User manual

BB-16

EN Read this manual carefully, before the first use

1.800.561.8187 www.itm.com information@itm.com

This booklet has been prepared to help you use the **BB-16** blower.

The instructions for use and safety guidelines must be followed in order to prevent any accident. Any disassembly or repair must be performed by **TEMPEST** or an approved dealer.

Reference product :

Reference	Product
910-1801	**BB-16** 110v Standard w/Battery No External Charger
910-1802	**BB-16** 110v Standard Plus w/Battery & External Charger
910-1803	**BB-16** 110v Delux w/2 Batteries & 1 External Charger
910-1811	**BB-16** 220v Standard w/1 Battery No External Charger
910-1812	**BB-16** 220v Standard Plus w/Battery & External Charger
910-1813	**BB-16** 220v Delux w/2 Batteries & 1 External Charger

Contents

EN

Contents

1 INTRODUCTION

BB-16 is a battery-powered self-contained fan. It is powered by batteries or AC power. Easy to install; easily stored in the boot of a response vehicle and can be carried by one person. There are 1 version for each power supply:

BB-16	110V power supply	230V power supply
	50-minute battery	

The 110V version will not work on a 230V power supply.

The 230V version complies with EN50178.

The 110V version is compatible with US circuit breakers (GFCI).

2 SAFETY INSTRUCTIONS

- This equipment has been manufactured in accordance with **CE** directives. Its use is restricted to firefighting professionals.
- Please read this manual in full as well as the instructions for use before commissioning and using the equipment.
- Keep fingers and hands away from the impeller.
- Only qualified personnel should operate or repair this device.
- Do not use it if you can see any damage.
- Never move the fan when it is running.
- **Non-ATEX** electrical blower fan: the BB-16 should not be used in explosive atmospheres.
- Always replace parts with original spare parts provided by **TEMPEST**.
- Wear protective goggles, gloves and hearing protection when using the fan.
- Do not use wedges or other systems to increase the fan's pitch.
- Do not wear clothes that are too loose which could be caught by the fan.
- The device should not be disassembled when switched on.
- The battery should only be replaced by an accredited professional (low power electrical accreditation) or by **TEMPEST**.
- Never allow a person to use the device without having provided them with the necessary instructions.
- Do not clean with a high-pressure washer.
- The **BB-16** has a **lithium-ion** battery.
- Lithium-ion batteries can be dangerous if not used and handled correctly. Improper use of your battery can risk fire or explosion.

3 PRECAUTIONS

➢ **Before use :**

- Visually inspect the **BB-16** and its accessories to check there is no damage.
- If there is an unusual noise or the turbine impeller gets jammed, stop immediately and inform **TEMPEST**.
- The instructions for use and safety guidelines must be followed in order to prevent any accident. Any disassembly or repair must be performed by **TEMPEST** or an approved operator.
- This device has a **Lithium** battery Li-ion, and therefore it does not need to be discharged before recharging.

Note: The **BB-16** battery is shipped at a state-of-charge under **30%** in accordance with regulations on Li-ion battery transport.

- Only use the battery for your **BB-16** and not for other purposes.
- Do not try to open, cut, pierce or crush the battery.
- Ensure that the **BB-16** is charged in an environment with a temperature between **0°C** (32°F) **and +40°C** (104°F) **max.**

Note: The BB-16 battery will not charge at temperatures below **0°C** (32°F).

- For prolonged battery storage, we recommend that it is kept fully charged in a cool and dry location.
- Do not store the battery somewhere which is too hot **(over 40°C** (104°F)**)** or too cold **(-5°C)** (41°F). The ambient storage temperature should ideally be between **5°C** (41°F) and **35°C** (95°F).

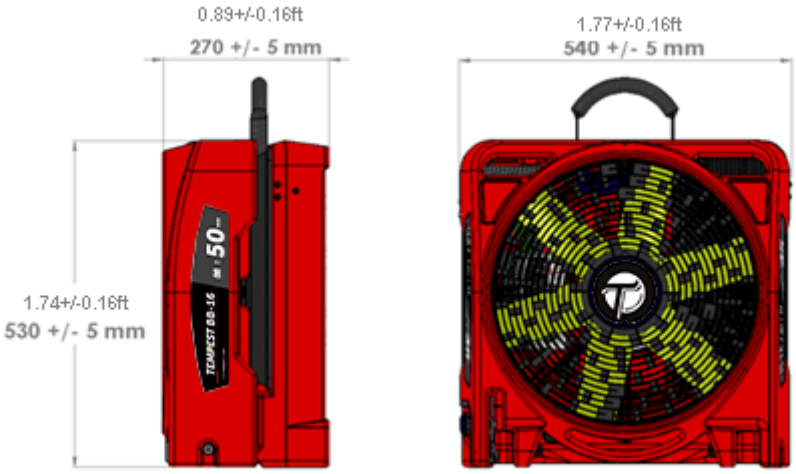
Note: Do not leave the battery near excessive heat such as in a car in direct sunlight, or the battery's features and life span might be negatively affected.

- Use between **-20°C** (-4°F) **and +55°C** (131°F) on mains power.
  -20°C (-4°F) **to +55°C** (131°F) on battery power (whilst respecting storage temperatures).
- The **BB-16** equipped with its extraction duct **(option)** is designed for gas temperatures up to **60 °C** (140° F).

Note: Ensure that each person responsible for the device/using this device has read the user instructions and safety guidelines relating to a rotating machine.

