



## **Conformity of TGS5042 to EN50545-1 Requirements**

7<sup>th</sup> March, 2012

Figaro Engineering Inc.

## ● *Tests for detection and measurement of carbon monoxide*

FIGARO

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## ● 6.2 Unpowered storage

### Requirement

The sensor shall be exposed sequentially to the following conditions in clean air only:

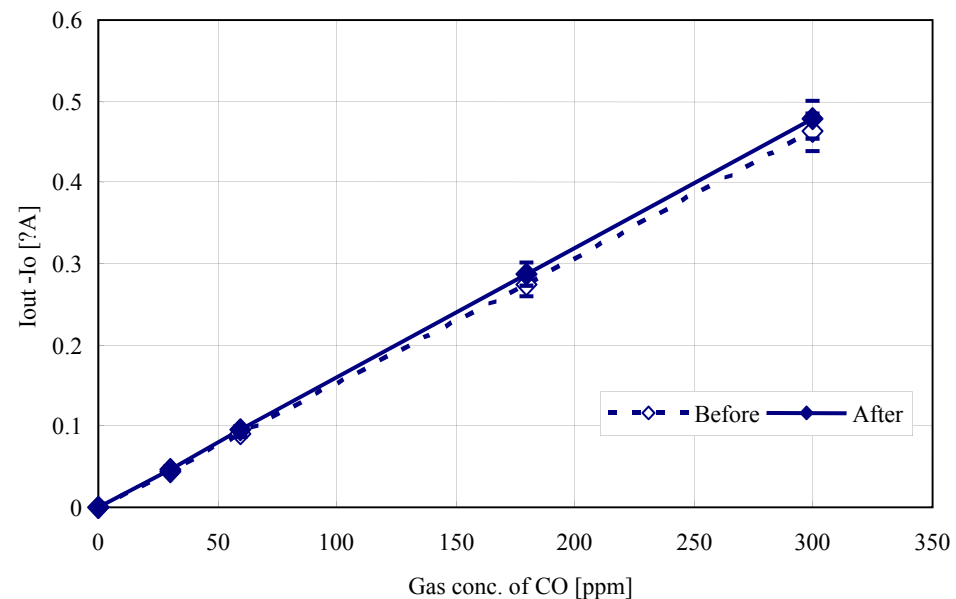
- a) -20°C for 24h
- b) ambient temperature for at least 24h
- c) 50°C for 24h
- d) ambient temperature for at least 24h

### Test condition

Sample qty: 12pcs Test gas: CO@ 30, 60, 180, 300ppm (20°C/65%RH)

### Test results

Significant sensitivity changes were not found



## 6.3 Linearity

### Requirement

The deviation shall not exceed the values specified in Table 4 and shall not exceed  $\pm 3\%$  of the measuring range

Table 4

CO Conc.	Max. dev.
30ppm	+/-2ppm
60ppm	+/-2ppm
150ppm	+/-5ppm
270ppm	+/-9ppm

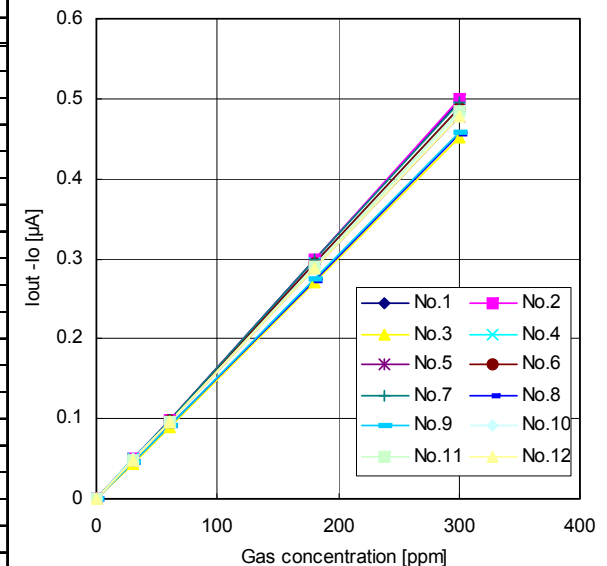
### Test condition

Sample qty: 12pcs Test gas: CO@ 30, 60, 180, 300ppm (20°C/65%RH)  
 (“Display reading” was calculated based on the sensitivity slope between 0ppm and 300ppm )

### Test results

The deviation (ppm) in display readings of all samples were within the required specification

