

센서 데이터시트

모델 이름 : ATLASSEN - AT04 (LEO)

Version 9

2021



ATLASEN - AT04 사양

- 실내 환경 상태 정보 수집 전용 IoT 복합 센서



Index	Remark
Sensor Capacity	Real-time IEQ Measurements & Analysis Sensor Suite for WELL v2 continuous monitoring and data report.
Dimension	94 x 94 x 25 (mm)
Weight	126 g
Power Consumption	Less than 2 Watt (200 mA)
Operating Conditions	Temperature: 0 to 50 °C, Humidity: 0 to 95 %
Storage Conditions	Temperature: -20 to 70 °C, Humidity: 0 to 95 %
Power Supply	Input: AC 100 to 240 V, 50 to 60 Hz Output: 9V/12V DC Wall mount or 9V/12V 1.0A USB external power adapter
IoT Connectivity	Wi-Fi: Wi-Fi 802.11 b/g/n (2.4 GHz) Security: WPA/WPA2/WEP/TKIP/AES LoRaWAN, NB-IoT, Sigfox, BehrTech MYTHINGS, BACNet
Analyzing Tool	Restful, SOAP, SQL Server Support
Interval	Configurable, Default: 10/15 min.
System Requirement	Android 4.1 or later, iOS 8 or later atlasencontrol account
Approvals	FCC, KC, UL

센서 요소 데이터시트 & 테스트 결과

1. ATLASSEN™ LEO: Accuracy, Resolution & WELL Standard (v2)

Criteria	#	Sensor Type	Accuracy	Resolution	WELL V2
Thermal	1	Temperature	±0.5°C	0.1 °C	√
	2	Humidity	±3% RH	0.1 %	√
Air	3	CO ₂	0.02% vol. CO ₂ ± 3% of reading, 50 ppm	1 ppm	√
	4	CO	1 ppm	0.1 ppm	√
	5	TVOC	18 µg/m ³ (8 ppb) ±15%@150~2000 µg/m ³	1 µg/m ³	√
	6	PM1.0	5 µg/m ³ ±10%@50~500µg/m ³	1 µg/m ³	-
	7	PM2.5	5 µg/m ³ ±10%@50~500µg/m ³	1 µg/m ³	√
	8	PM10	5 µg/m ³ ±10%@50~500µg/m ³	1 µg/m ³	√
	9	Ozone	10 ppb	1 ppb	√
	10	NO ₂	10 ppb	1 ppb	√
	11	HCHO	10 ppb	1 ppb	√
	12	NH ₃	10 ppb	1 ppb	-
Lighting	13	Illuminance	7 %, 25lux	0.1 lux	-
Acoustic	14	Noise Level	5 dB(A)	0.1 dB(A)	-
Spatial	15	PIR Motion Detector	-	On/Off	-

3. ATLASSEN™ LEO (AT04) IEQ Sensor: 데이터시트

3.1 온도

	Category	Features
Sensor	Type	Digital
	Standard Range	- 40 to 125 °C
	Resolution	0.1 °C
	Accuracy	± 0.5 °C
	Response Time	< 2 sec. ¹⁾
Instrument	Displayed Resolution	0.1 °C
	Warm Up Time @ Switch On	0.5 min. operational, 1 min. max accuracy
Environmental	Operating Temperature	- 40 to 125 °C
	Operating Humidity	0 to 100 %RH
	Operating Life (Estimated)	5 years +
WELL	WELL v2. Standard Fulfillment	Yes

¹⁾ Temperature response times strongly depend on the type of heat exchange, the available sensor surface and the design environment of the sensor in the final application.

3.2 습도

	Category	Features
Sensor	Type	Digital
	Standard Range	0 to 100 %
	Resolution	0.1 %
	Accuracy	± 3%
	Response Time	< 8 sec. ²⁾
Instrument	Displayed Resolution	0.1 %
	Warm Up Time @ Switch On	0.5 min. operational, 1 min. max accuracy
Environmental	Operating Temperature	- 40 to 125 °C
	Operating Humidity	0 to 100 %
	Operating Life (Estimated)	5 years +
WELL	WELL v2. Standard Fulfillment	Yes

²⁾ Humidity response time in the application depends on the design-in of the sensor.