4 GENERAL FEATURES

❖ **Dimensions in storage position**



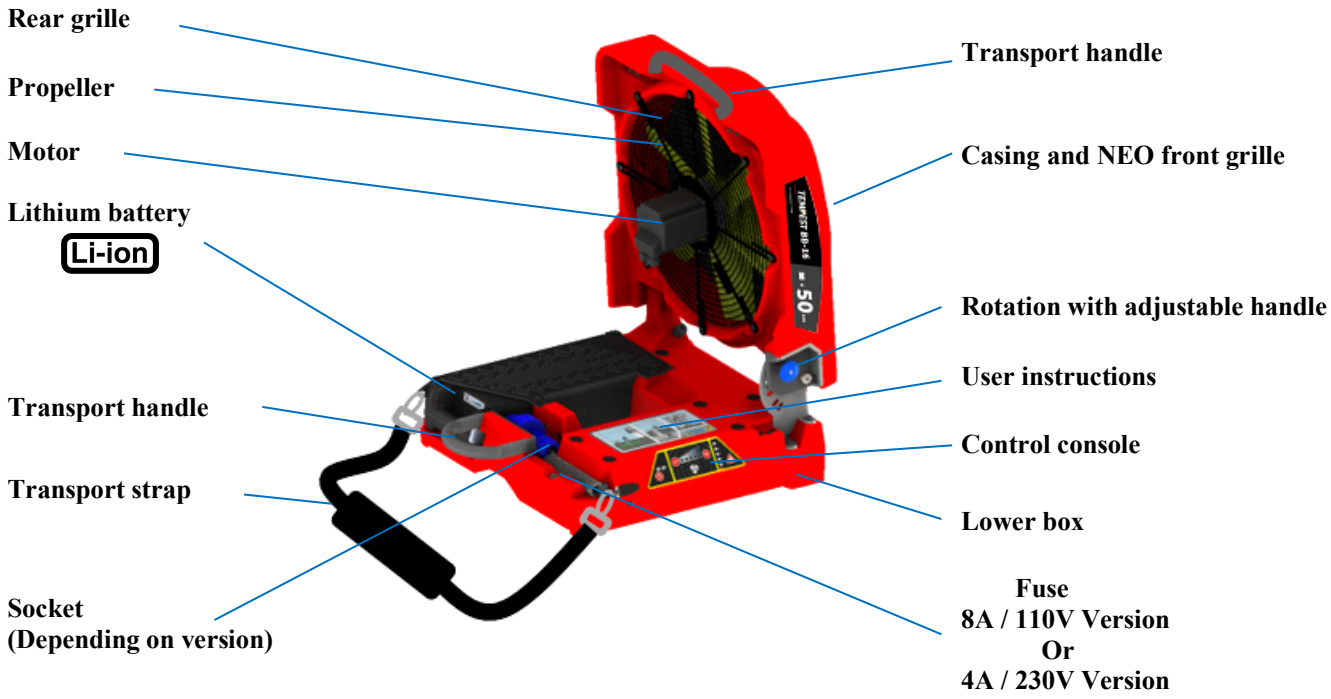
❖ **Features**

	BB-16	
Weight	23.5 Kg +/-0.5kg (51.81 +/- ib 1.1 ib) With battery, 19.4 Kg +/-0.5kg (42.8 ib +/-1.1 ib) Without battery	
Battery at full capacity	50 minutes	
Battery	12.5 Ah	
Recharge time	External charger :100% in 3h, 80% in 1h40, Internal charger : 7h30	
Power	Single phase110v - 50/60Hz	Single phase 230v – 50/60Hz
Consumption in steady state	8 A	4 A
AC power supply	US Male pin socket 125V/15A 2P+Grounding (3Wires)	CE Male pin socket 230V/16A/50-60Hz IP68 2 P + T
Free air delivery	On AC power supply 29270 m³/h (17215 CFM). With battery 29270 m³/h (17215 CFM)	
VPP flow according to AMCA 240	18600 m³/h (10940 CFM).	
Motor with speed controller	600 W	
Sound level	76.8 db at 3m (9.85ft)	
Air flow angle	+65° at -90°	
Protection rating	IP66 (Totally protected against dust, protected against powerful water jets from all angles)	
Charger	Integrated	
Propeller	Résine composite - ø 420mm (1.38ft)	
Turbine protective casing and box	Two-layer polyethylene	
Front grille	Composite material	
Handling parts	Composite material	

5 PRESENTATION

BB-16 is equipped with a lateral control console and benefits from Easy **Pow 'Air** technology and a **NEO** grille.

➢ **Description :**



➢ **Available options :**

Designation	Reference
"Rehab" mister	**I60.20.164**
High-expansion foam adapter - BSP F ¾" input	**I60.20.105**
5m (16 4ft) blowing and suction spiral sheath	**I63.20.025**
50 m (164ft) 3G x 2.5 mm² extension cable in a bag with lockable European sockets for 230V version	**I60.00.016**
BB-16 external charger EU plug	**I63.12.301**
BB-16 external charger US plug	**585-035**
BB-16 Battery	**585-005**

6 COMMISSIONING INSTRUCTIONS

- On delivery, visually inspect **BB-16** and its accessories to ensure there was no damage during transport.

Do not try and use BB-16 if you notice any damage, contact TEMPEST immediately.

