



INVERTERS

INVERTERS

Mini Inverter
Single Phase
Three Phase

STANPRO

YOUR TRUSTED PARTNER

Stanpro offers a wide range of emergency lighting including inverter systems for all kinds of application.

Our products provide innovative technologies designed for performance, reliability and meet the highest standards in the industry.

We also offer a wide variety of other lighting lines that will allow you to accomplish all of your lighting project needs.

Emergency Lighting - Indoor and Outdoor Lighting for industrial and commercial applications - Architectural fixtures



INVERTER SYSTEM ORDERING GUIDE

Job Name					
Job Location	City _____			Province _____	
What is the inverter powering/type of load	<input type="checkbox"/> Incandescent	<input type="checkbox"/> Fluorescent		<input type="checkbox"/> HID	<input type="checkbox"/> Computers
Other					
Will the load be normally on only when there is utility AC Power?					
If not, specify	Normally off load KW _____			Normally on load KW _____	
Total size requirement/capacity	KW _____			KVA _____	
Battery type	<input type="checkbox"/> Standard 10 yr sealed lead calcium				
Battery back-up time	<input type="checkbox"/> 30 Min	<input type="checkbox"/> 60 Min	<input type="checkbox"/> 90 Min	<input type="checkbox"/> 120 Min	Other _____ Min
Volatge input, V _____	<input type="checkbox"/> Single phase		Or	<input type="checkbox"/> 3 Phase	
	<input type="checkbox"/> 2 Wire	<input type="checkbox"/> 3 Wire	Or	<input type="checkbox"/> 3 Wire	<input type="checkbox"/> 4 Wire
Volatge output, V _____	<input type="checkbox"/> Single phase		Or	<input type="checkbox"/> 3 Phase	
	<input type="checkbox"/> 2 Wire	<input type="checkbox"/> 3 Wire	Or	<input type="checkbox"/> 3 Wire	<input type="checkbox"/> 4 Wire
If needed, the number of output circuit breakers and amp requirements: _____					
How many of them are	Normally on _____			Normally off _____	
Options desired	<input type="checkbox"/> External maintenance bypass switch				
	<input type="checkbox"/> Remote alarm and control panel				
Other					



WHY WE NEED INVERTERS

NEED FOR EMERGENCY SYSTEMS

Public buildings carry an electrical load. Daily lighting uses a lot of electricity. The power used supplies daily electrical needs, but in emergency situations such as power outages, fire or power fluctuations, that power could be lost. In these situations, electrical back-up systems are needed.

These systems, aka Inverters, automatically monitor the incoming utility to the building and react when the situation of lost power occurs. supplying electricity to the lighting and power loads, required to safely exit the building (egress).

WHY USE EMERGENCY INVERTER SYSTEMS?

Whether it is a loss of power due to storms, an electrical line issue, or a true emergency loss of power, inverters sit quietly on guard, ready to light the way to safety for the public. Inverters are the choice of the future!

HOW DO EMERGENCY SYSTEMS WORK?

Standard electrical systems run on AC power. Emergency lighting loads also run on AC power, usually as “normally-ON” or “normally-OFF” lighting. On occasion, back-up will be needed for a mix of both on and off lighting.

Inverter systems are made up of a set of DC batteries and electronics that can convert the DC power from the batteries into an AC power source needed for the emergency lighting loads.

Emergency inverter systems will provide enough emergency AC power for the required time to exit the building if necessary.

WHY USE AN INVERTER OVER EMERGENCY LIGHTING?

When a building is so vast and requires more lighting than just remote heads, its makes economic sense to use an Inverter instead of running thousands of feet of wire and pipe. Also with an inverter there is only one point of service, unlike many emergency lighting units and remotes. For applications such as warehouses which are congested with racking, traditional emergency heads cannot be placed properly for direction or could be hidden all together

HOW DO INVERTERS PERFORM WITHOUT EMERGENCY REMOTES?

The inverter normally is sized to take 25% of the lighting load. This allows regular lighting, to also act as emergency lighting during power failure to illuminate the designed path of egress. The inverter load requirement could also include all exit or pictogram signage.

WHAT ARE OTHER BENEFITS?

Designers have always believed that emergency lighting in general is unattractive and obtrusive. The inverter is typically hidden in a electrical room, out of site. Also there are no remotes anywhere since existing lighting (fluorescent, LED, HID and induction) is being utilized. The integrity of the esthetics are not harmed.



SLC-MIV



The SLC-MIV pure sine wave inverter represents a unique approach to power failure lighting applications. Pure sine wave inverters are ideal, as opposed to square and modified wave inverters, which will break down electronic ballasts and drivers prematurely. Stanpro's SLC-MIV pure sine wave inverter was designed to run up to 1440W of normally ON or OFF LED, CFL or fluorescent, incandescent lighting fixtures.

SMV



The SMV mini-inverter covers 525 watts up to 2200 watts. The mixed design was required to satisfy the code intent and achieve a universal system. Equipment rated higher than 1440 W is deemed to be a truly "Central" battery system that is intended to service multiple lighting circuits, and must have an audio-visual display center. With internal circuit distribution options, each distribution point must be monitored to acknowledge the loss of a circuit. Only with these key elements will you be code compliant.



SNV

The SNV is a single phase pure sine wave dependable lighting inverter system. A traditional solution for life safety egress lighting is through the use of small DC batteries equipment. The central inverter supplies power to existing lighting luminaires, eliminating the need for special emergency lighting fixtures. The central inverter system encompasses a single unit installed in a centralized location.



B3NV

B3NV Series Emergency Lighting AC 3-Phase Inverters are among the most reliable systems available for emergency lighting and other demanding critical applications. Available in models from 8 kW up to 48 kW, they provide reliable and constant protection for mission critical emergency lighting, and infrastructure applications such as airports, hospitals, and financial companies.



S3NV

The S3NV is one of the most versatile and dependable three phase pure sine wave lighting inverter systems in the market. The use of existing fixtures for emergency lighting and egress assures compliance with minimum illumination code requirements. The extensive combinations of input and output voltages, timed off bus with remote "command on" control, automatic battery testing, and control device override options make the S3NV your preferred choice.





Series spec sheet

SLC-MIV

PURE-SINE WAVE IPS MINI-INVERTER

The SLC-MIV pure sine wave inverter represents a unique approach to power failure lighting applications. Pure sine wave inverters are ideal, as opposed to square or modified wave inverters, which will break down electronic ballasts and LED drivers prematurely. Stanpro's pure sine wave inverter was designed to run up to 1 440 W for 30 minutes on normally ON and OFF LED, CFL, fluorescent or incandescent lighting fixtures.

FEATURES AND SPECIFICATIONS

• Construction

Normally OFF

By combining a battery unit and off-line inverter with superior 120 V or 347 V lighting performance for all types of lighting fixtures, the SLC-MIV provides exceptional power failure lighting. The typically configured battery unit is paired with an off-line, internally mounted, pure-sine wave inverter. When AC power is present there is no output and the connected fixtures are off, when the AC power fails, the unit outputs 120 VAC or 347 VAC to the connected lighting fixtures at 100% brightness.

Normally ON¹

This feature is easily activated by connecting a normally-ON lighting circuit to the unit. When AC power is present there is output and the connected lighting fixtures are on. When the AC power fails, the output is then transferring instantaneously to the power failure mode of the inverter and the connected lighting fixtures stay on.

• Electrical

- 120 VAC input / 120 VAC output or 347 VAC input / 347 VAC output
- Momentary push button test switch
- Diagnostic/pilot LEDs for AC ON and CHARGE
- Fully automatic, current limited charger
- Line latched, low voltage protection
- Brownout and short circuit protection
- Terminal block connectors for output load
- 120 V: Dimming override control is standard with AT option for 1 000 W and more
- 347 V: Dimming override standard

- Auto transfer switch for normally-on lighting circuit (when ordered)
- Maintenance free, sealed lead acid battery(s)

Overload protectors:

- **1 000 W:** Fuse allowing max load of 175 A and board protector with protection up to 1 100 W
- **1 440 W:** Fuse allowing max load of 175 A and board protector with protection up to 1 500 W
- **Optional automatic-testing, self-diagnostic charger²:**
 - Continuously monitors the unit's status
 - Automatically performs battery load testing and auto-cycling at preset intervals
 - Indicates malfunctions or auto-test failures

• Mechanical

- 18 Gauge steel construction (cabinet A and B), 16 Gauge steel construction (cabinet C)
- Universal spider knockout pattern and keyhole mounting slots stamped into back of cabinet
- Multiple conduit entry knockouts
- Air intake and exhaust fan placed on the sides for 1 000 W and more
- White powder coat finish standard
- Separate battery compartment

• Approvals

- CSA certified to C22.2 #141-15



OVERVIEW

Electrical	Normally ON ¹ or OFF 120 VAC or 347 VAC input and output
Mechanical	Separate battery compartment Steel construction

¹ For normally ON units without automatic-testing self-diagnostic charger, inverter load needs to be wired to a dedicated non dimmed circuit.

² Dimming override control is standard with AT option for 1 000 W and more.

ORDERING GUIDE 120 V

SLC-MIV	12			WH	/	
Series	Volts (V)	Capacity (W)	Cabinet	Color	Load operation	Options ¹
SLC-MIV	12 - 12	320 - 320	CA - Cabinet A	WH - White	ON ² - Normally ON OFF - Normally OFF	AT ³ - Auto-test self-diagnostic (non audible)
		500 - 500	CB - Cabinet B			
		1000 - 1 000	CC - Cabinet C			
		1440 - 1 440	CC - Cabinet C			

¹ For detailed options descriptions, please consult the options page.

² For normally ON units without automatic-testing self-diagnostic charger, inverter load needs to be wired to a dedicated non dimmed circuit.

³ Dimming override control is standard with AT option for 1 000 W and more.

ORDERING GUIDE 347 V

SLC-MIV	12	3		WH	/	
Series	Batterie Voltage (V)	Voltage (V)	Capacity (W)	Color	Load operation	Options ¹
SLC-MIV	12 - 12	3 - 347	320 - 320	WH - White	(BLANK) - Normally ON or Normally OFF	AT - Auto-test self-diagnostic (non audible)
			500 - 500			
			1000 - 1 000			
			1440 - 1 440			

¹ For detailed options descriptions, please consult the options page.

ACCESSORY (order separately)

Part number	Type
SHELF001	Rigid 14 gauge free standing shelf (Available only with 1 000 W and 1 440 W)

MINI INVERTER MODEL RATINGS

Model	Volts (V)	30 min.	60 min.	90 min.	120 min.
SLC-MIV12320	12	320	160	105	80
SLC-MIV12500	12	500	250	165	125
SLC-MIV121000	12	1 000	500	330	250
SLC-MIV121440	12	1 440	720	480	360

**WEIGHT
120 V**

Watts (W)	Cabinet	without battery(s) (lbs)	with battery(s) (lbs)
320	Cabinet A	28.2	52
320	Cabinet B	29.2	53
500	Cabinet B	29.1	71
1 000	Cabinet C	61.3	145
1 440	Cabinet C	63.4	189

