

SYSTEM SPECIFICATIONS

UPS SYSTEM

PROJECT NAME

CUSTOMER P.O. # - STANDBY ENERGY SEI JOB #

NOMINAL DC BUS SPECIFICATIONS: 105-140 VDC

BATTERY SPECIFICATIONS:

Load Current:	204 ADC, for 4 Hour and 15 Minutes.
Equalize Voltage:	139.2 VDC
Float Voltage:	136.32 VDC
Future Growth:	110%
Aging Factor:	125%

CHARAGER SPECIFICATIONS:

Input: 480 VAC, 3 Phase, 60 Hz Output: 120 VDC, 300 ADC (Nominal) Current Limit: 120% NOTE: The maximum Current the charger can provide is 360 ADC. All conductors between the Charger and the Battery must be sized to accept this current. Float Voltage: 136.32 VDC Equalize Voltage: 139.2 VDC Regulation: +/- 0.5%, No Load to Full Load Ripple: 100 mv

> Standby Energy Inc. 14134 Castor Ct. Tomball, TX 77375 Phone: 281-351-2870



CUSTOMER: PROJECT NAME:

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			TERMS		SHIPMENT	
			Progressive/N	NET 45	2021	
Item	Line Item	Description	Qty	Each	Total	
BATTERY UP	10	 120VDC NiCad Battery Saft UP1 L 1400 for a DC Load of 204 ADC, for 4 Hours and 15 Minutes, to an End Voltage of 105 VDC, Floating at 133.4 VDC and Equalizing at 139.2 VDC. 96 CELL SYSTEM (SINGLE CELL BLOCKS) SAFT POCKET PLATE NICKEL CADMIUM CELLS. (FILLED AND CHARGED) 17.2" Deep (across the Rack) and 7.7" Long (down the Rack), 15.9" High, 126 lbs/cell CONFIGURATION: 2 STEP, 2 TIER Battery Hardware: *Inter-cell connectors *Connector Covers *Inter-step cables *Battery end lugs *Adhesive cell numbers *Flame arrestor vent caps *Operating instruction cards *Terminal Protecting Jelly *Terminal Socket 				



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		TERMS SHIPM		SHIPMENT	
			Progressive/1	NET 45	2021
Item Line	e Item	Description	Qty	Each	Total
2 STEP/2 TIER 20	FAN-FAN A AND CELL I *2 Step, 2 Tic Zone 2) 3 BOXES EA including exh FOR A TOTA *PVC Rack F *Lexan Wind *Open grate k *Stove pipe v Alarm and Hy will have a 90 the building. *Cell Lifting will attach to battery lifting *Utility grade container. *Pad Lockabl *SS Spill Con pillows / tray. *Enclosures v builder *Paint: ANSI	lows (height & width of doors) bottom for ventilation with Cl. 1, Div. 2 Exhaust Fan, Fan ydrogen Detector (24.4" H) - this 0° elbow to vent horizontally out of System with cell jar brackets that the hoist hook and connect to the shandles (as shown on drawing) e safety matt 36" x 36" with storage le Door Latches ntainment Trays (3 ea) with 24			



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			TERMS		SHIPMENT	
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Item	Line Item	Description	Qty	Each	Total	
22kA DCP-1 P 300A CHARG	30	129 VDC DISTRIBUTION PANEL 22kA (all breakers are 2 Pole) 130 VDC, 2 wire 400 ADC CU Bus 1 ea. 400 ADC (Main Chg) Bkr., 2P with tripped alarm contacts 1 ea. 400 ADC (Batt) Bkr., 2P with tripped alarm contact 1 ea 100ADC Bkr, 2P 2 ea. 80 ADC (Inverter) Bkr, 2P 1 ea 60 ADC Bkr, 2P 2 ea 30 ADC Bkr, 2P 2 ea 30 ADC Bkr, 2P 1 ea. 15 ADC (BMARS) Bkr., 2P NEMA 1 Wall mount enclosure 24" W x 10" D x 74" H Paint ANSI 61 Gray A12B-300-130V Features:	1			
		Features: *INPUT: 480 VAC, 3 Phase, 60 Hz *OUTPUT: 130 VDC, 300 ADC *AC RIPPLE: 100 mv RMS with battery connected. *AUDIBLE NOISE: 65 db @ 5' *REGULATION: ± 0.5% (line, load, temp.) *CURRENT LIMIT: 120% at max voltage (factory set at 115% unless specified)				



