

TDB700 INTELLIGENT BATTERY CHARGER AND POWER SUPPLY

OPERATING MANUAL



The Diagnostic **BOX**.com

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IMPORTANT INFORMATION



WARNING!

Risk of explosion! Batteries produce explosive gases during normal battery charging

Possible sources of ignition, such as flames, sparks and lamps, must be kept away from batteries. Do not allow corrosive battery electrolyte to contact eyes, skin or clothing

Magnetic fields can affect pacemakers, keep away from the equipment. Wearers should consult their doctor before going near equipment.

Do not touch any live electrical parts. Wear dry, hole-free insulating gloves and body protection.

Touching live electrical parts can cause fatal shocks or severe burns. High voltage exists in the power supply socket. Never touch the conductor terminals.

Input power installation must meet national standards. All electrical connections must be made by a qualified electrician. Insulated gloves and shoes must be worn when connecting input power or maintaining equipment.

Never disassemble, repair, alter or rebuild the equipment without approval from the manufacturer. There is a risk for electrical shock and fire. Electric shock can kill.

In the event of problems, stop all use of the equipment. Any smoke, smell or abnormal noise produced by the unit, disconnect the power cord immediately and contact your local dealer. Do not use it until the problem is fixed.

Do not operate or place the device near water or in wet locations. Risk of electrical shock or damage to the device.

Do not operate the equipment in potential hazardous areas : chemicals, oil, gas etc

Improper use of this equipment can cause personal injury or property damage

Frequently inspect input power cord and regularly clean the unit to remove dust and dirt. Any worn or damaged power cord or internal components in heavy dust may cause electrical shock, short circuit or fire.

Inspect and maintain the device for safety every 12 months, including cleaning and removing dust. Repair or replace damaged parts/ cables at once.

There are precautions printed on the top of the machine. Check whether the environment where the machine is placed meets the requirements. Otherwise, the charger or the device connected to the charger may be damaged

This machine can only charge rechargeable batteries that conform to the battery specifications. It is strictly forbidden to charge disposable batteries.

TDB700 INTELLIGENT BATTERY CHARGER AND POWER SUPPLY

INTRODUCTION

The TDB700 Intelligent Battery Charger and Power Supply from The Diagnostic Box is a MUST for anyone involved in marine or vehicle diagnostics. Most of the newer vehicles and engine management systems are complex micro computer systems and require good battery voltage supply to maintain their functions correctly.

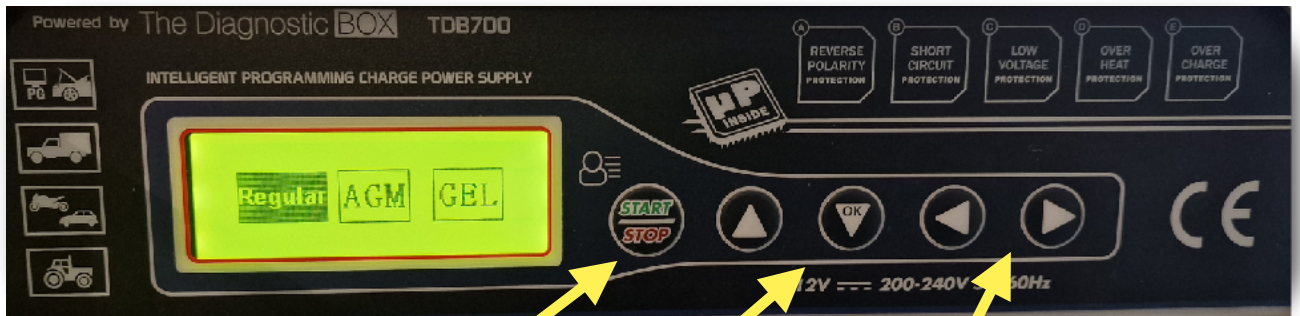
The TDB700 offers a steady and stable supply for various applications. Whether you are key programming, updating engine management systems or just performing general diagnostics then the TDB700 should be connected.

The TDB700 comes with heavy duty red and black charging cables for connection to all types of 12 volt batteries and an extra long 240v power lead.