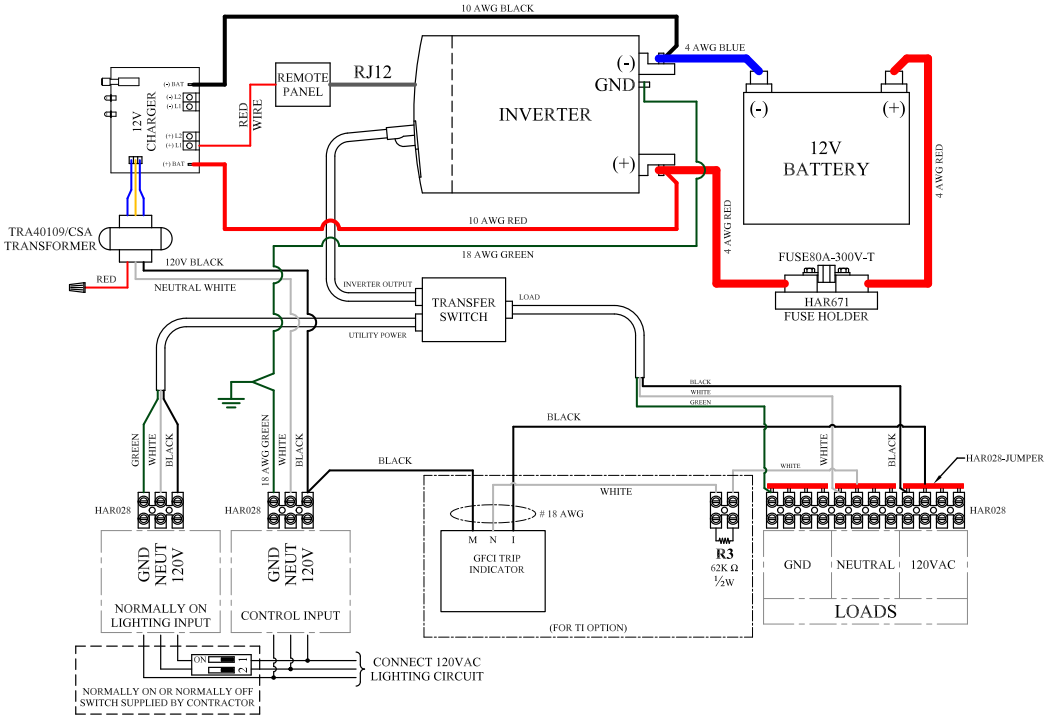
347 V

Watts (W)	without battery(s) (lbs)	with battery(s) (lbs)
320	41.2	65
500	42.1	84
1 000	98.3	182
1 440	100.4	226

