 3	☑			3	☑			☑	☑	☑	☑		
21	Generator	20041	GE protection	☑			1	☑		☑		☑	☑	☑		
22	Generator	20062	GE: low voltage			☑	5	☑		☑		☑	☑	☑		
23	Generator	20063	GE: high voltage			☑	5	☑		☑		☑	☑	☑		
24	Generator	20066	Dual mode on	☑			0				☑		☒			
26	Engine	01001	Start failure	☑			0	☑		☑		☑	☑	☑		
27	Engine	01003	Mechanical fault			☑	10	☑		☑		☑	☑	☑		
28	Engine	01101	Temp. pre alarm		☑		2				☑	☑	☑	☑		
29	Engine	01102	High engine temp. A		☑		2	☑	☑			☑	☑	☑		
30	Engine	01104	Fuel pre alarm		☑		30				☑	☑	☑	☑		
31	Engine	01105	Low fuel level A		☑		30				☑	☑	☑	☑		
32	Engine	01107	Oil press. pre alarm		☑		2	☑			☑	☑	☑	☑		
33	Engine	01108	Low oil pressure A		☑		2	☑		☑		☑	☑	☑		
34	Engine	01112	High RPM			☑	2	☑		☑		☑	☑	☑		
35	Engine	01113	Low RPM		☑		5	☑			☑	☑	☑	☑		
36	Engine	20005	Low oil level	☑			2	☑			☑	☑	☑	☑		
37	Engine	20006	Low coolant level	☑			2	☑			☑	☑	☑	☑		
38	Engine	20015	Stop engine failure		☑		0	☑		☑		☑	☑	☑		
39	Engine	20019	Service	☑			3	☑			☑	☑	☑	☑		
40	Engine	20020	Refueling timeout	☑			0	☑			☑	☑	☑	☑		
41	Engine	20024	Faulty D+		☑		5				☑	☑	☑	☑		
42	Engine	20028	High GE temp. D			☑	2	☑	☑			☑	☑	☑		
43	Engine	20029	Low fuel level D	☑			5				☑	☑	☑	☑		
44	Engine	20030	Low oil pres. D			☑	2	☑		☑		☑	☑	☑		
45	Engine	20039	Autonomy low		☑		10				☑	☑	☑	☑		
46	Engine	20042	Clogged filter	☑			5	☑			☑	☑	☑	☑		
47	Engine	20043	Tank full	☑			5				☑	☑	☑	☑		
48	Engine	20051	No oil sensor		☑		60				☑	☑	☑	☑		
49	Engine	20057	Low battery voltage	☑			15				☑	☑	☑	☑		
50	Engine	20058	High battery voltage	☑			15				☑	☑	☑	☑		
51	Engine	20064	Water in fuel	☑			3	☑		☑		☑	☑	☑		
52	Engine	20065	High coolant temperature	☑			3	☑		☑		☑	☑	☑		
53	Engine	20068	Battery efficiency	☑			0	☑			☑	☑	☑	☑		
54	General	20008	Test active	☑			0				☑		☒			
55	General	20012	Stopping…	☑			0				☑		☒			
56	General	20013	Start phase	☑			0				☑		☒			
57	General	20021	Remote start	☑			1				☑		☒			
58	General	20022	Remote stop	☑			1		☑			☑	☒	☑		
59	General	20026	EJP	☑			0				☑		☒			
60	General	20027	Failed test	☑			0	☑			☑	☑	☒	☑		
61	General	20045	GE running…	☑			0				☑		☒			
62	General	20046	GE ready…	☑			0				☑		☒			
63	General	20055	Refueling	☑			0				☑		☒			
64	General	20059	TPS mode on	☑			0				☑		☒			
65	General	20067	Master com error	☑			15				☑	☑				

2- 7.2 M5 - popis alarmů

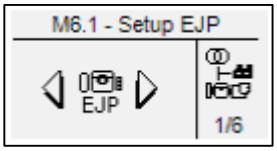
N.	Alarm code	Alarm name	Alarm description	Menu / Parameter
1	1208	Mains: low freq.	Indicates that the mains frequency is under the programmed threshold	M1-F
2	1209	Mains: high freq.	Indicates that the mains frequency is over the programmed threshold	M1-E
3	1213	Mains: V asymmetry	Indicates that the difference between the higher and the lower mains voltages is too high	M1.K
4	20025	Faulty mains	Indicates that the mains is out of limits	M1-BCEF
5	20034	KR feedback	If KR contactor output status is not equal to input status	M8
6	20052	Mains: phase seq.	Indicates a wrong phase sequence of the mains	M1-J
7	20060	Mains: low voltage	Indicates that the mains voltage is under the programmed threshold	M1-C
8	20061	Mains: high voltage	Indicates that the mains voltage is over the programmed threshold	M1-B
9	1201	GE: low freq.	Frequency values are under the programmed limits	M2-F
10	1202	GE: high freq.	Frequency values are over the programmed limits	M2-E
11	1205	GE: phase seq.	Indicates wrong generator voltages sequence	M2-O
12	1206	GE: short circuit	Indicates an instantaneous current higher than the programmed limits for short circuit	M2-I
13	1207	GE: Imax overload	Indicates an instantaneous current higher than the programmed limits for overload	M2-H
14	1214	GE: V asymmetry	Indicates that the difference between the higher and the lower genset voltages is too high	M2-P
15	20007	Ground protection	Ground protection digital input alarm	M8
16	20032	Emergency stop	It indicates that the input programmed as “emergency button” is active	M8
17	20033	KG feedback	If KG contactor output status is not equal to input status	M8
18	20036	User alarm 1	Alarm that is present when the digital input programmed as user alarm 1 is active	M8
19	20037	User alarm 2	Alarm that is present when the digital input programmed as user alarm 2 is active	M8
20	20038	User alarm 3	Alarm that is present when the digital input programmed as user alarm 3 is active	M8
21	20041	GE protection	“External GE protection“ digital input alarm	M8
22	20062	GE: low voltage	Voltage values are under the programmed limits	M2-C
23	20063	GE: high voltage	Voltage values are over the programmed limits	M2-B
24	20066	Dual mode on	Alarm active during stop by dual standby mode, during this standby the mains detection led is activated even if mains is not present.	M6.6
26	01001	Start failure	Indicates that the engine is not detected running after the start attempts in automatic mode	M3.1
27	01003	Mechanical fault	Indicates that all engine running detection signals are lost without a command from the controller to stop the engine	M3.1
28	01101	Temp. pre alarm	Indicates analog engine temperature higher than programmed pre-alarm threshold	M3.6-B
29	01102	High engine temp. A	Indicates analog engine temperature higher than programmed alarm threshold	M3.6-C
30	01104	Fuel pre alarm	Indicates analog fuel level lower than programmed pre-alarm threshold	M3.4-B
31	01105	Low fuel level A	Indicates analog fuel level lower than programmed alarm threshold	M3.4-C
32	01107	Oil press. pre alarm	Indicates analog oil pressure lower than programmed pre alarm threshold	M3.5-B
33	01108	Low oil pressure A	Indicates analog oil pressure lower than programmed alarm threshold	M3.5-C
34	01112	High RPM	Indicates an engine speed value higher than programmed value	M3.1-N
35	01113	Low RPM	Indicates an engine speed value lower than programmed value	M3.1-O
36	20005	Low oil level	Oil level digital input alarm	M8
37	20006	Low coolant level	Coolant level digital input alarm	M8
38	20015	Stop engine failure	Indicates that the engine is still detected running after a stop phase	M3.2
39	20019	Service	Indicates that service timer has expired	M3.8
40	20020	Refueling timeout	Indicates that the engine is still detected running after a stop phase	M3.2
41	20024	Faulty D+	Indicates an alternator D+ voltage under 4Vdc with engine running	-
42	20028	High GE temp. D	High temperature digital input alarm	M8
43	20029	Low fuel level D	Low fuel level digital input alarm	M8
44	20030	Low oil pres. D	Low oil pressure digital input alarm	M8
45	20039	Autonomy low	If autonomy hours calculated with load percentage, fuel consumption and fuel level are lower than the programmed value, the alarm will be shown	M3.4
46	20042	Clogged filter	“Clogged air filter” digital input alarm	M8
47	20043	Tank full	“Fuel tank full” digital input alarm	M8
48	20051	No oil sensor	Indicates that the oil pressure digital sensor is open with engine not running	-
49	20057	Low battery voltage	Indicates a battery voltage higher than programmed value	M3.7-A
50	20058	High battery voltage	Indicates a battery voltage lower that programmed value	M3.7-B
51	20064	Water in fuel	Water in fuel alarm by digital input	M8
52	20065	High coolant temperature	High coolant temperature alarm by digital input	M8
53	20068	Battery efficiency	Indicates high battery voltage dropout during cranking phase	M7
54	20008	Test active	Signalization active during test procedure	M4.3
55	20012	Stopping…	Indicates an active stop procedure	-
56	20013	Start phase	Indicates an active start procedure	-
57	20021	Remote start	Indicates remote start function from digital input	M8
58	20022	Remote stop	Indicates remote stop function from digital input	M8
59	20026	EJP	Indicates that the the remote start input (if programmed as EJP) is active	M6.1
60	20027	Failed test	Indicates an unsuccessful test: in manual if mode the engine has not started after the attempts number; in automatic mode if a stopping alarm occurs during test procedure	M4.3
61	20045	GE running…	Indication that is active when the generator is detected running	-
62	20046	GE ready…	Indication that the generator is not running and without blocking alarms	-
63	20055	Refueling	Indicates refueling conditions active, if refueling pump output is programmed, the connected output is activated.	M3.4
64	20059	TPS mode on	Indicates acitvation of TPS timed programmable start/stop mode.	M6.4
65	20067	Master com error	Indicates RS485 master-slave communication error if dual standby mode is enabled.	M6.6

2- 8 M6 - speciální funkce

The TE809 permits 6 special functions active only in automatic mode: EJP, Start by mains kW, Dummy load, TPS, Heater, Dual standby. The relative parameters can be set in this menu. Here you can also set the type of use of all the programmable inputs and outputs. The submenus are the following:

A) EJP - only auto mode
B) Start by mains kW (peak shaving) - only auto mode
C) Dummy Load - only auto mode
D) TPS (timer programmable start stop) - only auto mode
E) Heater - only auto mode
F) Dual standby - only auto mode

2- 8.1 M6.1 - EJP



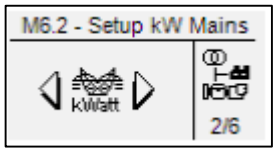
Start the generator by a remote signal on one of the programmable inputs previously programmed as remote start (see par. 2-10). When that input is closed to negative, after a delay time, the generator starts. Then:

a) If EJP 2 ENABLE is OFF: when the KG DELAY time has elapsed, TE809 switches the changeover switch on generator side, even if the mains is detected.
b) If EJP 2 ENABLE is ON: after the generator has started, you have to wait that the second programmable input (that you have to set to CHANGEOVER, see par. 2-10) is closed to negative, then after the KG delay time, TE809 switches the changeover switch on generator side, even if the mains is detected.

