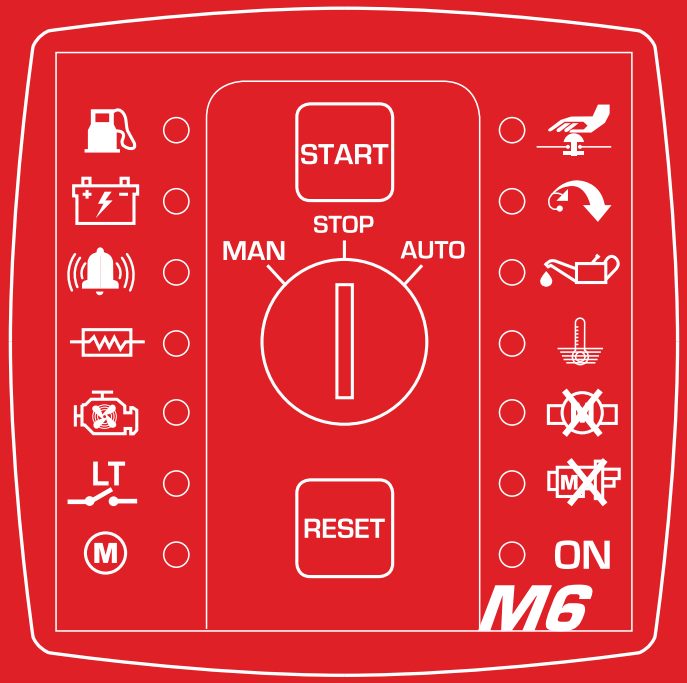
INSTRUCTION MANUAL
PROFESIONAL

M6 CONTROL UNIT



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1. INTRODUCTION

The M6 control unit is an electronic monitoring, control and protection controller for generator sets.

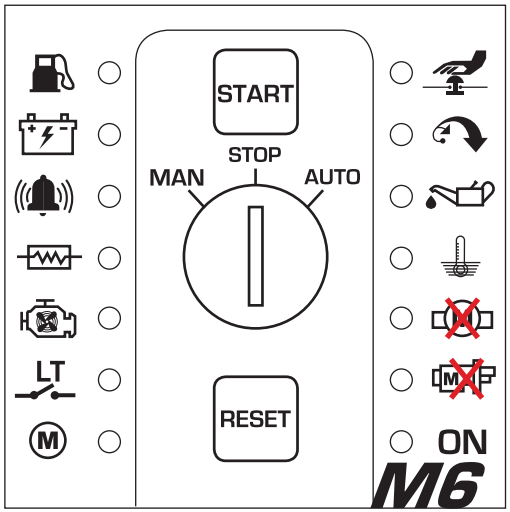
The general characteristics are as described below:

1. Supply voltage 8/36V.
2. Start and mode selection key.
    - “AUTO” mode. Start activated through an external start input via volt free contact (LT)
    - “MAN” mode. Start activated by the user.
3. 14 LEDs for visual indication of the status of the control unit.
4. 2 control unit command buttons:
    - Push button to “start” / “stop” the generator set.
    - “RESET” button to reset the control unit when an alarm is detected.
5. Start by voltage free contact (LT) in “AUTO mode”.
6. Motor protection features:
    - Fuel reserve.
    - Battery charging failure.
    - High motor coolant temperature.
    - Low oil pressure.
    - Auxiliary motor alarm.
    - Overspeed eding:
        - Due to electrical signal frequency of generator.
        - Due to motor pick up.
7. Shortcircuit and temperature selfprotected transistor outputs:
    - 3 power outputs (40A).
    - 4 signal outputs (1A).
8. USB port.

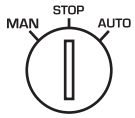
2. FRONT OF THE CONTROL UNIT

On the front of the M6 control unit you can find:

- 2 buttons for control unit operation in manual mode (START/RESET)
- Operating mode selection key (MAN STOP AUT)
- 14 LEDs to indicate status:



START	**Start button**. It is used to engage the starting and stopping of the control unit in manual mode (mode selection key in the MAN position): - Start motor: with the engine stopped and in manual mode, press once to start the engine. - Stop motor with cooling: with motor running and in manual mode, press once to stop the motor with cooling. - Stop motor without cooling: with motor running and in manual mode, press twice to stop the motor without cooling.



Operating mode selection key (MAN/STOP/AUT). The mode selection key of the M6 control unit allows to select the operating mode of the control unit:

-STOP: stops the motor and turns off the control unit.

