

English

Safety warning

READ ALL SAFETY INFORMATION AND INSTRUCTIONS BEFORE USING THIS PRODUCT. Failure to follow these correctly may result in ELECTRIC SHOCK, EXPLOSION, FIRE, INJURY, DEATH or PROPERTY DAMAGE.

- Designed to charge 12V conventional lead acid batteries (WET, MF, SMF, CaCa, AGM and GEL) and compatible lithium (lithium-ion and LiFePO4) batteries only.
- Always refer to your battery manufacturer's recommendations before charging. (Some lithium-ion and LiFePO4 batteries are not suitable for charging).
- For suitable lithium types, ensure the battery is compatible with a 14.5V charge Voltage.
- Do not charge a lithium battery using lead acid settings or a lead acid battery on a lithium setting.
- Do not charge dry-cell or non-rechargeable batteries.
- Working in the vicinity of a lead acid battery is hazardous.
- Gas emitted during charging is potentially explosive.
- Ensure adequate ventilation as gas generated during charging is potentially explosive if allowed to accumulate in an enclosed area.
- Never smoke or allow flames or sparks in the vicinity of the charger or battery.
- Do not block battery valve or vent ports.
- Never charge a frozen battery.
- Avoid outdoor use and exposure to liquids.
- Only use accessories supplied with or manufactured for this charger by Yuasa.
- Unplug from mains power before maintenance cleaning.
- Turn off mains power before making or breaking connections to the battery.
- Avoid use with an extension cord.
- Do not operate if dropped or damaged in any way.
- Do not use if any cables are damaged.
- Do not disassemble the charger.
- Not to be used by children.
- Remove jewellery or personal metal items before handling the charger or battery.

Usage instructions

This charger is supplied with interchangeable plug options for use in the UK and EU.

Pre-charge & electrolyte level check

Check the battery electrolyte level (not required on sealed & maintenance free batteries). If necessary, remove the vent caps and add distilled water so the levels are halfway between the upper and lower fill lines.

Check the Voltage output button on the charger and make sure the correct Voltage has been selected.

Connecting the charger to your battery

If the battery is out of the vehicle:

Connect the red lead from the charger to the positive (+) battery terminal.

Connect the black lead from the charger to the negative (-) battery terminal.

If battery is in the vehicle:

The below is a guide, please consult your vehicle's owner manual for information and procedures on your specific vehicle.

Determine if the vehicle is positively or negatively earthed.

If negatively earthed (most common) - First connect the red lead from the charger to the positive (+) battery terminal and then connect the black lead from the charger lead to the vehicle's chassis and far away from the fuel line.

If positively earthed - First connect the black lead from the charger to the negative (-) battery terminal and then connect the red lead from the charger to the vehicle's chassis and far away from the fuel line.

Connect the battery charger to mains power

The charger will automatically start when mains power is connected and switched on.

(Note: If the LED fault indicator illuminates red, please check your connections as it is likely that the positive and negative leads are reversed. Refer to *Troubleshooting* for further information).

Disconnecting the battery charger from battery

If the battery is out of the vehicle:

Switch OFF and remove the mains power socket from the outlet and wait for a minimum of five minutes before disconnecting the charging leads.

Remove the black lead followed by the red lead.

Check electrolyte levels if possible. They may need topping up with distilled water after charging.

If the battery is in the vehicle:

Switch OFF and remove the mains power socket from the outlet and wait for a minimum of five minutes before disconnecting the charging leads.

Remove the lead from the vehicle chassis.

Remove the lead from the battery.

Check electrolyte levels if possible. They may need topping up with distilled water after charging.

Dual clamp to eyelet conversion

The charger is supplied with clamps that feature integrated eyelets. To convert the clamp into an eyelet, simply remove the retaining screw and washer. To reattach the clamps, follow this process in reverse (image 1).

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The eyelets can be used for permanent connection to a battery whilst it is fitted in a vehicle. They should be securely tucked out of the way and connected to the charger when using the connection plug when charging is required (image 2).

Selecting the correct charging rate

This charger is designed for 6V and 12V conventional lead acid and LiFePO4 batteries. The Ampere hours (Ah) capacities shown below are to be used as a general guide only. Always refer to the battery manufacturer's specifications and recommendations for your charging requirements. This charger is recommended for long term battery maintenance.

	YCX1.5
Charge rate	1.5A
Charging	2-30Ah
Maintenance	Up to 130Ah



LED charging indicators

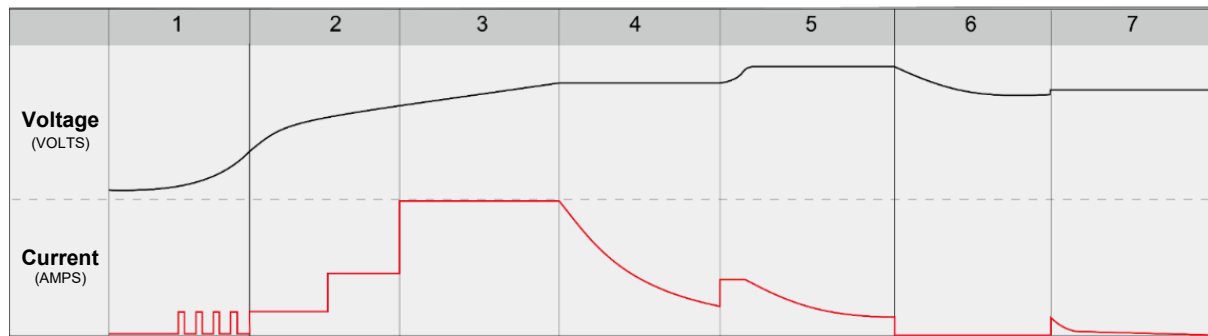
Fast flash = 0.2s ON and 0.2s OFF

Blinking = 0.2s ON and 1.8s OFF

Flashing = 0.5s ON and 0.5s OFF

LED	Status	Descriptions
6V LED	Amber ON	6V battery mode selected
12V LED	White ON	12V battery mode selected
6V or 12V LED	Blinking	In eco mode
	Flash	In soft start
	ON	In charging cycle, bulk charge or absorption charge
	ON	In float and maintenance mode or fully charged

