

Need Help with your OutBack Power System ?

1. Please first contact your installer / dealer as they will be more familiar with your particular system configuration and the specific components used in your power system.
2. Please review the information in this User Guide and familiarize yourself with the component names and functions of each device.
3. Review the installation and programming manual. This manual is provided with each FX inverter/charger and can also be downloaded from the OutBack Power Systems website at www.outbackpower.com under the **DOCUMENTATION** button.
4. Take notes on the problem you have having - include under what conditions and time that the problem occurs. Also note any recent changes you have made in the operation or setup of the system.
5. If your dealer / installer is not available or if they have not been able to solve the problem – then give a call to us here at OutBack Power Systems at 360 435 6030.
6. Be sure to have your dealer / installer's name and phone number on hand in case we need to contact them to answer a few questions on your application.
7. Also – check to make sure that the serial numbers for your OutBack power electronic products is recorded on the reverse side of this guide. The serial number is often required to check software revision level or other information such as multiple product compatibility or repair / upgrade history.

OutBack Power Systems, Inc
19009 62nd Ave NE - Arlington WA USA 98223
TEL 360 435 6030 FAX 360 435 6019
www.outbackpower.com

OutBack Power Systems

FX series Inverter / Charger

USER GUIDE



Your System Installer / Dealer :

Company: _____

Contact: _____

Tel: (____) _____ --- _____ (____) _____ --- _____

Product Serial Numbers: _____

FX User Guide Revision 2

900-0046-1

OVERVIEW

The OutBack FX series inverter/charger incorporates the latest power conversion technologies together with unmatched rugged construction and extremely flexible system configuration capabilities. The FX series is a "true" sinewave inverter, automatic AC transfer switch and a high performance battery charger all in one unit.

This user guide will help you with the operation and troubleshooting of your OutBack Power conversion system. Although your system may appear different than the configurations shown here – the operation of your system will be similar. This guide does not cover the installation or programming of the inverters – see the other manuals provided with the system for this information.

INVERTER MODELS

OutBack Power Systems offers several versions of the FX inverter/charger:

FX series	Sealed chassis - very environmentally tolerant – North American AC output voltage - 120 VAC / 60 Hz
VFX series	Vented chassis – suitable for protected installations North American AC output voltage - 120 VAC / 60 Hz
FX----M	Sealed Mobile version – for RV and marine installations
FX----T	Sealed version with the optional TURBO cooling fan
FX----E	Sealed Export AC output voltage version - 230 VAC / 50 Hz

MODEL NUMBERS

The model number provides you with information as to the continuous power rating and the battery voltage that the inverter is designed to work with.

For Example: **FX2024 - 2000** watts continuous / **24** vdc battery system

The continuous power rating is the maximum AC load that the inverter can power for several hours under normal temperature conditions. Operation at higher temperature levels or with some types of AC loads may reduce this maximum power capability.

The inverter system is also able to provide higher power levels for short time periods to start motors or other loads with high "starting surges". The performance of the inverter can be affected by the size of the battery and the quality of the installation.

FX SERIES SUB-COMPONENTS

The OutBack FX actually incorporates several different products together:

Inverter	Converts the DC electricity stored in the battery or produced by the alternative energy system into normal household type AC electricity
Charger	Takes AC power from a utility grid or a fuel powered generator and converts it into low voltage DC power to be stored into a battery
AC Transfer Switch	Allows connection of the utility grid or fuel powered generator to the AC loads through the inverter/charger

BATTERY MAINTENANCE

Maintaining the battery is critical for achieving long life from the system and high performance. **WORKING AROUND BATTERIES IS DANGEROUS!** Be sure to read the warnings in the installation manual and take the following precautions:

- Remove metal objects like rings, necklaces and watches
- Wear eye protection such as goggles or a face shield
- Keep water and baking soda near by to dilute and neutralize spills
- Be very careful when using tools around the batteries

CHECK THE BATTERY ELECTROLYTE LEVEL MONTHLY IF THEY ARE NOT THE SEALED TYPE BATTERIES !

