



24/7 Air Quality Monitoring

Duet End-Node



DATA



ANALYTICS



REMEDATION

We make the invisible, visible: now you can see what's in the air you breathe.

TelosAir's cutting-edge indoor air quality sensors, AI-enabled analytics and insights, and integration with building management systems allow you to see clearly what's in the air you breathe and how to make it safer and healthier.



Particulate Matter



CO₂



VOCs



Relative Humidity



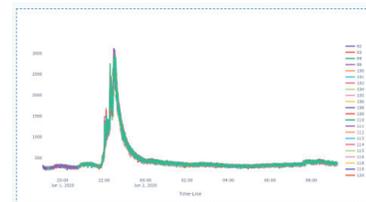
Pressure



Temperature

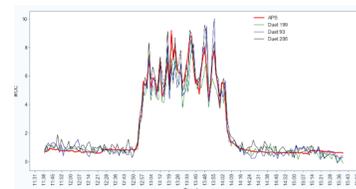
Precision

Precision measurements made with Duet sensors co-located and exposed to nebulized aerosol. In Figure 3, the response of 22 co-located units when exposed to a short pulse of NaCl aerosol is shown. The measurements from the co-located units are within +/- 10% of each other.



Accuracy

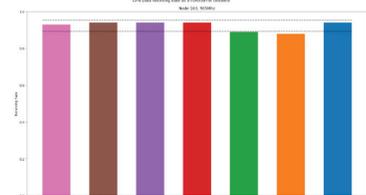
Accuracy measurements are made by collocating Duet sensors with an Aerodynamic Particle Sizer (TSI Inc, MN). Both units are then exposed to nebulized NaCl aerosol. In Figure 4, the time series of the response of 3 co-located units with APS is shown. The measurements from the co-located units are within +/- 10% of each other.



Sampling Rate

USB: Samples are generated on a 3 second interval when connected over USB, with the radio disabled. When radio is enabled, the unit will behave like a radio connected unit, even if data is only read over USB.

Radio: The unit will attempt to generate a sample every 3000 milliseconds, however, due to the nature of radio transmission, sometimes these samples are unable to be generated, or successfully transmitted to the gateway device. The distribution of the amount of time between samples forms a poisson distribution.



Reliability

With increasing obstruction, the ability of the unit to successfully transmit data becomes more variable. In the above graph, increasing obstruction index represents an increased amount of obstruction.

Table 1: Electrical Specifications – End-Node

Parameter	Min	Typ.	Max	Unit
Model A				
Supply Voltage	4.7	5	5.3	VDC
Current via USB adapter @ 5V	-	260	290	mA
Current via USB computer @ 4.84V	247	260	290	mA
Power	1.16	1.30	1.54	W
Model B				
Supply Voltage	6	24	35	VAC
Current Consumption	-	55	-	mA

Table 2: Sensor Specifications

Parameter	Min	Typ.	Max	Unit
Temperature/Humidity				
Operating Range - Temperature	-10	-	85	°C
Tolerance - Temperature	-	±0.4	-	°C
Operating Range – Humidity (RH)	0	-	80	%
Tolerance – Humidity (RH)	-	±3	-	%
Pressure				
Operating Range	0	-	25	PSI
Tolerance	-	±0.25	-	%FSS BFSL
Particle Measurement				
Particle Concentration Range	0	-	1000	µg/m ³
Resolution	-	1	-	µg/m ³
TVOC/eCO₂				
Operating Range – TVOC	0	-	60000	ppb
Tolerance - TVOC	1	6	32	ppb
Absolute CO₂ Measurement				
Accuracy effective Range	400		3000	ppm
Maximum Range	400		5000	ppm
Resolution		1		ppm

Table 3: RF Specifications

Parameter	Min	Typ.	Max	Unit
Frequency Band Used – ISM band	902	915	928	MHz
Operating Frequency	902	varies	928	MHz
Radio Bandwidth	-	500	-	KHz
Data Sampling Period (USB)	-	3	-	s
Data Sampling Period Mean (Radio, 25 Duets)		3		s
Data Sampling Period Std. Dev. (Radio, 25 Duets)		12.57		s

Our *Air Quality Experts* are ready to help you.



Contact Us Today to Schedule a **Free Consultation!**

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