The TDB700 has modes for charging, starting, repair, programming and showroom. It also has protection features that operate for overcharge, overheating, low voltage, short circuit and reverse polarity protection.



GENERAL OPERATION



1.Navigation -**RIGHT** and **LEFT**

2.Navigation -**UP DOWN** and **OK** buttons

3.Start/Stop -Press and **HOLD**

LANGUAGE SELECTION

Press **LEFT** and **RIGHT** buttons at the same time to change the language.

OVERCHARGE PROTECTION

Overcharge protection: When the charger is in operation, it will automatically shut down to prevent batteries from becoming overcharged.

OVERHEATING PROTECTION

The charger will automatically shut down when the internal temperature is too high .The fan will start and the alarm will sound.

LOW VOLTAGE PROTECTION

Low voltage protection: The charger will not work if the input voltage is lower than required.

GENERAL OPERATION

SHORT CIRCUIT PROTECTION

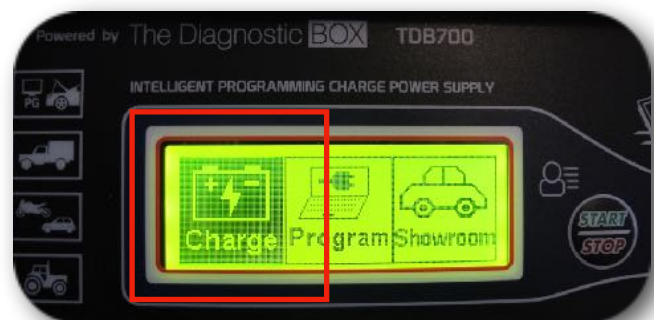
Short circuit protection: The charger will not work if the battery is damaged or has an internal short-circuit. The alarm will sound.

REVERSE POLARITY PROTECTION

Reverse Polarity Protection: When the clamps are connected incorrectly the LCD will show the battery clamps reversed and the alarm will sound.

GENERAL OPERATION CHARGING MODE

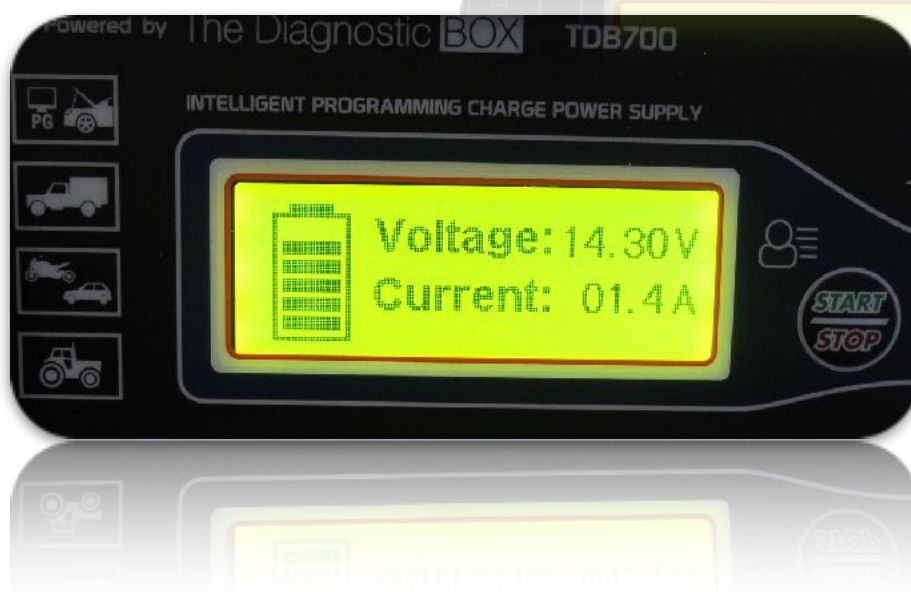
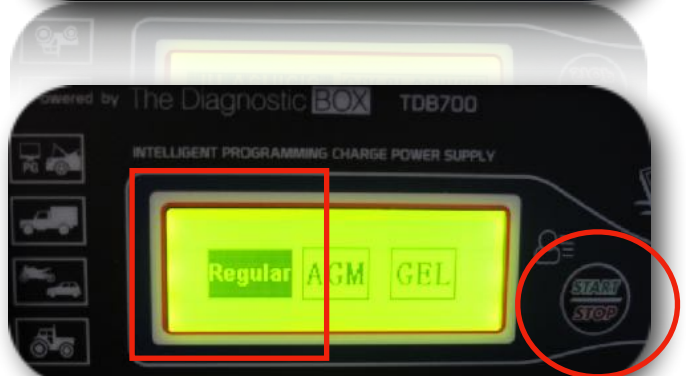
SELECT THE **CHARGE** ICON MODE FROM MENU



