



TRU-SINE MPS Series

PURE SINE WAVE ULTRA-MICRO INVERTERS 20-55 WATTS



PROJECT: _____
FIXTURE TYPE: _____
LOCATION: _____
CONTACT/PHONE: _____

Pure Sine Wave ultra-micro inverter systems for powering between 20 and 55 Watts of incandescent, fluorescent or LED lighting loads. Pulse width modulated (PWM) output design provides clean, 60 Hz. sinusoidal emergency power to lighting loads. Models are available for surface, recessed or T-Grid mounting as required. MPS models support normally-on, normally-off or switched operation.

PRODUCT FEATURES

- Powers LED, incandescent and fluorescent fixtures
- True sinusoidal AC PWM design provides clean emergency output
- Universal 120/277VAC, 60Hz. input/output
- Unit capacities from 20 to 55 watts
- Soft Start design reduces fixture inrush current
- Install up to 1000 feet from controlled fixture(s)
- Surface, recessed or T-Grid mount models
- Lumen output from fixture is 100% of nominal
- Unique design eliminates compatibility problems with LED drivers and fluorescent ballasts
- Does not need to be derated for LED
- Normally-on and/or Normally-off load output
- Provisions for local switching capability - Always on during emergency conditions regardless of local switch position
- Temperature compensated, dual-mode charger
- Low voltage disconnect provides protection against battery deep discharge
- Maintenance-free lead-calcium and nickel-cadmium batteries offered
- Control panel with momentary test switch
- AC-On, Charge-On and Inverter-On LED indicators
- Fuse protection, Reverse battery and AC lockout protection
- Meets NFPA Life Safety Code 101, OSHA, NEC, State and local Codes
- 90 Minute Runtime Minimum
- UL 924 listed



Surface Mount Housing



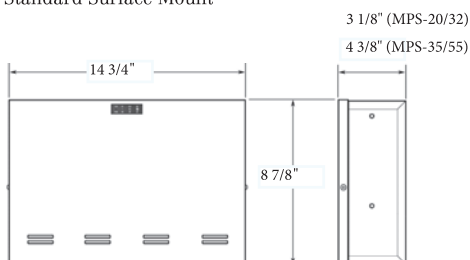
Recessed Mount Housing



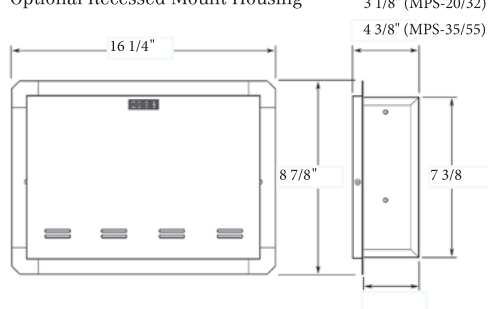
T-Grid Mount Housing

DIMENSIONS

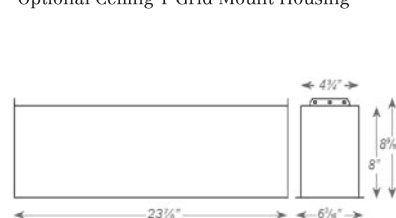
Standard Surface Mount



Optional Recessed Mount Housing



Optional Ceiling T-Grid Mount Housing



ORDERING INFORMATION

MODEL #	WATTS/VA RATING*	BATTERY TYPE	OPTIONS	DESCRIPTION
MPS-20	20 W/VA	Nickel-Cadmium	SD	Self-Diagnostics
MPS-32	32 W/VA	Lead-Calcium	SF	Surface Mount Housing (standard)
MPS-35	35 W/VA	Nickel-Cadmium	RMH	Recessed Mount Housing
MPS-55	55 W/VA	Lead-Calcium	TGRD	Plenum Rated Ceiling T-Grid Mount
			CC	Custom Housing Color

Ordering Example: **MPS-20-SF**

*capacity for 90 minutes





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APPLICATION

The MPS Series is designed to provide up to 20 TO 55 watts of emergency power to LED, Fluorescent and/or incandescent light fixtures. The MPS unit provides clean, sinusoidal AC output power allowing it to be remotely mounted up to 1000 feet away from the controlled fixture(s). Unlike a fluorescent emergency ballast, the MPS provides power to the input side of the fixture (including the ballast) eliminating any chance of incompatibility. The MPS Series is available for surface, recessed or ceiling T-Grid mounting as required. All MPS systems will provide emergency power output for a minimum of 90 minutes.