3.3 이산화탄소 (CO₂)

	Category	Features
Sensor	Type	Non-dispersive infrared
	Standard Range	0 ppm to 20,000 ppm
	Resolution	1 ppm
	Accuracy	± 3% of reading 30 ppm (or 0.02% vol. CO ₂)
	Long Term Drift ³⁾	± 50 ppm/month @ 20°C
	Response Time	< 20 sec
Instrument	Displayed Resolution	1 ppm
	Warm Up Time @ Switch On	2 min.
Environmental	Operating Temperature	0 to 50 °C
	Operating Humidity	0 to 85 %RH
	Operating Life (Estimated)	15 years +
WELL	WELL v2. Standard Fulfillment	Yes

³⁾ The long-term drift is stated as change of accuracy per year of operation.

3.4 일산화탄소 (CO)

	Category	Features
Sensor	Type	Digital
	Standard Range	1 to 1000 ppm
	Resolution	0.1 ppm
	Accuracy	1 ppm
	Response Time	T ₉₀ < 25 sec
Instrument	Displayed Resolution	0.1 ppm
	Warm Up Time @ Switch On	2 to 2.5 min.
Environmental	Operating Temperature	- 4 °C to 50 °C
	Operating Humidity	0 to 100 %RH
	Operating Life (Estimated)	10 years
WELL	WELL v2. Standard Fulfillment	Yes

3.5 총 휘발성 유기 화합물 (TVOC)

	Category	Features
Sensor	Type	Digital
	Standard Range	0 ppb to 60000 ppb
	Resolution	1 $\mu\text{g}/\text{m}^3$
	Accuracy	18 $\mu\text{g}/\text{m}^3$ (8 ppb) typ. 15% of meas. Value
	Response Time	< 3 seconds
Instrument	Displayed Resolution	1 $\mu\text{g}/\text{m}^3$
	Warm Up Time @ Switch On	2 - 2.5 min (instrument warm up delay time)
Environmental	Operating Temperature	- 40 to 125 °C
	Operating Humidity	0 to 100 %RH
	Operating Life (Estimated)	5 years +
WELL	WELL v2. Standard Fulfillment	Yes

3.6 미세먼지 (PM 1.0)

	Category	Features
Sensor	Type	Digital
	Standard Range	0.3 - 1.0 μm
	Resolution	1 $\mu\text{g}/\text{m}^3$
	Accuracy	5 $\mu\text{g}/\text{m}^3$ $\pm 10\%$ @50~500 $\mu\text{g}/\text{m}^3$
	Response Time	Single < 1 sec. Total response time ≤ 10 sec.
Instrument	Displayed Resolution	1 $\mu\text{g}/\text{m}^3$
	Warm Up Time @ Switch On	2 - 2.5 min.
Environmental	Operating Temperature	-10 to 60 °C
	Operating Humidity	0 to 99 %RH
	Operating Life (Estimated)	5 years +
WELL	WELL v2. Standard Fulfillment	-

3.7 미세먼지 (PM 2.5)

	Category	Features
Sensor	Type	Digital
	Standard Range	1.0 - 2.5 μm
	Resolution	1 $\mu\text{g}/\text{m}^3$
	Accuracy	5 $\mu\text{g}/\text{m}^3$ $\pm 10\% @ 50 \sim 500 \mu\text{g}/\text{m}^3$
	Response Time	Single ≤ 1 sec. Total response time ≤ 10 sec.
Instrument	Displayed Resolution	1 $\mu\text{g}/\text{m}^3$
	Warm Up Time @ Switch On	2 - 2.5 min.
Environmental	Operating Temperature	-10 to 60 $^{\circ}\text{C}$
	Operating Humidity	0 to 99 %RH
	Operating Life (Estimated)	5 years +
WELL	WELL v2. Standard Fulfillment	Yes

3.8 미세먼지 (PM 10)

	Category	Features
Sensor	Type	Digital
	Standard Range	2.5 - 10 μm
	Resolution	1 $\mu\text{g}/\text{m}^3$
	Accuracy ³⁾	5 $\mu\text{g}/\text{m}^3$ $\pm 10\% @ 50 \sim 500 \mu\text{g}/\text{m}^3$
	Response Time	Single < 1 sec. Total response time ≤ 10 sec.
Instrument	Displayed Resolution	1 $\mu\text{g}/\text{m}^3$
	Warm Up Time @ Switch On	2 - 2.5 min.
Environmental	Operating Temperature	-10 to 60 $^{\circ}\text{C}$
	Operating Humidity	0 to 99 %RH
	Operating Life (Estimated)	5 years +
WELL	WELL v2. Standard Fulfillment	Yes

