

# WT1 - Technical Datasheet



Air  
quality



Gases



Odors



Particles



Noises



Temperature



Humidity



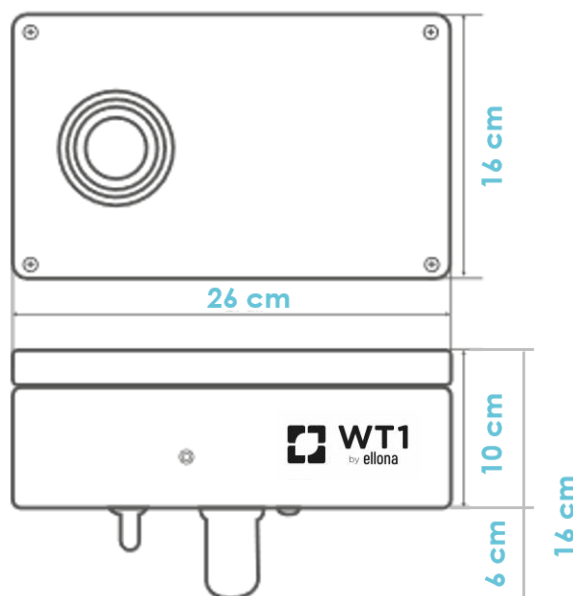
Pressure

## General features

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WT1 is the most comprehensive online outdoor monitoring system, including gas, odors (VOCs), fine particles, noise, temperature, pressure and humidity.

- Multi-sensor device for continuous physical, chemical and perception data collection
- Alarm mode on all measurement channels (triggering thresholds)
- On-Off relay and 4-20mA switch for automatic triggering of processes
- Standalone instrument ideally suited to automated pollution control processes
- Cutting edge data acquisition and processing
- Real-time and historical dispersion plume
- Software on secured servers and online update (on-premises option)
- Odor data banks (musty, solvents, cigarette, sewage system, etc.)
- Subjective perception reporting via QR Code attached to each module



- Communication: 3G/4G and Ethernet connection
- Power: 110-220V AC (Frequency: 50 - 60 Hz, 5W) or solar panel for a 12V-battery (option)
- Data logger: online storage of data for 48 hours (if connection loss)
- Data frequency: from 1 data set every 10 seconds
- Installation: couple of hours

## Options

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**Solar panel**



**Automated sample vacuum chamber**



**Sampling chamber**



**Protective shelter**



**All-in-one dryer**



**Soil & liquid sensors**



**Weather station**

- Wind speed and direction
- Pluviometry
- Temperature and relative humidity
- Atmospheric pressure
- Solar radiation
- Autonomous wireless communication

Other options available on demand.

## Gas sensor combination

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### Standard:

- Odor card with 4 Metal Oxide Sensors (MOS) sensors
- Temperature
- Humidity
- Atmospheric pressure
- Noise
- Outdoor Air Quality

### Options:

- Electrochemical sensors\* = 6 + 2 (CH<sub>4</sub>, CO<sub>2</sub>\*\* and PID)
- 1 Particles sensor (PM 1-2.5-10)
- Soil and liquid sensors (refer to the lists on pages 6 and 7)
- Other gases on demand



\* Refer to the list on page 5

\*\* CO<sub>2</sub> sensor: 400 to 10.000 ppm measurements (autocalibration: minimum value seen during the last 8 days)

