



XRT™

Users' Guide

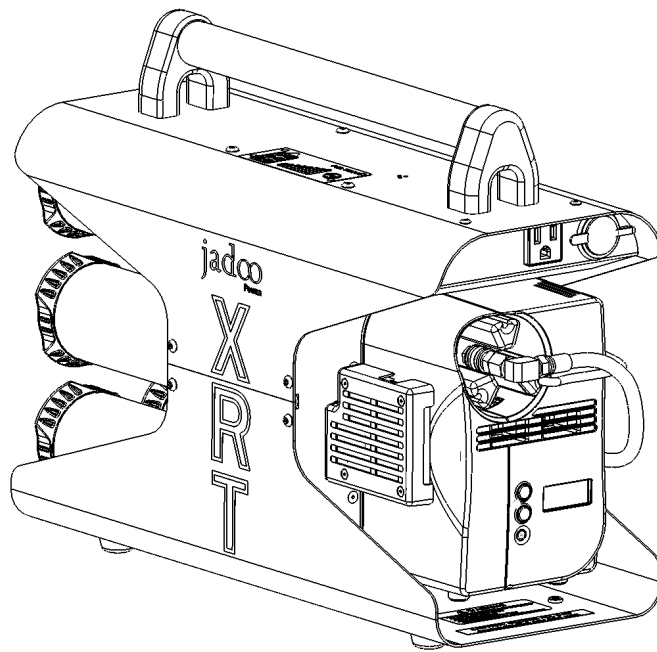


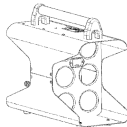



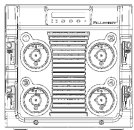
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SYSTEM DESCRIPTION

Jadoo's XRT is a self-contained, portable power system utilizing the Jadoo N-Gen 100 W fuel cell power unit and up to six (6) Jadoo N-Stor fuel system canisters. XRT features: regulated 12VDC & 110VAC output, continuous output, extended runtime (up to 2,160 W-h / 180 A-h), scalable runtime (from 130 W-h to 2,160 W-h), easy-to-use state-of-fill indicator, configurable low fuel warning alarm, portability, infinite shelf life, immediate deployability and compatibility with all Jadoo refilling, fuel storage and power generation systems.

XRT SYSTEM PARTS LIST

ITEM	PART NUMBER	DESCRIPTION
	990006	XRT Chassis <i>Fully configured 910006</i>
	910001	N-Gen Power Unit <i>Sold Separately</i>
	930002 930001	N-Stor Fuel Canisters <i>Sold Separately</i>
	920002	FillOne Filling Station <i>Sold Separately</i>
	920001	FillPoint Filling Station <i>Sold Separately</i>

SAFETY

Jadoo products are designed and manufactured to safely cease operation at the earliest detection of any safety fault.

WARNING: Fire Hazard!

Contains flammable gas under pressure. Do not tamper with device. Read and understand Users' Guide.

WARNING: This is not a toy – keep away from children.

IMPORTANT SAFETY WARNINGS AND INSTRUCTIONS

TO REDUCE RISK OF INJURY:

Before using the appliance filling station, be sure everyone using reads and understands all safety instructions and other information contained in this user guide.

Save these instructions and review frequently.

! CAUTION: When using the appliance, basic safety precautions should always be followed to reduce risk of fire, electric shock or personal injury.

READ ALL INSTRUCTIONS

PROVIDE ADEQUATE VENTILATION and refrain from placing items on or around the appliance during operation. Refrain from placing the appliance in enclosures or causing the appliance to not vent freely.

KEEP THE APPLIANCE DRY at all times.

CHECK THE WARNING LABELS on adapters before connecting them to the appliance. Do not connect adapters displaying or having dangerous voltage warnings.

DO NOT use an attachment not recommended, as it may result in a risk of electric shock or fire.

DO NOT disassemble the appliance.

THIS APPLIANCE is not tested for use with medical devices.

AVOID DANGEROUS ENVIRONMENTAL CONDITIONS – Do not use appliance in damp or wet locations. Do not use the appliance in the rain.

