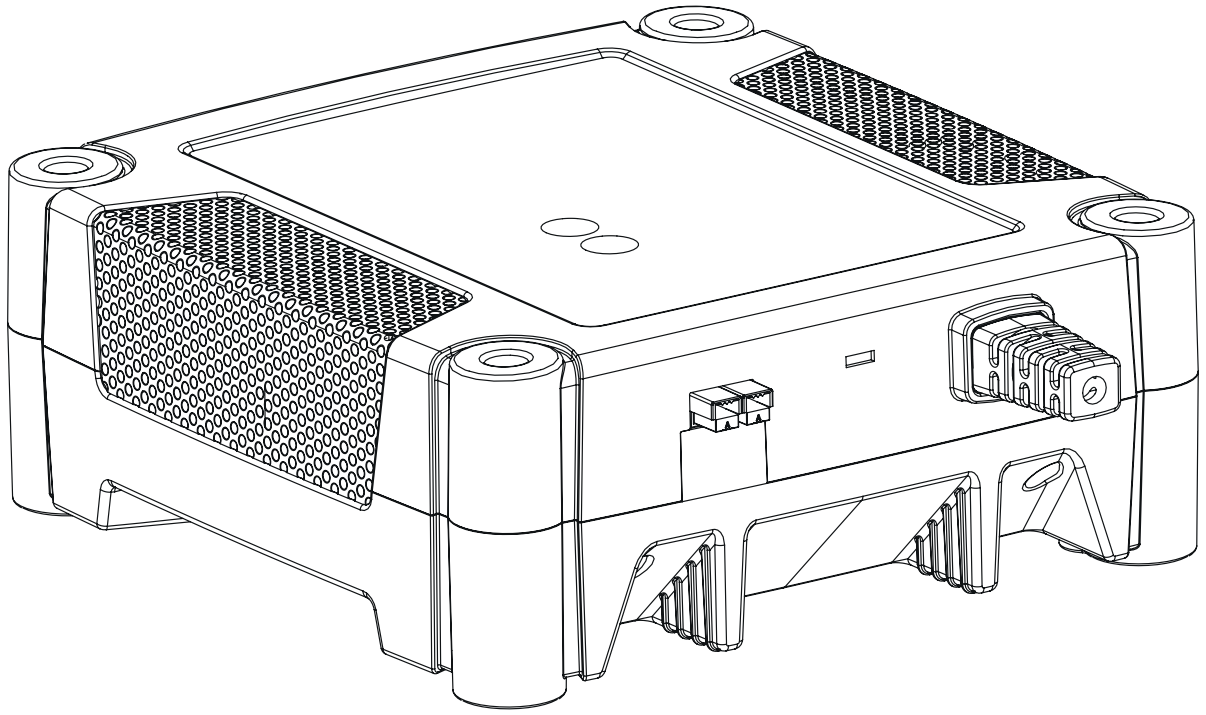


GYSFLASH 20.12/24 PL

SAFETY INSTRUCTIONS

This manual contains safety and operating instructions, to be followed for your safety. Please read it carefully before using the device for the first time and keep it for future reference. This machine should only be used for charging or power supply operations comprised within the limits indicated on the machine and in the instructions manual. The operator must observe the safety precautions. In case of improper or unsafe use, the manufacturer cannot be held liable.

The device is destined to be used indoors. Must not be exposed to the rain.

This unit can be used by children aged 8 or over and by people with reduced physical, sensory or mental capabilities or lack of experience or knowledge, if they are properly monitored or if instructions for using the equipment have safely been read and risks made aware of. Children must not play with the product. Cleaning and maintenance should not be performed by an unsupervised child.

Do not use to charge domestic batteries or non rechargeable batteries.

Do not operate the device with a damaged power supply cord or a damaged mains plug.

Do not use the device if the charging cable appears to be damaged or assembled incorrectly in order to avoid any risk of short circuiting the battery.

Never use on a frozen or damaged battery.

Do not cover the device.

Do not place the device near a fire or subject it to heat or to longterm temperatures exceeding 50°C

Do not obstruct the machine's air intake, which facilitates air circulation.

The operating mode of the automatic charger and the restrictions applicable to its use are explained later in this manual.