CONSTRUCTION

The MPS Series housing is constructed of heavy duty steel cabinet that is finished with a white baked-on powder paint providing scratch and corrosion resistance. Optional color finishes are available, consult factory.

MOUNTING

SURFACE MOUNT: (STANDARD MODELS)

Surface mount models are designed for mounting to walls by means of keyhole slots provided in the rear of the unit housing.

RECESSED MOUNT:

Recessed models provide a trim flange and recessed mounting holes on both sides of the enclosure.

T-GRID MOUNT:

The housing design allows for simple drop-in installation between standard T-Grid runs. Safety wires (supplied by others) are required for attachment to building structure.

GENERAL SPECIFICATIONS

System Model Number	Housing Size	Input/Output Voltage (60Hz.)	Capacity (90 Min) Watts/VA	Battery Type	Power Consum. (Max.)	Battery Voltage (Vdc)	DC Input Current (Adc)	Input Current		Thermal Output In BTUs		Temp. Range (°C)	System Weights	
								120VAC (Max.)	277VAC (Max.)	Standby	Emerg.		Lbs.	Kg.
MPS-32	Small	120/277	32/32	Lead-Calc.	9W	12	3.4	0.34A	0.15A	7	32	20 to 30	14	6.4
MPS-55	Large	120/277	55/55	Lead-Calc.	9W	12	5.7	0.54A	0.23A	7	47	20 to 30	18	8.2
MPS-20	Small	120/277	20/20	NiCad	9W	12	2.1	0.25A	0.11A	31	22	0 to 50	11	5.0
MPS-35	Large	120/277	35/35	NiCad	9W	12	3.8	0.37A	0.16A	31	35	0 to 50	12	5.4

WIRING

Connection to an unswitched AC circuit is required by the NEC. Wiring access is provided for by conduit knockouts in the unit housing. MPS Series models also provide knockouts in the back of the housing for rear wiring from standard electrical boxes when surface mounting.

LOAD COMPATIBILITY

MPS model's clean, sinusoidal AC output will operate incandescent lamps as well as all common fluorescent and LED lamp types. Lighting loads are driven at 100% output for the entire emergency power cycle. This outstanding feature translates into greater occupant egress vision and safety.

CODE COMPLIANCE

All models are UL924 Listed and meet NFPA 101 Life Safety Code, NEC, OSHA, Local and State Codes. Optional T-Grid models are plenum rated.

OPERATION

Upon failure of the normal utility power the MPS unit is automatically turned on by a solid-state switching circuit and provides a minimum of 90 minutes of emergency power to the connected load. Lumen output will be maintained at 100% of the lamps rating throughout the entire duration. 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 unit switches the load back to normal utility operation and the fully automatic, temperature compensated, dual mode charger begins to restore the battery; bringing it to full charge within UL924 specified parameters. A brownout sensing circuit insures proper operation during "low line" conditions.



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ELECTRICAL

Input

Input Voltages: (60Hz) 120 or 277VAC $\pm 10\%$

Input Frequencies: 60Hz $\pm 2\%$

Input Protection: Provided by Service Panel, Rated 20A Max

Output

Output Voltages: (60Hz) 120 or 277VAC

Efficiency Rating: 98% at full rated load (line)

Waveform: Sinusoidal (digitally controlled)

Static Voltage: $\pm 5\%$ during battery discharge. 0-100% linear load.

