

User's instructions

- Level 3

S2500

S3000

R3000

S5000

& TELYS

© Publication : ref G.P.A.O.33502009603

GROUPES ÉLECTROGÈNES - GENERATING SETS
GRUPOS ELECTROGENOS - GERADORES ELÉCTRICOS
STROMERZEUGER - GRUPPI ELETTOGENI - GENERATORANLÆG
DIESELGENERATORAGGREGAT - AGGREGATER - AGGREGATEN
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Conception et réalisation : See Documentation

à partir des documents suivants :

Base documentaire constructeur groupes électrogènes + Doc BEE

Nombre de page : 45

Rédacteur : Sce elec.

Vérificateur : B.E.E.

Approbateur : B.E.

P. PLAZENET

Administrateur : Sce Doc.

SAFETY SYMBOLS



Caution : danger



Caution, refer to the publications supplied with the Genset



Caution : risk of electric shock



Protective clothing required.



Caution : toxic substances



Eye and hearings protection necessary



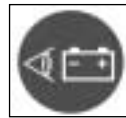
Caution : pressuried fluids



Periodic maintenance required



Caution : high temperature (risk of burning)



Check battery charge



Caution : rotating or moving parts (risk of entanglement)



Recommended Lifting point



Caution : risk of corrosion



Fork lift stacking point



Caution : risk of explosion



Naked flame and non protected lightning forbidden, no smoking



Authorised personnel only



Do not use water based fire extinguishers



Power



Trailer : link up the earth before starting the generator



Earth



Emergency stop

MACHINERY DIRECTIVE 8913921EC INSTRUCTION FOR GENERATING SETS.

- Access prohibited to unauthorized personnel
- Live installation, potential automatic starting.

PRESENTATION

S2500

R3000 - S3000 - S5000



Key



Panel light indicator

Lighting for wall mounted or free standing panel



Emergency Stop

The genset shuts down immediately and Telys goes into STOP mode



MICS Telys

Generating set programmable controller



MICS AMPG

Device for electrical value display



Potentiometer volts

Adjusts the alternator voltage



Potentiometer RMP

Adjusts the engine speed



Battery ammeter

Indicates the charging current value supplied by the charge alternator



Charger boost switch

The battery charger operates in BOOST CHARGE mode



Without objet

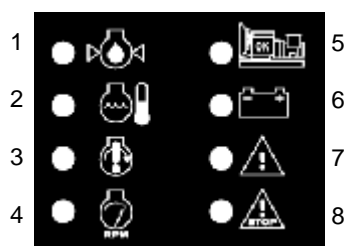
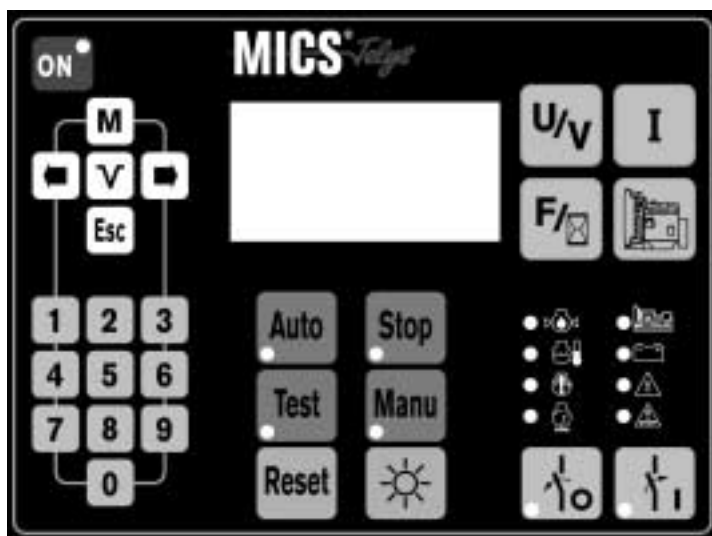


Fuel Pump Switch

Refuelling override control on the fuel tank (low level sensor bypassed)

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1. Oil pressure fault/shutdown (red LED on).
2. Water T° fault/shutdown (red LED on).
3. Overcranking fault/shutdown (red LED on).
4. Overspeed fault/shutdown (red LED on).
5. Genset on load or ready to take the load (green LED on).
6. Charge alternator fault/shutdown (red LED on).
7. General alarm/warning (yellow LED flashing).
8. General fault/shutdown (red LED flashing).



Power on after automatic shutdown (with LED).



Button to access the main menu (programming/display)



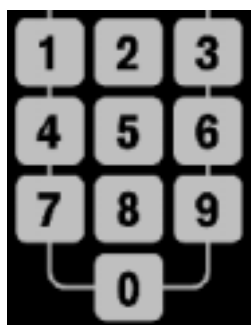
Button to validate a selection.



Button to exit a selection



Buttons to browse through menus and adjust contrast



Number pad



Button to open genset breaker (with LED).



Button to close genset breaker (with LED).



Button to display the voltages.



Button to display the currents



Button to display the frequency and hours counter



Button to display the engine parameters



Button to select Auto mode (with LED).



Button to select Test mode (with LED).



Button to select Stop mode (with LED).



Button to select Manu mode (with LED).



Button to acknowledge a fault.



Button to test the LEDs (except ON button LED).

1. FOREWORD

1.1. Precautions

☐ MICS Telys is connected to various AC voltage sources (alternator, mains, ...).

⚠ While the generating set is idle, any work inside the control equipment is strictly forbidden as some parts of the electric and electronic equipment stay live (mains voltage available).

☐ If work inside the control panel is required, it must be performed by staff authorised to work live.

⚠ When the generating set is running, the fuses marked **Fn, F1, F2, F3** are at a dangerous potential which can lead to electric shock when touched.

These fuses must be replaced when the generating set is in complete shutdown. For any voltage measurement on these four fuses, please use suitable equipment.

☐ The generating set can be equipped with a remote start-up (simple contact) or with an automatic starting system [mains failure + ATS (Mains/Stand-by changeover switch)] .

⚠ Beware of possible electric shock by contact with any live part, during the generating set start up.

1.2. Power connection

For power connection, make sure that flexible cables of suitable cross section are used to avoid overheating and a major in-line voltage drop. Depending on laying method, ambient temperature and proximity of other cables, the conductor's cross section may vary.

1.3. Electric connections (control)

☐ **Generating set with manual start only** (from MICS Telys keyboard)
No external connection to make.

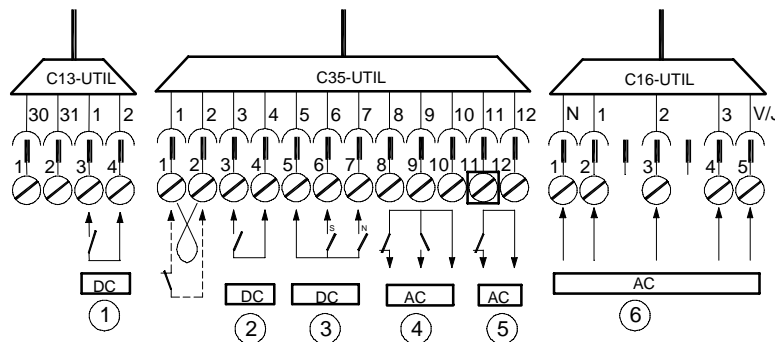
☐ **Generating set with remote (without mains) or automatic (with mains) start-up**
For proper operation, make the connections on the user terminal block as per the diagram below.

☞ For DC signals, we recommend the use of a 5-core (5x1.5mm²) flexible cable between the ATS and the user terminal block.

☞ For AC signals, we recommend the use of a 12-core (12G1.5mm²) flexible cable between the ATS and the user terminal block. (G means cable with a Green/Yellow conductor)

Note: for a remote start only, a 2x1.5mm² flexible cable is sufficient (see ① overleaf)

⚠ The cross sections above are given as a guide as they can vary depending on the current to be drawn, length, temperature and control cable laying method.



- ① External command (mains sensing or client contact)
- ② Output C/B fault auxiliary signal contact
- ③ Mains and Stand-by contactors home position
- ④ Stand-by contactor control
- ⑤ Mains contactor control
- ⑥ 1 or 3 phase water heater

☐ If the user does not connect an ATS from our range, it is imperative to observe the board relay characteristics given below and to check that the coils power requirements are within these parameters.

Rated current=5A Rated voltage=250Vac
Maximum breaking capacity under a 0.7 cos φ: 1500VA

⚠ Not observing the above characteristics will damage or even destroy the board control relays.

1.4. Battery preliminary inspection and commissioning

The battery must be connected for the MICS Telys to operate and the generating set to start, hence the need to check its connection:

- Red wire, positive polarity (+),
- Black wire, negative polarity (-).

Some generating sets are equipped with a battery isolator enabling the electric circuit to be isolated. Check that it is in the position enabling the operation.

⚠ The battery is supplied without electrolyte. Fill the battery with electrolyte at least 20 minutes before any start-up attempt (see maintenance manual).

1.5. MICS Telys first power-up

If the battery is connected and the electrolyte level correct, MICS Telys powers up automatically and the initialisation screen below appears.



- This screen is visible for eight seconds. All LEDs are lit and will go out after 3 seconds except the **ON** button LED. When initialisation is complete, the **Stop** button LED comes on again.
- If other LEDs are lit or flashing, refer to paragraph 6.

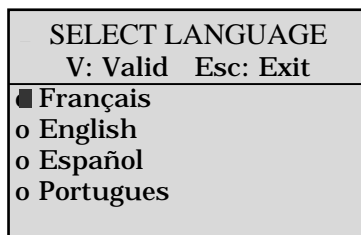
Note 1: The **0** button LED can also be lit (see paragraph 18).

Note 2: During initialisation, the display module software version appears on screen.

1.6. Welcome screens

□ Screen 1

After the initialisation phase, the screen below appears. The operator is then able to choose in which language he wants the messages to be displayed on the MICS Telys screen. Four languages are available: French, English, Spanish and Portuguese.



- The cursor ■ flashes over the **o** sign of one of the four lines.
- Press → to move the cursor to the next line, except if it flashes next to **Portugues**.
- Press ← to move the cursor to the previous line, except if it flashes next to **Français**.

- By pressing → or ←, the operator places the cursor over the required language.

Note: Depending on the cursor position, the text of the two upper lines changes to enable the operator to know where he is.

Press **Esc** to go directly to the " overview " screen (see paragraph 1.7).
There, the language used will be the one where the cursor was positioned.

Example : Cursor positioned over **English**. Pressing **Esc** configures the MICS Telys in English. Any messages will appear be in English.

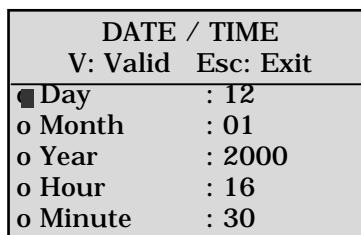
- If neither **V** nor **Esc** is pressed, the " overview " screen (see paragraph 1.7) appears automatically after three minutes. There, the language used will be the one where the cursor was positioned.

Not until the appearance of the " overview " screen will it be possible to start the generating set, however all inputs stay active (example: appearance of a fault).

- Press **V** to go to the second welcome screen, in the language where the cursor was before pressing **V**.

□ Screen 2

Screen 2 will allow the date and time to be modified. This is only required when the clocks change because the internal clock is kept active by a lithium battery while MICS Telys is powered off.



- The cursor ■ flashes over the **o** sign of the first line.
- Press → to move the cursor to the next line, except if it flashes next to **Minute**.
- Press ← to move the cursor to the previous line, except if it flashes next to **Day**.
- By pressing → or ←, the operator places the cursor on the line to be changed.

By following the instructions below, it is possible to change, line after line, the day, month, year, hours and minutes.

- Press **V** to take the cursor to the first digit after the : sign. By pressing one of the ten buttons **0** to **9**, the first digit is modified and the cursor is automatically moved to the second digit.

The cursor can be moved to the second digit by pressing → instead of one of the ten digits **0** to **9**. Afterwards, it can be moved back to the first digit by pressing ←.

Note: the year has four digits.

- Press **V** again to take the cursor back to **o** and to validate the entry made.
- When the cursor is positioned over one of the digits, press **Esc** to bring it back to **o**, without saving the entry made or without changing the previous value if there was no entry.
- Press **Esc** without any entry to go to the " overview " screen (see paragraph 1.7). There, the date and time taken into account will be the ones appearing on the screen before **Esc** was pressed.

When the clocks change, if you press **Esc** without changing the date and time, the generating set alarms, faults and status will not be correctly date and time stamped.

- Press **Esc** after changing one of more parameters (hour, minute,...) to go to the " overview " screen (see paragraph 1.7). There, the time and date taken into account will be those which were modified on screen before **Esc** was pressed.

- If neither **V** nor **Esc** is pressed, the " overview " screen appears after three minutes. There, the time and date will be those of the previous screen (before going automatically to the " overview " screen).
- Note : Not until the appearance of the " overview " screen will it be possible to start the generating set, however all engine protection shutdowns stay active (*example*: appearance of a fault).

1.7. " Overview " screen

The " overview " screen is the screen which appears systematically by default.

Using the four buttons: **U/V**, **I**, **F/Σ**, **Engine**, you can access all " overview " type screens (see paragraphs 4 and 5) which give details on:

- Electrical values and engine parameters
- Generating set alarms and faults
- Status of the generating set and its auxiliaries, date and time

□ Normal operation

Following the language selection screen and/or possible date and time modification screen, the " overview " screen below appears during normal operating conditions.

Fuel Lev(%)	50	<ul style="list-style-type: none"> • The first line indicates the fuel level, in %, in the day tank. • The second line indicates the engine speed in RPM. • The third line indicates the battery voltage in Volts. • The fourth and fifth lines indicate the generating set status, the time, date and various other messages (see paragraph 9).
E.Speed(RPM)	0	
Batt. (Volts)	24.2	
ext command=0	16:45	
gen stopped	12/01/00	

- If the cabling of the fuel level analogue input is faulty or if the sensor itself is faulty, there will be no digital indication on screen. However, the wording **Fuel Lev(%)** will appear (see also paragraph 5). This particular display is used to perform a quick diagnostic on the physical status of the input (sensor and cabling).
- If the fuel level analogue sensor is not available on the day tank, there will be no display on screen (see paragraph 5). This is the case for the Pacific range generating sets where the fuel level is read directly from a mechanical gauge.

Nota 1 : Press successively one of the four buttons previously mentioned to modify the screen above (see paragraphs 4 and 5).

Nota 2 : the date is given in day/month/year

□ Abnormal operation

During abnormal operating conditions (presence of an alarm or fault, several alarms or faults or a mixture of both), the previous screen is replaced by the following one:

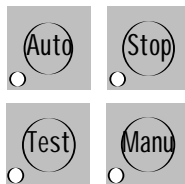
Fuel Lev(%)	10	<ul style="list-style-type: none"> • Two extra lines are inserted to display the malfunctions (alarms and/or faults). • Engine parameters and electric values appear on screen in a shortened form. • The two lower lines stay unchanged.
E.Speed(RPM)	0	
Batt. (Volts)	24.2	
Alarm Low fuel level		
ext command=0	17:25	
gen stopped	12/01/00	

The display of the generating set alarms and faults is detailed in paragraph 8.

2. OPERATING MODES

MICS Telys has four operating modes which can be accessed via the four blue coloured buttons on the display module:

- Mode **Stop**
- Mode **Manu**
- Mode **Auto**
- Mode **Test**



2.1. Stop Mode

After powering up (initialisation, language selection and/or possible time and date update), MICS Telys automatically goes into **Stop** mode. The red LED associated with the button is lit and the " overview " screen appears.

Fuel Lev(%)	50	<p>Example of " overview " screen in Stop mode.</p>
E.Speed(RPM)	0	
Batt. (Volts)	24.2	
ext command=0	16:45	
gen stopped	12/01/00	

- In this operating mode, any event appearance (alarm, fault, external command, ...) is signalled on screen. However, the generating set is stopped and automatic start-up is not possible.

Ph./ph.	U12	396
voltages	U23	390
(Volts)	U31	395
STOP mode selected		

- When the generating set is running and whatever the current mode (**Auto**, **Test**, **Manu**), press the **Stop** button to stop it instantly without any cooling down. A message appears on screen for two seconds to signal that the button has been taken into account (see screen opposite).

Note: if the engine is equipped with a water heater, the latter is not powered in **Stop** mode.

2.2. Manu Mode

Manu mode corresponds to a local request via the keyboard, i.e. the start-up is entirely controlled by the operator.

- This mode can be accessed from the **Stop** mode or **Auto** mode. Press the **Manu** button to select the mode and to bring up the screen below. The red LED associated with the button flashes.

Fuel Lev(%)	50
E.Speed(RPM)	0
Batt. (Volts)	24.2
MANU mode selected	
press MANU to confirm	

- Press **Manu** again to confirm the mode, the associated red LED comes on continuously and the generating set then enters into an automatic start-up phase (see paragraph 17).
- When the red LED flashes (waiting for confirmation), the mode can be changed by selecting **Stop** mode or **Auto** mode.

- If you do not press the **Manu** button to confirm within two minutes, the following will happen:
 - **Stop** mode is automatically selected if **Stop** mode was the previous mode.
 - **Auto** mode is automatically selected if **Auto** mode was the previous mode.
- In **Manu** mode, the ATS (or Mains/Stand-by changeover switch) can be toggled by pressing buttons **0** and **1**, only if the green LED is lit (see paragraph 18). The operator keeps control over the ATS and the generating set.
- If an external start-up command appears on screen, MICS Telys stays in **Manu** mode. It is up to the operator to go from **Manu** mode to **Auto** mode.

2.3. Auto Mode

Auto mode can be accessed from **Stop**, **Manu** or **Test** mode. Press the **Auto** button to select the mode and to display the left-hand side screen below for two seconds. The red LED associated with the button comes on, then the right-hand side screen appears. This screen corresponds to the generating set waiting status.

Fuel Lev(%)	50
E.Speed(RPM)	0
Batt. (Volts)	24.2
AUTO mode selected	

Fuel Lev(%)	50
E.Speed(RPM)	0
Batt. (Volts)	24.2
ext command=0	16:50
gen stand-by	12/01/00

- From the waiting screen, the generating set start-up is conditioned by:
 - ① Logical status change of the 'external command' input
 - ② Logical status change of the 'EJP advance warning' or 'EJP start-up' inputs (France only)
 - ③ Activation of the clock mode built into MICS Telys (if the mode is programmed).

Example: the right-hand side screen above informs of the logical status of the external start-up command (abbreviation ext **command=0** or ext **command=1**):

- External command = 0, no start-up
- External command = 1, imminent start-up possible
- When one of the three start-up conditions changes from 0 to 1 (for ① and ②) or from inactive to active (for ③), a new message informs the operator, then the generating set enters into an automatic start-up phase (see paragraph 17).
- When one of the three start-up conditions changes from 1 to 0 (for ① and ②) or from active to inactive (for ③), a new message informs the operator, then the generating set enters into an automatic shutdown phase (see paragraph 17).
- In **Auto** mode, the ATS toggle is completely automatic (see paragraph 18).

2.4. Test Mode

Test mode can only be accessed from **Auto** mode. If one of the inputs ; external command, EJP advance warning, EJP start-up, is in logical status 1 or if the clock is active, **Test** mode cannot be selected.

