

Smart Industrial Environment Digitalization Sensor

SIEDS



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HIGHLIGHTS

- Integrated webservice
- Alarm management with teach-in mode
- Integrated PoE-capable 2-port switch
- Open protocol interfaces:
 - OPC UA
 - MQTT
 - http(s)
 - RestAPI

Sensors



Acceleration



Rotation



Magnetometer



Acoustics
sensor



Carbon
dioxide



Air quality



Temperature



Air pressure



Humidity



Brightness

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Technical details

Network interfaces	
M12 D-coded	
■ Interfaces	2
■ Transmission rates	10 Mbit/s 100 Mbit/s
■ Status LED	Link + data communication
Supply voltage, current consumption	
PoE+	
■ Connection	M12 D-coded
■ Input	Port 1
■ Output	Port 2
Operating parameters	
■ Supply voltage (nominal value)	48 V
■ Supply voltage (min.)	36 V
■ Supply voltage (max.)	58 V
■ Power consumption (max.)	4 W
Environmental conditions	
■ Operating temperature	-40°C ... 70°C
■ Storage temperature	-40°C ... 85°C
■ Humidity, rel.	5 ... 95% RHD, non condensing
■ Protection class	IP65
Design, dimensions, weights	
■ Design	compact, passive cooling
■ Material (housing)	Plastic injection molded
■ Weight	150 g
■ Mounting	Direct mounting (screw, adhesive, magnet)
■ Wide	127 mm
■ Height	32 mm
■ Depth	60 mm
■ Hole spacing	118 mm
■ Installation distance (vertical)	50 mm
■ Installation distance (horizontal)	50 mm
Additional device interfaces	
■ Status LED	Power supply / status Error
Protocols / Services	
■ Management access	http https Webmanagement Indu-Sol Service Tool PROmanage® NT
■ Network	MQTT OPC UA DHCP Client
■ E-Mail	SMTP Client
■ Time synchronization	SNTP Client
■ Neighborhood	LLDP
■ Eventlog	Syslog

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Technical details

Diagnostics	
Features	
<ul style="list-style-type: none"> Port statistics 	Errors Discards Network load Neighborhood
<ul style="list-style-type: none"> Environmental sensors 	3-axis acceleration 3-axis acceleration 3-axis magnetic field Acoustics Carbon dioxide Air quality Temperature Air pressure Humidity Brightness
Alerting	
<ul style="list-style-type: none"> Trigger 	Upper limit Lower limit Relative change in measured value
<ul style="list-style-type: none"> Receiver 	E-Mail MQTT
Standards, guidelines, approvals	
EMC	
<ul style="list-style-type: none"> Directive 	2014/30/EU
<ul style="list-style-type: none"> Interference emission 	EN 55032
<ul style="list-style-type: none"> Noise immunity 	EN 61000-6-2
Mechanical stability	
<ul style="list-style-type: none"> Vibration 	IEC 60068-2-6
<ul style="list-style-type: none"> Shock 	IEC 60068-2-27
<ul style="list-style-type: none"> Free Fall 	IEC 60068-2-32
Approval	
<ul style="list-style-type: none"> Europe 	CE
Environment	
<ul style="list-style-type: none"> RoHS 	2011/65/EU
<ul style="list-style-type: none"> REACH 	1907/2006/EG

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Technical details

Sensors		
3-axis accelerometer		
■ Measuring range		± 4 g
■ Tolerance range		± 0,5%
■ Cross axis tolerance		± 1%
■ Zero value tolerance		± 20 mg
■ Resolution		0,001 g
■ Sampling rate		32 kHz
3-Achsen Gyroskop		
■ Measuring range		± 2000 °/s
■ Tolerance range		± 0,5%
■ Cross axis tolerance		± 1,25%
■ Zero value tolerance		± 0,5 °/s
■ Resolution		0,1 °/s
■ Sampling rate		32 kHz
3-axis gyroscope		
■ Measuring range		± 3000 μT
■ Tolerance range		± 5%
■ Zero value tolerance		± 100 μT
■ Resolution		0,1 μT
■ Sampling rate		1000 Hz
■ Maximum disturbing field		3200 μT
Acoustic sensor		
■ Measuring range		0 ... 120 dB SPL
■ Tolerance range		± 1 dB
■ Signal-to-noise ratio		65 dBA
■ Resolution		0,1 dB SPL
■ Sampling rate		8 kHz
■ Acoustic overload point		120 dB SPL
Carbon dioxide		
■ Measuring range		400 ... 65000 ppm
■ Tolerance range		± 1 ppm
Output		Comment / Recommendation
eCO ₂	CO ₂	
>1500	Bad	Heavily contaminated indoor air / Ventilation required
1000 – 1500	Poor	Contaminated indoor air / Ventilation recommended
800 – 1000	Fair	Optional ventilation
600 – 800	Good	Average
400 – 600	Excellent	Target

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Technical details

Sensors						
Air quality						
■ Measuring range		TVOC ¹ :		0 ... 65000 ppb		
		AQI-UBA ² :		1 ... 5		
■ Measuring ranges of individual VOC		Ethanol:		0 ... 20 ppm		
		Hydrogen:		0 ... 100 ppm		
		Acetone:		0 ... 20 ppm		
		Carbon monoxide:		0 ... 90 ppm		
		Toluene:		0 ... 450 ppm		
■ Resolution		TVOC:		1 ppb		
		AQI-UBA:		1		
¹ Total Volatile Organic Compunds ² Air Quality Index of the German Federal Environmental Agency						
AQI-UBA		TVOC		Hygienic Rating	Recommendation	Exposure Limit
#	Rating	mg/m ³	ppm			
5	Unhealthy	10 – 25	2.2. – 5.5	Situation not acceptable	Use only if unavoidable	hours
4	Poor	3 – 10	0.65 – 2.2	Major objections	Intensified ventilation recommended Search for sources	<1 month
3	Moderate	1 – 3	0.22 – 0.65	Some objections	Sufficient ventilation recommended Search for sources	<12 month
2	Good	0.3 – 1	0.065 – 0.22	No relevant objections	Sufficient ventilation recommended	No limit
1	Excellent	<0.3	β – 0.065	No objections	Target	No limit
Temperature						
■ Measuring range		-40°C ... 70°C				
■ Measuring range with full accuracy		0°C ... 65°C				
■ Tolerance range		0°C ... 65°C		± 1°C		
		-20°C ... 0°C		± 1,25°C		
		-40°C ... -20°C		± 1°C		
■ Resolution		0,01°C				
■ Sampling rate		1/10 Hz				
Air pressure						
■ Measuring range		300 ... 1100 hPa				
■ Tolerance range		0°C ... 65°C		± 1 hPa		
		-20°C ... 0°C		± 1,7 hPa		
■ Resolution		0,18 Pa				
■ Sampling rate		1/10 Hz				

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Sensors	
Humidity	
■ Measuring range	5% ... 95%
■ Tolerance range	± 3%
■ Resolution	0,1 %
■ Sampling rate	1/10 Hz
Brightness	
■ Measuring range	10 ... 68300 lux
■ Spectral bandwidth	390 ... 950 nm
■ Tolerance range	± 1,5%
■ Resolution	1 lux
■ Sampling rate	10 Hz

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Technical drawing