- The electrolyte (fluid) in the battery should entirely cover the plates which are visible when the caps are removed from the battery.
- Add distilled water (low mineral content) to the battery to increase the fluid level until it is just below the plastic tube which extends into the battery where the cap was located.
- **DON'T OVERFILL YOUR BATTERY!** Its better to have the battery slightly low on fluid than too high. Spills dilute the battery's electrolyte.
- If the battery is not fully charged when checking the fluid level – just ensure that the battery plates are completely covered. The electrolyte fluid expands as it charges and will overflow if you fill it up and then charge the battery. Be sure to check the level after the battery has been completely recharged.

Inspect all the connections for corrosion and tightness. If corrosion is found – either have your dealer / installer assist with cleaning the affected areas or consult the battery supplier for directions.

BATTERY EQUALIZATION CHARGING

Non-sealed type batteries may benefit from a periodic equalization charge – which is basically a controlled overcharging process. Equalizing is typically done every few months depending on the battery. Equalizing can have the following benefits:

- The electrolyte in the battery can be de-stratified or mixed up to ensure the equal mixing of water and acid throughout the batteries. The gas bubbles formed during the equalization charging process mixes the electrolyte as they rise up to the surface of the battery.
- The battery gets fully recharged – since a battery is really a group of individual battery cells which may not all accept a charge at the same rate – overcharging the full cells allows the low cells to "catch up" to the others.
- All of the active material in the battery is reconverted to its charged state. This reduces the formation of sulfation – hardened battery plate material which is no longer active in the battery.

Consult you battery manufacturer for specific equalization instructions. If they are not available then ask your dealer / installer for their recommendations.

BATTERY CHARGER SETPOINTS

The performance of your power system is dependant on the health of the battery energy storage system. Proper selection, installation and maintenance is critical for achieving high performance levels and efficient system operation.

The battery manufacturer should provide you with specific instructions on the maintenance and charging set point limits for your specific batteries. The following information is to be used when the manufacturer's information is not available

The default settings of the FX series assumes sealed AGM type batteries. To change these settings, an OutBack MATE system display and controller is required. Once the settings have been changed you can remove the MATE and the settings will be retained in the inverter even if the unit is disconnected from the battery.

SEALED TYPE LEAD ACID - AGM / GEL	12 VDC	24 VDC	48 VDC
ABSORPTION VOLTAGE SETPOINT:	14.4 VDC	28.8 VDC	57.6 VDC
FLOAT VOLTAGE SETPOINT:	13.4 VDC	26.8 VDC	53.6 VDC

NON-SEALED TYPE LEAD ACID	12 VDC	24 VDC	48 VDC
ABSORPTION VOLTAGE SETPOINT:	14.8 VDC	29.6 VDC	59.2 VDC
FLOAT VOLTAGE SETPOINT:	13.4 VDC	26.8 VDC	53.6 VDC

Higher settings can be used with non-sealed batteries, but the water consumption will be greater and excessive temperatures when charging may occur.

SETPOINT TEMPERATURE COMPENSATION

The temperature of the battery has an impact on the charging process – in higher ambient temperatures, the regulation setpoints need to be reduced to prevent overcharging of the batteries. In lower ambient temperature conditions, the setpoints need to be increased to ensure complete recharging of the batteries.

The FX series of inverter/chargers has a temperature compensation system built-in which requires the installation of the optional RTS (remote temperature sensor) onto the battery itself (preferable the side of the battery or between multiple batteries)

If the temperature sensor is not included the settings can be manually adjusted for the conditions expected – this is a reasonable solution for tropical applications for example which are not subject to significant seasonal temperature changes.

To manually adjust the setpoints subtract the following amounts from both the absorb and float setpoints for each °C above 25°C or °F above 77°F as follows:

EXPECTED TEMPERATURE	ADJUST SETPOINTS	12V	24V	48V
Average = 35°C / 95°F	Subtract	0.30V	0.60V	1.20V
Average = 30°C / 86°F	Subtract	0.15V	0.30V	0.60V
Average = 20°C / 68°F	add	0.15V	0.30V	0.60V
Average = 15°C / 59°F	add	0.30V	0.60V	1.20V

ACCEPTABLE INVERTER INSTALLATION ENVIRONMENTS

Both the sealed and vented versions of the OutBack inverter/chargers should be installed in a location that protects it from water dripping or being sprayed onto the inverter and other system components such as circuit breakers and controls.

Installation of the inverter in an enclosed space is acceptable but provisions for circulation of cooling air should be allowed or the continuous power capability will be reduced. Additional small low power DC fans can be used to exhaust hot air out of the protective enclosure if required.

