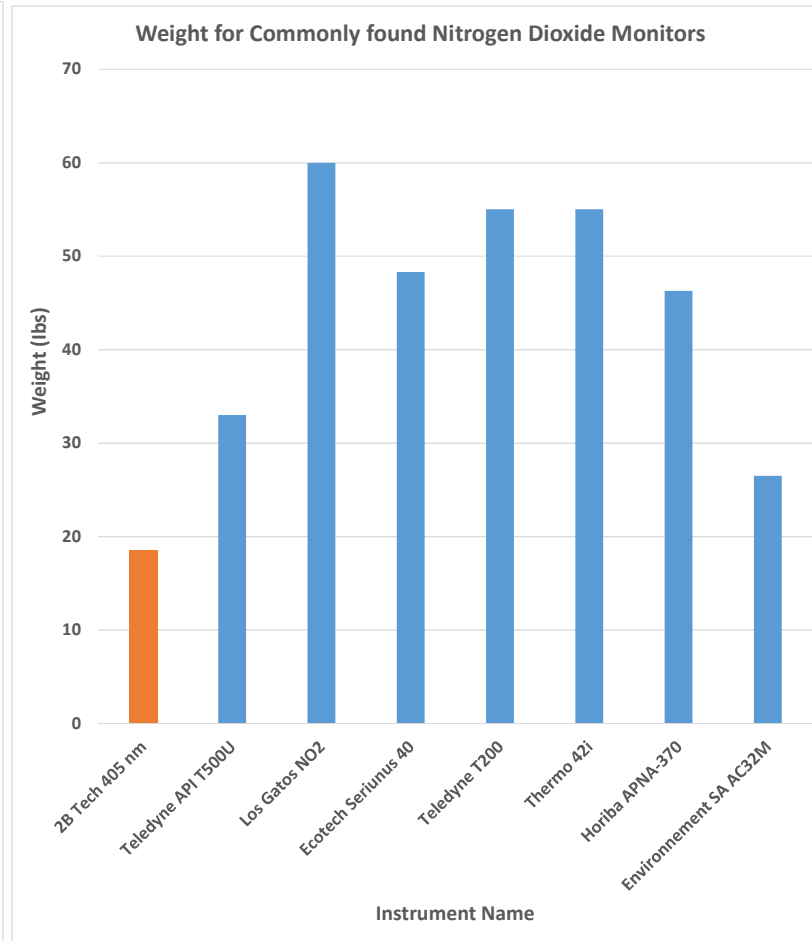
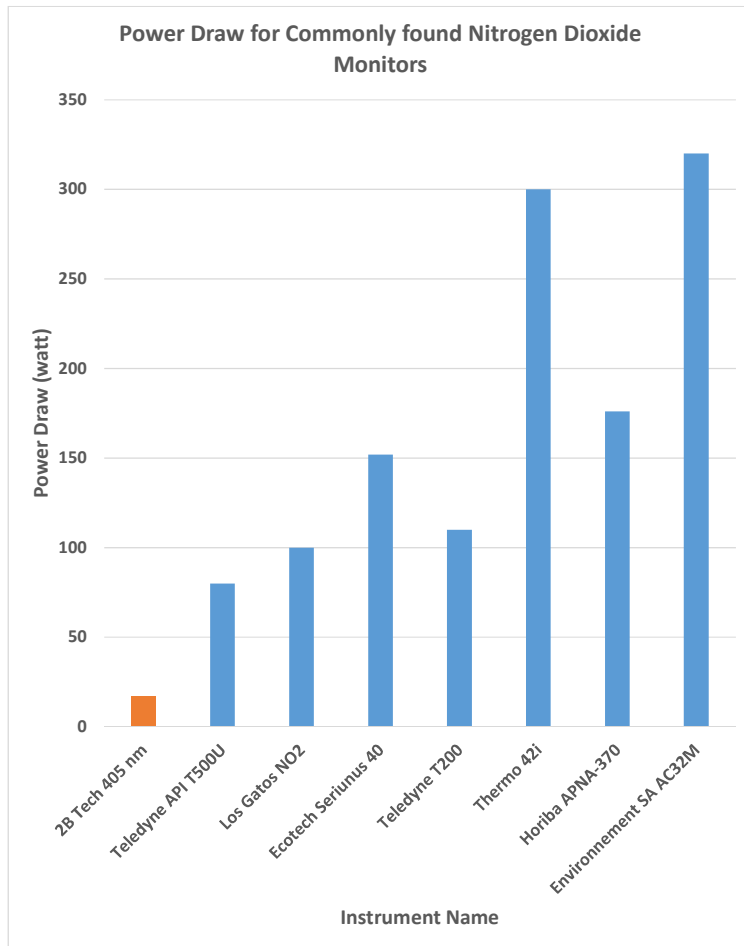