	CO conc. (ppm)	Sample No.											
		No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12
I (°A)	0	0.326	0.325	0.319	0.324	0.322	0.325	0.325	0.327	0.327	0.321	0.327	0.327
	30	0.375	0.374	0.364	0.373	0.370	0.373	0.374	0.373	0.373	0.371	0.374	0.375
	60	0.424	0.424	0.409	0.420	0.417	0.422	0.424	0.418	0.418	0.418	0.423	0.423
	180	0.625	0.624	0.590	0.618	0.609	0.619	0.623	0.601	0.603	0.610	0.618	0.615
	300	0.823	0.825	0.771	0.813	0.799	0.813	0.820	0.783	0.785	0.800	0.811	0.806
I-I0 (°A)	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	30	0.049	0.050	0.044	0.049	0.048	0.049	0.049	0.045	0.045	0.050	0.048	0.048
	60	0.098	0.099	0.089	0.097	0.095	0.097	0.099	0.091	0.091	0.097	0.096	0.095
	180	0.299	0.299	0.271	0.294	0.287	0.294	0.298	0.274	0.275	0.288	0.291	0.287
	300	0.497	0.500	0.451	0.490	0.477	0.489	0.495	0.456	0.458	0.479	0.484	0.478
Display Reading (ppm)	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	30	29.5	29.9	29.5	30.1	29.9	30.0	29.8	29.9	29.7	31.2	29.5	29.9
	60	59.2	59.4	59.4	59.3	59.8	59.8	60.0	59.7	59.5	60.6	59.4	59.7
	180	180.4	179.6	180.3	180.2	180.5	180.4	180.6	180.3	180.5	180.7	180.3	180.2
	300	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0
Deviation (ppm)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	30	0.48	0.10	0.49	-0.14	0.08	0.00	0.19	0.13	0.27	-1.22	0.51	0.14
	60	0.77	0.58	0.55	0.70	0.16	0.20	0.00	0.25	0.54	-0.64	0.63	0.28
	180	-0.39	0.38	-0.25	-0.23	-0.52	-0.39	-0.58	-0.29	-0.46	-0.72	-0.28	-0.16
	300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



## 6.5 Repeatability

### Requirement

The deviation between the first and last measurement shall be less than  $\pm 5\%$  of the indication.

Deviation in clean air shall not be greater than 3ppm

### Test condition

Sample qty: 2pcs Test gas: CO 180ppm (20°C/65%RH)

(“Display reading” was calculated based on the sensitivity slope between 0~180ppm in the 1<sup>st</sup> test)

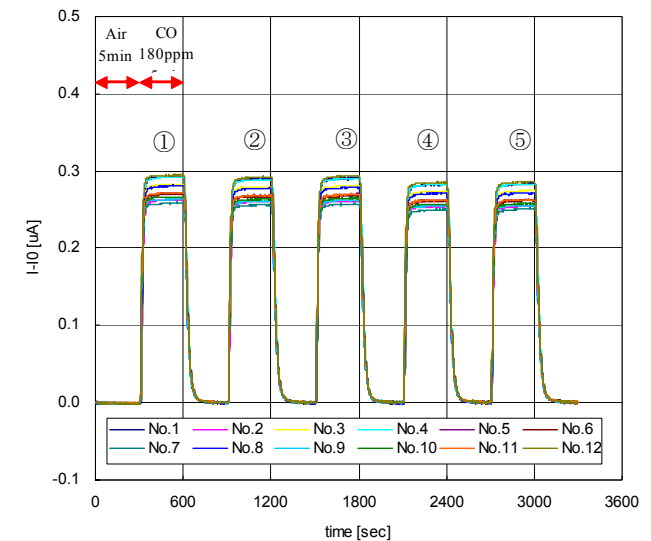
### Test procedure

Clean air (5min.) >> CO 180ppm (5min.) >> Repeat 5 times for each target gas

### Test results

The deviation in CO 0ppm and 180ppm of all samples were within the required specification