Charging process



- 1) **Qualification** – Checks the battery's initial condition to determine if soft start charging or recovery mode charging is required.
- 2) **Soft-start** – Increases your battery life by gently starting to charge the battery until the battery reaches a set Voltage.
- 3) **Bulk** – Reduces charging time by delivering maximum charge until the battery reaches a set Voltage.
- 4) **Absorption 1** – Uses constant Voltage and ensures the battery receives charge without overcharging the battery.
- 5) **Absorption 2** – Steps up the constant Voltage and ensures the battery receives a full charge without overcharging the battery.
- 6) **Analysis** – This stage checks the condition of the battery after the charge cycle is completed. If the battery Voltage drops too quickly during the analysis mode, this means the battery is probably faulty.
- 7) **Float** – Maintains the battery at 100% charge.

LED warning indicators

LED	Status	Descriptions
	Flash	Battery weak or sulphated
	Flash	Charging timer timed out
	ON	Reverse polarity connection, output short circuit or battery cell shorted
	Fast flash	Charger overheating

Troubleshooting

Types of problems	Indication	Possible causes	Suggested solution
Charger does not work.	No indicator lights on.	No mains power.	Check mains connections and make sure power is switched ON.
Charger has no DC output.	LED fault indicator is ON.	Output is short circuited. Reverse polarity connection to battery.	Check DC connection between charger and battery and make sure they are not short circuiting. Check that the crocodile clips have not fallen off the battery. Check that the crocodile clips / eyelets are connected to the correct polarity.
No charging current.	LED fault indicator is ON and charging percentage LED bar flashing or blinking in sequence.	Battery is severely sulphated. Battery has a damaged cell.	Check the battery condition, age etc. Battery may need replacement. Check the battery capacity.
No charging current.	LED fault indicator is fast flashing.	Overheat protection mode.	Move battery and charger to cooler environment. Check the battery charger.
Full / float light will not come on or full LED flashing.	LED fault indicator is flashing. The charging percentage LED bar is flashing or ON.	Battery capacity too large for the battery charge setting and it has timed out or battery is slightly sulphated.	Check the charger specification matches the battery capacity. Battery cannot be charged and must be replaced. Charge rate selected might be too low. Switch charger off and on and try a higher charge rate setting, providing it doesn't exceed the maximum charge limit for your battery.

Maintenance

The charger is maintenance free. If the power cord is damaged, the charger must not be used. The case should be cleaned occasionally. The charger should be disconnected from the power while cleaning.

Technical specifications and features

Model Number	YCX1.5
Type	Smart
Input Voltage range	100-240Vac
Input frequency	50/60Hz
Output	1.5A @ 6V / 12V
Start Voltage	8.0V (1.0V for 6V mode)
Battery capacity	2-30Ah (2-13Ah for 6V mode)
Charging Voltage Max	14.5V (7.25V for 6V mode)
Float Voltage	13.6V (6.8V for 6V mode)
Size (L x W x H) mm	106 x 67 x 38
Weight	390g
Approvals	CE, EMC, UKCA, RoHS
Operating temperature	-10 to 40°C
Storage temperature	-25 to 85°C
Operating humidity range	95% RH max
IP rating	IP51

Internal overheat protection

If the charger overheats, the charging current will automatically decrease. When the temperature decreases, the charger will resume normal charging.

Timer protection

The charger provides the maximum charging time management for each charging stage. Once the charger is timed-out, the charger will stop charging to protect your battery and the LED fault indicator will flash red.

Reverse polarity

If reverse polarity occurs (output leads are connected backwards), the LED fault indicator will illuminate. To rectify the issue, simply unplug the charger from the mains power and properly adjust the connections as described in this manual.

Short circuit protection

If the charger output lead detects a short circuit, the LED fault indicator will illuminate. To rectify the issue, simply unplug the charger from the mains power and properly adjust the connections as described in this manual. *Note: Under reverse polarity or short circuit, the charger will not deliver any output current.*

Eco mode

This charger has a built in ultra-low power consumption circuit. If mains power is connected and the battery is disconnected, after 30 seconds the charger will automatically go into an eco mode. During this mode, the power drawn is less than 0.36W which totals to 0.01kWh per day.

If mains power is connected and the battery is connected, once the battery is fully charged and during the long-term maintenance stage, the total power consumption is around 0.03kWh per day.

The power LED light will flash red to indicate eco mode is on.

Disposal and warranty information

WEEE marking (disposal)

All GS Yuasa products shipped from 13 August 2005 that are subject to the WEEE directive are compliant with the WEEE marking requirement. Such products are marked with the WEEE symbol (shown right) in accordance with European Standard EN50419.

All old electrical equipment can be recycled. Please do not throw any electrical equipment 'including those marked with this symbol' in your bin.



Customer information

The symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.

Warranty

This product is guaranteed against premature failure due to manufacturing or material defects for a period of three years from the date of purchase. Within the warranty period, the customer must contact the authorised supplier or retailer where the product was purchased with proof of purchase in order to process the warranty claim.

Resellers may underwrite and offer extended warranties to end-users. Please consult your place of purchase for further details.

The warranty period commences on the date shown on the proof of purchase. The warranty is valid only for the purchaser of the battery charger and is not transferable.

If a replacement battery charger is offered, the warranty period runs from the date of purchase of the original battery charger.