Comparison of Specifications for Commonly Used Nitrogen Dioxide Monitors

	2B Technologies Model 405 nm NO ₂ /NO/NO _x	Teledyne-API Model T500U	Los Gatos Research NO ₂ Analyzer	Ecotech Serinus 40 Oxides of Nitrogen Analyzer	Teledyne-API Model T200	Thermo Model 42i NO/NO ₂ /NO _x	Horiba Model APNA-370 NO ₂ Monitor	Environnement S.A. Model AC32M NO ₂ Analyzer
Measurement Method/Principle	Direct Absorbance at 405 nm	Cavity Attenuated Phase Shift Spectroscopy	Cavity-Enhanced Laser Absorption Technique	Chemiluminescence	Chemiluminescence	Chemiluminescence	Chemiluminescence	Chemiluminescence
NO₂ Measured Directly?	Yes	Yes	Yes	No	No	No	No	No
NO Measured?	Yes	No	No	Yes	Yes	Yes	Yes	Yes
NO_x Measured?	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Converter Type	Gas-phase titration with ozone for measurement of NO	No converter (doesn't measure NO)	No converter (doesn't measure NO)	Molybdenum or Vitreous Carbon	Molybdenum or Photolytic Conversion	Molybdenum	Molybdenum	Molybdenum
Measurement Range	0-10 ppm NO ₂ ; 0-2 ppm NO	0-5 ppb; 0-1 ppm	0.01 ppb - 1 ppm	0-20 ppm	Min: 0-50 ppb full scale Max: 0-20,000 ppb full scale	0-0.05 to 100 ppm	0-0.1/0.2/0.5/1.0 ppm	0-1 ppm
Precision	< 0.5 ppb or 0.5% of reading (with adaptive filter)	0.5% of reading above 5 ppb	0.050 ppb	0.4 ppb or 0.5% of reading (whichever is greater)	0.5 % of reading above 50 ppb	0.4 ppb (500 ppb range)	±1.0% of the full scale?	0.2 ppb
Lower Detectable Limit (LDL)	< 1 ppb (with adaptive filter selected)	< 0.04 ppb	0.01 ppb	< 0.4 ppb	0.4 ppb	0.4 ppb (60 second averaging time)	0.5 ppb (for ranges of 0.2 ppm or less)	0.1 ppb
Operating Temperature	10-50 °C	5-40 °C	5-45 °C	0-40 °C	5-40 °C	15-35 °C	5-40 °C	5-40 °C
Dimensions (HxWxD)	5.5" x 17" x 14.5" (14 x 43 x 37 cm)	7" x 17" x 23.5" (18 x 43 x 60 cm)	10" x 14" x 34" (22 x 31 x 75 cm)	6.9" x 16.9" x 25.1" (18 x 43 x 64 cm)	7" x 17" x 23.5" (18 x 43 x 60 cm)	8.6" x 16.8" x 23" (22 x 43 x 58 cm)	8.7" x 17" x 21.7" (22.1 x 43 x 55 cm)	5.2" x 19" x 21.5" (13.3 x 48.3 x 21.5 cm)
Weight	18.6 lb (8.4 kg)	33.0 lb (15.0 kg)	60.0 lb (27.0 kg)	48.3 lb (21.9 kg)	Analyzer: 40 lbs (18 kg) External pump: 15lbs (7kg)	55.0 lb (25.0 kg)	46.3 lb (21.0 kg)	26.5 lb (12.0 kg)
Power	17 watt	80 watt	100 watt	152 watt	110 watt (100-110)	300 watt	176 watt (136-176)	320 watt
Recommended Calibration Frequency	Annual	Every 3 months	Annual?	Monthly (NO _x span calibration)	Every 3 Months (zero/span calibration)	Every 3 Months (zero/span calibration)	Monthly?	Monthly (zero/span calibrations) Every 3 months (complete verification of analyzer characteristics)
Response Time	10 s for 5-s averaging 20 s with adaptive filter	< 30 seconds to 95%	10 seconds with standard vacuum pump (1 second with optional external vacuum pump)	15 seconds to 90%	< 60 seconds to 95%	40 s (10 s averaging) 80 s (60 s averaging) 300 s (300 s averaging)	120 seconds or less	40 seconds to 90%
Outputs	USB or RS232, 0-2.5 V analog, optional 4-20 mA analog	1x Ethernet, 2x RS-232, 2x USB ports, 8x opto-isolated digital outputs, 4x analog outputs	Digital (RS232), Ethernet, USB, analog	Current output (0-20 mA, 2-20 mA or 4-20 mA), Voltage output 0-5 V, Voltage output 0-10 V, USB Port, Bluetooth, RS 232	1x Ethernet, 2x RS-232, 2x USB ports, 8x opto-isolated digital outputs, 4x analog outputs	Selectable voltage, RS232/RS485, TCP/IP, 10 status relays, power fail indication	0 V to 1 V (2 lines of momentary and rolling average values or average values)	2x communication ports (RS-232 or RS-422), 6x output of potential free no contact
Internal Data Logger Capacity	8,192 data lines; Virtually unlimited capacity with internal SD Drive	Internal (DAS) can store a large number of data points covering days, weeks or months of measurements	904-0002: Data Logging System (available as accessory)	Data Storage of 10 years of 12 parameters, 1 minute data on 8 Gb memory.	store up to one million data points, which can cover days, weeks or months of measurements.	--	1,000 data points on either 3 min or 30 min averaging	> 6 months
Options	Bluetooth for wireless data transmission, USB output (in place of RS232)	1x USB com port, 1x RS485, 8x analog inputs (0-10V, 12-bit), 4x digital alarm outputs, Multidrop RS232, 3x 4-20mA current outputs	Benchtop Package, Rackmount Package (standard), Rackmount Package (enhanced performance)	Extended measurement ranges, external AC powered pump, external charcoal scrubber, dual filter (particulate), rack slide kit, TCP/IP network port, high pressure zero and span valves	1x USB com port, 1x RS485, 8x analog inputs (0-10V, 12-bit), 4x digital alarm outputs, multidrop RS232, 3x 4-20mA current outputs	0-20 or 4-20 mA isolated current output (optional); various communication, calibration and mounting brackets	RS-232C, Contact input/output (range, alarm, etc.)	4x optional analog outputs of 0-1 V 4-20 mA



*The specifications for all instruments listed in this comparison table were compiled in 2018 from the respective manufacturer's operation manuals, brochures, or datasheets.