1 Point type Gas Detection & Alarm System

NV-100 series

Small and compact, yet Multi-functions

Features
Highly reliable sensors - more than 40 years of experience in sensor manufacturing
Space saved indicator / alarm unit design
Easy to read bar-graphic LCD indicator with backlight.
Protection for false alarm (with alarm delay, zero suppression function)
Easy to operate multi-maintenance functions (Auto-zero, simple span adjustment, etc.)
With 4 relays for direct control of external device, 4-20mA analog output.
With self-diagnostic function
With backup power source (Option)

Combustible gases

Toxic gases
Semiconductor manufacturing gases

O₂
O₂ concentration
Over 40 years of experience in sensor manufacturing

Easy to read & operate multi-functional Indicator / alarm unit

Gas concentration indicating bar-graph meter

This LCD bar-graph meter with backlight indicates gas concentration and preset alarm points. Peak value continues to blink even after reading value goes down after alarm.

Power lamp
It is green during normal operation and orange when sensor failure. It blinks green when equipment is turned on and also after failure has been taken care to show that unit is warming up.

Alarm lamp (2 stage type)
Red lamp blinks to indicate gas leakages and it lights up when buzzer stops.

Reset key
When this key is pressed after buzzer stops and reading lowers, alarm lamp and peak hold go off. They do not go off when key is pressed before buzzer stops.

Buzzer stop key
When this key is pressed, alarm sound stops and alarm lamp lights up.

Backup lamp
It is off in normal state and it blinks red during power failure (Equipment with optional backup power source only)

2nd stage alarm preset value
Use these keys to change the preset alarm value. Press (+) to increase set value and press (-) to decrease it.

1st stage alarm preset value

Message window
Displays messages during operation of functions

Indicator / Alarm unit

When gas concentration around the gas detector head becomes high and reading of the gas concentration indicating bar-graph exceeds the first preset alarm value, the first alarm lamp blinks and alarm sound (four short beeps) is heard.

When the reading exceeds the second preset alarm value, the second alarm lamp blinks. At the same time, the peak hold value blinks on the LCD bar-graph meter.

The NV-100 series combine multi-functional indicator / alarm units and state-of-the-art sensors into an easy to use, highly reliable gas detection systems.

**Indicator / alarm unit**

**System Configuration**

<table>
<thead>
<tr>
<th>Type</th>
<th>Detection principle</th>
<th>Explosion proof</th>
<th>Cable</th>
<th>Gases to be detected</th>
</tr>
</thead>
<tbody>
<tr>
<td>KD-5A-N</td>
<td>Catalytic combustion type</td>
<td>d3aG4</td>
<td>CVV3 cores</td>
<td>Combustible</td>
</tr>
<tr>
<td>KD-5B-N</td>
<td>Catalytic combustion type</td>
<td>d2G4</td>
<td>CVV6 cores</td>
<td>Combustible</td>
</tr>
<tr>
<td>PE-2DC</td>
<td>Hot-wire semiconductor type</td>
<td>d2G4</td>
<td>CVV6 cores</td>
<td>Combustible</td>
</tr>
</tbody>
</table>

**Wiring**

- NV-100C / NV-100H
  - to Power source AC 100V / 200V / DC 24V
  - to Ground
  - Suction type detector head: PE-2DC
  - Diffusion type detector head: KD-5A / KD-5B
  - Diffusion type detector head: KD-5A / KD-5B
  - Diffusion type detector head: KD-5A / KD-5B
  - Buzzer contact (NC) / (NO) (Alarm output: 4-20mA)

- NV-100D
  - to Power source AC 100V / 200V / DC 24V
  - to Ground
  - Suction type detector head: PS-2DP, PS-20P
  - Diffusion type detector head: KD-2DC
  - Diffusion type detector head: KD-2DC
  - Diffusion type detector head: KD-2DC
  - Buzzer contact (NC) / (NO) (Alarm output: 4-20mA)

**For Oxygen** = NV-100S

- KS-2O
  - Galvanic cell type
  - i3mG5
  - CVV2 cores
  - for Oxygen CVV2 cores, for oxygen CVV2 cores

- PS-20P
  - Galvanic cell type
  - N/A
  - for Oxygen CVV2 cores, for oxygen CVV2 cores

- KS-2D
  - Controlled potential electrolysis type
  - i3mG5
  - CVV2 cores
  - Toxic semiconductor manufacturing gases

- PS-2DP
  - Controlled potential electrolysis type
  - N/A
  - for Pump CVV2 cores, for signal CVV2 cores
  - Toxic semiconductor manufacturing gases
Specifications for indicator / alarm unit

