

Project _____
Catalogue n° _____

Type _____
Date _____

ILLUMINATOR NVJ THREE PHASE INVERTER

The Illuminator NVJ three phase emergency lighting inverter provides up to 50kW of backup power for larger facilities and campuses.



FEATURES & SPECIFICATIONS

STANDARD FEATURES

- 98% Efficient (Typical)
- PWM/IGBT Technology & Microprocessor Control
- Internal Maintenance Bypass
- User Programmable with Password Protection
- Automatic Event & Alarm Log
- RS232 Communications Port
- Input Circuit Breaker
- Low Audible Noise
- 65kAIC Withstanding Rating

OPTIONAL FEATURES

- Enhanced Communications
 - Expanded Building Management Protocols
 - BACnet or Modbus Communications Interface
 - IoT Connect Cloud Software
- External Maintenance Bypass
- Status Monitoring Dry Form C Contacts
- Summary Dry Form C Contacts
- Output Circuit Breakers
 - 4 800 - 16 700 W: up to 8 supervised poles, additional 19 with a top enclosure
 - 24 000 - 50 000 W: up to 30 supervised poles
- Remote Meter Panel

SPECIFICATIONS

- Input 120/208, 277/480, 347/600 VAC 3-Phase 4 Wire Wye Configuration
- Output 120/208, 277/480, 347/600 VAC 3-Phase Wye Or Delta Configuration
- Output Load Power Factor .5 Lag to .5 Lead
- LED, Electronic & Magnetic Ballast Compatible
- Output Distortion Less Than 3% THD For Linear Loads
- Generator Compatibility
- Forced Air Cooling Only During Emergency Operation; No Filters Required
- 30, 60, and 120 Minute Runtime available (90 minute certification pending)
- Inverter Operating Temperature 0 °C to 40 °C
- Battery Operating Temperature 20 °C to 30 °C

APPROVALS

- cUL to CSA 22.2 #141-15

System Display Functions



The NVJ is the third generation of IGBTbased inverter technology and is compatible with any type of lighting load. It features a rock solid design with all critical components and will work with lighting loads at cold starts for all normally off circuits or regular normally on circuits. The LVD disconnect for long power outages eliminates battery drain. Additionally, the NVJ Series eliminates the maintenance costs of individual testing of unit equipment and battery powered ballasts. All tests and diagnostics are performed and recorded automatically.



Meter Functions

- AC Voltage Input
- AC Voltage Output
- AC Current Output
- Battery Voltage
- System Days
- Battery Current
- VA Output
- Inverter Watts
- Ambient Temperature
- Inverter Minutes

Program Functions

- Date
- Time
- Month Test Date / Time
- Yearly Test Date / Time
- Load Fault Reduction Setting
- Low Battery Alarm
- Near Low Battery Alarm
- Low AC Voltage Alarm
- High AC Voltage Alarm
- Ambient Temperature Alarm

Control Functions

- Test Log & Event Log
- 75 Logs Stored
- Date, Time, Duration
- Output Voltage
- Output Current
- Ambient Temperature
- Alarms Preset
- Alarm Log
- 75 Logs Stored
- Date, Time, Alarm Type
- Test
- Buzzer On / Off