Fire and explosion risks!

A charging battery can emit explosive gases.

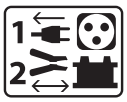
- During the charge, the battery must be placed in a well ventilated area.

- Avoid flames and sparks. Do not smoke near the device.
- Protect the battery's electrical contact surfaces against short-circuits.

Acid projection hazard !

- Wear safety goggles and protective gloves

- If your eyes or skin come into contact with battery acid, rinse the affected part of the body with plenty of water and seek immediate medical assistance



Connection / disconnection :

- Ensure that the charger's power supply is disconnected before connecting or disconnecting to the battery terminals.
- Always ensure the Red clamp is connected to the ""+"" battery terminal first. If it is necessary to connect the black clamp to the vehicle chassis, make sure it is a safe distance from the battery and the fuel/exhaust pipe. The charger must be connected to the mains.
- After charging, disconnect the charger from the mains, then disconnect the negative clamp from the car body and then disconnect the positive clamp from the battery, in this order.

Connection :

- Class I device
- This device must be connected to an earthed power supply
- The connection to the power supply must be carried out in compliance with national standards.

Maintenance :

- If the power cable is damaged, it must be replaced by the manufacturer, its after sales or by an equally qualified person to prevent any accidents.
- Service should be performed by a qualified person
- Warning! Always remove the power plug from the wall socket before carrying out any work on the device.

- Under no circumstances should solvents or other aggressive cleaning agents be used.
- Clean the device's surfaces with a soft, dry cloth.

Regulations :

- The Machine is compliant with European directives.
- The declaration of conformity is available on our website.

- EAEC Conformity marking (Eurasian Economic Community).

- Equipment in compliance with British requirements. The British Declaration of Conformity is available on our website (see home page).

- Equipment in conformity with Moroccan standards.
- The declaration Cم (CMIM) of conformity is available on our website (see cover page).

Waste management:

- This product should be disposed of at an appropriate recycling facility. Do not throw away in a household bin.

GENERAL DESCRIPTION

GYSflash 20.12/24 PL is designed to charge lead-acid batteries (Gel, AGM, Liquid, ...) and Lithium Iron Phosphate (LFP / LifeP04).

This charger is suitable to recharge :
- Lead-acid batteries 12V (6 elements in series) from 15 Ah to 375 Ah.
- Lead-acid batteries 24 V (12 elements in series) from 15Ah to 240Ah.
- Lead-acid batteries LFP 12V (4 elements in series) from 7Ah to 300Ah
- Batteries LFP 24V (8 elements in series) from 7Ah to 240Ah

The Gysflash 20.12/24 PL is equipped with a function that :
- when charging a lead-acid battery, adjusts the output voltage automatically according to the ambi-ent air temperature. This adjustment allows for a very accurate lead-acid battery charge adapted to the temperature.
- When charging a lithium battery, the charge is prevented if the ambient temperature is below 3°C.

In both cases, the adjustment can take between 1 and 10 minutes before the charge starts or stops.

CALIBRATION CABLE

Procedure for the calibration of the charging leads in order for the charger to compensate any voltage drop due to the length or condition of the cables. It is strongly recommended to perform this procedure each time the cables are modified or changed.
1. Before undertaking the procedure, make sure that the charger is disconnected from the mains socket.
2. Short-circuit the ends of the charging leads.
3. Press buttons MODE and BATTERY SELECTION simultaneously.
4. Plug in the mains plug while holding down the two buttons until the indicator light OK or ⚠ lights up. Résults :
- Indicator OK is on: the calibration was successful.
- Indicator ⚠ is on: the calibration failed, disconnect the mains plug and restart the procedure.
5. Unplug the mains plug until the charger switches off.

START UP

1. Connect the charger to the battery.
2. Plug the charger to the mains (single phase 220-240Vac 50-60Hz).
3. Select the mode by pressing button MODE), and the charging current by pressing button BATTERY SELECTION. After roughly five seconds, the charge starts automatically. By default, the charger starts on the last mode used.
4. During the charge, the device indicates the charge progress. When indicator OK blinks, the battery is ready to start the vehicle. Once indicator OK stays on, the battery is fully charged.
5. The charge can be interrupted at any time by unplugging the mains plug or pressing the MODE button.
6. After the charge, disconnect the charger from the mains, then disconnect the clamps from the battery.