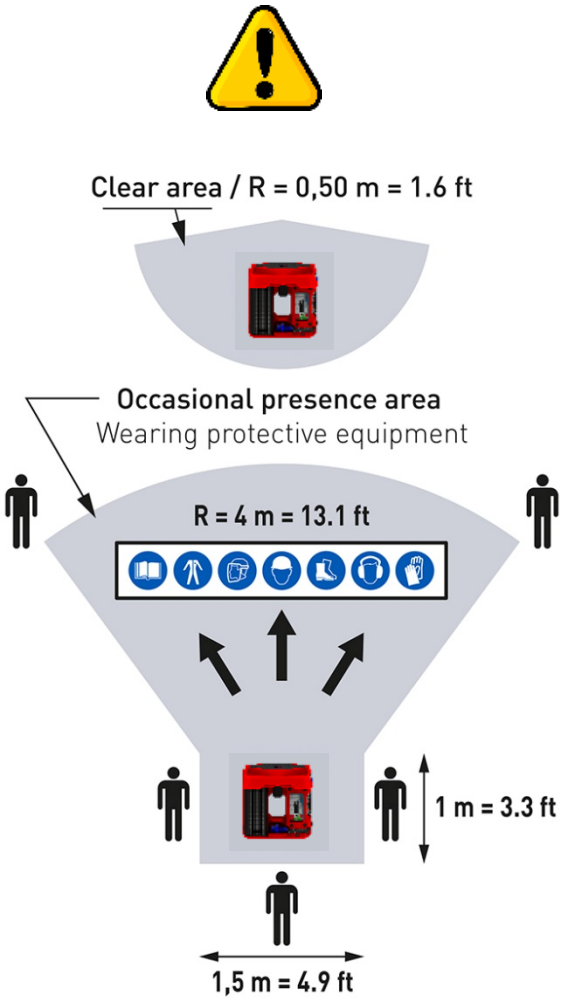
A fuse is provided for surge protection (110V or 230V).

Ensure that each person responsible for the device/using this device has read the user instructions and safety guidelines.

7 SETUP

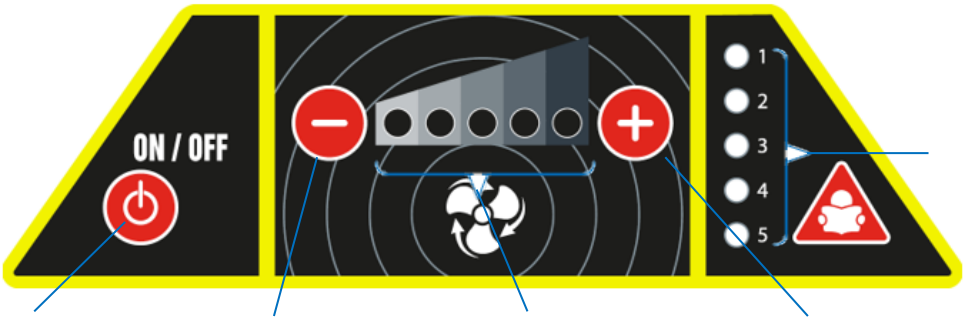
➢ The **BB-16** fan can be used indoors and outdoors.

➢ **USAGE PRECAUTIONS**

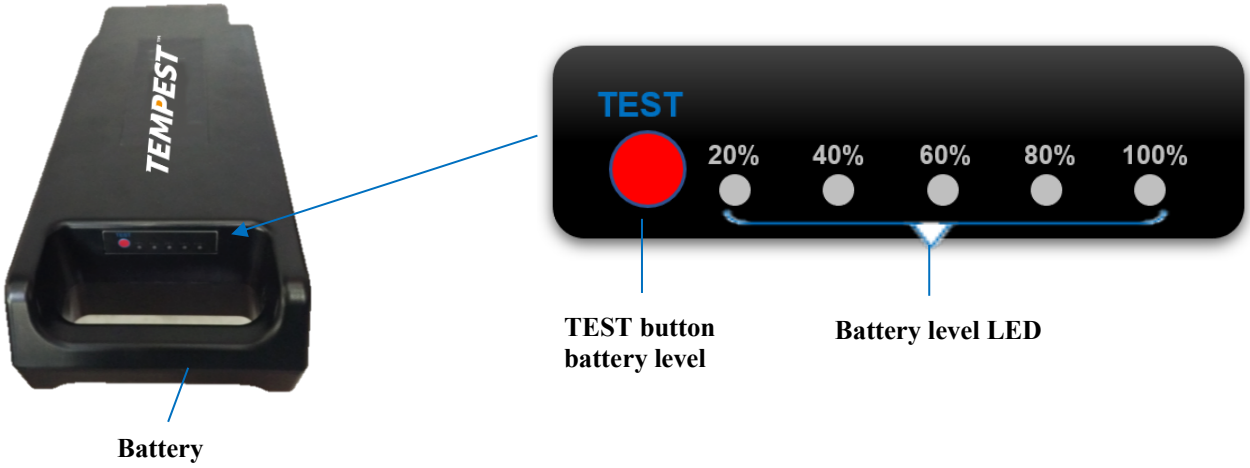


Note: the **BB-16** fan is a high-speed air drive fan.
This portable fan is designed to remove smoke, volatile gas and other gas by blowing (or ventilation with excess pressure) in all types of facility where there is an outlet. It can also be used for suction of cold smoke (<60°C) (140°F).
Due to their design, BB-16 fans can be used at a distance from **0.5 to 6m** (1.6 to 19.69ft) from an opening.
TEMPEST recommends a minimum smoke removal opening the same size as the window.