3.9 오존 (O₃)

	Category	Features
Sensor	Type	Electrochemical
	Standard Range	0 to 20 ppm
	Resolution	1 ppb
	Accuracy	5 ppb
	Response Time	< 15 sec.
Instrument	Displayed Resolution	0.1 ppb
	Warm Up Time @ Switch On	2 - 2.5 min.
Environmental	Operating Temperature	- 30 to 40 °C
	Operating Humidity	15 to 90 %RH
	Operating Life (Estimated)	10 years
WELL	WELL v2. Standard Fulfillment	Yes

3.10 NO₂

	Category	Features
Sensor	Type	Digital
	Standard Range	0.05 to 10 ppm
	Resolution	1 ppb
	Accuracy	10 ppb
	Response Time	T ₉₀ < 25 sec.
Instrument	Displayed Resolution	0.1 ppb
	Warm Up Time @ Switch On	2 to 2.5 min.
Environmental	Operating Temperature	- 40 to 50 °C
	Operating Humidity	0 to 100 %RH
	Operating Life (Estimated)	10 years
WELL	WELL v2. Standard Fulfillment	Yes

3.11 폼알데하이드 (HCHO)

	Category	Features
Sensor	Type	Electrochemical
	Standard Range	0 to 10 ppm
	Resolution	1 ppb
	Accuracy	10 ppb
	Long Term Drift	<2% signal loss/month
	Response Time	T ₉₀ <80 sec.
Instrument	Displayed Resolution	0.1 ppb
	Warm Up Time @ Switch On	2 to 2.5 min
Environmental	Operating Temperature	0 to 50 °C
	Operating Humidity	15 to 90 %RH
	Operating Life (Estimated)	5 years +
WELL	WELL v2. Standard Fulfillment	Yes

3.12 암모니아 (NH₃)

	Category	Features
Sensor	Type	Digital
	Standard Range	1 to 300 ppm
	Resolution	1 ppb
	Accuracy	10 ppb
	Long Term Drift	n/a
	Response Time	T ₉₀ <25 sec.
Instrument	Displayed Resolution	0.1 ppb
	Warm Up Time @ Switch On	2 to 2.5 min.
Environmental	Operating Temperature	- 40 to 50 °C
	Operating Humidity	0 to 100 %RH
	Operating Life (Estimated)	10 years
WELL	WELL v2. Standard Fulfillment	-

3.13 조도

	Category	Features
Sensor	Type	Digital
	Standard Range	0.1 to 40,000 lux
	Resolution	0.1 lux
	Accuracy	7 %, 25 lux
	Long Term Drift	n/a
	Response Time	2 to 2.5 min.
Instrument	Displayed Resolution	0.1 lux
	Warm Up Time @ Switch On	2 to 3 min.
Environmental	Operating Temperature	-30 to 80 °C
	Operating Humidity	0 to 100 %RH
	Operating Life (Estimated)	5 years
WELL	WELL v2. Standard Fulfillment	-

3.14 소음도

	Category	Features
Sensor	Type	Digital
	Standard Range	30 to 100 dB
	Resolution	0.1 dBA
	Accuracy	5 dBA
	Long Term Drift	n/a
	Response Time	2 to 2.5 min
Instrument	Displayed Resolution	0.1 dBA
	Warm Up Time @ Switch On	2 to 3 min
Environmental	Operating Temperature	-40 to 85 °C
	Operating Humidity	n/a
	Operating Life (Estimated)	5 years
WELL	WELL v2. Standard Fulfillment	-

3.15 PIR 모션 감지기

	Category	Features
Sensor	Type	Pyroelectric Infrared Radial
	IR Receiving Electrode	2×1 mm, 2 elements
	Window Size	4×3 mm
	Spectral Response	5-14 μm
	Transmittance	≥ 75%
	Sensitivity	≥ 3300 V/W
	Detectivity	≥1.4 ×10 ⁸ cmHz ^{1/2} /W
Instrument	Displayed Resolution	On/Off
	Warm Up Time @ Switch On	2 to 3 min
Environmental	Operating Temperature	-30 to 70 °C
	Storage Temperature Humidity	-40 to 80 °C
	Operating Life (Estimated)	5 years
WELL	WELL v2. Standard Fulfillment	n/a



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