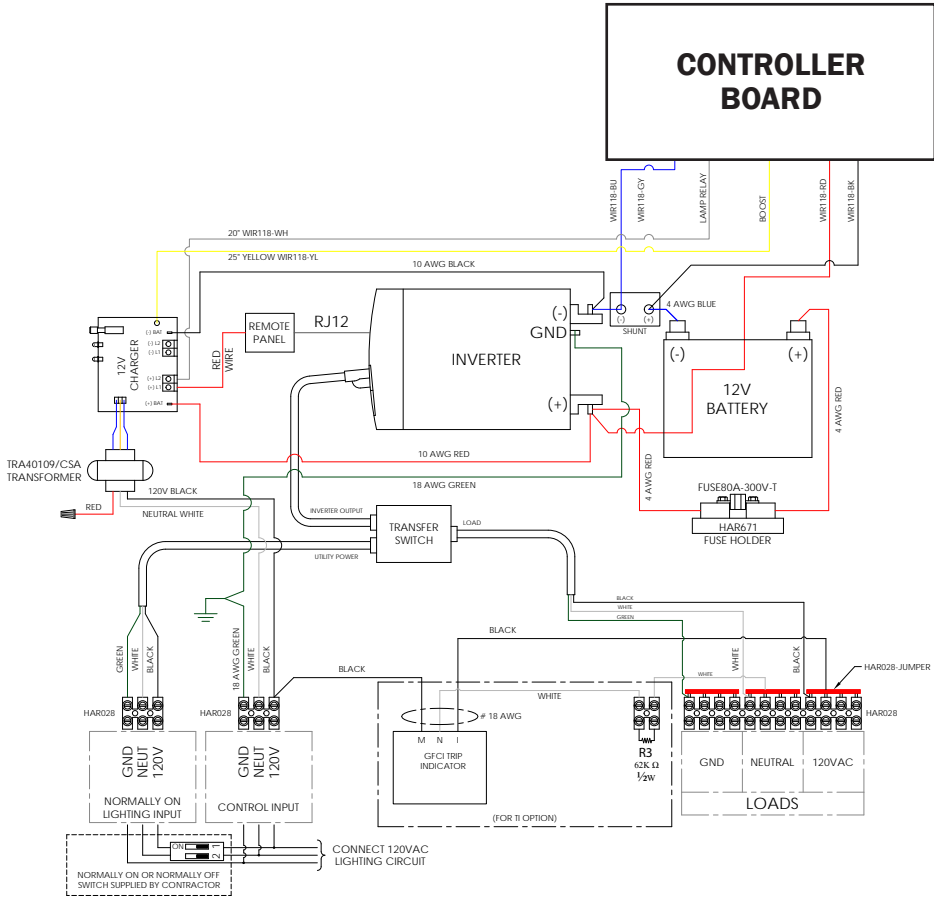
SLC-MIV

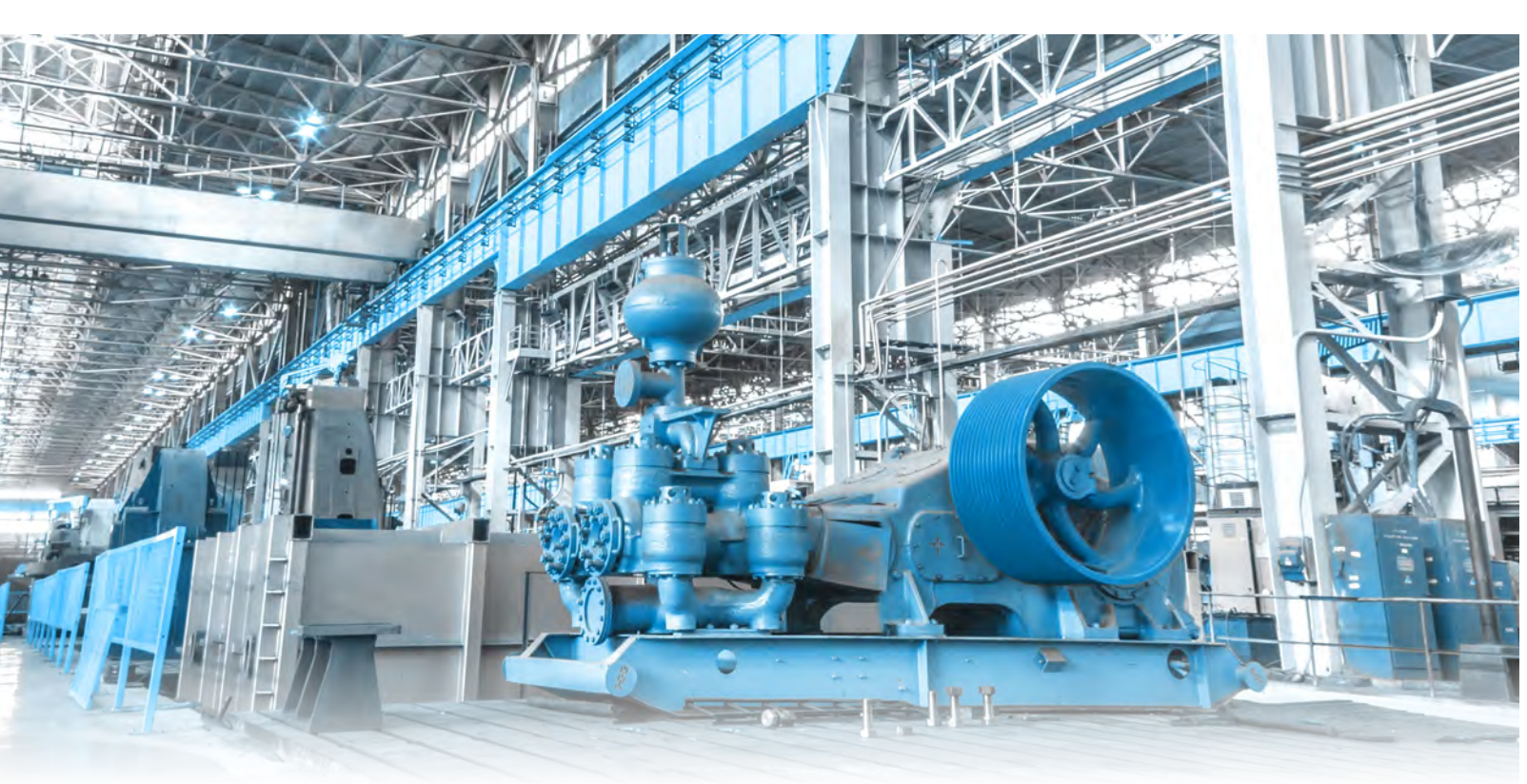
NORMALLY ON 120V

320W

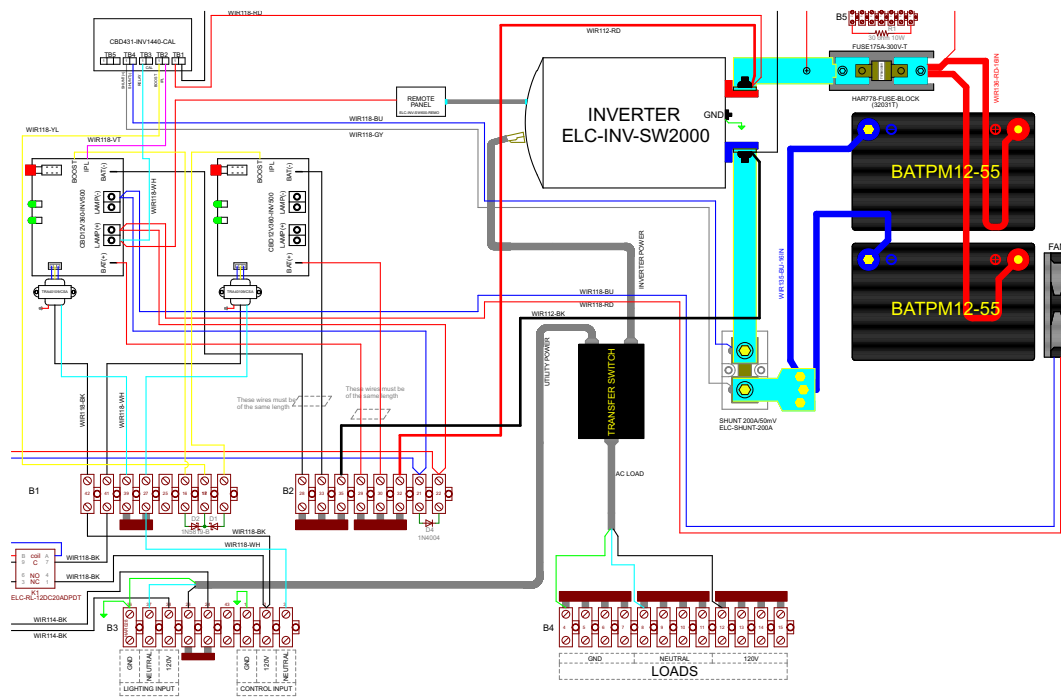


500W



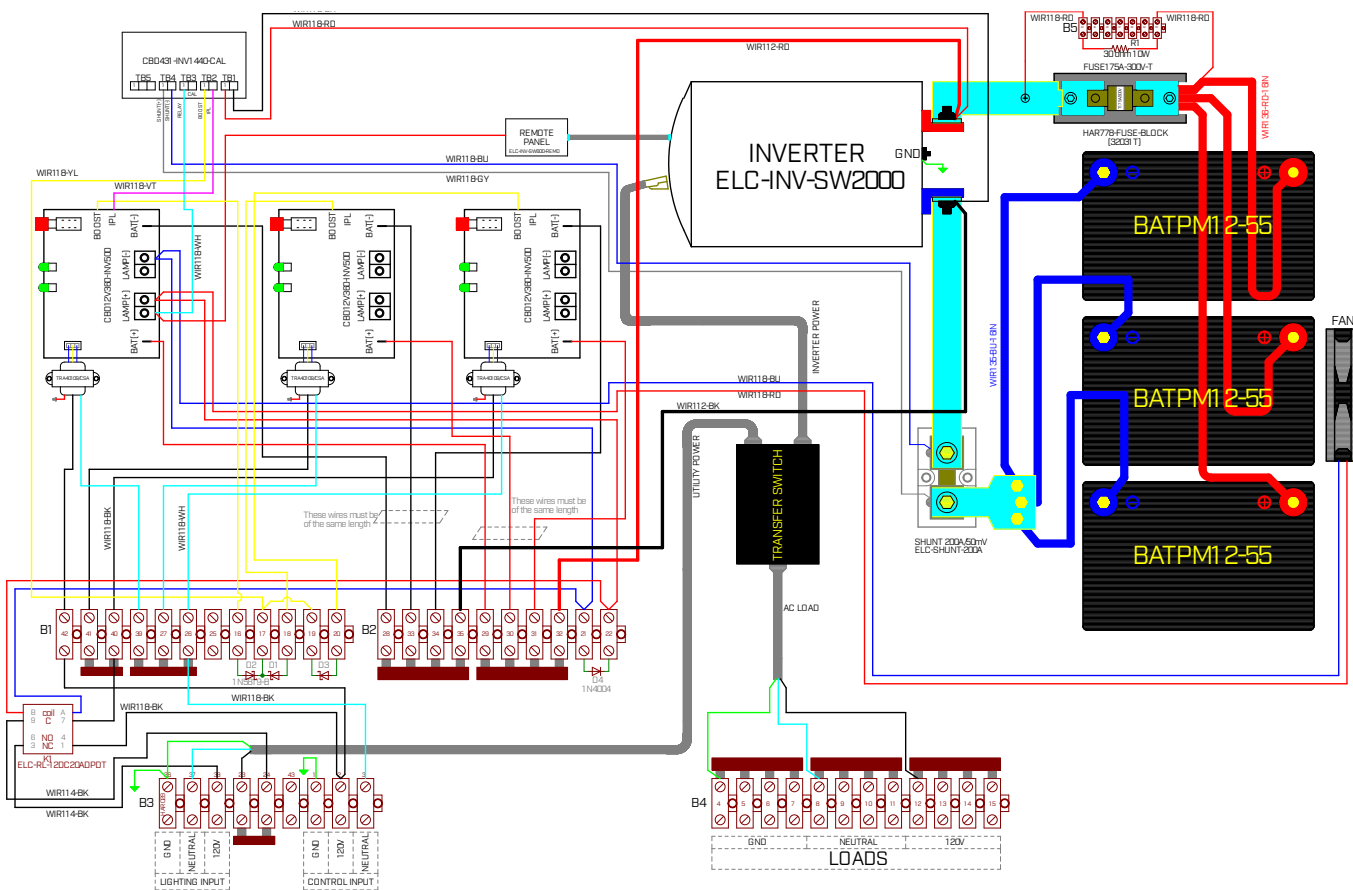


1000W



MOST POPULAR SETUP

1440W





PURE SINE WAVE INVERTERS

CLOSEST TO A PURE SINE WAVE?

For the number of “pulses”, this word can be related to the DC Rectifier to charge the batteries, or the first “AC to DC” stage of a double conversion system. The more pulses, the lower the reflected current harmonics (a good thing), and the lower the AC ripple content (also a good thing for the batteries).

Since we use IGBT devices and not SCR devices, we cannot apply the 6-pulse or 12-pulse circuit arrangement. The IGBT switches at a high frequency, 10.8kHz on the 3-ph models and 17kHz for the single phase models.

This high frequency allows us to re-create the sine wave with many fine points, to achieve a nearly perfect sine wave.

Some of our inverters are line interactive which incorporates a transformer – which naturally puts out a true sine wave, at no more than 5% VTHD. All other inverter models are double conversion topologies, running at 10.8kHz to 17kHz.

Looking at the 10.8kHz model, it translates to roughly 180 points (or more) per cycle, and will give 3% VTHD under linear loading, not to exceed 5% under non-linear loading.

Most designers of UPS systems are in the 10-20kHz frequency range, if you go faster/more points, the higher frequency has more losses so your system efficiency will drop.

The output is then filtered to help smooth out the points to achieve the 3% maximum voltage distortion. You should always try to be under 5% for any electrical circuit.

HOW IS PURE SINE WAVE ACHIEVED, WITH NUMEROUS FILTERS OR OTHER COMPONENTS?

Is achieved electronically using fast switching transistors. These are now called IGBT'S (Isolated Gate Bipolar Transistor) that gives designers much more flexibility to control power. They are also now fail-proof, thermally protected and overload protected during fault/temp situations.

ADVANCED DIGITAL MONITORING THE INTELLISTAT TSTM

The SMV and S3NV includes a user-friendly Intellistat TS™ monitor which provides quick, full-access to all of the inverter's features. This allows all programming to be done directly from the touchscreen display, and provides complete system diagnostics and testing. A colour, TFT, high resolution touchscreen display indicates all the electrical parameters, as well as the functional status of the inverter. The touchscreen display allows the entry of the date/time values, system setpoints, and password information into the monitor, without the need of an external computer and cable.

The Intellistat TS's features include:

- LCD display of all electrical parameters
- NFPA-compliant automatic battery testing/logging
- User-programmable automatic system testing
- System alarm annunciation
- Audible alarm with alarm silence
- Alarm status display
- Programmable alarm set-points
- Date and time display
- Auto-logging of test results and abnormal events
- Multi-layer password protection
- Logs up to 75 events
- Non-volatile clock and memory
- Remote monitoring capabilities
- Optional reporting of test results via e-mail/voice/webpage
- Optional status notification via e-mail/cell phone



Series Spec Sheet

SMV

PURE SINEWAVE FAST-TRANSFER MINI-INVERTER

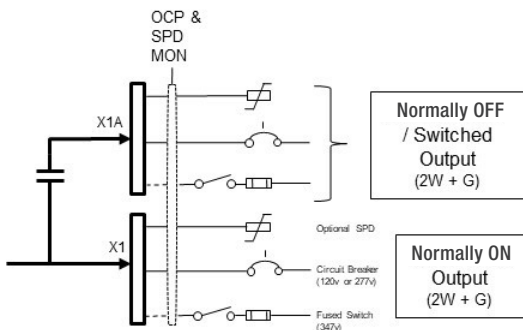
Presenting the SMV mini-inverter that covers 525 watts up to 2200 watts. Careful attention to the mixed design was required to satisfy the code intent and achieve a universal system.

The basic line in the sand on the differences needed starts at 1440 W. Equipment rated higher than this value is deemed to be a truly "Central" battery system that is intended to service multiple lighting circuits, and must have an audio-visual display center that meets alarm and status objectives. And with internal circuit distribution options, each distribution point must be monitored to acknowledge the loss of a circuit. Only with these key elements will you be code compliant.

FEATURES AND SPECIFICATIONS

• Product Highlights

- Normally ON and Normally OFF / Switchable Outputs are standard, on all sizes.
- Wall Mount, Stand or Floor models available.
- Standard door display and Intelligent door display required at 1500 W and above.
- 30, 60, 90, 120 minute battery time for each power rating...no de-rating!
- Multiple output breakers or fused switches available, with monitoring.
- SPD (Surge Protection Device) option available when using 2 or more output distribution devices.
- 120, 277, 347 VAC Input-Output availability on all sizes.
- Sizes include: 525 W, 750 W, 1100 W, 1440 W, 1500 W, 1700 W, 2000 W, 2200 W.
- High Efficiency reaching 98.8%.
- Extremely fast switch times under 2ms, supporting all lighting types.
- Full Auto-testing with logs, time stamp and various reporting capabilities.
- Peak overload capability of 1500% to accommodate inrush current from LED fixture.
- Unique automatic weekly diagnostic checks - without battery use.
- 3-stage temperature compensated charger, with 12 hour recharge time.
- LVD (Low Voltage Disconnect) feature – Maximizes battery life if system shuts down and remains unattended.
- All cabinetry is NEMA 2 type, does not require sprinkler shielding.



STD MONITOR



Standard Monitor

- Standard on all sizes
- LED Indicators
- Status and Alarm
- USB port for Alarm and Test Logs
- USB port for live parameters and system programming
- Weekly/Monthly/Yearly automatic self testing

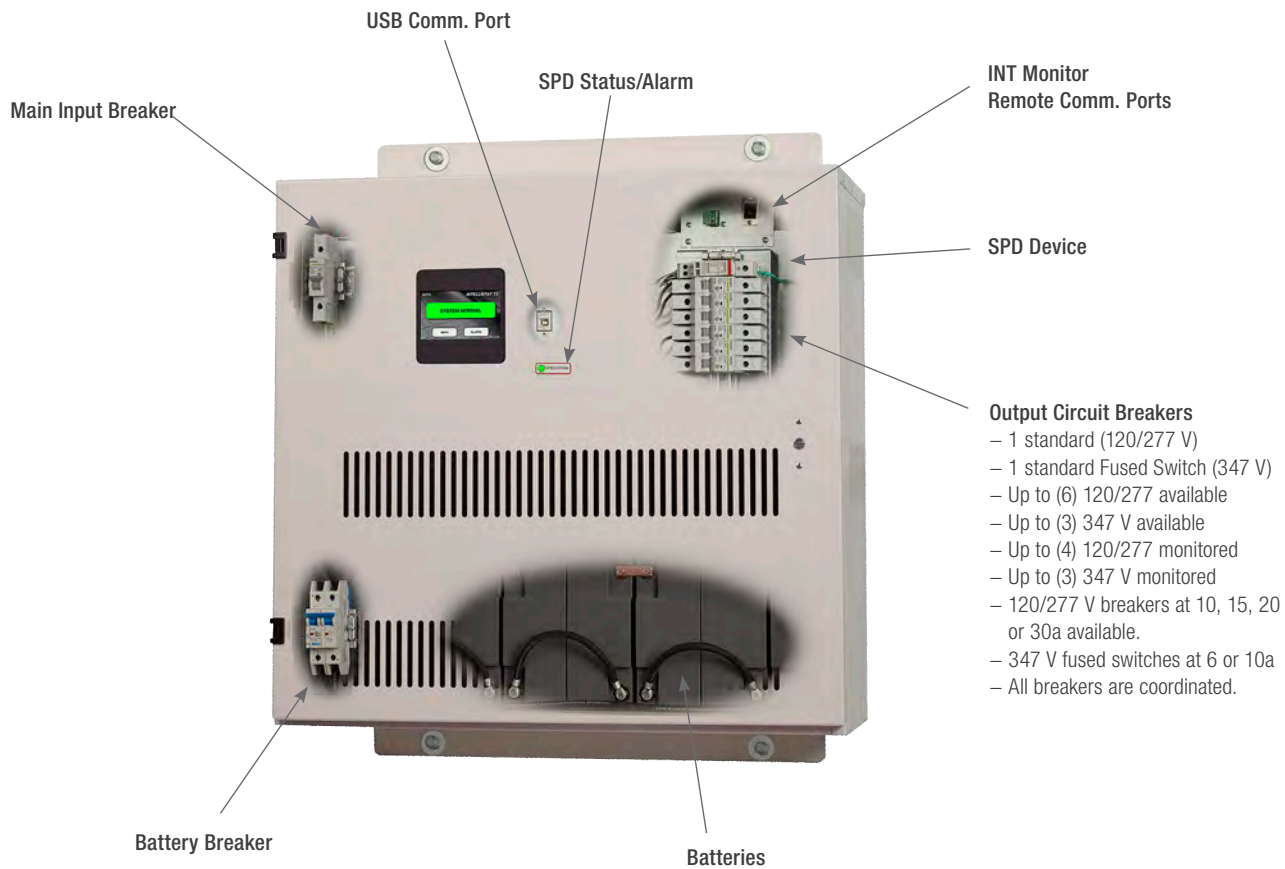
INT MONITOR



Intelligent Monitor

- Optional on all sizes
- Color Display with Touch Screen
- Banner Messages
- Functional Diagram
- Viewable Test and Alarm Logs
- USB port programming/recording
- Lamp Load Integrity Testing
- Remote Network Communications
- Meets A/V requirements for CSA
- Must be used in Canada for > 1440 W

PRODUCT LAYOUT



- ### Output Circuit Breakers
- 1 standard (120/277 V)
 - 1 standard Fused Switch (347 V)
 - Up to (6) 120/277 available
 - Up to (3) 347 V available
 - Up to (4) 120/277 monitored
 - Up to (3) 347 V monitored
 - 120/277 V breakers at 10, 15, 20 or 30a available.
 - 347 V fused switches at 6 or 10a
 - All breakers are coordinated.