- If the inputs; external command, EJP advance warning, EJP start-up, are in logical status 0 or if the clock is inactive, press **Test** button to select the mode and to bring up the screen below. The red LED associated with the button flashes.

Fuel Lev(%)	50
E.Speed(RPM)	0
Batt. (Volts)	24.2
TEST mode selected press TEST to confirm	

- Press **Test** button again to confirm the mode, the associated red LED comes on continuously and the generating set then enters into an automatic start-up phase (see paragraph 17).
- When the red LED flashes (waiting for confirmation), the mode can be changed by selecting **Stop** mode or **Auto** mode.

- If you do not press **Test** to confirm, **Auto** mode is automatically selected after two minutes.
- In **Test** mode, the ATS cannot be toggled, this is a no-load operation. The generating set operating time is indicated on screen by a time displayed in minutes and seconds which counts down automatically. When the delay elapses, the generating set shuts down without cooling and MICS Telys automatically goes into **Auto** mode.

Fuel Level(%)	50
E.Speed(RPM)	0
Batt. (Volts)	24.2
TEST mode eng. stops in: 02' 30"	

Example of " overview " screen in **Test** mode

There are two minutes and thirty seconds of operation left before the generating set stops and Telys goes into **Auto** mode.

- During operation, if one of the inputs ; external command, EJP advance warning, EJP start-up, changes logical status (from 0 to 1) or if MICS Telys internal clock is activated, a screen message is displayed to indicate the status change or the clock activation. The **Test** mode timer is bypassed, MICS Telys automatically goes into **Auto** mode, the ATS toggles and you are then back in normal **Auto** mode operation.

3. SLEEP MODE AND AUTOMATIC SHUTDOWN

MICS Telys is equipped with a sleep mode and an automatic shutdown.

3.1. Sleep mode

Sleep mode is possible when MICS Telys is in **Stop** mode or **Auto** mode with the generating set on stand-by (*). The sleep mode starts automatically after an adjustable time if there is no status change on one of the system logical inputs, no communication with a PC or no keystroke.

In this case, the back-light switches off and MICS Telys goes in a minimum consumption mode.

Fuel Lev(%)	50
E.Speed(RPM)	0
Batt. (Volts)	24.2
ext command=0	16:48
gen stopped	12/01/00

Example of a " overview " screen in sleep mode, the various indications stay visible on screen.

(*) Genset stopped with no external command, no EJP start-up and no clock activation.

- If one the system logical inputs changes status (alarm, fault, thermostat, external command, ...), the messages appear and the back-light switches back on.
- If any button is pressed on the display module, the back-light switches back on.


Note: if a low/high battery voltage alarm or fault or a CAN bus fault appears, the back-light will not switch itself back on.

3.2. Automatic shutdown

Automatic shutdown is only possible when MICS Telys is in **Stop** mode. In **Stop** mode, even if the back-light is switched off, the battery discharges slowly (electronics consumption) in cases where the generating set is not equipped with a battery charger.

To avoid the battery from discharging and thus the generating set from not being able to start, MICS Telys will shut down automatically after a delay.

After shutdown, the internal clock stays active. The generating set alarm, fault and status event log is kept unchanged.

 Following an automatic shutdown, MICS Telys can be powered up again by simply pressing the ON button. Initialisation is carried out in the same conditions as with a first power-up.

After powering up via the **ON** button, MICS Telys automatically goes into **Stop** mode and brings up the " overview " screen (see paragraph 1.7) in the language used before the automatic shutdown. This way, the operator does not need to reselect the language and press **Esc** to return to the " overview " screen.

4. VIEWING THE ELECTRICAL VALUES

4.1. Voltages

You can view the various AC voltages by pressing the **U/V** button successively. Their values are expressed in true root mean square Volts. Depending on the client's needs (type of electrical installation), several screens are possible:

- 3 phase with neutral (3ph+N)
- 3 phase without neutral (3ph)
- 2 phase (2ph+N)
- 1 phase (1ph+N)

Note: one of the four choices above has been factory programmed as per the client's specification.

□ 3 phase with neutral (3ph+N)

Ph./ph.	U12	399
voltages	U23	400
(Volts)	U31	398
ext command=1		17:05
gen running		12/01/00

- Press **U/V** to get the three phase-to-phase voltages:
U12 = voltage across phase 1 and phase 2
U23 = voltage across phase 2 and phase 3
U31 = voltage across phase 3 and phase 1

Ph./neutr.	V1	230
voltages	V2	230
(Volts)	V3	230
ext command=1		17:05
gen running		12/01/00

- Press **U/V** again to get the three phase-to-neutral voltages:
V1 = voltage across phase 1 and neutral
V2 = voltage across phase 2 and neutral
V3 = voltage across phase 3 and neutral
- Press **U/V** again to bring up the first screen and so on...

□ 3 phase without neutral (3ph)

Ph./ph.	U12	399
voltages	U23	400
(Volts)	U31	398
ext command=1		17:05
gen running		12/01/00

- Press **U/V** to get the three phase-to-phase voltages:
U12 = voltage across phase 1 and phase 2
U23 = voltage across phase 2 and phase 3
U31 = voltage across phase 3 and phase 1
- If you press **U/V** nothing changes.

□ 2 phase (2ph+N)

Half	U1n	120
voltage	U2n	122
(Volts)		
ext command=1		17:05
gen running		12/01/00

- Press **U/V** to get the two half voltages:
U1n = voltage across phase 1 and neutral
U2n = voltage across phase 2 and neutral

Phase	U12	242
voltage		
(Volts)		
ext command=1		17:05
gen running		12/01/00

- Press **U/V** again to get the voltage across the two phases:
U12 = voltage across phase 1 and phase 2
- Press **U/V** again to bring up the first screen and so on ...

□ 1 phase (1ph+N)

Ph./neutr.	V1	230
voltage		
(Volts)		
ext command=1		17:05
gen running		12/01/00

- Press **U/V** button to get the voltage across phase and neutral:
V1 = voltage across phase 1 and neutral
- If you press **U/V** again, nothing changes.

4.2. Currents

To view the various AC currents, press the **I** button successively. The values are expressed in true root mean square Amps. Depending on the client's needs (type of electrical installation), several screens are possible:

- 3 phase with neutral (3ph+N)
- 3 phase without neutral (3ph)
- 2 phase (2ph+N)
- 1 phase (1ph+N)

Note: one of the four choices above has been factory programmed as per the client's specification.

□ 3 phase with neutral (3ph+N)

Phase	I1	542
current	I2	543
(Amps)	I3	536
ext command=1	17:10	
gen running	12/01/00	

- Press **I** to get the three phase currents:
 - I1** = current in phase 1
 - I2** = current in phase 2
 - I3** = current in phase 3

Neutral		
current	In	23
(Amps)		
ext command=1	17:10	
gen running	12/01/00	

- Press **I** again to get the neutral current:
 - In** = current in the neutral
- Note : the neutral current is calculated by vector summation of the three phase currents..
- Press **I** again to bring up the first screen and so on ...

□ 3 phase without neutral (3ph)

Phase	I1	542
current	I2	543
(Amps)	I3	536
ext command=1	17:10	
gen running	12/01/00	

- Press **I** to get the three phase currents:
 - I1** = current in phase 1
 - I2** = current in phase 2
 - I3** = current in phase 3
- If you press **I** again, nothing changes.

□ 2 phase (2ph+N)

Phase	I1	246
current	I2	238
(Amps)		
ext command=1	17:10	
gen running	12/01/00	

- Press **I** to get the two phase currents:
 - I1** = current in phase 1
 - I2** = current in phase 2
- If you press **I** again, nothing changes.

□ 1 phase (1ph+N)

Phase	I1	95
current		
(Amps)		
ext command=1	17:10	
gen running	12/01/00	

- Press **I** to get the 1 phase current :
 - I1** = 1 phase current
- If you press **I** again, nothing changes.

4.3. Frequency and hours counter

To view the generating set frequency and number of running hours, press the **F/8** button. Values are expressed in Hertz (Hz) and in hours respectively.

Frequency (Hz)	50.2
No hours	643
ext command=1	17:10
gen running	12/01/00

Example of " overview " screen showing frequency and number of hours.

Note: a maximum of 32767 running hours can be displayed. The display is in whole hours.

5. VIEWING THE ENGINE PARAMETERS

To view the engine parameters, press the **Engine** button successively. Three different screens can be viewed. The values that can be displayed on these three screens are indications only.

□ **Screen 1** : Press the **Engine** button to get the following screen.

Fuel Lev(%)	65
E.Speed(RPM)	1502
Batt. (Volts)	12.3
ext command=	17:15
gen running	12/01/00

- The first line indicates the fuel level, expressed in %, in the day tank.
- The second line indicates the engine speed expressed in RPM.
- The third line indicates the battery voltage expressed in Volts.

□ **Screen 2** : Press **Engine** a second time to get the following screen.

Oil Pr.(Bar)	6
Oil T.(°C)	90
WaterT.(°C)	75
ext command=1	17:15
gen running	12/01/00

- The first line indicates the oil pressure expressed in Bar.
- The second line indicates the oil temperature expressed in degrees Celsius (°C).
- The third line indicates the water temperature expressed in degrees Celsius (°C).

□ **Screen 3** : Press **Engine** a third time to get the following screen.

Oil Pr. (PSI)	90
Oil T.(°F)	194
WaterT. (°F)	167
ext command=1	17:15
gen running	12/01/00

- The first line indicates the oil pressure expressed in PSI (pound per square inch).
- The second line indicates the oil temperature expressed in degrees Fahrenheit (°F).
- The third line indicates the water temperature expressed in degrees Fahrenheit (°F).

• Press **Engine** again to bring up the first screen and so on ...

The first screen is the one which appears by default after the MICS Telys has powered up (see paragraph 1.7) or after pressing **Esc** to exit the display mode.

- If one of the sensors is not declared available (optional sensor and/or factory programming), there will be no display on screen on the line corresponding to the undeclared sensor (see screen 1).
- If the cabling of one the analogue inputs is faulty or if a sensor is faulty, there will be no digital indication on screen on the line of the corresponding sensor (see screen 2).

Oil Pr. (Bar)	6
WaterT. (°C)	75
ext command=1	17:15
gen running	12/01/00

screen 1

Oil Pr. (Bar)	
Oil T.(°C)	90
WaterT.(°C)	75
ext command=	17:15
gen running	12/01/00

screen 2

6. DISPLAY LEDS AND LAMP TEST

On the display module panel face, fifteen LEDs are used to display various generating set status, alarms and faults.

□ A set of eight LEDs are used to display the following alarms, faults and statuses:



Oil pressure fault/shutdown (red)



Genset ready to take load (green)



Water temperature fault/shutdown (red)



Charge alternator fault/shutdown (red)



Overcranking/Fail to start shutdown (red)



General alarm (yellow)



Overspeed fault/shutdown (red)



General fault (red)

All these LEDs are identified by an ISO symbol. The last two LEDs are flashing lights. The " general fault " LED flashes on appearance of any fault and the " general alarm " LED flashes on appearance of any alarm.

- ❑ Each blue coloured function button (**Stop, Manu, Auto, Test**) is associated with a LED. The operation of these four LEDs is described in paragraph 2.
- ❑ The **0** and **1** buttons are each associated with a LED. The operation of these two LEDs is described in paragraph 18.
- ❑ The **ON** button is associated with a LED. This LED is used to display the MICS Telys powering up (see paragraphs 1.5 and 3.2).

Press the * button to light all the LEDs for six seconds. This is only possible on the " overview " type screens.

7. SCREEN CONTRAST

On the various " overview " type screens, the contrast of the characters displayed on screen can be adjusted via the → and ← buttons:

- Press → to increase the contrast on screen
- Press ← to reduce the contrast on screen.

Note: The contrast obtained after using the → and ← button is not saved when MICS Telys is powered down. The only way the contrast value, modified by the → and ← buttons, can be saved is via the **Contrast** menu (see paragraph 15).

- Contrast adjustment is especially useful when MICS Telys is used in severe conditions (-15°C or +60°C).
- When temperature is above +60°C, the screen is very dark. It is therefore necessary to reduce the contrast by pressing ←.
- When temperature is below -15°C, the screen is very light. It is therefore necessary to increase the contrast by pressing →.

8. DISPLAYING THE ALARM AND FAULT MESSAGES

All alarms and faults are clearly viewed on screen. Two lines are dedicated for their display (see screens below).

8.1. Appearance of messages on screen

As soon as an alarm or fault appears, the electrical values and engine parameters are displayed on screen in a shortened form.

- The first alarm is displayed on screen over the first of the two lines (screen 1).
- The first fault is displayed on screen over the first of the two lines (screen 2).

Ph./ph.	U12	400	screen 1
voltages	U23	401	
(Volts)	U31	398	
Alarm Low Fuel Level			
ext command=1		17:30	
gen stopped		12/01/00	

Ph./ph.	U12	0	screen 2
voltages	U23	0	
(Volts)	U31	0	
Fault Emergency Stop			
ext command=1		17:32	
gen stopped		12/01/00	

Ph./ph.	U12	400	screen 3
voltages	U23	401	
(Volts)	U31	398	
Alarm Retention Bund			
Alarm Low Fuel Level			
ext command=1		17:35	
gen stopped		12/01/00	

As soon as another alarm appears on screen 1, the first alarm message slides down to the second line and the message of the new alarm positions itself on the first line (see screen opposite).

(example : **Alarm Retention Bund**)

Ph./ph.	U12	0	screen 4
voltages	U23	0	
(Volts)	U31	0	
Fault Low Fuel Level			
Fault Emergency Stop			
ext command=1		17:38	
gen stopped		12/01/00	

As soon as another fault appears on screen 2, the first fault message slides down to the second line and the message of the new fault positions itself on the first line (see screen opposite).

(example : **Fault Low Fuel Level**)

Ph./ph.	U12	0	screen 5
voltages	U23	0	
(Volts)	U31	0	
Fault Emergency Stop			
Alarm Low Fuel Level			
ext command=1		17:35	
gen stopped		12/01/00	

If an alarm appears on screen 2, the fault message stays on the first line and the alarm message is displayed on the second line (see screen opposite).

(example : **Alarm Low Fuel Level**)

Priority is given to fault messages.

- If a fault appears on screen 3, the message on the second line disappears from the screen, the message on the first line slides down to the second line and the fault message takes the first line.
- If a third fault appears on screen 4, the message on the second line disappears from the screen, the message on the first line slides down to the second line and the third fault message takes the first line.
- If an alarm appears on screen 4, the message relating to that alarm will not appear.
- If a new alarm appears on screen 5, the message relating to that alarm will replace the alarm message on the second line.

8.2. Removing messages on screen

- If all the faults, displayed on screen or not, are no longer active (circuit-breaker pressed in, emergency stop unlocked, logical input inactive, connection restored, ...), press the **Reset** button to reset the last fault present on screen or in other words, the last recorded fault. This way, the previous fault(s) is/are moved forward one line.

The example below shows the screen changes with two faults displayed on screen and one fault not displayed but recorded. In order of appearance, the following faults are:

- Module 3 CAN
- Emergency stop
- Day tank low fuel level

The three faults are considered as no longer active (fuel level above low level, emergency stop unlocked, CAN connection restored on the option 3 module).

Ph./ph.	U12	0
voltages	U23	0
(Volts)	U31	0
Fault Low Fuel Level		
Fault Emergency Stop		
ext command=1	17:45	
gen stopped	12/01/00	

Messages **Fault Low Fuel Level** and **Fault Emergency stop** are then displayed. Press **Reset** to reset the low fuel level fault (the message disappears).

Ph./ph.	U12	0
voltages	U23	0
(Volts)	U31	0
Fault Emergency Stop		
Fault module 3 CAN		
ext command=1	17:46	
gen stopped	12/01/00	

The message **Fault module 3 CAN** then appears on the second line (see screen opposite). Press **Reset** to reset the emergency stop fault (the message disappears).

Ph./ph.	U12	0
voltages	U23	0
(Volts)	U31	0
Fault module 3 CAN		
ext command=1	17:47	
gen stopped	12/01/00	

The message **Fault module 3 CAN** then appears on the second line (see screen opposite). Press **Reset** to reset the emergency stop fault (the message disappears).

Ph./ph.	U12	0
voltages	U23	0
(Volts)	U31	0
ext command=1	17:48	
gen stopped	12/01/00	

There are no more faults but MICS Telys is still in **Stop** mode. As the external command is still available, the operator must select the **Auto** mode for the generating set to restart automatically.

- An alarm message will automatically disappear when the alarm input is no longer in logical status 1.

9. DISPLAYING THE STATUS MESSAGES

All status relating to the operation of the generating set and its auxiliaries are clearly viewed on the two lower lines.

As well as the date and time, the operator will be able to view:

- Operating mode selected (**Stop, Manu, Auto, Test**)
- Water heater control logical status (active or inactive)
- External command logical status (0 or 1)
- MICS Telys built-in mains failure and mains return delays
- Generating set status (genset on stand-by, stopped or running)
- Engine preglow period
- Cranking period (with attempt number and starter number)
- Starter rest period between two starting attempts, with possible indication of engine preglow
- Starter tripping (indicating starter number)
- RPM and Volts stabilising period

- Authorisation to close the Stand-by contactor in **Manu** mode
- ATS toggle delay: Mains→Stand-by and Stand-by→Mains, and closure confirmation of the Mains and Stand-by contactors
- Motorised C/B opening and closure
- Engine cooling down time in **Auto** mode
- Operating time in **Test** mode
- Delayed shutdown on water temperature fault or overload/short-circuit fault
- Appearance of commands ; EJP J-1, EJP advance warning, EJP start-up
- Clock activated operation indicating time range number
- Shutdown bypass via switch (complying with French standard NFC 61940))

The three screens below show three examples of status messages displayed over the two last lines.

Fuel Lev(%)	45
E.Speed(RPM)	326
Batt. (Volts)	24.2
starting	
attempt1 starter1	

Starting period: attempt 1 on starter 1

Fuel Lev(%)	40
E.Speed(RPM)	1502
Batt. (Volts)	24.2
toggle delay	
stand-by->mains	05"

S→N toggle: Toggle from Stand-by contactor to Mains contactor in 5 seconds

Fuel Lev(%)	39
E.Speed(RPM)	1502
Batt. (Volts)	24.2
cooling down	
eng. stops in: 03' 42"	

Engine cooling down: Engine to stop in 3 minutes and 42 seconds in **Auto** mode

10. ACCESSING THE LEVEL 1 DISPLAY

Level 1 display enables the operator to view various data and to do a quick diagnostic on any generating set operating problem. Press the **M** button to bring up the **GENERAL** screen indicating the software version implemented on the interface board CB, CB1 or CB12.

GENERAL (vers. 1.01A)	
V: Valid Esc: Exit	
■ Control	○ Config
○ Alarm/Flt	○ Status
○ Inputs	○ Outputs
○ Contrast	○ Protect

- The cursor ■ flashes over the ○ sign on the first line.
- Press → to move the cursor to the next sign on the right hand side, if possible, or to the next line.
- Press ← to move the cursor to the previous sign, if possible, or to the previous line.
- By pressing → or ←, the operator places the cursor over the required menu.

- Press **V** to access the selected menu (example: **Outputs** menu).

Menus **Control** and **Config** can only be accessed after entering a code on the keyboard

- Press **Esc** to return to the " overview " screen (see paragraph 1.7).
- If neither **V** nor **Esc** is pressed, the " overview " screen (see paragraph 1.7) appears after three minutes.