		Sample No.											
		No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12
Display reading (ppm)	1st	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
	2nd	177.6	177.8	177.6	178.2	177.9	178.3	177.8	177.9	177.8	178.1	177.9	178.1
	3rd	178.6	178.3	179.0	179.0	178.3	177.9	178.9	179.0	178.5	178.5	178.9	178.6
	4th	173.3	173.7	174.1	174.3	173.6	173.6	174.0	174.0	173.7	173.7	173.6	174.4
	5th	173.7	173.7	174.5	174.3	174.3	174.7	174.0	174.5	174.1	174.2	174.3	174.4
Deviation in 180ppm CO (ppm)	1st	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2nd	2.4	2.2	2.4	1.8	2.1	1.7	2.2	2.1	2.2	1.9	2.1	1.9
	3rd	1.4	1.7	1.0	1.0	1.7	2.1	1.1	1.0	1.5	1.5	1.1	1.4
	4th	6.7	6.3	5.9	5.7	6.4	6.4	6.0	6.0	6.3	6.3	6.4	5.6
	5th	6.3	6.3	5.5	5.7	5.7	5.3	6.0	5.5	5.9	5.8	5.7	5.6
Deviation in 180ppm CO (%)	1st	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2nd	1.3	1.2	1.4	1.0	1.2	0.9	1.2	1.1	1.2	1.1	1.2	1.1
	3rd	0.8	1.0	0.6	0.5	0.9	1.2	0.6	0.6	0.8	0.8	0.6	0.8
	4th	3.7	3.5	3.3	3.2	3.5	3.6	3.3	3.3	3.5	3.5	3.5	3.1
	5th	3.5	3.5	3.0	3.2	3.2	3.0	3.3	3.1	3.3	3.2	3.2	3.1
Deviation in zero (ppm)	1st	0.0	0.0	0.0	0.0	-0.4	-0.4	0.0	0.0	-0.4	-0.4	0.0	-0.6
	2nd	0.0	0.0	0.0	0.0	-0.4	0.0	0.0	-0.4	0.0	0.0	0.6	0.0
	3rd	-0.4	0.0	0.0	0.6	0.0	0.4	0.7	-0.4	0.0	0.6	0.6	0.0
	4th	-0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.4	0.0	0.0	0.0
	5th	0.0	0.4	0.4	1.0	0.6	0.4	1.1	0.6	0.4	0.6	0.6	0.4



## 6.6 Temperature

### Requirement

The deviation of the indications at -10°C and 40°C with respect to 20°C shall not exceed  $\pm 10\%$  for the standard test gas and  $\pm 2\%$  of the measuring range for clean air. The deviation from

the average of the three indications at 20°C shall not exceed  $\pm 2\%$  of the measured value.

### Measurement condition

Sample qty: 12pcs. Test gas: CO@ 30, 60, 180, 300ppm

### Test procedure

20°C/50%RH >> -10°C >> 20°C/50%RH >> 40°C/50%RH >> 20°C/50%RH (stabilizing time: 90min.)

	Conc. (ppm)	Sample number												
		No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12	
Display reading at 20deg.C/50%	0	0.5	0.7	0.3	0.7	0.3	0.8	0.9	1.0	-0.1	0.6	0.2	0.2	
	30	29.7	30.4	29.8	29.9	29.3	30.2	30.9	30.1	29.9	29.4	29.0	29.7	
	60	59.9	60.2	59.2	60.0	58.6	59.4	59.0	60.0	59.5	58.6	57.9	58.7	
	* Average of 3 measurements	180	179.6	181.0	179.2	179.3	177.4	178.8	178.3	179.2	176.8	178.9	174.8	179.0
	300	299.4	301.8	299.0	298.8	298.9	298.8	298.7	298.3	298.3	298.5	293.8	299.0	
Display reading at -10deg.C (-9.5deg.C/41%)	0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	-0.6	-0.6	-0.3	-0.5	
	30	23.1	24.6	22.7	23.7	23.2	23.7	23.5	23.7	23.6	22.6	22.6	23.2	
	60	47.1	49.1	46.9	47.0	47.0	47.3	47.1	47.0	47.2	46.8	45.3	47.3	
	180	144.5	146.8	141.2	143.4	142.9	143.4	143.9	141.9	143.3	141.6	137.7	143.3	
	300	239.4	242.0	233.0	236.9	236.4	236.7	237.0	234.3	236.9	234.6	227.0	237.4	
Display reading at 40deg.C/50% (39.8deg.C/51%)	0	0.9	0.3	0.0	1.5	0.9	2.3	1.0	1.5	0.8	1.7	1.4	1.5	
	30	32.0	31.6	31.1	32.7	31.3	32.9	31.6	32.7	31.5	32.6	32.1	33.0	
	60	63.5	63.6	62.5	63.5	63.4	64.6	62.8	63.8	63.3	64.2	62.7	64.0	
	180	193.6	193.8	193.1	192.9	192.6	194.2	191.5	192.9	192.1	193.5	191.2	193.1	
	300	323.5	322.7	322.2	320.7	321.7	322.3	320.0	320.7	320.2	322.3	318.8	322.3	
Display reading at -10deg.C (-9.5deg.C/41%)  *With temperature compensation	0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	-0.9	-0.8	-0.4	-0.7	
	30	30.7	32.7	30.2	31.6	30.8	31.5	31.3	31.6	31.4	30.1	30.0	30.8	
	60	62.6	65.3	62.4	62.5	62.5	63.0	62.6	62.5	62.8	62.2	60.2	62.9	
	180	192.2	195.2	187.8	190.7	190.0	190.7	191.3	188.7	190.5	188.3	183.1	190.6	
	300	318.4	321.9	309.8	315.0	314.4	314.8	315.2	311.6	315.0	311.9	301.8	315.7	
Display reading at 40deg.C/50% (39.8deg.C/51%)  *With temperature compensation	0	0.9	0.3	0.0	1.4	0.8	2.1	0.9	1.4	0.7	1.6	1.3	1.3	
	30	29.0	28.6	28.1	29.6	28.4	29.8	28.6	29.6	28.5	29.5	29.0	29.9	
	60	57.5	57.6	56.6	57.4	57.4	58.5	56.8	57.7	57.3	58.1	56.7	58.0	
	180	175.2	175.4	174.8	174.6	174.3	175.8	173.3	174.6	173.8	175.1	173.0	174.8	
	300	292.8	292.1	291.6	290.2	291.1	291.7	289.6	290.2	289.8	291.7	288.5	291.7	

