

# **2B** Technologies, Inc.

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*An InDevR Company*

**Technical Note No. 024**

## **Power Requirements for the Model 410 or 400 NO Monitors in Combination with the Model 401 NO<sub>2</sub> Converter when Using a Battery Supply**

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### **Summary**

While the entire line of Ozone Monitors (202, 205, 106) supplied by 2B Technologies can easily be powered by small portable batteries, the Nitric Oxide Monitors (400, 410), when used in conjunction with the NO<sub>x</sub> Converter (401), require a larger battery such as a lead acid car battery for practical use.

The Models 410 and 400 require 12 VDC for power, and the Model 401 requires 110-240 VAC for power. Since the Model 401 requires AC voltage, this necessitates the use of a voltage inverter when using a battery system for power.

### **Power Requirements for possible configurations:**

- Model 410 with 401 using a 12VDC to 120VAC inverter:
  - 107 Watts (8.9 Amps) – during 20 minute warm up period
  - 58 Watts (4.8 Amps) – normal operation after warm up period
  - Run Time using one 100 amp-hour car battery: 20 hours
  
- Model 400 with 401 using 12VDC to 120VAC inverter:
  - 100 Watts (8 Amps) – during 20 minute warm up period
  - 55 Watts (4.5 Amps) – normal operation after warm up period
  - Run Time using one 100 amp-hour car battery: 21 hours

### **Power Consumption Specifications:**

- **Model 400 NO monitor:**
  - 6.6W (0.55A at 12V) (20 min warm up and 100% duty cycle\*)
  
- **Model 410 NO monitor:**
  - 17.2W (1.43A at 12V) with the ozone scrubber heater on (20 min warm up and 50% duty cycle)
  - 6.72 W (0.75A and 12V) with the ozone scrubber heater off (0% duty cycle)

- 12 W average power during normal operation (50% duty cycle for ozone scrubber heater)
- **Model 401 NO<sub>2</sub> Converter:**
  - With 120 VAC: 90 W with heater on (20 min warm up and 50% duty cycle)
  - With 120 VAC: 3 W with heater off (50% duty cycle)
  - With 120 VAC: 46.5 W average power during normal operation
  
  - With 240 VAC: 350 W with heater on (10 min warm up and ~15% duty cycle)
  - With 240 VAC: 3 W with heater off (~85% duty cycle)
  - With 240 VAC: 55.1 W average power during normal operation

Note that you can use larger marine batteries with higher amp hour ratings, and you may use banks of batteries that are wired in parallel to achieve longer operational times. Also, solar or wind power may be used to continuously recharge the battery.

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\*duty cycle = fraction of time being powered on