In very humid environments the sealed version is preferred – especially for coastal areas where salt air may be present or tropical environments where insect may be a problem. The addition of the TURBO option is recommended on all sealed FXs.

In very hot and dry environments – such as desert areas – the vented version will allow operation of larger loads from the inverter/charger system due to its superior cooling system.

All of the OutBack FX inverter/chargers can be mounted in any position.

SYSTEM TYPES AND TERMINOLOGY

Off-Grid

A system which is not connected to a utility grid. The inverter converts power that is stored in a battery system which is charged by alternative energy power sources or a fuel powered generator. **All versions of the OutBack inverter/chargers can be used in this mode.**

Back-Up

A system which is normally connected to a utility grid and is able to power AC loads from a battery when a utility outage occurs. A back-up generator may also be included for long durations outages. **All versions of the OutBack inverter/chargers can be used in this mode.**

Grid-Tie

A system which is able to send power back into a utility grid when excess power is available from the alternative energy power sources. The same OutBack grid-tie system can also operate as a utility back-up system. **Only GTFX or GVFX models can be used in grid-tie mode.**

Mobile

A system which is used on a RV, boat or other vehicle. The system can power AC loads from a battery which may be charged from the engine alternator, alternative energy sources or a fuel powered generator. The system can also be connected to a utility grid via a shore power cord and is limited to a maximum of 30 amps AC. **Only M versions of the OutBack inverter/charger should be used in mobile power systems.**

Battery-less

A system which operates as a Grid-tie sending power back into the utility grid system but does not include a battery energy storage system. **These type of systems can not provide utility back-up operation and are not offered by OutBack Power Systems.**

OPERATIONAL TERMS

- Inverting** The FX is converting the DC (battery) power into AC (utility grid) power to allow operation of standard household loads
- Charging** The FX is converting the AC power from the utility grid or a generator into DC power to charge the battery storage system.
- Pass-thru** The FX is connected to an AC source and is allowing the AC power to flow through it to operate AC loads.
- Search** The FX has turned off to save power and is producing an intermittent output voltage to determine if AC loads have been connected. Once the FX detects a sufficient level of AC load, it will turn ON and power the loads automatically.
- Silent** The FX is connected to a AC source and is passing power through but is not battery charging. No power is flowing into or out of the battery system in this mode.
- Buying** AC power is being supplied to the inverter from the utility grid or a fuel powered AC generator to operate AC loads or to power the FX's battery charger.
- Selling** The FX is converting DC power into AC power and mixing it with utility power to reduce the power being consumed from a utility grid. If the loads connected to the FX are less than the power available from the alternative energy sources, then the inverter is able to supply power back into the utility grid – spinning the utility meter backwards. ***This feature is only available with the new "G" versions of the OutBack FX inverterchargers.***
- Charger Off** The built-in battery charging system in the FX has been manually turned off. This is often chosen when a system includes significant alternative energy power sources to prevent the utility grid from being used to charge the battery energy storage system.
- Stacked** A system which uses multiple FX inverterchargers connected together to power large AC loads. One of the FXs will operate as a MASTER unit with the other FXs operating as SLAVE units.
- Parallel** The connection of multiple FXs to increase the amount of AC power available without increasing the AC output voltage.
- Series** The connection of multiple FXs to increase the amount of AC power available along with a doubling of the AC output voltage.
- Power Save** A slave FX inverter in a multiple inverter "stacked" system has turned off – reducing the "idle" power consumption of the system to improve the conversion efficiency and to maximize the overall system performance.
- Sealed Battery** Sealed, maintenance free batteries work well with many of the FX operational modes. The best type are called AGM or "absorbed glass mat" and have been found to be more reliable than similar "gel" type sealed batteries for inverter applications.

BATTERY VOLTAGE AND STATE OF CHARGE

The DC voltage of the battery can be used as a guideline to estimate the amount of power stored in the battery that is available for use. When consulting the battery voltage display – ensure that the battery is not under significant charging or heavy loads otherwise the DC voltage is not reflective of the battery state of charge. Often the best time to check the battery voltage is first thing in the morning and the last thing at night.

Operation of the battery below 50% state of charge will adversely affect the long term health of the battery system and will result in premature failure. Keeping the battery above the 50% level and recharging it complete once a month will ensure proper operation and good performance.

