

Model Number: Accessories: Job:	Approvals:  Type:
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The Tucson Mini Inverter specification describes a single phase, on-line, solid state inverter system utilizing the patented ECM technology. Each system will consist of a solid-state inverter, a temperature compensated rectifier/battery charger, a continuous duty static switch, an internal maintenance bypass switch, battery plant, status/control panel, and synchronizing circuitry. The Tucson Mini Inverter is designed to function in conjunction with the existing building electrical system to provide high quality power conditioning, back-up power protection and distribution for lighting loads and other critical loads.

<b>Standard Power Level:</b>	75, 100, 125, 200 or 300 Watts
<b>Input Voltage:</b>	120 or 277 VAC
<b>Input Voltage Range:</b>	+10% -15%
<b>Output Voltage:</b>	120 or 277 VAC
<b>Output Voltage Regulation:</b>	+/- 5% for all loads and battery discharge mode
<b>Output Frequency Range:</b>	60 Hz, ±1%
<b>Crest Factor:</b>	2.5:1 typical
<b>Input Protection:</b>	Input Main Circuit Breaker
<b>Output Protection:</b>	Output Main Circuit Breaker
<b>Surge Protection:</b>	The unit will protect itself and the load against surges defined in ANSI/IEEE C62.45 category A/B
<b>Battery:</b>	Sealed maintenance-free (AGM) lead calcium
<b>Recharge Current:</b>	Conforms to UL924 standards
<b>External Battery:</b>	Provision for hardware connection of external battery cabinets or DC source
<b>Efficiency:</b>	≥99% at 100% linear load
<b>Audible Noise:</b>	<45dBA
<b>Listing:</b>	Meets or exceeds UL standard 924 and 1778
<b>Operating Temperature:</b>	0° to 40°C (32° to 104°F)
<b>Storage Temperature:</b>	-20° to 60°C (-4° to 140°F)
<b>Humidity:</b>	5 - 95%, Non-condensing
<b>Monitoring:</b>	LED Displays Alarms and Diagnostics
<b>Transfer Time:</b>	16msec - 60msec



SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

**ORDERING INFORMATION** Example: TUCM-100-120-277-OST-120

Series	Wattage	Input Voltage	Output Voltage	Options	Run Time
TUCM	75 = 75 Watts	120 = 120VAC	120 = 120VAC	ECM120/# <sup>1</sup> = 120V Environmental Control Module / Qty	90 = 90 Min
	100 = 100 Watts	277 = 277VAC	277 = 277VAC	ECM277/# <sup>1</sup> = 277V Environmental Control Module / Qty	120 = 120 Min
	125 = 125 Watts			NOF/V/# = Normally OFF Output Circuit / Voltage / Qty	180 = 180 Min
	200 = 200 Watts			NOH/V/# = Normally OFF "Hold ON" / Voltage / Qty	240 = 240 Min
	300 = 300 Watts			OST = Onsite Start-Up	
				EW = Extended Warranty	

**Notes**

<sup>1</sup> One ECM is used per switching device or circuit

Series	Select Power Rating (Watts)	Voltage (VAC)		UPS Cabinet Dimensions			Weight (LBS)	BTUs	Battery Type	Output Protection	Safety Approvals
		Select Input	Select Output	Width	Height	Depth					
Tucson Mini Single Phase Standby Inverter	75	120 or 277	120 or 277	17.5"	22.5"	8"	45	2.55	Sealed, Maintenance Free (AGM) Lead Calcium	Input and Output Circuit Breakers Standard	UL924 UL1778 NFPA101 NFPA70 NEC
	100						48	3.4			
	125						48	4.25			
	200						54	6.8			
	300						66	10.2			

#### INPUT

120 or 277 VAC input

#### AC Input Characteristics:

- Input Frequency: 60 Hz
- Power walk-in: 0 to 100% over a 10-second period.
- Magnetizing Inrush Current: Less than nominal input current for less than one cycle.
- Input Surge Protection: The Tucson is equipped with a standard input filter assembly that will withstand surges per IEEE 587-1980/ANSI C62.41

#### OUTPUT

120 or 277 VAC output, Stand-by design is ≥99% efficient at 100% linear load.

#### AC Output Characteristics:

- Voltage Regulation: + 3% for no-load to full load and full 90 minute battery discharge mode.
- Frequency: 60 Hz (+ 0.1Hz when free running).
- Voltage Distortion: Maximum 5% total (THD) @ 100% linear loads.
- Voltage Transient (Step Load) Response:
  - +/- 5% for 50% step load change
  - +/- 8% for 100% step load change
  - +/- 3% for loss or return of AC input power or manual transfer at full load
- Voltage Recovery Time: Return to within 3% of nominal value within 50 milliseconds.
- Non-Linear Load Capability: Output voltage total harmonic distortion is less than 8% when connected to a 100% non-linear load with a crest factor not to exceed 2.5%.
- Slew Rate: 1 Hz/second maximum
- Power Factor: Unity power factor.
- Inverter Overload Capability:
  - 125% of rated load for 1 minute
  - 145% of rated load for 10 seconds
- Bypass Overload Capability: > 200% for one cycle; > 150% for 30 seconds
- Transfer to Inverter within 16 to 60 milliseconds standard, fast transfer option available for HID compatibility.

#### BATTERIES

The Tucson Mini Inverter module employs a valve regulated sealed, lead calcium, heavy-duty, industrial battery. This battery system is designed for auxiliary power service. The primary battery is furnished with an impact resistant plastic case and housed within the cabinet.