FCC NOTICE

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

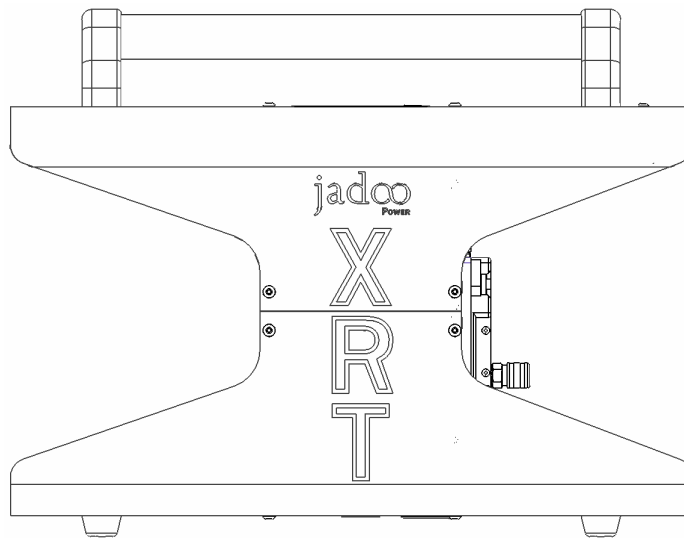
PATENT INFORMATION

This product may be covered by one or more patents. The sale of this product, and the information contained and conveyed thereby, should not be construed as either explicitly or implicitly granting any license (of any kind or type); and no liability for patent infringement arising out of the use of the information is assumed.

SETUP & ASSEMBLY

The XRT consists of a ruggedized aluminum chassis (see Figure 1) , an attachment base for a Jadoo N-Gen fuel cell and six (6) N-Stor fuel system attachment bays.

Figure 1



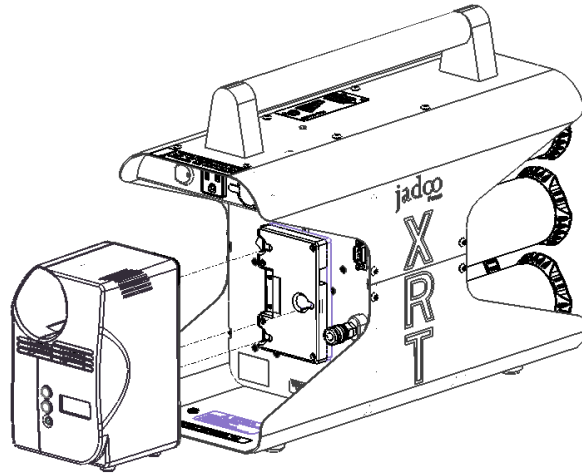
For a minimum configuration, the user will need XRT chassis with the canister interface adapter (included with XRT), an N-Gen power unit and at least one N-Stor fuel system canister.

To assemble XRT, first unpack and inventory all components. Jadoo recommends the user retains the original packing materials for future use.

Step 1: Attach the Canister Interface Adapter (CIA) to the N-Gen by inserting and twisting clockwise until firmly seated with an audible click.

Step 2: Attach the N-Gen to XRT by aligning the three mounting lugs to the three keyed slots located on the N-Gen attachment base. Slide the N-Gen to the right until an audible click is heard and the N-Gen is fully engaged. (See Figure 2)

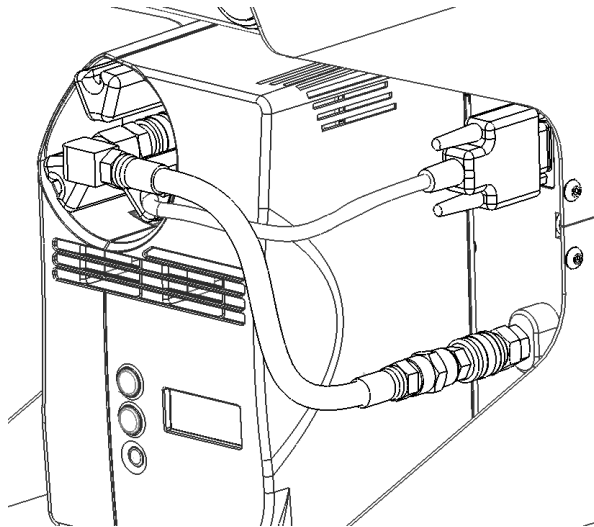
Figure 2



Step 3: Attach the gas and data connections between the CIA and XRT as shown in Figure 3 below.