CABINET DIMENSIONS

Wall-Mounted Units (525 W and 750 W units):	26.3"W x 11"D x 24"H
Floor-Mounted Units (1100 W units and above):	26.3"W x 11"D x 53"H

Weights (lbs)	Wall Mount				Floor Mount			
	30 min	60 min	90 min	120 min	30 min	60 min	90 min	120 min
525 ¹	140	158	216	N/A	160	178	236	292
750 ¹	140	216	216	N/A	160	236	236	292
1100	158	N/A	N/A	N/A	210	268	305	355
1440	216	N/A	N/A	N/A	268	305	355	452
1500	216	N/A	N/A	N/A	268	305	355	452
1700	216	N/A	N/A	N/A	268	331	385	452
2000	N/A	N/A	N/A	N/A	283	355	490	490
2200	N/A	N/A	N/A	N/A	283	355	490	630

¹ 525 W and 750 W weights include optional 24"H stand required for floor mounting.
The above weights are based on 120 V models. Add 18 lbs for 277 V and 347 V models.

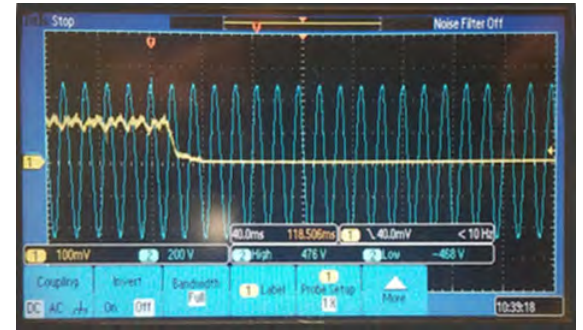
Runtimes	Wall Mount Units	Floor Mount Units
	Runtime (Minutes)	Runtime (Minutes)
525 ¹	30/60/90/120	30/60/90/120
750 ¹	30/60/90	30/60/90/120
1100	30/60	30/60/90/120
1440	30	30/60/90/120
1500	30	30/60/90/120
1700	30	30/60/90/120
2000	N/A	30/60/90/120
2200	N/A	30/60/90/120

¹ 525 W and 750 W wall-mounted units are available with an optional 24"H stand for floor mounting.

Heat	BTU/HR		
	120 V	277 V	347 V
525	61	85	85
750	65	92	92
1100	68	92	92
1440	78	92	92
1500	78	92	92
1700	85	92	92
2000	89	92	92
2200	92	96	96

The 525 W model does not use fans. The 750 W model uses one fan. All other models use 2 fans. In all cases, the fans will only operate when in emergency battery mode.

OUTPUT - PURE SINEWAVE



The above oscilloscope capture shows the output voltage (Blue Trace) against the input sensing signal (Yellow Trace). Less than 2ms Delay Time for Transfer.







SNV

SINGLE PHASE INVERTER

The SNV is a single phase pure sine wave, dependable, lighting inverter system, a traditional solution for life safety egress lighting. Through the use of the SNV power is supplied to existing lighting luminaires, eliminating the need for special emergency lighting fixtures.

The central inverter system encompasses a single unit installed in a centralized location. This greatly simplifies maintenance testing and servicing. The inverter load versatility lighting includes fluorescent, incandescent, HID and LED luminaires with extensive combination of input and output voltages.

CERTIFICATIONS

- UL 924 Listed
- c-UL Listed to CSA C22.2

MEETS

- NFPA 101, 111, NEC, IBC



SNV

CENTRAL INVERTER SYSTEM



FEATURES AND SPECIFICATIONS

• Inverter

Input single phase:

- Input voltage: 120, 208/120, 240/120, 277, 347, 480 or 600 VAC
- Input frequency: Synchronize at 57.5 Hz to 62.5 Hz
- Input operating range: +10% to -15% or more, without battery usage
- Power factor: Self correcting to >0.97, approaching unity
- Input harmonics: Load generated harmonics are fully attenuated

Output single phase:

- Output voltage: 120, 208/120, 240/120, 277/120, 347/120, 347 VAC
- Voltage regulation: +/-2%
- Output sine wave: Less than 3% VTHD under linear loading
- Overload rating: 125% for 2 minutes, 150% for 30 seconds
- LED inrush rating exceeds 1100 peak for 4mS, no need to oversize
- Power Factor: Unity rated
- Crest Factor: 3.0:1
- Transfer Times: Seamless no break, instantaneous
- True sign wave output
- Operates with incandenscent, flourescent,HID and LED lamp loads
- Operating Temperature: 0 to 40°C, agency approved
- Automatic Testing: Monthly at 30 second or 5 minutes plus full discharge yearly test. Optional load integrity test feature with INT optional monitor
- Warranty: 2 year parts and factory workmanship with factory start-up

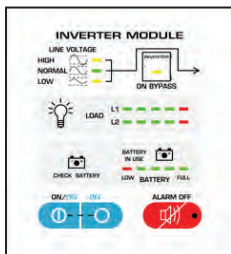
• Battery

- Recharge time: <12 hours for 30 minutes backup time, 24 hours for 90 minutes backup time
- Charger: Four-stage, temperature compensated smart charger
- Standard battery: VRLA sealed, non spillable, 10 year life
- Bus voltage: 120VDC typical
- Runtimes: 30, 60, 90, 120 standard, other times available
- Operating Temperature: 0 to 40°C, agency approved
- Warranty: 1 year full replacement, 14 years pro-rate

Note:

Maximum battery life will be achieved at a maintained 25°C ambient temperature. Stanpro Central Inverter Systems (CIS) uses On-Line technology to insure the highest reliability system for Life-Safety Emergency Lighting. Applications requiring 3-phase inverters may easily use the single phase Stanpro CIS providing the requirements are 18kW or less. All voltages for single and three phase circuits are available. All models come with panel monitoring, remote alarm signals and automatic system testing/logging that exceed industry requirements. Optional metering with high graphic display, complete system electrical parameters, and load-integrity testing are available.

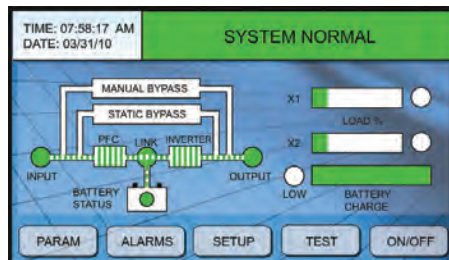
The SNV Central Lighting Inverter has a CCMC listing and Ministry's Ruling for BMEC. Manufactured 100% in North America.



Standard monitor
2.2kW through 14kW



Standard monitor
14.5kW through 18kW

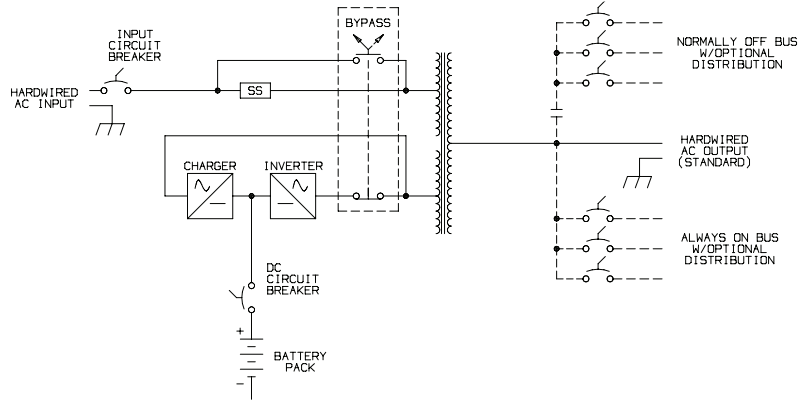


Optional monitor
3kW through 14kW

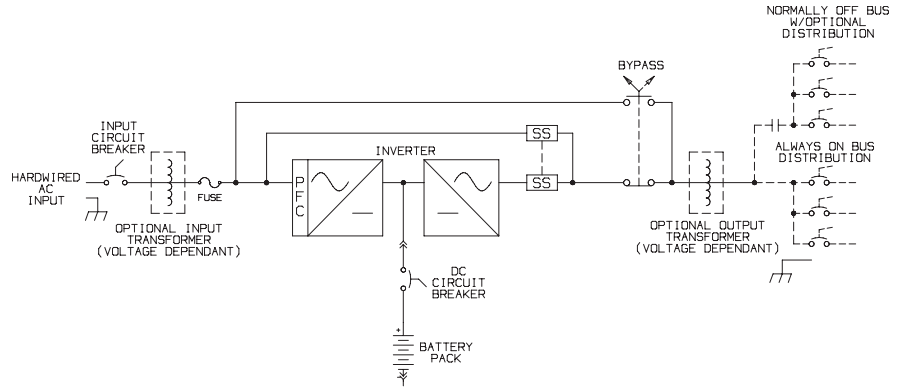


Standard LED Readout for
550w to 1500w Models

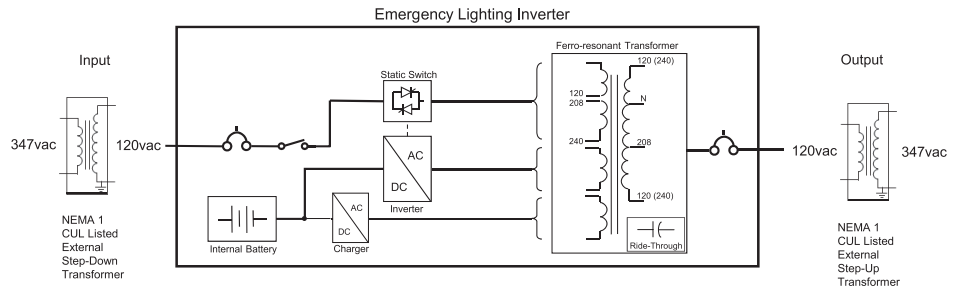
**TYPICAL SINGLE PHASE
INVERTER SCHEMATIC
LINE INTERACTIVE TOPOLOGY**
550W - 1.5KW and 14.5KW - 18KW



**TYPICAL SINGLE PHASE
INVERTER SCHEMATIC
DOUBLE-CONVERSION
ON-LINE TOPOLOGY**
600W - 14KW



**TYPICAL 347V
INVERTER SCHEMATIC**
for systems up to 3500W
347V operation with external step transformers.



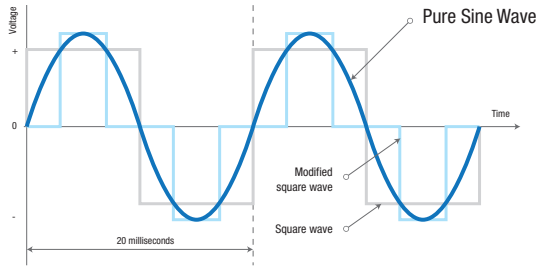
SNV Model	Step-Up Transformer Rating	Inverter Output Rating
550W	2000W	520
1000W	2000W	950
1500W	2000W	1425W

Table 1

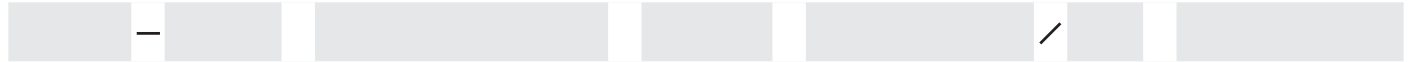
The SNV model inverter from 550W to 1.5kW is only available with 120V input/output. For lighting loads requiring 347V, an external transformer will be used on the input and/or output and supplied separately for the installation electrician to install. This will transform the voltage (Step up or Step down).

The inverter final output capability is reduced by 5% as noted in Table 1.

Stanpro uses only Pure Sine Wave inverters
 The most compatible wave form for LED and electronic ballasts.