	12VDC	/	24VDC	/	48VDC	STATE-OF-CHARGE
over	12.6 VDC	/	25.2 VDC	/	50.4 VDC	= CHARGED
	12.3 VDC	/	24.6 VDC	/	49.2 VDC	= GOOD (~ 75%)
	12.0 VDC	/	24.0 VDC	/	48.0 VDC	= OKAY (~ 50%)
	11.7 VDC	/	23.4 VDC	/	46.8 VDC	= LOW (~ 25%)
under	11.4 VDC	/	22.8 VDC	/	45.6 VDC	= EMPTY

BATTERY TEMPERATURE

The temperature that the battery is kept at can affect the overall storage capacity of the battery system. A battery that is at 32°F (0°C) will have one-half the capacity of the same battery when at normal room temperatures.

Enclosing the battery in an insulated enclosure is a good idea for locations experience cold temperatures. The batteries will "self-heat" themselves to a degree due to the losses in the charging and discharging process. The enclosure will also reduce the impact of sudden temperature changes such as when the weather turns cold for a few days.

REMOTE ON/OFF SWITCH OPERATION

The OutBack FX series inverter charger includes provision for the addition of a remote ON/OFF control switch. The switch can be located in a more convenient location and can be used to reduce power consumption on the system by turning off the inverter when it is not required.

The user supplied ON/OFF switch needs to be connected to the small green terminal located in the AC wiring compartment. The two terminals marked ON/OFF must be either jumpered by the switch or connected with a small piece of wire in order for the inverter to operate. If the connection is poor or if the terminal block is removed, The inverter will not operate.

This remote ON/OFF switch will override the MATE – if the remote switch is in the off position, the inverter can not be restarted from the MATE.

TROUBLESHOOTING YOUR SYSTEM

The following problems are common to any inverter/charger system and cover most of the issues encountered. Tips on what to check are included with each problem. Additional troubleshooting guides are provided with each of the major components of your OutBack Power System. Consult the installation manuals for each product if the following guide does not succeed in correcting your problem.

NO AC POWER FROM SYSTEM:

1. Check that the AC and DC breakers have not been tripped. Cycle each breaker to the OFF and then back to the ON position. Verify that the BYPASS breaker switch is in the **NORMAL** and not the **BYPASS** position.
2. Verify that the LED indicators on the FX inverter/chargers are not displaying red condition. If a red indication is present – verify which red indicator is on.
3. If the BATTERY LOW indicator is illuminated, turn off all DC loads and check that your charging sources are operating. Connect to the utility grid or start your back-up AC generator to allow the battery charger to operate. Note if the yellow AC IN indicator first blinks and then turns solid (indicating that the AC source has been detected and is in use). Watch the battery voltage or the battery condition LED indicators. If the yellow AC IN indicator turns off, see below.
4. If the red ERROR indicator is ON, check the ERROR MENU in the STATUS section of the MATE display for a specific cause.
5. If a MATE display is not available or if no error condition is displayed, turn off all of the AC output breakers for each inverter and all of the loads connected to the system. Turn the inverters off and then back on – either by cycling each of the DC breakers, using the remote on/off switch, or by selecting OFF and then ON using the MATE controller. Verify that the green remote on/off terminal block is installed and has the pre-installed jumper in place or the remote switch is closed.
6. Verify if the green INVERTING indicator turns on or blinks after resetting the inverter. If the green LED is on constantly or is blinking – turn on the AC output circuit breakers and then the individual AC load breakers.

POOR CHARGER OUTPUT / AC SOURCE WILL NOT STAY CONNECTED:

1. Check that the **AC TRANSFER CONTROL** in the **SETUP** menu under **INPUT** is set to the correct source type and amperage limit.
2. Check that other large AC loads are not operating on the inverter AC output while battery charging. Verify that the AC source has a high enough AC voltage to power the charger and the AC loads at the same time.
3. If the AC source is a generator – consult the manufacturer for guidance and adjustment to ensure proper performance and output capacity.

NO DISPLAY VISIBLE ON THE MATE

1. Disconnect the MATE's cable and reconnect it directly to the inverter or controller with another CAT5e cable. Try it on each inverter or controller. If the display does not operate on any of the products, replace the MATE with another unit.
2. If the display works on some cables but not others – replace all of the CAT5e cables with new ones and retest. If problem persists, replace the HUB.