## 6.6 Temperature

### Test results

The deviation of display reading at -10°C and 40°C with respect to the average of the three display reading obtained at 20°C were out of the required specification. However, the deviation after temperature compensation\* was within the required specification. The deviation of the display reading at 20°C was within the requirement specification.

	Conc. (ppm)	Sample number											
		No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12
Deviation from the average of three display readings obtained at 20deg.C. (%) (Within +/-2% of measured value)	0	-	-	-	-	-	-	-	-	-	-	-	-
	30	-1.2	1.3	-0.5	-0.3	-2.2	0.8	3.0	0.4	-0.4	-2.0	-3.2	-0.9
	60	-0.1	0.4	-1.4	0.1	-2.4	-0.9	-1.7	0.1	-0.9	-2.3	-3.4	-2.2
	180	-0.2	0.5	-0.4	-0.4	-1.4	-0.6	-0.9	-0.5	-1.8	-0.6	-2.9	-0.6
	300	-0.2	0.6	-0.3	-0.4	-0.4	-0.4	-0.4	-0.6	-0.6	-0.5	-2.1	-0.3
(For CO) Deviation of the display reading at -10deg.C with respect to the average of the three display readings obtained at 20deg.C. (%) (For zero) Deviation of the display reading in zero at -10deg.C to measurement range (300ppm)	0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.1	-0.2
	30	-22.2	-19.2	-24.0	-20.6	-20.9	-21.7	-23.8	-21.2	-21.0	-23.1	-22.3	-22.1
	60	-21.5	-18.5	-20.7	-21.8	-19.8	-20.3	-20.2	-21.8	-20.6	-20.2	-21.8	-19.4
	180	-19.5	-18.9	-21.2	-20.0	-19.5	-19.8	-19.3	-20.8	-19.0	-20.8	-21.2	-19.9
(For CO) Deviation of the display reading at 40deg.C with respect to the average of the three display readings obtained at 20deg.C. (%) (For zero) Deviation of the display reading in zero at 40deg.C to measurement range (300ppm)	0	0.3	0.1	0.0	0.5	0.3	0.8	0.3	0.5	0.3	0.6	0.5	0.5
	30	7.9	3.8	4.2	9.2	6.8	8.9	2.2	8.4	5.4	10.8	10.4	11.0
	60	6.0	5.6	5.7	5.7	8.3	8.8	6.5	6.3	6.4	9.4	8.2	9.1
	180	7.8	7.1	7.8	7.6	8.6	8.6	7.4	7.7	8.6	8.1	9.3	7.9
(For CO) Deviation of the display reading at -10deg.C with respect to the average of the three display readings obtained at 20deg.C. (%) (For zero) Deviation of the display reading in zero at -10deg.C to measurement range (300ppm) <b>* With temperature compensation</b>	0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	-0.3	-0.1	-0.2
	30	3.4	7.4	1.1	5.5	5.1	4.1	1.4	4.7	5.1	2.2	3.4	3.6
	60	4.4	8.4	5.4	4.0	6.7	5.9	6.2	4.0	5.6	6.1	3.9	7.2
	180	7.0	7.9	4.8	6.4	7.1	6.6	7.3	5.3	7.7	5.3	4.7	6.5
(For CO) Deviation of the display reading at 40deg.C with respect to the average of the three display readings obtained at 20deg.C. (%) (For zero) Deviation of the display reading in zero at 40deg.C to measurement range (300ppm) <b>* With temperature compensation</b>	0	0.3	0.1	0.0	0.5	0.3	0.7	0.3	0.5	0.2	0.5	0.4	0.4
	30	-2.3	-6.0	-5.7	-1.2	-3.3	-1.5	-7.5	-1.9	-4.6	0.2	-0.1	0.5
	60	-4.1	-4.4	-4.3	-4.3	-2.0	-1.6	-3.7	-3.8	-3.7	-1.0	-2.1	-1.2
	180	-2.4	-3.1	-2.5	-2.6	-1.8	-1.7	-2.8	-2.6	-1.7	-2.1	-1.0	-2.4
	300	-2.2	-3.2	-2.5	-2.9	-2.6	-2.4	-3.1	-2.7	-2.9	-2.3	-1.8	-2.4