CHARGE MODES

- **Description of charging modes and currents :**

Mode CHARGE lead-acid (14.6 V/20 A max) :
Mode designed for the recharge of 12V lead-acid batteries from 15 Ah to 300 Ah. Automatic seven step charge cycle.

Mode CHARGE lead-acid (29.2 V/15 A max) :
Mode designed for the recharge of 12V lead-acid batteries from 15 Ah to 240 Ah. Automatic seven step charge cycle.

Mode CHARGE Lithium (14.4 V/20 A max) :
Mode designed for the recharge of 12 V lithium batteries from 7 Ah to 300 Ah. 8 step automatic maintenance charge cycle.

Mode CHARGE Lithium (28.8 V/15 A max) :
Mode designed for the recharge of 24 V lithium batteries from 7 Ah to 240 Ah. 8 step automatic maintenance charge cycle.

Some Lithium batteries incorporate a UVP protection (Under Voltage Protection) which disconnect the battery in case of deep discharge. This protection prevents the charger from detecting the battery. In order for the Gysflash 20.12/24 PL to be able to charge the battery, it is necessary to deactivate the UVP protection. To do this, select the Lithium charging mode and press the button MODE for 10 seconds. The charger will then deactivate the UVP protection and automatically start charging.

7 15 20 A

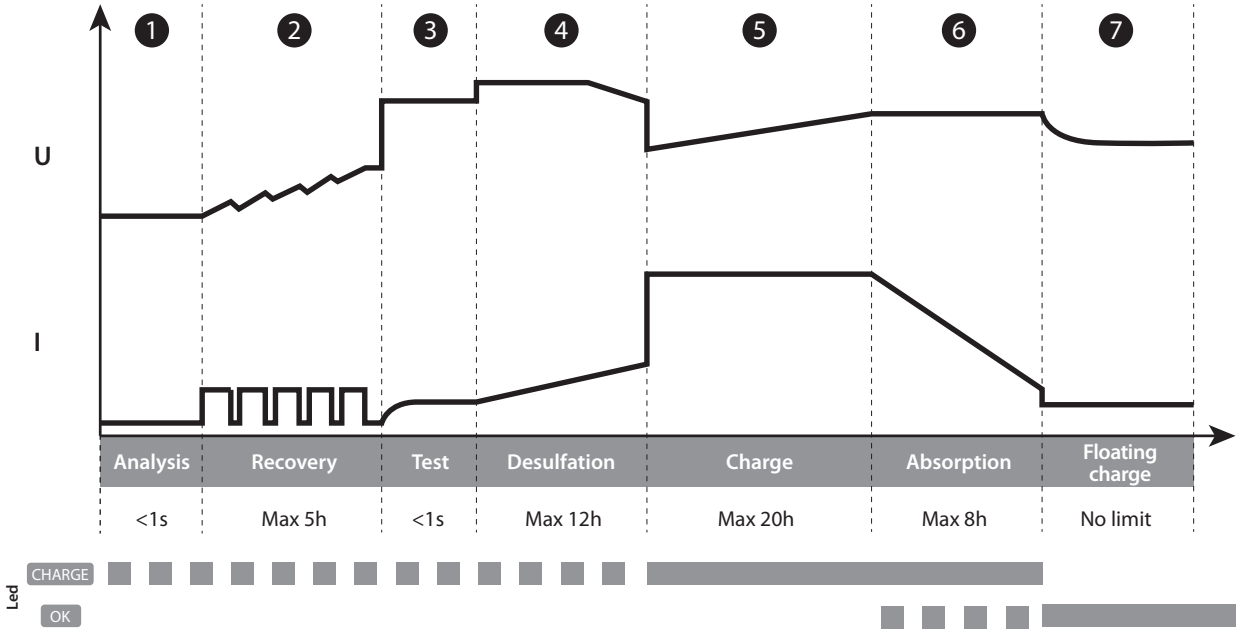
Charging current 7 / 15 / 20 A :
Selection designed to choose the most suited charging current based on the type and size of the battery (lead-acid or lithium).