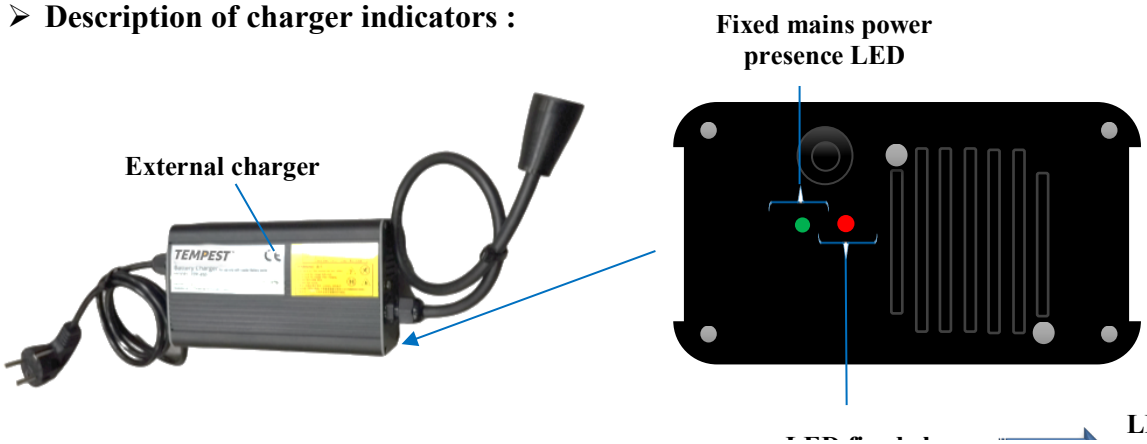
➢ **Description of control console :**



➢ **Description of the battery level display:**



➢ **Description of charger indicators :**



8 USE

BB-16 is self-contained, there is no need to provide a power cord up the stairs.

Always keep hands away from moving parts.

If the battery is low, use the mains power

1/ Charging the battery :

Due to transport regulations, the batteries are shipped and delivered at a state-of-charge under 30%. * This level is a **TEMPEST** pre-requisite.

On receipt of your **BB-16**, start by charging its battery.

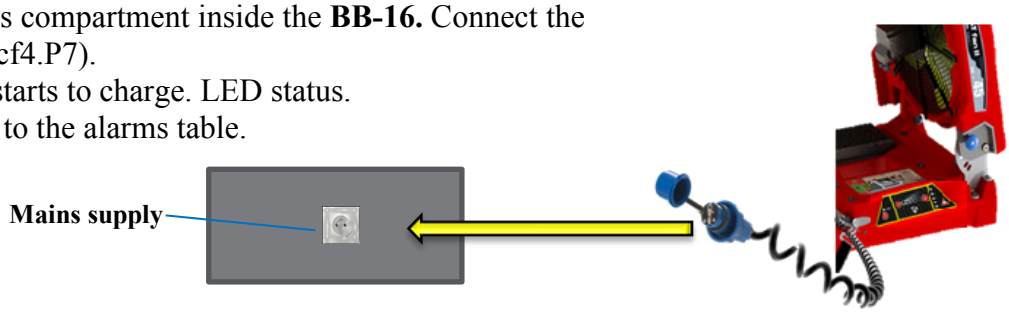
See precautions for use.

Regardless of power source (mains, power generator...) ensure that there is sufficient power which is stable in terms of voltage and current (rated +/- 10%) before connecting the device and when charging.

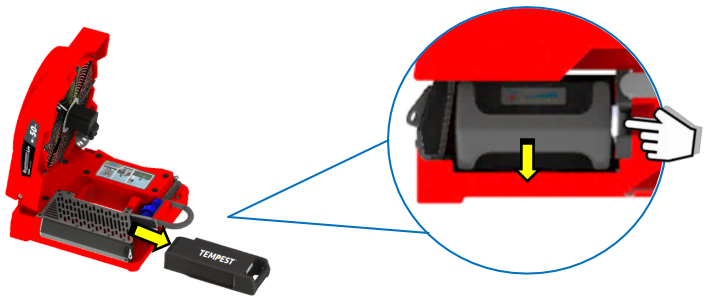
The battery can be charged either inside the **BB-16** or using the external fast charger (optional).

⇨ **Charging in the device :**

Place the battery pack in its compartment inside the **BB-16.** Connect the plug to the mains power. (cf4.P7).
The device automatically starts to charge. LED status.
If there is a problem, refer to the alarms table.



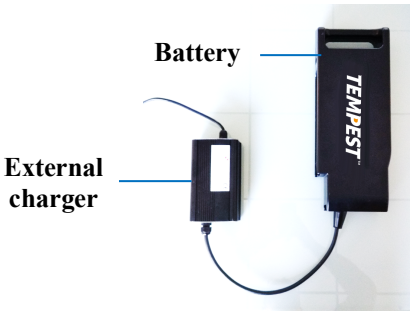
⇨ **Charging off device using the external fast charger (optional):**



Ensure that the fan is switched off before disconnecting the battery.

If not, disconnection when the fan is operating might damage the battery connector (not covered by the warranty).

Connect the battery to the fast external charger



First, connect the charger to the battery, then connect the charger to the mains power.

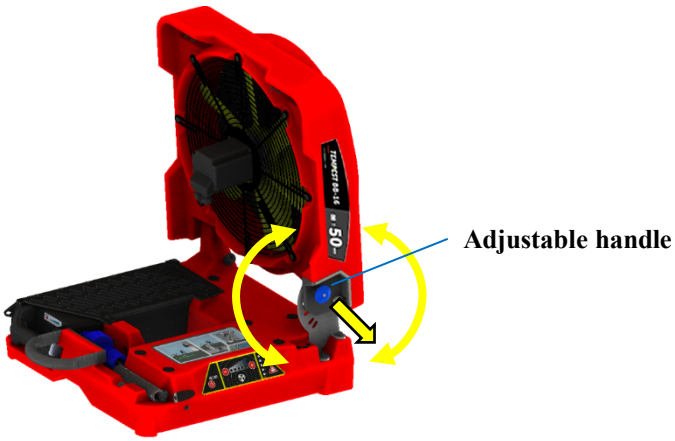
Make sure you follow this order: a different order could damage the battery connector (not covered by the warranty).