From the **GENERAL** screen, there is a selection of six menus. Their description is detailed below.

□ Alarm/Flt (see paragraph 11)

This menu is used to view the list of time and date stamped generating set alarms and faults.

□ Status (see paragraph 12)

This menu is used to view the list of time and date stamped generating set status.

□ Inputs (see paragraph 13)

This menu is used to view the logical status of all inputs on the mounted interface board (CB, CB1 or CB12) and on option (3 and 4) modules if these are declared available.

□ Outputs (see paragraph 14)

This menu is used to view the logical status of all outputs on the mounted interface board (CB, CB1 or CB12) and on option (3 and 4) modules if these are declared available.

□ Contrast (see paragraph 15)

This menu is used to change characters contrast on screen and to save the changes.

□ Protect (see paragraph 16)

In cases where the generating set is equipped with a differential protection (with communication) or with a constant insulation checking device (with communication), this menu is used to view the settings, fault current or insulation resistor.

Note: Press the **M** button for three seconds to bring up that same **GENERAL** screen, followed by the first welcome screen (see paragraph 1.6), where the language, date and time can be changed at any time.

This can only be done when the generating set is running. All engine protection shutdowns stay active while these two welcome screens are accessed.

Generally, in all menus and submenus offered, if neither **V** or **Esc** is pressed the "overview" screen (see paragraph 1.7) appears after three minutes.

11. " ALARM/FLT " MENU

After validation using the **V** button, when the cursor ■ flashes over the **o** sign next to **Alarm/Flt**, the **ALARMS/FAULTS** screen appears as follows.

ALARMS/FAULTS	
Esc: Exit	
1■	18h40m25s 12/01/00 fault water temp.
2	18h28m40s 12/01/00 alarm water temp.

- This screen is used to view the list of the time and date stamped alarms and faults.
- Any one screen can have up to two alarm and/or fault messages.

Each message on two lines comprises:

- One chronological number (from 1 to 50)
- Time (hour/minute/second) and date (day/month/year)
- Nature of the fault or alarm
- One asterisk (*) or dash (-) (see paragraph 11.1)

Fifty alarm and fault messages can be recorded into the interface board CB, CB1 or CB12 memory.

These messages cannot be erased. When the list is full (fifty messages), the fifty first message will make the first recorded message disappear and so on.

On screen, alarms and faults are displayed in real time. If the cursor flashes next to number **1** (top of list), the appearance of an alarm or fault is viewed straight away. If the cursor flashes next to a number other than **1**, the new alarm or fault can be viewed after pressing **←**, once or several times depending on the cursor position.

- Press **→** to view the list in ascending order (from number **1** to number **x**, **x** being the biggest number) or in other words, from the newest to the oldest message.
- Press **←** to view the list in descending order (from number **x** to number **1**, **x** being the biggest number) or in other words, from the oldest to the newest message.
- The messages are always displayed two at a time (see the two screens below). The left-hand side screen shows messages number **5** and **6**. The right-hand side screen shows messages number **6** and **7**, after button **→** was pressed.

ALARMS/FAULTS	
Esc: Exit	
5	18h40m25s 12/01/00 fault water temp.
6■	18h28m40s 12/01/00 alarm water temp.

ALARMS/FAULTS	
Esc: Exit	
6■	18h28m40s 12/01/00 alarm water temp.
7	17h25m35s 12/01/00 alarm low fuel level

11.1. Special features for a fault

Just to the right of the chronological number of a fault (number **x**), appears an asterisk or a dash alternately with the cursor.

- The asterisk (*) systematically appears as long as the fault is active (emergency stop not unlocked, breaker not reset, CAN bus disconnected, etc ...). This asterisk disappears as soon as the logical input associated with the fault is no longer active (logical status 0).
- A dash (-) will then replace the asterisk to inform the operator that the fault has not been reset via the **Reset** button (see also paragraph 8.2).

A fault not reset which gets to the end of the list ($x=50$), is repositioned to the top of the list ($x=1$) as soon as another event appears (alarm or fault). In this case, it will be time stamped again while repositioning itself to the top.

11.2. Special features for an alarm

If an alarm always changes status (going from 0 to 1, then from 1 to 0, etc ...) with a frequency of less than two minutes, it is then only recorded on the first occurrence and this for two minutes. After this period, the alarm is recorded again if it continues to change. However, MICS Telys keeps the alarm displayed on screen even if the alarm keeps on appearing and disappearing. If another alarm or fault appears between two activations of the alarm previously mentioned, the recording will be made twice.

11.3. Other special cases

For all faults which are not linked to the status change of a logical input, it will not be possible to see the asterisk change into a dash. Physically acknowledging the fault will not make the asterisk disappear and the dash appear. Press **Reset** to remove the asterisk and to acknowledge the fault.

The faults concerned by this specific management are:

- Module 3CAN
- Module 4CAN
- Low alternator frequency
- High alternator frequency
- Low alternator voltage
- High alternator voltage
- Low battery voltage
- High battery voltage
- Overcranking (fail to start)
- Overspeed
- Charge alternator

12. " STATUS " MENU

After validation using the **V** button, when the cursor **■** flashes over the **o** sign next to **Status**, the **STATUS** screen appears as follows.

STATUS	
Esc: Exit	
1	16h50m54s 12/01/00 STOP Mode activated
2	16h45m20s 12/01/00 AUTO Mode activated

- This screen is used to view the list of the date and time stamped generating set status.
- Any one screen can have up to two generating set status messages.

Any stroke on the following buttons is considered as a status:

- Mode selection (**Stop**, **Manu**, **Auto**, **Test**)
- ATS (Mains/Stand-by changeover) control (**0** and **1**) in **Manu** mode only
- **ON** button.

Also, the automatic power-up, automatic shutdown and logical status of option No 20 input on option 4 module (shutdown bypass, French standard NFC 61940) are considered as statuses.

Note: For the Test and Manu buttons, only the second stroke is taken into account (i.e. confirmation of the operating mode).

Each message comprises of:

- One chronological number (from 1 to 25)
- Time (hour/minute/second) and date (day/month/year)
- Nature of the status.

Up to twenty-five status messages can be recorded into the interface board CB, CB1 or CB12 memory.

These messages cannot be erased. When the list is full (twenty-five messages), the twenty sixth message will make the first recorded message disappear and so on.

- Press **→** to view the list in ascending order (from number **1** to number **x**, **x** being the biggest number) or in other terms from the newest to the oldest message.
- Press **←** to view the list in descending order (from number **x** to number **1**, **x** being the biggest number) or in other terms from the oldest to the newest message.
- The messages are always displayed two at a time (see the two screens below). The left-hand side screen shows messages number **1** and **2**. The right-hand side screen shows messages number **2** and **3**, after button **→** was pressed.

STATUS	
Esc: Exit	
1	16h50m54s 12/01/00 STOP Mode activated
2	16h45m20s 12/01/00 AUTO Mode activated

STATUS	
Esc: Exit	
2	16h45m40s 12/01/00 AUTO Mode activated
3	16h40m30s 12/01/00 MANU Mode activated

13. " INPUTS " MENU

After validation using the **V** button, when the cursor **■** flashes over the **o** sign next to **Inputs**, the **INPUTS** screen appears as follows.

```

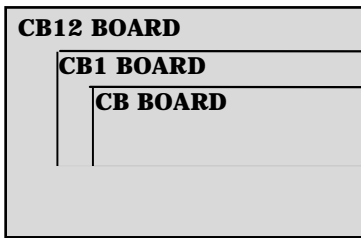
INPUTS
V: Valid  Esc: Exit
■ Main board (CB)
o Option 1 (CB1/CB12)
o Option 2 (CB12)
o Option 3 Module
o Option 4 Module
    
```

- The cursor **■** flashes over the **o** sign on the first line.
- Press **→** to move the cursor to the next line, except if the cursor is on **Option 4 Module**.
- Press **←** to move the cursor to the previous line, except if the cursor is on **Main board (CB)**
- By pressing **→** or **←**, the operator places the cursor over the data he wants displayed.

- Press **V**, when the cursor flashes over the **o** sign of one of the five lines, to view the logical status of the inputs on interface board CB, CB1 or CB12, as well as inputs on both option 3 and 4 modules, following the principle described below:
 - Inputs are numbered on the first line and the **■** cursor flashes on input 1
 - The next two lines indicate the logical status (0 or 1), symbolised by an asterisk (*)
 - The last two lines indicate the cursor position and input wording

This simple principle is used to view in real time how the system inputs change.

□ Composition of the interface boards (logical inputs)



- CB board (11 inputs)
- CB1 board = CB board + option 1 (11 inputs + 4 inputs)
- CB12 board = CB board + option 1 + option 2 (11 inputs + 4 inputs + 12 inputs)

□ Main board (CB)

```

MAIN BOARD (CB)
Esc: Exit
■23456789 10 11
0: ***** * *
1:
Input 1:
Oil Pressure Shutdown
    
```

Logical status display of the inputs on interface board CB, i.e. the eleven inputs described in Section " Technical features ".

Note: the eleven inputs are also available on interface boards CB1 and CB12.

□ Option 1 (CB1/CB12)

```

OPTION 1 (CB1/CB12)
Esc: Exit
■234
0: ****
1:
Input 1:
Oil Temp. Shutdown
    
```

Logical status display of the inputs on option 1 part of interface board CB1, i.e. the four inputs described in Section " Technical features ".

Note: the four inputs are also available on interface board CB12.

□ Option 2 (CB12)

```

OPTION 2 (CB12)
Esc: Exit
■23456789 10 11 12
0: ***** * * *
1:
Input 1:
Diff. or C.I.C. trip
    
```

Logical status display of the inputs on option 2 part of interface board CB12, i.e. the twelve inputs described in Section " Technical features ".

□ Option 3 Module

```

OPTION 3 MODULE
Esc: Exit
■2345678
0: *****
1:
Input 1:
EJP J-1
    
```

Logical status display of the inputs on option 3 module, i.e. the eight inputs described in Section " Technical features ".

□ **Option 4 Module**

```

OPTION 4 MODULE
  Esc: Exit
■ 2345678
0: *****
1:
Input 1:
    
```

Logical status display of the eight inputs on option 4 module. As these inputs can be programmed, the wording of each input varies according to the programming performed. For that reason, the wording does not appear on the screen opposite.

□ Viewing the inputs on an option not available (see note) or on an option module not available (factory configuration) will result in the following superimposed message to be displayed.

```

INPUTS
V: Valid  Esc: Exit
o Main Board (CB)
o | Module Not Avail. |
o | Esc: Exit          |
o |                   |
o Option 4 Module
    
```

Example : a system is configured with interface board CB12 and Option 3 module. Press **V**, when the cursor is next to **Option 4 Module**, to display the superimposed message opposite.

Note: The availability of option 1 (interface boards CB1 and CB12) and option 2 (interface board CB12) parts is detected automatically as soon as MICS Telys is powered up.

Example: a system comprises of interface board CB. Press **V**, when the cursor is in front of **Option 2 (CB12)**, to make the previous screen appear.

14. " OUTPUTS " MENU

After validation using the **V** button, when the cursor ■ flashes over the **o** sign next to Outputs, the OUTPUTS screen appears as follows.

```

OUTPUTS
V: Valid  Esc: Exit
■ Main board (CB)
o Option 1 (CB1/CB12)
o Option 2 (CB12)
o Option 3 Module
o Option 4 Module
    
```

- The cursor ■ flashes over the **o** sign on the first line.
- Press **→** to move the cursor to the next line, except if the cursor is over **Option 4 Module**.
- Press **←** to move the cursor to the previous line, except if the cursor is over **Main board (CB)**.
- By pressing **→** or **←**, the operator places the cursor over the data he wants displayed.

- Press **V**, when the cursor flashes over the **o** of one of the five lines, to view the logical status of the outputs on interface boards CB, CB1 or CB12, as well as the outputs on both option 3 and 4 modules, as per the principle described below:
 - Outputs are numbered on the first line and the ■ cursor flashes on output 1
 - The next two lines indicate the logical status (0 or 1), symbolised by an asterisk (*)
 - The last two lines indicate the cursor position and output wording

This simple principle is used to view in real time how the system outputs change.

□ **Composition of the interface boards (logical outputs)**

```

CB12 BOARD
  CB1 BOARD
    CB BOARD
    
```

- CB board (7 outputs)
- CB1 board = CB board + option 1 (7 outputs + 3 outputs)
- CB12 board = CB board + option 1 + option 2 (7 outputs + 3 outputs + 2 outputs)

□ **Main board (CB)**

```

MAIN BOARD (CB)
  Esc: Exit
■ 234567
0: *****
1:
Output 1:
Fuel Solenoid Control
    
```

Logical status display of the outputs on interface board CB, i.e. the seven outputs described in Section " Technical features ".

Note: the seven outputs are also available on interface boards CB1 and CB12.

□ **Option 1 (CB1/CB12)**

```

OPTION 1 (CB1/CB12)
  Esc: Exit
■ 23
0: ***
1:
Output 1:
Air Damper Control
    
```

Logical status display of the outputs on option 1 part of interface board CB1, i.e. the three outputs described in Section " Technical features ".

Note: the three outputs are also available on interface board CB12.

❑ **Option 2 (CB12)**

OPTION 2 (CB12) Esc: Exit
■2 0: ** 1: Output 1: Fuel Pump Control

Logical status display of the outputs on option 2 part of interface board CB12, i.e. the two outputs described in Section " Technical features " .

❑ **Option 3 Module**

OPTION 3 MODULE Esc: Exit
■23456789 10 0: ***** * 1: Output 1:

Logical status display of the ten outputs on option 3 module. As these outputs can be programmed, the wording on each line varies according to the programming performed. For that reason, the wording does not appear on the screen opposite.

❑ **Option 4 Module**

OPTION 4 MODULE Esc: Exit
■23456789 10 0: ***** * 1: Output 1:

Logical status display of the ten outputs on option 4 module. As these outputs can be programmed, the wording on each line varies according to the programming performed. For that reason, the wording does not appear on the screen opposite.

❑ Viewing the outputs on an option not available (see note) or on an option module not available (factory configuration) on the cabled system will result in the following superimposed message to be displayed.

OUTPUTS V: Valid Esc: Exit
o Main board (CB) o Module Not Avail. o Esc: Exit o Option 4 Module

Example: a system is configured with interface board CB12 and Option 3 module. Press **V**, when the cursor is next to **Option 4 Module**, to display the superimposed message opposite.

Note: The availability of option 1 (interface boards CB1 and CB12) and option 2 (interface board CB12) parts is detected automatically as soon as MICS Telys is powered up.

Example: a system comprises of interface board CB. Press **V**, when the cursor is in front of **Option 2 (CB12)**, to make the previous screen appear.

15. " CONTRAST " MENU

After validation using the **V** button, when the cursor ■ flashes over the **o** sign next to **Contrast**, the **CONTRAST** screen appears as follows.

CONTRAST Esc: Exit
<- down up -> Current Value: 148 Adjust contrast Min Value : 1 Max Value : 250

- This screen is used to adjust the contrast of the characters displayed. Also, when the contrast value has been changed, only through this screen can the new value be saved in case MICS Telys is powered down.
- Press **→** to increase the contrast
- Press **←** to reduce the contrast
- The contrast is increased or decreased in steps of 1 (... , 140, 141, 142, ...).
- The contrast value which is modified by the **→** and **←** buttons changes on screen, thus enabling you to efficiently locate the contrast area. This area varies according to ambient temperature.
- Press **Esc** to exit this screen, the contrast is then saved into memory, the **GENERAL** screen appears and the cursor flashes over the **o** sign next to **Contrast**.

16. " PROTECT " MENU

If a protection of differential type (differential relay) or via constant insulation check (C.I.C.) is cabled to interface board CB12, this menu is used to view the parameters inherent in each protection. These parameters can only be viewed if the relays (differential or insulation check) are equipped with a specific communication.

After validation using the **V** button, when the cursor **■** flashes over the **o** sign next to **Protect**, one of the two screens below appears, depending on the protection selected (factory configuration).

16.1. Differential protection

The " Resys M " type relay will do this function. Differential protection is used in TT neutral systems (neutral linked to earth). When the cursor flashes over the **o** sign next to **Protect**, the **DIFF. PROTECTION** screen below then appears.

DIFF. PROTECTION Esc: Exit
Delay Setting: 000ms Alarm Relay Status: 0 Toroid Connection : 0 Fault Current: 000,0%

- **Delay Setting** indicates the trip time on a differential fault.
- **Alarm Relay Status** takes two values 0 or 1 and indicates the alarm relay physical status.
- **Toroid Connection** takes two values 0 or 1 and indicates the connection status of the core balance transformer.
- **Fault Current** indicates the % value of the fault current.

- The delay setting can be displayed between 0 and 10 seconds, with:
 - a display in milliseconds between 0 and 100ms
 - a display in seconds above 100ms
- The fault current percentage displayed varies according to the relay initial setting.
Example: relay set to 300mA, fault current=150mA, the screen display will be of 50%.

16.2. Protection via CIC

The " Isom AS " type relay will do this function. Protection via permanent insulation check is used in IT neutral systems (impedant or insulated neutral). When the cursor flashes over the **o** sign next to **Protect**, the **CONSTANT INSUL.CHECK** screen below then appears.

CONSTANT INSUL.CHECK Esc: Exit
Insulation Resistor : 000 kOhms

- **Insulation Resistor** indicates the real time insulation level in the circuit.

16.3. Special case

In cases where the user installs a differential protection relay or a constant insulation checking device different from those offered, MICS Telys will not be able to display the feedback data from these various relays. Therefore, access to **Protect** menu will not be possible.

17. GENERATING SET OPERATION

17.1. Water heater

If the engine is equipped with a water heater, MICS Telys will need to be in **Auto** mode for the water heater to operate. The water heater can be stopped in two ways:

- via the thermostat mounted on the engine
- via the fuel stop solenoid when energised.

Fuel Lev(%)	65
E.Speed(RPM)	0
Batt. (Volts)	24.2
water heater	17:20
gen stand-by	12/01/00

- A message appears on the screen opposite when the water heater is activated. This message is displayed alternately with message **ext command=0**.
- As soon as the generating set starts, the message **water heater** will no longer appear.

17.2. Engine preglow

Some engines are equipped with an air intake heating glow plug enabling easier start-up in cold weather. As factory programming was carried out, the engine preglow output will be activated at the beginning of any start-up sequence (see screen 1). This preglow period can be adjusted (factory programmed). Engine preglow is also active between two start-up attempts. However, the operating time is equal to the interval between two attempts (see screen 2).

Fuel Lev(%)	65
E.Speed(RPM)	0
Batt. (Volts)	24.2
engine preglow	

screen 1

Fuel Lev(%)	65
E.Speed(RPM)	0
Batt. (Volts)	24.2
engine preglow rest between attempts	

screen 2

17.3. Fuel solenoid control

The fuel solenoid control activation is interlocked with the engine preglow control or starter control activation. The fuel solenoid supply is then permanent. It is interrupted when the engine shutdown is requested (**Stop** button pressed, normal shutdown in **Auto** mode, emergency stop pressed, shutdown on any fault).

17.4. Starter control

- On appearance of the external command (immediate or associated with the end of the power failure delay) or at the end of the engine preglow period, the starter is cranked for an adjustable time (factory programmed). The following can happen:

- ① The engine cranks sufficiently to start
- ② The whole attempt is not sufficient to start the engine

In the first instance, the starter trips (see paragraph 17.5). In the second instance, the starter automatically trips at the end of the starting attempt and for an adjustable time (factory programmed). At the end of the preset number of attempts, if the engine has not started, the overcranking fault appears on screen.