LED STATUS INDICATORS

The FX series inverter/charger includes six multi-color LED indicators located inside of the AC wiring compartment but visible through the transparent plastic cover. A label is included on this cover to allow identification of each LED's function.

Three LED indicators are provided to show the battery condition / DC voltage:
Multiply these voltages by two for 24v systems and by four for 48 volt systems

BATTERY GOOD	GREEN	Voltage at the inverter is over 12.3 VDC
BATTERY OK	YELLOW	Voltage is between 11.8 and 12.3 VDC
BATTERY LOW	RED	Voltage is below 11.8 VDC

Three LED indicators are provided to show the system's operating mode / errors:

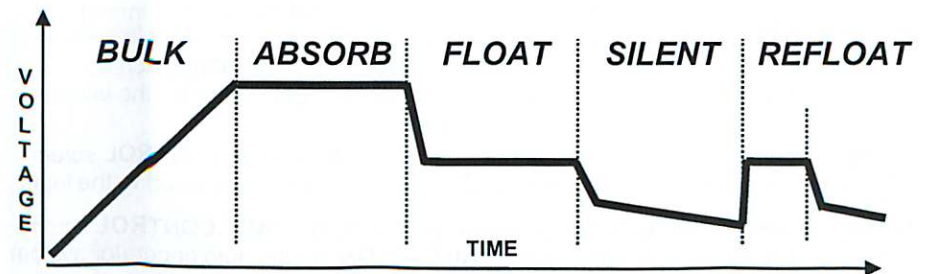
INVERTER	GREEN	ON = Output is live	BLINK = Power Save/Search
AC IN	YELLOW	ON = AC source in use	BLINK = AC available
ERROR	RED	ON = Error condition	BLINK = Warning

MULTI-STAGE BATTERY CHARGING PROCESS

The OutBack FX series inverter/charger includes a sophisticated automatic battery charger which is able to charge from utility grid and fuel powered generators.

The charging process uses several regulation stages to allow fast recharging of the battery energy storage system while ensuring a long battery life, high performance and efficient operation of the overall system.

- BULK** Provides maximum power to battery - voltage increases while charging
- ABSORB** Limits the amount of power going to battery - voltage is held constant
- FLOAT** Reduced charging voltage to prevent overcharging of battery
- SILENT** Charger is OFF - battery is allowed to rest - saves power and money
- REFLOAT** Charger is turned ON because battery voltage dropped to refloat setting



This process can be used with both sealed and non-sealed batteries – the charging regulation setpoints should be changed to the manufacturers recommendations.

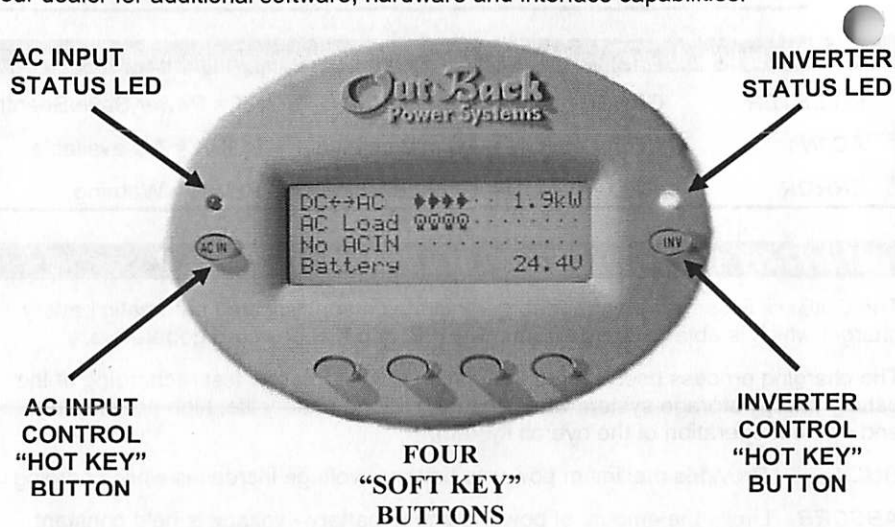
The optional Remote Temperature Sensor is recommended with all sealed batteries.