The gas fitting is assembled by pushing the collar of XRT's female gas fitting toward the chassis, inserting the male portion of the connection (coming from the CIA) and releasing the collar. Pull on the assembled gas connection to ensure a

Figure 3



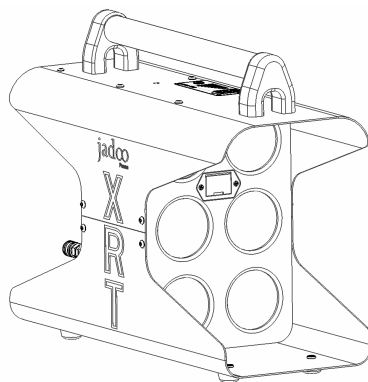
secure fit. The data connection is assembled by mating both sides of the nine-pin cable in the appropriate position by correctly aligning the D-shaped connector and inserting. Finger-tighten the cable attachment screws and visually inspect the connection to make sure it is fully seated.

Step 4: Insert any type of Jadoo N-Stor into any one of the six (6) N-Stor bays on XRT. N-Stor bays are shown in Figure 4 below. Insert the N-Stor and twist to the right until an audible click is heard and the N-Stor is firmly seated. The N-Gen may be started or shut-down using the standard procedures as outlined in the N-Gen Users' Guide. Jadoo recommends N-Gens be started or shut down using standard procedures, as opposed to simply allowing the N-Gen to shut off by N-Stor removal .

Step 5: Continue to insert the desired number and type of N-Stors to meet your runtime requirements. Any combination of N-Stor130s or N-Stor360s may be used. It is not necessary to have all six N-Stor bays populated for XRT to operate normally. These features allow the user to configure and manage runtime capability and total system weight.

Step 6: Select the electrical output required by toggling the rocker switch (illustrated in Figure 2). In the "on" position the green light is illuminated; indicating that both AC and DC outputs are available. When in the "off" position, only the DC output is available

Figure 4

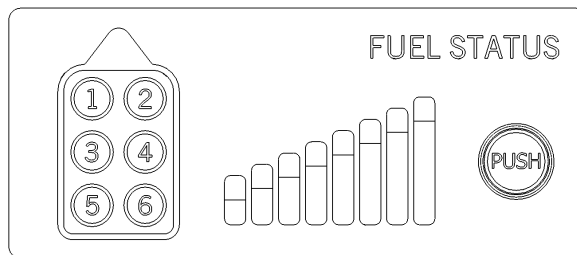


FEATURES OVERVIEW

Fuel Status – XRT features a gauge that is useful for determining how much fuel is available from the inserted N-Stors. The display is activated by pushing and releasing the button on the top panel display. (See Figure 5)

Pushing the fuel status panel button will illuminate the diagram representation of the N-Stor bays to indicate N-Stor status and total amount of fuel available. N-Stor status will display for each of the six (6) positions as:

Figure 5



Green: N-Stor in this position is recognized and communicating properly through the N-Stor digital interface.

Red: N-Stor in this position is detected, but is not properly communicating with XRT. If this N-Stor contains fuel, the N-Gen and XRT should start up, but will not support Fuel Status features. For additional information regarding this indication read below and refer to the Troubleshooting section.

Unlit (dark): No N-Stor detected in this position. Typically, this means the bay is unoccupied and an N-Stor may be inserted at any time. If an N-Stor is inserted and no indication is offered on the display, the system will not start even if gas is present. For additional information regarding this indication, refer to the Troubleshooting section.

In addition to the diagram representation of the six N-Stor attachment positions, the graduated state-of-fill graphic will light to indicate the total percent fill for the N-Stors inserted.

Each graduation of the Fuel Status graphic represents approximately 12% of the total amount of fuel. A single full N-Stor would register on the Fuel Status display as completely full, even though there would be 5 available (empty) N-Stor attachment points on XRT. The state-of-fill graphic will automatically update based on fuel consumed, the insertion or removal of additional N-Stors, or if an error is detected.