-MAN: activates the control unit and sets the manual operating mode (control of genset via buttons).

-AUTO: activates the control unit and sets the auto operating mode; performs a switch on of the switchboard and configures the auto work mode to comand the engine start input by contact free of tension (LT).

RESET button. It allows the user to reset the generator set after an alarm has been detected.

Fuel reserve LED. Light signal via the flashing fuel reserve alarm detection LED. The light signal will remain active as long as the alarm condition continues (RC input of the control unit).

Battery charging alternator failure LED. Light signal via the flashing alarm LED detecting a failure in the battery charger via the input D+. The LED will remain active until the control unit is reset by pressing the RESET button.

Auxiliary motor LED. Light signal via the flashing auxiliary motor alarm detection LED. The light signal will remain active as long as the alarm condition continues (control unit AUX input). The control unit is reset by pressing the RESET button. The auxiliary motor alarm causes the motor to stop immediately without cooling.

Emergency stop LED. Light signal via the flashing emergency stop alarm detection LED. The light signal will remain active as long as the alarm condition continues (control unit PEM input). The control unit is reset by pressing the RESET button. The emergency stop alarm causes the motor to stop immediately without cooling.

Overspeeding LED. Light signal via the flashing overspeeding alarm detection LED. The light indicator will remain active until the motor has been stopped and the control unit has been reset by pressing the RESET button.

The overspeeding alarm causes the motor to stop immediately without cooling.

The overspeeding alarm is only managed if the nominal motor speed has been adjusted (sec. 3.3). The overspeeding LED also indicates if the nominal speed of the control unit has not been adjusted, via the flashing of.

Low oil pressure LED. Light signal via the flashing low oil pressure alarm detection LED. The light indicator will remain active until the motor has been stopped and the control unit has been reset by pressing the RESET button. The low oil pressure alarm causes the motor to stop immediately without cooling.

High water temperature LED. Light signal via the flashing high water temperature alarm detection LED. The light signal will remain active as long as the alarm condition continues (control unit ATA input). The control unit is reset by pressing the RESET button. The high water temperature alarm causes the motor to stop immediately without cooling.

Motor failure LED. Light signal via the flashing motor failure alarm detection LED. The light signal will remain active as long as the alarm condition continues. The control unit is reset by pressing the RESET button.

Starting failure LED. Light signal via the flashing start motor failure alarm detection LED. The light signal will remain active as long as the alarm condition continues. The control unit is reset by pressing the RESET button.

ON **Power supply LED**. Light signal via an LED on the control unit.

	Preheating LED. Light signal via an LED flashing during the preheating phase of starting the motor.
	Cooling and motor stop LED. Light signal via an LED flashing during the cooling phase of stopping the motor.
	Starting free of voltage LED. Light signal via an LED flashing with the activation of the genset's external start input via volt-free contact (LT).
	Motor running LED. Light signal via the flashing of the motor running detection LED.

3. CONNECTIONS

3.1 OUTPUTS

3.1.1 PREHEATING OUTPUT (PR)

The preheating output (PR) of the M6 control unit is a high power shortable output (40 A) which regulates the heating process of the motor's spark plugs during the starting process. The activation time of the preheating output can be set (parameter 4). The preheating output can also be used to control stopping due to the excitation of motors which use PE/PS type control (parameter 15 value 2).

3.1.2 CONTACTOR ACTIVATION OUTPUT (CON)

The contactor output (CON) activates a programmable time (parameter 5) after detecting the motor is running in order to ensure stabilisation of the motor before enabling the charging of the generator set.

3.1.3 EXCITATION OUTPUT OF THE BATTERY CHARGE ALTERNATOR (D+)

The battery charge alternator excitation output (D+) of the M6 control unit is responsible for driving the battery charge alternator during the starting process via a starting pulse at a programmable time interval (parameter 14).

3.1.4 ALARM OUTPUT (AL)

The M6 control unit activates the alarm output (AL) upon the detection of any active error and remains active until the system has been reset by pressing the RESET key. Furthermore, the M6 control unit also activates the alarm output (AL) before starting the motor in automatic operation mode by means of the external start via voltfree contact (LT).

3.1.5 STARTING OUTPUT (ARR)

The motor starting output (ARR) of the M6 control unit is a high power shortable output (40 A) which activates the starter. The motor starting output (ARR) remains active until a condition is detected while the motor is running for a programmable maximum time (parameter 3).

