

# SP-220

## Combustible handheld gas leakage detector

The SP-220 gas leakage detector is a simple to operate unit with high sensitivity to a variety of gases. The SC version (SP-220SC) is able to detect super-toxic, combustible and Freon based gases - a total of 40 altogether! An alternative variant exists specifically for fumigation type gases (SP220).



### Features

- ✓ Easy grip & robust structure
- ✓ Target gas selectable from a list of 40 gases (Type SC) and 7 gases (Type FUM)
- ✓ Calibration to only one gas (PH<sub>3</sub>) is needed
- ✓ Data logging / Snapshot logging
- ✓ High speed, low concentration readings
- ✓ Sensor detects as low as 0.1ppm
- ✓ Up to 12 hours of continuous operation
- ✓ Impact-resistant rubber protective over-mold
- ✓ IP-55
- ✓ Two (2) visual LED alarms
- ✓ LED torch light

## Technical specifications

SP-220 FUM & SP-220 SC		
Model	SP-220 TYPE FUM (Fumigation)	SP-220 TYPE SC (Toxic, Combustible, CFC)
Target gas	Refer to the gas list	
Detection principle	Hot-wire semiconductor method	
Sensor	SH-8662	
Measuring range	Depends on target gas	
Alarm set point	Depends on target gas	
Accuracy	Displays 0.1 ppm-bar when applied PH3 0.3 ppm.	
Alarm pattern	Gas alarm: Gas concentration reached or over the setting point. Trouble alarm: Sensor connection / breaking, Low battery, Low flow, Circuit error, Calibration	
Alarm method	Non-latching	
Display of alarm	Gas alarm: Flashing LED, Buzzer Trouble alarm: Flashing LED, Buzzer, Display of error message	
Alarm delay time	0 sec.	
Sampling method	Sample draw	
Response time	10 sec.: Time to reach 0.1 ppm when applied PH3 0.3 ppm.	
Output signal	IrDA	
Switch	AIR MODE POWER	
Display device	LCD	
Display contents	Gas name, Gas concentration, Time, Battery, Pilot indicator, Pump driving indicator	
Power source	2 AA dry cell batteries	
Continuous operation	More than 12 hrs.	
Operating temp. & humidity	-20~+55°C (-4°F~+131°F), 0~95%RH(Non-condensing)	
Dimension & weight	200mm(H) x 43mm(D) x 47mm(W) (Taper nozzle not included), 215g	
Ingress proof	IP 55	
Function	Manual LCD backlight (Automatically ON when alarming), Peak value, Snap logging, Time, Cal alarm	

# Technical specifications

SP-220 M, L & ML			
Model	SP-220(TYPE M)	SP-220(TYPE L)	SP-220(TYPE ML)
Detection principle	Hot-wire semiconductor method		
Target gas	Town gas (switchable to LPG)	LPG (switchable to town gas)	Town-gas, LPG (switching) *2 gases are needed for calibration.
Concentration display	LCD level meter + Scale		
Measuring range	10~10000ppm		
Sample draw	Sampling method		
Alarm set point	Default: 30ppm (selectable from 10,30,150,500,2000ppm)		
Display	Operating state disp., Flow check disp., Gas concentration disp., Alarm sound disp., Operation sound disp., Battery level icon, Level meter disp., Mode disp., Gas name and message disp.		
Response time	3 sec.		
Gas alarm display	Flashing LED, Buzzer		
Gas alarm method	Non-latching		
Trouble alarm	Sensor error, Low battery, Low flow, System error, Calibration error, Clock error, Pump error		
Trouble alarm display	Flashing LED, Buzzer, Trouble message		
Trouble alarm method	Latching		
Power source	2 AA dry cell batteries		
Continuous operation	Approx. 13 hrs.		
Operating temperature	-20~55°C (-4 °F-131°F)		
Operating humidity	0-95%RH (Non-condensing)		
Safety design	Intrinsically safety ExialICT4		
Approvals	Ex-proof: IECEx, ATEX / Other: CE marking		
Ingress proof	IP55		
Dimension	200(H) ×43(W) ×39(D)mm (Taper nozzle not included)		
Weight	215g (Dry cell batteries not included)		

