

Comparison of Specifications for High Precision Ozone Monitors

| | 2B Tech Model 106-L | 2B Tech Model 202 | 2B Tech Model 205 | 2B Tech Model 211 | 2B Tech Model 211-G | 2B Tech POM | Teledyne-API Model 430 | Teledyne-API Model T400 | Ecotech SERINUS 10 | Thermo Model 49i |
|-------------------------------------|--|--|--|---|---|--|--|---|--|--|
| Optical Bench | Single Beam | Single Beam | Dual Beam | Dual Beam | Dual Beam | Single Beam | Single Beam | Single Beam | Single Beam | Dual Beam |
| Linear Range | 0-100 ppm | 0-250 ppm | 0-250 ppm | 0-2 ppm | 0-500 ppb | 0-10 ppm | 0-20 ppm | 0-10 ppm | 0-20 ppm | 0-200 ppm |
| Resolution | 0.1 ppb | 0.1 ppb | 0.1 ppb | 0.1 ppb | 0.1 ppb | 0.1 ppb | 0.1 ppb | 0.1 ppb | 0.1 ppb | 0.1 ppb |
| Pneumatics | Internal diaphragm pump, ~800 cc/min | Internal diaphragm pump, ~800 cc/min | Internal diaphragm pump, ~1600 cc/min | Internal diaphragm pump, ~1600 cc/min | Internal diaphragm pump, ~1600 cc/min | Internal diaphragm pump, ~800 cc/min | Internal diaphragm pump, ~800 cc/min | Internal diaphragm pump, ~800 cc/min | User-supplied external pump (internal pump option), ~500 cc/min | Internal diaphragm pump, 1000-3000 cc/min |
| Filter | Optional external PTFE particle filter | Optional external PTFE particle filter | Optional external PTFE particle filter | Optional external PTFE particle filter | Optional external PTFE particle filter | Optional external PTFE particle filter | Internal particle filter | Internal PTFE particle filter | Internal PTFE particle filter | Optional PTFE particle filter |
| Dimensions | 3.6 × 7.9 × 9.4 in 9 × 20 × 24 cm | 3.7 × 8.5 × 11.8 in 9.5 × 21.5 × 30 cm | 3.7 × 8.5 × 11.8 in 9.5 × 21.5 × 30 cm | 17 × 14.5 × 5.5 in 43 × 37 × 14 cm | 17 × 14.5 × 5.5 in 43 × 37 × 14 cm | 5 × 3 × 1.5 in 12.7 × 7.6 × 3.8 cm (with GPS, no battery) 4 × 3 × 1.5 in 10.2 × 7.6 × 3.8 cm (no GPS, no battery) | 4.2 × 7.1 × 10.2 in 10.7 × 18 × 25.9 cm | 7 × 17 × 23.5 in 18 × 43 × 60 cm | 8 × 20 × 29 in 17.5 × 43 × 64 cm | 8.6 × 16.8 × 23 in 22 × 43 × 58 cm |
| Volume | 270 cubic inches | 370 cubic inches | 370 cubic inches | 1,356 cubic inches | 1,356 cubic inches | 18 cubic inches | 304 cubic inches | 2,800 cubic inches | 4,640 cubic inches | 3,300 cubic inches |
| Weight | 4.2 lb, 1.9 kg | 5.5 lb, 2.5 kg | 5.8 lb, 2.6 kg | 14.7 lb, 6.7 kg | 13.4 lb, 5.8 kg | 0.8 lb, 0.36 kg (without battery); 1.0 lb, 0.45 kg (with battery) | 5.2 lb, 2.4 kg | 28 lb, 12.7 kg; 30.6 lb, 13.8 kg with IZS | 38 lb, 17.2 kg | 55 lb, 25 kg |
| Power | 6 watt; 100-240 V AC, 50/60 Hz; 11-28 V DC (500 mA at 12 V DC) | 7.2 watt; 100-240 V AC, 50/60 Hz; 11-14 V DC (600 mA at 12 V DC) | 8 watt; 100-240 V AC, 50/60 Hz; 11-14 V DC (650 mA at 12 V DC) | 12 watt; 100-240 V AC, 50/60 Hz; 11-14 V DC (1 A at 12 V DC) | 22 watt; 100-240 V AC, 50/60 Hz; 11-14 V DC (1.8 A at 12 V DC) | 3 watt; 100-240 V AC, 50/60 Hz; 7-12 V DC (250 mA at 12 V DC) | 9 watt; 12 V DC | 110 watt; 100-240 V AC, 50/60 Hz | 65 VA; 100-260 V AC, 50/60 Hz | 150 watt; 100-240 V AC, 50/60 Hz |