Output Frequencies: 60 Hz. $\pm 0.3\text{Hz}$ during emergency cycle

Output Distortion: Less than 3% THD (linear load)

Transfer Time: Less than 1.0 second

Load Power Factor Range: 0.44 Lead to 0.44 Lag

Minimum Loading: 0% of rated system capacity

Output Protection: Inverter fuse

IMPROVED AESTHETICS

The MPS system's sinusoidal AC output design eliminates voltage drop and proximity concerns. This allows added flexibility in installation location as MPS units can be installed hundreds of feet from the units they power. This means MPS units can be located conveniently out of sight in closets or utility rooms without interrupting architectural aesthetics. In lighting applications, no special or additional emergency fixtures are necessary. Simply designate and connect existing lighting fixtures, either interior or exterior, to the MPS unit for emergency operation eliminating the need for exposed, stand-alone emergency luminaires.

WARRANTY

Unit: 3-years full coverage against defects in materials and workmanship from date of shipment

Lead-Calcium Battery: 3 years full warranty plus an additional 7 years of pro-rata coverage

Nickel-Cadmium Battery: 5 years full warranty plus an additional 7 years of pro-rata coverage

BATTERIES & CHARGER

Battery

Battery: Lead Calcium (10 year life) or Ni-Cad (15 year life)

Battery Voltage: 12VDC for all models

Runtime: 90 minutes standard - based on battery performance at 77°F (25°C).

Other runtimes available, consult factory.

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

DC Overload and Short Circuit Protection provided by a DC input breaker and fuse.

Charger

Charger Type: Fully automatic, temperature compensated, dual-mode charger

Power Consumption (Charger Only):

9W maximum (2.5W in standby)

Recharge Duty Cycle: Meets UL924 requirements

Controls: Momentary test switch, AC-On, Charge-On and Inverter-On LED indicator lights

Safety Circuitry: AC Lockout prevents battery discharge prior to initial unit power-up. Brownout Protection automatically switches the unit to emergency mode when utility voltage is significantly reduced.

Environmental

Altitude: < 10,000 feet (3,000m) above sea level without derating.

Operating Temperature Range:

Lead-Calcium Models: 68°F to 86°F (20°C to 30°C)

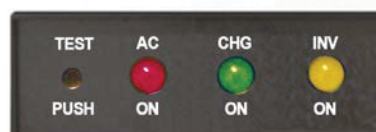
Ni-Cad Models: 32°F to 122°F (0°C to 50°C)

NOTE: Optimum system performance between 20°C (68°F) and 30°C (86°F); temperatures outside of this range will affect battery performance and life.

Relative Humidity: 95% non-condensing

SYSTEM STATUS MONITORING PANEL

All MPS systems provide a monitoring panel on the front of the unit to show operating status at all times. The panel provides a test switch for user initiated system tests and a 3-LED array that provides an intuitive visual indication of unit readiness.





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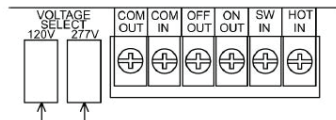
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AC INPUT CONNECTION DIAGRAM

VOLTAGE SELECT DETAIL



NOTE: Voltage selection plug is shipped loose from factory. User installation is required.