When charging is complete, disconnect the charger from the mains power, then disconnect the battery.

Note: If you are charging will start automatically once the battery temperature falls below **40 °C** (104°F).

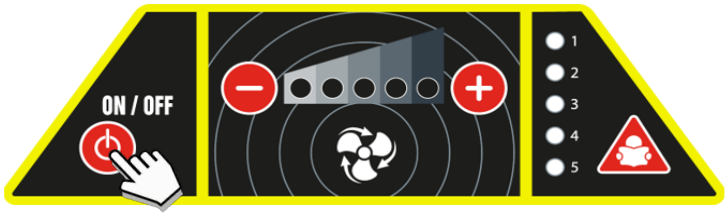
2/ Before starting the fan :

⇨ Position **BB-16** in a stable position and ensure there is no obstacle between the fan and ventilation opening.
⇨ Adjust the angle between **+65°** and **-90°** using the adjustable adjusting handle.



3/ Starting the fan :

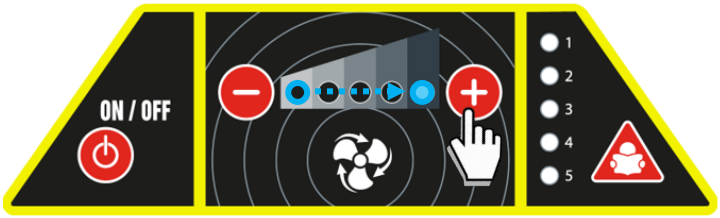
⇨ Press the **On/Off button** 

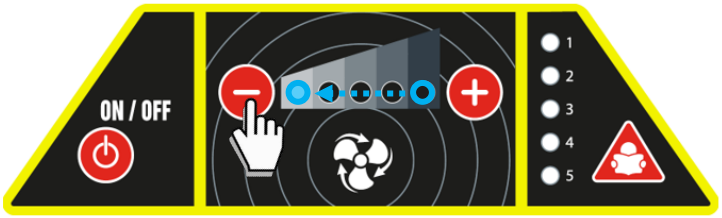


⇨ Adjust to the desired speed from **0 to 100%** by pressing the  **and**  buttons.

⇨ By pressing and holding  for 2 seconds, the speed changes to **100%** automatically.

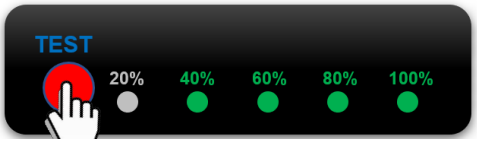
LED status **(cf10.P15)**.





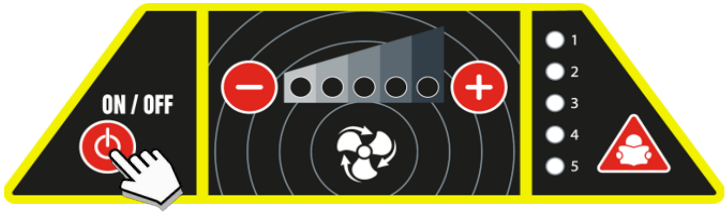
4/ Regularly check during use that there is no obstacle impeding the air flow from entering the building, and that nothing is obstructing the fan suction grille.

5/ Regularly check the battery charge level.



6/ Stopping the fan :

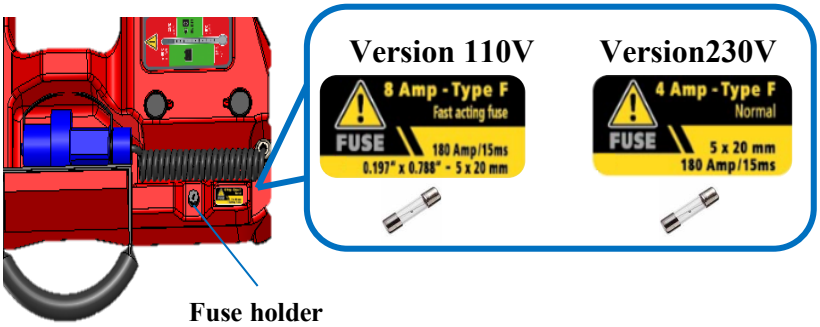
⇨ Press the **On/off** button 



7/ Fuses :

Never remove the fuses when the device is connected or operating. Leader will not be held liable for any damage due to inappropriate, incorrect or abnormal handling.

➢ A glass fuse is provided for surge protection. To change the fuse, disconnect the **BB-16**, unscrew the fuse holder cap.



110V Version
Type T 8A glass fuse (5x20mm) (5x0.06ft)
230V Version
Type T 4A glass fuse (5x20mm) (5x0.06ft)

9 BATTERY

The **BB-16** is equipped with a **Lithium** battery

Li-ion 

➔ **Battery 12.5 Ah**.

To prevent any risk of accident, **TEMPEST** equips its **lithium-ion** batteries Li-ion with a **BMS** (electronic protection system) which protects the battery from misuse: short circuit, overload, usage temperature when charging and discharging.

All rechargeable batteries have a finite useful life and they may eventually need to be replaced.
The service life of your battery varies depending on how your device is used and the settings you choose.