\* Compensation table is shown in Appendix 1

## 6.7 Humidity

### Requirement

The deviation of the indications at 15%RH and 85%RH with respect to 50%RH for standard test gas shall not exceed  $\pm 10\%$  of measurement range.

The deviation of the indications at 15%RH and 85%RH with respect to 50%RH for clean air shall not exceed  $\pm 3\%$  of measurement range.

### Measurement condition

Sample qty: 12pcs. Test gas: CO@ 30, 60, 180, 300ppm

### Test procedure

40°C/15%RH >> 40°C/50%RH >> 40°C/85%RH (stabilizing time: 90min.)

	Conc. (ppm)	Sample number											
		No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12
Display reading at 40deg.C/15% (39.5deg.C/15%)	0	1.7	-0.2	0.0	1.4	0.6	2.3	0.9	1.5	0.7	1.9	1.7	2.2
	30	28.3	27.5	27.5	27.9	27.7	28.8	28.3	29.1	28.2	27.2	29.1	28.7
	60	57.1	55.2	55.7	56.2	54.9	58.0	56.2	55.9	56.8	57.4	54.6	55.6
	180	173.8	172.8	172.9	171.5	171.8	173.0	171.7	171.9	171.1	172.7	170.8	172.8
	<b>*With temperature compensation</b>	300	290.5	290.2	288.8	286.9	288.5	289.6	285.4	287.9	286.8	287.9	286.2
Display reading at 40deg.C/50% (40.2deg.C/49%)	0	4.1	-0.5	-0.2	0.9	1.5	3.0	1.4	6.6	0.7	3.3	1.3	1.8
	30	30.1	29.0	28.5	29.3	29.6	30.1	28.6	29.9	29.5	30.2	29.4	30.2
	60	58.4	57.6	57.4	57.4	57.4	58.1	57.1	58.0	57.0	58.2	57.1	58.0
	180	177.5	176.3	175.9	175.8	176.4	178.1	176.7	177.6	176.2	179.1	174.2	176.5
	<b>*With temperature compensation</b>	300	295.2	292.2	294.0	289.9	293.5	299.6	291.9	293.0	292.9	293.8	293.5
Display reading at 40deg.C/80% (39.5deg.C/85%)	0	4.3	2.3	2.3	3.2	2.9	4.8	3.7	4.7	2.9	5.4	2.5	4.9
	30	32.9	31.7	31.7	32.6	32.0	33.6	32.3	32.9	31.7	33.9	32.1	33.4
	60	62.9	62.0	61.0	61.6	62.0	63.3	62.2	64.1	61.6	64.2	60.6	62.4
	180	181.6	179.3	179.4	179.5	180.6	182.4	179.8	181.6	180.4	185.5	178.1	180.4
	<b>*With temperature compensation</b>	300	298.6	296.3	296.4	294.8	295.8	297.4	294.2	295.7	293.9	296.0	294.0

(Without humidity compensation)



## ● 6.7 Humidity

### Test results

The deviation of display readings at 15%RH and 85%RH with respect to 50%RH were within the required specification (without humidity compensation).