MATE SYSTEM DISPLAY AND REMOTE CONTROLLER

The OutBack MATE system display and remote controller allows complete monitoring and control of your entire OutBack Power System via a single control panel interface.

The MATE is powered from the inverter system – just plug it in and your ready to go! It can be located up to 1000 feet (300m) from the main power system with just standard CAT5e computer network cable. A 50 foot (15m) cable is included standard with each MATE. The MATE is designed for protected / indoor installations only.

The MATE also includes a RS232 computer serial communication port for monitoring your system with a PC computer or connection of other monitoring devices. Consult your dealer for additional software, hardware and interface capabilities.



AC IN & INV "HOT KEYS" BUTTONS

The MATE includes two dedicated "HOT KEY" buttons to allow access to commonly used control screens. Pressing one of the "SOFT KEY" buttons below the corresponding word on the displays bottom line selects that mode or command.

- INV** One **INV** button press accesses the **INVERTER CONTROL** screen. This allows you to select **OFF**, **SEARCH** and **ON** modes for the inverter.
- AC IN** The first **AC IN** button press accesses the **AC INPUT CONTROL** screen. This allows you to **DROP** or **USE** your AC power source wired to the input.
- AC IN** A second **AC IN** button press shows the **GEN START CONTROL** screen. This allows selection of **OFF**, **AUTO** or **ON** for the auto generator system.
- AC IN** A third **AC IN** button press shows the **CHARGER CONTROL** screen. This allows selection of **OFF**, **AUTO** or **ON** for the battery charger system.
- AC IN** A fourth **AC IN** button press shows the **EQUALIZE CONTROL** screen. This allows a manual **START** or **STOP** of the battery equalizing process.

SYSTEM COMPONENTS

- 1 **Inverter** A device which converts battery type DC power into utility grid type AC power.
- 1 **Charger** A device which converts utility grid type AC power into DC power in order to charge up a battery energy storage system.
- 1 **Transfer Switch** A system which allows an AC power source to automatically power AC loads through the inverter /charger system.
- AC Bypass A manually switched set of circuit breakers or switches which allow an AC source to be connected directly to the AC loads of a system for servicing, emergency situations, troubleshooting or during a system failure.
- 3 **Circuit Breaker** Limits the amount of power which can flow in a circuit. Also can be used as a manual control switch to turn loads or power sources on and off.
- 4 **AC Disconnect** Allows control and means of isolation for the components of the AC power system. These device are usually comprised of circuit breakers mounted in a protective enclosure. This is also called a **PSAC**.
- 5 **DC Disconnect** Allows control and means of isolation for the components of the DC power system. These device are usually comprised of special DC rated circuit breakers mounted in a protective enclosure. This is also called a **PSDC**.
- 6 **Charge Controller** A device which controls the recharging process of a battery from an alternative energy sources.
- 7 **AC Wiring Compartment with optional ACA adapter installed**
- DC Wiring Compartment with optional DCC and DCA adapters installed
- 9 **Power System Rack Battery Enclosure**

AC BYPASS OPERATION

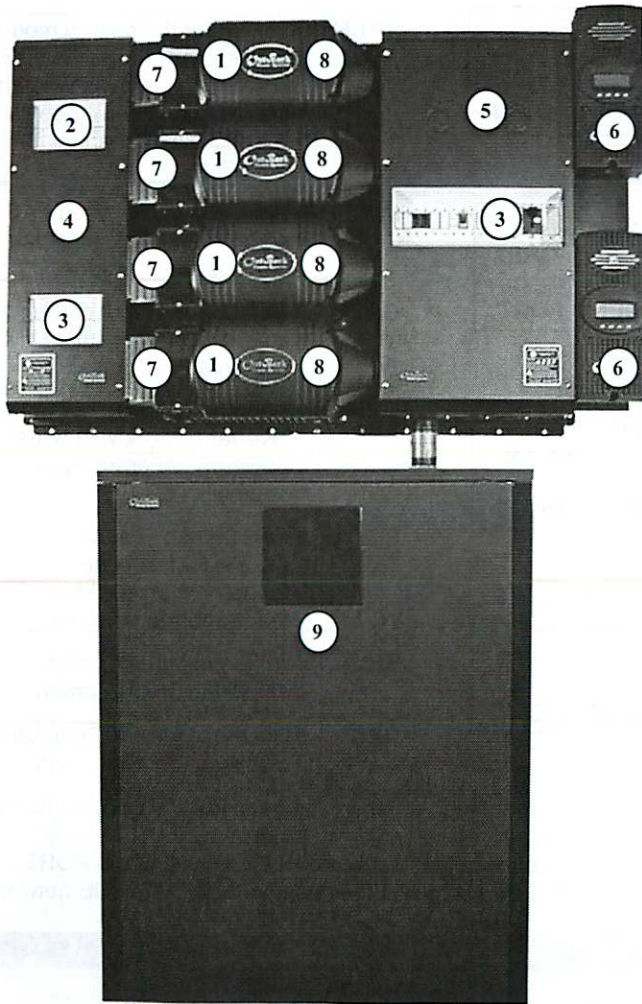
A manually switched set of circuit breakers are provided as part of the AC disconnect enclosure to allow an AC source to be connected directly to the AC loads of a system for servicing, emergency situations, troubleshooting or during a system failure.