- Several choices are possible at the start-up level (factory programmed) :

- One electrical starter (simple start)
- Two electrical starters (twin start)
- One electrical starter and one pneumatic starter (twin start)
- Consecutive start (1)
- Alternated start (2)

In case (1), MICS Telys activates x times starter 1 output, then activates y times starter 2 output (x is starter 1 number of attempts and y is starter 2 number of attempts).

In case (2), MICS Telys alternately activates the two starter outputs up to the biggest of the two values entered in memory (x or y).

x = starter 1 number of attempts

y = starter 2 number of attempts

Below, two screen examples showing the starters activation.

Fuel Lev(%)	65
E.Speed(RPM)	0
Batt.(Volts)	24.2
starting	
attempt 1 starter 1	

screen 1

Fuel Lev(%)	65
E.Speed(RPM)	0
Batt. (Volts)	24.2
starting	
attempt 3 starter 2	

screen 2

17.5. Starter tripping

If the engine starts, the starter control output is automatically tripped when the engine reaches the set threshold (factory programmed):

- For an electrical starter
- For a pneumatic starter

17.6. RPM and Volts stabilisation

- Stabilisation is a normal physical phenomenon in any regulation system. When the engine reaches the (electrical or pneumatic) starter tripping threshold, the engine speed and alternator voltage stabilisation process is launched. When the delay elapses (factory programmed) and if the low frequency and low alternator voltage thresholds are reached, the green LED comes on. This light tells the operator that the Stand-by contactor or motorised C/B can be manually controlled. In the case of an **Auto** mode operation, the LED coming on activates the Stand-by contactor delayed closure (see paragraph 18).

- If the green LED does not come on, an alarm or fault will be signalled at the end of one of the four following delays: low frequency, high frequency, low alternator voltage, high alternator voltage.

- During operation, if the green LED goes out, this means that the generating set no longer operates within one of the two intervals:

- Low/high frequency
- Low/high alternator voltage

The appearance of an alarm or fault (depending on the configuration) will be displayed on screen.

17.7. Generating set output

- In **Auto** mode, when the Stand-by contactor is closed, the generating set delivers the installation.

- In **Manu** mode and without ATS, as soon as the green LED comes on, the generating set can deliver the installation. The operator must then manually close the output circuit breaker mounted on the generating set.

When the generating set delivers the installation, the screen below appears.

Phase	I1	4 25
current	I2	4 20
(Amps)	I3	4 36
ext command=	1	17:10
gen running		12/01/00

- The message on the last line indicates that the genset delivers the installation. The output is easily checked by viewing the currents in each phase.

17.8. Engine cooling down and shutdown

Engine cooling down and shutdown are triggered in three different ways; in **Manu** mode, in **Auto** mode, in **Test** mode.

- In **Manu** mode, the operator opens the Stand-by contactor by pressing the **0** button (if there is an ATS) or cuts off the load by manually opening the generating output circuit-breaker. The operator must then let the engine run for a few minutes to let it cool down, before pressing **Stop**.



The cooling down phase is required in **Manu** mode

- In **Auto** mode, when one of the three start-up conditions changes (see paragraph 2.3), the Stand-by contactor opens automatically, the Mains contactor closes after the S_{CM} toggle delay and the engine enters into a cooling down phase. At the end of the cooling down period, the engine stops and the generating set is on stand-by again.
- In **Test** mode, at the end of the **Test** mode operation delay (screen display), the generating set stops instantly without any cooling down period as the **Test** mode is a no-load operation.

Note: when a fault appears, the engine shutdown is immediate or delayed depending on the nature of the fault and the factory programming.

18. ATS OPERATION

The ATS (or Mains/Stand-by changeover switch) is used to perform the automatic switching of energy sources when the main source (the mains) fails.

- In the factory standard configuration, the operator is informed of the Mains and Stand-by contactors position on the display module panel face (LEDs for **0** and **1** buttons):
 - Stand-by contactor closed
 - Mains contactor closed
- However, if the user does not cable the Mains and Stand-by contactors auxiliary contacts, the LEDs for buttons **0** and **1** will never come on and the following messages will continuously appear:

Alarm Mains open

Alarm Stand-by open

- If the user does not want to cable the contactors feed back data, the setups will have to be changed (consult the agent or technical support team).



In this case, all messages associated with the Mains/Stand-by changeover operation will be displayed.

- The operations described below are valid with an ATS from our range and with the factory standard configuration.

18.1. In Stop mode

When MICS Telys is positioned in **Stop** mode, the Mains contactor is closed (mains available) and the **0** button LED is lit. The Mains contactor control on interface board CB, CB1 or CB12 is idle (contact closed).

Fuel Lev(%)	65
E.Speed(RPM)	0
Batt. (Volts)	24.2
ext command=1	17:06
gen stopped	12/01/00

- If the mains disappears, the Mains contactor opens, its auxiliary contact opens too, the screen opposite appears and the general alarm LED flashes.
- The message **ext command=1** appears on screen as soon as the external command input is active.
- The operator must select the **Auto** mode for the generating set to be able to start.

18.2. In automatic mode

When MICS Telys is positioned in Auto mode, the Mains contactor is closed (mains available), the 0 button LED is lit. The Mains contactor control on interface board CB, CB1 or CB12 is idle (contact closed).

If the mains disappears, the Mains contactor opens, its auxiliary contact opens too, the external command input is activated and one of the two screens below appears.

Fuel Lev(%)	65
E.Speed(RPM)	0
Batt. (Volts)	24.2
Alarm mains open	
starting	
attempt 1 starter 1	

screen 1

Fuel Lev(%)	65
E.Speed(RPM)	0
Batt. (Volts)	24.2
Alarm mains open	
ext command=1	
mains failure: 05"	

screen 2

- Screen 1 means that the mains failure delay is set to 0 or that type 1 starting mode has been selected (MICS Telys built-in mains failure delay is ignored). The generating set begins its automatic starting phase.
- Screen 2 means that the generating set is going to start after the MICS Telys built-in mains failure delay (type 2 starting mode).

Whatever the screen (1 or 2), the message **Alarm Mains open** is displayed and the **0** button LED flashes, telling the operator that the Mains contactor is in a transitional status. The LED stops flashing and the message disappears as soon as the green LED comes on.

Note: The Mains contactor opening control is activated, thus avoiding it from closing if the mains returned.

Ph./ph.	U12	399
voltages	U23	400
(Volts)	U31	398
toggle delay		
mains->stand-by:		05"

- The screen opposite indicates the delay for the Mains contactor to toggle to the Stand-by contactor.
- When the delay elapses, the Stand-by contactor closure is requested, the message **Stand-by closed** appears, the **1** button LED comes on and the genset then delivers the installation (see paragraph 17.7).

Phase	I1	425
current	I2	420
(Amps)	I3	436
ext command=0		
mains return:		00' 60"

- When the external command disappears, the mains return delay begins (if type 2 selected) and the screen opposite appears.
- When the mains return delay elapses, the Stand-by contactor opens and the **1** button LED goes out.

Phase	I1	0
current	I2	0
(Amps)	I3	0
toggle delay		
stand-by->mains:		05"

- The message on the screen opposite appears to indicate that the Mains contactor will close in x seconds.
- When the delay elapses, the Mains contactor closure is requested, the message **Mains closed** appears, the **0** button LED comes on and the mains delivers the installation again.

Note 1: in cases where the contactors feed back data is ignored, the toggling messages from one contactor to the other (M→S and S→M) do not appear.

Note 2: in cases of a type 1 start (MICS Telys built-in mains return delay ignored), the message **mains return: 00' 60"** on the previous screen does not appear.

18.3. In manual mode

- The ATS can only operate in **Manu** mode when the green LED is lit.
- Press button **1** to close the Stand-by contactor. Before the Stand-by contactor closes, the Mains contactor opens, the **0** button LED goes out and the message of toggling from Mains to Stand-by appears. When the delay elapses, the Stand-by contactor closure is effective, the message **Stand-by closed** appears and the **1** button LED comes on.
- Press button **0** to open (instantly) the Stand-by contactor, the **1** button LED goes out and the message of toggling from Stand-by to Mains appears. When the delay elapses, the Mains contactor closes automatically, the message **Mains closed** appears and the **0** button LED comes on.

1 - Features

- Display module (DM)
- Interface board available in three versions (CB, CB1, CB12), depending on client's optional equipment
- Option 3 module (O3M)
- Option 4 module (O4M)
- Block building system enabling multiple combinations: from DM+CB to DM+CB12+O3M+O4M (including all intermediate variants)

Note: DM required in all combinations

2 - Display module (Fig. 2)

- LCD screen, 8 lines 21 characters, built-in back-light and keyboard adjustable contrast
- 28 momentary push buttons (two types; 10 and 13 dia.)
- 15 display LEDs (alarms/warnings, faults/shutdowns, status, operating modes)
- UL approved polycarbonate case supplied with cable and connector for connection to the interface board
- Dimensions 192x144x70
- Quick installation using brackets and knurled screws
- IP65 on panel face with seal (not supplied), IP20 inside
- Extremely user friendly man-machine interface: multiple-message screens, diagnostic, genset status, ...

3 - Interface board (Fig. 1)

- CB = Main board
- CB1 = Main board with option 1 built in
- CB12 = Main board with option 1 and option 2 built in
- Electronics in a sheet steel case (base + lid)
- Dimensions : 435x263x31
- Voltage bus; alternator, mains and DC built into the printed circuit board (see paragraphs 7, 8, 9 and 13)
- 16 bit microcontroller, (Flash, RAM and EEPROM) memories, real-time clock, battery backup for time and date
- Supply from 9 to 33Volts DC and from 6Volts DC, for voltage drop at start-up
- All connections are built into the printed circuit board on both sides with full screen printing

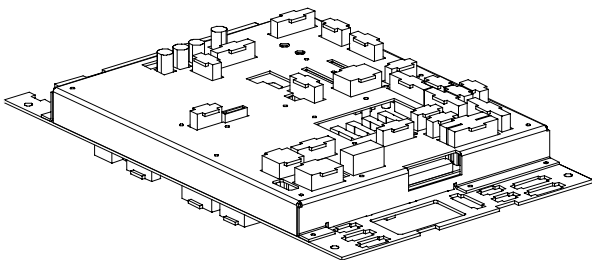


Fig. 1 - CB12 board

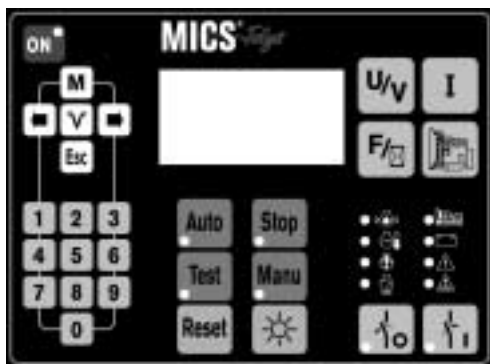


Fig. 2 - Display module

4 - Logical/analog I/O

All inputs and outputs are allocated to a specific use (see tables below).

Type	Logical output description	CB	CB1	CB12
F	oil pressure	x	x	x
F	water temperature	x	x	x
A or F	day tank low fuel level	x	x	x
F	emergency stop	x	x	x
A or F	overload or short-circuit	x	x	x
C	water heater thermostat	x	x	x
C	external start-up command	x	x	x
F	radiator low water level	x	x	x
C	Mains contactor home position	x	x	x
C	Stand-by contactor home position	x	x	x
F	external emergency stop	x	x	x
F	oil temperature		x	x
F	low oil level		x	x
A or F	water heater failure		x	x
A or F	battery charger failure		x	x
A or F	differential or CIC trip			x
F	differential relay available			x
F	Constant Insulation Check available			x
F	air cooler disconnection			x
F	air cooler low water level			x
A or F	fuel pump 1 disconnection			x
A or F	retention bund			x
C	bulk tank CF80			x
A or F	bulk tank low fuel level			x
C	EJP switch (*)			x
C	EJP start-up (*)			x
C	EJP advanced warning (*)			x

* : France only

Type	Logical output description	CB	CB1	CB12
T	fuel solenoid control	x	x	x
T	starter 1 control	x	x	x
T	engine preglow control	x	x	x
T	water heater control	x	x	x
T	hooter control (general fault)	x	x	x
R	Mains contactor control	x	x	x
R	Stand-by contactor control	x	x	x
T	air damper control		x	x
T	starter 2 control		x	x
R	electro-flaps control		x	x
T	fuel pump 1 control			x
R	CIC remote contact			x

Type	Analogue input description	CB	CB1	CB12
Ω	oil pressure indication	x	x	x
Ω	water temperature indication	x	x	x
Ω	day tank low fuel level indication	x	x	x
Ω	oil temperature indication		x	x

Type	Specific I/O	CB	CB1	CB12
ana.	charge alternator excitation	x	x	x

Note: Alarm or Fault selection via programming

Key:

A=Alarm, F=Fault, ana.=analogue, C=Control
T=Transistor, R=Relay, Ω=resistive

5 - Option 3 and 4 modules (O3M and O4M)

- Modular case, dimensions : 160x90x58
- Programming specific to each module (dip-switch)
- 8 allocated inputs and 10 programmable outputs on O3M for remote volt free contacts
- 8 programmable inputs and 10 programmable outputs on O4M, with 20 preprogrammed options

6 - Alternator current input

- 4-wire, unisolated, on current transformer with 5A secondary (not built into the electronics)
- Measurements in true root mean square values
- Measurement range: 60A to 5000A

7 - Alternator voltage input

- 4-wire (3ph + neutral), unisolated, with 12.5A-500Vac built in power bus in 50 and 60Hz
- Measurements in true root mean square values
- Frequency measurement on phase 1 for screen display and engine overspeed sensing

8 - Mains voltage input 1

- 4-wire (3ph + neutral), unisolated, with 15A-600Vac built in power bus in 50 and 60Hz
- No voltage and frequency measurements

9 - Mains voltage input 2

- 2-wire (1ph + neutral), unisolated, with 10A-240Vac built in power bus in 50 and 60Hz
- No voltage and frequency measurements

10 - Charge alternator input

- Charge alternator excitation and fault
- Starter hardware fail safe on software failure

11 - Communication

- RS485 serial port with J-Bus protocol
- 9-pin SUB-D connector
- Monitoring possible in local mode (≤ 1000 meters)
- Remote management possible with 2 modems (>1000 m)
- Optional monitoring/remote management software

12 - CAN Link

- Link between interface board and option module(s)
- Standard CAN bus version 2.0b, 9-pin SUB-D connector for CC supply to module
- 1 connector on CB and CB1, 2 connectors on CB12

13 - Fuse protection

- Fn, F1, F2, F3, 12.5A-500V fuses for alternator bus
- Mains bus protected by circuit breaker in the ATS
- F5, 10A fuse for the DC bus
- F7, 2.5A delayed action fuse for the interface board
- F6, 1A delayed action fuse for O3M
- F8, 1A delayed action fuse for O4M (CB12 only)

14 - Connections

- Multi-pin (2 to 15 pins) connectors with polarizer
- Number of connectors varies with interface board
- Each connector has a specific use

15 - Programming options

- Multiple programming possibilities
- Access code required to read/program

16 - Options connected to the interface

Option description	CB	CB1	CB12
external start-up command	x	x	x
auto predisposition + external command	x	x	x
3ph+neutral or 1ph+N mains connection	x	x	x
battery charger (3 possible ratings)	x	x	x
water heater (3 poss. depending on supply V)	x	x	x
hooter	x	x	x
RS485 for monitoring or remote management	x	x	x
option 3 module / CAN bus connection	x	x	x
additional engine kit (9 options) (*)		x	x
electro-flaps (DC or AC)		x	x
anti-condensation heater		x	x
EJP (switch, adv. warning and start-up)		France only	x
1ph or 3ph fuel pump (control & power)			x
Air cooler (low level, disconnection)			x
differential protection and MX coil control			x
CIC protection with remote contact and MX coil control			x
bulk tank fuel pump (CF80, low level, retention bund)			x
AMPG with optional RS485			x
option 4 module / CAN bus connection			x
three-alarm (OP,WT,OT) and module 4 kit			x

(*)indication and fault/shutdown for oil temperature, low oil level, water heater failure and alarm/warning for, oil pressure, water temperature, oil temperature, air damper control, starter 2 control.

17 - Sorties relais

- Max switching voltage: 250Vac (277Vac for *)
- Mains and Stand-by contactor control outputs: 4.9A, 1500VA breaking capacity at $\cos\phi=0.7$
- Electro-flaps outputs: 500mA & CIC remote contact:1A
- MX coil control output (*): 4.9A (optional relay on baseplate)

18 - Transistor outputs

- Protected against short-circuit
- Output for fuel solenoid/panel lighting: 700mA
- Other outputs: 300mA

19 - Hardware configuration

- C14/C15 connector, auxiliaries voltage selection
- C7 dip-switch, RS485 terminator
- P3 dip-switch, CAN bus terminator
- Dip-switch selection for VDE option

20 - Environment and standards

- Operating temperature: -15°C to +60°C
- Storage temperature: -20°C to +70°C
- Resistance to shocks: IK01, vibration: to CEI68-2-6
- Salt mist resistance : 96 hours according to EN68011-2-11
- Humidity : 95 % of humidity at 45°C.
- EMC :
 - Generic standards EN50081-2 and EN50082-2
 - Emissions EN55011 Class A
 - Immunity EN61000-4.2, EN6100-4.3, EN61000-4.4, EN61000-4.6, EN61000-4.8, ENV50201
- CE mark, UL listed, CSA certified

19. ACCESSING THE LEVEL 2 DISPLAY/PROGRAMMING

Level 2 display/programming enables the operator to:

- Access the entire Level 1 display (see paragraph 10)
 - Modify Level 2 data on menus **Control** and **Config**.
 - Have read only access to all the configuration parameters (see paragraph 21)
- When the cursor **■** flashes over the **o** sign next to **Control** or **Config**, press **V** to display the superimposed screen below.

GENERAL (vers. 1.00A)	
V : Valid Esc : Exit	
o Control	o Config
o Code : ----	
o V: Valid Esc: Exit	
o Contrast	o Protect

- Level 2 configuration parameters can be accessed after entering a 4-digit code.
- When the operator enters the code, an asterisk * appears at each digit entered.
Example: **Code: ***-;**
The last digit still needs to be entered.

⚠ The generating set has been factory configured for your application. Changes by the operator of any Level 2 parameters in menus **Control** and **Config** can lead to malfunctions under the operator's sole responsibility. If you have any doubt on a parameter value, contact the technical support team or your nearest agent).

- Press **V** after entering the code to access the level 2 parameters. Access is valid for half an hour.
- If the code entered is wrong, the four asterisks disappear for you to try again.
- Press **Esc** without entering any code to remove the superimposed screen. The cursor flashes again next to **Control** or **Config**, depending on the last selection.
- If neither **V** nor **Esc** is pressed on the superimposed screen, the " overview " screen (see paragraph 1.7) appears by default after three minutes.
- On the **GENERAL** screen, if neither **V** nor **Esc** is pressed on the superimposed screen, the " overview " screen (see paragraph 1.7) appears by default after three minutes.

