POWERED BY SCHUMACHER

PROSERIES™

MODEL

DSR132

Ultracapacitor Hybrid Jump Starter

OWNERS MANUAL

PLEASE SAVE THIS OWNER'S MANUAL AND READ BEFORE EACH USE.
This manual will explain how to use the jump starter safely and effectively. Please read and follow these instructions and precautions carefully.

1. IMPORTANT SAFETY INSTRUCTIONS – SAVE THESE INSTRUCTIONS.

1.1 Working in the vicinity of a lead-acid battery is dangerous. Batteries generate explosive gases during normal operation. It is important that you follow these instructions each time you use the jump starter.

1.2 To reduce **t**he risk of battery explosion, follow these instructions and those published by the battery manufacturer and the manufacturer of any equipment you intend to use in the vicinity of a battery. Review cautionary marking on these products and on the engine.

1.3 Keep out of reach of children.

1.4 Use only in a well-ventilated area.

1.5 Do not disassemble the jump starter. Take it to a qualified service professional if service or repair is required. Incorrect assembly may result in fire or electrical shock.

1.6 Never operate the jump starter if it is damaged.

1.7 Do not set the jump starter on flammable materials, such as carpeting, upholstery, paper, cardboard, etc.

1.8 Place the jump starter as far away from the battery being jumped as the cables will permit.

1.9 Do not expose the jump starter to rain or snow.

1.10 Never place the jump starter directly above battery being jumped.

1.11 To prevent arcing, never allow the clamps to touch together or to contact the same piece of metal.

1.12 If someone else uses the jump starter, ensure they are well informed on how to use it safely, and have read and understood the operating instructions.

1.13 The jump starter is NOT designed to be installed as a replacement for a vehicle battery.

1.14 Do not use for dry cell batteries that are commonly used with home appliances.

1.15 Make sure your vehicle is in “park” and the emergency brake is engaged.

1.16 Turn off ALL electronics in your vehicle (air conditioner, heat, radio, lights, chargers, etc.).

1.17 Make sure the key is in the “OFF” position. For smart-key fobs (push-to-start vehicles), make sure the vehicle is completely OFF before jump starting.

2. PERSONAL SAFETY PRECAUTIONS

2.1 Wear complete eye protection and protective clothing when working near lead-acid batteries. Always have someone nearby for help.

2.2 Have plenty of fresh water, soap and baking soda nearby for use, in case battery acid contacts your eyes, skin, or clothing. Wash immediately with soap and water and seek medical attention.

2.3 If battery acid comes in contact with eyes, flush eyes immediately for a minimum 10 minutes and get medical attention.

2.4 Neutralize any acid spills thoroughly with baking soda before attempting to clean up.

2.5 Remove all personal metal items from your body, such as rings, bracelets, necklaces and watches. A battery can produce a short circuit current high enough to weld a ring to metal, causing a severe burn.

2.6 Never smoke or allow a spark or flame in the vicinity of the battery or engine.

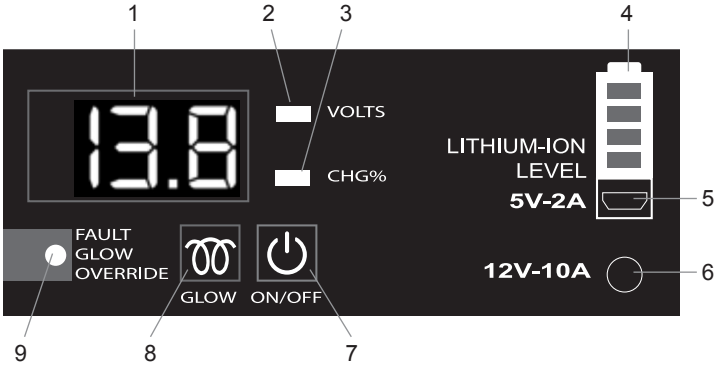
3. FEATURES

1. Battery clamps
2. Digital display
3. ON/OFF button
4. Micro USB input port
5. 12V DC socket

Not shown:

6. Lithium battery compartment (on back)
7. 12V DC car charger for charging ultracapacitors
8. Micro-USB cable for charging lithium battery

4. CONTROL PANEL



1. Digital display
2. Voltage indicator
3. Ultracapacitor charge indicator (Solid LED)
   Ultracapacitors are charging (Pulsing LED)
4. Lithium battery level indicator
5. Micro USB input
6. 12V DC input port
7. ON/OFF button
8. GLOW button
9. Condition indicator

Digital Display

- **V** Vehicle's battery voltage
- **%** Charging percentage of the ultracapacitors
- **Err** Reverse polarity connection/ Lithium battery too low to charge ultracapacitors
- **FUL** Ultracapacitors are fully charged
- **OVr** Override mode is active
- **CHG** Lithium battery is charging

Condition Indicator

- **Steady red:** Reversed Connection/Fault
- **Alternating red and green:** Glow Mode
- **Blinking green for 5 seconds, then steady green:** Override Mode
- **Steady green:** Ready

5. OPERATING INSTRUCTIONS

Pre-Charging

The DSR132 must be pre-charged before it can be used to jump start your vehicle. (Press the ON/OFF button once to see the Ultracapacitor charge %.) The "Standard Mode" instructions will guide you on using your current vehicle's "weak" battery to pre-charge the jump starter. If your vehicle's battery is completely discharged, or does not allow you to pre-charge the jump starter, see "Alternative Pre-Charge Methods".

Standard Mode

In most cases, the weak battery can fully recharge the jump starter.

Follow these steps to pre-charge your jump starter and get your car started:

1. For a negative-ground vehicle (as in most vehicles), connect the POSITIVE (RED) clamp to the POSITIVE (POS, P, +) battery post. Next, connect the NEGATIVE (BLACK) clamp to the vehicle chassis or engine block, away from the battery.
2. For a positive-ground vehicle, connect the NEGATIVE (BLACK) clamp to the NEGATIVE (NEG, N, -) battery post. Next, connect the POSITIVE (RED) clamp to the vehicle chassis or engine block away from the battery.
3. The jump starter will turn on automatically. The digital display will show the voltage of the vehicle's battery.
4. Press the ON/OFF button. The jump starter will start to recharge. The digital display will show the charging percentage of the internal ultracapacitors.
5. When digital display shows FUL, and the condition indicator is steady green, crank the engine.

Alternative Pre-charge Methods

If your vehicle's battery is completely discharged, or is unable to charge the jump starter, the Fault indicator will turn on and an audio alarm will sound. You can use one of the following alternative pre-charging methods:

- **From a battery (i.e, friend's car)**
  Connect the jump starter's red (POSITIVE) output clamp to the POSITIVE post of the battery. Next, connect the black (NEGATIVE) output clamp to a heavy, unpainted metal part of the chassis or engine block, away from the battery. **DO NOT connect clamp to the negative battery post, carburetor, fuel line or a sheet metal part.** The jump starter will start to charge itself automatically. When the digital display shows FUL, the audio alarm sounds and the condition indicator is steady green, turn off and disconnect the jump starter by removing the output clamp from the chassis or engine block, followed by the output clamp from the battery post.
- **From a 12V socket**
  The jump starter can be recharged from a donor car's 12V DC socket. Make sure the car is running. Plug in the provided 12V adapter. Charging starts automatically. Once you have fully charged your jump starter (the digital display shows 100%), you can continue with the connection and starting instructions in Standard Mode. If your vehicle's battery is completely discharged, and you are unable to start the vehicle in Standard Mode, you may need to use the Override Mode starting instructions.

Override Mode

If there is no battery mounted on the engine to be started, follow these steps to use Override mode:

NOTE: The GLOW function will not operate in this mode.

- Always read the vehicle manufacturer's instruction manual.
- An initial battery indication of below 12V may suggest that there is an internal fault.

1. Remove the vehicle's positive (red) lead from the battery terminal (fig. 1). Ensure that the jump starter is switched off. Connect the jump starter's positive clamp to the vehicle positive lead, NOT the battery terminal (fig.1).

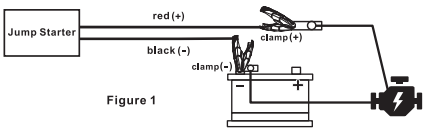


Figure 1

2. Press the ON/OFF button for 2 seconds and then release.

   Override can be activated two ways:

   - If the capacitor's charge is over 80%, Override mode (OVr) will activate and an audio alarm will sound.
   - If the capacitor's charge is less than 80%, the lithium ion batteries will recharge the capacitors until the display shows 100%. Override mode (OVr) will then activate, and an audio alarm will sound.
3. After Override mode is activated, the condition indicator will pulse to show that the jump starter is getting ready to start the engine.

4. When the condition indicator turns steady green, crank the engine right away. (The ability for an engine to continue to run without a battery connected will vary, depending on the make and model of the vehicle).

WARNING: Do not leave the engine running without a connection to the jump starter or the battery. Failure to comply could result in damage to the vehicle ECU. The manufacturer will not accept responsibility for any damage caused by incorrect use of this product.

5. As soon as the engine starts, and keeping the jump starter clamp and battery lead connected, attach the positive lead to the positive battery terminal and tighten the terminal clamp (fig. 2). After the positive lead has been secured to the battery terminal, switch off the jump starter and disconnect from the battery.