1/ Safety Instructions

➢ **Rules to follow regarding the battery to avoid injury and material damage:**

- Do not open the battery.
- Do not immerse the battery in liquid **(IP67).**
- Do not expose to high temperatures (no more than **70°C** (158°F)).
- Do not use chargers other than the **TEMPEST** charger.
- Do not modify the battery for uses other than the intended purpose.
- Do not connect the **+** and **-** terminals with a conducting material.
- Do not transport or store the battery with metal objects.
- Avoid any impact on the battery, do not pierce or crush. There is also a risk that the protection circuit would be damaged and the battery would have no protection.
- A pack damaged following an impact is potentially dangerous and could catch fire due to an internal short-circuit. It should be monitored carefully as it can take several minutes to catch fire.
- If your battery experiences a severe impact, do not use it again. Take it to a local recycling centre for disposal.
- Do not charge the battery near a source of heat. It might not charge if the protection circuit is activated.
- Do not charge near to inflammable liquids or solids.
- Do not use a battery with visible signs of damage or distortion.
- Do not reverse the polarities (or contacts), as this might cause abnormal chemical reactions.
- No longer use or charge a battery if it has obvious anomalies, such as a particular odour, overheating, distortion or discolouration.
- Stop charging if the charging process does not end.
- During transport: package the battery correctly in a box or case to avoid damage.
- Do not expose to strong oxidising agents.
- Wear appropriate PPE (gloves, goggles, etc.) during use.
- If the cell electrolytes come into contact with your skin, wash thoroughly with soap and water. If they come into contact with your eyes, rinse thoroughly with cold water and contact a doctor immediately.

Note: If these instructions are not followed, the battery could catch fire...

1 / Safety precaution

- Do not remove the battery when the **BB-16** is in mains or battery operation.

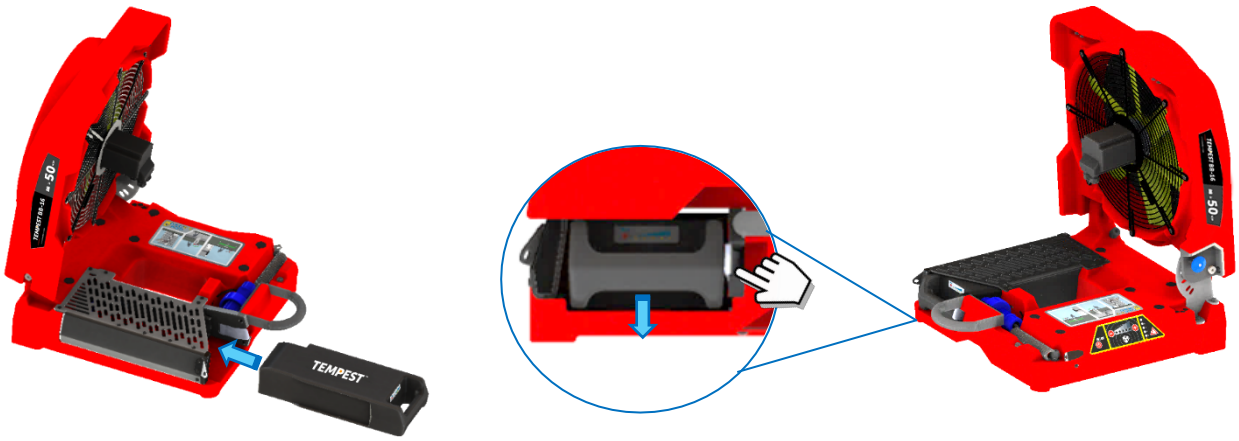
Note: If the battery is discharged and the **BB-16** is connected to the mains or in operation.

Then stop the fan, disconnect the mains plug and disconnect the battery if necessary.

- Do not remove the battery from the charger when it is charging.

2/ Implementation

➢ Switch on the battery in the fan, it clips automatically. To remove it, simply press the retaining notch.



3/ Storage

➢ Avoid any exposure to direct sunlight, high temperatures, or excessive humidity levels.

➢ Store in a dry place, at temperatures between: **5 °C** (41°F) **at 35 °C** (95°F).

Storing the battery at humidity and temperature levels below -20°C (-4°F) **or above +35°C** (95°F) **can permanently damage the battery: corrosion of metal parts, swelling, and leakage...**

If you plan to store the battery for a long period, it is better to store your battery at a stable temperature between +5°C (41°F) and **+35°C** (95°F) **at 100% capacity.**

A maintenance charge should take place once every 6 months to avoid deterioration.

- Avoid storing in electrostatically charged areas.
- Do not store together with electro-conductive material.

4/ Battery Treatment

Discarding batteries directly in the garbage greatly harms the environment. By replacing your batteries from TEMPEST or an authorised distributor, you can be certain they will be recycled according to environmental rules.

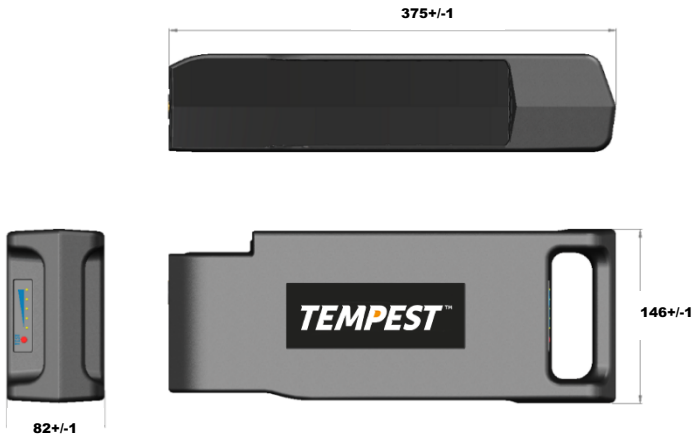
Do not throw batteries away just anywhere; limit any risk of pollution and avoid contaminating nature with the traces of heavy metals still contained in certain types of batteries.