	Conc. (ppm)	Sample number											
		No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12
(For CO) Deviation of the display reading at 15%RH with respect to the display readings obtained at 50%RH (For zero) Deviation of the display reading in zero at 15%RH to measurement range (300ppm) <b>*With temp. compensation</b>	0	0.6	-0.1	0.0	0.5	0.2	0.8	0.3	0.5	0.2	0.6	0.6	0.7
	30	-0.6	-0.5	-0.3	-0.5	-0.6	-0.4	-0.1	-0.3	-0.4	-1.0	-0.1	-0.5
	60	-0.4	-0.8	-0.6	-0.4	-0.8	0.0	-0.3	-0.7	0.0	-0.3	-0.8	-0.8
	180	-1.2	-1.2	-1.0	-1.4	-1.5	-1.7	-1.6	-1.9	-1.7	-2.1	-1.1	-1.2
	300	-1.6	-0.7	-1.8	-1.0	-1.7	-3.3	-2.2	-1.7	-2.0	-2.0	-2.4	-1.3
Deviation of the display reading at 85%RH with respect to the display readings obtained at 50%RH (For zero) Deviation of the display reading in zero at 85%RH to measurement range (300ppm) <b>*With temp. compensation</b>	0	1.4	0.8	0.8	1.1	1.0	1.6	1.2	1.6	1.0	1.8	0.8	1.6
	30	0.9	0.9	1.1	1.1	0.8	1.2	1.2	1.0	0.7	1.2	0.9	1.1
	60	1.5	1.5	1.2	1.4	1.5	1.7	1.7	2.0	1.6	2.0	1.2	1.5
	180	1.4	1.0	1.2	1.2	1.4	1.4	1.0	1.3	1.4	2.1	1.3	1.3
	300	1.1	1.4	0.8	1.6	0.8	-0.7	0.8	0.9	0.3	0.7	0.2	1.1

(without humidity compensation)

## ● 6.10 Interfering gases

### Requirement

The sensitivity to hexane and CO<sub>2</sub> shall not exceed the limits specified in Table 8

<Table 8> Exposed to each gas for 10 min.

- CO 180ppm 100%
- Hexane 100ppm <10%
- CO<sub>2</sub> 5000ppm <0.2%

### Measurement condition

Sample qty: 12pcs. Test gas: CO 180ppm, Hexane 100ppm, CO<sub>2</sub> 5000ppm

### Test results

The sensitivity to hexane and CO<sub>2</sub> were within the specified limits

Target gas	Interfering gas		
	CO 180ppm	Hexane 100ppm	CO <sub>2</sub> 5000ppm
I <sub>out</sub> [μA]	0.2767	0.0003	0.0000
[%]	100	0	0

## 6.11 Recovery from high gas concentrations

### Requirement

The indications for standard test gas after exposure to 3000ppm CO shall differ by no more than  $\pm 10\%$  from the indications before the test and clean air indications shall not exceed  $\pm 3\%$  of the measuring range

### Measurement condition

Sample qty: 12pcs. Test gas: CO 180ppm, 3000ppm (20°C/65%RH)

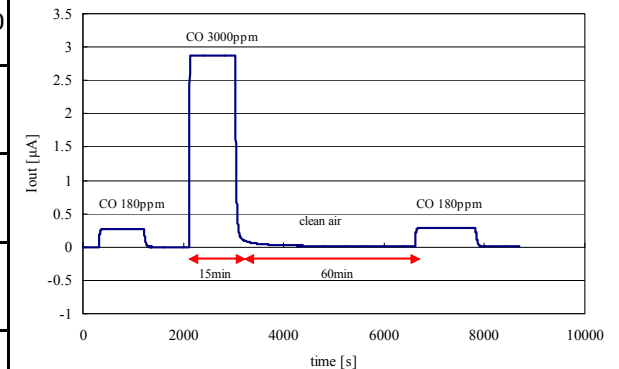
### Test procedure

CO 180ppm (10min.) >> CO 3000ppm (15min.) >> Clean air (60min.) >> CO 180ppm (15min.)

### Test results

The deviation of display readings was within the required specification

	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12
Display reading at 180ppm before exposure 3000ppm CO (ppm)	180	180	180	180	180	180	180	180	180	180	180	180
Display reading in clean air after exposure 3000ppm CO (ppm)	1.9	2.7	1.0	3.3	2.1	2.8	2.6	2.6	2.5	2.0	2.1	2.7
Display reading at 180ppm after exposure 3000ppm CO (ppm)	184.3	183.5	182.0	186.9	184.6	182.5	183.1	183.5	186.0	184.7	184.6	186.0
Deviation of display reading in clean air after exposure 3000ppm CO (%)	0.6	0.9	0.3	1.1	0.7	0.9	0.9	0.9	0.8	0.7	0.7	0.9
Deviation of display reading at 180ppm CO after exposure 3000ppm CO (%)	2.4	1.9	1.1	3.8	2.6	1.4	1.7	2.0	3.3	2.6	2.5	3.3



## ● 6.14 Response time

### Requirement

The response time ( $t_{90}$ ) shall not exceed 1 min.