Either a rocking mechanism or a sliding metal plate (depending on the model of AC disconnect involved) is provided to prevent accidental turning on of both the inverter output breaker(s) and the bypass breaker(s) at the same time. Typically, the bypass should be left in the "NORMAL" position and only switched over manually to the "BYPASSED" position when required for servicing or in the case of an inverter shutdown or other system error condition.

TYPICAL OUTBACK POWER SYSTEM

Shown here is a complete OutBack "QUAD" power system panel comprised of four FX series inverter/chargers, two OutBack MX-60 PV MPPT charge controllers, a PSDC enclosure with DC disconnects and a PSAC enclosure with bypass and AC disconnects. Your system might look different from this picture but the function of the parts used will be similar.

Located below the Power System panel is an OutBack Power System Rack (PSR) which encloses and protects the battery energy storage system.



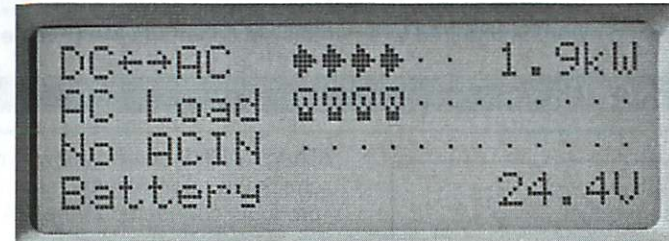
MATE MENU SYSTEM

The menu system of the MATE is divided into four sections:

- SUM** Provides a **SUMMARY** of the power system's operation and status
- STAT** Provides access to each product's **STATUS** – i.e. modes, meters & errors
- SETUP** Provides access to the basic user adjustable **SETUP** items of each FX
- ADV** Provides access to the **ADVANCED** menu for adjustment of the system
This **ADV** menu section is restricted by requiring a **PASSWORD** to enter

SUMMARY SCREEN EXAMPLE

The **SUM** screen allows you to see what is happening with your entire OutBack Power System on a single screen. The amount of power in and out of the system is represented graphically to make it easier to visualize where the power is flowing.



Each line of the **SUM** screen shows what is happening with each part of the system.

- DC ↔ AC** Shows the amount of power going in or out of the FX inverter/charger. Each arrow represents approximately 500 watts on a single FX inverter system, 1000 watts on a dual FX system and 2000 watts on a Quad FX system. The actual kilowatts of power is also displayed.
- AC LOAD** The level of AC loads powered is also displayed using a light bulb icon.
- NO ACIN** Indicates that there is not a source of AC power connected to the FX. When an AC source is connected the words **NO ACIN** changes to either **BUYING** or **SELLING** and shows \$\$\$ proportional to the amount of power flowing in-from or out-to the AC source (or utility).
- BATTERY** Displays the actual battery voltage at the terminals of the FX.

If you have other OutBack products in your system, then additional SUMMARY screen displays can also be displayed by the MATE. For example, when a MX60 PV MPPT charge controller is connected to the MATE the **SUM** screen will automatically display the output power being produced by the PV array through the MX60.

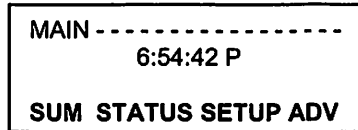
If both a FX and a MX60 controller are connected to the same MATE, then the display will automatically switch between the two screens every 20 seconds.

