

mcPhilben®

emergency lighting

Job Name: _____

Type: _____

Voltage: _____



HFT SERIES Fast Transfer Power Systems for 1,500VA through 16,700VA Single Phase

CODES AND STANDARDS

All models are UL924 Listed and meet NFPA 70, NFPA 101 Life Safety Code, NFPA 110, UBC, SBCCI, NEC, OSHA, Local and State Codes.

BATTERY

Standard Battery: Sealed lead calcium maintenance free battery designed to provide many years of dependable service. Optional batteries include long life lead calcium or wet nickel cadmium.

HOUSING

Cabinets: Electronics and battery cabinets are freestanding heavy duty NEMA Type 1 steel finished in neutral tan baked-on powder paint providing scratch and corrosion resistance.

ELECTRONICS

Charger Type: Fully automatic microprocessor controlled, temperature compensating.

Utility Input: 120, 208, 240, 277, 347, 480 ±10% 60 Hz.

Altitude: <10,000 feet above sea level without derating

Operating Temperature Range: 32°F to 104°F (0°C to 40°C)

Relative Humidity: <95% (non-condensing)
Run time: 90 minutes standard (UL924).

Contact factory for other run time information.

Recharge Duty Cycle: 24 Hours

Controls: Microprocessor controlled, 2x20 character display with touch pad interface
5 LED Indicators with Ringback Alarms

AC Present

System Ready

Battery Charging

Battery Power

Fault

Safety Features:

Input and Output Circuit Breakers

Low Voltage Battery Disconnect: Protects the battery from being severely damaged by deep discharge during prolonged power failures.

Automatic restart upon return of utility power.

DC Overload and Short Circuit Protection:

Provided by a disconnect circuit that automatically resets itself when the fault condition is corrected.

OPERATION

Upon failure of the normal utility power the HFT system is instantly turned on by a solid state, high frequency switching circuit and provides a minimum of 90 minutes of emergency power to the connected load. A solid state low voltage disconnect circuit is used to protect the battery from being severely damaged by a deep discharge. When normal utility power is restored, the fully automatic, temperature compensated, variable rate charger begins to restore the battery; bringing it to full charge within UL924 requirements.

CATALOG NUMBER (Example: HFT-1500-R-P-FS)

FAMILY	SYSTEM SIZE	INPUT/OUTPUT VOLTAGE	BATTERY	OPTIONS
HFT			P	
HFT - Fast Transfer Power System for emergency lighting	1500 - 1.5kVA/KW 2250 - 2.25kVA/KW 3000 - 3.0kVA/KW 3750 - 3.75kVA/KW 4800 - 4.8kVA/KW 6000 - 6.0kVA/KW 8000 - 8.0kVA/KW 10000 - 10.0kVA/KW 12500 - 12.5kVA/KW 16700 - 16.7kVA/KW	A: 120 - 120 B: 120 - 277 C: 120 - 120/277 D: 120 - 120/240 I: 208 - 120 J: 240 - 120 N: 120/240 - 120/240 R: 277 - 277 S: 277 - 120 T: 277 - 277/120 V: 480 - 120 W: 480 - 277	P - Sealed Lead Calcium (10 year life) G - Sealed Lead Calcium (20 year life) V - Wet Cell Nickel Cadmium (25 year life)	N - Normally-Off Output (Emergency Only Operation of Load) OCB - Output Circuit Breaker(s) ¹ FCH - Battery Charger Upgrade (12-hour Recharge Cycle) AR - Alternate Run Time (Specify Time in Minutes) M - Internal Maintenance Bypass Switch EMBP - External Maintenance Bypass Switch S - Summary Form C Contacts (System Alarm Activated) SEISMIC - Seismic Mounting Kit - (Meets Zone 4)
				Requirements) MOD - External Modem FAX - Internal Fax Modem A - Auto Dialer (Utility Failure or System Alarm Activated) SNMP - Simple Network Monitoring Protocol RMP - Remote Meter Panel RSAP - Remote Summary Alarm Panel FS - Factory Start-Up (Includes One Additional Year of Warranty) ² EW - Extended Warranty (Includes Factory Start-Up Service) ²

FOOTNOTES

¹ To specify, refer to Output Circuit Breaker Ordering Guide on back page.

² Warranty extensions apply to system electronics only. System batteries are covered by a separate pro-rata warranty which remains unchanged.

Note: Refer to back page for additional options information

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INSTALLATION

Freestanding cabinets bolt together when more than one cabinet is required. An optional seismic kit is available for securing systems in areas requiring earthquake resistance, see "Options" section on front.

Wiring: Wiring is provided for by conduit knockouts in the system cabinetry. All inter-cabinet and battery connection cables and jumpers are supplied with each HFT system.