3.1.6 CONFIGURABLE STOP (PC)

The configurable motor stop output (PC) of the M6 control unit is a high power shortable output (40 A) that controls the stopping of the motor and is interconnected with the emergency stop input (PEM) of the control unit. The configurable motor stop output (PC) can be configured so that it controls motors according to four different start/stop modes (parameter 15):

- PR/PD (parameter 15 value 0): The configurable motor stop output (PC) for motors with PR/PD control is activated 500 ms after the preheating output has been deactivated, and remains active while the motor is running.
- PR/PE (parameter 15 value 1): The configurable motor stop output (PC) for motors with PR/PE control is activated during a programmable time interval (parameter 7) when the motor stop command has been given. In this configuration, the emergency stop input (PEM) of the control unit must be wired to the negative terminal of the battery and the emergency stop button must be wired to the auxiliary input of the (AUX) alarm.
- PE/PD (parameter 15 value 2): The configurable motor stop output (PC) for motors with PE/PD control is activated 500 ms after the preheating output (PR) has been deactivated, which occurs when the motor stop command has been given. This output is used to enable the motor sensors. The preheating output (PR) of the control unit is responsible for executing the motor stop by activating the stop by excitation process.
- PULL/HOLD (parameter 15 value 3): The motor start control set in PULL/HOLD mode uses the configurable output (PC) as PULL signal (40 A) which is activated for a fixed time of 1 second during starting. The IGNITION output (PD) is used as HOLD signal (2 A) which remains active while the motor is running.

3.1.7 IGNITION (PD)

The IGNITION output (PD) is activated 500 ms after the preheating output has been deactivated and remains active while the motor is running. The IGNITION output (PD) is interconnected with the emergency stop input (PEM) of the control unit.

For motors configured with the starting control mode PULL/HOLD (parameter 15 value 3), the IGNITION output (PD) is also activated during starting in the motor preheating phase.

3.2 INPUTS

3.2.1 ALTERNATOR VOLTAGE INPUT (GEN)

The alternator voltage input is used to calculate the electrical signal frequency of the generator (parameter 16 value 0). To do this 2-phases of the alternator are connected between the GEN and GCOM inputs of the control unit in gensets with more than one phase or 1 phase and the neutral of the alternator between the GEN and GCOM inputs of the control unit in single phase gensets.

3.2.2 PICK-UP INPUT (PCK)

The pickup input is used to calculate the motor rotation speed (parameter 16 value 1). To do this, the motor pickup signal is connected to the PCK and GCOM terminals of the control unit.

3.2.3 VOLTAGE INPUT OF THE ALTERNATOR AND PICK-UP (GCOM)

Same input for reading the alternator voltage frequency and motor speed, according to the programming of the control unit (parameter 16). Only one of the two signals can be wired to the terminal of the GCOM input of the M6 control unit.

3.2.4 WATER TEMPERATURE INPUT (ATA)

Input connected to the motor coolant temperature thermostat that is used to detect a high water temperature alarm condition. The polarity of the ATA input is configurable (parameter 23). The high motor temperature alarm has a visual signal on the front of the M6 control unit. The high motor temperature alarm causes the motor to stop immediately

3.2.5 LOW OIL PRESSURE INPUT (BPA)

Input connected to the engine oil pressure switch, indicating to the control unit that a low oil pressure alarm has ocurred. Polarity of the BPA input is configurable (parameter 24). The low oil pressure alarm has a visual signal on the front of the M6 control unit. The low oil pressure alarm causes the motor to stop immediately.

3.2.6 FUEL RESERVE INPUT (RC)

Input connected to the fuel tank gaug ethat is used to detect a fuel reserve alarm condition. The polarity of the RC input is configurable (parameter 27). The fuel reserve alarm has a visual signal on the front of the M6 control unit. The action taken by the M6 control unit after detecting the fuel reserve alarm is programmable (parameter 18).

3.2.7 AUXILIARY ALARM INPUT (AUX)

Input connected to any sensor which tells the control unit that is used to detect a motor auxiliary alarm condition. The polarity of the AUX input is configurable (parameter 25). The motor auxiliary alarm has a visual signal on the front of the M6 control unit. The auxiliary engine alarm causes an immediate stop motor.

3.2.8 ENTRADA ARRANQUE EXTERNO (LT)

Digital signal for connecting a volt-free contact forcing the starting of the genset when the M6 control unit is in automatic mode. The polarity of the LT input is configurable (parameter 26). The external start input has a visual signal on the front of the M6 control unit.

3.2.9 EMERGENCY STOP INPUT (PEM)

Digital input to connect an emergency stop for inmediately motor stop without cooling. The emergency stop alarm has a visual signal on the front of the M6 control unit.