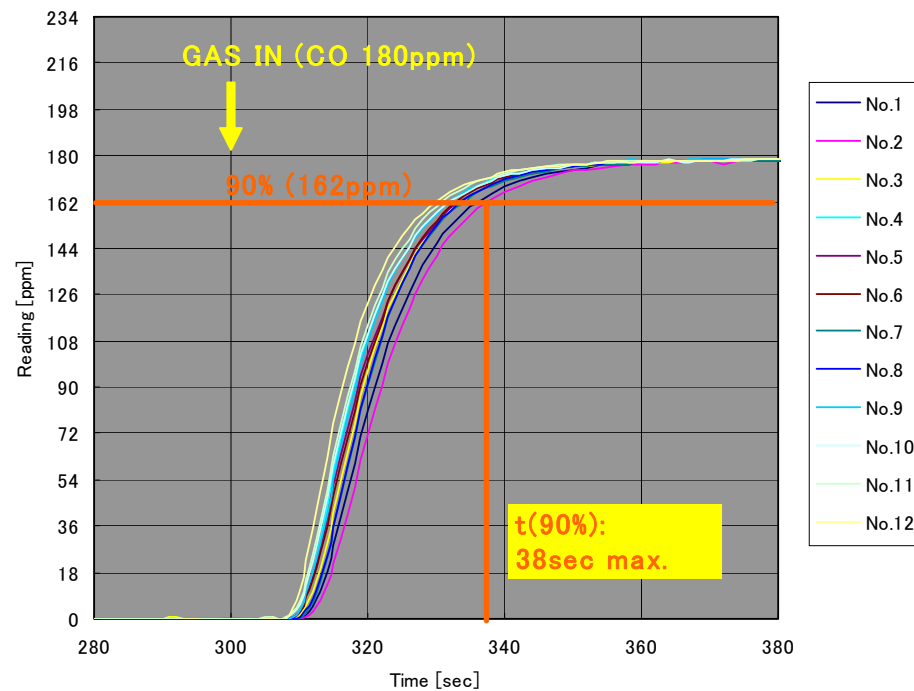
### Measurement condition

Sample qty: 12pcs Test gas: CO 180ppm (20°C/65%RH)

(“Reading” value was calculated based on the sensitivity slope between 0~180ppm )

### Test results

Response time ( $t_{90}$ ) for all samples was well within the requirement (*longest response was 38 sec.*)



## ● 6.16 Long-term stability

### Requirement

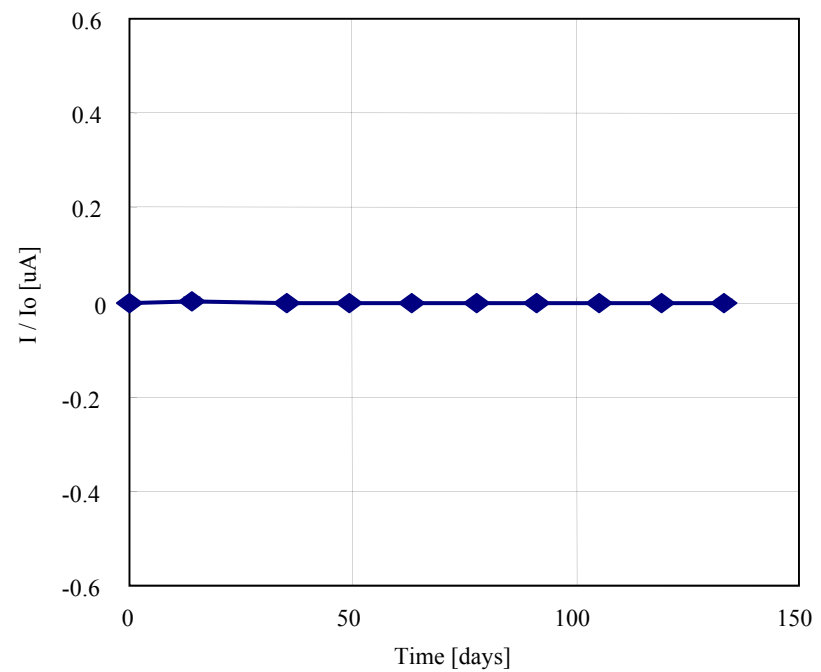
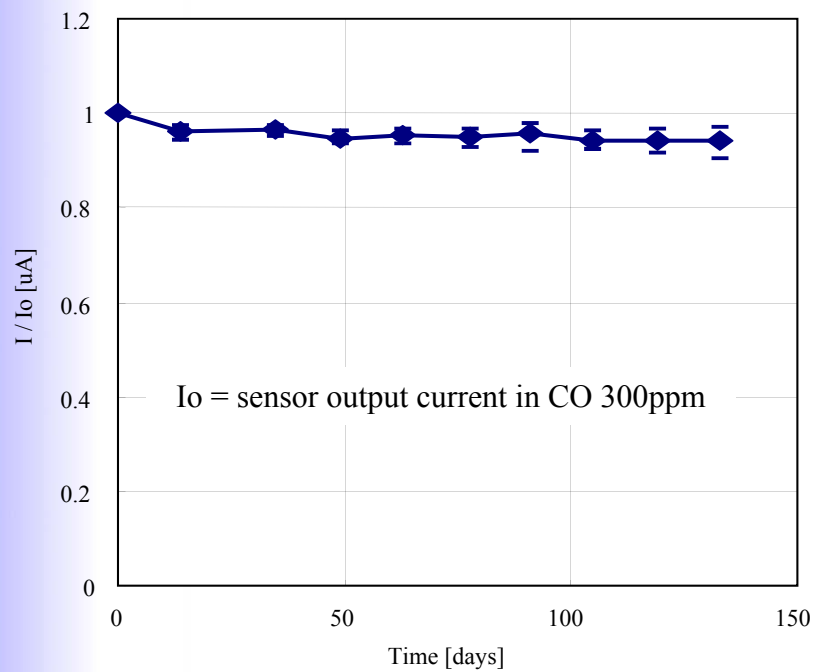
The deviation of the initial indications for the standard test gases with respect to the final indications at the end of a two-month period shall not exceed  $\pm 10\%$  of the initial measured values. For clean air, the deviation shall not exceed  $\pm 3\%$  of the measurement value

### Measurement condition

Sample qty: 12pcs Test gas :CO 300ppm (20°C/65%RH)

### Test results

The deviation of sensor output in standard test gases and clean air were within the required specification



## ● Conclusion

FIGARO

Test items		pass or fail
6.2	Un powered storage	○
6.3	Linearity	○
6.5	Repeatability	○
6.6	Temperature	○*
6.7	Humidity	○
6.10	Interfering gases	○
6.11	Recovery	○
6.14	Response time	○
6.16	Long-term stability	○

\* after temperature compensation

### **Final conclusion:**

**Testing based on EN50545-1 requirements has confirmed that TGS5042 can meet the performance requirements of EN50545-1.**

## Appendix 1

Temperature compensation coefficients  
(from “TGS5042 Application Notes” )

Temp. (°C)	CF (I/Io)	Temp. (°C)	CF (I/Io)	Temp. (°C)	CF (I/Io)
-40	0.453	0	0.844	40	1.105
-39	0.463	1	0.852	41	1.109
-38	0.473	2	0.861	42	1.112
-37	0.483	3	0.870	43	1.115
-36	0.493	4	0.878	44	1.118
-35	0.503	5	0.887	45	1.121
-34	0.513	6	0.895	46	1.124
-33	0.523	7	0.903	47	1.126
-32	0.534	8	0.911	48	1.128
-31	0.544	9	0.919	49	1.130
-30	0.554	10	0.927	50	1.132
-29	0.564	11	0.935	51	1.134
-28	0.574	12	0.943	52	1.135
-27	0.584	13	0.950	53	1.136
-26	0.594	14	0.958	54	1.137
-25	0.605	15	0.965	55	1.138
-24	0.615	16	0.972	56	1.139
-23	0.625	17	0.980	57	1.139
-22	0.635	18	0.987	58	1.139
-21	0.645	19	0.994	59	1.139
-20	0.655	20	1.000	60	1.139
-19	0.664	21	1.007	61	1.139
-18	0.674	22	1.013	62	1.139
-17	0.684	23	1.020	63	1.139
-16	0.694	24	1.026	64	1.139
-15	0.704	25	1.032	65	1.139
-14	0.714	26	1.038	66	1.139
-13	0.723	27	1.044	67	1.139
-12	0.733	28	1.050	68	1.139
-11	0.742	29	1.055	69	1.139
-10	0.752	30	1.060	70	1.139
-9	0.761	31	1.066		
-8	0.771	32	1.071		
-7	0.780	33	1.076		
-6	0.789	34	1.080		
-5	0.799	35	1.085		
-4	0.808	36	1.089		
-3	0.817	37	1.094		
-2	0.826	38	1.098		
-1	0.835	39	1.101		

## Appendix 2

Long term stability test of TGS5042  
(in room temperature and humidity)