TESTING

HFT systems incorporate manual and automatic test modes. Manual testing can be performed at any time through the unit's user interface control panel. HFT systems automatically perform a 5-minute self-diagnostic test each month at a user designated time of day. HFT systems also automatically perform a full 90-minute diagnostic/discharge test once a year on a user designated day and time.

WARRANTY

Unit: 1-year full coverage against defects in materials and workmanship from date of shipment.

Standard Battery: 1 year full warranty plus an additional 9 years of pro-rata coverage.

Optional long life lead calcium battery: 1 year full warranty plus 14 years of pro-rata coverage.

Optional Wet Nickel Cadmium Battery: 2 years full warranty plus 18 years of pro-rata coverage.

Extended warranty options are available.

SPECIFICATIONS

System Catalog No.	System Efficiency (Full Load)	Audible Noise (DBA) (@ 1 Meter)	Heat Loss (BTUs)	No. Of Batteries	Battery Voltage (VDC)	Battery Current (Amps)	AC Input Current				Total System Weight	
							120VAC		277VAC		Lbs	Kg
							Run	Max.	Run	Max.		
HFT-1500	97	45	75	4	48	39	13	16	5.5	7	511	233
HFT-2250	97	45	100	6	72	38	20	24	8.5	11	674	307
HFT-3000	97	45	100	8	96	38	26	32	12	14	827	376
HFT-3750	97	45	200	10	120	37	33	39	14	17	980	445
HFT-4800	97	45	245	12	144	40	42	50	18	22	1,168	531
HFT-6000	97	45	300	15	180	40	52	63	23	27	1,560	710
HFT-8000	97	45	400	20	240	39	69	84	30	36	1,965	892
HFT-10000	97	45	500	24	144	82	86	105	38	45	2,516	1,143
HFT-12500	97	45	640	30	180	82	108	131	47	57	2,980	1,353
HFT-16700	97	45	840	40	240	80	144	174	62	76	3,790	1,721

Output

Specification listed are for 90 minute rated systems utilizing standard type "P" batteries. Consult factory for specifications on models with alternate batteries and runtimes.

METERING/CONTROLS



2x20 character display with touch pad user interface.

Meter Functions:

- AC voltage input
- AC voltage output
- AC current output
- Battery voltage
- Battery current
- VA output
- Inverter watts
- Inverter minutes (cumulative)
- Ambient temperature
- System days (cumulative)
- Date and time

Program Functions:

- Set date
- Set time
- Set month test/set month time
- Set annual test date/set annual test time
- Set load fault reduction setting
- Set low battery alarm
- Set near low battery alarm
- Set low AC voltage alarm
- Set high AC alarm
- Set ambient temperature alarm

Alarm Functions:

- High Battery Charger Voltage
- Low Battery Charger Voltage
- High AC Input Voltage
- Low AC Input Voltage
- Near Low Battery Voltage
- Low Battery Voltage
- Load Reduction Fault
- High Ambient Temperature
- Inverter Fault
- Output Fault
- Output Overload

Test, Event and Alarm Logs

Test and Event Logs
(75 logs stored in memory)
Recorded Data: Date, time, duration, output voltage, output current, ambient temperature, alarms present.

Alarm Log (50 logs stored in memory)
Recorded Data: Date, time, alarm type

5 LED Indicators and alarms with ring-back feature buzzer: On/Off (toggle)

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SUGGESTED SPECIFICATIONS

The Central Inverter System (CIS) supplied shall be of the fast Transfer design able to reliably back up fluorescent, incandescent and HID fixtures up to its full rated output. Output rating shall be at unity power factor, VA=Watts. CIS shall be UL924 listed and labeled.

Operation

During normal operation, the load shall be supplied from the input line. The batteries shall be kept at full charge by a software controlled, temperature compensated automatic charging system.

Upon input power loss, the CIS shall transfer to inverter operation within 2 milliseconds; all connected loads shall continue to operate at full lumen output for the full discharge time. Discharge shall be not less than 90 minutes.

Upon power restoration, the CIS shall automatically synchronize with the input line, and re-transfer to standby operation without causing any disturbance to the connected load.

Monitors and Controls

The CIS shall incorporate a user interface panel comprising of a keypad, 5 status LEDs, and a 2 x 20 LCD display. All metered functions along with event information shall be accessible through the interface. The interface shall be password protected to prevent unauthorized tampering.

Metering shall include AC input and output voltages, AC output current, battery voltage, battery current, VA output, inverter watts, inverter minutes, ambient temperature, system days, date and time.