# Target Gas for SP-220

No.	Gas name	Display	Concentration	
			Display 1 (ppm)	Display 2 (ppm)
1	Phosphine	PH <sub>3</sub>	0.1	2
2	Acetone	C <sub>3</sub> H <sub>6</sub> O	1	10
3	Arsine	AsH <sub>3</sub>	0.2	-
4	Ammonia	NH <sub>3</sub>	10	-
5	Isobutane	i-C <sub>4</sub> H <sub>10</sub>	1	10
6	Isopropyl alcohol	IPA	1	10
7	Carbon monoxide	CO	10	30
8	Ethyl alcohol	C <sub>2</sub> H <sub>5</sub> OH	1	10
9	Ethylene	C <sub>2</sub> H <sub>4</sub>	1	10
10	Vinyl chloride	VCM	1	-
11	Methyl chloride	CH <sub>3</sub> CL	1	10
12	Xylene	C <sub>8</sub> H <sub>10</sub>	1	10
13	Ethylene oxide	EO	1	10
14	Silane	SiH <sub>4</sub>	0.5	-
15	Methyl bromide	CH <sub>3</sub> Br	1	20
16	Hydrogen	H <sub>2</sub>	1	10
17	Trichloroethylene	C <sub>2</sub> HCL <sub>3</sub>	10	-
18	Toluene	C <sub>7</sub> H <sub>8</sub>	1	10
19	1,2-Dichloroethane	EDC	1	10
20	Sulfur dioxide	SO <sub>2</sub>	1	-
21	Propane	C <sub>3</sub> H <sub>8</sub>	5	20
22	R-134a	R-134a	50	250
23	R-22	R-22	10	50
24	R-32	R-32	10	50
25	n-hexane	n-C <sub>6</sub> H <sub>14</sub>	10	50
26	Benzene	C <sub>6</sub> H <sub>6</sub>	0.5	10
27	Formaldehyde	HCHO	10	50
28	Methane	CH <sub>4</sub>	1	20
29	Methyl alcohol	CH <sub>3</sub> OH	1	10
30	Methyl ethyl ketone	MEK	1	10
31	Hydrogen sulfide	H <sub>2</sub> S	0.1	-
32	Diborane	B <sub>2</sub> H <sub>6</sub>	0.1	-
33	Germane	GeH <sub>4</sub>	0.2	-
34	Hydrogen bromide	HBr	10	-
35	Hydrogen chloride	HCL	10	-
36	R-407C	R-407C	10	50
37	Hydrogen selenide	H <sub>2</sub> Se	0.5	-
38	R-410A	R-410A	10	50
39	R-404A	R-404A	10	50
40	2,3,3,3-Tetrafluoropropene	CH <sub>2</sub> C <sub>2</sub> F <sub>4</sub>	10	30

Note 1: Means there is sensitivity, but no value can be given.

Note 2: Alarm accuracy, response time etc. are confirmed with calibration gas (PH3)

Note 3: The measuring results of the gas selection are intended for guidance only. The most accurate measurement is for calibration gas (PH3).

No.	Gas name	Display	Concentration		
			Display 1 (ppm)	Display 2 (ppm)	Display 3 (ppm)
1	Phosphine	PH <sub>3</sub>	0.1	2	4.05
2	Methyl bromide	CH <sub>3</sub> Br	1	20	100
3	Carbon disulfide	CS <sub>2</sub>	0.1	-	-
4	Methyl iodide	CH <sub>3</sub> I	1	10	30
5	Hydrogen cyanide	HCN	1	-	-
6	Sulfuryl fluoride	SO <sub>2</sub> F <sub>2</sub>	-	-	800
7	Ethylene dibromide	C <sub>2</sub> H <sub>4</sub> Br <sub>2</sub>	1	10	30

# The Bruusgaard System



TBS is a unique turnkey portable gas detection solution, giving you increased safety and substantial cost savings through standardised instruments, routines, training and procurement.

## Logistic Support

At any given time we know the status of all vessels and sites covered by The Bruusgaard System. We consolidate all shipments and make sure you have everything you need on board until next scheduled delivery. This results in fewer shipments and substantial savings!

- Year round follow up of instruments, spares and consumables
- Handling of all shipments & logistics
- Annual reports per vessel including budgeting



## Safety

QA – strict routines and logging

- Crew are able to use instruments and follow routines correctly
- Instruments are in proper working condition at all times
- Instruments are calibrated at correct intervals
- Sensors and other items are replaced at correct intervals
- Usage of instruments is logged, including abnormal observations
- Traceability – instrument history and usage
- Routines and procedures can merge into the overall QA-system

Effective and proven training is an integrated part of The Bruusgaard System.

## Instruments

All the equipment used for gas detection and calibration is placed in a custom-made wall cabinet. Including Log & Instruction Manual, which are crucial to maintaining the safety integrity.

- Standardised vessel specific gas detector solutions
- Total solutions including all equipment and routines necessary for efficient and safe use, storage and maintenance

## Cost Savings

Some of our customers have been able to go from 8 to 10 suppliers down to 1 – translating into cost savings of up to 40-50%. For one vessel, this could be thousands of dollars annually, and for a whole fleet, the cost savings can be dramatic. This is achieved through:

- One contact for worldwide supply of spares & gases
- All service and calibration can be done on site.
- Reductions of instrument types from 10-12 to 2-3

Reduced maintenance costs through:

- On board calibration
- Fewer instruments on board
- No need for spares on board
- One PO per year
- Increased safety
- Less use of administrative time