Below, short description of the two code-accessed menus:

☐ Control

This menu is used to select how you want the generating set to operate in **Auto** mode.

☐ Config

This menu includes the entire generating set configuration. It is used to:

- Read and/or modify level 2 parameters
- Read only all parameters

Menus Control and Config are detailed in paragraphs 20 and 21.

20. " CONTROL " MENU

After entering the access code, when the cursor **■** was flashing over the **o** sign next to **Control**, the **CONTROL** screen appears as follows.

CONTROL Yes=1 No=0	
V : Valid Esc : Exit	
■ SimpleExt(Command) : 0	
o ExtCommand+Delay : 1	
o Start UsingClock : 0	

- The cursor **■** flashes over the **o** sign on the first line.
- Press **→** to move the cursor to the next line, except if it is on **Start UsingClock**.
- Press **←** to move the cursor to the previous line, except if it is on **SimpleExtCommand**.
- By pressing **→** or **←**, the operator places the cursor over the starting mode(s) required.

20.1. Automatic starting modes

☐ Type 1 - Start using a simple external command

The simple external command is a dry contact from:

- The mains sensing system installed in the ATS or the user terminal block
- Any relay provided by the client.

On that command, the genset starts instantly or after the engine preglow time period.

Note: The mains sensing system offered as standard does not have any delays for mains failure and mains return (see type 2 below).

☐ Type 2 - Start using an external command + delays

The external command with delays is a dry contact from:

- The mains sensing system installed in the ATS or the user terminal block
- Any relay provided by the client

On that command, the mains failure and mains return delays are managed by MICS Telys (parameters 103 and 104 from the **Delays** menu). These two parameters take into account any repeated outages from the mains voltage.

Type 2 start-up corresponds to the mode offered as standard with the mains sensing system built into the ATS or the user terminal block.

□ Type 3 - Start using a programmable clock

When Type 3 is selected, the genset can also be started using either of the above types. Type 3 enables the genset to be started using a programmable clock (paragraph 20.3).

20.2. Settings

Two settings are possible: 0 or 1. Entering 0 disregards the type of start. Entering 1 enables you to select the type of start. If a value other than 0 or 1 is entered, it is ignored.

It is impossible for Type 1 and Type 2 to operate at the same time:

If type1=1, then type2=0 if selection of type1=0, then automatically type2=1

If type2=1, then type1=0 if selection of type2=0, then automatically type1=1

However, it is quite possible to associate a start using an external command (type1 or type2) with a start using a clock (type3).

20.3. Start using a clock

MICS Telys has a built-in clock. This clock can be programmed using four different time ranges and three operating modes (daily, weekly and yearly). The calendar takes leap years into account and is programmed until the year 2050.

⚠ If you clock start the genset, please read very carefully the following.
After programming, the operator is advised to check what has been stored.
Any error can trigger the genset to start in Auto mode, at a time not required, with all the risks associated with an automatic start.
If in doubt, do not hesitate to contact the technical support team or your nearest agent.

After validation using the **V** button, when the cursor **■** flashes over the **o** sign next to **Start UsingClock**, it relocates itself behind the : on 0. Enter 1, then press **V** again to bring up the screen **CLOCK** below.

CLOCK V : Valid Esc : Exit
■ Hourly o Daily/Weekly o Yearly

- The cursor **■** flashes over the **o** sign on the first line.
- Press **→** to move the cursor to the next line, except if it is on **Yearly**.
- Press **←** to move the cursor to the previous line, except if it is on **Hourly**.
- By pressing **→** or **←**, the operator places the cursor to the required programming.

On this screen, there are three choices:

□ Hourly

Programming the genset operating range(s) (four time ranges available).

□ Daily/Weekly

Programming the repetition rate over a whole week (7 days).

□ Yearly

Programming the repetition rate over a whole year.

⚠ To enable the genset to clock start, you must program at least one time range (see below). However, if the " Daily/Weekly " mode is not programmed, the generating set will operate every day of the week on the time range(s) programmed (default programming). Again, if the " Yearly " mode is not programmed, the generating set will start every day of the year (default programming).

When programming, it is advisable to use a paper calendar to select the days and the week numbers. Programming is only possible on the current year.

□ " Hourly " Mode

- Press **V**, when the cursor flashes over the **o** sign next to **Hourly**, to display the **HOURLY** screen overleaf.

HOURLY Yes=1 No=0 V : Valid Esc : Exit
■ Time Range 1 : 0 o Time Range 2 : 0 o Time Range 3 : 0 o Time Range 4 : 0

- The cursor **■** flashes over the **o** sign on the first line.
- Press **→** to move the cursor to the next line, except if it is on **Time Range 4**.
- Press **←** to move the cursor to the previous line, except if it is on **Time Range 1**.
- By pressing **→** or **←**, the operator places the cursor on the time range required.

- Four time ranges are offered. If you enter 0 then validate using **V**, you will not be able to access the programming of Time Range x (x varies from 1 to 4). Enter 1 then validate using **V** to bring up the following screen.

Note: The " Daily/Weekly " mode can only be accessed if at least one of the time ranges has been set to 1.

Time Range x V : Valid Esc : Exit
Start : ■0h 00m End : 00h 00m

- The cursor **■** flashes over the first digit to be entered.
- Press **→** and/or **←** to move the cursor to the next and/or previous digit(s).
- By pressing buttons **0** to **9**, the operator programs the start and the end of the time range.

- A time range is defined as follows: the genset set starts at Start and stops at End.

Example **Start : 15H00** the genset starts at 3pm
End : 16H15 the genset stops at 4.15pm

- When the cursor flashes alternately with the last digit (which is a 5 in the above example), you must press **V** to validate the time range. The cursor then returns to the first digit (just to the right of **Start**).
- Press **Esc** to exit the screen and program any other time range.
- If you press **Esc** before validating the time range, the programmed Time Range x will be ignored and you will return to the **HOURLY** screen.

□ Daily/Weekly Mode

Press **V** when the cursor **■** flashes over the **o** sign next to **Daily/weekly**, to display the **DAILY/WEEKLY** screen below.

DAILY/WEEKLY Yes=1No=0	
V : Valid Esc : Exit	
	MTWTFSS
Time Range ■	1 1 1 1 1 1
Time Range 2	1 1 1 1 1 1
Time Range 3	1 1 1 1 1 1
Time Range 4	1 1 1 1 1 1

- The screen opposite corresponds to a selection of 1 in all four time ranges. If only two time ranges (1 and 2 for example) are selected, there will only be two lines on screen.
- The right-hand side part of the screen represents a whole week with the name of the days symbolised by their first letter (example: **M** for Monday).

- By default, the " Time Range x/Week days " matrix is filled with 1s. This means that the generating set will start every day of the week as per the four programmed time ranges.
 - The cursor **■** flashes alternately with the digit of the first time range (which is, in the previous screen, the **1** of **Time Range 1**).
 - Press **V** to enter the matrix and place the cursor on the **1** of Monday. If the generating set is not to start on Mondays, simply press button **0**. The **1** then changes into a **0**. Going onto Tuesday is automatic and the selection is made the same way.
- Press **→** and **←** to go to a particular day or to return to a previous program.

Note: When the cursor flashes on a **0** of the matrix, pressing button **1** on the number pad will change the **0** into a **1**.

- Press **V** a second time when the cursor **■** flashes in the matrix to validate the generating set operation using Time Range x over a whole week.
- If you press **Esc** when the cursor **■** flashes in the matrix, the changes made in the matrix will not be validated. The previous program then stays valid.
- Press **→** to go to the next time range, if any.
- Press **Esc** when the cursor flashes over a time range number to exit the **DAILY/WEEKLY** menu and go back to the **CLOCK** screen.
- If neither **V** nor **Esc** is pressed, the " overview " screen (see paragraph 1.7) appears by default after three minutes.

□ Yearly Mode

Press **V** when the cursor **■** flashes over the **o** sign next to **Yearly**, to display the **YEARLY** screen below. The two screens below are used to view a whole year for a given Time Range x (x varies from 1 to 4).

YEARLY Yes=1 No=0	
V : Valid Esc : Exit	
Week 1 to 29	
0 ■	2. 3. 4. 5. 6. 7. 8. 9.
10.	1. 2. 3. 4. 5. 6. 7. 8. 9.
20.	1. 2. 3. 4. 5. 6. 7. 8. 9.
Time Range x	

- The screen opposite is used to program weeks 1 to 29. The number of the tens appears on the extreme left-hand side, i.e.:
0 for weeks 1 to 9
1 for weeks 10 to 19
2 for weeks 20 to 29
- The last line specifies the time range number

- When in screen **Week 1 to 29**, the cursor flashes on week 1.

YEARLY Yes=1 No=0	
V : Valid Esc : Exit	
Week 30 to 53	
30 ■	1. 2. 3. 4. 5. 6. 7. 8. 9.
40.	1. 2. 3. 4. 5. 6. 7. 8. 9.
50.	1. 2. 3.
Time Range x	

- The screen opposite is used to program weeks 30 to 53. The number of the tens appears on the extreme left-hand side, i.e.:
3 for weeks 30 to 39
4 for weeks 40 to 49
5 for weeks 50 to 53
- The last line specifies the time range number

- When in screen **Week 30 to 53**, the cursor flashes on the **0** of week 30.
- On the right-hand side of each week number, an asterisk (*) appears by default which means that the week is selected for a start using the week programming already made (see " Daily/weekly " mode).
- Press **0** on the number pad to change the asterisk (*) into a dash (-), which then means that the week is not selected. Therefore, it will not be possible to start the generating set on the week directly to the left of the dash. Press **1** on the number pad to change the dash into an asterisk again.
- Week numbers can be browsed using buttons **→** and **←**:
→ to browse in a ascending order (from 1 to 29 or from 30 to 53)
← to browse in a descending order (from 29 to 1 or from 53 to 30)

- When weeks 1 to 29 have been programmed for Time Range x, press **V** to validate the first screen and go to the second screen (weeks 30 to 53). Weeks 30 to 53 are programmed as for the first screen. Press **V** to validate the second screen and to bring the cursor on the last line, over the time range number.

The screens below highlight that the genset will not start on weeks 5, 6, 12, 13, 22 and 25 (screen 1) and on weeks 31, 38, 40, 44 and 50 (screen 2), for Time Range 1.

YEARLY Yes=1 No=0	
V : Valid Esc : Exit	
Week 1 to 29	
0	■. 2. 3. 4. 5; 6; 7. 8. 9.
10.	1. 2; 3; 4. 5. 6. 7. 8. 9.
20.	1. 2; 3. 4. 5. 6. 7. 8. 9.
Time Range 1	

screen 1

YEARLY Yes=1 No=0	
V : Valid Esc : Exit	
Week 30 to 53	
30.	1; 2. 3. 4. 5. 6. 7. 8; 9.
40;	1. 2. 3. 4; 5. 6. 7. 8. 9.
50;	1. 2. 3.
Time Range 1	

screen 2

- If several time ranges are programmed, when the cursor is over one of the two screens **Week 1 to 29** or **Week 30 to 53** of Time Range 1, press **Esc** to go directly to screen **Week 1 to 29** of Time Range 2 and so on...
- Press **Esc** again to return to the **CLOCK** screen, with the cursor on **Yearly**.

21. " CONFIG " MENU (LEVEL 2)

21.1. General

After entering the access code, when the cursor ■ was flashing over the o sign next to **Config**, the **CONFIGURATION** screen appears as follows.

CONFIGURATION	
V : Valid Esc : Exit	
■ Delays	o Thrshlds
o Option	o Factory
o Module3	o Module4
o Sensors	o RS-485

- The cursor ■ flashes over the o sign on the first line.
- Press **→** to move the cursor to the next sign to the right, if possible or to the next line.
- Press **←** to move the cursor to the previous sign, if possible or to the previous line.
- By pressing **→** or **←**, the operator places the cursor on the required menu.

- Press **V** to access the menu selected (example: **Factory** menu).
- Press **Esc** to return to the **GENERAL** screen with the cursor flashing next to **Config**.
- From the **CONFIGURATION** screen, there is a selection of eight menus (see above) which are used to fully configure the generating set.

At level 2, the parameters of menus ; **Module3** (5), **Module4** (6), **Sensors** (7) and **RS-485** (8) can only be accessed in read only form. The level 3 access code is required to modify the parameters of these four menus.

- Delays (1)** (see paragraph 21.3)
- Thrshlds (2)** (see paragraph 21.4)
- Option (3)** (see paragraph 21.5)
- Factory (4)** (see paragraph 21.6)

In these four menus above, only some parameters can be accessed. Accessing all the parameters is only possible at level 3, with a separate access code to that of level 2. However, they can all be accessed in read only form.

Note: The parameters available at level 2 are detailed in paragraphs 21.3, 21.4, 21.5 and 21.6.

- If neither **V** nor **Esc** is pressed, the " overview " screen (see paragraph 1.7) appears by default after three minutes.

21.2. Rules to access the configuration parameters

Rule ①

Any of the eight menus above can be accessed directly by typing a number between 1 and 8.

Example: By typing 4, you go directly to the **FACTORY** menu and by typing 7, you go directly to the **SENSORS** menu, whatever the cursor position.

Rule ②

The parameters appear as a list which can be scrolled through using buttons **→** and **←**.

Each parameter starts with the o sign. By pressing **→** and **←**, the cursor flashing over the o sign is moved up and down (one parameter per line).

The cursor can be pressed successively or continuously for a faster scroll.

Rule ③

A permanent indication at the top of each screen shows the possible choices:

- Press **V** to access the parameter and/or to validate the entry made by returning the cursor to the o sign.
- Press **Esc** to return the cursor to the o sign without validating or to exit the screen and return to the previous one.
- Press **0** or **1** on the number pad for some screens; Alarm=0, Fit=1, No=0, Yes=1

Rule ④

Press **V** to access a parameter. The cursor then moves to the digit placed right after the : sign. To change a value, press one or more buttons on the number pad (buttons **0** to **9**).

When the cursor is on the right-hand side of the : sign, the timeout to the " overview " screen (see paragraph 1.7) is no longer active and the selected screen stays displayed until either **V** or **Esc** is pressed.

DELAYS V: Valid Esc: Exit [01]
o Engine PreGlow: 00s o Test w/o Load : 10m o Mains Return : 01m o EJP Warning : 20m

screen 1

OPTION Alarm=0 Flt=1 V: Valid Esc: Exit [04]
o Low Fuel Level : 0 o LowBulkTankLevel: 0 o Overload/ShtCirc : 1 o No Water Heater : 0 o FuelPump1Disconn: 0

screen 2

screen 1 : modification on parameter **Engine PreGlow** in menu **DELAYS**

screen 2 : modification on parameter **No Water Heater** in menu **OPTION**

Rule ⑤

Entering the first digit will automatically move the cursor to the second digit, if it exists. Press **→** to move the cursor to the second digit, if any. In this instance, the first digit is not modified. Press **←** to return the cursor to the first digit, if it exists. In this instance, the second digit is not modified. The same goes for the next digits if there are any.

Rule ⑥

The value of a parameter will only be saved when the cursor has returned on the **o** sign. Pressing **Esc**, when the cursor is on the right-hand side of :, will not change the parameter even if an entry has previously been made.

Example: Parameter **Engine Preglow** set to 10 seconds. Enter 25 seconds then press **Esc**, the parameter will go back to the previous value before entry, i.e. 10 seconds.

Rule ⑦

Space being restricted, the wording of some parameters has been abbreviated. These abbreviations have been used to give the operator the most comprehensible message possible on screen.

If in doubt, see paragraph " Appendix 1 " which details all level 2 parameters.

Rule ⑧

When the cursor moves up or down, the parameter number is displayed in brackets on top of the screen (see previous screens).

If its number is known, a parameter can be directly accessed.

Example:

- Parameter No 4 of menu **Delays**, type 04 to move the cursor to the fourth line

- Parameter No 15 of menu **Delays**, type 15 to move the cursor to the fifteenth line

Note: If the number entered is bigger than the number of parameters available in the menu, the cursor then goes to parameter No 1.

Example: Type 30 on the **DELAYS** screen, the cursor moves to the first line because the Delays menu only has twenty-seven delays.

21.3. " Delays " Menu (level 2)

This menu is used to read the twenty-seven delays and to program the first eight. Delays are numbered from 101 to 127. From 101 to 108, they can be accessed at level 2.

Delays are expressed in seconds, minutes or hours. Time basis is the second, minute or hour.

Parameter No	Parameter	Screen wording	Standard setting
101	Engine preglow	Engine PreGlow	10s
102	Test mode without load	Test w/o Load	5m
103	Mains failure on external command, type 2	Mains Failure	5s
104	Mains return on external command, type 2	Mains Return	1m
105	EJP advanced warning (France only)	EJP Warning	20m
106	Loss of EJP start-up signal (France only)	EJP SignalLoss	30s
107	MICS Telys stand-by/sleep mode	Telys Stand-by	5m
108	MICS Telys automatic shutdown	Auto Shutdown	6h

The standard value given in the right-hand side column corresponds to the default setting, when the user has not required any specific settings for his application.

Entering an out of limits value is ignored and leads to the superimposed display of the max and min limits.

DELAYS V: Valid Esc: Exit [02]
o Test w/o Load : 35m o min:01m max:30m o Esc: Exit o EJP SignalLoss : 30s

After entering 35 minutes on parameter Test **w/o Load**, the screen opposite indicates the limits for this parameter, i.e.:

1 minute for min
30 minutes for max

21.4. " Thrshlds " Menu (level 2)

This menu is used to read the eleven thresholds and to program the first two. The thresholds are numbered from 201 to 211. Thresholds 201 and 202 can be accessed at level 2.

Setting of parameters 201 and 202 is made by increment of 1 using the number pad.

Parameter No	Parameter	Screen wording	Standard setting
201	2number of attempts on starter 1	Start1 Attmpts	3
202	number of attempts on starter 2	Start2 Attmpts	5m

The standard value given in the right-hand side column corresponds to the default setting, when the user has not requested any specific settings for his application.

Entering an out of limits value is ignored and leads to the superimposed display of the max and min limits.

THRESHOLDS	
V : Valid	Esc : Exit
[01]	
o Start1 Attmpts	: 8
o	min:03 max:06
o	Esc : Exit
o Low Alt Hz	: 2%

After entering 8 on parameter **Start1 Attmpts**, the screen opposite indicates the limits for this parameter, i.e.:

3 for min

6 for max

21.5. " Option " Menu (level 2)

This menu is used to read the seventeen options and to program the first six. The options are numbered from 301 to 317. From 301 to 306, they can be accessed at level 2.

Two settings are possible; 0 or 1. Selecting 0 corresponds to an alarm indication, i.e. the engine does not stop and the genset output (ATS or circuit breaker) stays closed. Selecting 1 triggers a fault with immediate engine shutdown and opening of the genset output by toggling of the ATS or by opening of the motorised circuit breaker.

Entering a value other than 0 or 1 is ignored.

Parameter No	Parameter	Screen wording	Standard setting
301	Low fuel level in the day tank	Low Fuel Level	0
302	Low fuel level in the bulk tank	LowBulkTankLevel	0
303	Overload or short-circuit	Overload/ShtCirc	1
304	No water heater	No Water Heater	0
305	Fuel pump 1 disconnect	FuelPump1Disconn	0
306	Fuel pump 2 disconnect	FuelPump2Disconn	0

The standard value given in the right-hand side column corresponds to the default setting, when the user has not requested any specific settings for his application.