“No KR with EJP” option permits to inhibit, in case of generator alarm, the changeover switch on mains side.

POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	EJP enable	If ON the function is enabled, if OFF the function is disabled.	On/Off	Off
B	Start delay	It is the delay time that elapses when you close to negative the terminal programmed as remote start before the generator starting.	0-999 [s]	5
C	KG delay	It is the delay time that elapses after the starting of the generator (if parameter D is OFF) or after the closure to negative of the input programmed as changeover (if parameter D is ON) before the switching of the changeover switch.	0-999 [s]	5
D	EJP2 input	If ON, it enables the changeover switch control by the changeover input terminal closed to negative; when closed and after the delay time at point C, the load switches to generator. If OFF, the changeover input is not necessary to control the changeover switch: changeover switch is automatically closed on generator side when the engine is started by the remote start input and after the delay time at point C.	On/Off	On
E	No KR with EJP	If ON, when EJP mode is active (remote start input active), the mains contactor opens and it’s not possible to close it also if the generator is stopped by an alarm.	On/Off	Off
F	Off delay	It is the delay time during which the EJP signal must be disabled to permit the stopping of the generator and the switching on the mains.	0-999 [s]	5

2- 8.2 M6.2 - Start by mains kW



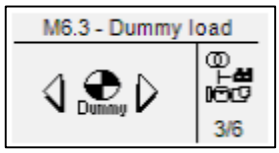
Function that allows the generator's automatic start and stop, according to the maximum and minimum thresholds programmable on mains consumption.

If the load consumption from the mains supplies exceeds the START THRESHOLD for a period of time longer then the TIME FOR START, TE809 starts the generator and switch the load for the generator. When the value of load's consumption is less than the STOP THRESHOLD at least for the TIME FOR STOP time, the load is commutated to the mains (if available) and the generator is stopped. If the mains is missing, the load remains on generator until the mains voltage is detected.

POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	kW mains Enable	If ON the function is enabled, if OFF it is disabled.	On / Off	Off
B	Start power	Load supplied by the mains: if the power consumption exceeds this value (at least for the "time for start" at point C), the generator starts and the power switching moves on the generator.	0-255 [%]	80
C	Time for start	It is the delay time for which the load consumption must remain over the threshold value on the mains (point B); after this time the generator starts.	0-255 [s]	5
D	Stop power	Load is supplied by the generator: if the power consumption returns to be less than this threshold value set (at least for the "time for stop at point E), the load switches to the Mains and the generator is stopped.	0-255 [%]	30
E	Time for stop	It's the delay time for which the load consumption must remain below the threshold value; after this time the load returns to the Mains and the generator is stopped.	0-255 [s]	5

Note: power percentage thresholds are referred to the rated kW value, that is calculated from the rated voltage, the rated current, the rated power factor (0,8) and the type of the system selected.

2- 8.3 M6.3 - Dummy load

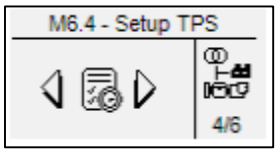


Function that allows to activate one of the programmable outputs, according to the maximum and minimum thresholds programmable on load consumption. If the load consumption is lower than the DUMMY ON for a period of time longer then the ON DELAY, the board activates all the outputs that you programmed for Dummy load function (see par. 2-10 for the programmation of the outputs). When the value of load consumption is higher than the DUMMY OFF at least for the OFF DELAY time, the outputs are de-activated. To activate this function, you have to set at least one of the programmable outputs for "dummy load" (see par. 2-10), then you have to set the following parameters.

POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Dummy enable	If ON the function is enabled, if OFF the function is disabled.	On / Off	Off
B	Dummy On	Load supplied by generator: if the power consumption is lower than this value (at least for the "On delay" at point C), the outputs programmed as "dummy load" are activated.	0-255 [%]	30
C	On delay	It is the delay time for which the load consumption must remain under the threshold value on the generator (point B); after this time the outputs are activated.	0-255 [s]	5
D	Dummy Off	Load is supplied by the generator: if the power consumption exceeds the threshold value set (at least for the "Off delay" at point E), the outputs programmed as "dummy load" are deactivated.	0-255 [%]	80
E	Off delay	It is the delay time for which the load consumption must remain over the threshold value on the generator (point D); after this time the outputs are deactivated.	0-255 [s]	5

Note: power percentage thresholds are referred to the rated kW value, that is calculated from the rated voltage, the rated current, the rated power factor (0,8) and the type of the system selected.

2- 8.4 M6.4 - TPS

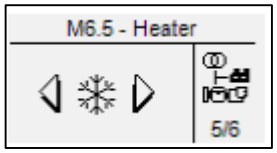


This function similar to automatic test is used to program up to two working intervals which activate the generator at chosen clock time and stop it at a chosen clock time. It's also possible to program if the working time is with or without load, with or without remote stop and which are the days allowed to work.

POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A 1-2	TPS1 start (h) - TPS1 start (m)	TPS1 start hour and minute.	0-23 / 0-59	8:30
B 1-2	TPS1 stop (h) - TPS1 stop (m)	TPS1 stop hour and minute.	0-23 / 0-59	12:30
C	TPS1 enable	If Off, the working period 1 is disabled.	On / Off	Off
D	TPS2 start (h) - TPS2 start (m)	TPS2 start hour and minute.	0-23 / 0-59	14:30
E	TPS2 stop (h) - TPS2 stop (m)	TPS2 stop hour and minute.	0-23 / 0-59	18:30
F	TPS2 enable	If Off, the working period 2 is disabled.	On / Off	Off
G	TPS with load	If On, the TPS mode will be with load on generator side, id Off the load will remain on mains side and the changeover will happen only in case of mains failure during TPS.	On / Off	Off
H	No remote stop	If On, the TPS mode will override remote stop activation to start the generator.	On / Off	Off

POS.	NAME	DESCRIPTION
-	Sunday	If the tick is present, it enables the TPS on Sunday. If the tick is removed, on this day the TPS is not executed.
-	Monday	If the tick is present, it enables the TPS on Monday. If the tick is removed, on this day the TPS is not executed.
-	Tuesday	If the tick is present, it enables the TPS on Tuesday. If the tick is removed, on this day the TPS is not executed.
-	Wednesday	If the tick is present, it enables the TPS on Wednesday. If the tick is removed, on this day the TPS is not executed.
-	Thursday	If the tick is present, it enables the TPS on Thursday. If the tick is removed, on this day the TPS is not executed.
-	Friday	If the tick is present, it enables the TPS on Friday. If the tick is removed, on this day the TPS is not executed.
-	Saturday	If the tick is present, it enables the TPS on Saturday. If the tick is removed, on this day the TPS is not executed.

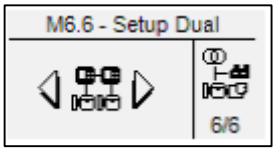
2- 8.5 M6.5 - ohřev



This function is used to configure heater output inside M8.2 setup. The output is used to activate an heater device by the measured environmental temperature values. Please note: to use properly this function we suggest to use a PT100 sensor to measure engine temperature. This type of sensor can give low temperature values below zero and not only the high temperature working ones.

POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Heater enable	If On, enable heater output activation.	On / Off	Off
B	On temperature (°C)	Set the temperature threshold to activate heater output.	-50 + 50 [°C]	0
C	Off temperature (°C)	Set the temperature threshold to deactivate heater output.	0 - 50 [°C]	30
D	Max time (m)	Set the maximum time with heater output active, if Off, there is no maximum activation time.	Off - 255 [m]	Off

2- 8.6 M6.6 - nastavení Dual



This function is used to activate dual mode mutual standby between two TE809A 2.0.0. The communication channel is by RS485 connection between the first one (Modbus master protocol) and the second (modbus slave protocol ID=1 with the same serial speed as master controller).

If Dual mode is enabled on master controller, and the slave is not connected or the serial port speed is not correct, an alarm will appear on the master device.

When both controllers are in auto mode, the dual mutual standby is activated by working hours difference between generator master and slave. If the working hours difference is lower than the programmed value, the master generator will start. After some working hours, the slave generator will be started and when it will be ready to close KG, the master generator will open KG and begin cooling and stop procedure.

When mains returns back, the dual standby will keep stopped the generator with more working hours at the next faulty mains start.

If a shutdown alarm occurs on the running generator, the other one will be started to take the load, in this case the dual standby cycle is interrupted until alarm generator is restored. The cycle can be interrupted also by one or more of these conditions:

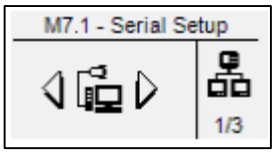
1. Master not in auto mode
2. Slave not in auto mode
3. Master disabled (M6.6 - a = Off)
4. Slave disabled (M6.6 - a = Off)

By programmable inputs setup M8.1, is possible to assign "Priority" function to one of the inputs. When priority input is activated, the correspondent generator will be the one in charge even if running hours are greater than the other generator. If both master and slave priority input is activated, the master generator will be the one in charge.

POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Dual enable	If On, enable the dual standby between master and slave controller on RS485. Use serial setup M7.1 to define which controller is master and which one slave. The serial speed must be the same on both controllers, the ID for the slave controller must be 1.	On / Off	Off
B	Dual work (h)	Set maximum working hours difference between master and slave controller, when the currently running generator reaches the hours, the other one is started.	1-100 [h]	10
C	Dual delay (s)	Set the delay time between the dual stop conditions and the beginning of stop procedure.	1 - 255 [s]	10

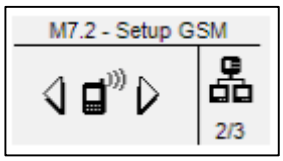
2- 9 M7 - připojení

2- 9.1 M7.1 - nastavení Serial port



POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Unit ID	It's the address of the board for RS485 communication.	0-255	1
B	RS485 protocol	Protocol types available: **None:** Serial port disabled. **Modbus Master:** used for the connection with TE6010 expansion and TE809 Slave module for Dual standby mode. **Modbus slave:** used for remote monitoring via serial cable or Dual standby connection with a master modbus device. **GSM modem:** used to connect TE-GSM modem. **TE809:** custom slave protocol for AT207 panels.	None Modbus Master Modbus Slave Gsm modem TE809	Modbus Slave
C	RS485 baud-rate	Communication speed in bit per second: for modem connections, it is recommended speed of 9600.	9600-115200 [bps]	115200
D	RS232 protocol	Protocol types available: **None:** Serial port disabled. **Modbus Master:** used for the connection with TE6010 expansion and TE809 Slave module for Dual standby mode. **Modbus slave:** used for remote monitoring via serial cable or Dual standby connection with a master modbus device. **GSM modem:** used to connect TE-GSM modem. **TE809:** custom slave protocol for AT207 panels.	None Modbus Master Modbus Slave Gsm modem TE809	Modbus Slave
E	RS232 baud-rate	Communication speed in bit per second for RS232 port.	9600-115200 [bps]	115200
F	Activate USB	Confirm to activate USB port to communicate with PC. The communication channel disables as protection CAN port and current measures on J3, use it without machine running for programmation only.	Off-On	Off
G	232 parity	Set the parity for 232 serial port: 1 = Even 2 = Odd 3 = Mark 4 = Space	None - 4	None
H	485 parity	Set the parity for 485 serial port: 1 = Even 2 = Odd 3 = Mark 4 = Space	None - 4	None

2- 9.2 M7.2 - nastavení GSM



POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Modem status	Status of the modem: initial (initializing phase), wait (waiting), ready (stand-by phase), send (sending a message), send wait (waiting the response).	-	-
B	APP enable	It enables the automatic status messages and alarm via SMS for SMS app or standard mobile.	On-Off	Off
C	SMS filter (s)	Set the minimum time between two different SMS events to avoid to send many messages in short period of time.	1-255 [s]	3
D 1-2	Generator Ok - Engine running	If enabled, the activation of this condition will trigger a SMS info message	On-Off	Off-On
E 1-2	Engine stopping - Stopping ok	If enabled, the activation of this condition will trigger a SMS info message	On-Off	Off-On
F 1-2	KG active - KR active	If enabled, the activation of this condition will trigger a SMS info message	On-Off	On-On
G 1-2	Auto mode - Test mode	If enabled, the activation of this condition will trigger a SMS info message	On-Off	On-Off
H 1-2	Off mode - Man mode	If enabled, the activation of this condition will trigger a SMS info message	On-Off	On-On
I 1-2	Ejp on - Mains return	If enabled, the activation of this condition will trigger a SMS info message	On-Off	Off-Off
J	Remote stop	If enabled, the activation of this condition will trigger a SMS info message	On-Off	On
K 1-2-3	Pw char 1-2-3	Set the 6 characters password code for SMS commands: if password is different from 0-0-0-0-0-0, every SMS command received without the correct password code will be discarded. The syntax to send the correct SMS with password is: *PWD=[XXXXXX] [Command]* For example if password is 1-0-2-A-z-X, the SMS command to start the engine must be composed this way: *PWD=102AzX START*	[0-9] or [A-Z] or [a-z]	0 - 0 - 0
L 1-2-3	Pw char 4-5-6	Set the other 3 characters for the password	[0-9] or [A-Z] or [a-z]	0 - 0 - 0
M	Call Numbers	It shows the mobile phone numbers set in position 1	-	-
N	Call Numbers	It shows the mobile phone numbers set in position 2	-	-
O	Call Numbers	It shows the mobile phone numbers set in position 3	-	-
P	Call Numbers	It shows the mobile phone numbers set in position 4	-	-
Q	Call Numbers	It shows the mobile phone numbers set in position 5	-	-

2- 9.2.1 - systémové info SMS zprávy

SMS sent by remote device will be received by mobile device with the following format:

EAS=Gen.Name--------
O=AUTO,P=000
M237,237,232,49.9
G000,000,000,00.0
A003.0,000.0,000.0
B=14.1V,h=00000
T=99%,U=00
MC=ON,Z=00
E0000,A000
#41001,Start failure

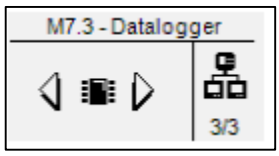
SMS SECTION	FORMAT DESCRIPION	# DATA CHARACTERS	DATA DESCRIPTION
EAS	[Message type]	3	Message header for TE809A 2.0.0
=----------	=[Generator name]	16	Name of the generator
O=AUTO	O=[Program]	4	Operative mode active (“OFF “-“MAN “-“AUTO”-“TEST”)
,P=000	,P=[Active power kW]	3	Total active power
M237	M[Mains voltage line 1]	3	Mains L1-n voltage
,237	,[Mains voltage line 2]	3	Mains L2-n voltage
,232	,[Mains voltage line 3]	3	Mains L3-n voltage
,49.9	,[Mains frequency]	4	Mains frequency
G=000	G=[Genset voltage line 1]	3	Generator L1-n voltage
,000	,[Genset voltage line 2]	3	Generator L2-n voltage
,000	,[Genset voltage line 3]	3	Generator L3-n voltage
,00.0	,[Genset frequency]	4	Generator frequency
A003.0	A[Load current line 1]	4	Load current L1
,000,0	,[Load current line 2]	4	Load current L2
,000.0	,[Load current line 3]	4	Load current L3
B=14.1	B=[Battery voltage]	4	Battery voltage
V,h=00000	V,h=[Work hours]	5	Total work hours
T=99%	T=[Fuel level]	2	Fuel level percentage
%,U=00	%,U=[Oil pressure]	2	Oil pressure
MC=ON	[Contactor status]	5	Contactors status: • MC=ON means mains contactor ON • GC=ON means generator contactor ON • C=OFF means both contactors OFF
,Z=00	,Z=[Engine temperature]	5	Engine temperature
E0	E[Input I4.4 status]	1	Status of input I4.4
0	[Input I4.5 status]	1	Status of input I4.5
0	[Input I4.6 status]	1	Status of input I4.6
0	[Input I4.7 status]	1	Status of input I4.7
,A0	,A[output O5.8 status]	1	Status of output 5.8
0	[output O5.9 status]	1	Status of output 5.9
0	[output O5.10 status]	1	Status of output 5.10
#41001	#[message ID]	5	Message ID without alarms: • 00250 = Power on • 00201 = Generator ready • 00202 = Engine running • 00203 = Engine stopping • 00204 = Engine stop successful • 00205 = KG on • 00206 = KR on • 00207 = Auto mode • 00208 = Test mode • 00209 = Off mode • 00210 = Man mode • 00211 = Ejp on • 00212 = Mains return • 00219 = Remote stop • 00222 = System info Message ID with alarms, the first digit is the alarm gravity: • 1 = Global alarm #1 On • 2 = Global alarm #2 On • 3 = Global alarm #3 On • 4 = Shutdown alarm The other four digits are the alarm code, if the alarm code is greater than 20000, than the SMS code will be: *[SMS_alarm_code]=[Alarm_ID]-17000* For example "Emergency stop" alarm code 20032 which is a shutdown alarm will be reported with the following code: *[Emergency_stop_alarm_code] =* *(4*10^5)+(20032-17000) = 43032* Othewise "autonomy low" alarm which is not a shutdown alarm but is a global alarm #1 will be advised with this code: *[Autonomy_low_alarm_code] =* *(1*10^5)+(20039-17000) = 13039* "Engine temperature pre alarm" is not a shutdown alarm but is a global alarm #1 with code lesser than 20000, will be advised with this code: *[temperature_pre_alarm_code] =* *(1*10^5)+(1101) = 11101*
,Start failure	,[message text]	16	Message text

2- 9.2.2 - příkazy SMS

This is the list of commands which could be sent to mobile device:

COMMAND NAME	TEXT SENT (case sensitive)	DESCRIPTION
MANUAL MODE	**MAN**	Activate manual mode on remote device
AUTO MODE	**AUT**	Activate auto mode on remote device
OFF MODE	**OFF**	Activate Off mode on remote device
RESET ALARMS	**RESET**	Alarms reset on remote device
MAINS CONTACTOR	**MAINS**	Changeover switch on mains side in manual mode
GENSET CONTACTOR	**GEN**	Changeover switch on generator side in manual mode
START ENGINE	**START**	Start generator command in manual mode (if man mode is not selected, the controller will activate manual mode before start)
STOP ENGINE	**STOP**	Stop generator command in manual mode (if man mode is not selected, the controller will activate manual mode before start)
TEST MODE	**TEST**	Activate test mode
NAME	**NAME:[name_parameter]** Name_paramete is max 16 characters string	Set remote device name
CUSTOM PARAMETER	**SET:[ID_parameter] [Value_parameter]** Both values are numeric between 0-999, for instance if i want to set parameter 300 to 10, the text sent will be: SET:300 10	Set an enabled parameter of remote device
SET GSM NUMBER	**SET[Position_number]:[Cellphone_number]** Position_number value is numeric between 1-6, cellphone_number is a telephone number which allows the remote device to know where SMS need to be sent. For instance to set number 339 333 9000 in position #3 of remote device, the sent text will be: SET3:3393339000	Set the telephone number which will be used by remote device to send SMS. Usually this number is the one of the receiver device where the app is installed.
SERVICE	**SERV**	Command to remove service alarm and upgrade service hours on remote device.
SYSTEM INFO	**INFO**	Command to request info to the remote device.

2- 9.3 M7.3 - Datalogger



<table>
<tr><th>POS.</th><th>NAME</th><th>DESCRIPTION</th><th>RANGE OF VALUES</th><th>DEFAULT SETTINGS</th></tr>
<tr><td>A (*)</td><td>Enable datalog</td><td>Enable automatic datalog</td><td>Off-On</td><td>Off</td></tr>
<tr><td>B (*)</td><td>Sample time (s)</td><td>Set the sampling time for datalog, change this value with datalog disabled. Then enable datalog with the new value.

The datalog memory size is 1588 samples, when the memory is full, no more samples are taken and an erase memory must be performed before start sampling again, below a table of sampling intervals with time by hours and days before fulfilling the memory size:

<table>
<tr><th>Sample time (s)</th><th>Hours to full memory</th><th>Days to full memory</th><th>Samples per day</th></tr>
<tr><td>10</td><td>4,41</td><td>0,18</td><td>8640,00</td></tr>
<tr><td>60</td><td>26,47</td><td>1,10</td><td>1440,00</td></tr>
<tr><td>300</td><td>132,33</td><td>5,51</td><td>288,00</td></tr>
<tr><td>600</td><td>264,67</td><td>11,03</td><td>144,00</td></tr>
<tr><td>1800</td><td>794,00</td><td>33,08</td><td>48,00</td></tr>
<tr><td>3600</td><td>1588,00</td><td>66,17</td><td>24,00</td></tr>
<tr><td>7200</td><td>3176,00</td><td>132,33</td><td>12,00</td></tr>
<tr><td>12400</td><td>5469,78</td><td>227,91</td><td>6,97</td></tr>
<tr><td>14400</td><td>6352,00</td><td>264,67</td><td>6,00</td></tr>
<tr><td>18000</td><td>7940,00</td><td>330,83</td><td>4,80</td></tr>
<tr><td>21600</td><td>9528,00</td><td>397,00</td><td>4,00</td></tr>
</table>

List of logged variables:

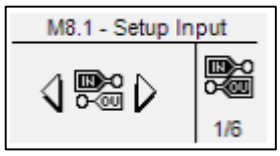
• Generator voltage L1-n (V)
• Generator voltage L2-n (V)
• Generator voltage L3-n (V)
• Generator frequency (Hz)
• Mains voltage L1-n (V)
• Mains voltage L2-n (V)
• Mains voltage L3-n (V)
• Mains frequency (Hz)
• Load current L1 (A)
• Load current L2 (A)
• Load current L3 (A)
• Total active power (kW)
• Total apparent power (kVA)
• Total reactive power (kVAR)
• Total power factor (PF)
• Fuel level percentage (%)
• Battery voltage (Vdc)
• Engine speed (Rpm)
• Oil pressure (Bar)
• Engine temperature (°C)
• Work hours (h)
• Shutdown alarm
• Global alarm
• Last alarm ID</td><td>[5-65535]</td><td>12400</td></tr>
<tr><td>C (*)</td><td>Memory status</td><td>If Ok the memory is not full, if Full, you can select it to erase memory.</td><td>Ok</td><td>-</td></tr>
</table>

2- 10 M8 - nastavení IO

The IO setup is composed by 6 submenus:
A) Input setup: Submenu that contains all the parameters about the input functions available.
B) Output setup: Submenu that contains all the parameters about the output functions available.
C) Input type: Submenu to set input types, you can select between disabled, normally open, normally closed or analog if the input allows it.
D) Output type: Submenu to set output types, you can select between disabled, normally open or normally closed
E) Measures: Submenu to adjust voltage and current measures with a programmable offset.
F) Expansion: Submenu to configure expansion outputs

Important: if a digital input function is associated to an analog / digital input (for example: I6.4 fuel level) the input type must be programmed as Digital inside Input type menu. In this case the function associated with analog measure will be unavailable.

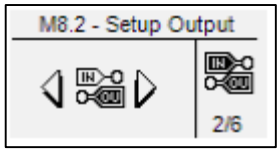
2- 10.1 M8.1 - nastavení vstupy



The I/O menu permits to select the type of use of the programmable digital inputs. The inputs I4.4, I4.5, I4.6, I4.7, I4.8, I6.2 (digital / analog oil pressure), I6.3 (digital / analog water temperature), I6.4 (digital / analog fuel level), and the digital inputs from the TE6010 expansion board (EXIN0 - EXIN7), can be programmed as:

POS.	NAME	DESCRIPTION	RANGE OF VALUES	DEFAULT SETTINGS
A	Low oil pressure	Low oil pressure alarm from digital contact	None - I4.4 - I4.5 - I4.6 - I4.7 - I4.8 - I6.2 - I6.3 - I6.4 - ExIn_0 ~ ExIn_7	I4.4
B	High engine temperature	High engine temperature from digital contact	Same as parameter A	I4.5
C	Low fuel level	Low fuel level from digital contact	Same as parameter A	I4.6
D	Changeover	Changeover command from digital contact: works in auto mode with remote start, EJP, automatic test. If it's activated with generator measures within limits, the load is switched to genset.	Same as parameter A	None
E	Remote start	Start the generator in auto mode with mains detected within limits.	Same as parameter A	I4.7
F	Remote stop	Stop the generator in auto mode even if there are some condition which would start the engine as faulty mains or remote start. It's possible to disable remote stop during normal test or TPS test.	Same as parameter A	None
G	Low coolant level	Low coolant level alarm from digital contact	Same as parameter A	I4.8
H	Low oil level	Low oil level alarm from digital contact	Same as parameter A	None
I	Clogged air filter	Clogged air filter alarm from digital contact	Same as parameter A	None
J	Ground protection	Ground protection alarm from digital contact	Same as parameter A	None
K	Feedback KG	Feedback generator contactor. Is activated if KG output is On but feedback is not and viceversa.	Same as parameter A	None
L	Feedback KR	Feedback generator contactor. Is activated if KR output is On but feedback is not and viceversa. Please note: This alarm is considered to start the generator in auto mode with "Start by KR" parameters programmed to On. In this case this alarm should be programmed as retentive to avoid start and stop loops.	Same as parameter A	None
M	User alarm 1	Label editable alarm from digital contact	Same as parameter A	None
N	User alarm 2	Label editable alarm from digital contact	Same as parameter A	None
O	User alarm 3	Label editable alarm from digital contact	Same as parameter A	None
P	Refueling On	If refueling mode selected is "Digital inputs", when this input is active, the refueling output is activated.	Same as parameter A	None
Q	Refueling Off	If refueling mode selected is "Digital inputs", when this input is active, the refueling output is deactivated. This input have priority over Refueling On input.	Same as parameter A	None
R	Fuel tank full	Fuel tank full alarm from digital contact. If refueling pump output is On, is deactivated.	Same as parameter A	None
S	Off mode	Activates Off mode.	Same as parameter A	None
T	Auto mode	Activates automatic mode.	Same as parameter A	None
U	External mains control	If the selected input is active, the mains is detected within limits also if measurements of voltage and frequency are outside programmed values.	Same as parameter A	None
V	High coolant temperature	High coolant temperature alarm from digital contact.	Same as parameter A	None
W	Water in fuel	Water in fuel alarm from digital contact	Same as parameter A	None
X	Priority	If activated, during dual standby mode, the generator becomes the active one even if is not its turn by working hours difference.	Same as parameter A	None

2- 10.2 M8.2 - nastavení výstupy



The Output setup permits to select the type of use of the programmable outputs.

The outputs O5.8, O5.9, O5.10, O5.11, O5.5 crank and O5.4 EV can be programmed as:

- Start: the output is used to command the start.
- Fuel valve (EV): the output is used to command the stop with EV.
- Electro solenoid (EM): the output is used to command the stop with EM.
- Glow plugs: the output is used to command the preheating function, with modality that you can set in the preheat setup.
- Siren: the output is used to command a siren that sounds when an alarm with siren enabled appears.
- Global alarm 1: the output is used to command an indication when an alarm set as general alarm 1 appears. The output remains active until you reset or the alarm disappears.
- Engine running: the output is activated when the generator is running.
- Test active: the output is used to signal that the test is active.
- Refueling pump: the output is used to command the start and stop of a refueling pump. The parameters about the refilling functions can be set in the fuel menu.
- Dummy load: the output is used for the dummy load function. To have more informations about this function, see menu 2-8.3.
- Off mode: indicates that the controller is in reset mode
- Auto mode: indicates that the controller is in automatic mode
- Man mode: indicates that the controller is in manual mode
- Global alarm 2: the output is used to command an indication when an alarm set as general alarm 2 appears. The output remains active until you reset or the alarm disappears.
- Global alarm 3: the output is used to command an indication when an alarm set as general alarm 3 appears. The output remains active until you reset or the alarm disappears.
- KG ON: indicates that the generator contactor is closed
- KR ON: indicates that the mains contactor is closed
- Alarm A: the output is active when the alarm assigned to A position by M8.2 - g parameter is active
- Alarm B: the output is active when the alarm assigned to B position by M8.2 - h parameter is active
- Alarm C: the output is active when the alarm assigned to C position by M8.2 - i parameter is active
- Choke: output that is activated for the starting of Gasoline engines, with time and limits settable in the choke setup
- ECU: output that is active during the functioning of the generator, and for a programmable time after the stopping of the generator and the turn-on of the controller. See paragraph 2-5.10 for more information.
- Decelerator: the output is activated for a programmable time (M3.1 – parameter P) after the detection of engine running. This output is also active during all the cooling phase and the stop phase.
- Accelerator: the output is activated after a programmable time at the starting (M3.1 – parameter P), and it is de-activated at the beginning of the cooling/stop phase.
- Heater: the output is activated by Heater feature programmed in M6.5.
- Ge.ready: the output is activated when the generator is ready to take the load.
- Oil alarm: indicates that one alarm about the oil pressure is active
- Fuel alarm: indicates that one alarm about the fuel level is active
- Temperature alarm: indicates that one alarm about the engine temperature is active

POS.	NAME	RANGE OF VALUES	DEFAULT SETTINGS
A	O5.8	Start – EV – EM – Glow plugs – Siren – Global alarm 1 – Engine running – Test active – Refueling pump – Dummy load – Reset mode – Auto mode – Man mode – Global alarm 2 – Global alarm 3 – KG ON – KR ON - Alarm A - Alarm B - Alarm C - Choke - ECU - Decelerator - Accelerator - Heater - Ge.Ready - Oil alarm - Fuel alarm - Temperature alarm	Global alarm 1
B	O5.9	Same as parameter A	Glow plugs
C	O5.10	Same as parameter A	Siren
D	O5.11	Same as parameter A	Electro solenoid (EM)
E	O5.5 Start	Same as parameter A	Start
F	O5.4 EV	Same as parameter A	EV
G	Alarm A	[Off - 64] - see single alarm ID list below	Off
H	Alarm B	[Off - 64] - see single alarm ID list below	Off
I	Alarm C	[Off - 64] - see single alarm ID list below	Off

Single alarms ID list:

Use the list below in conjunction with M8.2G, M8.2H and M8.2 I parameters to assign a specific alarm to an output.

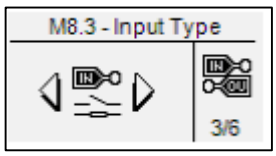
Configuration example:

- M8.2 - b programmed to "ALARM A"
- M8.2 - c programmed to "ALARM B"
- M8.2 - d programmed to "ALARM C"
- M8.2 - g programmed to 8
- M8.2 - h programmed to 4
- M8.2 - i programmed to 3

With this configuration output O5.9 will be activated with "Mains phase seq." alarm, output O5.10 will be activated with "Mains: high voltage" and output 5.11 will be activated with "Mains: low voltage" alarm.

1	Mains: low freq.
2	Mains: high freq
3	Mains: low voltage
4	Mains: high voltage
5	Mains: v asymmetry
6	Faulty mains
7	KR feedback
8	Mains phase seq.
9	Ge: low freq.
10	Ge: high freq.
11	Ge: low voltage
12	Ge: high voltage
13	Ge: phase seq.
14	Ge: short circuit
15	Ge: Imax
16	Ge: v asymmetry
17	Ground protection
18	Emergency stop
19	KG feedback
20	User alarm1
21	User alarm2
22	User alarm3
23	Start failure
24	Mechanical fault
25	Temp. pre alarm
26	High eng. Temp.
27	Fuel pre alarm
28	Low fuel level
29	Oil pressure prealarm
30	Low oil pressure
31	Low oil level
32	Low coolant level
33	Stop engine failure
34	Service
35	Refueling timeout
36	Faulty D+
37	High GE temp. D
38	Low fuel level D
39	Low oil pressure D
40	Autonomy low
41	Clogged filter
42	Tank full
43	No oil sensor
44	Low battery voltage
45	High battery voltage
46	Test fail
47	Low RPM
48	High RPM
49	Water in fuel
50	High coolant temp
51	Master comm error
52	Battery Efficiency
53-64	Free

2- 10.3 M8.3 - typ vstupu



The input type setup permits to select the type of programmable inputs.

The inputs I4.4, I4.5, I4.6, I4.7, I4.8 can be programmed as:
- Disabled: the input is not active
- Digital NO: the input is digital type normally open
- Digital NC: the input is digital type normally closed

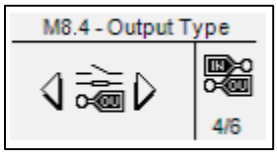
The inputs I6.2, can be programmed as:
- Disabled: the input is not active
- Pressure: the input is programmed for analog oil pressure
- Level: the input is programmed for secondary analog fuel level percentage (only custom application)
- Temperature: the input is programmed for analog external temperature (only custom application)
- Digital NO: the input is digital type normally open
- Digital NC: the input is digital type normally closed

The inputs I6.3, I6.4 can be programmed as:
- Disabled: the input is not active
- Analog: the input is analog for a specific measure programmed by tool configuration
- Digital NO: the input is digital type normally open
- Digital NC: the input is digital type normally closed

The parameter “Analog source” permits to choose if the oil pressure, engine temperature and battery voltage sources are directly from TE809 or via Canbus; the alarms are the same for both analog sources.

POS.	NAME	RANGE OF VALUES	DEFAULT SETTINGS
A	I4.4	Disabled – Digital NO – Digital NC	Digital NO
B	I4.5	Disabled – Digital NO – Digital NC	Digital NO
C	I4.6	Disabled – Digital NO – Digital NC	Digital NO
D	I4.7	Disabled – Digital NO – Digital NC	Digital NO
E	I4.8	Disabled – Digital NO – Digital NC	Digital NO
F	I6.2-Oil	Disabled – Pressure - Level - Temperature – Digital NO – Digital NC	Pressure
G	I6.3-Temperature	Disabled – Analog – Digital NO – Digital NC	Analog
H	I6.4-Fuel	Disabled – Analog – Digital NO – Digital NC	Analog
I	Analog source	TE809-Can	TE809
J	RPM source	Frequency – Pickup – Canbus If programmed as “Frequency”, the engine speed is calculated from alternator frequency multiplied by rpm constant parameter (M3.1j) which by default is 30. If M3.1j is programmed as 1, it becomes 30 when “Frequency” option is selected. If programmed as “Pickup”, the engine speed is calculated from pickup frequency input (J7.1) multiplied by rpm constant parameter (M3.1j). To find the correct rpm correction factor, use Autoset RPM parameter (M8.3k). If programmed as “Canbus”, the engine speed is calculated from Canbus frequency multiplied by rpm constant parameter (M3.1j) which will be automatically fixed at 1.	Frequency
K	Autoset RPM (only if M8.3J = pickup)	Detect Start the generator and speed up to match rated speed 1500 rpm. If the frequency detected by pickup is greater than 10Hz, you can press “Detect” button to find the correct conversion factor for your pickup sensor.	-
L	Engine speed (only if M8.3J = pickup)	It show the actual value of engine speed.	-

2- 10.4 M8.4 - typ výstupu



The output type setup permits to select the type of programmable outputs.

The outputs O5.8, O5.9, O5.10, O5.11 can be programmed as:

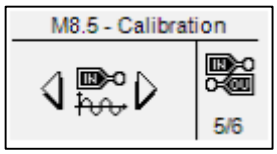
- Disabled: the output is not active
- Digital NO: the output is digital type normally open
- Digital NC: the output is digital type normally closed

The output O5.5 Start and O5.4 Ev can be programmed as:

- Disabled: the output is not active
- Digital NO: the output is digital type normally open

POS.	NAME	RANGE OF VALUES	DEFAULT SETTINGS
A	O5.8	Disabled – Digital NO – Digital NC	Digital NO
B	O5.9	Disabled – Digital NO – Digital NC	Digital NO
C	O5.10	Disabled – Digital NO – Digital NC	Digital NO
D	O5.11	Disabled – Digital NO – Digital NC	Digital NO
E	O5.4 Ev	Disabled – Digital NO	Digital NO
F	O5.5 Start	Disabled – Digital NO	Digital NO

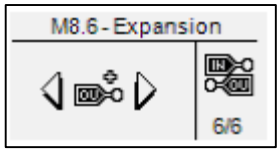
2- 10.5 M8.5 - kalibrace



The measures setup allows to adjust the measured values for genset and mains voltages and load currents. For each voltage measure it's possible to set a calibration offset with steps of 0.1 V. For each current measure the offset is a percentage of the CT ratio, in steps of 0,1 %.

POS.	NAME	RANGE OF VALUES	DEFAULT SETTINGS
A	VL1 Gen	-100 +100 (V/10)	0
B	VL2 Gen	-100 +100 (V/10)	0
C	VL3 Gen	-100 +100 (V/10)	0
D	VL1 Mains	-100 +100 (V/10)	0
E	VL2 Mains	-100 +100 (V/10)	0
F	VL3 Mains	-100 +100 (V/10)	0
G	IL1	50.0 – 150.0 (%)	100
H	IL2	50.0 – 150.0 (%)	100
I	IL3	50.0 – 150.0 (%)	100

2- 10.6 M8.6 - rozšíření



The Expansion setup permits to select the type of use of the programmable outputs of an eventual TE6010 expansion board.