<table>
<thead>
<tr>
<th>Model</th>
<th>NV-100C</th>
<th>NV-100H</th>
<th>NV-100D</th>
<th>NV-100S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection principle</td>
<td>Catalytic combustion type</td>
<td>Hot-wire semiconductor type</td>
<td>Controlled potential electrolysis type</td>
<td>Galvanic cell type</td>
</tr>
<tr>
<td>Gases to be detected</td>
<td>Combustible gases (LPG, Methane, etc.)</td>
<td>Toxic gases, Semiconductor manufacturing gases</td>
<td>Oxygen (operating, leakage)</td>
<td>Oxygen (leakage)</td>
</tr>
<tr>
<td>Measuring range</td>
<td>0~100%LEL</td>
<td>As per specification</td>
<td>As per specification</td>
<td>For deficiency: 0<del>25%vol For leakage: 0</del>50%vol</td>
</tr>
<tr>
<td>Indicator unit</td>
<td>LCD bar-graph meter with backlight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alarm accuracy</td>
<td>Within ±25% of the preset alarm value</td>
<td>Within ±20% of the preset alarm value</td>
<td>Within ±15% of the preset alarm value</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0~40°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power source</td>
<td>AC100V-240V 50/60Hz (standard) / DC24V (option)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power consumption</td>
<td>Diffusion type: 12VA / 17VA (with a backup power source) / Suction type: 4VA per unit to be added.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alarm indication</td>
<td>First alarm: First Alarm lamp blinks red and a buzzer is heard. Second alarm: First and second Alarm lamps blink red and a buzzer is heard.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble indication</td>
<td>Power lamp rights up orange and the content of the failure is indicated.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External output</td>
<td>External alarm output - 1st alarm: No voltage 0A contact, 2nd alarm: No voltage 0A contact, Trouble alarm: No voltage 0A contact, Buzzer: No voltage 1A contact (Contact capacity: AC100V 2A load resistance)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analog output</td>
<td>0~20mA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External dimensions</td>
<td>Without backup power source: W130 x H234 x D110mm approx. 1.5kg With backup power source: W130 x H234 x D110mm approx. 3.0kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specifications for Gas Detector Head for Combustible Gases

<table>
<thead>
<tr>
<th>Model</th>
<th>KD-SA-N</th>
<th>KD-SB-N</th>
<th>PE-2DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling method</td>
<td>Diffusion type</td>
<td>Suction type</td>
<td></td>
</tr>
<tr>
<td>Explosion proof construction</td>
<td>d3aG4</td>
<td>d2Ga</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10°C~60°C</td>
<td>-10°C~40°C</td>
<td></td>
</tr>
<tr>
<td>Applicable conduit</td>
<td>G22</td>
<td>Pressure tight packing type</td>
<td></td>
</tr>
<tr>
<td>Max. cable length</td>
<td>Less than 600m when used 1.25mm2 cable (Resistance less than 10Ω)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 1.2kg</td>
<td>approx. 1.0kg</td>
<td>approx. 3.0kg</td>
</tr>
</tbody>
</table>

Specifications for Gas Detector Head for Toxic Gases, Oxygen

<table>
<thead>
<tr>
<th>Model</th>
<th>KS-2D</th>
<th>PS-2DP</th>
<th>KS-2D</th>
<th>PS-2DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling method</td>
<td>Diffusion type</td>
<td>Suction type</td>
<td>Diffusion type</td>
<td>Suction type</td>
</tr>
<tr>
<td>Explosion proof construction</td>
<td>Intrinsically safe construction with zener barrier (Option)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C~40°C (30%~80%RH)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicable conduit</td>
<td>G16</td>
<td>Box connector type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. cable length</td>
<td>Less than 600m when used 1.25mm2 cable (Resistance less than 10Ω)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 1.5kg</td>
<td>approx. 5.0kg</td>
<td>approx. 1.0kg</td>
<td>approx. 5.0kg</td>
</tr>
</tbody>
</table>

External dimensions (Indicator / alarm unit)

With backup power source

Without backup power source

CAUTION

Please read the instruction manual before using to ensure safe operation
Be sure to use only the power source and voltage indicated.

NEW COSMOS ELECTRIC CO., LTD.
Head Office: 2-5-4, Mita-ku, Osaka 530-0036, Japan
Tel: +81-6-6309-1505 Fax: +81-6-6308-8129
Tokyo Office: 2-6-2, