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WT1 electrochemical sensor selection guide

All electrochemical sensors have different connection type and operating mode biased or not to achieve best sensitivity and selectivity. Please use instructions and table below for correct selection of WT1 sensor array and additional boards.

A) Main board has 2 channels for 2 electrochemical sensors with 3 or 2 pins connection without polarization (bias=0 or none) Please select only sensors with bias=0 or none and pins 3 or 2 in table below. Two sensors with 2 pin connection are not allowed to install on same board.

B) All sensors with 3 or 4 pins connection operate with or without bias could be installed to Extension board.

   a. Two electrochemical sensors with 3 pins connection could be installed on Extension board.

   b. Two sensors with 4 electrodes are not allowed. Only **one** electrochemical sensor with 4 pins could be installed on one Extension board, because there is no channel for second 3 pins sensor in this case.

Up to two Extension boards could be connected to main board. Please select any sensor with any bias and 3 or 4 pins in table below.

C) CO_2 sensor or PID for VOC sensor is connected separately to main board by using Auxiliary boards. Each has one channel for CO_2 sensor or for PID sensor. Up to two Auxiliary boards could be connected to main board.

Full configuration of WT1 is: Main board + two Extension boards + two Auxiliary boards.

Main board	Extension board 1	Extension board 2	Auxiliary board 1	Auxiliary board 2
Any two sensors with 3 or 2 pins connection without bias (max one 2 pin sensor per board)	Any two sensors with 3 pins connection with or without bias	Any two sensors with 3 pins connection with or without bias	CO_2 sensor or PID sensor.	CO_2 sensor or PID sensor.
	OR	OR		
	Any One sensor with 4 pins connection with or without bias	Any One sensors with 4 pins connection with or without bias		

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List of sensors for WT1.

Electrochemical sensors. For correct selection of sensor, please use “Interference” and “Application” columns

Ref	Gas	WT1 range, ppm	pins	bias	WT1 position compatibility	Resolution*, ppm	LOD*, ppm	Application	Interference, +/- % of reading in presence:
01	NH3	150	3	0	All	0.030	0.090	Sensitive	-10% H2S; -30% SO2; -7.5% NO2
02	NH3	375	3	0	All	0.075	0.225	Longterm operation	-20% SO2
03	NH3	1875	3	0	All	0.375	1.125	High concentration	-30% SO2
04	NH3	3750	3	0	All	0.750	2.250	Wery high concentration	-60% SO2
05	H2S	10	3	0	All	0.002	0.006	High sensitivity, High temperature	-10% SO2; -35% NO2
06	H2S	13	3	0	All	0.003	0.008	High sensitivity	-30% NO2; -25% Cl2; +10% SO2
07	H2S	188	3	0	All	0.038	0.113	High concentration	-20% NO2; -15% Cl2; 20% NO; +20% SO2
08	NO2	50	4	0	Extension board, only 1 sensor on board	0.010	0.030	Ozone free interference	-80% H2S; +75% Cl2; +5% NO, -5% SO2; -5% CO
09	NO2+O3	30	4	0	Extension board, only 1 sensor on board	0.006	0.018	High sensitivity, NO2+O3 total detection	+100% H2S; +85% Cl2; -6% SO2; +5% NO
10	NO2+O3	15	3	0	All	0.003	0.009	Very high sensitivity, NO2+O3 total detection, H2S filter	+100% Cl2
11	NO2+O3	25	3	0	All	0.005	0.015	High sensitivity, NO2+O3 total detection, H2S filter	+100% Cl2
12	SO2	38	3	0	All	0.008	0.023	High sensitivity	-130% NO2; -60% Cl2; +40% C2H4
13	SO2	30	3	0	All	0.006	0.018	High sensitivity, Low interference	-100% NO2; -20% Cl2
14	SO2	75	3	0	All	0.015	0.045	High concentration	-100% NO2; -40% Cl2
15	NO	33	4	200	Extension board, only 1 sensor on board	0.007	0.020	Low concentration, 4 pin	+20% H2S; +7% NO2
16	NO	38	3	300	Extention board only	0.008	0.023	High concentration	+10% H2S; +2% NO2, +3% SO2
17	NO	38	3	0	All	0.008	0.023	High concentration	+15% NO2; 25% H2S
18	CO	364	3	0	All	0.073	0.218	Ambient air	+10% H2; -2% NO2
19	CO	286	3	0	All	0.057	0.171	Car parking	+20% H2; +5% NO2
20	O2	0-30%	2	none	Main board only. Specific development	10.000	25.000	Up to 3 years lifetime	none
21	O2	0-30%	3	-600	Extention board	10.000	25.000	long-term operation, Lead Free	none
22	CL2	30	3	0	All	0.006	0.018	Up to 20 ppm	-40% H2S; -2.5% SO2; +100% NO2