The outputs from ExOut_1 to ExOut_7 can be programmed as:

- None: no function associated to the output
- Siren: the output is used to command a siren that sounds when an alarm with siren enabled appears.
- Global alarm 1: the output is used to command an indication when an alarm set as general alarm 1 appears. The output remains active until you reset or the alarm disappears.
- Engine running: the output is activated when the generator is running.
- Test active: the output is used to signal that the test is active.
- Refueling pump: the output is used to command the start and stop of a refueling pump. The parameters about the refilling functions can be set in the fuel menu.
- Dummy load: the output is used for the dummy load function. To have more information about this function, see menu 2-8.3.
- Off mode: indicates that the controller is in reset mode
- Auto mode: indicates that the controller is in automatic mode
- Man mode: indicates that the controller is in manual mode
- Global alarm 2: the output is used to command an indication when an alarm set as general alarm 2 appears. The output remains active until you reset or the alarm disappears.
- Global alarm 3: the output is used to command an indication when an alarm set as general alarm 3 appears. The output remains active until you reset or the alarm disappears.
- KG ON: indicates that the generator contactor is closed
- KR ON: indicates that the mains contactor is closed
- Alarm A: the output is active when the alarm assigned to A position by M8.2 - g parameter is active
- Alarm B: the output is active when the alarm assigned to B position by M8.2 - h parameter is active
- Alarm C: the output is active when the alarm assigned to C position by M8.2 - i parameter is active
- GE ready: the output is activated when the generator is ready to take the load.
- Oil alarm: indicates that one alarm about the oil pressure is active
- Fuel alarm: indicates that one alarm about the engine temperature is active
- Temperature alarm: indicates that one alarm about the fuel level is active

All the parameters available in the Expansion setup are:

POS.	NAME	RANGE OF VALUES	DEFAULT SETTINGS
A	Enable	On to enable communication between TE809A and expansion board	Off
B	Bitrate (bps)	Change the serial speed value for expansion board. To activate the new port speed the expansion must be switch off. At the new startup the serial port will be ready at the new speed value: 1 = Set 9600 bps 2 = Set 19200 bps 3 = Set 38400 bps (expansion def.) 4 = Set 57600 bps 5 = Set 115200 bps	0 (expansion def.)
C	Timeout (s)	Set the timeout delay on communication between TE809A and expansion board: Set the value from 1 to 255 (s), 0 is the expansion default value which is 5 s.	0 (expansion def.)
D	ExOut_0	None – Siren – Global alarm 1 – Engine running – Test active – Refueling pump – Dummy load – Reset mode – Auto mode – Man mode – Global alarm 2 – Global alarm 3 – KG ON – KR ON – Global alarm pressure – Global alarm temperature – Global alarm level	None
E	ExOut_1	Same as parameter A	None
F	ExOut_2	Same as parameter A	None
G	ExOut_3	Same as parameter A	None
H	ExOut_4	Same as parameter A	None
I	ExOut_5	Same as parameter A	None
J	ExOut_6	Same as parameter A	None
K	ExOut_7	Same as parameter A	None

Note: If you are using a TE6010M (8 digital outputs), the 8 outputs are from ExOut_0 to ExOut_7.
If you are using a TE6010C (5 relay outputs), the 5 outputs are from ExOut_0 to ExOut_4.

2- 10.7 rozšiřující deska TE6010

The Expansion board TE6010 permits to increase the number of inputs/outputs of the TE809. It is composed by a base module (TE6010 base) and 1 or more input/output modules.
By default, the TE809 can command 1 TE6010 with one of the following configurations:

a) 8 digital inputs (TE6010 base + TE6010B)
b) 8 digital outputs (TE6010 base + TE6010M)
c) 8 digital inputs + 8 digital outputs (TE6010 base + TE6010B + TE6010M)
d) 5 relay outputs (TE6010 base + TE6010C)

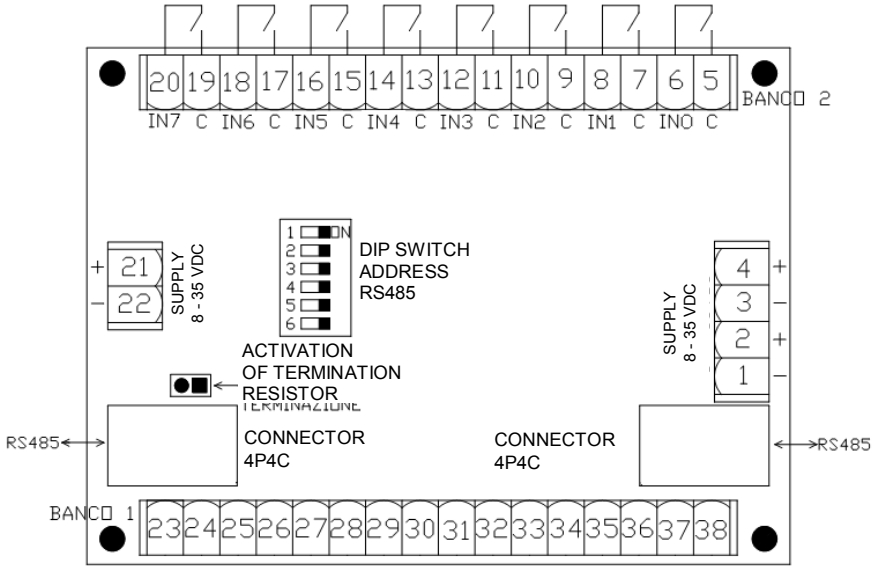
It means that it's possible to connect a TE6010 expansion board to an already working TE809 (from v1.1.4) without any update of the existing TE809.

2- 10.7.1 - 8 digitálních vstupů

It's used the expansion TE6010B, with 8 digital inputs NPN type. Every input has his own common.

1 TE6010 base with:
Bank 1: Not used
Bank 2: TE6010B

Note: the TE6010B expansion can be connected only to bank 2

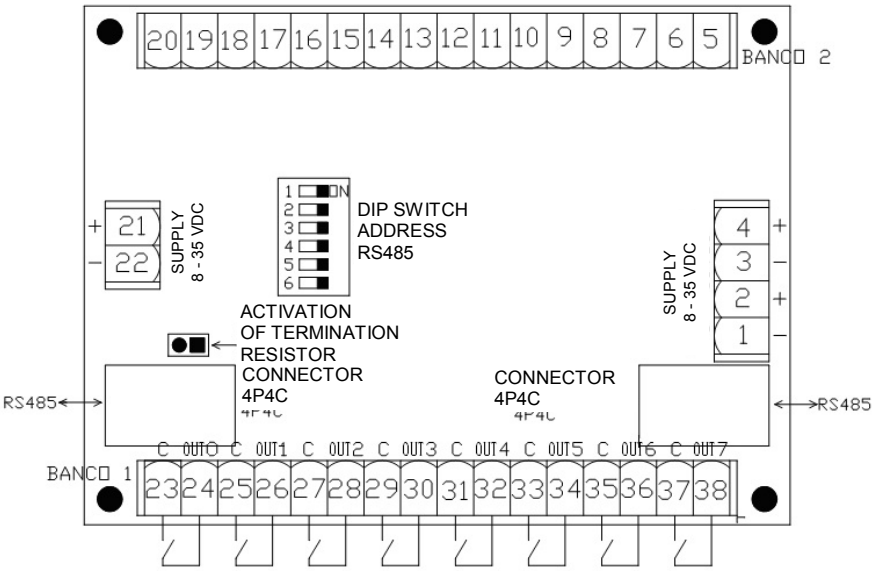


2- 10.7.2 - 8 digitálních výstupů

It's used the expansion TE6010M, with 8 digital outputs, NPN type. For every output the common is already connected to the battery positive. When the output is active the relative OUT terminal is connected to battery negative.

1 TE6010 base with:
Bank 1: TE6010M
Bank 2: Not used

Note: the TE6010M expansion can be connected only to bank 1

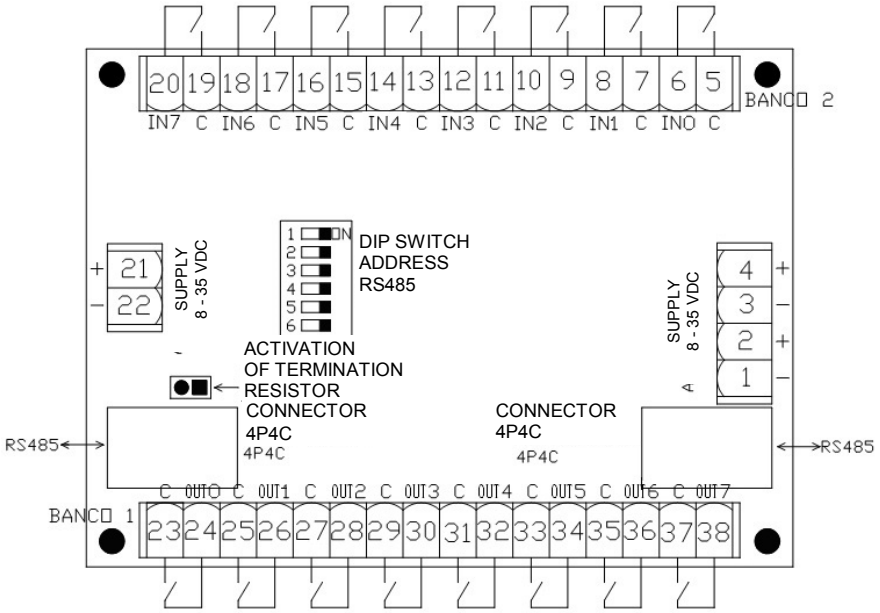


2- 10.7.3 - 8 digitálních vstupů + 8 digitálních výstupů

It's used one expansion TE6010B, with 8 digital inputs NPN type, and one TE6010M, with 8 digital outputs NPN type.

1 TE6010 base with:
Bank 1: TE6010M
Bank 2: TE6010B

Note: the TE6010M expansion can be connected only to bank 1, and TE6010B expansion can be connected only to bank 2

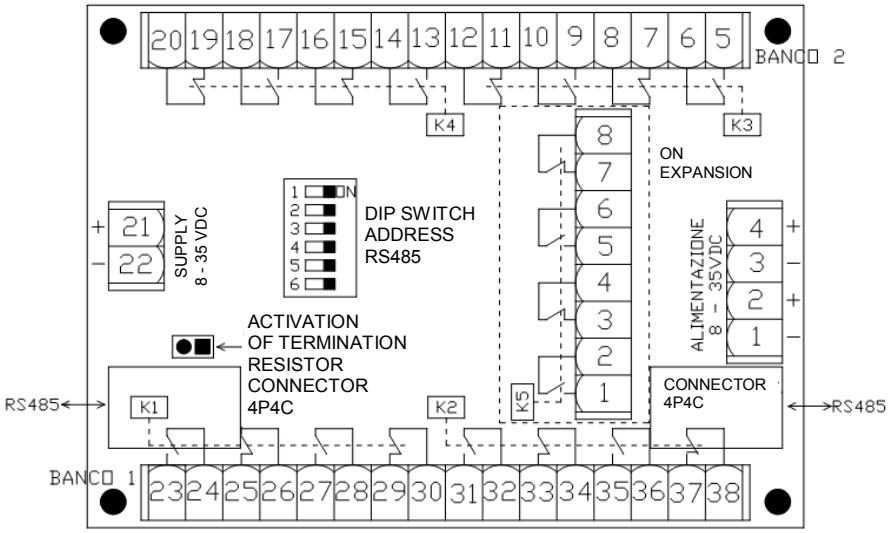


2- 10.7.4 – 5 reléových výstupů

It's used one expansion TE6010C, with 5 relay outputs. For every relay are available 2 NO and 2 NC contacts, everyone with a dedicated common.