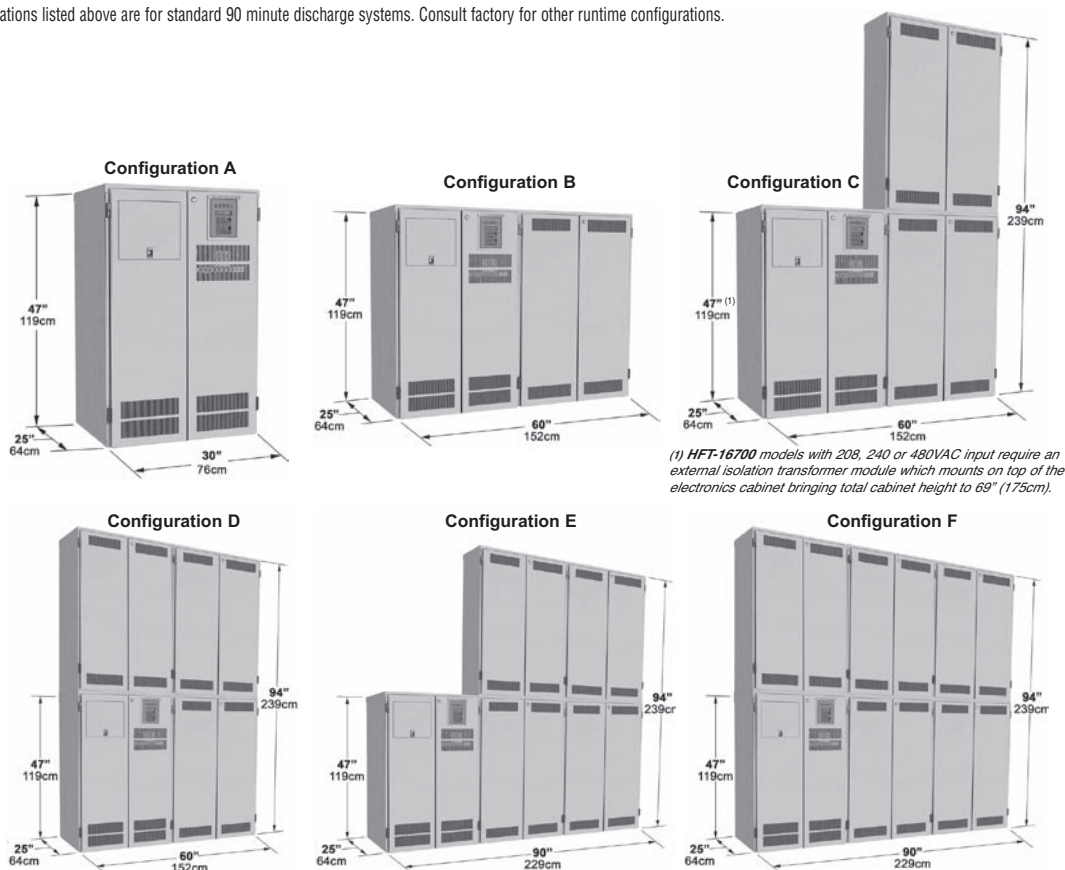
The CIS shall be completely self testing and self diagnostic. Automatic testing shall include a 5-minute monthly test and a 90-minute annual test. All test results shall be recorded automatically in the test log. Any test failures shall trigger a local visual/audible alarm. The CIS shall incorporate a minimum of 11 audio/visual alarms to alert users to any potential malfunction.

CIS shall be designed in such a fashion that it facilitates field upgrades in 500 VA/Watt increments up to a maximum of 2000 VA/Watts.

CABINET CONFIGURATIONS AND DIMENSIONS

Battery Type	System Model Number									
	HFT-1500	HFT-2250	HFT-3000	HFT-3750	HFT-5000	HFT-6000	HFT-8000	HFT-10000	HFT-12500	HFT-16700
P - Lead Calcium (Standard)	A	A	A	A	A	B	B	C	C	C
G - Lead Calcium (Long Life)	A	A	A	A	A	B	B	C	C	C
V - Wet-Cell Nickel Cadmium	B	B	C	C	C	D	D	D	E	F

NOTE: Configurations listed above are for standard 90 minute discharge systems. Consult factory for other runtime configurations.



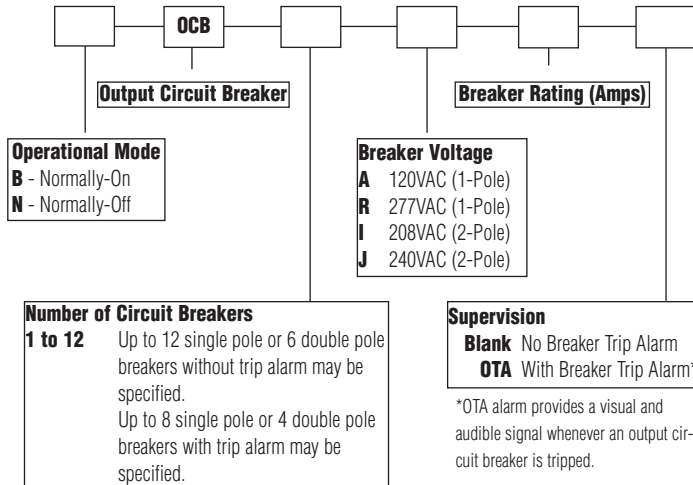
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SYSTEM OPTIONS

NORMALLY-OFF OUTPUT (-N)

The system's output circuit is dedicated to emergency equipment only. Normally off loads operate only during power failures when the system is operating in battery mode. This option leaves connected loads off during normal utility power conditions.