Pressing any of the four "soft keys" when the **SUM** screen is displayed will return you to the **MAIN** screen which also displays the time of day set in the MATE.

MAIN SCREEN

The **MAIN** screen is the starting point for navigating the MATE's menu system.

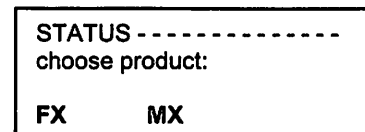
Pressing the left two **SOFT KEY** buttons at the same time will return you directly to the **MAIN** screen from anywhere in the menu system.



The main screen also displays the time set in the MATE's internal clock. This clock is used by the Generator Start system and other advanced features

SUM	Provides a summary of the system's present operation
STATUS	Allows monitoring of the system's operation and errors/warnings
SETUP	Allows adjustment of a limited number of system settings
ADV	Provides access to all of the systems control settings – a pass word is required to enter this section of the MATE's menu system

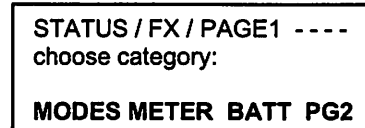
STATUS SCREENS



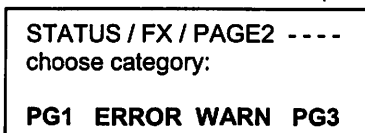
The **STATUS** screen allows you to check the operation and status of all products connected to the MATE.

Additional products will be added to this OutBack product network in the future.

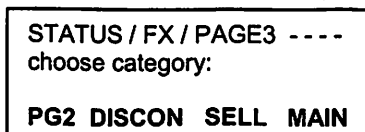
Selecting **FX** advances the screen to allow selection of the following items:



MODES	Displays the operating mode
METER	Displays the AC V&A meters
BATT	Displays the battery info
PG2	Advances to the second page



ERROR	Shows any error conditions
WARN	Shows any system warnings
PG3	Advances to the third page

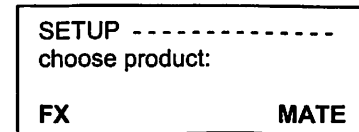


DISCON	Displays last reason the FX dropped the AC source
SELL	Displays last reason the FX stopped selling power to the utility grid
MAIN	Returns to the MAIN screen

For more information on the specifics of each meter and mode display – see the MATE and FX manuals provided with each of the products in your system.

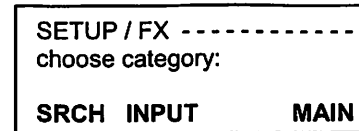
SETUP SCREENS

The **SETUP** screen allows you to make a few adjustments to the operation of the system without entering the advanced programming section

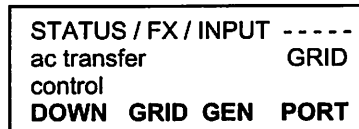


Selecting **MATE** allows you to make adjustments in the operation of the MATE itself – see the MATE's manual for a complete explanation of these settings and their applications.

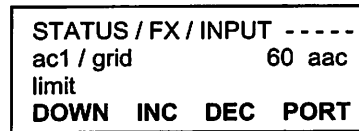
Selecting **FX** advances the screen to allow adjustment of the following items:



SRCH Setting for the search mode system which reduces the power consumption when no load is connected. See the FX and MATE manual for more information

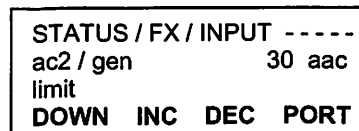


INPUT Selection of the type of AC source which is connected to the inverter/charger system.



GRID Sets the AC input of the FX inverter to work with a Utility grid type AC source

GEN Sets the AC input of the FX inverter to work with a fuel powered generator type AC source



PORT Switches the connection of the MATE from one product to the next product based on the number on the HUB jacks

INC Increases the AC amps limit displayed on the screen

DEC Decreases the AC amps limit displayed on the screen

When more than one inverter is connected to a system, a number will be displayed in the top right corner of the screen for any setting or meter displayed. This is the **PORT** or jack in which the product is connected to the HUB. Pressing the **PORT** button again will advance it to the next applicable device on the MATE/HUB network.

ADVANCED SCREENS

The advanced section of the programming menu requires considerable system understanding and should only be accessed with the assistance of the installation and programming manuals. Consult these documents prior to making any changes to the settings or operation of your system.