



Exigent 720

Models

EXT12xx – EXT24xx – EXT36xx
EXT48xx – EXT60xx – EXT72xx

HF RESONANT ELECTRONIC BATTERY CHARGERS

OPERATING MANUAL

Do not operate the battery charger unless you have read and understood the details of this operating manual.



IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS – This manual contains important safety and operating instructions for battery charger Models EXT12xx – EXT24xx – EXT36xx – EXT48xx – EXT60xx – EXT72xx.

Before using the battery charger, read all instructions and cautionary markings on the charger, battery pack, and product powered by the battery.

CAUTION – To reduce risk of injury, charge only the type of batteries indicated on the charger. Other types of batteries may burst causing personal injury and damage.

GENERAL INFORMATION

- This device is an electronic battery charger with microprocessor control.
- Charging process is fully automatic, protected against overload, short-circuit, reversed polarity and overtemperature.
- The charger is protected against dust ingress and water spray (IP67 / NEMA6).

WARNINGS

- This charger should not be used by persons with a lack of experience and knowledge on electrical systems and battery charging unless they have been trained by and/or supervised by a suitably knowledgeable and experienced person.
- Before starting to charge, make sure the voltage of the charger matches the voltage of the battery, that the charging current suits the capacity of the battery and that the selected charging curve is correct for the type of battery to be charged.
- Make sure the rated input voltage of the charger suits the available supply voltage.
- **Danger:** Risk of electric shock.
- Make sure the AC supply is grounded.
- Make sure the AC supply cord is in good condition and that it is securely connected to the charger before use.
- **Caution:** The AC inlet connection itself is not protected against water intrusion. Protect the AC connection if used in wet or dusty environments.
- Make sure the DC cables and DC connector are good condition before use.

- Do not use the battery charger if there are any signs of physical damage that may have affected the integrity of the case.
- DO NOT OPEN the charger by removing the base plate, there are no user serviceable components inside.
- WARRANTY IS VOID if there are any signs that the charger has been opened.
- Never disconnect the battery while charging; this could cause sparks.
- Never use the equipment in the rain, in areas used for washing down equipment or in damp areas.
- Gases generated by some battery types during charging are explosive. Do not smoke in the vicinity of the batteries.
- Do not operate the charger in an explosive environment.
- Do not operate the charger near flammable liquid such as gasoline, oil or other volatile substances.
- Do not use on damaged battery packs.
- Never charge a frozen battery.
- Pay attention to any warnings provided by the battery manufacturer and equipment manufacturer.

HEALTH HAZARD

- Use protective glasses and gloves during battery maintenance. A damaged or leaking battery can cause chemical burns on contact.
- In case of contact with battery acid, wash the affected parts with fresh water and seek medical attention.

STAND ALONE OR WALL MOUNT OR ON-BOARD INSTALLATION

- This charger is suitable for stand alone use, bulkhead/wall mounting or onboard use.
- Before use: Insert the IEC socket end of the AC charging cord into the **INPUT** port of the charger, making sure it is firmly in place, and secure it using the supplied clamp by firmly tightening the screw.
- For stand-alone use, skip to “OPERATION” below.
- For bulkhead/wall mounting, remove the rubber feet and use the holes in the base plate and/or slotted holes to secure to a non-flammable mounting surface with your own fasteners. Do not overtighten fasteners as the base plate could be damaged. Skip to “OPERATION” below
- For onboard use, note the following:
 - The handle can be removed if necessary by removing the 2 securing screws. **DO NOT REMOVE** the blue cover of the charger protecting the cooling fan and equipment operators.
 - The charger is supplied with an inhibit / interlock connection. The connection internally is to a NC relay that opens when the charger is energized with AC power. Remove the black cover on the connector and install the inhibit cable assembly supplied with the charger. The inhibit cable assembly can be trimmed to length and fitted with terminals to suit your application. There is no polarity to be observed when making a connection to your equipment controls.
 - Remove the rubber feet and use the holes in the base plate to secure to a mounting surface with your own fasteners. Do not overtighten fasteners as the base plate could be damaged.
 - Place the thermal sensor in a location as near to the centre of the battery pack, and away from any heat sources. It can be secured to a clean flat surface using the adhesive pad on the back.
 - Do not shorten the DC cables.