SELECT IN **VEHICLE** OR **OUT OF VEHICLE** ICON FROM MENU



SELECT THE TYPE OF BATTERY AND PRESS THE **START STOP** BUTTON

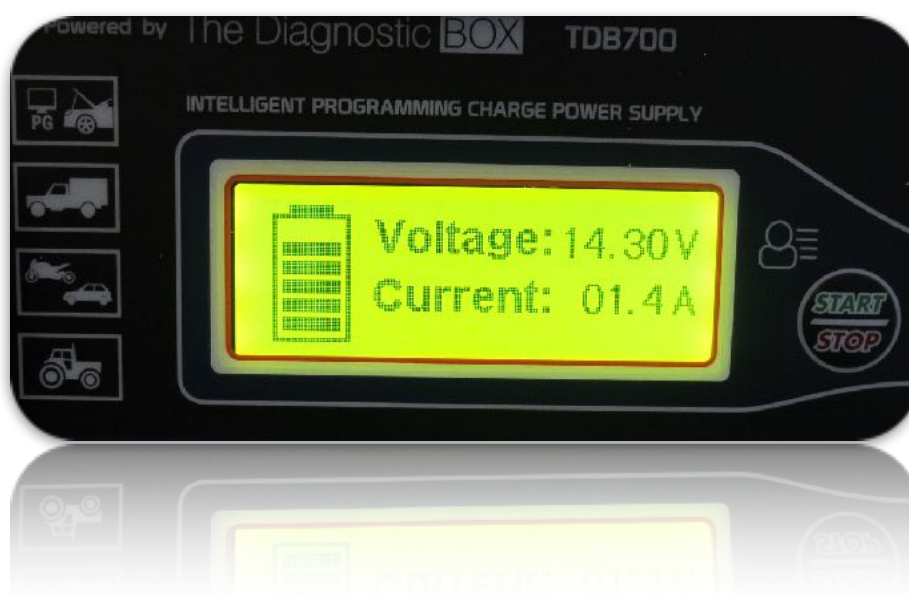


GENERAL OPERATION STARTING MODE

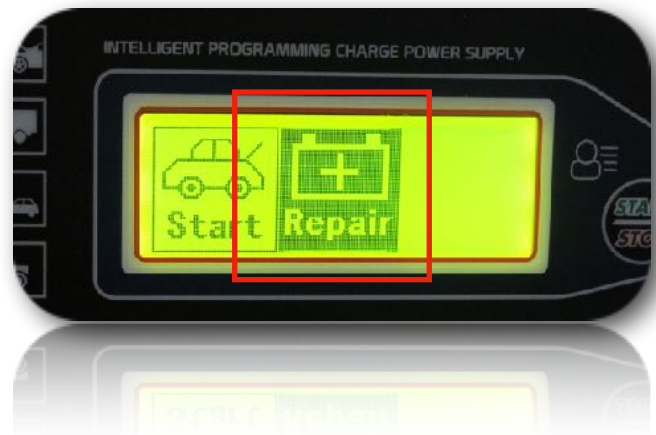
SELECT THE **START** ICON FROM MENU



PRESS THE **START STOP** BUTTON



GENERAL OPERATION REPAIR MODE

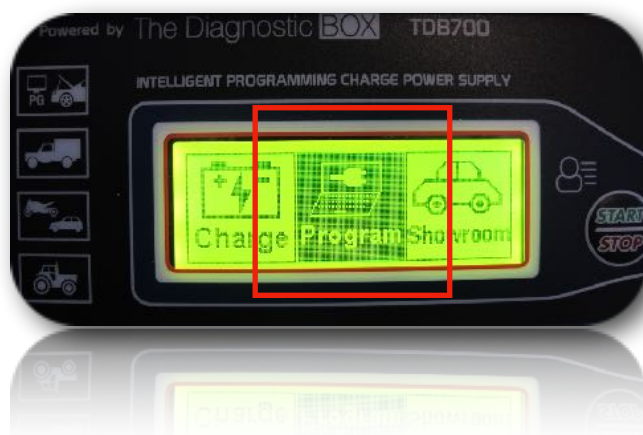


PRESS THE **START STOP** BUTTON



GENERAL OPERATION PROGRAMMING MODE