After the initial display of total fuel status and N-Stor status, successive “Push” button activations will cause the fuel status display to cycle through each of the canister positions to display the status of each N-Stor. This is useful for determining which N-Stors might require refueling and/or replacement.

Hot Swap – XRT possesses features that allow the user to replace, add or remove N-Stors at any time while maintaining continuous power output. The hot swap feature will support brief periods of operation when no N-Stors are present. The amount of time will vary based on power output (fuel is consumed at a higher rate during higher power demands).

Removing all N-Stors will eventually result in fuel cell shut down. It is a good practice to have multiple N-Stor fuel system canisters to rotate between the refilling and power generation operations when continuous power is desired.

N-Stor Flexibility – XRT is fully compatible with all Jadoo N-Stors and in any of the six (6) available positions. Just insert and twist to engage the N-Stor.

Conditioned (12V regulated) Power Output - XRT has an external automotive-type output; convenient for directly powering 12VDC applications .

110 VAC Output – XRT is equipped with a inverter supplying 110 VAC 60Hz via a standard NEMA-type power receptacle supplying up to 100 W continuous power.

Parasitic Loss Protection – XRT is equipped with a rocker switch that allows the user to select AC and DC output or DC-only output. Using the DC-only option, reduces parasitic power loss by disengaging the AC inverter.

Over-Current Protection - To protect internal components and the device being powered, XRT monitors electrical current output and can detect over-current and short-circuit conditions. When over-current is detected, the power output of XRT will be disabled. The power output of the XRT will automatically reset upon reset of the N-Gen, as described in the N-Gen Users' Guide. The cause of the over-current or short-circuit condition should be remedied by the user before attempting to resume power-on operation (see Troubleshooting).

Low Fuel Alarm – When the fuel alarm is activated, XRT will emit a beep every 60 seconds if the combined fuel level of the inserted N-Stors reaches 5% or less. The alarm will reset and return to silence if fuel level again exceeds 5% (see Hot Swap). The low fuel alarm may be switched off by pressing and holding the button labeled “Push” on the Fuel Status panel (refer to Figure 2) until XRT beeps twice, indicating “switched off”. To turn the low fuel alarm feature back on, press and hold the “Push” button until a single beep is heard.

Note: 5% of XRT fuel capacity could represent over an hour of operation at full power with a maximum runtime configuration (Using six (6) of the N-Stor360s).

Note: the low fuel alarm feature will only work once XRT is receiving power from the N-Gen. The low fuel alarm feature can only be switched on or off if XRT is receiving power from the N-Gen.

N-Stor Insert / Remove Acknowledgment – In conjunction with the low fuel alarm, XRT will beep when a user inserts or removes an N-Stor fuel system canister. The feature is enabled or disabled along with the low fuel alarm.

TROUBLESHOOTING

Error conditions – XRT error conditions are displayed on the Fuel Status panel (located on the top of XRT, refer to Figure 2) or by the N-Gen display. The following table (Table 1) provides a troubleshooting overview.

For issues with the N-Gen power unit or the N-Stor fuel canister, please refer to the respective Users' Guides.

Note: XRT is designed to use the fuel supply from multiple N-Stors to achieve extended runtime. In the simplest sense, XRT is an extra large gas tank supplying a standard N-Gen fuel cell power unit. In order for the N-Gen to begin operation when configured with an XRT, at least one partially filled N-Stor must be inserted to, and recognized by, XRT. In the case where one of two or more N-Stors is not recognized by XRT, XRT will consume fuel provided by unrecognized N-Stors. However, XRT will apply conservative fuel status calculations as if the unrecognized N-Stors were not providing fuel. This situation would allow XRT to continue operation even if the Fuel Status indicated no fuel available.

TRANSPORTATION

XRT does not have special transportation requirements. XRT should be packaged securely to prevent damage. Packing in the original packing material is recommended to avoid damage. Do not ship the XRT with N-Stors engaged,
N-STORS MUST BE SHIPPED ACCORDING TO DOT-SP 13598 AND IN ACCORDANCE WITH JADOO POWER TRANSPORTATION, PACKAGING AND SHIPPING GUIDE (P/N 117449).