OPERATION

- **IMPORTANT:** Check that the battery type setting of the charger is suitable for the battery type
- Check the polarity of the battery pack, and connect to the battery charger to the batteries.
- Place the remote thermal sensor in a location where it can read the ambient air temperature, away from heat sources.
- Plug the charger into the AC supply, thus starting the automatic charging cycle.
- The cooling fan will briefly turn on, then the charging indicator will flash red, then yellow, then green.
- The yellow LED will then flash 1, 2, 3, 4 or 5 times depending on the charging curve set at the factory or as set by the user with the infrared controller. The factory default is position 1.
- If all internal checks are OK, the fan will begin running and the output begins with the bulk charging phase, with the red LED ON.
- When the red LED is ON followed by the yellow LED being ON (repeating), the charger is in the second phase.
- When the yellow LED is ON the charger is in the third phase
- When the green LED is ON, the charger is in the final phase and it indicates the charge is complete.
- When current output is at a sufficiently low level, the fan will turn off.
- Before using the batteries, disconnect the AC power to the charger, then disconnect the charger from the battery pack.
- If other led colours flash at any time – consult the table of errors below.

ERRORS

- In the case of abnormal operation, the LED indicator on the charger will flash to indicate various possible errors.
- Use the table below to determine the meaning and action required to overcome the error.

Phase Errors		
Error Code Flash	Meaning	Action Required
yellow led flashing 1x, pause 1s, repeat	time-out error in phase 1	check condition of batteries
yellow led flashing 2x, pause 1s, repeat	time-out error in phase 2	check condition of batteries
red, then yellow then green flash 1x - pause 5s. repeat	phase 1 watchdog	check current output of charger
red on 1s, off 1s, repeat	global timer error	check condition of batteries
		check condition of batteries
		check current output of charger
		check that the charger is sized correctly for the battery capacity

Operation Errors		
Error Code Flash	Meaning	Action Required
red led flashes 3x, pause 2s, repeat	overvoltage or overcurrent	check voltage of connected batteries
red led flashes 4x, pause 2s, repeat	ambient temperature error	call dealer for service
red led flashes 5x, pause 2s, repeat	thermal probe damaged	check operating conditions - temperature
red led flashes 6x, pause 2s, repeat	charger overheating	replace thermal probe
red led flashes 7x, pause 2s, repeat	output undervoltage	check fan operation
continuous red led flashing	AC input anomaly	check conditions during use
	internal component fault	call dealer for service
		check AC power supply voltage
		call dealer for service

SERVICE

- DO NOT OPEN the charger, there are no user serviceable components inside.
- WARRANTY IS VOID if there are any signs that the charger has been opened.
- Qualified technicians can replace the external cooling fan if it becomes inoperable. If damaged, the remote thermal sensor can be replaced.
- Use only BTI replacement parts when performing repairs.

INFRARED PROGRAMMER

- If it is desired to change the battery type setting of the charger, it can be accomplished with our infrared programmer.
- The programmer allows the user or technician to select from 5 different pre-programmed charging curves. The charging curve related to the number is dependent on the charger firmware.
- **CAUTION:** Changing charging profiles without sufficient understanding or technical knowledge can lead to battery damage and possible safety issues. Contact your dealer for assistance.
- See infrared operating instructions below.

Infrared Programmer Operating Instructions


Without a DC connection to a battery pack, connect AC power to the battery charger.


The LED indicator will show red then yellow then green once.

Since there is no DC connection an error code will be shown red flash then green flash, repeated 3 times.

After about 10 seconds the charger will enter a WAITING STATE, with no leds lit.

While the charger is in this WAITING STATE, it can be reprogrammed.

With the IR programmer in close proximity to and pointed at the LED charge status indicator, press the red button  on the programmer followed by the default password 1234 by pressing button 1, then 2 then 3 then 4. The yellow LED will then be lit.

Now press the blue button  on the controller, followed by the curve # desired. 1,2,3,4 or 5

The green LED will flash once showing the signal has been received, followed by 1, 2, 3, 4 or 5 yellow flashes to confirm which curve # was selected.

Disconnect the AC power, wait 10-15 seconds. A click will be heard indication shut down.