ORDERING GUIDE

| SERIES | VOLTAGE INPUT-OUTPUT | CAPACITY RATING [W]* | BATTERY TYPE | OUTPUT BREAKERS ¹ | | | | OPTIONS | |
|--------|------------------------|----------------------|-------------------|--|-----------------------|--|------------------------|---|--|
| | | | | OUTPUT | VOLTAGE/POLES | AMP RATING | QUAN-TITY ² | | |
| NVJ30 | AB-AB - 120/208 INPUT; | 4 800 | S - STAN- DARD | O - NORMALLY ON F - NORMALLY OFF | A - 120V 1-POLE | 10 | T01 - T30 | STANDARD FEATURES | |
| NVJ60 | 120/208 OUTPUT | 6 000 | | | B - 208V 2-POLES | 16 | | | C - STATUS MONITORING CONTACTS DRY FORM C |
| NVJ90 | EK-EK - 277/480 INPUT; | 8 000 | | | C - 240V 2-POLES | 20 | | DT - DRIP TOP [NEMA 2] | |
| NVJ120 | 277/480 OUTPUT | 10 000 | | | E - 277V 1-POLE | 25 | | OPTIONAL FEATURES | |
| | HS-HS - 347/600 INPUT; | 12 500 | | | AB - 120/208V 3-POLES | 32 | | BBM - INTERNAL MAINTENANCE BYPASS (BREAK-BEFORE-MAKE) | |
| | 347/600 OUTPUT | 16 700 | | | H - 347V | 40 | | BL - CIRCUIT BREAKER LOCK[S] | |
| | | 24 000 | | | K - 480V 2-POLES | 50 | | BTM - BATTERY TEMPERATURE MONITOR | |
| | | 33 000 | | | HS - 347/600V 3-POLES | 63 | | EMBP - EXTERNAL MAINTENANCE BYPASS (MAKE-BEFORE-BREAK) | |
| | | 40 000 | | | | | | F - FAST CHARGE | |
| | 50 000 | | | | | I - INVERTER ON DRY FORM C CONTACTS | | | |
| | | | | L - LOAD CONTROL INTERFACE (DIMMER / SWITCH BYPASS) | | | | | |
| | | | | MBB - INTERNAL MAINTENANCE BYPASS (MAKE-BEFORE-BREAK) | | | | | |
| | | | | O - OUTPUT TRANSFER DELAY | | | | | |
| | | | | P - REMOTE STATUS PANEL (REQUIRES OPTION C) | | | | | |
| | | | | R - REMOTE METER PANEL | | | | | |
| | | | | RA - REMOTE SUMMARY ALARM PANEL | | | | | |
| | | | | S - SUMMARY DRY FORM C CONTACTS | | | | | |
| | | | | SM - SEISMIC BRACING/MOUNTING | | | | | |
| | | | | PICK 1 | | | | | |
| | | | | BIP - BACNET IP | | | | | |
| | | | | IOT - IOT INVERTER CLOUD CONNECT | | | | | |
| | | | | MIP - MODBUS TCP/IP | | | | | |

¹ Output breakers are optional

² Maximum out breakers available:

4 800-16 700 W: 8 supervised or 20 supervised with a top enclosure

24 000-50 000 W: 30 supervised

347 V : 14 supervised

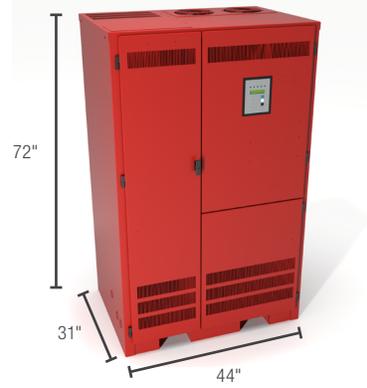
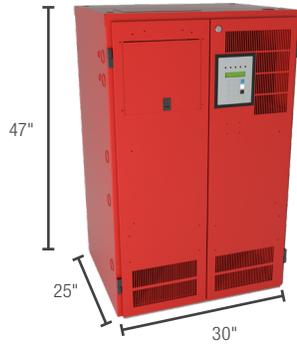
* Capacity changes with runtime. See list below.

| CAPACITY RATING AS PER ORDERING GUIDE | ACTUAL CAPACITY RATING [KW] | | | |
|---------------------------------------|-----------------------------|-------|-------|--------|
| | NVJ30 | NVJ60 | NVJ90 | NVJ120 |
| 4 800 | 4.8 | 4.8 | 4.44 | 4.08 |
| 6 000 | 6 | 6 | 5.55 | 5.1 |
| 8 000 | 8 | 8 | 7.4 | 6.8 |
| 10 000 | 10 | 10 | 9.25 | 8.5 |
| 12 500 | 12.5 | 12.5 | 11.6 | 10.6 |
| 16 700 | 16.7 | 16.7 | 15.4 | 14.2 |
| 24 000 | 24 | 24 | 22.2 | 20.4 |
| 33 000 | 33 | 33 | 30.5 | 28.1 |
| 40 000 | 40 | 40 | 37 | 34 |
| 50 000 | 50 | 50 | 46.3 | 42.5 |