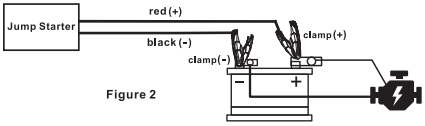


Figure 2

Glow Mode:
In cold weather, the glow plugs in most diesel vehicles will energize first to heat up the engine chamber before the engine start, as indicated by the GLOW sign on the dashboard. The process needs a current of 40-60Amp and takes about 4-6 seconds. In this case, after the jump starter is fully recharged and connected, press the GLOW button, and then turn on the ignition.

NOTE: GLOW is inactive during Override Mode.

Lithium Back-up Battery Pack
This jump starter is equipped with a lithium battery pack. Recharge the battery pack with the micro USB charging cable and USB charger (included). Once connected to a USB charger, charging starts automatically.

Recharge time is approximately 5-8 hours. The battery level indicators will show battery status. Fully recharge the lithium battery pack at least once a year or after using Override Mode 2-3 times.

Working Cycle
- Maximum of 3 consecutive jump starting operations.
- Allow a 20-minute interval between each session.

6. SPECIFICATIONS

Input	12V DC 10A, 5V DC 2A
Working temperature	-40°C to 65°C (-40°F to 150°F)
Starting current	900A
Battery pack	Lithium, 11.1V / 2200mAh
Recharge time from vehicle battery	130 seconds
Recharge time from 12V socket	4 minutes
Recharge time from lithium battery	5-6 minutes

7. REPLACEMENT PARTS

12V DC cig charging cable	3899003573Z
Micro-USB charging cable	3899003781Z
Lithium battery pack	5799000052Z

8. FREQUENTLY ASKED QUESTIONS

Q: Is this jump starter safe for the ECU and car's computer?

A: Unlike traditional jump starters, this jump starter uses ultracapacitors instead of a battery. The voltage of capacitors is restricted to a range which is safe for all kinds of ECU. Therefore, there is no risk from overvoltage.

Capacitors have a very small capacity, about 0.2-0.4Ah. They will fully recharge from the alternator within couple seconds once the vehicle is started. Disconnecting the jump starter will not cause any load dump, so there is no voltage spike produced.

Q. Will the transfer of residual energy to the jump starter damage the weak battery?

A. No. This jump starter draws only 0.2-0.4Ah energy from the battery. A weak car battery normally has a capacity of 10-30Ah and can recharge the jump starter many times without any adverse effects.

Q. How many jump starts can a fully recharged jump starter perform?

A. This jump starter is designed to start only once when fully recharged. It recharges itself after each use, if left connected to a car's battery. Therefore, it can jump start many times as needed, successively.

Q. How long can the jump starter hold a charge?

A. This jump starter will self-discharge to 0 in a few days, but it can be instantly recharged from a weak battery or from the back-up lithium battery, and be ready for use.

Q. What is the life span of this jump starter?

A. This jump starter can be used more than 10,000 times before noticeable loss of performance. Ultracapacitors remain operable for more than 10 years.

Q. Is my hybrid jump starter safe?

A. It is extremely safe. Ultracapacitor technology is one of the foremost advantages over the battery-based jump starters. Ultracapacitors are specially designed to receive and release a large electrical current of instant power.

This jump starter is also equipped with short circuit/reverse polarity protection. Therefore, short circuit due to unintended use will not damage the ultracpacitors. They will not overheat and cause fire or explosion.

NOTE: Reverse polarity and short circuit protection is disabled during Override Mode.

Q. Does the jump starter need to be regularly recharged?

A. No. The jump starter relies on the instant recharging of ultracapacitors rather than stored electric energy. Therefore, it does not need regular recharge and can be stored for years. However, the back-up lithium battery needs to be recharged at least once a year.

Q. What is OVERRIDE mode?

A. The ECU of some cars does not allow engine to start if battery's voltage is lower than 8V. In this situation, the positive lead needs to be disconnected from the car battery, and instead connected directly to the jump starter. Then the ECU can detect the high voltage provided by the jump starter.

WARNING: CAREFULLY READ USER'S MANUAL BEFORE USING OVERRIDE MODE.

Q. What is GLOW?

A. In cold weather, the glow plugs in most diesel vehicles will energize first to heat up the engine chamber before the engine start, as indicated by the GLOW sign on the dashboard. The process needs a current of 40-60Amp and takes about 4-6 seconds. In this case, after the jump starter is fully recharged and connected, press the GLOW button, and then turn on the ignition.

Q. What size of engines can be used with this jump starter?

A. Success of a jump start depends on many factors such as battery condition, temperature, age of the car, etc.

Here is general guide of jump starter choice for different engine size:

	GASOLINE		DIESEL		
Cranking Current	Warm	Cold	Warm	Cold	Cold
	No Battery	No Battery	No Battery	Weak Battery	No Battery
900A	<8.0L	<7.0L	<5.0L	<5.0L	<4.0L