Batteries are collected and reprocessed; they contain certain recoverable heavy metals. Deposit them in designated areas (recycling centres, collection points...).
TEMPEST joins **RECYLUM** for the recycling of its **WEEE** (Waste electrical and electronic equipment).

5/ Features

- **Batterie**

Reference : **585-005**
Model : 3300001
Voltage : 48v
Power : 600Wh
Weight : 3.800Kg (8.38ib) +/-0,1Kg (0.22ib)



- **Charger**

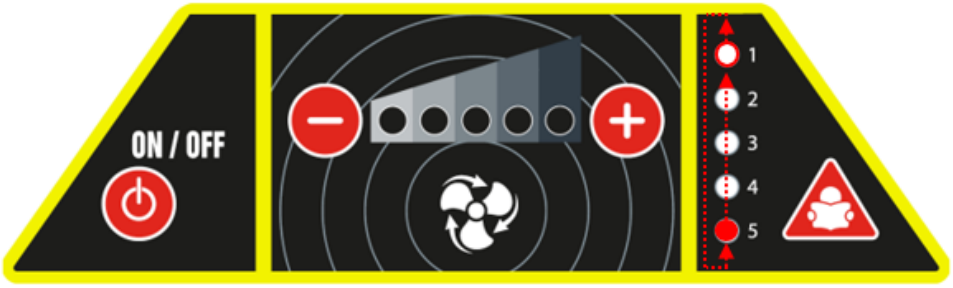
Reference : **I63.12.301(EU) / 585-035(US)**
Model : YZP-450
INPUT : 100-240Vac 3.5a 50/60Hz 54.6v,
OUTPUT : 5.0A
Weight : 0.8 Kg (1.76ib) +/-0,1Kg (0.22ib)

7/ Transport

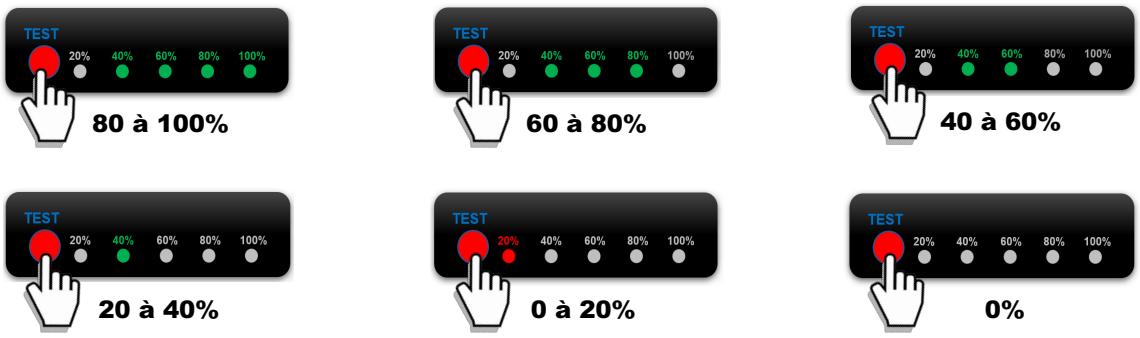
Lithium Ion Batteries Li-ion are considered dangerous products and are subject to regulations. Contact your carrier before shipment.

10 Description of LED status when operating

⇨ **Battery level LED status during AC power supply use (battery charging):**



⇨ **Battery level LED status during battery use :**



⇨ **Speed setpoint LED status during battery and AC power supply use:**

Arrêt **Vitesse 20%** **Vitesse 40%** **Vitesse 60%** **Vitesse 80%** **Vitesse 100%**

Note : Pressing the ⊕ button will increase the LED speed setpoint.

Pressing the ⊖ button will decrease the LED speed setpoint.

LEDs indicate the selected speed setpoint; you must wait a few seconds to reach the desire speed.

Alarms and warnings tables:

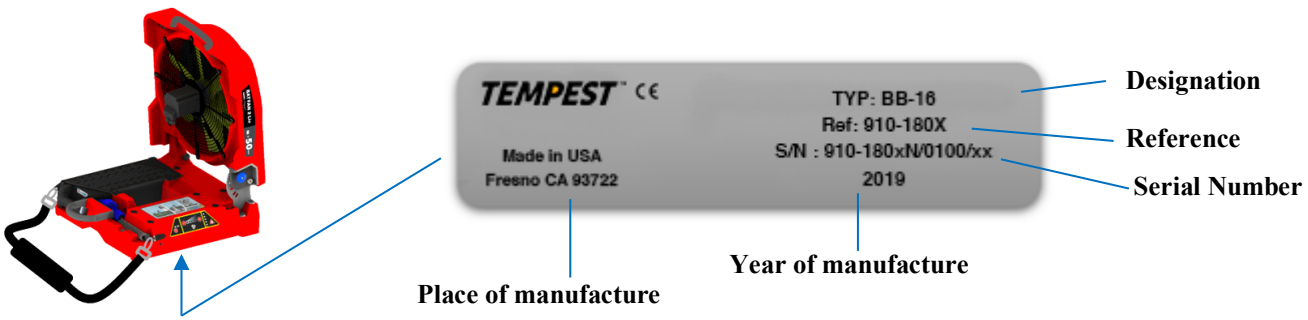
● LED Flashing

Display	Meaning	BB-16 status	Solution
	**Driver fault**	Does not work on battery or mains power	Restart the fan
	**Battery temperature too high during discharge (Over 55°C)** (Over 131°F)	Stops during use and does not work on battery	Stop use, place the fan at room temperature **(20°C +/-5)** (68°F +/-5) and restart **1 hour** later Possibility of using it on mains power
	**Battery temperature too low during discharge (Below -20°C)** (Below -4°F)	Stops during use and does not work on battery	Place the fan in a room above **-20°C** (-4°F) and wait for the battery temperature to exceed **-20°C** (-4°F) Possibility of using it on mains power
	**Motor current consumption too high**	Stops during use and does not work on battery or mains power	Possibility to reduce speed Check for obstructions or debris on the fan suction grille and no obstacles impeding the air flow
	**Supply voltage too high**	Does not work on mains power	Disconnect and reconnect the mains power
	**Supply voltage too low**	Does not work on mains power	Disconnect and reconnect the mains power
	**Speed configuration problem**	On mains power the fan self-configures to a non-optimised speed/does not work on battery	Contact **TEMPEST.**
	**Temperature too high during charge (Over 40°C)** (Over 104°F)	The fan does not charge but works on mains power	Disconnect the fan. Place the fan at room temperature **(20°C +/-5)** (68°F +/-5) and reconnect to restart charge 1 hour later

Display	Meaning	State of BB-16	Solution
	**Temperature too low during charge (Below 0°C)** (Below 32°F)	The fan does not charge but works on mains power	Place the fan at room temperature **(20°C +/-5)** (68°F +/-5)
	**Charge time too long**	The fan does not charge but works on mains power	Check LED battery level status and repeat charge
	**Charge current too high**	The fan does not charge but works on mains power	Disconnect and reconnect the mains power
	**Charge current too low**	The fan does not charge but works on mains power	Check battery fuse, disconnect and reconnect the mains power
	**Charge voltage too high**	The fan does not charge but works on mains power	Disconnect and reconnect the mains power
	**Battery temperature too high to start charging (Over 40°C)** (Over 104°F)*	The fan does not charge but works on mains power	Place the fan at room temperature **(20°C +/-5)** (68°F +/-5), leave it connected (charging will start automatically when the battery has reached the desired temperature)
	**Battery temperature too low to start charging (Below 0°C)** (Below 32°F)*	The fan does not charge but works on mains power	Place the fan at room temperature **(20°C +/-5)** (68°F +/-5) wait 1 hour and retry Do not unplug
	**A battery temperature sensor is out of service**	Normal operation fault display on power-up on battery	Disconnect and reconnect the battery
	**Charge current measurement out of service**	The fan does not charge but works on mains power	Disconnect and reconnect the mains power
	**Motor current measurement out of service**	Does not work on battery or mains	Disconnect and reconnect the mains power

***Note** : Charging starts automatically when the charge conditions have been met: Charging temperature between **0°C and 35°C** (32°F and 95°F) at the start of charging.

11 IDENTIFICATION



12 TROUBLESHOOTING

Problem	What to do
The fan does not work on battery power	• Check that the battery is correctly engaged. • Check that the battery is charged (control panel LED status). • See LED status description **(P17/18).**
The fan does not work on mains power	• Check the condition of the fuses (8A) for the 110V or (4A) for the 230V version. • Check that there is a good power supply. • See LED status description **(P17/18).** • Vérifier que la grille avant n'est pas obstruée.
The battery will not charge	• Check the condition of the fuses (8A) for the 110V or (4A) for the 230V version. • Check that the battery is correctly engaged. • Check that there is a good power supply. • Check that the room temperature is between **0 and 35°C** (32°F and 95°F). • See LED status description **(P17/18).** **Nota :** If the fan speed is 100% the load is interrupted.
The fan stopped operating on battery	• Check that the battery is charged (control panel LED status). • If battery is low, use AC power. • See LED status description **(P17/18).** **Nota :** Over time and the charge cycles, the battery will lose its autonomy.

13 SPARE PARTS

14 WARRANTY

TEMPEST equipment benefits from a limited contractual warranty from the date of the purchase, **3 years** parts and labor (excluding shipping and travelling fees). Normal wear parts are excluded from this warranty. The battery warranty is **1-year** subject to compliance with user recommendations in the user guide **(One charge every 6 weeks).**

This warranty is specifically limited to replacing or repairing the equipment (or its parts) which after examination proves to be defective for causes attributable to **TEMPEST**.
To claim under a warranty, the user (with **TEMPEST** is approval) will need to return the equipment to **TEMPEST, 4708 N. Blythe Ave., Fresno, CA 93722** as soon as possible following the discovery of the defect.

After reviewing the equipment:

- If the defect is attributable to **TEMPEST**, it will repair it and assume the costs (excluding shipping and handling fees).
- If the defect is not attributable to **TEMPEST**, see the procedures explained below in the Out-of-warranty defect paragraph.

This warranty does not commit **TEMPEST** in the following cases: failures resulting from improper handling, improper use of the equipment, no maintenance or incorrect maintenance, incident affecting the hardware, repair or modification by another company or non-authorized personnel.

OUT-OF-WARRANTY DEFECT OR EQUIPMENT NO LONGER COVERED BY THE WARRANTY

A complete diagnostic will be conducted on your defective equipment, at the end of which a detailed estimate will be sent to you for the necessary repairs.
For failures and repairs no longer covered by the warranty, a diagnostic flat rate will be applied regardless of the acceptance of the repair quote.