Table 1

Problem	Check	Remedy
No power output from XRT	Is the application connected electrically to XRT and turned on?	Make electrical connection & attempt to turn on application device.
	Is the N-Gen turned on?	Check N-Gen LCD display and LED. LED should be green and fuel cell should read greater than 12V. (see N-Gen won't start, below).
	Has there been an over current event or short circuit? Does the application device draw more than 100W of power?	Remove electrical connections to XRT and reset the N-Gen by pressing and releasing top and lower buttons located on the front of the N-Gen. Verify XRT power output using a different, lower power consumption, device like a 40w lamp.
	Is XRT properly configured?	Review "System Orientation and Assembly" of XRT Users' Guide.
N-Gen Fuel Cell won't start up.	Is XRT properly configured?	Review "System Orientation and Assembly" of XRT user guide. Review the N-Gen Users' Guide.
	Has the N-Gen been shut down via a user requested shutdown?	Press and release top and bottom buttons located on the N-Gen. Review N-Gen Users' Guide.
	Is the canister interface adapter installed correctly?	Check gas and data connections, as well as proper fit with the N-Gen.
	Is the N-Stor fuel system canister properly recognized by XRT?	Use a different N-Stor in a different position of XRT, check the specific N-Stor position using the Fuel Status panel (see Fuel Status in the Features Overview section.)
The Fuel Status display panel is not working when the N-Gen Fuel Cell is turned off.	Check the 9V battery located on the N-Stor fuel system attachment bay.	Replace battery if necessary. Pay careful attention to the correct insertion of the battery as noted on the battery housing.

XRT SPECIFICATIONS

XRT Operation

Start up	Automatic (insertion of N-Stor)
N-Stor Support	Maximum six (6) N-Stors
N-Stor Products Supported	N-Stor130 & N-Stor360
Maximum runtime configuration	2200 W-h / 180 A-h
Electrical	110VAC, 12VDC auto
User Interface	LED for Fuel Status and canister presence

Physical Characteristics

Exterior Dimensions	17.8" L x 7.2" W x 13.5" H
Mass (empty)	14 lb
Mass (full using N-Stor360s)	50 lb

Specifications subject to change without notice.

LIMITED WARRANTY

The limited warranties provided by Jadoo Power Systems, Inc. (“JADOO”) apply only to JADOO-branded products (“JADOO Products”) that you (“Customer”) purchase in the 50 United States, including the District of Columbia for Customer’s own use, and not for resale or for export outside of the United States.

The JADOO Standard Protection Plan provides the Customer with the following: JADOO warrants that the JADOO Products will be free from defects in workmanship and materials, under normal use, for one (1) year from the original purchase date.

The warranties set forth in this Standard do not apply to: any third party products or services included with or used with the JADOO Product.

Damage that results from accident, abuse, misuse, neglect or any use of the JADOO Product other than for its intended use.

Damage that results from any unauthorized attempts to open, maintain, repair or modify the JADOO Product. Damage that results from the JADOO Product being subjected to abnormal physical, thermal or electrical stress, including power fluctuations or other hazards.

Warranty Remedies and Procedures

As Customer’s sole and exclusive remedy and JADOO’s entire liability under this warranty, JADOO will, at its option, repair the JADOO Product or replace it with a comparable JADOO Product. Replacement JADOO Products and parts used to repair the JADOO Products may be new, refurbished or reconditioned. Repaired or replaced JADOO Products are warranted for the unexpired portion of the original warranty period or 90 days from the date of shipment whichever, is longer. All JADOO Products and parts that are replaced become the property of JADOO.

Customer must contact JADOO Technical Support within the warranty period and furnish a dated proof of original purchase prior to the return of any JADOO Product for warranty service. To obtain contact information, refer to JADOO’s website at www.jadoopower.com. Upon validation of Customer’s warranty entitlement, JADOO will issue a Return Material Authorization (RMA) number along with return instructions. Customer must ship the JADOO Product to the designated location, postage pre-paid, in original or equivalent packaging within five (5) days after JADOO’s issuance of an RMA number. JADOO will not be responsible for any JADOO Product damaged or lost in transit. JADOO will return the repaired or replacement JADOO Product to Customer, postage pre-paid, in the United States.

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