ORDERING GUIDE



Series Runtime (MINUTES)	Input Voltage (VAC)	Capacity Rating (WATTS)			Output Voltage (VAC)		Optional Output Circuit Breakers (AMPS)		Quantity Output Breakers	Options
		1 000 **	4 200*	12 500*	A -	120V	Normally ON	Normally OFF		
SNV30	A - 120V	1 000 **	4 200*	12 500*	A -	120V	Normally ON	Normally OFF	01	MBS***, RAP, AMD, INT, BMN, OFF, TOF, SGS, GA *** MBS not available on 550W
SNV60	BA - 208/120V	1 500 **	5 000*	13 500*	BA -	208/120V	015 - 15A	F15 - 15A	02	
SNV90	CA - 240/120V	2 200**	6 000*	14 000*	CA -	240/120V	020 - 20A	F20 - 20A	03	
SNV120	C - 240V	3 000**	7 000*	14 500*	EA -	277/120V	030 - 30A	F30 - 30A	04	
	E - 277V	3 500**	7 500*	16 000*	HA -	347/120V	040 - 40A	F40 - 40A	05	
	H - 347V		8 500*	18 000*	AF -	120/230V	050 - 50A	F50 - 50A	06	
	K - 480V		10 000*		H -	347V			07	
	S - 600V								08	
		*347V internal operation available on 4200W and up.							09	
		** 347V operation with external step transformers.							10	
		Contact supplier for more details							11+	

OPTIONS

Description		Description	
MBS	Maintenance bypass switch	RAP	Remote annunciator panel
BMN	Output breaker monitoring	INT	Instellistat advanced digital monitoring
TDF	Timed off standby circuit	DFF	Normally off standby circuit option
GA	General alarm	SGS	Sprinkler guard shield

CABINET GUIDE

Capacity Rating (WATTS)	Inverter Cabinet	Battery Cabinet (30 min)	Battery Cabinet (60 min)	Battery Cabinet (90 min)	Battery Cabinet (120 min)
550, 1000, 1500	A	-	-	-	-
2200, 3000, 3500	B	-	-	-	-
4200	C	-	-	-	C1
5000	C	-	-	-	C1
6000	C	-	-	C1	C1
7000, 7500	C	-	C1	C1	C1
8500	C	C1*	C1*	C1	C1
10000	C	C1*	C1*	C1	C1 + C1
12500	C	C1*	C1	C2	C2
13500	C	C1*	C1	C2	C1 + C1
14000	C	C1	C2	C2	C1 + C1
14500	D	D1	D1 + D2	D1 + D2	D1 + D2 + D2
16000, 1800	D	D1	D1 + D2	D1 + D2 + D2	D1 + D2 + D2

Inverter Cabinet			
Cabinets	Width	Depth	Height
A	31"	16.6"	39"
B	36"	24"	72"
C	36"	24"	80"
D	43"	24"	42"

Battery Cabinet			
Cabinets	Width	Depth	Height
C1	29"	24"	80"
C2	36"	27"	80"
D1	43"	24"	42"
D2	26"	24"	42"



B3NV

EMERGENCY LIGHTING INVERTERS SINGLE PHASE / THREE PHASE

B3NV Series Emergency Lighting AC 3-Phase Inverters are among the most reliable systems available for emergency lighting and other demanding critical applications.

They are Dual Conversion, On-line, three-phase, intelligent systems for centralized power protection. These continuous on-line Emergency Lighting AC Inverters are available in models from 8 kW up to 48 kW.

They provide reliable and constant protection for mission critical emergency lighting, and infrastructure applications such as airports, hospitals, and financial companies.

FEATURES AND BENEFITS

- **Three Phase Inverter**

The B3NV provide full-time self-diagnostics as well as two levels of audible alarms when the unit is operating in battery mode. A manual test switch has been incorporated into the input/test breakers that make testing a simple procedure. The internal bypass switch allows maintenance on the B3NV to be performed without interruption of power to the load.

The communications port, in conjunction with multi-platform monitoring and control software, enables the unit to be connected to a local or networked computer system. Detailed operating information including voltages, currents, and alarm status is available to the monitoring system.

- **Full Galvanic Isolation**

Provides a completely isolated and re-referenced output. This isolation protection provides a proven solution to problems created by induced voltages affecting the critical loads. Since the output circuit to the load is completely isolated and no noise induced on the neutral can permeate to the loads, systems operate in a more reliable fashion.

- **Fully Digital**

DSP (Digital Signal Processor), flash memory, and multi-contact strategy are the technology corner stones of the new age of power quality and reliability. Extremely flexible: The B3NV offers tailor-made power protection to comply with your individual installation requirements. Options include a 12-pulse rectifier and distribution panels.

- **IMBS**

An Internal Maintenance Bypass Switch (IMBS) is standard with all B3NV inverter units.

- **EMI suppression**

An EMI filter is added to meet the international EMC limits to ensure that no noise will affect or interfere with other equipment connected to the same AC source.



FEATURES AND BENEFITS CONTINUED

- **High frequency design**

The three-phase B3NV design incorporates a full bridge three-phase inverter. This design makes the B3NV perform better than other Emergency Lighting AC Inverters in the market when an unbalanced load is connected.

- **Cold start function**

The B3NV can be started without the utility AC supply being activated, or present at the input terminal strip because our system is designed with current limiting circuitry, which allows the startup of the B3NV on battery DC power.

- **Intelligent charger**

The B3NV will perform an automatic monthly recharge (boost charge) of the batteries as well as automatically recharge (boost charge) the batteries when the battery voltage level decreases to approximately 2V/Cell. It makes the batteries stay in good condition.

- **Intelligent Battery Test**

The batteries are tested monthly automatically. When an abnormal condition (low charge rating or bad battery) is found, the user will be informed immediately through alarms on the B3NV systems.

- **MTBF of Cooling Fans**

Long cycling fans will operate at variable speeds necessary which is dependent on the load of the inverter systems increasing the life expectancy of the fan motors.

- **SNMP**

Simple Network Management Protocol (SNMP) adapter to remotely control and monitor the unit via a network or the Internet.

OPTIONS

Output Circuit Breakers: Supports normally on or normally off circuit breakers.

Additional Run Times: These can be 30, 60, 90, or 120 minutes, other configurations are available.

EMBP: External Maintenance Bypass. This device allows the load power to be transferred from the inverter output to the AC supply. Thus the inverter can be completely removed or repaired without interruption of power to the load.

RCMP: Remote Control and Monitoring Panel. This option provides remote alarms to indicate the inverter status.

OVERVIEW

Overview		8 kW	12 kW	16 kW	24 kW	32 kW	40 kW	48 kW
Overall efficiency		90%						
Maximum heat dissipation (kW)		0.89	1.32	1.76	2.64	3.52	4.4	5.28
Operating environment	Temperature	0 - 40°C (32 - 104°F)						
	Humidity	0 - 90% (non-condensing)						
	Altitude	<1500 m above sea level						
Protections	Short circuit	Yes						
	Lightning	MOV						
	EMC filter	Input and output						
	Galvanic isolation	Between input and output						
Indications and alarms		LED, LCD, Buzzer						
Dry contact		Yes						
Battery start		Yes						
Data display by LCD		Yes						
Audible noise		<65 dBA (at 1 m)						
Standards		UL924, UL1778, NFPA111, CSA 107.3, CCMC, BMEC, CSA 22.2 60950						
Physical data	W x D x H	550 mm x 812 mm x 1600 mm (21 3/4" x 32" x 63")						
	Weight	380 kg (838 lbs)	415 kg (915 lbs)	450 kg (992 lbs)	580 kg (1279 lbs)	650 kg (1433 lbs)	710 kg (1565 lbs)	850 kg (1874 lbs)

TECHNICAL SPECIFICATION TABLES

Rectifier	8 kW	12 kW	16 kW	24 kW	32 kW	40 kW	48 kW
Input voltage	120/208 V, 277/480 V, 347/600 V, 3 phases, 4 wire + ground						
Input range	±15%						
Input frequency	45-65 Hz						
Input power factor	<1						
Normal input current (based on 208 Vac)	31	47	62	93	124	155	186
Maximum input current (based on 208 Vac)	36	54	71	107	142	178	213
THD	6 pulse: 30%						
	12 pulse with filter: 9%						
Power walk-in (adjustable)	0%-100%: 20 seconds						
Efficiency	98%						
Voltage regulation	1%						
Ripple voltage	0.50%						

Battery	8 kW	12 kW	16 kW	24 kW	32 kW	40 kW	48 kW
Battery type	Maintenance free sealed lead acid						
Number of cells	174						
Voltage range	295-410 Vdc						
Maximum charge current (ADC)	5	7.5	10	15	20	25	35
Battery low voltage	320 Vdc						
Battery low stop	295 Vdc						

Inverter	8 kW	12 kW	16 kW	24 kW	32 kW	40 kW	48 kW
DC input range	295-415 Vdc						
Wave form	Sinusoidal						
Output voltage (adjustable)	120/208 V, 277/480 V, 347/600 V, 3 phases, 4 wire + ground						
Crest factor	3:01						
Output power factor	0.8						
Voltage regulation 100% unbalance load	±1%						
Frequency lock range	50 / 60 Hz, ±7%						
Output frequency (free running)	50 / 60 Hz, ±1Hz						
Output voltage frequency	Static	±1%					
	Load step 0%-100%-0%	Recovering to within ±1% in 4 cycles					
THD (linear load)	<2%						
Overload	<110%	Continuous					
	110-125%	15 minutes					
	125-150%	5 minutes					
	150-170%	30 seconds					
	>170%	10 seconds					
Efficiency (100% load)	92%						
Maximum output wattage (kW)	8	12	16	24	32	40	48

Static Switch	8 kW	12 kW	16 kW	24 kW	32 kW	40 kW	48 kW
Voltage range	±20% of input voltage (line to neutral)						
Frequency range	45 - 55 Hz / 55 - 65 Hz						
Efficiency (100% load)	99.50%						
Transfer time	Mains -> Inverter	0 ms					
	Inverter -> Mains	0 ms					
Isolation with output	Yes						



S3NV

Three Phase Inverter

Big, Powerful Inverter System.

Centralized emergency lighting inverters featuring one of the smallest pure sine wave three phase cabinet footprints in the industry.

Applications

- Industrial Manufacturing
- Warehouses
- Theaters/Concert Halls
- Auditoriums
- Conference/Banquet Centers
- Shopping Malls
- Casinos
- Sports Facilities
- University Buildings
- Healthcare Facilities
- Subway/Train Stations
- Correctional Facilities
- Worship Facilities

Certification

- UL 924 Listed
- c-UL Listed to CSA C22.2

Meets

- NFPA 101, 111, NEC,



	Output Rating	Width (in.)	Depth (in.)	Height (in.)
S3NV	33 kW	70	33	77
Competitor A	32 kW	130	32.5	71
Competitor B	33 kW	140	31	72

Note: Dimensions include 90 minutes of battery at full load.



Emergency Lighting Requirements

Stanpro meets stringent requirements in construction, performance, self-diagnostic and self-testing of S3NV centralized emergency lighting inverter. S3NV is UL 924 listed as “Emergency Lighting Equipment” and “Auxiliary Lighting and Power Equipment”, as well as NFPA compliant as “Life Safety Equipment”. The S3NV offers more security and versatility to meet illumination requirements, being the perfect complement for all life safety and lighting applications.

Our inverter technology effectively maintains critical equipment with extended brownout protection, tight voltage regulation, and power conditioning. Tight voltage regulation assures that facility egress lumens are maintained 100% at emergency lighting fixtures, in all modes of operation, and also extends ballast, LED driver, and lamp life.

Advantages

Design Flexibility

Using existing fixtures for emergency lighting and egress assures compliance with minimum illumination code requirements. Extensive combinations of input and output voltages, timed off bus with remote “Command ON” control, automatic battery testing, and control device override options make the S3NV one of the most versatile and dependable lighting inverter systems in the market.

Single Point Operation / Maintenance

One central inverter controls many smaller circuits. Cost-effective, single-point operation, provides a common battery pack, and enables all maintenance to be performed and records to be logged from a single location. Additional benefits include:

- Egress lighting integrity test.
- Hot-swappable battery replacement.
- Standard internal bypass.
- Standard 15-year pro-rated battery life.

Premium Power And Voltage Regulation

Maintains proper operating voltage for HID and high-pressure sodium lighting, as well as electronic ballasts and LED lighting, resulting in:

- Voltage sag and surge protection.
- Longer wire runs without upsizing the wire. Regulated voltage source minimizes voltage drop.
- Less-frequent replacement of ballasts, LED drivers, and lamps.
- Facility egress lumens are maintained 100% (will not diminish) over the full 90 minute of emergency power.

Generator Compatible

The S3NV is listed “UL 924 Auxiliary Lighting and Power Equipment”, and is suitable to provide uninterrupted back-up power until a generator starts. Even with an extremely distorted input waveform, the output of the S3NV delivers a clean sine wave, with no more than 3% THD, without switching to batteries. This feature also extends ballast, LED driver, and lamp life.