3.3 USB PORT

It allows the programming of certain parameters, in addition to the reading of the internal hour counter (total and partial) and alarm history through a PC.

4. OPERATION

4.1 STARTING THE MOTOR

With motor stopped, and without alarms, when starting the motor, the M6 control unit proceeds to perform the following operations:

- Preheating of the motor. With the preheating process enabled (parameter 19 value 1), the control unit activates the preheating output (PR) in motors for PR/PD and PR/PE control (parameter 15 values 0 and 1) for the set time (parameter 3) with visual indication via the LED on the front of the control unit.
- Enabling the starting of the motor. Enabling the starting of the motor is done via the IGNITION output (PD) of the M6 control unit and the CONFIGURABLE STOP output (PC) for motor configurations PR/PD and PE/PD (parameter 15 value 0 and 2).
- Starting the motor (ARR). The starting output (ARR) of the M6 control unit is activated until some of the enabled starting conditions have been detected, for a maximum time (parameter 3):
    - Generator frequency (parameter 16 value 0). The motor is considered started when the generator frequency exceeds a certain percentage (parameter 11) of the nominal frequency of the genset.
    - Motor speed (parameter 16 value 1). The motor is considered started when the motor speed exceeds a certain percentage (parameter 11) of the nominal motor speed.
    - Alternator voltage (parameter 21 value 1). The motor is considered started when a certain battery charging alternator voltage (60% of the battery voltage) is exceeded.

Control unit waits for a time (parameter 2) before starting the motor again if no motor running condition is detected during cranking time. Unit control activates the STARTING FAILURE alarm led if the maximum starts attemps is exceeded.

Excitation of the battery charger is set on by the D+ output for a time (parameter 14) during motor starting process. Controller checks the battery charger voltage after the battery charger excitation time.

The Alternator Failure alarm is activated with a visual signal via the Battery charging failure LED on the front of the control unit if a fault is detect in the battery charging alternator, .

The configurable stop output (PC) of the control unit is used in motors for PR/PULL control (parameter 15 value 3) to energize the motor solenoid by activating a pulse for a duration of 1 second during the start process.

- Generator load activation: Once any motor starting condition has been detected, the control unit waits for a set time (parameter 5) for the activation of charging through the contactor output (CON) of the control unit.

4.2 STOPPING THE MOTOR

With the motor started, when stopping the motor, the M6 control unit proceeds to perform the following operations:

- Deactivating charging. The M6 control unit deactivates the contactor output (CON) to release the charging of the generator set.
- Cooling the motor. Motor will continue running without load for a programmable. If any alarm is detected, the M6 control unit performs an immediate stop without cooling the motor.
- Motor stop. After the motor cooling time has passed, the IGNITION output (PD) of the M6 control unit is deactivated and, depending on the motor configuration (parameter 15) the following occurs:
    - Deactivation of the CONFIGURABLE STOP output (PC) for motor configurations PR/PD and PE/PD (parameter 15 value 0 and 2).
    - Activation of the CONFIGURABLE STOP output (PC) for motor configurations PR/PE (parameter 15 value 1) for a configurable time (parameter 7).
    - Activation of the PREHEATING output (PR) for motor configurations PE/PD (parameter 15 value 2) for a configurable time (parameter 7).
- Motor is stopped if no start condition is detected. The following start condition can be selected:
    - Generator frequency (parameter 16 value 0). The motor is considered stopped when the generator frequency is zero.
    - Motor speed (parameter 16 value 1). The motor is considered stopped when the motor speed is zero.
    - Low Oil Pressure Input (parameter 22). The motor is considered stopped when the motor oil pressure switch connected to the low oil pressure input (BPA) is closed.
    - Battery charging alternator voltage (parameter 21 value 1). The motor is considered stopped when the battery charging alternator voltage is less than a certain voltage (60% of the battery voltage).

4.3 OPERATING MODES

The M6 control unit is turned on by turning the key on the control panel to either the “MAN” or “AUT”O position. Controller checks leds by setting on sequentially during power on.

4.3.1 STOP MODE (STOP)

By selecting the “STOP mod”e, the control unit orders the generator set motor to stop in a controlled manner if it is in operation and, after checking that it has stopped, proceeds to switch off the control unit.

4.3.2 MANUAL MODE (MAN)

Selecting “MAN mode”, starting and stopping the generator set is controlled via the START button on the control panel. By pressing “START” the motor is ordered to start immediately if the motor is stopped, indicated by the Motor running LED not being lit.