1 TE6010 base with:
Bank 1-2: TE6010C

Note: remember to installa correctly yhe TE6010C expansion: the 8 terminals of the expansion must be on the side of the 4-pins supply connector.



2- 11 - Modbus RTU

Project: TE809A_b4.6.4.14_v2.0.0Z.te808
TE Utilities: 4.6.4.14

2- 11.1 hlavní poznámky

The purpose of this document is to give the instructions to communicate with the TE809 with a Modbus Master device, through the Modbus RTU (zero-based) serial protocol.

The TE809 controller can be configured as a Modbus slave device, that can be queried by a Modbus master device. The Modbus communication anyway must be established and configured by skilled users following the Modbus protocol rules. For more documentation about the Modbus protocol, please refer to the following link:

http://www.modbus.org/specs.php

For first tests and trials it's possible to use the demo version of the Modbus Poll program, downloadable at the following link:

http://www.modbustools.com/modbus_poll.asp

The TE809 has 2 ports that can be used for the Modbus communication: 1 RS232 and 1 RS485.

2- 11.2 Te809 konfigurace

The only thing to configure in the TE809 is the serial port. Go to Connectivity setup M7, then select Serial setup M7.1.

If you are using the RS485 port, check that parameter B is set to **Modbus Slave**. Then set parameter C to the desired speed of communication, and parameter A that is the address of the device. If you are using more than one device, be sure that all of them have a different address.

If you are using the RS232 port, check that parameter E is seto to **Modbus Slave**. Then set parameter F to the desired speed of communication, and parameter A that is the address of the device.

2- 11.3 Modbus příkazy

It's possible to send 2 different types of requests to the TE809. A reading requests ro read single registers (modbus function: 03) or a writing request to set a single register (modbus function: 06). Every register is composed by 1 word (2 bytes).

The function 03-Read Holding Registers permits to read one or more registers from the TE809.

Example:

Request: Send to slave address 25 the request of reading register 69:

ADDR	FUNC	DATA start Addr HI	DATA start Addr LO	DATA bit # HI	DATA bit # LO	CRC HI	*CRC* LO
19	03	00	44	00	01	46	06
Slave address	Function	Address of the desired register		Number of registers required		CRC checksum	

Answer:

ADDR	FUNC	DATA byte count	DATA byte 69 HI	DATA byte 69 LO	CRC HI	*CRC* LO
19	03	02	02	2B	AF	7A
Slave address	Function	Number of bytes	Value of the required register		CRC checksum	

The function 06-Preset Single Register permits to set one register of the TE809 to a desired value.

Example:

Request: Send to slave address 35 the request of writing the value 928 into register 26:

ADDR	FUNC	DATA bit # HI	DATA bit # LO	DATA Word HI	DATA Word LO	CRC HI	*CRC* LO
23	06	00	19	03	A0	5E	07
Slave address	Function	Address of the desired register		Value to set in the register		CRC checksum	

Answer (identical message retransmitted after editing the register):

ADDR	FUNC	DATA bit # HI	DATA bit # LO	DATA Word HI	DATA Word LO	CRC HI	*CRC* LO
23	06	00	19	03	A0	5E	07
Slave address	Function	Address of the desired register		Value to set in the register		CRC checksum	

First measures registers which can be read with a single read holding register function of 44 registers starting from address 760 (759 if zero based modbus):

Var.Name - FIRST PACK	Var.Visual	Var.Type	ID	R/W	Scale
Active program	DT_NUMERIC	MW2756	40760	R	1
Fuel level percentage	DT_NUMERIC	MW2758	40761	R	10
Rpm	DT_NUMERIC	MW2760	40762	R	1
Oil pressure	DT_NUMERIC	MW2762	40763	R	10
Engine temperature	DT_NUMERIC	MW2764	40764	R	1
Mains Line voltage L1-L2	DT_NUMERIC	MW2766	40765	R	1
Mains Line voltage L2-L3	DT_NUMERIC	MW2768	40766	R	1
Mains Line voltage L3-L1	DT_NUMERIC	MW2770	40767	R	1
Mains phase voltage L1	DT_NUMERIC	MW2772	40768	R	1
Mains phase voltage L2	DT_NUMERIC	MW2774	40769	R	1
Mains phase voltage L3	DT_NUMERIC	MW2776	40770	R	1
Mains frequency	DT_NUMERIC	MW2778	40771	R	10
Mains kWh	DT_NUMERIC	MW2780	40772	R	1
Generator Line voltage L1-L2	DT_NUMERIC	MW2782	40773	R	1
Generator Line voltage L2-L3	DT_NUMERIC	MW2784	40774	R	1
Generator Line voltage L3-L1	DT_NUMERIC	MW2786	40775	R	1
Generator phase voltage L1	DT_NUMERIC	MW2788	40776	R	1
Generator phase voltage L2	DT_NUMERIC	MW2790	40777	R	1
Generator phase voltage L3	DT_NUMERIC	MW2792	40778	R	1
Generator frequency	DT_NUMERIC	MW2794	40779	R	10
Generator kWh	DT_NUMERIC	MW2796	40780	R	1
Engine D+ voltage	DT_NUMERIC	MW2798	40781	R	1
Engine Battery voltage	DT_NUMERIC	MW2800	40782	R	10
Start attempts	DT_NUMERIC	MW2802	40783	R	1
Work hours	DT_NUMERIC	MW2804	40784	R	1
Daily work hours	DT_NUMERIC	MW2806	40785	R	1
Service hours	DT_NUMERIC	MW2808	40786	R	1
Test mode on	DT_NUMERIC	MW2810	40787	R	1
IO status: Bit0= Input 4.4 Bit1= Input 4.5 Bit2= Input 4.6 Bit3= Input 4.7 Bit4= Input 4.8 Bit5= Input 6.2 Bit6= Input 6.3 Bit7= Input 6.4 Bit8= Output 5.8 Bit9= Output 5.9 Bit10= Output 5.10 Bit11= Output 5.11 Bit12= Output KR Bit13= Output KG Bit14= Output Start Bit15= Output EV	DT_NUMERIC	MW2812	40788	R	Bin
Load current L1	DT_NUMERIC	MW2814	40789	R	1
Load current L2	DT_NUMERIC	MW2816	40790	R	1
Load current L3	DT_NUMERIC	MW2818	40791	R	1
Total load current	DT_NUMERIC	MW2820	40792	R	1
Total active power	DT_NUMERIC	MW2822	40793	R	1
Total reactive power	DT_NUMERIC	MW2824	40794	R	1
Total apparent power	DT_NUMERIC	MW2826	40795	R	1

Fuel level liters	DT_NUMERIC	MW2828	40796	R	10
Autonomy hours	DT_NUMERIC	MW2830	40797	R	1
Instant consumption	DT_NUMERIC	MW2832	40798	R	10
Average consumption	DT_NUMERIC	MW2834	40799	R	10
Last refilling	DT_NUMERIC	MW2836	40800	R	10
Total power factor	DT_NUMERIC	MW2838	40801	R	100
Not used	DT_NUMERIC	MW2840	40802	R	1
Not used	DT_NUMERIC	MW2842	40803	R	1

Var.Name - SECOND PACK	Var.Visual	Var.Type	ID	R/W	Scale
Active power L1	DT_NUMERIC	MW3022	40852	R	1
Active power L2	DT_NUMERIC	MW3024	40853	R	1
Active power L3	DT_NUMERIC	MW3026	40854	R	1
Apparent power L1	DT_NUMERIC	MW3028	40855	R	1
Apparent power L2	DT_NUMERIC	MW3030	40856	R	1
Apparent power L3	DT_NUMERIC	MW3032	40857	R	1
Reactive power L1	DT_NUMERIC	MW3034	40858	R	10
Reactive power L2	DT_NUMERIC	MW3036	40859	R	10
Reactive power L3	DT_NUMERIC	MW3038	40860	R	10
Power factor L1	DT_NUMERIC	MW3040	40861	R	100
Power factor L2	DT_NUMERIC	MW3042	40862	R	100
Power factor L3	DT_NUMERIC	MW3044	40863	R	100
Not used	DT_NUMERIC	MW3046	40864	R	1
Not used	DT_NUMERIC	MW3048	40865	R	1
Not used	DT_NUMERIC	MW3050	40866	R	1
Not used	DT_NUMERIC	MW3052	40867	R	1
Not used	DT_NUMERIC	MW3054	40868	R	1
Not used	DT_NUMERIC	MW3056	40869	R	1
Rpm (canbus)	DT_NUMERIC	MW3058	40870	R	10
Work hours (canbus)	DT_NUMERIC	MW3060	40871	R	10
Battery voltage (canbus)	DT_NUMERIC	MW3062	40872	R	10
Coolant level (canbus)	DT_NUMERIC	MW3064	40873	R	10
Oil pressure (canbus)	DT_NUMERIC	MW3066	40874	R	10
Engine temperature (canbus)	DT_NUMERIC	MW3068	40875	R	10
Alarm SPN (canbus)	DT_NUMERIC	MW3070	40876	R	10
Alarm FMI (canbus)	DT_NUMERIC	MW3072	40877	R	10
Instant consumption (canbus)	DT_NUMERIC	MW3074	40878	R	10
Not used	DT_NUMERIC	MW3076	40879	R	Dec
Not used	DT_NUMERIC	MW3078	40880	R	Dec
Alarm package 1: Bit0= Mains: low freq. Bit1= Mains: high freq Bit2= Mains: low voltage Bit3= Mains: high voltage Bit4= Mains: v asymmetry Bit5= Faulty mains Bit6= KR feedback Bit7= Mains phase seq. Bit8= Ge: low freq. Bit9= Ge: high freq. Bit10= Ge: low voltage Bit11= Ge: high voltage Bit12= Ge: phase seq. Bit13= Ge: short circuit Bit14= Ge: Imax Blt15= Ge: v asymmetry	DT_NUMERIC	MW3080	40881	R	Bin
Alarm package 2: Bit0= Ground protection Bit1= Emergency stop Bit2= KG feedback Bit3= User alarm1 Bit4= User alarm2 Bit5= User alarm3 Bit6= Start failure Bit7= Mechanical fault Bit8= Temp. pre alarm Bit9= High eng. Temp. Bit10= Fuel pre alarm Bit11= Low fuel level Bit12= Oil pressure prealarm Bit13= Low oil pressure Bit14= Low oil level Blt15= Low coolant level	DT_NUMERIC	MW3082	40882	R	Bin
Alarm package 3: Bit0= Stop engine failure Bit1= Service Bit2= Refueling timeout Bit3= Faulty D+ Bit4= High GE temp. D Bit5= Low fuel level D Bit6= Low oil pressure D Bit7= Autonomy low Bit8= Clogged filter Bit9= Tank full Bit10= No oil sensor Bit11= Low battery voltage Bit12= High battery voltage Bit13= Test fail Bit14= Low RPM Blt15= High RPM	DT_NUMERIC	MW3084	40883	R	Bin