Advanced digital monitoring

Egress Lighting Integrity Test

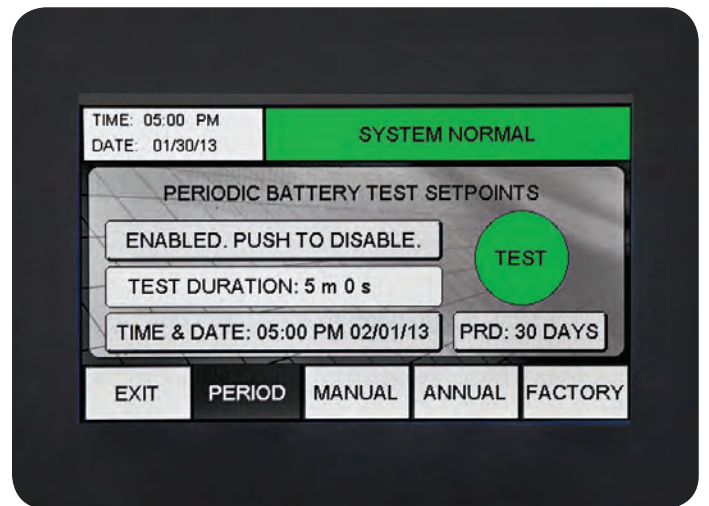
This feature provides the industry's most advanced life safety system test available. To satisfy NFPA-mandated periodic and annual requirements, the Intellistat TS automatically initiates the testing of all life safety circuits, regardless of egress lighting design ("always ON" or "normally OFF"). The Intellistat TS then compares power consumption during the test period with user-defined load capacity, analyzing the data, and advising if service is required.

Automatic System Tests

The Intellistat TS automatically performs a user-defined (date and time) 5-minute system test every 30 or 90 days. It also performs user-defined (date and time) 30-, 60-, or 90-minute, or 2- or 4-hour annual system tests. For all of these tests, the Intellistat TS logs the test results with date and time, as well as a "pass" or "fail" indication.

Manual System Tests

The Intellistat TS also allows the user to manually invoke a user-defined system test for 30-, 60-, or 90-minutes, as well as 2- or 4-hours. A 1-minute or 5-minute manual test is also available for "spot inspections".



The colour touchscreen display on the Intellistat TS provides all electrical parameters, inverter status, programmable inverter, battery testing, and data-logging. Optional NetMinder™ communications allow remote monitoring and reporting via BACnet/IP or BACnet MS/TP, Ethernet TCP/IP, MODBUS TCP, or MODBUS RS485.



Advanced digital

Alarms & Status

The Intellistat TS announces multiple alarms, including:

- Input phase rotation error
- System on battery
- High/low input voltage
- Low battery warning
- High/low input frequency
- Low battery shutdown
- High/Low output voltage
- Battery test in progress
- High/Low output frequency/time remaining
- High output VA (overload)
- Auto battery test failed
- * Low output VA
- OFF bus status
- High/Low battery voltage
- DC charger fail/DC open
- High battery charger current
- Output circuit breaker open
- System normal
- REPO shutdown
- IGBT fault
- Manual restart required
- Overtemp shutdown
- Static bypass status/alarms
- System in manual bypass

*User-programmable limit referenced during

Monitored Parameters

The Intellistat TS monitors 3-phase input and output parameters, and inverter status indicators:

- Voltage
- kVA and kW totals
- Frequency
- Output percent load L-N (% kVA)
- Current
- Output percent load total (% kVA)
- VA
- Battery voltage
- Watts
- Battery charge/discharge current
- Power factor
- Battery time (minutes) remaining

Communication

Touchscreen display for on-sight monitoring.
Network capacity for remote access, monitoring, reporting & notification.



Specifications

Power

Ratings (kVA/kW)	10, 13, 14, 15, 16, 17, 20, 22, 24, 26, 28, 30, 32, 33, 40, 45, 50 at 1.0 (unity) power factor
Topology	True online double-conversion, uninterruptible power

Electrical input

Nominal Voltage	208/120V, 480/277V or 600/347V Wye, 60Hz. Consult factory for 50Hz models
Voltage Range	+10%, -15% at full load
Operating Frequency	+/-5% from nominal
Power Factor	> .98 typical
Current Distortion	< 10% THD

Electrical output

Nominal Voltage	208/120V, 480/277V or 600/347V Wye, 60Hz. Consult factory for 50Hz models
Voltage Regulation	+/-3% from nominal typical
Frequency	+/-0.5% while in battery operation mode
Overload	1700% peak current for 4ms to LED inrush current
Voltage Distortion	3% maximum THD with a linear load
Efficiency	90% typical

Battery

Type	Valve-regulated, sealed lead calcium, maintenance-free. Front access terminals
Testing	Manual: Password-protected Automatic: User-programmable
Standard Runtimes	UL 924 Emergency Lighting Equipment - 90 min. C-UL Emergency Lighting Equipment - 30 min.
Optional Runtimes	UL 924 Auxiliary Lighting and Power Equipment - 15, 30, 60, 120, and 240 minutes. Consult factory for other UL / C-UL listed runtimes.
Nominal Voltage	Factory-programmable from 216-384 VDC, or from 132-168 VDC, kW, model, and runtime dependent
Charger	3-stage, temperature compensated
Recharge Time	UL 924 and NFPA 101, 111 compliant
Battery Replacement	Hot-swappable batteries - replaced without interrupting power to the load

Certifications

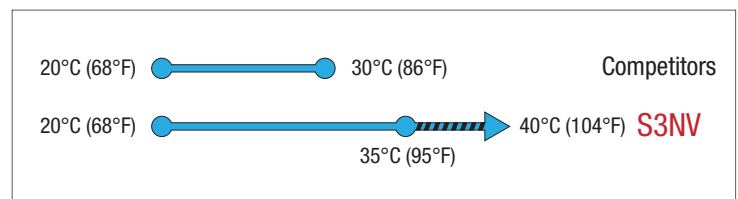
Safety	UL 924 Listed - Emergency Lighting Equipment C-UL Listed to CSA C22.2 No. 141-15 - Emergency Lighting Equipment UL 924 Listed - Auxiliary Lighting and Power Equipment NFPA 101, 111, NEC, and local codes
EMI Compliance	FCC Class A limits, 47 C.F.R. Part 15, Subparts A, B
Quality	ISO 9001:2008

General

Diagnostics	Continuous system self-check, including battery health
Static Bypass	Automatic bypass on overload or system failure
Internal Bypass	Integral, make-before-break switch with a secure push-to-turn function that provides an uninterrupted bypass of the inverter system
Maintenance Bypass	Optional external, wall-mounted, wrap-around, 4 pole BBM or MBB switch with a secure push-to-turn function, available for models where input-output nominal voltages are the same
Remote Emergency Power Off (REPO)	Optional input relay interface allows external contact closure to shut off the inverter system
Normally Off Bus	Optional standby output for use with "normally off" emergency lighting fixtures
Output Distribution	Optional output circuit breakers

UL rating temperature test comparison

NOTE: To satisfy UL 924 requirements for a 35°C rating, UL testing was performed in a 40°C ambient environment, with units tested under full load and at low line input voltage.



Specifications

Communications

LCD Display	High resolution, colour touchscreen display for monitoring system status and parameters, and to access programmable inverter and battery testing
Communication Port	RS232 serial communications for factory setup and authorized field service access
Network / Web	Remote monitoring and reporting via optional BACnet/IP or BACnet MS/TP, Ethernet TCP/IP, MODBUS TCP, or MODBUS RS485. Includes notification of alarms via SNMP, e-mail, and network broadcast messaging, or user's building management system
Relay Interface	Optional potential-free isolated status and alarm contacts via hardwired terminal strip. Contacts rated for 2A at 30 VDC, or 1A at 120 VAC

Environmental

Operating Temperature	20°C to 35°C for UL 924 Listed models (See illustration and note below.) 20° C (10° C optional) to 40° C for C-UL Listed models Optimum battery performance and life at 25°C
Storage Temperature	Inverter at -20°C to 50°C Battery storage at 25°C for 6 months before charging is required. For each 9°C rise, reduce storage time by half
Relative Humidity	0 to 95% non-condensing
Audible Noise	< 60 dBA at 1 meter
Altitude	6600 feet (2000 meters) without derating



NOTE: The callouts above reflect standard features.
Protective Inner Panel in the Inverter Cabinet Allows
Operation of Breakers & Bypass, But Prevents
Physical Contact with Live Connections

* Monitored output circuit breaker standard on C-UL listed models, optional on UL 924 listed models.



Inverter Options

Battery Run Times

All UL 924 models listed as Emergency Lighting Equipment are provided with a standard 90 minute of battery backup. C-UL models are provided with a standard 30 minutes backup. Please consult factory for other C-UL listed run times. Optional run times include 15, 30, 60, 120, and 240 minutes at full rated load. When optional run times are provided, the emergency lighting inverter is UL 924 listed as “Auxiliary Lighting and Power Equipment”. Please consult factory for battery option weights and cabinet configurations.

Maintenance Bypass

On systems in which the nominal input and output voltages are the same, an optional external, wall-mounted, push-to-turn, 4 pole Break-Before-Make (BBM) or Make-Before-Break (MBB) wrap around maintenance bypass switch is available. In bypass mode, the switch bypasses the system allowing isolation of the inverter’s input and output, and to enable the inverter to be fully serviced (including the complete maintenance and replacement of circuit cards or components). The bypass switch includes an auxiliary contact to indicate the position of the switch (normal or bypass) for remote monitoring purposes.

The MBB bypass switch has a second auxiliary contact which is wired to the inverter system. This contact enables the switch’s push-to-turn function to invoke the static bypass before the switch is turned to the bypass position. With the static bypass engaged, no interruption of power to the load will occur during transfers and retransfers.

S3NV

Output Distribution

Provided in a side-mounted, 14” wide, front access distribution cabinet, a total of 12 pole positions per phase (36 total) are available to accommodate 1, 2, and 3 pole circuit breakers fed from an inverter system output of 208/120 VAC or 480/277 VAC. These circuit breakers are located behind a secured, lockable, hinged door; and can be factory-wired to the “Normally ON” bus and/or “Normally OFF” bus in any combination specified. Monitored output circuit breakers are available, reducing the number of pole positions to 8 per phase (24 total). If a circuit breaker is open, the Intellistat TS monitor sounds an alarm. Optional alarm relay contacts are also available.

Normally OFF Bus

Provides standby power to “normally OFF” emergency lights when utility power is lost or inadequate, or if energized via a remote alarm contact. This option includes:

User-Programmable Settings

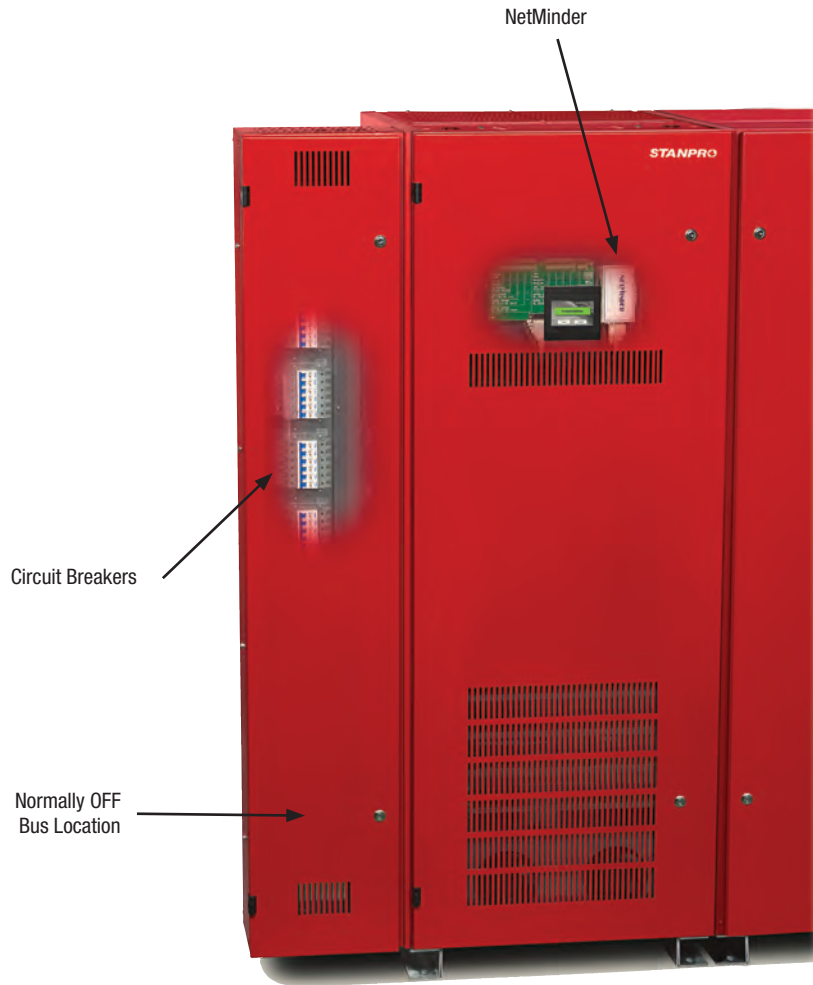
Transfer On Delay (0 – 8 seconds)

Transfer Off Delay (0 – 15 minutes)

Soft Start Control (0 – 172 cycles)

Remote Input “Command ON”

Allows a remote alarm contact signal to energize the “Normally OFF” bus, thus illuminating the “Normally OFF” emergency lights.