WIRING DIAGRAMS

Diagram 1. NORMALLY ON LOADS

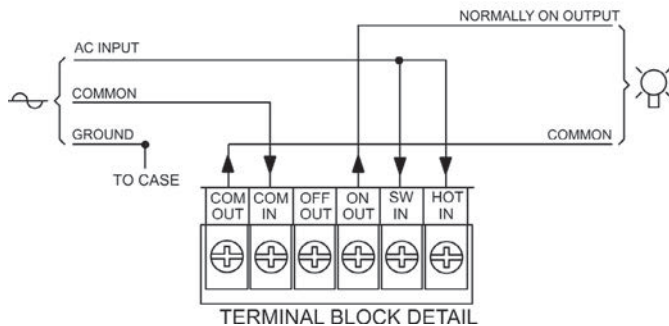


Diagram 2. NORMALLY OFF LOADS

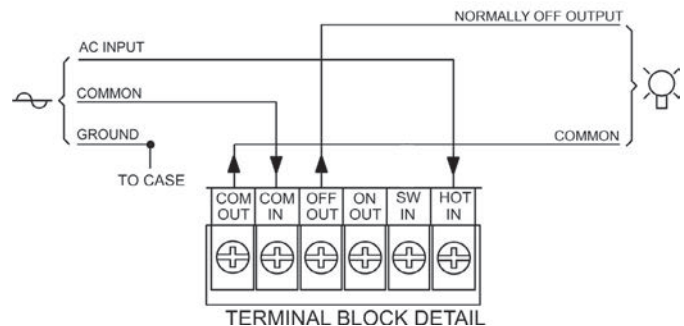
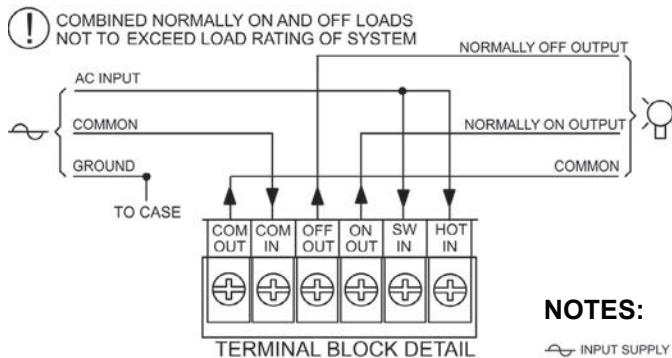


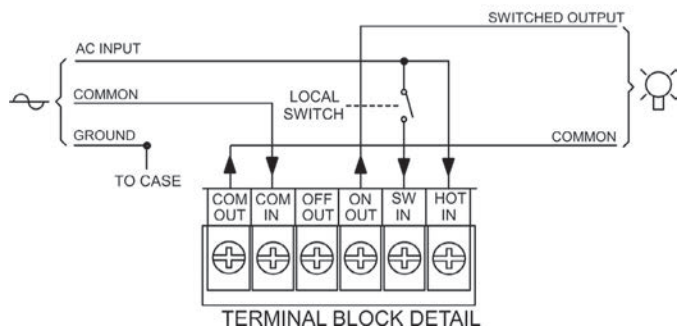
Diagram 3. NORMALLY ON & OFF LOADS



NOTES:

- INPUT SUPPLY FROM UNSWITCHED UTILITY RATED 20 AMPS MAXIMUM.
- OUTPUT(S) TO LIGHTING LOADS

Diagram 4. SWITCHED LOADS



SUGGESTED SPECIFICATION

An inverter system with sinusoidal output shall be supplied capable of powering any combination of lighting fixtures, including incandescent, fluorescent, induction and/or LED light sources without compatibility problems. The system shall transfer in less than 1.0 second to reliably back up lighting fixtures without loss of illumination and operate any and all connected lighting fixtures at full lumen output during the complete 90 minute discharge cycle. The input voltage shall be the same as the output voltage and shall be single phase (120) (277) volts, 60 Hz. Capacity will be (20 Watts) (32 Watts) (35 Watts) (55 Watts) for a minimum duration of 90 minutes. The design shall be a standby, off-line inverter with on line efficiency of 98%; on-line double conversion UPS systems shall not be considered acceptable alternatives. MPS system output shall be a PWM generated sine wave with less than 3% total harmonic distortion. The system shall also provide short circuit and overload protection as standard. An intuitive three LED display shall provide system operational information at a glance and alert user to any malfunction in system performance. Authorized maintenance personnel shall have access to the system's controls while being protected from any live exposed connections. Protective devices shall include a DC input fuse. AC input overcurrent protection for live circuits to be provided by service panel rated 20A maximum. AC lockout, reverse battery connection, low voltage battery disconnect (LVD), short circuit and overload protection shall be provided standard on all models. The entire MPS system, including batteries, shall be provided in compact cabinetry which shall have provisions for (surface)(recessed)(T-Grid) mounting. System shall utilize a (sealed lead calcium battery with a 10 year design life)(sealed Nickel-Cadmium battery with a 15 year design life). The charger shall be temperature compensated, dual mode type, and recharge the batteries as per UL 924 guidelines. Entire system shall be tested, approved, and labeled to UL924 Emergency Lighting and Power Systems standards. (T-Grid models will be plenum rated). System shall be Mule Lighting, Inc. MPS series model number: _____.