Note: For parameter 303, there can be an engine cooling period (see parameter 112 of the **Delays** menu).

21.6. " Factory " Menu

This menu is used to read the twenty-two factory set parameters and to program the first six. The parameters are numbered from 401 to 422. From 401 to 406, they can be accessed at level 2.

Two settings are possible; 0 or 1. Selecting 0 means that the parameter is ignored (example: **2 Starters : 0** means that the engine does not have two starters). Selecting 1 means that the parameter is taken into account (example: **Engine Preglow: 1** means that the engine has a glow plug). Entering a value other than 0 or 1 is ignored.

Parameter No	Parameter	Screen wording	Standard setting
401	Two starters	2 Starters	0
402	Second starter of pneumatic type	2nd Starter Pneu	0
403	Alternated start	Alternated Crank	0
404	Engine preglow	Engine Preglow	0
405	ATS contactor position feedback	ATS DataFeedback	1
406	Open Stand-by contactor on a low/high voltage and frequency alarm	Open.Break/WnV&F	1

The standard value given in the right-hand side column corresponds to the default setting, when the user has the CB type interface board. Using CB1 or CB12 interface boards require programming modifications (example: option " starter 2 " requires the CB1 board and the value of parameter 401 and possibly parameters 402 and 403 to be modified).

22. APPENDIX 1

This section is designed to detail all the parameters which can be modified at level 2. For each parameter, is indicated its number, screen wording and setting range. The factory standard value is specified in the previous paragraphs. Full explanation of all parameters is available in the User's Instructions - Level 3.

22.1. Delays

◆ **101: Engine preglow** (Screen wording: **Engine PreGlow**)

Some engines are equipped with an air intake heating glow plug. The delay is activated before the engine is started, only if parameter 404 of menu **Factory** is equal to 1. Setting from 5 to 30 seconds.

◆ **102: Test without load mode** (Screen wording: **Test w/o Load**)

In Test mode, this is the delay assigned to the generating set for an operation without load. It is used to check that the generating set is operational. Setting from 1 to 30 minutes.

Note: In cases where the generating set is equipped with a motorised breaker (option 3 module required), **Test** mode allows for its closure.

◆ **103: Mains failure on an external command, type 2** (Screen wording: **Mains Failure**)

When Type 2 has been selected (start using an external command with delays), this is the delay fixed to the generating set before the actual start. This delay takes into account any repeated outages from the mains voltage. Setting from 0 to 60 seconds. A setting to 0 means that you want the generating set to start instantly without worrying about any mains return below 1 second.

◆ **104: Mains return on an external command, type 2** (Screen wording: **Mains Return**)

When Type 2 has been selected (start using an external command with delays), this is the delay fixed to the generating set before the beginning of the cooling period. This delay takes into account any repeated outages from the mains voltage. Setting from 1 to 15 minutes.

◆ **105: EJP advanced warning** (Screen wording: **EJP Warning**)

Used in France only. EJP advanced warning is the signal which is sent by EDF (French electricity company) 30 minutes before the EJP start-up. During these 30 minutes, it is a good idea to check the generating set operation. This is the delay assigned to the generating set before its start-up. Setting from 0 to 30 minutes.

Note: In cases where the generating set is equipped with a motorised circuit breaker (option 3 module required), it will be closed at the end of the delay.

◆ **106: Loss of EJP start-up signal** (Screen wording: **EJP SignalLoss**)

Used in France only. The EJP start-up signal can sometimes be subject to transitory status changes. To compensate for this phenomenon, this delay prevents repeated ATS toggling. Setting from 0 to 60 seconds.

◆ **107: Telys on stand-by** (Screen wording: **Telys Stand-by**)

This sleep mode starts after the **Stop** button has been activated or after selection of the **Auto** mode without any start or after a normal shutdown in **Auto** mode (genset on stand-by). This is the delay assigned to the microcontroller before going automatically into sleep mode. Setting from 3 to 10 minutes.

◆ **108: MICS Telys automatic shutdown** (Screen wording: **Auto Shutdown**)

When MICS Telys is in **Stop** mode, it will power down after a delay which can be set between 6 and 48 hours. MICS Telys will only power on again when the **On** button is pressed.

22.2. Thresholds

◆ **201: Number of attempts on starter 1** (Screen wording: **Start1 Attmpts**)

This is the number of starting attempts assigned to starter No 1. This starter is always electrical. Setting possible between 3 and 6 attempts.

◆ **202: Number of attempts on starter 2** (Screen wording: **Start2 Attmpts**)

This is the number of starting attempts assigned to starter No 2. This starter is either electrical or pneumatic. Setting possible between 3 and 6 attempts.

22.3. Option

◆ **301: Low fuel level** (Screen wording: **Low Fuel Level**)

If low fuel level is detected in the day tank, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication without the engine being shutdown.

◆ **302: Low fuel level in bulk tank** (Screen wording: **LowBulkTankLevel**)

If low fuel level is detected in the bulk tank, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication without the engine being shutdown.

◆ **303: Overload or short-circuit** (Screen wording: **Overload/ShtCirc**)

If an alternator overload or short-circuit is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication. In either case, the genset circuit breaker or the AMPG (genset measuring and protection devices) type protection relay opens and the load is disconnected.

◆ **304: No water heater** (Screen wording: **No Water Heater**)

If a lack of water preheating is detected, the choice is given between preventing start (fault) or a simple alarm indication (start-up possible).

◆ **305: Fuel pump 1 disconnect** (Screen wording: **FuelPump1Disconn**)

Fuel pump 1 is the main pump. If a thermal or magnetic trip of the pump protection breaker is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication. In either case, the control of fuel pump 1 is automatically cut off.

◆ **306: Fuel pump 2 disconnect** (Screen wording: **FuelPump2Disconn**)

Fuel pump 2 is the secondary pump used when option " mutual backup " (option of menu **Module 4**) is selected. If a thermal or magnetic trip of the pump engine protection breaker is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication. In either case, the control of fuel pump 2 is automatically cut off.

22.4. Factory

◆ **401: Two starters** (Screen wording: **2 Starters**)

A twin start is possible. Entering 0 indicates that the engine is not equipped with a second starter. Entering 1 indicates that the engine is equipped with two starters.

◆ **402: Second starter of pneumatic type** (Screen wording: **2nd Starter Pneu**)

In cases where parameter **2 Starters** is set to 1, it is possible for the second starter to be pneumatic. Entering 0 indicates that the engine second starter is not pneumatic. Entering 1 indicates that the engine is equipped with a second starter which is pneumatic.

◆ **403: Alternated start** (Screen wording: **Alternated Crank**)

In cases where parameter **2 Starters** is set to 1, this parameter enables you to choose their operating mode ; alternated or consecutive. Entering 0 indicates that the starters will operate consecutively (example: three attempts on starter 1, three attempts on starter 2). Entering 1 indicates that the starters will operate alternately (one attempt on starter 1, one attempt on starter 2, etc ...).

◆ **404: Engine preglow** (Screen wording: **Engine Preglow**)

This parameter is used to select whether the engine preglow is available or not. Entering 0 indicates that the engine preglow is not available. Entering 1 indicates that the engine preglow is available (see also parameter 101).

◆ **405: ATS contactors position feedback** (Screen wording: **ATS DataFeedback**)

This parameter enables the user to have the position feedback of the Mains/Stand-by changeover contactors. Entering 0 indicates that the feedback is ignored. Entering 1 indicates that the feedback is taken into account. In this instance, the LEDs for buttons **0** and **1** can come on and the messages associated with the ATS operation can be displayed.

◆ **406: Open Stand-by contactor on a V&F low/high warning** (Screen wording: **Open.Break/WnV&F**)

This parameter enables the user to get the Stand-by contactor to open on a Volts low/high and/or Hz low/high alarm. Entering 0 indicates that the Stand-by contactor will not open. Entering 1 indicates that the Stand-by contactor will open on a Volts low/high and/or Hz low/high alarm.

Note: If the generating set is equipped with a motorised circuit breaker (option 3 module), it will open, on appearance of a Volts low/high and/or Hz low/high alarm, if the value is set to 1.


23 - ACCESSING THE LEVEL 3 DISPLAY/PROGRAMMING

Level 3 display/programming enables the operator to:

- Access the entire Level 1 display (see paragraph 10)
 - Modify Level 2 data on menus **Control** and **Config** (see paragraph 19)
 - Modify Level 3 data on menus **Control** and **Config**
 - Have read only access to all the configuration parameters (see paragraph 24)
- When the cursor ■ flashes over the o sign, next to **Control** or **Config**, press **V** to display the superimposed screen below.

GENERAL (vers. 1.01A)	
V:Valid Esc:Exit	
<input type="radio"/> Control	<input type="radio"/> Config
Code: ----	
V:Valid Esc:Exit	
<input type="radio"/> Contrast	<input type="radio"/> Protect

- Level 3 configuration parameters can be accessed after entering a 4-digit code.
- When the operator enters the code, an asterisk * appears at each digit entered.
example : **Code** : ***-;
The last digit still needs to be entered.

 The generating set has been factory configured for your application. Changes by the operator of any Level 3 parameters in menus **Control** and **Config** can lead to malfunctions under the operator's sole responsibility. If you have any doubt on a parameter value, contact the technical support team or your nearest agent.

- Press **V** after entering the code to access the level 3 parameters. Access is valid for half an hour.
- If the code entered is wrong, the four asterisks disappear for you to try again.
- Press **Esc** without entering any code to remove the superimposed screen. The cursor flashes again next to **Control** or **Config**, depending on the last selection.
- If neither **V** nor **Esc** is pressed on the superimposed screen, the " overview " screen (see paragraph 1.7) appears by default after three minutes.
- On the **GENERAL** screen, if neither **V** nor **Esc** is pressed on the superimposed screen, the " overview " screen (see paragraph 1.7) appears by default after three minutes.

Below, a short description of the two code-accessed menus:

Control

This menu is used to select how you want the generating set to operate in **Auto** mode.

The **Control** menu is detailed in paragraph 20. Level 3 does not bring any more options than Level 2.

Config

This menu contains the entire generating set configuration. It is used to read and/or modify level 3 parameters. The **Config** menu is detailed in paragraph 24.

24 - " CONFIG " MENU (LEVEL 3)

24.1. General

After entering the access code, when the cursor ■ was flashing over the o sign next to **Config**, the **CONFIGURATION** screen appears as follows.

CONFIGURATION	
V:Valid Esc:Exit	
<input checked="" type="radio"/> Delays	<input type="radio"/> Thrhlds
<input type="radio"/> Option	<input type="radio"/> Factory
<input type="radio"/> Module3	<input type="radio"/> Module4
<input type="radio"/> Sensors	<input type="radio"/> RS-485

- The cursor ■ flashes over the o sign on the first line.
- Press **→** to move the cursor to the next sign to the right, if possible or to the next line.
- Press **←** to move the cursor to the previous sign, if possible or to the previous line.
- By pressing **→** or **←**, the operator places the cursor on the required menu.

- Press **V** to access the menu selected (example: **Sensors** menu).
- Press **Esc** to return to the **GENERAL** screen with the cursor flashing next to **Config**.
- From the **CONFIGURATION** screen, there is a selection of eight menus (see above) which are designed to fully configure the generating set.

Delays (1) (see paragraph 24.3)

Thrshlds (2) (see paragraph 24.4)

Option (3) (see paragraph 24.5)

Factory (4) (see paragraph 24.6)

Module3 (5) (see paragraph 24.7)

Module4 (6) (see paragraph 24.8)

Sensors (7) (see paragraph 24.9)

RS-485 (8) (see paragraph 24.10)

Note: All level 3 parameters are detailed in the following paragraphs (from 24.3 to 24.10).

- If neither **V** nor **Esc** is pressed, the " overview " screen (see paragraph 1.7) appears by default after three minutes.

24.2. Rules to access the configuration parameters

These rules, specified at Level 2 (see paragraph 21.2), are applicable for level 3.

24.3. " Delays " Menu (Level 3)

This menu is used to read and/or program the twenty-seven delays, numbered from 101 to 127.

Delays are expressed in seconds, minutes or hours. Time basis is the second, minute or hour.

Parameter No	Parameter	Screen wording	Standard setting
101	Engine preglow	Engine PreGlow	10s
102	Test mode without load	Test w/o Load	5m
103	Mains failure on external command, type 2	Mains Failure	5s
104	Mains return on external command, type 2	Mains Return	1m
105	EJP advanced warning (France only)	EJP Warning	20m
106	Loss of EJP start-up signal (France only)	EJP SignalLoss	30s
107	MICS Telys stand-by/sleep mode	Telys Stand-by	5m
108	MICS Telys automatic shutdown	Auto Shutdown	6h
109	Oil pressure bypass on start-up	OilPressBypass	5s
110	Normal engine shutdown for cooling	EngStop/Coolng	2m
111	Engine stopped on a water temperature fault	EngStop/WatTem	2m
112	Engine stopped on an overload or short-circuit fault	EngStop/l> l>>:	2m
113	Genset stabilising (speed & voltage)	GenStabilising	5s
114	Low alternator voltage	Low Alt Volts	5s
115	High alternator voltage	High Alt Volts	5s
116	Low alternator frequency	Low Alt Hz	5s
117	High alternator frequency	High Alt Hz	5s
118	Toggle from Mains to Stand-by	Toggle M>S	1s
119	Toggle from Stand-by to Mains	Toggle S>M	1s
120	Cranking attempt for electrical starter	EIStartAttempt	5s
121	Cranking attempt for pneumatic starter	PneuStartAttmp	3s
122	Interval between two attempts	AttemptInterva	5s
123	Low radiator water level	LowRadWatLevel	2s
124	Low air cooler water level	LowA/CWatLevel	2s
125	Low battery voltage	Low Bat Volts	1m
126	High battery voltage	High Bat Volts	1m
127	Overspeed ignored at start-up	Overspeed/Star	1s

The standard value given in the right-hand side column corresponds to the default setting, when the user has not required any specific settings for his application.

Entering an out of limits value is ignored and leads to the superimposed display of the max and min limits.

DELAYS	
V: Valid	Esc: Exit
[10]	
o EngStop/Coolng: 15m	
o min:01m max:10m	
o Esc : Exit	
o Low Alt Volts: 10s	

After entering 15 minutes on parameter **EngStop/Coolng**, the screen opposite indicates the limits for this parameter, i.e.:

1 minute for min
10 minutes for max

24.4. " Thrshlds " Menu (Level 3)

This menu is used to read and/or program the eleven thresholds, numbered from 201 to 211.

Settings are made in increments of 1 (number of attempts, percentage) using the number pad. However, parameters 201 and 202 have each three pre-set thresholds which can be scrolled through for selection using → and ←.

Parameter No	Parameter	Screen wording	Standard setting
201	Number of attempts on starter 1	Start1 Attmpts	3
202	Number of attempts on starter 2	Start2 Attmpts	3
203	Low alternator voltage threshold	Low Alt Volts	5%
204	High alternator voltage threshold	High Alt Volts	5%
205	Low alternator frequency threshold	Low Alt Hz	2%
206	High alternator frequency threshold	High Alt Hz	2%
207	Low battery voltage threshold	Low Bat Volts	12%
208	High battery voltage threshold	High Bat Volts	12%
209	Rpm overspeed threshold	Rpm Overspeed	20%
210	Electrical starter trip threshold	EI. Start Trip	400rpm
211	Pneumatic starter trip threshold	Pn. Start Trip	200rpm

The standard value given in the right-hand side column corresponds to the default setting, when the user has not requested any specific settings for his application.

For parameters 203 to 209, the threshold value (expressed as a percentage) can be checked: when the cursor is positioned over the second digit, to the extreme right of the screen, press → to display the following screen.

CHECKING Esc: Exit
RatedAltVolts = 400 V High Alt Volts = 05 %
High AltVolts = 420 V

With this screen, you can easily check:

- the rated value taken into account for the calculation
- the threshold entered as a percentage in the previous screen
- the result obtained

Press **Esc** to return to the second digit before confirming or altering anything.

Entering an out of limits value is ignored and leads to the superimposed display of the max and min limits.

THRESHOLDS V:Valid Esc:Exit [03]
o Low Alt Volts : 40%
o min:01 max:25
o Esc: Exit
o Low Bat Volts : 20%

After entering 40% on parameter **Low Alt Volts**, the screen opposite indicates the limits for this parameter, i.e.:

- 1% for min
- 25% for max

24.5. " Option " Menu (Level 3)

This menu is used to read and/or program the seventeen options, numbered from 301 to 317.

Two settings are possible; 0 or 1. Selecting 0 corresponds to an alarm indication. Depending on the type of alarm (see note 1), the genset power output (motorised C/B or contactor) may open but the engine does not shutdown. Selecting 1 will generate a fault with immediate engine shutdown (see note 2) and instant opening of the genset output.

Entering a value other than 0 or 1 is ignored.

Parameter No	Parameter	Screen wording	Standard setting
301	Low fuel level in the daily tank	Low Fuel Level	0
302	Low fuel level in the bulk tank	LowBulkTankLevel	0
303	Overload or short-circuit	Overload/ShtCirc	1
304	No water heater	No Water Heater	0
305	Fuel pump 1 disconnect	FuelPump1Disconn	0
306	Fuel pump 2 disconnect	FuelPump2Disconn	0
307	Low battery voltage	Low Bat Volts	0
308	High battery voltage	High Bat Volts	0
309	Low alternator voltage	Low Alt Volts	1
310	High alternator voltage	High Alt Volts	1
311	Low alternator frequency	Low Alt Hz	1
312	High alternator frequency	High Alt Hz	1
313	Differential fault detected	Diff.FaultDetect	1
314	Insulation fault detected	InsulFaultDetect	1
315	Battery charger	Battery Charger	0
316	Retention bund	Retention Bund	0
317	Circuit breaker open	CircuitBreakOpen	0

The standard value given in the right-hand side column corresponds to the default setting, when the user has not requested any specific settings for his application.

Note 1: For parameters 309, 310, 311 & 312, it is however possible to get the Stand-by contactor to open on a Volts low/high and/or Hz low/high alarm (see parameter 406 of menu **Factory**).

Note 2: For parameter 303, there can be a cooling period before shutdown (see parameter 112 of menu **Delays**).

A consistency check is made between programming the parameters of menu **Option** and programming menu **Module3** (paragraph 24.7). For example, parameter **Low Fuel Level** cannot be set to 0 if a remote contact has been programmed for that fault on one of Option 3 module ten relays.

A screen message will warn the user of any inconsistencies.

Note: It is recommended to program menu **Option** before menu **Module3**.

24.6. " Factory " Menu (Level 3)

This menu is used to read and/or program the twenty-two factory set parameters, numbered from 401 to 422.

In this menu, the selection method varies with the parameters. There are no specific rules.

Parameters 401 to 406 and 412 to 420 have two choices; 0 or 1. Entering any other value is not taken into account. Selecting 0 means that the parameter is ignored (example: **Motorised C/B: 0** means that there are no motorised circuit breaker on the generating set).

For parameters 407, 408 & 411, the selection is made by scrolling pre-set values using → and ←.
And finally for parameters 409 and 410, the operator types the rated values directly (example: 400Volts, 160A).