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Item Line Item Description	Qty	Each	Total	
*AC CKT. BKR. 3 Pole, 150 AMPS rms *DC CKT. BKR. 2 Pole, 400 ADC *DIGITAL METER: 2% for VDC, & ADC *FLOAT/EQ. SW. WITH LED's *FLOAT VOLTAGE SETTING: 133.4 VDC (Field Adjustable TO 145) *AUTO EQ. TIMER BASED ON DC VOLTAGE MODE 4, EQUALIZE DURATION 1-72 HRS *EQUALIZE VOLTAGE SETTING: 139.2 VDC (Field Adjustable TO 148) *HIGH DC SHUTDOWN (SET AT 141VDC) *REVERSE POLARITY PROTECTION *SURGE PROTECTION (INPUT & OUTPUT) *TERMINAL BLOCKS (INPUT & OUTPUT) *TERMINAL BLOCKS (INPUT & OUTPUT) *INDIVIDUAL ALARM RELAYS AND LED'S for: AC Failure DC Failure High DC at 120 VDC and 106 VDC Pos. Ground Neg. Ground High Voltage Shut Down set at 148 VDC COMMON ALARM RELAY *BUILT TO UL 1012 STANDARDS *Wire Markers with Wire Numbers *Remote Equalize Card *INCLUDES OPTION: 21S MODBUS RTU SERIAL DATA PORT RS232/RS485	S.			



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Item	Line Item	Description	Qty	Each	Total	
INVERTER	50	*NEMA 1 Floor Mount Enclosure 38" W x 47" D x 72" H, 3400 lbs. *Paint: ANSI 61 GRAY LaMarche Inverter A31-5K-120V-A6 (INVERTER PRIME) La Marche A31 DC/AC Inverter configured with the following features: 5- KVA DC/AC Inverter Internal Inverter/Static Switch/MBP Switch: INVERTER DC INPUT: 105-147 VDC INVERTER DC BREAKER: 80A INVERTER AC BREAKER: 50A BY PASS INPUT TERMINAL BLOCK INVERTER OUTPUT: 120 VAC, 1phase,60Hz T.B. INVERTER OUTPUT REGULATION: 3% over Battery Range INVERTER OUTPUT WAVEFORM: 5% THD, 3% any single harmonic CREST FACTOR for loads up to : 2.8:1 INVERTER PHASE LOCK: Locks to Bypass When the Bypass is 60 Hz \pm 0.5 Hz and the slew rate is = 1 Hz/sec. INVERTER INTERNAL OSCILLATOR: 60 Hz \pm 0.5% INVERTER VOLTAGE TRANSIENT: \pm 10% for 50% step load change \pm 23% for 100% step load change INVERTER RECOVERY TIME: 3 cycles (50 ms for 60 Hz power)				



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Item	Line Item	Description	Qty	Each	Total
		INVERTER OVERLOAD: 500 % for 0.5 Cycle, 130% for1 min. 125% continuousBYPASS OVERLOAD: 500% for 1 cycle, 150% for 1 minute, 125 % continuousEFFICIENCY: DC/AC 85 - 90%AUDIBLE NOISE: = 70 db on Responsive curve "A"OPERATING TEMP.: 0° C to 50° C STORAGE TEMP.: -20°C to +60° C STATIC SWITCH: 1 Pole, Make Before Break STATIC SWITCH MANUAL TEST SWITCH Rack Mount 75A (MB4B) MANUAL BY PASS SWITCH "Load on AUTO" "Load on Bypass"INSTRUMENTATION: Inverter AC Output Volts 120V NOMIMAL Inverter Output Frequency DIGITAL DISPLAY OPTION 22D UPS AC Output Amps (FLA) 41 ARMS Battery Discharging*LED LOAD ON ALTERNATE SOURCE Bypass Not Available*LED and Relay Inverter/Bypass In Synch. *LED and Relay Static Switch "On Inverter"*LED (LOAD ON PREFERED SOURCE) Static Switch "On Bypass"*LED and Relay (LOAD ON ALTERNATE SOURCE)	S.		



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		TERMS	3	SHIPMENT	
		Progressive/N	IET 45	2021	
Item Line Item	Description	Qty	Each	Total	
	AUTO-START FUNCTION: The UPS includes an auto shutdown and restart circuit. After a loss of AC Power and complete discharge of the battery the unit shuts down. Then when the power returns the UPS automatically restarts the rectifier/charger and after the batteries have recharged to the proper level, approximately 128 VDC, the inverter starts, and picks up the load. Retransfer on loss of Bypass: Electrical Schematic with wire numbers Copy of Test Report THE INVERTER, BYPASS SWITCH AND INVERTER DISTRIBUTION PANEL (IP-01) WILL BE MOUNTED ON A COMMON SEISMIC RATED RACK COMPLETE WITH ALL INTERCONNECTING WIRING AND LIFTING EYES FOR EASY HANDLING 24" W x 19" D x 84" H PAINT: ANSI 61 GRAY POWDER COAT	S			