OPTION TABLE

| OPTION CODE | OPTION NAME | DESCRIPTION |
|-------------|---|--|
| BBM | INTERNAL MAINTENANCE BYPASS [BREAK-BEFORE-MAKE] | TOGGLE SWITCH DESIGNED TO DISCONNECT INVERTER FROM ELECTRICAL SYSTEM FOR MAINTENANCE [BREAK BEFORE MAKE] |
| BIP | BACNET IP | "MSTP" ALLOW UPLOAD OF FMP DATA VIA RS232 INTERMEDIATE DEVICE. THIS INFO CAN THEN BE DOWNLOADED TO CUSTOMER DEVICE. ALLOWS DIRECT COMMUNICATION VIA IP |
| BL | OUTPUT CIRCUIT BREAKER LOCK(S) | ALLOWS CUSTOMER TO LOCK THE OUTPUT CIRCUIT BREAKER IN ON OR OFF POSITION |
| BTM | BATTERY TEMPERATURE MONITOR | 1. WARNING ALARM: WARNS WHEN BATTERY TEMPERATURE IS GETTING TOO HIGH. 2. ABSOLUTE ALARM: WHEN TEMPERATURE REACHES HIGH TEMP THIS SHUTS DOWN THE STRING OF BATTERIES WHERE THE HOT BATTERY IS. |
| C | STATUS MONITORING CONTACTS | 5 FORM C DRY CONTACTS: 1. SYSTEM IN BYPASS 2. SUMMARY ALARM: ANY ALARM IN THE FMP 3. OUTPUT TRIP ALARM 4. UTILITY FAILURE 5. INVERTER ON |
| DT | DRIP TOP (NEMA 2) | METAL PIECE DESIGNED TO DIRECT FALLING WATER AWAY FROM THE UNIT |
| EMBP | EXTERNAL MAINTENANCE BYPASS SWITCH | MAINTENANCE BYPASS SWITCH MOUNTED EXTERNAL TO THE SYSTEM (CANNOT USE WITH OUTPUT CIRCUIT BREAKERS) |
| F | FAST CHARGE | ALLOWS THE SYSTEM TO RECHARGE IN 12 HOURS FROM LVD |
| I | INVERTER ON DRY FORM C CONTACT | FORM C DRY CONTACT WHICH OPENS WHEN INVERTER IS ON |
| IOT | IOT INVERTER CONNECT CLOUD COMMUNICATION | SYSTEM USING THE CLOUD TO ALLOW MONITORING OF MULTIPLE SYSTEMS IN ONE LOCATION |
| L | LOAD CONTROL RELAY (LINE VOLTAGE DIMMER OR SWITCH BYPASS) | LOAD CONTROL RELAY (LINE VOLTAGE DIMMER OR SWITCH BYPASS) |
| MBB | INTERNAL MAINTENANCE BYPASS MAKE BEFORE BREAK | TOGGLE SWITCH DESIGNED TO DISCONNECT INVERTER FROM ELECTRICAL SYSTEM FOR MAINTENANCE [MAKE BEFORE BREAK] |
| MIP | MODBUS TCP/IP | "MSTP" ALLOW UPLOAD OF FMP DATA VIA RS232 INTERMEDIATE DEVICE. THIS INFO CAN THEN BE DOWNLOADED TO CUSTOMER DEVICE. ALLOWS DIRECT COMMUNICATION VIA IP |
| O | OUTPUT TRANSFER DELAY | DEVICE DESIGNED TO DELAY TRANSFER ADJUSTABLE 0-75 SECONDS, FACTORY SET AT 3 SECONDS. USED WHEN CONTROL SYSTEM CANNOT DETECT THE FAST TRANSFER |
| P | REMOTE STATUS PANEL (STATUS ALARMS, REQUIRES C OPTION) | SINGLE GANG BOX SHOWING STATUS OF ALARMS, REQUIRES C OPTION |
| R | REMOTE METER PANEL | FULL SIZE METER PANEL MOUNTED REMOTELY IN A NEMA 1 ENCLOSURE |
| RA | REMOTE SUMMARY ALARM PANEL | LED INDICATOR AND SOUND ALERT |
| S | SUMMARY FAULT FORM C CONTACTS | RELAY CONTACT SHOWING ANY ALARM |
| SM | SEISMIC MOUNTING | INSTRUCTIONS AND HARDWARE FOR MOUNTING SYSTEM IN STANDARD SEISMIC APPLICATIONS |
| T | OUTPUT TRIP ALARM | ALARMS WHEN ANY OUTPUT CIRCUIT BREAKER IS TRIPPED |