Parameter No	Parameter	Screen wording	Standard setting
401	Two starters	2 Starters	0
402	Second starter of pneumatic type	2nd Starter Pneu	0
403	Alternated start	Alternated Crank	0
404	Engine preglow	Engine Preglow	0
405	Changeover switch position feedback	ATS DataFeedback	1
406	Open Stand-by contactor on a low/high voltage and frequency warning	Open.Break/WnV&F	150Hz
407	Rated frequency in Hertz	Rated Hz	1500rpm
408	Rated speed	Rated Speed	400V
409	Alternator rated voltage	Alt Volts	160A
410	CT rating	CT Rating	3 Ph+N
411	Genset's type of installation	GenType	0
412	Option 3 module available	Optn 3 Available	0
413	Option 4 module available	Optn 4 Available	0
414	Option 5 module available	Optn 5 Available	0
415	Option 6 module available	Optn 6 Available	0
416	AMPG module available	AMPG Available	0
417	Use of a motorised circuit breaker	Motorised C/B	0
418	Differential relay connected to the system	DiffRelay Cabled	0
419	Constant Insulation Checking (CIC) device connected to the system	C.I.C. Cabled	0
420	Fuel pump for bulk tank	BulkTnkFuelPump	0
421	Access code for level 3	SuperUserCode	****
422	Access code for default standard parameters	Std Para Code	****

The standard value given in the right-hand side column corresponds to the default setting, when the user has the CB type interface board. If using CB1 or CB12 interface boards, some settings will need to be changed (example: the option " differential relay " requires the CB12 board and the setting for parameter **DiffRelay Cabled** will need to be changed).

The rated values entered into the system are then used to calculate all the thresholds. This means that if a user enters 412Volts as the alternator rated voltage, the high and low alternator voltage thresholds will be calculated using this value. Any alarm or fault displays will depend on the thresholds set (parameters 203 and 204).

Parameter 422 is for the technical support team only (see paragraph " Appendix 2 ").

24.7. " Module3 " Menu (Level 3)

This menu is used to read and/or program the ten parameters (relays) available on Option 3 module, numbered from 501 to 510. The selection is made by scrolling through the relays using → and ←. If parameter **Motorised C/B** is set to 1 (menu **Factory**), then relays **R9** and **R0** will not be available for selection as they will be allocated to the control of the motorised circuit breaker (closure and opening).

Parameter No	Parameter	Screen wording	Standard setting
501	Remote contact on relay R1	R1	Not allocated
502	Remote contact on relay R2	R2	Not allocated
503	Remote contact on relay R3	R3	Not allocated
504	Remote contact on relay R4	R4	Not allocated
505	Remote contact on relay R5	R5	Not allocated
506	Remote contact on relay R6	R6	Not allocated
507	Remote contact on relay R7	R7	Not allocated
508	Remote contact on relay R8	R8	Not allocated
509	Remote contact on relay R9 or note below	R9	Not allocated
510	Remote contact on relay R0 or note below	R0	Not allocated

Note: Relays **R9** and **R0** can be used, respectively, to close and open the motorised circuit breaker (their rating is different from the other eight).

The standard value given in the right-hand side column corresponds to the default setting, when the user has not requested any specific settings for his application.

<p>MODULE 3 <- or -> V:Valid Esc:Exit [01] ■ R1: OilPressureShtd o R2: OilPressureShtd o R3: OilPressureShtd o R4: Gen in AUTO o R5: LowFuelLevelWar</p>
--

A choice out of 43 remote contacts is given to each relay (see paragraph 25.5). Two or more relays can be allocated to the same remote contact.

The example opposite shows relays **R1**, **R2** and **R3** allocated to the " oil pressure shutdown " remote contact, relay **R4** to the " genset in auto mode " and relay **R5** to the " low fuel level warning " remote contact.

A consistency check is made between programming the parameters of menu **Option** and programming menu **Module3**. For example, relay **R5** cannot be allocated to **LowFuelLevelSht** if parameter **Low Fuel Level** is set to 0 (alarm) in the **Option** menu.

A screen message will warn the user of any inconsistencies.

Note: It is recommended to program menu **Option** before menu **Module3**.

24.8. " Module4 " Menu (Level 3)

This menu is used to read and/or program the eight inputs and ten outputs available on option 4 module. These eighteen parameters (inputs and outputs) are numbered from 601 to 618.

Selection is made by scrolling through the inputs and outputs using → and ←.

Parameter No	Parameter	Screen wording	Standard setting
601	Input 1	Input 1	any option
602	Input 2	Input 2	any option
603	Input 3	Input 3	any option
604	Input 4	Input 4	any option
605	Input 5	Input 5	any option
606	Input 6	Input 6	any option
607	Input 7	Input 7	any option
608	Input 8	Input 8	any option
609	Output 1	Output 1	any option
610	Output 2	Output 2	any option
611	Output 3	Output 3	any option
612	Output 4	Output 4	any option
613	Output 5	Output 5	any option
614	Output 6	Output 6	any option
615	Output 7	Output 7	any option
616	Output 8	Output 8	any option
617	Output 9	Output 9	any option
618	Output 10	Output 10	any option

The standard value given in the right-hand side column corresponds to the default setting, when the user has not requested any specific settings for his application.

Eighteen options are pre-programmed in MICS Telys. The specific use of each option is described in paragraph " Appendix 2 ". Each option has a number (from 1 to 18).

When an option is selected, the system allocates the number of inputs/outputs required for this option to operate. The example below shows the programming of option 16 which requires 3 inputs and 1 output.

MODULE 4 <- or -> V:Valid Esc:Exit [01] <input checked="" type="checkbox"/> Input 1: Option 16 <input type="checkbox"/> Input 2: Option 16 <input type="checkbox"/> Input 3: Option 16 <input type="checkbox"/> Input 4: Any option <input type="checkbox"/> Input 5: Any option

Selecting option 16 on input 1 will automatically allocate two extra inputs (inputs 2 and 3).

MODULE 4 <- or -> V:Valid Esc:Exit [09] <input type="checkbox"/> Input 8: Any option <input checked="" type="checkbox"/> Output 1: Option 16 <input type="checkbox"/> Output 12: Any option <input type="checkbox"/> Output 13: Any option <input type="checkbox"/> Output 14: Any option
--

When the operator goes to line 9, output 1 is automatically allocated to option 16.

24.9. " Sensors " Menu (Level 3)

This menu is used to read and/or program the nine choices of analogue sensors available, numbered from 701 to 709.

Two settings are possible; 0 or 1. Selecting 0 means that the sensor is not taken into account. Selecting 1 means that it is.

Entering a value other than 0 or 1 is ignored.

Two oil pressure sensors cannot be selected at the same time.

Example: If **OilPressureToVDO: 1** then **OilPressureToDAT: 0**.

To have **OilPressureToDAT: 1**, we need **OilPressureToVDO: 0**.

Parameter No	Parameter	Screen wording	Standard setting
701	Oil pressure sensor of VDO type	OilPressureToVDO	1
702	Oil pressure sensor of DATCON type	OilPressureToDAT	0
703	Water temperature sensor of VDO type	WaterTemp to VDO	1
704	Water temperature sensor of DATCON type	WaterTemp to DAT	0
705	Oil temperature sensor of VDO type	Oil Temp to VDO	0
706	Oil temperature sensor of DATCON type	Oil Temp to DAT	0
707	Fuel level sensor of VDO type	Fuel LevelTo VDO	0
708	Fuel level sensor of JAEGER type	Fuel LevelTo JAE	1
709	Fuel level sensor of ROCHESTER type	Fuel LevelTo ROC	0

The standard value given in the right-hand side column corresponds to the default setting, when the user has the CB interface board. The user must have the CB1 interface board to use the oil temperature option. Also, parameter **Oil Temp to VDO** must be changed to 1.

Note: The choice of sensor must match the sensor fitted on the engine. Otherwise, the screen message accessible via the **Engine** key (oil pressure, water temperature, fuel level or oil temperature) will be incorrect or even totally contradictory.

Example: The curves on the VDO and JAEGER fuel level sensors are fully reversed. Therefore, an empty tank using the VDO selection will indicate a full tank with the JAEGER selection.

24.10. " RS-485 " Menu (Level 3)

This menu is used to read and/or program the five configuration parameters for the serial link on interface boards CB, CB1 and CB12, parameters numbered from 801 to 805.

The selection method varies with the parameters. For parameters 801 to 804, the selection is made by scrolling through the options using **→** and **←**. For parameter 805, a three-digit number must be entered.

For more details, see paragraph " Appendix 2 " which lists the various settings for each parameter.

Parameter No	Parameter	Screen wording	Standard setting
801	Baud rate	BaudRate	9600
802	Data bits	Data Bit	8 bits
803	Parity	Parity	none
804	MICS Telys function (remote management or monitoring)	Function	monitor.
805	J-Bus address if several MICS Telys in a network	JBUS Adr	001

The standard value given in the right-hand side column corresponds to the default setting, when the user has not requested any specific settings for his application..

25 - APPENDIX 2

This paragraph is designed to detail all the parameters alterable at Level 3. For each parameter, are indicated its number, screen wording and setting range. The factory standard value is specified in the previous paragraphs.

25.1. Delays

◆ 101: Engine preglow (Screen wording: **Engine PreGlow**)

Some engines are equipped with an air intake heating glow plug. The delay is activated before the engine is started, only if parameter 404 of menu **Factory** is equal to 1. Setting from 5 to 30 seconds.

◆ 102: Test without load mode (Screen wording: **Test w/o Load**)

In **Test** mode, this is the delay assigned to the generating set for an operation without load. It is used to check that the generating set is operational. Setting from 1 to 30 minutes.

Note: In cases where the generating set is equipped with a motorised breaker (Option 3 module required), **Test** mode allows for its closure.

◆ 103: Mains failure on an external command, type 2 (Screen wording: **Mains Failure**)

When Type 2 has been selected (start using an external command with delays), this is the delay fixed to the generating set before the actual start. This delay takes into account any repeated outages from the mains voltage. Setting from 0 to 60 seconds. A setting to 0 means that you want the generating set to start instantly without worrying about any mains return below 1 second.

◆ 104: Mains return on an external command, type 2 (Screen wording: **Mains Return**)

When Type 2 has been selected (start using an external command with delays), this is the delay fixed to the generating set before the beginning of the cooling period. This delay takes into account any repeated outages from the mains voltage. Setting from 1 to 15 minutes.

◆ 105: EJP advanced warning (Screen wording: **EJP Warning**)

Used in France only. EJP advanced warning is the signal which is sent by EDF (French electricity company) 30 minutes before the EJP start-up. During these 30 minutes, it is a good idea to check the generating set operation. This is the delay assigned to the generating set before its start-up. Setting from 0 to 30 minutes.

Note: In cases where the generating set is equipped with a motorised circuit breaker (Option 3 module required), it will be closed at the end of the delay.

◆ **106: Loss of EJP start-up signal** (Screen wording: **EJP SignalLoss**)

Used in France only. The EJP start-up signal can sometimes be subject to transitory status changes. To compensate for this phenomenon, this delay prevents repeated ATS toggling. Setting from 0 to 60 seconds.

◆ **107: Telys on stand-by** (Screen wording: **Telys Stand-by**)

This sleep mode starts after the **Stop** button has been activated or after selection of the **Auto** mode without any start or after a normal shutdown in **Auto** mode (genset on stand-by). This is the delay assigned to the microcontroller before going automatically into sleep mode. Setting from 3 to 10 minutes.

◆ **108: MICS Telys automatic shutdown** (Screen wording: **Auto Shutdown**)

When MICS Telys is in **Stop** mode, it will power down after a delay which can be set between 6 and 48 hours. MICS Telys will only power on again when the On button is pressed.

◆ **109: Oil pressure bypass at start-up** (Screen wording: **OilPressBypass**)

The oil pressure contact is closed when the oil pressure is low in the engine or when the engine is idle. During start-up, it is therefore essential to inhibit the information sent from the probe using a delay. This delay is taken into account when the engine reaches the starter trip threshold selected. Setting from 5 to 10 seconds.

◆ **110: Normal engine shutdown for cooling** (Screen wording: **EngStop/Coolng**)

When the engine stops under normal conditions in **Auto** mode (disappearance of the external command in **Auto** mode, with or without any mains return delay), this is the delay assigned to the engine to cool down after the power output has opened. Setting from 1 to 10 minutes.

◆ **111: Engine stopped on a water temperature fault** (Screen wording: **EngStop/WatTem**)

When the water temperature exceeds the probe setting threshold, the power output opens and the engine cools down. This is the delay assigned to the engine to cool down after the power output has opened. The delay can be set between 0 and 10 minutes. Setting to 0 will give an instant shutdown (no delay).

Note: In **Test** mode, this cooling down delay does not exist.

◆ **112: Engine stopped on an overload or short-circuit fault** (Screen wording: **EngStop/l> l>>**)

If the alternator is in constant overload or if it is in short-circuit, the thermomagnetic circuit breaker opens instantly. This is the delay assigned to the engine to cool down after the power output has opened. The delay can be set between 0 and 10 minutes. Setting to 0 will give an instant shutdown (no delay).

Note: In **Test** mode, this cooling down delay does not exist.

◆ **113: Genset stabilising** (Screen wording: **GenStabilising**)

Engines need some time to stabilise to the rated speed. The same goes for the AC voltage across the alternator terminals. This is the delay assigned to the generating set to stabilise its speed and voltage. This delay is taken into account at the starter trip threshold. When the delay elapses, the changeover switch can toggle if frequency and voltage are within acceptable limits (low/high range). Setting from 3 to 30 seconds.

◆ **114: Low alternator voltage** (Screen wording: **Low Alt Volts**)

This is the delay before a drop in the alternator voltage has actually been taken into account. Setting from 1 to 20 seconds.

◆ **115: High alternator voltage** (Screen wording: **High Alt Volts**)

This is the delay before an increase in the alternator voltage has actually been taken into account. Setting from 1 to 20 seconds.

◆ **116: Low alternator frequency** (Screen wording: **Low Alt Hz**)

This is the delay before a drop in the alternator frequency has actually been taken into account. Setting from 1 to 20 seconds.

◆ **117: High alternator frequency** (Screen wording: **High Alt Hz**)

This is the delay before an increase in the alternator frequency has actually been taken into account. Setting from 1 to 20 seconds.

Note: Delays 114, 115, 116 and 117 also prevent the engine from shutting down on load impacts.

◆ **118: Toggle from Mains to Stand-by** (Screen wording: **Toggle M>S**)

This is the compulsory toggling delay, when the Mains contactor is switched to the Stand-by contactor. This delay takes into account the mechanical strain aspect of the changeover switch. The delay can be set between 0 and 20 seconds. Setting to 0s is used if the changeover switch has a built-in toggle delay.

◆ **119: Toggle from Stand-by to Mains** (Screen wording: **Toggle S>M**)

This is the compulsory toggling delay, when the Stand-by contactor is switched to the Mains contactor. This delay takes into account the mechanical strain aspect of the changeover switch. The delay can be set between 0 and 20 seconds. Setting to 0s is used if the changeover switch has a built-in toggle delay.

Note: Delays 118 and 119 can also be used if supplying high inertia loads (cooling fans, large engines, ...).

◆ **120: Starting attempt for electrical starter** (Screen wording: **EIStartAttempt**)

This is the time assigned to the electrical starter to crank the engine. Setting from 3 to 10 seconds.

◆ **121: Starting attempt for pneumatic starter** (Screen wording: **PneuStartAttmp**)

This is the time assigned to the pneumatic starter to crank the engine. Setting from 2 to 5 seconds.

◆ **122: Interval between two starting attempts** (Screen wording: **AttemptInterva**)

This is the time assigned to the starter to cool down between two starting attempts. Setting from 5 to 10 seconds.

◆ **123: Low radiator water level** (Screen wording: **LowRadWatLevel**)

When there are load variations on the engine, the coolant level varies. This can lead to accidental closure of the radiator low water level contact. The delay will compensate for this phenomenon. Setting from 2 to 5 seconds.

◆ **124: Low air cooler water level** (Screen wording: **LowA/CWatLevel**)

When there are load variations on the engine, the coolant level varies. This can lead to accidental closure of the air cooler low water level contact. The delay will compensate for this phenomenon. Setting from 2 to 5 seconds.

◆ **125: Low battery voltage** (Screen wording: **Low Bat Volts**)

This is the delay before a drop in the battery DC voltage has actually been taken into account. Setting from 1 to 3 minutes.

◆ **126: High battery voltage** (Screen wording: **High Bat Volts**)

This is the delay before an increase in the battery DC voltage has actually been taken into account. Setting from 1 to 3 minutes.

◆ **127: Overspeed ignored at start-up** (Screen wording: **Overspeed/Star**)

On some mechanically regulated engines, the speed increases significantly during start-up. This speed can reach the pre-set overspeed threshold. To compensate for this phenomenon, this delay will take effect after detection of the starter trip threshold. Setting from 1 to 3 seconds.

25.2. Thresholds

◆ **201: Number of attempts on starter 1** (Screen wording: **Start1 Attmpts**)

This is the number of starting attempts assigned to starter No 1. This starter is always electrical. Setting possible between 3 and 6 attempts..

◆ **202: Number of attempts on starter 2** (Screen wording: **Start2 Attmpts**)

This is the number of starting attempts assigned to starter No 2. This starter is either electrical or pneumatic. Setting possible between 3 and 6 attempts.

◆ **203: Low alternator voltage threshold** (Screen wording: **Low Alt Volts**)

When the alternator voltage decreases, for any reason, this is the minimum voltage threshold before the warning appears or the engine shuts down (depending on the value taken by parameters 309 and 409). In all cases, this threshold is associated with a delay (see parameter 114). Setting from 1 to 25% of the alternator rated voltage.

◆ **204: High alternator voltage threshold** (Screen wording: **High Alt Volts**)

When the alternator voltage increases, for any reason, this is the maximum voltage threshold before the warning appears or the engine shuts down (depending on the value taken by parameters 310 and 409). In all cases, this threshold is associated with a delay (see parameter 115). Setting from 1 to 25% of the alternator rated voltage.

◆ **205: Low alternator frequency threshold** (Screen wording: **Low Alt Hz**)

When the alternator frequency decreases, for any reason, this is the minimum frequency threshold before the warning appears or the engine shuts down (depending on the value taken by parameters 311 and 407). In all cases, this threshold is associated with a delay (see parameter 116). Setting from 1 to 10% of the alternator rated frequency.

◆ **206: High alternator frequency threshold** (Screen wording: **High Alt Hz**)

When the alternator frequency increases, for any reason, this is the maximum frequency threshold before the warning appears or the engine shuts down (depending on the value taken by parameters 312 and 407). In all cases, this threshold is associated with a delay (see parameter 117). Setting from 1 to 10% of the alternator rated frequency..

◆ **207: Low battery voltage threshold** (Screen wording: **Low Bat. Volts**)

When the battery voltage decreases, for any reason, this is the minimum voltage threshold before the warning appears or the engine shuts down (depending on the value taken by parameter 307). In all cases, this threshold is associated with a delay (see parameter 125). Setting from 1 to 30% of the battery rated voltage.

◆ **208: High battery voltage threshold** (Screen wording: **High Bat. Volts**)

When the battery voltage increases, for any reason, this is the maximum voltage threshold before the warning appears or the engine shuts down (depending on the value taken by parameter 308). In all cases, this threshold is associated with a delay (see parameter 126). Setting from 1 to 30% of the battery rated voltage.

◆ **209: Overspeed threshold** (Screen wording: **Rpm Overspeed**)

When the engine " goes " in overspeed, for any reason, this is the maximum speed threshold assigned before the fault is actuated. The stand-by contactor will immediately open and the engine shut down. Setting from 10 to 20% of the engine rated speed.