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Ref	Gas	WT1 range, ppm	pins	bias	WT1 position compatibility	Resolution*, ppm	LOD*, ppm	Application	Interference, +/- % of reading in presence:
23	CL2	17	3	0	All	0.003	0.010	Highly sensitive	+100% NO2; -80% H2S
24	HCl, (HBr)	150	3	0	All	0.030	0.090	Corrosive atmosphere	+250% H2S; -150% NO2; -20% Cl2
25	Mercaptans	750	2	0	Main board only. Specific development	0.150	0.450	Odour, H2S filter	-100% NO2
27	CH2O	3	3	0	All	0.001	0.002	Highly sensitive, Alcohols	+3% H2; +15% CO; organic solvents
28	EtO	8	3	300	Extention board	0.002	0.005	Ambient air quality, Alcohols	+30% H2; +50% CO; +60% EtOH
29	Alcohols	15	3	300	Extention board	0.003	0.009	Ambient air quality	+1% CO, hydrocarbons
30	PH3	15	3	0	All	0.003	0.009	Toxic environnement	+20% H2S; -30% NO2; +25% SO2; +50% SiH4
31	SiH4	30	3	0	All	0.006	0.018	Semiconductor industry environnement	+20% SO2;
33	HCN	214	3	0	All	0.043	0.129	Toxic environnement	+300% H2; -180% NO2; -12% Cl2; +10% SO2
34	EtO	5	3	300	Extention board	0.001	0.003	Highly sensitive	+200% H2S; +50% NO2; +80% NO; +50% SO2, +100% C2H4; +90% HCOH
35	Mercaptans	150	3	150	Extention board	0.030	0.090	Odour, H2S filter	+200 Isopropanol, +100% Tert.-Butylmercaptane

* - electronic resolution with RUBIX PCB in laboratory condition at 20 °C +/- 2°C and 35% RH +/- 5%

Metal oxide sensors : fixed positions

Ref	Gas	WT1 range, ppm	pins	bias	WT1 position compatibility	Resolution*, ppm	LOD*, ppm	Application	Interference, +/- % of reading in presence:
40	VOC-Aldehyde eq		n/a	n/a	Main board only			Odors, Ambient Air Quality	VOC, inorganic gases
41	VOC-Amine eq		n/a	n/a	Main board only			Odors, Ambient Air Quality	VOC, inorganic gases
42	TVOC, CO eq		n/a	n/a	Main board only			Odors, Ambient Air Quality	VOC, inorganic gases
43	VOC-Air, EtOH eq		n/a	n/a	Main board only			Odors, Ambient Air Quality	VOC, inorganic gases

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Others optional sensors: fixed positions

Ref	Gas	WT1 range, ppm	pins	bias	WT1 position compatibility	Resolution*, ppm	LOD*, ppm	Application	Interference, +/- % of reading in presence:
32	COV (PID)	100	n/a	n/a	Auxiliare board only	0.001	0.005	High sensitive	
60	CO2	5000	n/a	n/a	Auxiliare board only	1.000	5.000	Air quality	none
61	CO2	2000	n/a	n/a	Auxiliare board only	1.000	5.000	Air quality	none
90	Particle counter WT1		n/a	n/a	WT1 only			Outdoor air quality	none

POD electrochemical sensor selection guide

All electrochemical sensors have different connection type and operating mode: biased or not. Please use instructions and table below for correct selection of POD sensor array.

POD has 3 channels for 3 electrochemical sensors with 3 or 2 pins connection with or without polarization (or bias)

Only Two electrochemical sensors SPECsensors connection type could be installed on main board.

Only **one** electrochemical sensor with 3 pins (A1 type) could be installed on main board. Please use tables below for selection for any Two SPECsensors type and only one with 3 pins (A1 type)

Main board
Any two Specsensors with 3 pins connection without or with bias + one A1 type sensor 3 pins with or without bias

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List of sensors for POD.

For correct selection of sensor, please use “Interference” and “Application”

List of SPECsensors for POD

Ref	Gas	POD range, ppm	pins	bias		Resolution*, ppm	LOD*, ppm	Application	Interference, +/- % of reading in presence:
70	H2S POD	9	3	0	POD Only	0.025	0.075	Indoor air quality	-20% NO2; -20% O3; +10% SO2; -22% Cl2
71	CO POD	300	3	0	POD Only	0.500	1.000	Indoor air quality	+17% H2; +20% O2; +20% NO2; +10% Cl2
72	Alcohols POD	5	3	0	POD Only	0.025	0.075	Indoor air quality	+50% NO2; +200% H2S; +100% O3; +50% SO2; +100% NO; -140% Cl2
73	NO2 POD	5	3	0	POD Only	0.025	0.075	Indoor air quality	+5% Cl2
74	O3 POD	5	3	0	POD Only	0.025	0.075	Indoor air quality	+100% NO2, -50% H2S; +100% Cl2;
75	SO2 POD	5	3	0	POD Only	0.025	0.075	Indoor air quality	+15% NO2, 500% H2S, -60% O3; +180% NO; -30% Cl2

* - electronic resolution with RUBIX PCB in laboratory condition at 20 °C +/- 2°C and 35% RH +/- 5%