Alarm package 4: Bit0= Water in fuel Bit1= High coolant temp Bit2= Master comm error Bit3= Battery Efficiency Bit4= Free Bit5= Free Bit6= Free Bit7= Free Bit8= Free Bit9= Free Bit10= Free Bit11= Free Bit12= Free Bit13= Free Bit14= Free Blt15= Free	DT_NUMERIC	MW3086	40884	R	Bin
RTC clock minutes	DT_NUMERIC	MW3088	40885	R	1
RTC clock hours	DT_NUMERIC	MW3090	40886	R	1
RTC clock seconds	DT_NUMERIC	MW3092	40887	R	1
RTC clock day of the week	DT_NUMERIC	MW3094	40888	R	1
RTC clock day of the month	DT_NUMERIC	MW3096	40889	R	1
RTC clock month	DT_NUMERIC	MW3098	40890	R	1
RTC Clock year	DT_NUMERIC	MW3100	40891	R	1
Expansion board enable	DT_NUMERIC	MW3102	40892	R	Flag
Expansion board input status - High byte	DT_NUMERIC	MW3104	40893	R	Bin
Expansion board outputs - Low byte	DT_NUMERIC	MW3106	40894	R	Bin
Not used	DT_NUMERIC	MW3108	40895	R	1

Var.Name - ALARMS	Var.Visual	Var.Type	ID	R/W	Scale
Out special A	DT_NUMERIC	M5847.6	42665	R	Flag
Out special B	DT_NUMERIC	M5847.7	42666	R	Flag
Out special C	DT_NUMERIC	M5885.0	42667	R	Flag
Cumulative alarm mains	DT_NUMERIC	M5885.1	42668	R	Flag
Cumulative alarm generator	DT_NUMERIC	M5885.2	42669	R	Flag
Cumulative alarm pressure	DT_NUMERIC	M5885.3	42670	R	Flag
Cumulative alarm fuel	DT_NUMERIC	M5885.4	42671	R	Flag
Cumulative alarm battery	DT_NUMERIC	M5885.5	42672	R	Flag
Cumulative alarm temperature	DT_NUMERIC	M5885.6	42673	R	Flag
Mains: low freq.	DT_NUMERIC	M5885.7	42674	R	Flag
Mains: high freq	DT_NUMERIC	M5898.0	42675	R	Flag
Mains: low voltage	DT_NUMERIC	M5898.1	42676	R	Flag
Mains: high voltage	DT_NUMERIC	M5898.2	42677	R	Flag
Mains: v asymmetry	DT_NUMERIC	M5898.3	42678	R	Flag
Faulty mains	DT_NUMERIC	M5898.4	42679	R	Flag
KR feedback	DT_NUMERIC	M5898.5	42680	R	Flag
Mains phase seq.	DT_NUMERIC	M5898.6	42681	R	Flag
Ge: low freq.	DT_NUMERIC	M5898.7	42682	R	Flag
Ge: high freq.	DT_NUMERIC	M5899.0	42683	R	Flag
Ge: low voltage	DT_NUMERIC	M5899.1	42684	R	Flag
Ge: high voltage	DT_NUMERIC	M5899.2	42685	R	Flag
Ge: phase seq.	DT_NUMERIC	M5899.3	42686	R	Flag
Ge: short circuit	DT_NUMERIC	M5899.4	42687	R	Flag
Ge: Imax	DT_NUMERIC	M5899.5	42688	R	Flag
Ge: v asymmetry	DT_NUMERIC	M5899.6	42689	R	Flag
Ground protection	DT_NUMERIC	M5899.7	42690	R	Flag
Emergency stop	DT_NUMERIC	M5900.0	42691	R	Flag
KG feedback	DT_NUMERIC	M5900.1	42692	R	Flag
User alarm1	DT_NUMERIC	M5900.2	42693	R	Flag
User alarm2	DT_NUMERIC	M5900.3	42694	R	Flag
User alarm3	DT_NUMERIC	M5900.4	42695	R	Flag
Start failure	DT_NUMERIC	M5900.5	42696	R	Flag
Mechanical fault	DT_NUMERIC	M5900.6	42697	R	Flag
Temp. pre alarm	DT_NUMERIC	M5900.7	42698	R	Flag
High eng. Temp.	DT_NUMERIC	M5901.0	42699	R	Flag
Fuel pre alarm	DT_NUMERIC	M5901.1	42700	R	Flag
Low fuel level	DT_NUMERIC	M5901.2	42701	R	Flag
Oil pressure prealarm	DT_NUMERIC	M5901.3	42702	R	Flag
Low oil pressure	DT_NUMERIC	M5901.4	42703	R	Flag
Low oil level	DT_NUMERIC	M5901.5	42704	R	Flag
Low coolant level	DT_NUMERIC	M5901.6	42705	R	Flag
Stop engine failure	DT_NUMERIC	M5901.7	42706	R	Flag
Service	DT_NUMERIC	M5902.0	42707	R	Flag
Refueling timeout	DT_NUMERIC	M5902.1	42708	R	Flag
Faulty D+	DT_NUMERIC	M5902.2	42709	R	Flag
High GE temp. D	DT_NUMERIC	M5902.3	42710	R	Flag
Low fuel level D	DT_NUMERIC	M5902.4	42711	R	Flag
Low oil pressure D	DT_NUMERIC	M5902.5	42712	R	Flag
Autonomy low	DT_NUMERIC	M5902.6	42713	R	Flag
Clogged filter	DT_NUMERIC	M5902.7	42714	R	Flag
Tank full	DT_NUMERIC	M5903.0	42715	R	Flag
No oil sensor	DT_NUMERIC	M5903.1	42716	R	Flag
Low battery voltage	DT_NUMERIC	M5903.2	42717	R	Flag
High battery voltage	DT_NUMERIC	M5903.3	42718	R	Flag
Test fail	DT_NUMERIC	M5903.4	42719	R	Flag
Low RPM	DT_NUMERIC	M5903.5	42720	R	Flag
High RPM	DT_NUMERIC	M5903.6	42721	R	Flag
Water in fuel	DT_NUMERIC	M5903.7	42722	R	Flag
High coolant temp	DT_NUMERIC	M5904.0	42723	R	Flag

Master comm error	DT_NUMERIC	M5904.1	42724	R	Flag
Battery Efficiency	DT_NUMERIC	M5904.2	42725	R	Flag
Free	DT_NUMERIC	M5904.3	42726	R	Flag
Free	DT_NUMERIC	M5904.4	42727	R	Flag
Free	DT_NUMERIC	M5904.5	42728	R	Flag
Free	DT_NUMERIC	M5904.6	42729	R	Flag
Free	DT_NUMERIC	M5904.7	42730	R	Flag
Free	DT_NUMERIC	M5905.0	42731	R	Flag
Free	DT_NUMERIC	M5905.1	42732	R	Flag
Free	DT_NUMERIC	M5905.2	42733	R	Flag
Free	DT_NUMERIC	M5905.3	42734	R	Flag
Free	DT_NUMERIC	M5905.4	42735	R	Flag
Free	DT_NUMERIC	M5905.5	42736	R	Flag
Free	DT_NUMERIC	M5905.6	42737	R	Flag
Last alarm ID	DT_NUMERIC	MW5914	42802	R	Dec

Var.Name - COMMANDS	Var.Visual	Var.Type	ID	R/W	Scale
Manual mode	DT_NUMERIC	M7576.5	40664	W	1
Auto mode	DT_NUMERIC	M7576.6	40669	W	1
Reset mode	DT_NUMERIC	M7576.7	40674	W	1
Start engine	DT_NUMERIC	M7577.0	40679	W	1
Stop engine	DT_NUMERIC	M7577.1	40684	W	1
Test mode	DT_NUMERIC	M7577.2	40689	W	1
KG contactor	DT_NUMERIC	M7577.3	40694	W	1
KR contactor	DT_NUMERIC	M7577.4	40699	W	1

Přílohy

Příloha A: Křivka čidla paliva

(Linear interpolation between values)

Fuel level value (%)	VDO-Ohm	VEGLIA-Ohm	DATCON-Ohm
0	10	304	240
16	44	224	187
32	74	151	140
48	103	88	108
60	121	51	89
76	146	21	68
92	170	5	46
105	200	-1	-1

Příloha B: Křivka čidla tlaku oleje

(Linear interpolation between values)

Oil pressure value	VDO-ohm	VEGLIA-ohm	DATACON-ohm
0	10	305	240
2	51	204	174
4	87	114	123
6	122	53	88
8	153	12	62
10	181	12	37
12	181	12	37
14	181	12	37

Příloha C: Křivka čidla teploty motoru

(Linear interpolation between values)

Engine temperature value	VDO-ohm	VEGLIA-ohm	DATACON-ohm
0	685	1050	650
40	325	1050	650
60	145	495	345
80	65	245	172
100	35	125	80
120	22	80	49
140	15	50	30
150	-1	-1	-1

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