If “START button” is pressed while the genset is in operation, indicated by the Motor running LED lit at the front of the M6 control unit, the genset is stopped by disconnecting the genset load via the deactivation of the contactor output (CON) of the control unit and proceeding to engage the cooling process indicated by the Cooling and stop LED lit at the front of the M6 control unit.

If “START button” is pressed when the motor is in the process of cooling, indicated by the Cooling and stop LED at the front of the M6 control unit, an immediate stop is carried out, cancelling the motor cooling process.

4.3.3 AUTOMATIC MODE (AUTO)

When selecting “AUTO mode”, the starting and stopping of the generator set is controlled by means of the external start input via voltage free contact (LT) of the M6 control unit.

With the closure of the voltage free contact, the control unit commands the generator set motor to start.

With the opening of the voltage free contact, the control unit commands the generator set motor to stop with cooling.

4.4 NOMINAL SPEED ADJUSTMENT

It is necessary to set up the nominal motor speed that is used for detecting over-speed alarm and motor running condition:

1. The Overspeed LED on the M6 control unit is flashing to indicate that the control unit has no nominal motor speed programmed.

2. Start the motor and wait for it to stabilise until it reaches its nominal speed.

3. Hold down “RESET button” for 5 seconds.

4. The Overspeed LED on the M6 control unit turns off to indicate that the process is complete.

5. Management of the overspeed alarm is enabled (parameter 17 value 1).

6. To reset the setting to nominal speed, it is necessary to hold down “RESET button” for 5 seconds with the motor stopped. Performing this process, over-speed alarm management is disabled (parameter 17 value 1).

The described process is valid, both for speed detection by frecuency of generator as per motor pick-up.