Electrochemical sensors A1 type (3 pins) for POD

Ref	Gas	POD range, ppm	pins	bias	Position compatibility	Resolution*, ppm	LOD*, ppm	Application	Interference, +/- % of reading in presence:
01	NH3	150	3	0	All	0.030	0.090	Sensitive	-10% H2S; -30% SO2; -7.5% NO2
02	NH3	375	3	0	All	0.075	0.225	Longterm operation	-20% SO2
03	NH3	1875	3	0	All	0.375	1.125	High concentration	-30% SO2
04	NH3	3750	3	0	All	0.750	2.250	Wery high concentration	-60% SO2
05	H2S	10	3	0	All	0.002	0.006	High sensitivity, High temperature	-10% SO2; -35% NO2

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Ref	Gas	POD range, ppm	pins	bias	Position compatibility	Resolution*, ppm	LOD*, ppm	Application	Interference, +/- % of reading in presence:
06	H2S	13	3	0	All	0.003	0.008	High sensitivity	-30% NO2; -25% Cl2; +10% SO2
07	H2S	188	3	0	All	0.038	0.113	High concentration	-20% NO2; -15% Cl2; 20% NO; +20% SO2
10	NO2+O3	15	3	0	All	0.003	0.009	Very high sensitivity, NO2+O3 total detection, H2S filter	+100% Cl2
11	NO2+O3	25	3	0	All	0.005	0.015	High sensitivity, NO2+O3 total detection, H2S filter	+100% Cl2
12	SO2	38	3	0	All	0.008	0.023	High sensitivity	-130% NO2; -60% Cl2; +40% C2H4
13	SO2	30	3	0	All	0.006	0.018	High sensitivity, Low interference	-100% NO2; -20% Cl2
14	SO2	75	3	0	All	0.015	0.045	High concentration	-100% NO2; -40% Cl2
16	NO	38	3	300	All	0.008	0.023	High concentration	+10% H2S; +2% NO2, +3% SO2
17	NO	38	3	0	All	0.008	0.023	High concentration	+15% NO2; 25% H2S
18	CO	364	3	0	All	0.073	0.218	Ambient air	+10% H2; -2% NO2
19	CO	286	3	0	All	0.057	0.171	Car parking	+20% H2; +5% NO2
21	O2	0-30%	3	-600	All	10.000	25.000	long-term operation, Lead Free	none
22	CL2	30	3	0	All	0.006	0.018	Up to 20 ppm	-40% H2S; -2.5% SO2; +100% NO2
23	CL2	17	3	0	All	0.003	0.010	Highly sensitive	+100% NO2; -80% H2S
24	HCl, (HBr)	150	3	0	All	0.030	0.090	Corrosive atmosphere	+250% H2S; -150% NO2; -20% Cl2
26	CH2O	3	2	0	Special development	0.001	0.002	Highly sensitive, Alcohols	+3% H2; +15% CO; organic solvents
28	EtO	8	3	300	All	0.002	0.005	Ambient air quality, Alcohols	+30% H2; +50% CO; +60% EtOH
29	Alcohols	15	3	300	All	0.003	0.009	Ambient air quality	+1% CO, hydrocarbons
30	PH3	15	3	0	All	0.003	0.009	Toxic environnement	+20% H2S; -30% NO2; +25% SO2; +50% SiH4
31	SiH4	30	3	0	All	0.006	0.018	Semiconductor industry environnement	+20% SO2;
33	HCN	214	3	0	All	0.043	0.129	Toxic environnement	+300% H2; -180% NO2; -12% Cl2; +10% SO2
34	EtO	5	3	300	All	0.001	0.003	Highly sensitive	+200% H2S; +50% NO2; +80% NO; +50% SO2, +100% C2H4; +90% HCOH
35	Mercaptans	150	3	150	All	0.030	0.090	Odour, H2S filter	+200 Isopropanol, +100% Tert.-Butylmercaptane

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Metal oxide sensors : fixed position

Ref	Gas	POD range, ppm	pins	bias	POD position	Resolution*, ppm	LOD*, ppm	Application	Interference,
40	VOC-Aldehyde eq	-	n/a	n/a	Main board only	-	-	Odors, Ambient Air Quality	VOC, inorganic gases
41	VOC-Amine eq	-	n/a	n/a	Main board only	-	-	Odors, Ambient Air Quality	VOC, inorganic gases
42	TVOC, CO eq	-	n/a	n/a	Main board only	-	-	Odors, Ambient Air Quality	VOC, inorganic gases
43	VOC-Air, EtOH eq	-	n/a	n/a	Main board only	-	-	Odors, Ambient Air Quality	VOC, inorganic gases

Others optional sensors: fixed positions

Ref	Gas	range, ppm	pins	bias	POD position	Resolution*, ppm	LOD*, ppm	Application	Interference,
60	CO2	5000	n/a	n/a	Main board only	1.000	5.000	Air quality	none
61	CO2	2000	n/a	n/a	main board only	1.000	5.000	Air quality	none

92	Dust sensor POD	-	n/a	n/a	POD only	-	-	Indoor air quality	none

Other sensors for gases are available, please contact for specific application.