OUTPUT CIRCUIT BREAKER ORDERING GUIDE



BATTERY CHARGER UPGRADE (FCH)

The battery charger upgrade option decreases the time required to return a fully discharged battery to the fully charged state. The normal 24 hour recharge cycle is reduced to 12 hours.

ALTERNATE RUN TIME (AR)

The system's normal 90-minute discharge cycle can be specified to meet decreased or increased run times in special product applications. Specify required discharge time in minutes. Example: **AR** (30)

INTERNAL MAINTENANCE BYPASS SWITCH (M)

The internal maintenance bypass switch is a "make before break" disconnect device used to completely isolate the inverter system from the connected load. This option allows the system to be safely powered down for maintenance or service without interruption of utility power to the connected load.

EXTERNAL MAINTENANCE BYPASS SWITCH (EMBP)

The external maintenance bypass switch is supplied in a 20"H x 16"W x 9"D NEMA 1 enclosure and is a "make before break" disconnect device used to completely isolate the inverter system from the connected load. This option allows the system to be safely powered down for maintenance or service without interruption of utility power to the connected load. The option may not be specified on systems with more than one single pole output circuit breaker which must be sized for the total system output current.

SUMMARY FORM C CONTACTS (S)

Summary form C low power contacts allow connection points for alarm relay outputs for remote monitoring purposes. Rated at 5 amps (250VAC/30VDC), the contacts will change state with the activation of the following alarms: High/Low Battery Charger Voltage, High/Low AC Input Voltage, Near Low Battery Voltage, Low Battery Voltage, Load Reduction Fault, High Ambient Temperature, Inverter Fault, Output Fault, Output Overload as well as with optional circuit breaker trip alarms if supplied.

SYSTEM OPTIONS (cont.)

SEISMIC MOUNTING KIT (SEISMIC)

The seismic mounting kit option is designed to prevent system movement during seismic events. Heavy duty brackets are provided to secure system cabinetry to floor surfaces. Meets Zone 4 requirements.

EXTERNAL MODEM (MOD)

The external modem is designed to boost the signal level of the RS-232 communications interface to remote monitoring locations more than 100 feet away from the system location.

INTERNAL FAX MODEM (FAX)

The internal fax modem automatically provides notification of routine self-diagnostic test results and alarm conditions to up to eight pre-programmed phone number locations. The fax modem option may also be used to perform a variety of system functions via phone line through the system's RS-232 communications interface. Option includes computer module, modem card, factory installed software and all connection cables. The Fax Modem option requires a user supplied dedicated analog phone line.

AUTO DIALER (A)

The Auto Dialer modem option automatically dials up to four user-programmable phone numbers in the event of any system alarm condition. The option is designed to deliver a predetermined digital or audible message when activated. The Auto Dialer option requires a user supplied dedicated digital or analog phone line.

SIMPLE NETWORK MONITORING PROTOCOL (SNMP)

The SNMP option consists of an externally mounted box that provides a communications interface between the inverter system's RS-232 port and an Ethernet 10BASE-T local area network. The option allows LAN monitoring of system status and all operating parameters. LAN servers with VPN remote access further allow system status monitoring via the World Wide Web.

REMOTE METER PANEL (RMP)

Allows remote monitoring of system status and all operating parameters from locations up to 300 feet away from the inverter system. Additionally, the panel provides a complete touch pad interface allowing the user to monitor, control and program the inverter system remotely.

REMOTE SUMMARY ALARM PANEL (RSAP)

Remote alarm annunciator panel provides a visual and audible indication of system status and alarm conditions. The panel option which consists of five LED indicators and built in audible alarm may be located up to 1,000 feet away from the inverter system. Option requires user supplied two-conductor, 20AWG interconnecting cable.

FACTORY START-UP (FS)*

Initial on-site power up and test of inverter system and accessories performance to factory specifications by the manufacturer's local authorized service representative. Includes one additional year of warranty.

EXTENDED WARRANTY (EW)*

Extends standard one year factory warranty up to an additional four years. Includes Factory Start-Up Service.

*Warranty extensions apply to system electronics only. System batteries are covered by a separate pro-rata warranty which remains unchanged.