Status/Alarm Relay Contacts

Isolated, potential free (Form C) relay contacts, rated for 2A at 30 VDC or 1A 120 VAC, are available via a terminal strip for customers' hardwired connections to building monitoring and security systems. Status/alarm contacts include inverter ON, ON battery power, low battery, general alarm, in bypass, periodic or annual test activated, output circuit breaker open, battery test pass, and battery test fail.

Remote Communications

The S3NV's Intellistat TS monitor is available with optional NetMinder communications. NetMinder integrates the S3NV into a BACnet/IP or BACnet MS/TP, Ethernet TCP/IP, MODBUS TCP, or MODBUS RS485 network with a specific IP address for Ethernet connected systems. NetMinder provides remote monitoring of the inverter status, battery test pass/fail results, alarm conditions, and electrical measurements via a web browser, without the need for any external software. Remote notification of alarms and status are available via SNMP, e-mail, and network broadcast messaging, or the user's building management system.

Ordering Guide

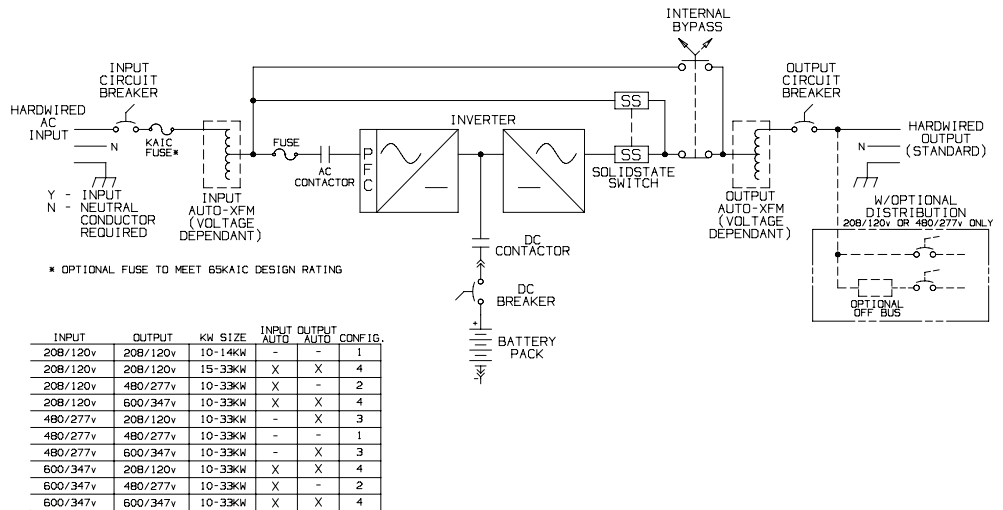
Series	Input Voltage (VAC)	Capacity Rating (KW)			Output Voltage (VAC)	Monitor	Output Distribution	Relay interface Options
S3NV30	BA - 208/120V	10	22	40	BA - 208/120V	0 - Intellistat	0 - Intergral main CB Only	0 - None provided
S3NV60	KE - 480/277V	13	24	45	KE - 480/277V	Intellistat with 1 - TCP/IP or Modbus TCP 2 - Modbus RS 485 3 - BACnet/IP 4 - BACnet MD/TP	1 - Distribution Cabinet 2 - Distribution Cabinet w/ Normally OFF bus	1 - Output Alarm relay Contacts and Off bus "Command ON" and REPO Inputs 2 - Off bus "Command ON" and REPO Inputs
S3NV90	SH - 600/347V	14	26	50	SH - 600/347V			
S3NV120		15	28	55				
		16	30					
		17	32					
		20	33					

KVA/KW	"BTU/HOUR FULL LOAD"
10	3410
13	4433
14	4774
15	5115
16	5456
17	5797
20	6820
22	7502
24	8184
26	8866
28	9548
30	10230
32	10912
33	11253
40	19086
45	21483
50	23870
55	26257

Voltage configurations INPUT OUTPUT VAC 60HZ		
BABA - 208/120 - 208/120	BAKE - 208/120 - 480/277	BASH - 208/120 - 600/347
KEBA - 480/277 - 208/120	KEKE - 480/277 - 480/277	KESH - 480/277 - 600/347
SHBA - 600/347 - 208/120	SHKE - 600/347 - 480/277	SHSH - 600/347 - 600/347

1. Stated full load BTU's for 480/277 VAC input – output models. Consult factory for BTU's of other models.

TYPICAL INVERTER 3 PHASE SCHEMATIC



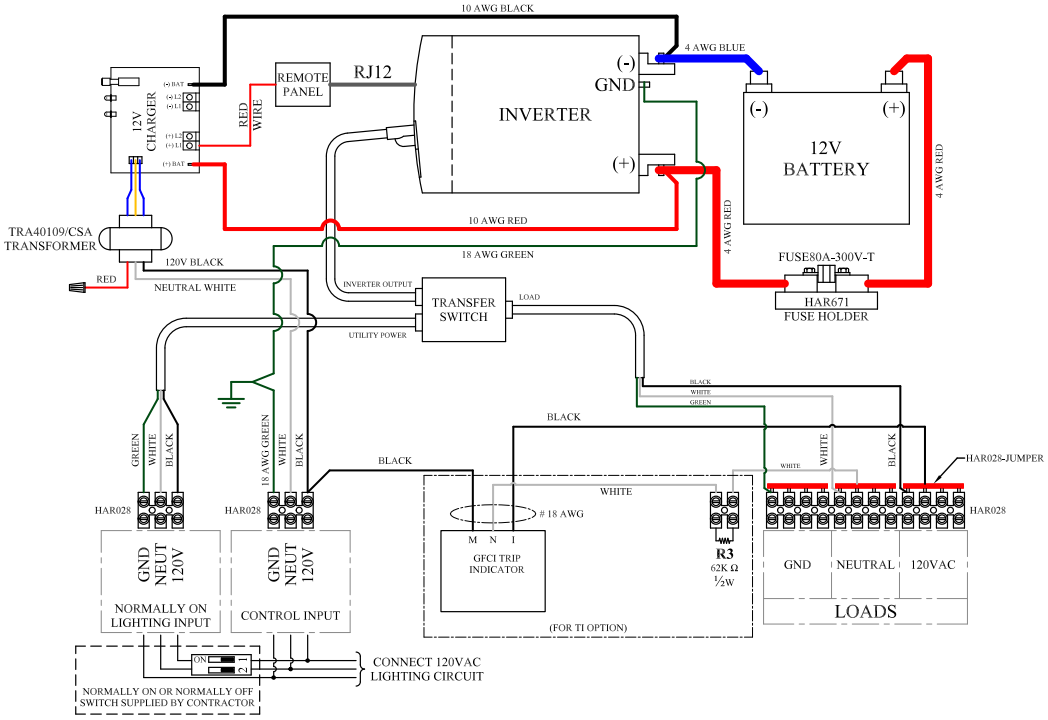
Contact Stanpro for single line drawing that include the external bypass switch