DIMENSIONS



| POWER RATING [KW] | VOLTAGE IN-OUT [VAC] | ELECTRONICS CABINET DIMENSIONS | | | | BATTERIES | | | BATTERY CABINET DIMENSIONS | | | | TOTAL SYSTEM WEIGHT |
|----------------------|-------------------------|--------------------------------|-------------|------------|--------------|------------------|--------------|------------|----------------------------|------------|--------------|-------|---------------------|
| | | WIDTH [IN] | HEIGHT [IN] | DEPTH [IN] | WEIGHT [LBS] | NO. OF BATTERIES | WEIGHT [LBS] | WIDTH [IN] | HEIGHT [IN] | DEPTH [IN] | WEIGHT [LBS] | | |
| 4.8 | 120/208 OR 277/480 | 30 | 47 | 25 | 535 | 12 | 437 | 17.5 | 62 | 25 | 285 | 1 257 | |
| | 347/600 | | 69 | | 725 | | | | | | | 1 447 | |
| 6 | 120/208 OR 277/480 | 30 | 47 | 25 | 535 | 15 | 546 | 17.5 | 62 | 25 | 285 | 1 366 | |
| | 347/600 | | 69 | | 725 | | | | | | | 1 556 | |
| 8 | 120/208 OR 277/480 | 30 | 47 | 25 | 535 | 20 | 728 | 17.5 | 62 | 25 | 285 | 1 548 | |
| | 347/600 | | 69 | | 725 | | | | | | | 1 738 | |
| 10 | 120/208 OR 277/480 | 30 | 47 | 25 | 639 | 12 | 860 | 22.75 | 77 | 25 | 375 | 1 874 | |
| | 347/600 | | 69 | | 851 | | | | | | | 2 086 | |
| 12.5 | 120/208 OR 277/480 | 30 | 47 | 25 | 639 | 15 | 1 076 | 22.75 | 77 | 25 | 375 | 2 090 | |
| | 347/600 | | 69 | | 873 | | | | | | | 2 324 | |
| 16.7 | 120/208 OR 277/480 | 30 | 47 | 25 | 639 | 20 | 1 434 | 22.75 | 77 | 25 | 375 | 2 448 | |
| | 347/600 | | 69 | | 873 | | | | | | | 2 682 | |
| 24 | 120/208 OR 277/480 | 44 | 72 | 31 | 1 250 | 40 | 2 868 | 48 | 72 | 31 | 650 | 4 768 | |
| | 347/600 | 74 | | | 1 547 | | | | | | | 5 065 | |
| 33 | 120/208 OR 277/480 | 44 | 72 | 31 | 1 250 | 40 | 2 868 | 48 | 72 | 31 | 650 | 4 768 | |
| | 347/600 | 74 | | | 1 585 | | | | | | | 5 103 | |
| 40 | 120/208 OR 277/480 | 44 | 72 | 31 | 1 460 | 60 | 4 302 | 48 | 72 | 31 | 700 | 6 462 | |
| | 347/600 | 74 | | | 1 827 | | | | | | | 6 829 | |
| 50 | 120/208 OR 277/480 | 44 | 72 | 31 | 1 460 | 60 | 4 302 | 48 | 72 | 31 | 700 | 6 462 | |
| | 347/600 | 74 | | | 1 827 | | | | | | | 6 829 | |