◆ **210: Electric starter trip threshold** (Screen wording: **El. Start Trip**)

When the engine starts, this is the speed threshold at which the electrical starter is withdrawn (first or second starter). Three thresholds possible; 300, 350 and 400rpm.

◆ **211: Pneumatic starter trip threshold** (Screen wording: **Pn. Start Trip**)

When the engine starts, this is the speed threshold at which the pneumatic starter is withdrawn (second starter). Three thresholds possible; 175, 200 and 250rpm.

25.3. Option

◆ 301: Low fuel level (Screen wording: **Low Fuel Level**)

If low fuel level is detected in the daily tank, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication without the engine being shutdown.

◆ 302: Low fuel level in bulk tank (Screen wording: **LowBulkTankLevel**)

If low fuel level is detected in the bulk tank, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication without the engine being shutdown.

◆ 303: Overload or short-circuit (Screen wording: **Overload/ShtCirc**)

If an alternator overload or short-circuit is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication. In either case, the genset circuit breaker or the AMPG (genset measuring and protection devices) type protection relay opens and the load is disconnected.

◆ 304: No water heater (Screen wording: **No Water Heater**)

If no water heating is detected, the choice is given between preventing the start (fault) or a simple alarm indication (start-up possible).

◆ 305: Fuel pump 1 disconnect (Screen wording: **FuelPump1Disconn**)

Fuel pump 1 is the main pump. If a thermal or magnetic trip of the pump protection breaker is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication. In either case, the control of fuel pump 1 is automatically cut off.

◆ 306: Fuel pump 2 disconnect (Screen wording: **FuelPump2Disconn**)

Fuel pump 2 is the secondary pump used when option " mutual backup " (option of menu Module 4) is selected. If a thermal or magnetic trip of the pump engine protection breaker is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication. In either case, the control of fuel pump 2 is automatically cut off.

◆ 307: Low battery voltage (Screen wording: **Low Bat Volts**)

If a drop in the battery voltage is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication.

◆ 308: High battery voltage (Screen wording: **High Bat Volts**)

If an increase in the battery voltage is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication.

◆ 309: Low alternator voltage (Screen wording: **Low Alt Volts**)

If a drop in the sinusoidal AC voltage is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication.

◆ 310: High alternator voltage (Screen wording: **High Alt Volts**)

If an increase in the sinusoidal AC voltage is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication.

◆ 311: Low alternator frequency (Screen wording: **Low Alt Hz**)

If a drop in the alternator frequency is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication.

◆ 312: High alternator frequency (Screen wording: **High Alt Hz**)

If an increase in the alternator frequency is detected, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication.

Note: For parameters 309, 310 , 311 & 312, it is possible for the Stand-by contact to open when an alarm appears (see parameter 406).

◆ 313: Differential fault detection (Screen wording: **Diff.FaultDetect**)

If a differential fault is detected by the differential relay external to CB12 interface board, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication. In either case, the output circuit breaker opens (MX coil) and the load is disconnected.

◆ 314: Insulation fault detection (Screen wording: **InsulFaultDetect**)

If an insulation fault is detected by the Constant Insulation Checking (CIC) device external to CB12 interface board, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication. In either case, the output circuit breaker does not open because on a first occurrence, duty is uninterrupted (no danger to the user). If however, this happens again, there is a short-circuit and the breaker is therefore instantly opened. With the VDE standard, the output breaker has to open on the first occurrence (MX coil). This choice is made via a dip switch placed near the only accessible and pluggable relay on interface board CB12.

◆ 315: Battery charger (Screen wording: **Battery Charger**)

If a fault on the battery charger is detected by its electronics, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication. The delay associated is always of 3 min (fixed).

◆ 316: Retention bund (Screen wording: **Retention Bund**)

If the retention bund is detected as being full, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication. In either case, the controls of fuel pump 1 and 2 are automatically cut off.

◆ 317: Circuit breaker open (Screen wording: **CircuitBreakOpen**)

If the generating circuit breaker is detected as being open, the choice is given between an immediate engine shutdown (fault) or a simple alarm indication.

25.4. Factory

◆ 401: Two starters (Screen wording: **2 Starters**)

A twin start is possible. Entering 0 indicates that the engine is not equipped with a second starter. Entering 1 indicates that the engine is equipped with two starters.

◆ 402: Second starter of pneumatic type (Screen wording: **2nd Starter Pneu**)

In cases where parameter **2 Starters** is set to 1, it is possible for the second starter to be pneumatic. Entering 0 indicates that the engine second starter is not pneumatic. Entering 1 indicates that the engine is equipped with a second starter which is pneumatic.

◆ 403: Alternated start (Screen wording: **Alternated Crank**)

In cases where parameter **2 Starters** is set to 1, this parameter enables you to choose their operating mode; alternated or consecutive. Entering 0 indicates that the starters will operate consecutively (example: three attempts on starter 1, three attempts on starter 2). Entering 1 indicates that the starters will operate alternately (one attempt on starter 1, one attempt on starter 2, etc ...).

◆ 404: Engine preglow (Screen wording: **Engine Preglow**)

This parameter is used to select whether the engine preglow is available or not. Entering 0 indicates that the engine preglow is not available. Entering 1 indicates that the engine preglow is available (see also parameter 101)..

◆ 405: ATS contactors position feedback (Screen wording: **ATS DataFeedback**)

This parameter enables the user to have the position feedback of the Mains/Stand-by changeover contactors. Entering 0 indicates that the feedback is ignored. Entering 1 indicates that the feedback is taken into account. In this instance, the LEDs for buttons **0** and **1** can come on and the messages associated with the ATS operation can be displayed.

◆ 406: Open Stand-by contactor on a V&F low/high warning (Screen wording: **Open.Break/WnV&F**)

This parameter enables the user to get the Stand-by contactor to open on a Volts low/high and/or Hz low/high alarm. Entering 0 indicates that the Stand-by contactor will not open. Entering 1 indicates that the Stand-by contactor will open on a Volts low/high and/or Hz low/high alarm.

Note: If the generating set is equipped with a motorised circuit breaker (Option 3 module), it will open, on appearance of a Volts low/high and/or Hz low/high alarm, if the value is set to 1.

◆ 407: Rated frequency in Hertz (Screen wording: **Rated Hz**)

This is the value of the alternator operating rated frequency, expressed in Hertz. The values taken into account by MICS Telys are 50 and 60 Hz.

◆ 408: Rated speed (Screen wording: **Rated Speed**)

This is the value of the engine rated speed, expressed in RPM. The values taken into account by MICS Telys are 1500, 1800, 3000 and 3600 RPM.

◆ 409: Alternator rated voltage in Volts (Screen wording: **Alt Volts**)

This is the value of the alternator operating rated voltage, expressed in Volts. The input dynamics can be set between 208Volts and 600Volts. For 600V voltage, a conversion is made by MICS Telys as it will only be supplied in 250Volts (600/250Volts transformer).

◆ 410: CT rating (Screen wording: **CT Rating**)

This is the value of the primary current, expressed in Amps, on the current transformers placed upstream of the output circuit breaker. The values taken into account by MICS Telys are between 60 and 5000A. The current transformer secondary is always equal to 5A.

◆ 411: Genset's type of installation (Screen wording: **GenType**)

This parameter expresses a characteristic of the alternator and the power system supplied by the generating set. Possible settings are; 3 Phase +N, 3 Phase, 2 Phase and 1 Phase.

◆ 412: Option 3 module available (Screen wording: **Optn 3 Available**)

This parameter expresses a characteristic of the system equipped in the control panel. Entering 0 indicates that Option 3 module is not available in the system. By entering 1, Option 3 module is declared available and the CAN bus link can be checked.

◆ 413: Option 4 module available (Screen wording: **Optn 4 Available**)

This parameter expresses a characteristic of the system equipped in the control panel. Entering 0 indicates that option 4 module is not available in the system. By entering 1, option 4 module is declared available and the CAN bus link can be checked.

◆ 414: Option 5 module available (Screen wording: **Optn 5 Available**)

This parameter expresses a characteristic of the system equipped in the control panel. Entering 0 indicates that option 5 module is not available in the system. By entering 1, option 5 module is declared available and the CAN bus link can be checked.

◆ 415: Option 6 module available (Screen wording: **Optn 6 Available**)

This parameter expresses a characteristic of the system equipped in the control panel. Entering 0 indicates that option 6 module is not available in the system. By entering 1, option 6 module is declared available and the CAN bus link can be checked.

♦ **416: AMPG module available** (Screen wording: **AMPG Available**)

This parameter expresses a characteristic of the system equipped in the control panel. Entering 0 indicates that the AMPG (genset measuring and protection devices) module is not available in the system. By entering 1, the AMPG module is declared available and none of MICS Telys electrical values can be displayed (when pressing keys **U/V**, **I**, **F/Σ**).

♦ **417: Use of a motorised circuit breaker** (Screen wording: **Motorised C/B**)

Some generating sets are equipped with a motorised circuit breaker. In this instance, the changeover switch may not be available. Entering 0 indicates that the circuit breaker is manually controlled. Entering 1 indicates that it is motorised. In this case, it will be driven by relays R9 (closure control) and R0 (opening control) of Option 3 module.

♦ **418: Differential relay connected to the system** (Screen wording: **DiffRelay Cabled**)

This parameter is used to select whether the differential relay is available or not. Entering 0 indicates that the differential relay is not available. Entering 1 indicates that it is. As soon as the " differential relay " module connector is plugged into interface board CB12, the differential relay is automatically detected.

♦ **419: C.I.C. connected to the system** (Screen wording: **C.I.C. Cabled**)

This parameter is used to select whether the constant insulation checking (CIC) device is available or not. Entering 0 indicates that the CIC device is not available. Entering 1 indicates that it is. As soon as the " constant insulation check " module connector is plugged into interface board CB12, the CIC is automatically detected.

♦ **420: Fuel pump for bulk tank** (Screen wording: **BulkTnkFuelPump**)

This parameter is used to select whether the bulk tank fuel pump is available or not. Entering 0 indicates that the pump is not available. Entering 1 indicates that it is. In this instance, the pump is supplied by a specific input in CB12 board.

♦ **421: Code to access level 3 parameters** (Screen wording: **SuperUserCode**)

This 4-digit access code is used to access level 3 display/programming immediately after level 2 entry (no need to wait half an hour for level 2 entry validation to be completed).

♦ **422: Code to access default standard parameters** (Screen wording: **Std Para Code**)

This 4-digit access code is used to reprogram all MICS Telys standard parameters. All except parameters 407, 408, 409, 410, 411 as well as all RS-485 menu parameters (to prevent any communication problems if the code is entered via the serial link).

25.5. Module 3

♦ **501 to 510: Remote contact on relay Rx** (Screen wording: **Rx**)

Note: **x** takes the following values; **1, 2, 3, 4, 5, 6, 7, 8, 9, 0**

These ten parameters are used to select remote contacts on relays **R1** to **R0**.

If parameter **Motorised C/B** of menu **Factory** is set to 1, relay **R9** is allocated to the circuit breaker closure control and relay **R0** to the circuit breaker opening control. In this instance, they will not be accessible via menu **Module3** (automatic allocation).

The table below lists the 43 possible remote contacts for the ten relays **R1** to **R0**.

Note: Two relays can be allocated to the same remote contact (example: **R1** and **R2** on a oil pressure fault contact).

Parameter No	Parameter	Screen wording
1	No allocation	Not allocated
2	Oil pressure shutdown	OilPressureShtd
3	Oil pressure warning	OilPressureWrng
4	Water temperature shutdown	WaterTempShutdn
5	Water temperature warning	WaterTempWarng
6	Oil temperature shutdown	OilTempShutdown
7	Oil temperature warning	OilTempWarning
8	Low fuel level shutdown (daily tank)	LowFuelLevelSht
9	Low fuel level warning (daily tank)	LowFuelLevelWar
10	Very low fuel level shutdown (bulk tank)	VLBulkTnkLevSht
11	Low fuel level warning (bulk tank)	LBulkTnkLevWarn
12	Very high fuel level shutdown (bulk tank)	VHBulkTnkLevSht
13	High fuel level warning (bulk tank)	HBulkTnkLevIWar
14	Low water level shutdown	LowWaterLevShtd
15	Engine overcranking/failed to start	EngOvercranking
16	No water heater shutdown	NoWaterHeatShut
17	No water heater warning	NoWaterHeatWarn
18	Overspeed shutdown	OverspeedShtdwn
19	Low battery voltage shutdown	LowBatVoltsShut
20	Low battery voltage warning	LowBatVoltsWarn
21	Battery charger shutdown	BatChargerShtdn
22	Genset running	Genset Running
23	Low alternator voltage shutdown	LowAltVoltsShut

Parameter No	Parameter	Screen wording
24	Low alternator voltage warning	LowAltVoltsWarn
25	High alternator voltage shutdown	HighAltVoltsSht
26	High alternator voltage warning	HighAltVoltsWar
27	Overload or short-circuit shutdown	I> I>> Shutdown
28	Emergency stop button pressed	StopButt.Pressd
29	External emergency stop button pressed	ExtStopButPresd
30	Retention bund shutdown	RetentBundFault
31	Differential trip shutdown	Diff.TripFault
32	General fault	GeneralFault
33	General alarm	GeneralAlarm
34	Genset in automatic mode	Gen in AUTO
35	Genset not in automatic mode	Gen not in AUTO
36	Genset in manual mode	Gen in MANU
37	Genset in test mode	Gen in TEST
38	Genset in stop mode	Gen in STOP
39	Genset circuit breaker closed (motorised or not)	Gen BreakClosed
40	Genset circuit breaker open (motorised or not)	Gen BreakOpened
41	EJP start-up signal	EJP Signal
42	EJP advanced warning	EJP Warning
43	EJP J-1	EJP J-1

25.6. Module 4

◆ 601 to 608: Option on input x (Screen wording: **Input x**)

Note: x takes the following values; **1, 2, 3, 4, 5, 6, 7, 8**

These eight parameters are used to select a cabled option on input x (see list below).

◆ 609 to 618: Option on output y (Screen wording: **Output y**)

Note: y takes the following values; **1, 2, 3, 4, 5, 6, 7, 8, 9, 10**

These ten parameters are used to select a cabled option on output y (see list below).

If an option requires the use of several inputs and/or several outputs, they are automatically allocated by MICS Telys.

The table below lists the options pre-programmed in MICS Telys.

Option No	Parameter	Screen wording
1	Oil pressure warning (1 input required)	Option 1
2	Water temperature warning (1 input required)	Option 2
3	Oil temperature warning (1 input required)	Option 3
4	Any option	Option 4
5	High fuel level warning (1 input required)	Option 5
6	Very low fuel level shutdown (1 input required)	Option 6
7	Very high fuel level shutdown (1 input required)	Option 7
8	Low oil level warning (1 input required)	Option 8
9	Cylinder head temperature shutdown (1 input required)	Option 9
10	In water temperature shutdown (1 input required)	Option 10
11	No water flow shutdown (1 input required)	Option 11
12	Bearing temperature warning (1 input required)	Option 12
13	Bearing temperature shutdown (1 input required)	Option 13
14	Stator temperature warning (1 input required)	Option 14
15	Stator temperature shutdown (1 input required)	Option 15
16	Fuel pumps in mutual backup (3 inputs and 1 output required)	Option 16
17	Fuel solenoid slaved to the pump control (1 output required)	Option 17
18	On/Off Speed rise ramp (1 output required)	Option 18
19	Any option	Option 19
20	Shutdown bypass via switch (1 input required)	Option 20

Note: When the selection exceeds 8 inputs (number available on module 4), a superimposed screen indicates that programming is no longer possible.

25.7. Sensors

◆ 701: Oil pressure sensor of VDO type (Screen wording: **OilPressureToVDO**)

This parameter is used to select whether a VDO oil pressure sensor is available or not. Entering 0 indicates that the sensor is not fitted on the engine. Entering 1 indicates that it is.

◆ 702: Oil pressure sensor of DATCON type (Screen wording: **OilPressureToDAT**)

This parameter is used to select whether a DATCON oil pressure sensor is available or not. Entering 0 indicates that the sensor is not fitted on the engine. Entering 1 indicates that it is.

◆ 703: Water temperature sensor of VDO type (Screen wording: **WaterTemp to VDO**)

This parameter is used to select whether a VDO water temperature sensor is available or not. Entering 0 indicates that the sensor is not fitted on the engine. Entering 1 indicates that it is.

◆ 704: Water temperature sensor of DATCON type (Screen wording: **WaterTemp to DAT**)

This parameter is used to select whether a DATCON water temperature sensor is available or not. Entering 0 indicates that the sensor is not fitted on the engine. Entering 1 indicates that it is.

◆ 705: Oil temperature sensor of VDO type (Screen wording: **Oil Temp to VDO**)

This parameter is used to select whether a VDO oil temperature sensor is available or not. Entering 0 indicates that the sensor is not fitted on the engine. Entering 1 indicates that it is.

◆ 706: Oil temperature sensor of DATCON type (Screen wording: **Oil Temp to DAT**)

This parameter is used to select whether a DATCON oil temperature sensor is available or not. Entering 0 indicates that the sensor is not fitted on the engine. Entering 1 indicates that it is.

◆ 707: Fuel level sensor of VDO type (Screen wording: **Fuel LevelTo VDO**)

This parameter is used to select whether a VDO fuel level sensor is available or not. Entering 0 indicates that the sensor is not fitted on the engine. Entering 1 indicates that it is.

◆ 708: Fuel level sensor of JAEGER type (Screen wording: **Fuel LevelTo JAE**)

This parameter is used to select whether a JAEGER fuel level sensor is available or not. Entering 0 indicates that the sensor is not fitted on the engine. Entering 1 indicates that it is.

◆ 709: Fuel level sensor of ROCHESTER type (Screen wording: **Fuel LevelTo ROC**)

This parameter is used to select whether a ROCHESTER fuel level sensor is available or not. Entering 0 indicates that the sensor is not fitted on the engine. Entering 1 indicates that it is.

25.8 - RS485

◆ 801: Baud rate (Screen wording: **BaudRate**)

This parameter is used to select the baud rate, when MICS Telys is communicating with a PC. Possible settings are: 1200, 2400, 4800, 9600, 19200.

◆ 802: Data bits (Screen wording: **Data Bit**)

This parameter is used to select the width of data sent through the serial link. Possible values are; 7 bits, 8 bits.

◆ 803: Parity (Screen wording: **Parity**)

This parameter is used to select how the data byte integrity is checked. Possible choices are; none, even, odd.

◆ 804: MICS Telys function (Screen wording: **Function**)

This parameter is used to select the function chosen for the communication. The three possible choices are; no communication (none), remote management and monitoring. Monitoring is used in local mode, i.e. for a distance between MICS Telys and the PC below 1000 metres. Remote management is used in remote mode i.e. for a distance above 1000 metres. In this instance, two modems are required for the communication (one for MICS Telys, one for the PC). Transmission is made via the STN (switched telephone network). The PC dials a number and MICS Telys then sends the data required.

◆ 805: J-Bus address if several MICS Telys in a network (Screen wording: **JBUS Adr**)

This parameter is used to select the J-Bus address for each MICS Telys if they are networked and locally supervised via a PC. The address number can be chosen from 001 to 255.