5. DIMENSIONS, WIRING AND MECHANICAL PARTS

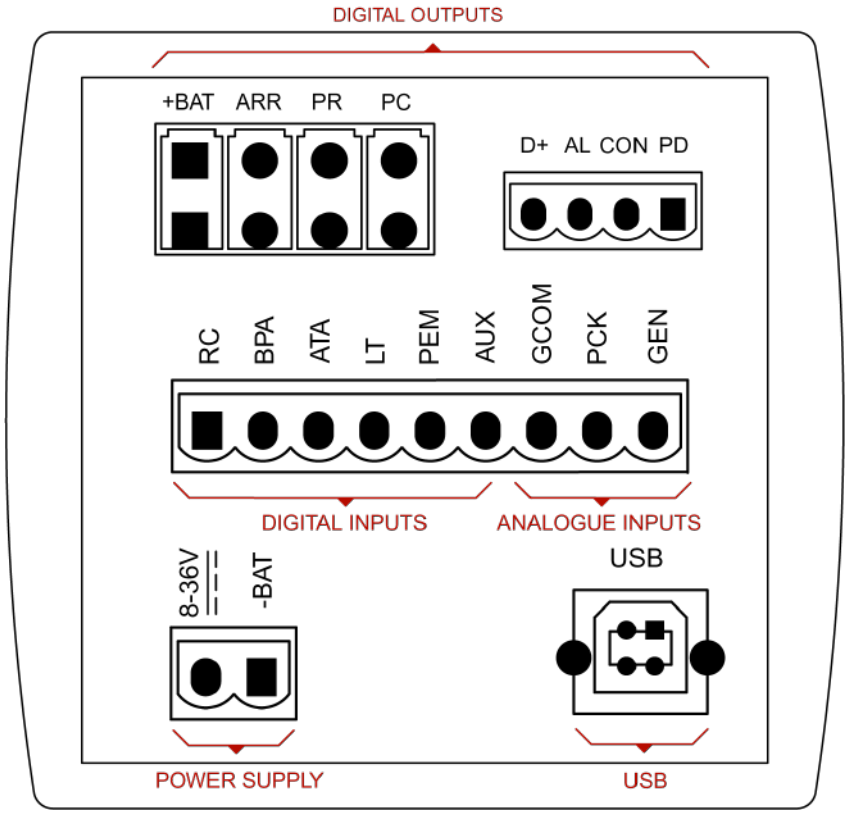


Fig.1
M6 Control Unit

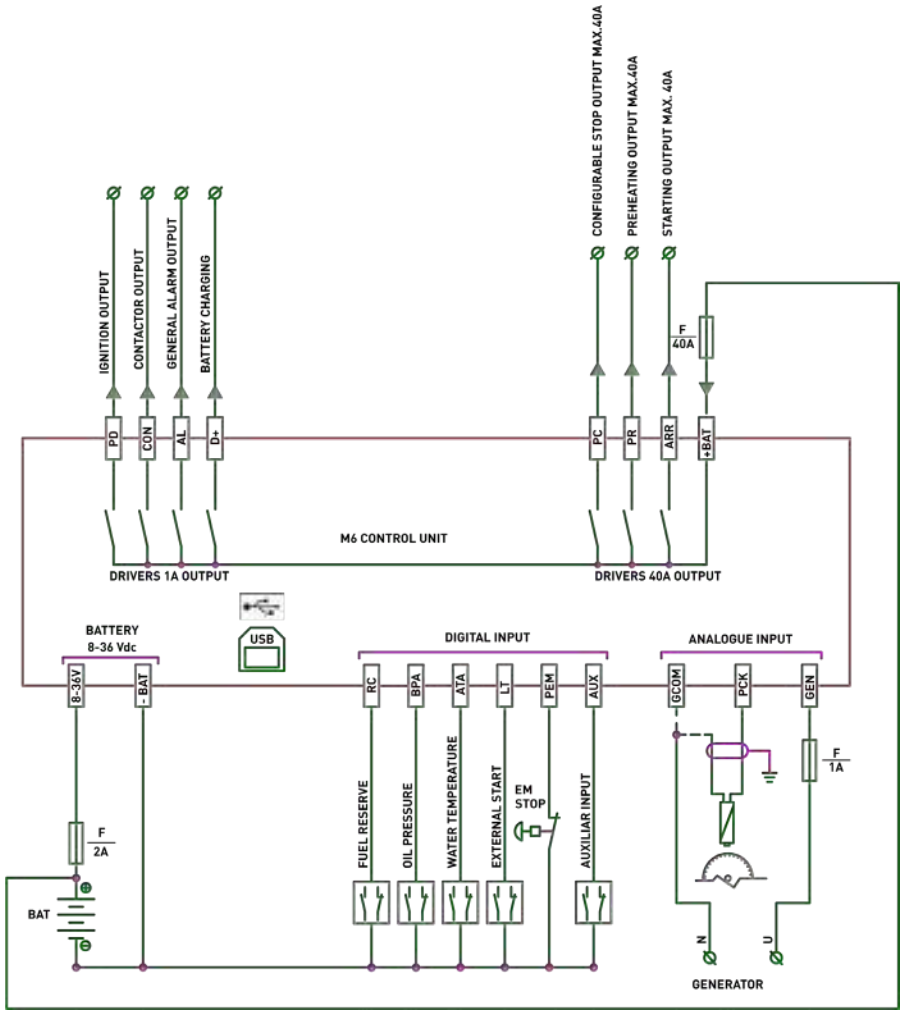


Fig.2
M6 Control Unit Connections

The equipment must be isolated or disconnected before connecting the voltage input for the generator, as there is a risk of danger. The USB connector complies with the standard 2.0.

To power the control panel, it is recommended to use a 1mm2 section cable. A cable with a diameter of 2.5 mm2 must be used for +BAT, ARR, PR and PC connections. For all other connections, it is recommended to use a 1mm2 cable diameter.

5.1 INPUTS AND OUTPUTS

Signal	Description	Type	Characteristics
Powe supply			
8÷36V	Positive battery terminal	Power supply	Tensión alimentación módulo de 8 a 36V
-BAT	Negative battery terminal	Power supply	Module supply negative
Digital Inputs			
RC	Fuel reserve	Input	NPN digital input
BPA	Low oil pressure	Input	NPN digital input
ATA	High water temperature	Input	NPN digital input
LT	External start	Input	NPN digital input
PEM	Emergency stop	Input	NPN digital input
AUX	Motor auxiliary input	Input	NPN digital input
Pick-up/generator input			
GCOM	Common	Input	Pick-up and alternator voltage common input
PCK	Pick-up	Input	PICK-UP input
GEN	Generator	Input	Alternator voltage input
High voltage PNP outputs			
+BAT	Positive battery terminal	Power supply	Digital outputs supply voltage
ARR	Starting	Output	PNP digital output of power
PR	Preheating	Output	PNP digital output of power
PC	Configurable stop	Output	PNP digital output of power
PNP outputs			
D+	Alternator excitation	Output	PNP digital output
AL	Alarm	Output	PNP digital output
CON	Contactor	Output	PNP digital output
PD	Ignition	Output	PNP digital output