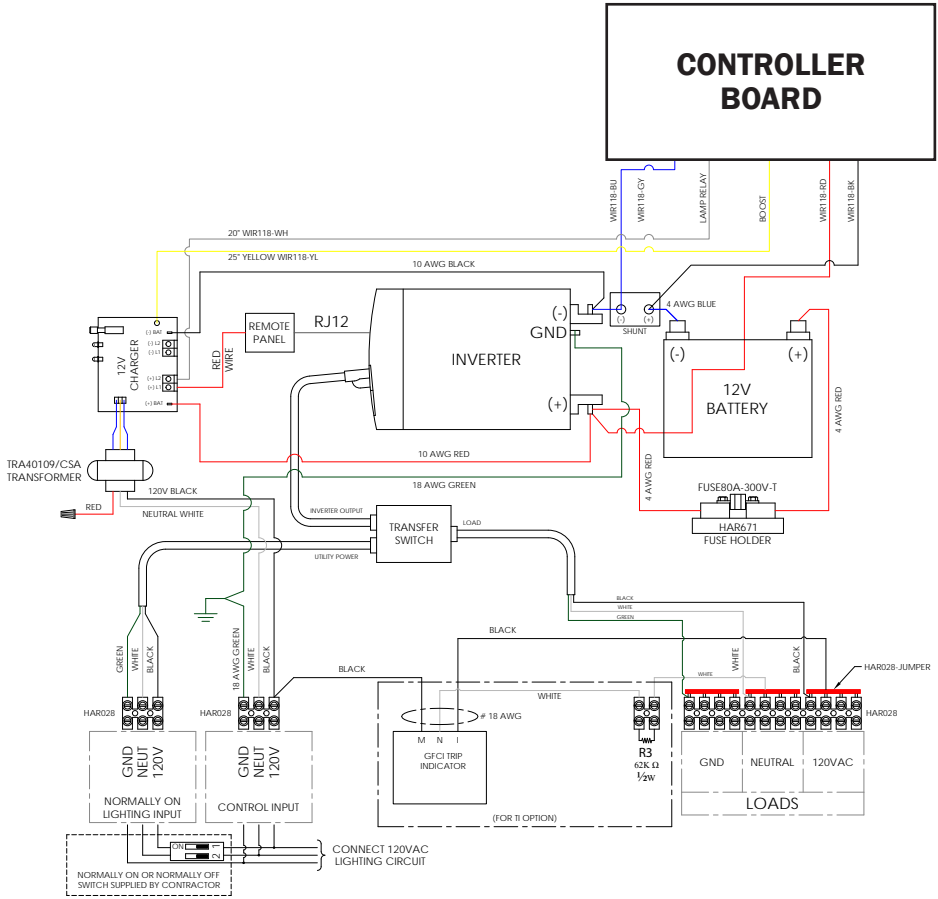
SLC-MIV

NORMALLY ON 120V

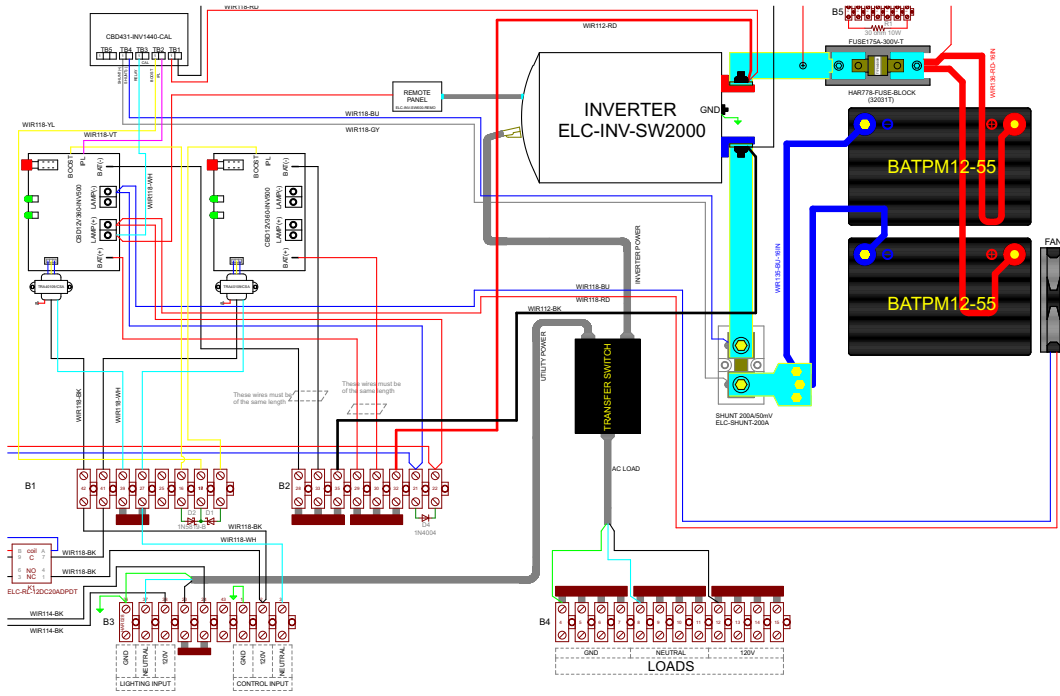
320W



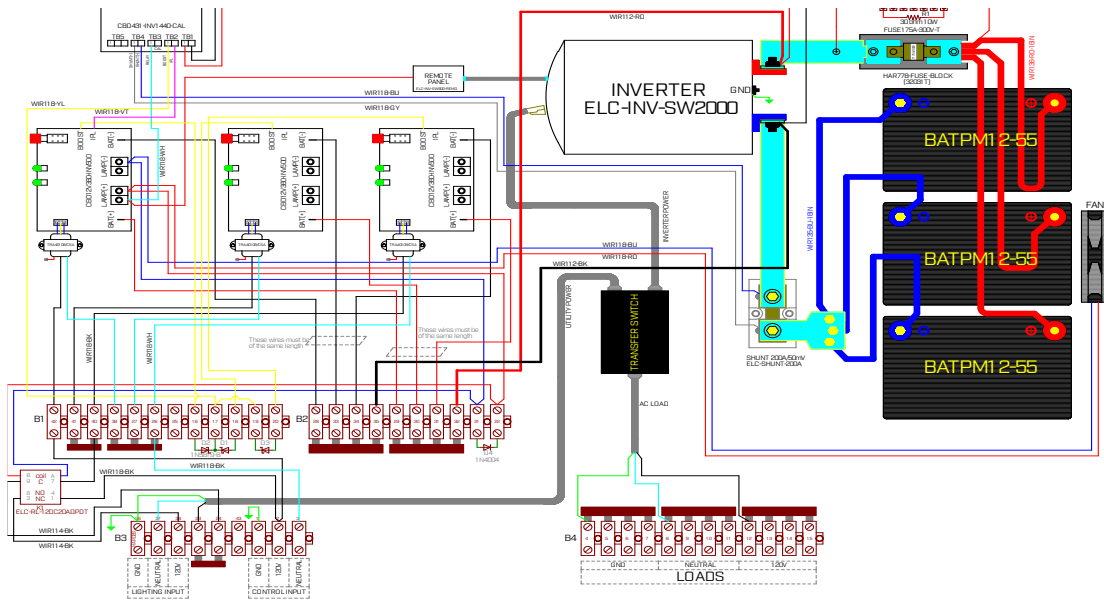
500W



1000W



1440W




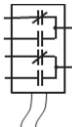
RELAY DIAGRAM


LEGEND

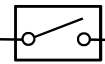
Main = Main AC Feed
 Gen/ATS = Generator with Automatic Transfer Switch (Alternate Emergency Power Source In lieu of Inverter)

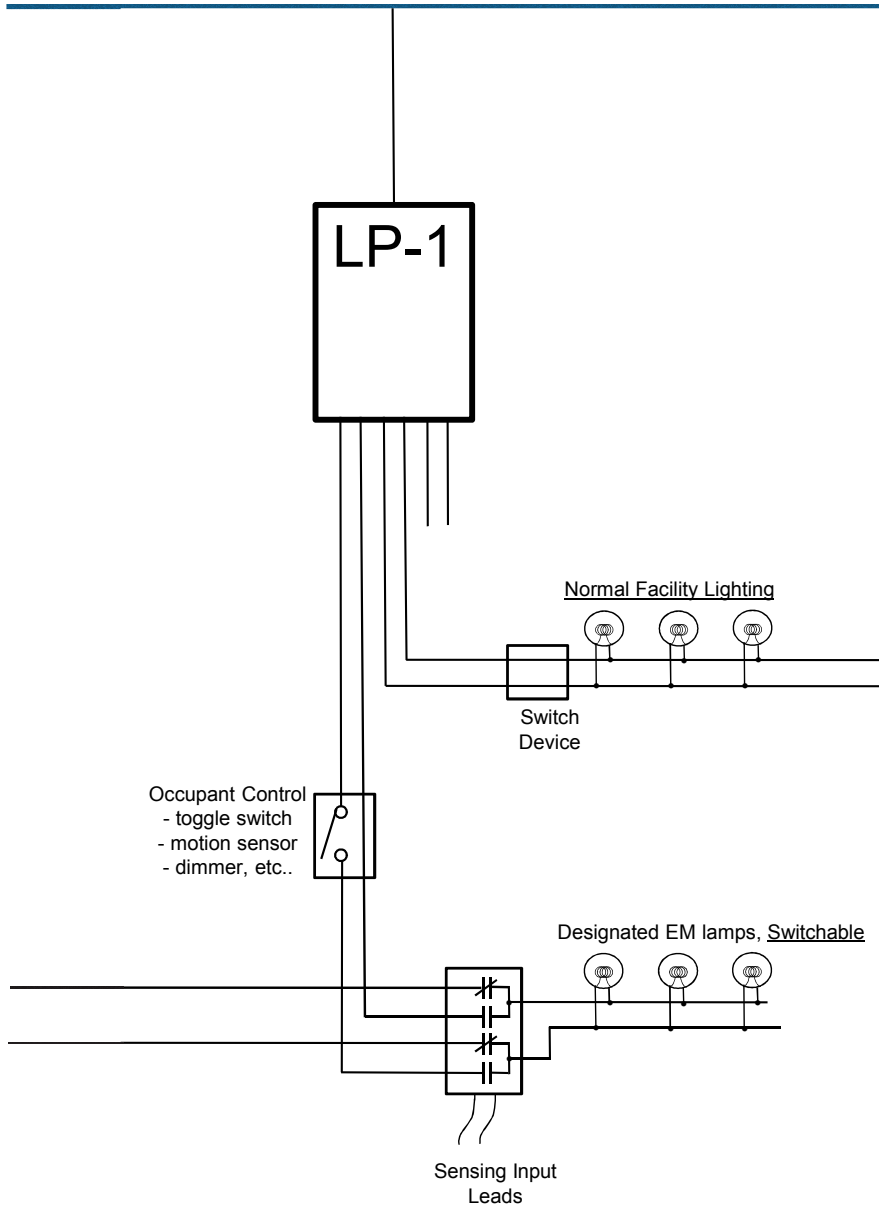
INV-1 = Emergency Lighting Inverter
 EM-1 = Emergency Lighting Panel
 LP-1 = Normal Lighting Panel

 cUL / UL-924 Listed Shunting or Bypass Relay Device, 120/277v (347v available by Wattstopper)

 cUL / UL-1008 Emergency Transfer Relay

 Lamp Device LED, or Other

 Occupant Control Toggle Switch, Dimmer, Motion Sensor or other



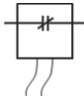
Notes:

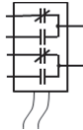
- 1). Total lamp count per zone limited by relay device current rating.
- 2). Sensing Input Leads must be connected to local normal power
- 3). Location of Relays are normally near the switch device or lamp fixtures, but may also be near the breaker panel.
- 4). All Emergency Relays shown in Emergency mode.
- 5). Some UL924 relays may have more than one contact
- 6). The number of relays allowed by the inverter is infinite.
 The Inverter is only limited by the total watt input of all EM lamps combined


LEGEND

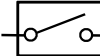
Main = Main AC Feed
 Gen/ATS = Generator with Automatic Transfer Switch (Alternate Emergency Power Source In lieu of Inverter)

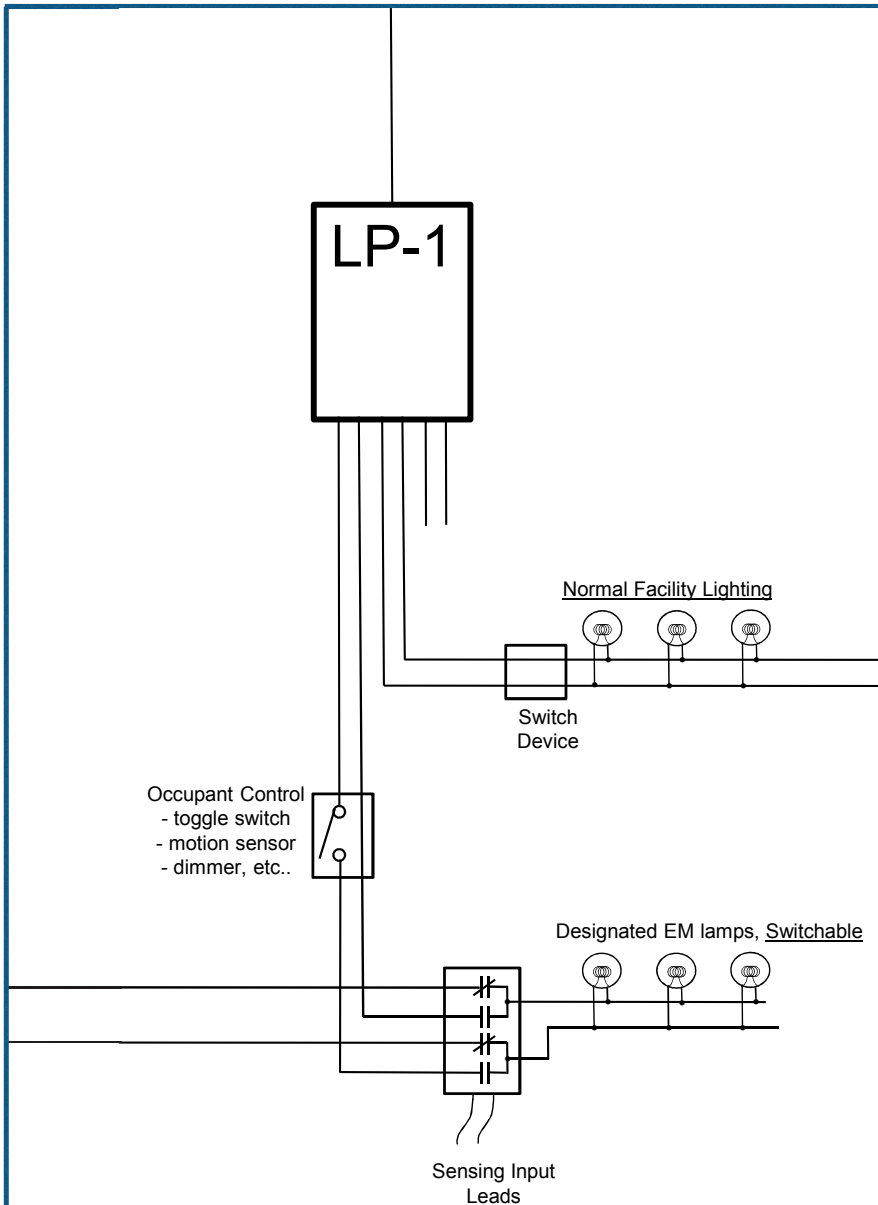
INV-1 = Emergency Lighting Inverter
 EM-1 = Emergency Lighting Panel
 LP-1 = Normal Lighting Panel

 cUL / UL-924 Listed Shunting or Bypass Relay Device, 120/277v (347v available by Wattstopper)

 cUL / UL-1008 Emergency Transfer Relay

 Lamp Device LED, or Other

 Occupant Control Toggle Switch, Dimmer, Motion Sensor or other



- Notes:
- 1). Total lamp count per zone limited by relay device current rating.
 - 2). Sensing Input Leads must be connected to local normal power
 - 3). Location of Relays are normally near the switch device or lamp fixtures, but may also be near the breaker panel.
 - 4). All Emergency Relays shown in Emergency mode.
 - 5). Some UL924 relays may have more than one contact
 - 6). The number of relays allowed by the inverter is infinite.
- The Inverter is only limited by the total watt input of all EM lamps combined.



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