Charging current			7 A	15 A	20 A
Battery capacity	Pb	12 V	15 ◢ 60 Ah	60 ◢ 90 Ah	90 ◢ 300 Ah
		24 V	15 ◢ 60 Ah	60 ◢ 240 Ah	-
	LFP	12 V	7 ◢ 15 Ah (21 ◢ 45 Ah EqPb*)	15 ◢ 25 Ah (45 ◢ 75 Ah EqPb*)	25 ◢ 300 Ah (75 ◢ 900 Ah EqPb*)
		24 V	7 ◢ 15 Ah (21 ◢ 45 Ah EqPb*)	15 ◢ 240 Ah (45 ◢ 690 Ah EqPb*)	-

*Lead battery corresponding : A lithium battery has a better starting performance (CCA) than a lead-acid battery. This is why some lithium battery manufacturers indicate the battery lead equivalent (EqPb) corresponding to the capacity of a lead-acid battery with the same starting performance. For instance, a LFP battery of 10 Ah will have the same starting performance as a lead-acid battery of around 30 Ah.

• Lead-acid charging curve :

The GYSflash 20.12/24 PL features a 7 step charging curve designed to ensure optimal charging of lead-acid batteries.



Step ❶ : Analysis
Analyses the battery state (charge level, polarity inversion, wrong battery…)

Step ❷ : Recovery (12 V 3 A - 5 A - 7 A / 24 V 3 A - 5 A)
Recovering damaged elements due to a prolonged deep discharge.

Step ❸ : Test
Sulfated battery test

Step ❹ : Desulfation (12 V 15.8 V / 24 V 31.6 V)
Battery desulfation algorithm.

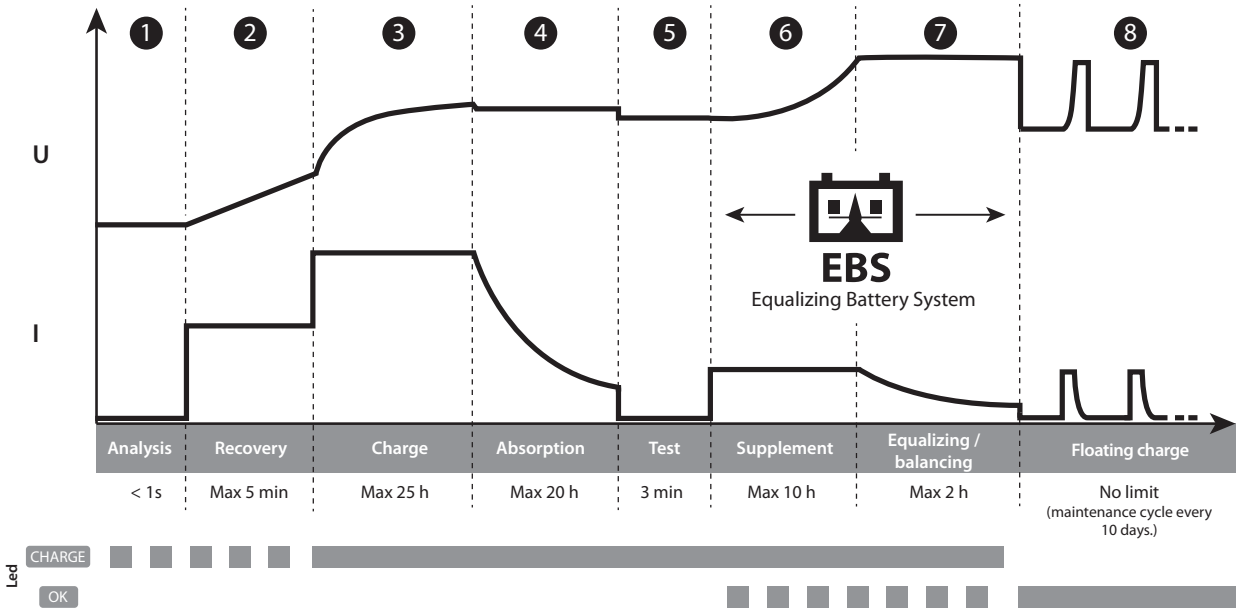
Step ❺ : Charge (12 V 7 A - 15 A - 20 A / 24 V 7 A - 15 A)
Maximum current fast charge to reach 80% charge level.