| Reporting Units | ppb, pp hm, ppm, mg/m ³ , µg/m ³ | ppb, pp hm, ppm, mg/m ³ , µg/m ³ | ppb, pp hm, ppm, mg/m ³ , µg/m ³ | ppb, pp hm, ppm, mg/m ³ , µg/m ³ | ppb, pp hm, ppm, mg/m ³ , µg/m ³ | ppb | ppb, ppm | ppb, ppm, mg/m ³ , µg/m ³ | ppt, ppb, ppm, mg/m ³ , µg/m ³ , ng/m ³ | ppb, ppm, mg/m ³ , µg/m ³ |
| Humidity Control | DewLine™ Nafion tube | DewLine™ Nafion tube | DewLine™ Nafion tube | DewLine™ Nafion tube | DewLine™ Nafion tube | DewLine™ Nafion tube | None | None | None | None |
| Zero Noise | ≤ 1.5 ppb (rms) | ≤ 1.5 ppb (rms) | ≤ 1.0 ppb (rms) | ≤ 0.5 ppb (rms) | ≤ 0.5 ppb (rms) | ≤ 1.5 ppb (rms) | < 1 ppb (rms) | < 0.2 ppb (rms) | < 0.25 ppb (rms) | 0.25 ppb (rms) |
| Lower Detectable Limit (LDL) | ≤ 3 ppb for 10-s avg ≤ 1.3 ppb for 1-min avg | ≤ 3 ppb for 10-s avg ≤ 1.3 ppb for 1-min avg | ≤ 2 ppb for 10-s avg ≤ 0.9 ppb for 1-min avg | ≤ 1 ppb for 10-s avg ≤ 0.5 ppb for 1-min avg | ≤ 1 ppb for 10-s avg ≤ 0.5 ppb for 1-min avg | ≤ 3 ppb for 10-s avg ≤ 1.3 ppb for 1-min avg | < 2 ppb | < 0.4 ppb with 80-sample digital filter | 0.5 ppb with Kalman filter | 0.5 ppb |
| Precision | Greater of 1.5 ppb or 2% of reading | Greater of 1.5 ppb or 2% of reading | Greater of 1.0 ppb or 2% of reading | Greater of 0.5 ppb or 1% of reading | Greater of 0.5 ppb or 1% of reading | Greater of 1.5 ppb or 2% of reading | 0.5 ppb or 0.5% of reading above 100 ppb | < 0.5% of reading above 100 ppb | Greater of 0.5 ppb or 0.2% of reading | 1.0 ppb |
| Zero Drift | ≤ 2 ppb per day ≤ 6 ppb per year | ≤ 2 ppb per day ≤ 5 ppb per year | ≤ 1 ppb per day ≤ 3 ppb per year | ≤ 1 ppb per day ≤ 3 ppb per year | ≤ 1 ppb per day ≤ 3 ppb per year | ≤ 2 ppb per day ≤ 5 ppb per year | < 1 ppb per day | < 1 ppb per day | < 0.3 ppb per day; < 0.3 ppb per 7 days | < 1 ppb per day |
| Span Drift | < 1% per day < 3% per year | < 1% per day < 3% per year | < 1% per day < 3% per year | < 0.5% per day < 3% per year | < 0.5% per day < 3% per year | < 1% per day < 3% per year | < 1% per day | < 1% per day | < 0.5% per 7 days | < 1% per 30 days |
| Rise and Fall Time | 4 s | 20 s | 4 s | 4 s | 4 s | 20 s (fast mode: 4 s) | < 15 s to 95% | < 20 s to 95% | 30 s to 95% | 20 s |
| Linearity | 1% of full scale | 1% of full scale | 1% of full scale | 1% of full scale | 1% of full scale | 1% of full scale | 1% of full scale | 1% of full scale | < 1% of full scale | 1% of full scale |
| Operating Temp. | 0-50°C | 0-50°C; -20 to 50°C with optional cold weather package | 0-50°C; -20 to 50°C with optional cold weather package | 10-50°C | 10-50°C | 0-50°C | 5-40°C | 5-40°C | 0-40°C | 0-45°C |