PRESS THE **OK** BUTTON



SELECT THE REQUIRE SETTING AND PRESS **START/STOP** BUTTON



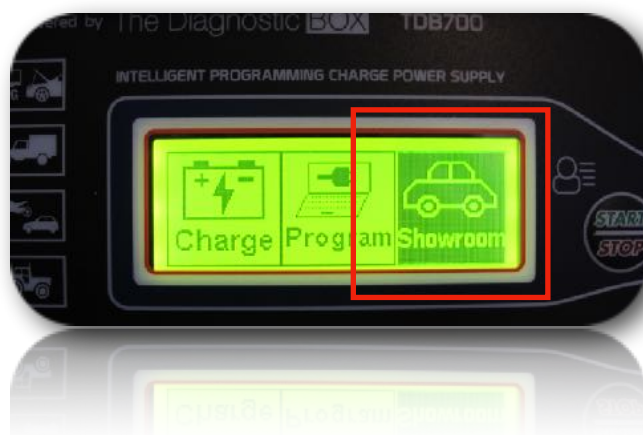
TO ADJUST THE VOLTAGE IN ADJUSTABLE MODE PRESS THE **RIGHT** AND **DOWN** BUTTONS TOGETHER TO ENTER ADJUSTMENT MODE.

THE ICON ON THE SCREEN WILL CHANGE TO SHOW THE TOOLS.

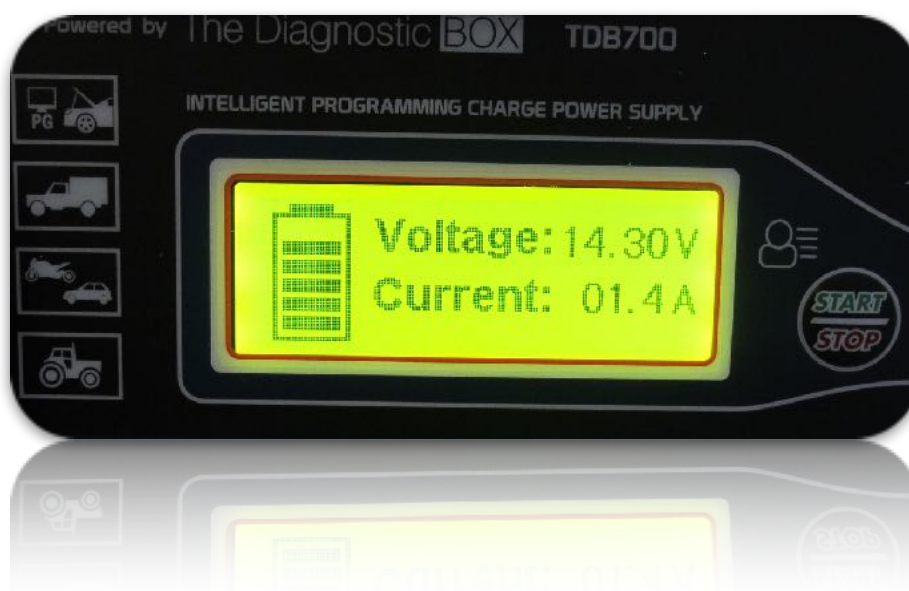
NOW PRESS **RIGHT** BUTTON TO INCREASE VOLTAGE AND **LEFT** BUTTON TO DECREASE VOLTAGE.