The charger is now ready to use with the programmed curve.

On start-up, the charger will flash the yellow LED 1, 2, 3, 4 or 5 times to confirm the curve # selection.

It is recommended that the rating label is then marked indicating the new curve #.



RATING LABEL

- The rating label shows the **Model** of charger, **Input** voltage, DC **Output** voltage and current.
- The **Firmware** version and factory default battery type **Setting** is also shown.
- If the battery type setting is changed using the infrared programmer, it is recommended that this is noted on the label.
- Before changing battery type setting, be sure to check the relevant BTI technical documents that match the firmware version of your charger.
- A [sample](#) product rating label is on the following page.
- [Review the details on your charger before use!](#)



CP/N:
P/N: 630.24250301
Model / Modèle: EXT2425
Input / Entrée:
100- 240VAC, 50/60Hz, Max 8.5A

Output / Sortie: 24V 25A
Firmware / Microprog.: 720-01
Setting / Réglage: (1) IUlo FLA
 (2) IUIUo AGM (3) IUla AGM
 (4) IUUo AGM (5) IUUo GEL

Exigent 720

Serial Number / N° série: 200710000

WARNING LABEL

- A sample product warning label is below.
- Review the details on your charger before use!



CAUTION: CHARGE ONLY FLOODED LEAD-ACID OR GEL OR AGM BATTERIES. OTHER TYPES OF BATTERY MAY BURST CAUSING PERSONAL INJURY AND DAMAGE.

ATTENTION: UNIQUEMENT POUR LA RECHARGE DE BATTERIES À ÉLECTROLYTE LIQUIDE OU GÉLIFIÉ OU DE TYPE AGM. LES AUTRES TYPES DE BATTERIES PEUVENT ÉCLATER ET CAUSER DE GRAVES BLESSURES OU DES DOMMAGES.

CAUTION: INDOOR USE ONLY.

ATTENTION: UTILISER À L'INTÉRIEUR SEULEMENT.

BACKFEED PROTECTION. PROTECTION CONTRE L'INVERSION DE COURANT.



WARNING: TO REDUCE THE RISK OF FIRE, USE THE CHARGER ONLY ON CIRCUITS PROVIDED WITH MAXIMUM 20 AMPERES (15 IN CANADA) BRANCH CIRCUIT PROTECTION IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ANSI / NFPA 70.

ATTENTION: POUR RÉDUIRE LE RISQUE D'INCENDIE, CE CHARGEUR DOIT ÊTRE ALIMENTÉ PAR UN CIRCUIT D'UNE CAPACITÉ MAXIMALE DE 20 A (AU CANADA: 15 A), CONFORMÉMENT AU NATIONAL ELECTRICAL CODE, ANSI / NFPA 70.



WARNING: UNPLUG CHARGER BEFORE DISCONNECTING BATTERY.

ATTENTION: DÉBRANCHEZ LE CHARGEUR AVANT LA BATTERIE.

TECHNICAL DATA

- AC Input voltage range: 85-265V AC, 50-60Hz
- AC Nominal voltage input: 100 – 240VAC
- AC current input: 8.5A max.
- AC Power factor: >0.99
- AC Input connector: IEC 320 / C13
- Thermal protection against overheating.
- Operating temperature: -35°C to +65°C (-30°F to 149°F)
- Power Derating: 1.5A/°C., 40°C - 55°C
- Temperature compensation: 0.005mV/cell/°C.
- Backfeed Protection

REGULATORY AND COMPLIANCE

- The *Exigent 720* is TÜV Approved
Complies with UL 1012:2010 R4.16 and CAN/CSA-C22.2 No. 107.2-01 + G11 + G12
- The *Exigent 720* is CEC compliant.
- The *Exigent 720* is CE compliant.
Low Voltage Directive 2014/35/EU, Electromagnetic Compatibility 2014/30/EU
EN 55014-1 :2017, EN 55014-2:2015, EN 61000-3-2:2014, EN 61000-3-3:2013,
EN 60335-1 :2012+A 11:2014+A 13:2017, EN 60335-2-29:2004/A 11 :2018, EN 62233:2008
- The *Exigent 720* is RoHS compliant.
- The *Exigent 720* complies with FCC Part 15B.



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