| Outputs | 0-2.5 V and 4-20 mA for user-specified range, RS232 serial, USB | 0-2.5 V for user-specified range, RS232 serial, flash memory, optional USB adapter, optional 4-20 mA analog current output | 0-2.5 V for user-specified range, RS232 serial, flash memory, optional USB adapter, optional 4-20 mA analog current output | 0-2.5 V for user-specified range, RS232 serial, flash memory, optional USB adapter, optional 4-20 mA analog current | 0-2.5 V for user-specified range, RS232 serial, flash memory, optional USB adapter, optional 4-20 mA analog current | 0-2.5 V for user-specified range, RS232 serial, flash memory, optional USB adapter, optional 4-20 mA analog current | USB, RS232 serial | 0-5 V, RS-232, SD card | 4 Analog voltage outputs; 8 digital outputs; 2 RS232 serial outputs; 2 USB ports; Ethernet | Analog current or voltage, 8 digital outputs, USB, 2 RS232 serial outputs, Bluetooth, flash memory |

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|-----------------------------|--|--|--|---|---|--|-------------------------------------|---|---|--|
| | | | | output | output | | | | | |
| Internal Data Logger | 32,736 lines; 5 min avg = 3.7 mo | 16,383 lines; 5 min avg = 1.9 mo | 16,383 lines; 5 min avg = 1.9 mo | 16,383 lines; 5 min avg = 1.9 mo | 16,383 lines; 5 min avg = 1.9 mo | 8,192 lines; 5 min avg = 1 mo | 10,000 lines; 1 hr avg = 1.1 yr | Yes | N/A | None |
| Options | Battery, Particle Filter, Bluetooth, Flow-Through Configuration, High-Altitude Package, Custom Requests | Battery, Particle Filter, GPS, Bluetooth, 4-20 mA Output, External USB Adapter, Cold-Weather Package, High-Altitude Upgrade, Rack-Mount Configuration, Extra-Long-Life Internal Pump, Low-Power Option, Custom Requests | Battery, Particle Filter, GPS, Bluetooth, 4-20 mA Output, External USB Adapter, Cold-Weather Package, High-Altitude Upgrade, Rack-Mount Configuration, Extra-Long-Life Internal Pump, Low-Power Option, Custom Requests | Battery, Particle Filter, Bluetooth, 4-20 mA Output, External USB Adapter, Lamp Heater, High-Altitude Upgrade, Custom Requests | Battery, Particle Filter, Bluetooth, 4-20 mA Output, External USB Adapter, Lamp Heater, High-Altitude Upgrade, Custom Requests | Included: GPS Options: Particle Filter, Sampling Probe | External rechargeable battery | Various options for pneumatics, input, output, communications, calibration and mounting brackets | Various options for communications and calibration; internal pump, dual filter, mounting brackets | Various options for output, input, and calibration; Teflon particulate filter, mounting brackets |
| Lag Time | 2 s | 10 s | 2 s | 2 s | 2 s | 10 s (fast mode: 2s) | < 20 s | < 10 s | 20 s | 10 s |