GENERAL OPERATION SHOWROOM MODE

PRESS THE **OK** BUTTON



SELECT THE REQUIRE SETTING AND PRESS **START/STOP** BUTTON



BATTERY TYPES

1. Wet cell batteries (SLI) – proven and economical

A conventional starter battery consists of six battery cells. A battery cell, also referred to as a plate block, consists of a positive and a negative set of plates, which in turn consists of several electrodes.

A positive electrode consists of active material made from lead oxide and a positive grid made of lead alloy. The grid structure gives the electrodes a solid structure and at the same time serves as an electrical conductor. The active material is immersed in an electrolyte, a mixture of acid and distilled water.

A negative electrode also consists of active material, however in this case made of pure lead, and a negative grid. The electrodes with different polarities are separated by a separator. The required battery capacity is achieved by connecting the individual plates in the cell in parallel. Connecting the individual cells in series produces the required voltage of 12 Volt.

Conventional batteries such as lead-acid batteries are the most common types of battery. This technology is often referred to as SLI, which relates to the main functions of a vehicle battery: Starting, Lighting, and Ignition. They are suitable for vehicles without start-stop technology and a moderate number of electrical consumers.

2. EFB batteries – many charging cycles and long life

EFB batteries are an optimised, higher performance version of the wet battery. The abbreviation "EFB" stands for "Enhanced Flooded Battery". Here too, the plates are insulated from each other with a microporous separator. Between the plate and the separator there is also a polyester scrim. This material helps to stabilise the active material of the plates and extend the life of the battery. EFB batteries have a large number of possible charging cycles and provide more than double the partial and deep discharge performance in comparison with conventional batteries.

EFB batteries are often installed in vehicles with simple automatic start-stop systems. Due to their superior performance batteries with EFB technology are also increasingly used as replacements for conventional lead-acid batteries.

3. AGM batteries – high performance and load capacity

AGM batteries are versatile, have high performance and are designed for high demands. In principle, the structure of an AGM battery is the same as that of a wet cell battery. However, in an AGM the electrolyte is no longer free-floating, but rather is bound in a special glass fiber separator – hence the name "Absorbent Glass Mat". The large contact area contributes to the power output and also makes the battery leak-proof. Due to its construction, the battery is sealed airtight. This feature enables internal recombination of oxygen and hydrogen, so that there is no water loss. To protect against excess pressure, the individual battery cells are equipped with a safety valve, so that they remain safe, even in case of a fault.

With regard to their service life, AGM batteries have significant advantages over simple starter batteries. An AGM battery can withstand three times more cycle life than a conventional starter battery. A further advantage of AGM batteries is that they are not dependent on their position, as due to the binding

SPECIFICATION

INPUT VOLTAGE	220-240V
FREQUENCY	50/60Hz
INPUT POWER	1200 WATTS
MAXIMUM CURRENT	100 AMPS
MAXIMUM STARTING CURRENT	60 TO 220 AMPS
OUTPUT VOLTAGE	12 VOLTS
PROGRAMMING MODE VOLTAGE	2-14 VOLTS/2-100 AMPS
BATTERY CAPACITY	10 TO 1200 aH
CHARGE CABLE LENGTH	2.5 METRES
DIMENSIONS	43cm x 35cm x 14 cm
WEIGHT	8.5Kg

DECLARATION OF CONFORMITY

Manufacturer's Name: The Diagnostic Box

Manufacturer's Address: The Diagnostic Box
Diagnostic Box House
Unit 13, Torr Trade Park
East Allington
Totnes
TQ9 7FA
United Kingdom

Product Name: Intelligent Battery Charger and Power Supply

Product Model: TDB700

Test Standards

EMC	EN IEC 61000-6-2:2019
	EN IEC 61000-6-4:2019
	EN 61000-3-12:2011
	EN IEC 61000-3-11-:2019
LVD	EN 60204-1:2018
MD	2006/42/EC ANNEXI:
	EN ISO 12100:2010

TDB700 November 2024

Signed on behalf of The Diagnostic Box