Step ❻ : Absorption (12 V 14.6 V / 24 V 29.2 V)
Constant voltage charge to reach 100% charge level.

Step ❼ : Floating charge (12 V 13.6 V / 24 V 27.2 V)
Maintains battery charge level at its maximum.

• Lithium charging curve :

The GYSflash 20.12/24 PL features a 8 step charging curve designed to ensure optimal charging of LFP batteries.



Step ❶ : Analysis
Analyses the battery state (charge level, polarity inversion, wrong battery…)

Step ❷ : Recovery (12 V 0.5 A - 1 A - 2 A / 24 V 0.5 A - 1 A)
Recovering damaged elements due to a prolonged deep discharge.

Step ❸ : Charge (12 V 7 A - 15 A - 20 A / 24 V 7 A - 15 A)
Maximum current fast charge to reach 90% charge level.

Step ❹ : Absorption (12 V 13.8 V / 24 V 27.6 V)
Constant voltage charge to reach 98% charge level.

Step ❺ : Test
Charge conservation test.

Step ❻ : Supplement
Reduce current charge to reach 100% charge level.

Step ❼ : Equalizing / balancing
(12 V 14.4 V / 24 V 28.8 V)
Balancing of battery cells.

Step ❽ : Floating charge
(12 V 13.8 V / 24 V 27.6 V)
Maintains battery charge level at its maximum and goes through charge maintenance cycle every 10 days.

• Estimated charge time :

Charging current	Plomb								Lithium									
	7		15			20 A			7		15				20 A			
Battery capacity	15 Ah	60 Ah	60 Ah	90 Ah	240 Ah (24V)	90 Ah	200 Ah	300 Ah	7 Ah	15 Ah	15 Ah	25 Ah	100 Ah (24V)	240 Ah (24V)	25 Ah	100 Ah	200 Ah	300 Ah
Charge timing 0% >>> 90%	2 h	8 h	4 h	6 h	16 h	5 h	10 h	15 h	1 h	2 h	1 h	2 h	7 h	16 h	1h30	7 h	10 h	15 h

• Protections :

GYSFLASH 20.12/24 PL as comprehensive safety features to protect it against short-circuits and polarity reversals. It has an anti-spark feature which prevents sparks whilst connecting the device to the battery. This charger has double insulation and is safe to use with the battery in situ as it will protect the vehicle's on-board electronics.

GYSFLASH 20.12/24 PL s fitted with an integrated temperature sensor that ensures that the charging current is adapted to the ambient temperature to prevent internal the electronics from overheating.

TROUBLESHOOTING, CAUSES, SOLUTIONS

	Troubleshooting	Causes	Solutions
1	Indicator ⚠ flashes.	• Polarity reversal • Battery voltage is too high • Clamps in short-circuit	• Check that the clamps are connected correctly • Check that the selected voltage matches the battery voltage.
2	The indicator ⚠ is on.	• Charge failure, battery cannot be recovered • Ambient temperature is too low to charge a LFP battery	• Change the battery and press MODE ▶ to restart a charge • Charge the battery at milder temperature or press the MODE ▶ button.
3	Indicator ⚠ stays on even after pressing MODE ▶ button	Thermal protection	Ambient temperature is too high (>50°C), cool the room and let the charger cool down.
4	Indicator ⏻ flashes.	Charger in sleep mode	Press button MODE ▶ or connect a battery to the charger to exit sleep mode.
5	Indicator ⏻ stays on.	Charge interrupted by pressing MODE ▶.	Press MODE ▶ again to restart the charge.

WARRANTY

The warranty covers faulty workmanship for 2 years from the date of purchase (parts and labour).

The warranty does not cover:
• Transit damage.
• Normal wear of parts (eg. : cables, clamps, etc..).
• Damages due to misuse (power supply error, dropping of equipment, disassembling).
• Environment related failures (pollution, rust, dust).

In case of failure, return the unit to your distributor together with:
- The proof of purchase (receipt etc ...)
- A description of the fault reported