- Protection against deep discharge and self-discharge: The Tucson Mini Inverter is equipped to protect the battery against deep discharge depending on discharge conditions, with isolation of the battery by a circuit breaker. In particular, a monitoring device will adjust the battery shutdown voltage as a function of a discharge coefficient in order to avoid excessive discharge.
- Battery self-test: The battery monitoring system is to perform the following automatic functions:
  - Battery circuit check
- Sealed, maintenance-free, lead calcium (AGM) batteries
- 10-Year prorated warranty
- Guardian Smart Battery Monitoring System is TEMPERATURE COMPENSATED maintaining maximum runtime and battery life
- Microprocessor controlled recharge and overcharge protection is standard

#### LAMPS AND LOADS

- Pure sine wave output for all types of lamps
- Emergency power provides FULL LIGHT OUTPUT from all lamps and fixtures for the entire runtime
- Standard or LED Exits and other safety equipment
- Standard or electronic ballasts, dimming devices or panels, sensors and most control equipment
- Operates fluorescent, florescent, incandescent, quartz, LED and other lamp types

#### CODES

- City of Chicago and New York approved
- Complies with the Buy American Act – (Level 3)
- The Tucson Mini Inverter will meet the requirements of the following standards:
  - IEEE 587-1980/ANSI C62.41 1980 Standards for Surge Withstand Ability
  - FCC rules and regulations of Part 15, Subpart J, Class A
  - UL 1778, UL 924, Standards for Lighting Inverter Equipment
  - NEMA PE 1 (National Electrical Manufacturers Association) - Lighting Inverter Systems
  - NEMA 250 (National Electrical Manufacturers Association) – Enclosures for Electrical Equipment (1000 Volts Maximum)
  - NFPA 70 – National Electrical Code
  - ISO 9001
  - Occupational Safety & Health Administration (OSHA)

#### PROTECTION

- Provides overload, surge and undercurrent protection using the latest technology and Guardian Diagnostics to protect system performance and reliability
- Transfer in 16msec - 60msec

#### DIAGNOSTICS, MAINTENANCE AND ACCESSIBILITY

All Tucson Mini Inverter sub-assemblies, as well as the battery, are accessible from the front only. The Tucson Mini Inverter design will provide maximum reliability and minimum MTTR (mean time to repair). The electronic Tucson Mini Inverter control and monitoring assembly is fully microprocessor based. Tucson Mini Inverters are repairable by replacing standard subassemblies.

- Guardian Diagnostics provides complete self diagnostic capabilities and LED Monitoring
  - Informative, advanced display and alarms allow complete control of the emergency lighting environment
  - Automatically performs periodic self-tests ensuring a safely lighted environment prior to an emergency
  - Single point of testing instead of multiple testing points with battery packs

#### CABINET

- Space saving small footprint with a modular design enabling flexible installation
- Enclosure: The Tucson Mini Inverter is housed in a freestanding enclosure. The mechanical structure of the Tucson Mini Inverter is sufficiently strong and rigid to withstand handling and installation operations without risk. Access to Tucson Mini Inverter subassemblies is through the front only. The sheet-metal elements in the structure are protected against corrosion by a suitable treatment, such as zinc electroplating, powder coating, epoxy paint or an equivalent.
- Cable Access: The standard Tucson Mini Inverter available will allow for side, top and bottom entry cables.
- Ventilation and Heat Rejection: The Tucson Mini Inverter is designed specifically for forced air cooling. Air inlets are provided from the front, bottom of the Tucson Mini Inverter enclosure. Air exhaust is achieved from the top or side portions of the unit.

## INSTALLATION

- Modular design and small footprint allow easy installation in electrical closet or other convenient locations
- Phone assisted factory start-up standard for all systems
- Extended warranty available
- The Tucson Mini Inverter will operate under the following environmental conditions:
  - Temperature:
    - Tucson Mini Inverter Module
      - Operating: 0° to 40°C (32°F to 104°F)
      - Non-Operating: -20°C to +60°C (-4°F to 140°F)
    - Batteries: 25°C (77°F)
  - Relative humidity (operating and storage): 5 to 95% non-condensing
  - Barometric Pressure:
    - Up to 1000 meters above sea level
    - Up to 2000 meters with ambient temperature less than 28°C
    - Up to 12,000 meters above sea level non operating
  - Audible Noise: 45dBA at 3 feet
- Site Testing and Start-Up – If selected, the inverter system will be checked, start-up and tested by a manufacturer's qualified field service engineer either by phone start-up (standard) or by optional onsite start up when performed by a factory technician.

## SPECIAL APPLICATIONS

- Barron offers numerous UL924 optional devices to meet unusual or difficult application parameters
- ECM – Eco-Control Module allows fixtures and lamps on the emergency circuit(s) to be operated by normal switching and/or dimming devices in NON-emergency conditions
- Dimming Panel Interface allows use with emergency lights controlled by common dimmer panel

## DELIVERY, STORAGE, AND HANDLING

- All products is packaged in a manner to prevent penetration by debris and to allow safe delivery by all modes of ground transportation and air transportation where specified.
- Prior to shipping all products is inspected at the factory for damage.
- Equipment is protected against extreme temperature and humidity and is stored in a conditioned or protected environment.
- Equipment containing batteries will not be stored for a period exceeding three months without powering up the equipment for a period of eight hours to recharge the batteries.

## WARRANTY

- 1-Year full warranty on system electronics
- Battery warranty 1-year with 9-years pro-rated
- System 1-year on-site warranty labor with phone assisted start-up
- 5-Year power train warranty
- Maintenance contracts available