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			TERMS		SHIPMENT	
			Progressive/N	ET 45		2021
Item	Line Item	Description	Qty	Eac	h	Total
P-01 PANEL	60	IP-01 PANEL TO MOUNT ABOVE INVERTER AND BYPASS SWITCH 1ea. AC Distribution Panel 30 Circuit, 100 A, 120/240, 1 Ph, 3W, Copper Bus, 22kAIC, 100 A Main Lugs, Top Fed, Surface Mount Distribution PanelList of Materials 1EA:100A, Main Lugs Only 24 EA: Padlockable Lockoff Device 23 EA: 15A, 1P QBHW Branch Breaker 1 EA: 60A, 1P QBHW Branch Breaker 6 EA: 1P QBHW Branch Provision Only 1 EA: Copper Main Bus, 100 Amps 1 EA: Std. Bolted AI Ground Bar (Al/Cu Cable) 1 EA: Type 1 Enclosure: EZB2036R 1 EA: EZ Trim, Door in Door, Concealed Hardware: EZT2036S NEMA 1 Wall Mount Enclosure 20" W x 6" D x 36" HWill be mounted above the MBP Switch and Inverter on the 23" SEISMIC RATED Relay Rack with lifting eyes for easy handling	ľ			



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			TERMS		SHIPMENT
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DC/DC CONV	70	 (1 EA DUAL 30A SYSTEM) (1 EA DUAL 30A SYSTEM) (1 EA FLOOR MOUNT RACK ASSEMBLY FOR BOTH CONVERTER SYSTEMS) DESCRIBED IN DETAIL BELOW: **DUAL129/24 VOLT DC/DC CONVERTER SYSTEM: Configured as followed: THESE UNITS ARE MOUNTED IN A NEMA 1 ENCLOSURE WITH SPACE FOR AN ADDITIONAL UNIT ********** (1) DUAL 30A CONVERTER SYSTEM (In same Enclosure) The Enclosure will contain 2 Ea. Converter modules, and 2 Ea. Control Switch Panels to allow Removal of, and Re-installation of any Converter without interrupting power to the 24 VDC Loads. Each Parallel set up is: Configured with 2 ea. Wilmore Model # 1605-130-24-30-MB units: Input: 90-160 VDC, 6.1 ADC DC Input Terminal Block DC Output Terminal Block 			



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			TERM	S	SHIPMENT
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ltem	Line Item	Description	Qty	Each	Total
		DC Output VM DC OUTPUT AM Output: 22-26 VDC (adjustable) Factory set at 24 VDC Failure Alarm Relay Contacts, C, NO, NC Eff: 86% Output Regulation:Line +/- 0.1%Load +/- 0.5% Operating temp.: -30 °C to +50°C Storage Temp.: -40°C to + 95°C Current Limit Protection *Blocking Diode Option *Load Sharing Option Relay Rack mount Enclosure 17" W x 13.2" D x 3.45" H The individual converters will be installed and wired to their individual Input and Output DC Switches with adequate cable length to allow the individual converters to be removed from the enclosure prior to disconnecting from their Input and Output Cables. *130 VDC Input Buss (105 – 147 VDC) *24 VDC Output Buss *Output Failure Alarm TB *Load Sharing TB *24 VDC Load Distribution Breakers +/- 24VDC Main Lugs Room for up to 15 ea (2P) Load Breakers (sizes to be determined)			



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			TERM	S	SHIPMENT	
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Item	Line Item	Description	Qty	Each	Total	
		 NEMA 1Wall Mount System Enclosure 22"W x 24"D x 36"H ************************************				



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			TERMS		SHIPMENT	
			Progressive/	NET 45	2021	
ltem	Line Item	Description	Qty	Each	Total	
		Output: 22-26 VDC (adjustable) Factory set at 24 VDC Failure Alarm Relay Contacts, C, NO, NC Eff::86% Output Regulation:Line +/- 0.1%Load +/- 0.5% Operating temp.: -30 °C to +50°C Storage Temp.: -40°C to + 95°C Current Limit Protection *Blocking Diode Option *Load Sharing Option Relay Rack mount Enclosure 17" W x 13.2" D x 3.45" HThe individual converters will be installed and wired to their individual Input and Output DC Switches with adequate cable length to allow the individual converters to be removed from the enclosure prior to disconnecting from their Input and Output Cables.*130 VDC Input Buss (105 – 147 VDC) *24 VDC Output Buss *Output Failure Alarm TB *Load Sharing TB *24 VDC Load Distribution Breakers +/- 24VDC Main LugsRoom for up to 15 ea (2P) Load Breakers (sizes to be determined)NEMA 1Wall Mount System Enclosure 22"W x 24"D x 36"H	S			