5.2 ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	Minimum	Typical	Maximum	Unit
Power supply (terminals 8÷36V, –BAT, +BAT)						
8÷36V	Module supply voltage		8		36	VDC
+BAT	Power supply of the outputs		8		36	VDC
I_{BAT}	Supply current	8÷36V=12V		20	60	mA
I_{BAT}	Supply current	8÷36V=24V		10	50	mA
P_{BAT}	Power consumption				1	W
NPN digital inputs (terminals RC, BPA, ATA, LT, PEM, AUX)						
V_{IN}	Input voltage		-0,7		40	V
V_{IL}	Low level input voltage				1	V
V_{IH}	High level input voltage		5			V
I_{IL}	Low level input current	V_{IN} = 0V		2	2,5	mA
I_{IH}	High level input current	V_{IN} = 24V		0	100	uA
Pick-Up / Generator input sensor (terminals GCOM, PCK, GEN)						
V_{IN}	Pick-Up input voltage		4		30	VDC
F_{IN}	Pick-Up input frequency		200	2500	8000	Hz
V_{IN}	Generator input voltage		180		480	VAC
F_{IN}	Generator input frequency		45		66	Hz
Power PNP outputs (terminals ARR, PR, PC)						
V_O	Output voltage			+BAT		V
I_O	Output current	T = 1s			40	A
I_O	Output current	T = 10s			20	A
I_O	Output current de salida	T = ∞			15	A
PNP outputs (terminals D+, AL, PD, CON)						
V_O	Output voltage			+BAT		V
I_O	Output current				1	A
R_{D+}	Output resistance D+			49,5		Ω
Environmental conditions and protection of the enclosure						
T^a	Operating temperature		-40		+85	ºC
H_R	Relative humidity	No condensation			80	%
	IP Degree of Protection	*see note 1		65		

Note 1: IP 65 on the front of the control unit when installed on the control panel with the sealing gasket provided.

The control unit must be mounted at the front of an electrical panel, if possible in the centre to allow easy wiring.

There are no special ventilation requirements due to the low power consumed by the control unit.

All outputs must be provided with the corresponding inductive current disconnection devices (diodes, varistors, RC filters, etc…).

The wiring for manoeuvres should be kept at a sufficient distance from high electric fields: at least two metres of power lines of up to 600A and 1 metre of power lines over 600A.

5.3 CHARACTERISTICS AND INSTALLATION OF THE EQUIPMENT

EThe equipment is included within the measurement category CAT III 600V for measurements performed in the building installation.

Disconnection means should be incorporated to the fixed installation in accordance with instalation regulations.

Such means must have contact separation for all poles that provide full disconnection in category III overvoltage conditions.

The disconnecting means, must be accessible by the user. The negative terminal of the battery, electrical panel chassis and generator chassis must all be earthed.

After installation, the connection terminals of the Pick Up / Generator sensor input (terminals GCOM, PCK, GEN) should not be accessible.

If the equipment is handled in a way not specified by the manufacturer, the equipment's protection devices could become compromised.

The surface areas of the equipment and the external face should be cleaned with a damp cloth.

This equipment can generate the risk of danger if handled improperly. It must be installed by qualified personnel. It is necessary to consult the equipment's documentation.

ATTENTION: risk of danger.

5.4 DIMENSIONS OF THE EQUIPMENT

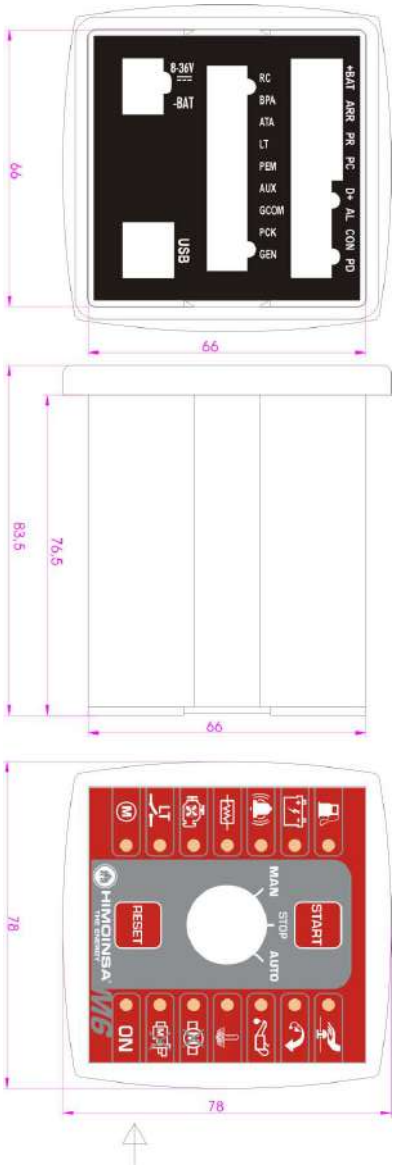


Fig.3
M6 dimensions

5.5 SYMBOLS

	Attention. Consult the manufacturer's documentation.
	Equipment with Class II protection against electric shock. Equipment protected by double insulation or reinforced insulation.
	Direct current.