| POWER RATING [KW] | | | VOLTAGE IN-OUT [VAC] | ELECTRONICS CABINET DIMENSIONS | | | | BATTERIES | | | BATTERY CABINET DIMENSIONS | | | | TOTAL SYSTEM WEIGHT |
|-------------------|---------|----------|----------------------|--------------------------------|-------------|------------|--------------|------------------|--------------|------------|----------------------------|------------|--------------|--------|---------------------|
| 60 MIN. | 90 MIN. | 120 MIN. | | WIDTH [IN] | HEIGHT [IN] | DEPTH [IN] | WEIGHT [LBS] | NO. OF BATTERIES | WEIGHT [LBS] | WIDTH [IN] | HEIGHT [IN] | DEPTH [IN] | WEIGHT [LBS] | | |
| 4.8 | 4.44 | 4.08 | 120/208 OR 277/480 | 30 | 47 | 25 | 535 | 12 | 860 | 30 | 47 | 25 | 210 | 1 605 | |
| | | | 347/600 | | 69 | | 725 | | | | | | | 1 795 | |
| 6 | 5.55 | 5.1 | 120/208 OR 277/480 | 30 | 47 | 25 | 535 | 15 | 1 076 | 30 | 47 | 25 | 210 | 1 821 | |
| | | | 347/600 | | 69 | | 725 | | | | | | | 2 011 | |
| 8 | 7.4 | 6.8 | 120/208 OR 277/480 | 30 | 47 | 25 | 535 | 20 | 1 434 | 30 | 47 | 25 | 232 | 2 201 | |
| | | | 347/600 | | 69 | | 725 | | | | | | | 2 391 | |
| 10 | 9.25 | 8.5 | 120/208 OR 277/480 | 30 | 47 | 25 | 639 | 24 | 1 721 | 30 | 47 | 25 | 232 | 2 592 | |
| | | | 347/600 | | 69 | | 851 | | | | | | | 2 804 | |
| 12.5 | 11.6 | 10.6 | 120/208 OR 277/480 | 30 | 47 | 25 | 639 | 30 | 2 151 | 60 | 47 | 25 | 420 | 3 210 | |
| | | | 347/600 | | 69 | | 873 | | | | | | | 3 444 | |
| 16.7 | 15.4 | 14.2 | 120/208 OR 277/480 | 30 | 47 | 25 | 639 | 40 | 2 868 | 60 | 47 | 25 | 464 | 3 971 | |
| | | | 347/600 | | 69 | | 873 | | | | | | | 4 205 | |
| 24 | 22.2 | 20.4 | 120/208 OR 277/480 | 44 | 72 | 31 | 1 250 | 60 | 4 302 | 48 | 72 | 31 | 700 | 6 252 | |
| | | | 347/600 | 74 | | | 1 547 | | | | | | | 6 549 | |
| 33 | 30.5 | 28.1 | 120/208 OR 277/480 | 44 | 72 | 31 | 1 250 | 80 | 5 736 | 96 | 72 | 31 | 1 300 | 8 286 | |
| | | | 347/600 | 74 | | | 1 585 | | | | | | | 8 621 | |
| 40 | 37 | 34 | 120/208 OR 277/480 | 44 | 72 | 31 | 1 460 | 100 | 7 170 | 96 | 72 | 31 | 1 300 | 9 930 | |
| | | | 347/600 | 74 | | | 1 827 | | | | | | | 10 297 | |
| 50 | 46.3 | 42.5 | 120/208 OR 277/480 | 44 | 72 | 31 | 1 460 | 120 | 8 604 | 96 | 72 | 31 | 1 400 | 11 464 | |
| | | | 347/600 | 74 | | | 1 827 | | | | | | | 11 831 | |

Data is based upon tests performed in a controlled environment. Actual performance can vary depending on operating conditions. All products are subject to change or may be discontinued any time without notice.

HEAT LOSS TABLE

| 30 MINUTE RUN TIME | | 60 MINUTE RUN TIME | | 90 MINUTE RUN TIME | | 120 MINUTE RUN TIME | |
|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|---------------------|-------------------|
| OUTPUT RATING [KW] | HEAT LOSS [BTU/H] | OUTPUT RATING [KW] | HEAT LOSS [BTU/H] | OUTPUT RATING [KW] | HEAT LOSS [BTU/H] | OUTPUT RATING [KW] | HEAT LOSS [BTU/H] |
| 4.8 | 327 | 4.8 | 327 | 4.44 | 303 | 4.08 | 278 |
| 6.0 | 409 | 6.0 | 409 | 5.55 | 379 | 5.10 | 348 |
| 8.0 | 546 | 8.0 | 546 | 7.40 | 505 | 6.80 | 464 |
| 10.0 | 682 | 10.0 | 682 | 9.25 | 631 | 8.50 | 580 |
| 12.5 | 853 | 12.5 | 853 | 11.6 | 789 | 10.6 | 725 |
| 16.7 | 1 139 | 16.7 | 1 139 | 15.4 | 1 054 | 14.2 | 968 |
| 24.0 | 1 637 | 24.0 | 1 637 | 22.2 | 1 514 | 20.4 | 1 391 |
| 33.0 | 2 251 | 33.0 | 2 251 | 30.5 | 2 082 | 28.1 | 1 913 |
| 40.0 | 2 728 | 40.0 | 2 728 | 37.0 | 2 523 | 34.0 | 2 319 |
| 50.0 | 3 410 | 50.0 | 3 410 | 46.3 | 3 154 | 42.5 | 2 899 |