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			Progressive/	NET 45	2021	
Item	Line Item	Description	Qty	Each	Tota	
MARS 3	80	<pre>************************************</pre>	1			



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			TERMS	5	SHIPMENT	
			Progressive/N	ET 45	2021	
Item	Line Item	Description	Qty	Each	Total	
SAFETY SWI	90	Safety Switch/Fusible Disconnect Switch To Divide the 129V Battery Voltage into 3 equal sections Single Throw -Heavy Duty 2 Pole 400A (BOTH SWITCHES IN ONE ENCLOSURE) Fusible- With No Neutral Supplied with 2 ea 400A fuses and 2 ea spare fuses With tripped Alarm Auxiliary Contact Kit (C,NO, NC) NEMA 1 Wall Mount Enclosure 24" W x 13" D x 45" H APPROVAL Documentation Provided *One Electronic Copy 3-4 WEEKS ARO *System Interconnect Diagram. *Battery Data Sheet *Battery Interconnect Diagram *Battery IOM *Battery Enclosure Drawing w/ Spill Containment Tray, Cell Lifting Device and Battery Safety Mat *Charger Data Sheet *Charger Outline Drawing	I			



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Item	Line Item	Description	Qty	Each	Total	
FINAL DOCU	110	 *Inverter Data Sheet *Static Switch Data Sheet *Manual Maintenance Bypass Switch Data Sheet *Inverter Outline Drawing *Relay Rack Drawing showing Inverter/SS/MBPS and IP-01 Panel Layout Drawing and Dimensions. *DCP-1 Panel Layout Drawing with Dimensions *Battery Safety Switch Data Sheet with Dimensions *DC/DC Converter Data Sheet and Dimensional Drawing *DC/DC Converter Enclosure Dimensional Drawing *24VDC Distribution Breakers *Exhaust Fan and Alarm Data Sheet *Hydrogen Detector Data Sheet *BMARS 3 DESCRIPTION FINAL DOCUMENTATION 1 ea. Digital Copy 3 ea. Hard copies will be mailed as needed *System Interconnect Drawing 	2			



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			TERM	1S	SHIPMENT	
			Progressive/	NET 45	2021	
Item	Line Item	Description	Qty	Each	Total	
		 *Charger Data Sheet *Charger Electrical Schematic With Wire Numbers *Charger Outline Drawing *Charger Recommended Spare Parts without Prices *Charger IOM *Charger Test Report *Inverter Data Sheet *Inverter Static Switch Data Sheet *Inverter Manual Maintenance Bypass Switch Data Sheet *Inverter Electrical Schematic With Wire Numbers *Inverter Outline Drawing *Inverter Recommended Spare Parts without Prices *Inverter Recommended Spare Parts without Prices *Inverter Test Report *Relay Rack Drawing showing Inverter / SS / MBPS and IP-01 Panel with Wiring *IP-01 Panel with Layout Drawing and Dimensions. *Battery Data Sheet *Battery MSDS *Battery Enclosure Drawing w/ Spill 				



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			Progressive	/NET 45	2021	
Item	Line Item	Description	Qty	Each	Total	
		Containment and Battery Safety Mat *Battery Interconnect Diagram*129 VDC Distribution Panel Dimensional Drawing *129 VDC Distribution Panel Breaker Layout Drawing*Exhaust Fan and Alarm Data Sheet *Hydrogen Detector Data Sheet*BMARS Data Sheet *BMARS Quick Start Guide*Safety Switch Data Sheet *Safety Switch Enclosure SheetGUARANTEE/WARRANTY: Electronics: Standard Factory Warranty on all electrical and electronics parts.Battery: 5 years full replacement/20 year proratedSHIP TO:TBDSHIPMENT: Batteries 14-16 Wks ARO or 12-14 Wks after	R			



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			TERM	S	SHIPMENT	
			Progressive/NET 45		2021	
Item	Line Item	Description	Qty	Ea	ach	Total
PROGRESS P PROGRESS P PROGRESS P	120 130 140	 Drawing Approval if Approval Drawings are required. All other equipment: 8-10 Wks ARO or 6-8 Wks after Drawing Approval if Approval Drawings are required. TERMS: Prices good for 90 Days. 20% Net 30 will be Invoiced when the Approval Drawings are submitted. 80% Net 30 Balance will be Invoiced upon shipment of equipment. FOB: Factory, PP&A, Freight Collect, or Pick-up PROGRESS PAYMENT #1: 10% UPON SUBMITTAL OF APPROVAL DRAWINGS PROGRESS PAYMENT #2: 10% UPON ACCEPTANCE OF MATERIAL ORDER. PROGRESS PAYMENT #3: 80% UPON SHIPMENT 	S.		10.00% 10.00% 80.00%	0.00 0.00 0.00