5.6 CERTIFICATIONS

Electromagnetic Compatibility Directive 2004/108/EEC. Product Standard UNE EN 61326 1

Low Voltage Directive 2006/95/EEC. Product Standard 61010 11

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6. TABLE OF PARAMETERS

Parameter	Description	Value	Range
1	**Number of starts** Number of starting retries automatically performed by the control unit before signalling a starting failure.	4	1..10
2	**Time between starts** Time between starting retries.	5”	3”..15”
3	**Start time** Maximum activation time of the motor start output before any motor starting condition is detected.	5”	2”..30”
4	**Preheating time** Maximum activation time of the motor preheating output (PR) during the motor starting process. Special case with 3 second delay between activation of the configurable stop (PC) and start (ARR) outputs for motors with control type PR/PD: preheating process enabled by programming a value of 0 for the preheating time.	8”	0”..180”
5	**Contactor activation time.** Motor stabilization time from the moment the motor is detected in operation until the activation of the genset contactor output (CON).	5”	1”..30”
6	**Cooling time** Time that the motor remains in operation without load after the genset has been commanded to stop.	120”	2”..1800”
7	**Stop time.** Activation time of the solenoid used to stop the motor in order to cause the stopping of the generator set with motor configuration type PR/PE and PE/PD.	10”	1”..30”
8	**Low oil pressure delay** Time interval from the moment the starting of the motor is detected until the low oil pressure alarm is managed to ensure the stabilisation of the oil pressure switch.	15”	0”..60”
9	**High temperature water delay** Time interval from the moment the starting of the motor is detected until the high temperature water alarm is managed to ensure the stabilisation of the coolant temperature thermostat.	1”	0”..60”
10	**Motor auxiliary alarm input delay.** Time interval from the moment the starting of the motor is detected until the motor auxiliary alarm is managed for the stabilisation of the motor sensor connected to the motor auxiliary alarm input (AUX) of the M6 control unit.	5”	0”..60”
11	**Frequency threshold for starting detection** Percentage of genset nominal speed at which point the motor is considered to be started. If the process of adjusting the nominal frequency of the genset has not been completed, the control unit will consider the motor to be started from a frequency of 20 Hz.	30	0..100%
12	**Overspeeding detection threshold** Percentage of genset nominal speed at which point the genset overspeeding alarm is detected.	16	0..100%
13	**Alarm activation time.** Activation time of the AL output upon detection of a genset alarm. If set to zero, the output will remain active indefinitely until the genset is reset by pressing the RESET button or by turning off the control unit.	0	0..600
14	**Excitation time of the battery charging alternator** Excitation time of the battery charging alternator during the motor starting process. At the end of this time, controls will begin to check the level of voltage supplied by the battery charging alternator, the detection of the motor starting condition and to verify the proper functioning of the generator set’s battery charging regulator.	3	1”..29” (Always less than the starting time)
15	**Motor configuration** Configuration of the preheating (PR) and configurable stop (PC) outputs of the motor control unit.	0	0..3 0:PR/PD 1:PR/PE 2:PE/PD 3:PR/PULL
16	**Selection of motor speed reading** Method for calculating the motor speed by generator frequency or motor pickup.	0	0:Generador 1: Pickup
17	**Enabling the motor overspeeding alarm**	0	0..1 0: Not active 1: Active
18	**Motor stop due to low fuel reserve alarm** Management of the fuel reserve alarm.		
19	**Enabling preheating** Special case with 3 second delay between activation of the configurable stop (PC) and start (ARR) outputs for PR/PD type motors: preheating process enabled by programming a value of 0 for the preheating time.		
20	**Enabling cooling time**		
21	**Detection of motor in operation for battery charging alternator**	1	
22	**Detection of stop due to low oil pressure**	0	
23	**Polarity of high water temperature input (ATA)**	0	0..1 0: Normally open (NO) 1: Normally closed (NC)
24	**Polarity of low oil pressure input (BPA)**		
25	**Polaridad entrada auxiliar de motor (AUX)**		
26	**Polarity of volt-free input (LT)**		
27	**Polarity of fuel reserve input (RC)**		

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