# List of gas sensors

Ref	Gas	Measuring Range	Resolution *	LOD *	Interference
510-0034	NH <sub>3</sub>	150 ppm	0.030 ppm	0.090 ppm	-10% H <sub>2</sub> S; -30% SO <sub>2</sub> ; -7.5% NO <sub>2</sub>
510-0044	H <sub>2</sub> S	50 ppm	0.005 ppm	0.015 ppm	-20% NO <sub>2</sub> ; -25% Cl <sub>2</sub> ; +10% SO <sub>2</sub>
510-0045	H <sub>2</sub> S	13 ppm	0.003 ppm	0.009 ppm	-30% NO <sub>2</sub> ; -25% Cl <sub>2</sub> ; +10% SO <sub>2</sub>
510-0046	H <sub>2</sub> S (Mercaptan)	10000 ppm	2 ppm	6 ppm	-20% NO <sub>2</sub> , -15% Cl <sub>2</sub> , +20% SO <sub>2</sub>
510-0036	NO <sub>2</sub>	50 ppm	0.010 ppm	0.030 ppm	-80% H <sub>2</sub> S; +75% Cl <sub>2</sub> ; +5% NO, -5% SO <sub>2</sub> ; -5% CO
510-0040	NO <sub>2</sub> +O <sub>3</sub>	15 ppm	0.003 ppm	0.009 ppm	+100% Cl <sub>2</sub>
510-0057	SO <sub>2</sub>	38 ppm	0.008 ppm	0.025 ppm	-130% NO <sub>2</sub> ; -60% Cl <sub>2</sub> ; +40% C <sub>2</sub> H <sub>4</sub>
510-0038	NO	38 ppm	0.008 ppm	0.025 ppm	+10% H <sub>2</sub> S; +2% NO <sub>2</sub> , +3% SO <sub>2</sub>
510-0053	CO	286 ppm	0.057 ppm	0.171 ppm	+20% H <sub>2</sub> ; +5% NO <sub>2</sub>
510-0020	CO <sub>2</sub>	5000 ppm	1 ppm	5 ppm	none
510-0030	O <sub>2</sub>	0.01-30%	1000%	10000%	none
510-0059	Cl <sub>2</sub>	30 ppm	0.006 ppm	0.018 ppm	-40% H <sub>2</sub> S; -2.5% SO <sub>2</sub> ; +100% NO <sub>2</sub>
510-0055	HCl, (HBr)	150 ppm	0.030 ppm	0.090 ppm	+250% H <sub>2</sub> S; -150% NO <sub>2</sub> ; -20% Cl <sub>2</sub>
510-0032	CH <sub>2</sub> O	3 ppm	0.001 ppm	0.002 ppm	+3% H <sub>2</sub> ; +10% CO; <1% Ethanol
510-0047	EtO	8 ppm	0.002 ppm	0.005 ppm	+30% H <sub>2</sub> ; +50% CO; +60% EtOH
510-0051	Alcohols	15 ppm	0.003 ppm	0.009 ppm	+1% CO, hydrocarbons
50-0049	PH <sub>3</sub>	15 ppm	0.003 ppm	0.009 ppm	+20% H <sub>2</sub> S; -30% NO <sub>2</sub> ; +25% SO <sub>2</sub> ; +50% SiH <sub>4</sub>
510-0042	HCN	214 ppm	0.043 ppm	0.129 ppm	+300% H <sub>2</sub> ; -180% NO <sub>2</sub> ; -12% Cl <sub>2</sub> ; +10% SO <sub>2</sub>
510-0061	H <sub>2</sub>	2000 ppm	2 ppm	6 ppm	<40% NO; <25% C <sub>2</sub> H <sub>4</sub>
510-0062	H <sub>2</sub>	4000 ppm	2 ppm	6 ppm	70% CO
510-0063	H <sub>2</sub>	40000 ppm	5 ppm	15 ppm	60% CO

This list is not exhaustive. Other gas sensors are available on demand

\* ppm resolution under laboratory conditions: RH 50% and T 20°C

## List of soil sensors

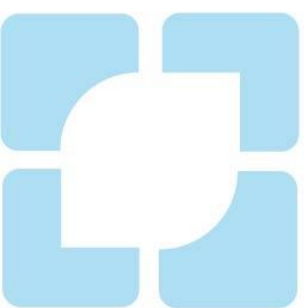
Parameters	Humidity / Temperature	Electrical Conductivity	pH	NPK *
Ref Soil sensor	510-0156	510-0155	510-0154	510-0153
Measuring range	H: 0% - 100% T: -40°C - 80+°C	0 - 10000us/cm	3 - 9 pH	0 - 1999 mg/kg
Accuracy	H: + 3% (5% - 95%, 25°C) T: +0.5°C (25°C)	10 us/cm	+0.3 pH	+2% FS
Power supply	12 - 30V DC	12 - 30V DC	12 - 30V DC	12 - 30V DC
Long-term stability	H: <1%/year T: <0.1°C/year	<1%/year	<5%/year	<5%/year
Working temperature	-40°C - +80°C	-40°C - +80°C	0°C - +55°C	-5°C - +45°C
Working humidity	0% - 100%	0% - 100%	5% - 95%	5% - 95%
Response time	<1s	<1s	<1s	<1s
Signal output	4 - 20mA, 0 - 5V, RS485	4 - 20mA, 0 - 5V, RS485	4 - 20mA, 0 - 5V, RS485	4 - 20mA, 0 - 5V, RS485
Resolution	H: 0.1% T: 0.1°C	1us/cm	0.1 pH	1mg/kg (mg/l)
Protection grade	IP68	IP68	IP68	IP68

\* Nitrogen (N), phosphorus (P) and potassium (K)

## List of liquid sensors

Parameters	Dissolved Oxygen / Temperature
Ref Liquid sensor	510-0151
Measuring range	0 ~ 20.0 mg/L, 1-100°C
Accuracy	Dissolved oxygen: ±0.02mg/L, temperature: ± 0.3°C
Power supply	DC 5V, DC 12, DC 24V
Stability	≥0.1mg/L 24H
Temperature compensation	0 ~ 100°C
Ambient temperature	0 ~ 60°C
Input impedance	≥ 1 x 10 <sup>12</sup> Ω
Output signal	4 – 20mA, RS485 (MODBUS)
Protection grade	IP68
485 interface	Support IOT (Modbus Protocol Part compatible)
Pipe thread	Upper and lower 3/4 piper thread
Cable length	Standard 5meter
MODBUS-RTU	Baud rate 9600 (default)
	Device number 1 (default)
	Data bit 8 bits
	Parity none
	Stop bit 1 bit

Parameters	Turbidity sensor
Ref Liquid sensor	510-0150
Measuring range	0-100/0-1000 0-4000NTU
Measurement accuracy	± 5% or ± 3NTU ± 3% or ± 2NTU
Power supply	12 – 24V DC
Power consumption	<0.15W
Resolving power	0.1NTU
Signal output	RS485/4-20mA
Working temperature	0 – 50°C
Repeatability	0.5%
Installation method	Immersion installation
Light source	860nm



**ellona**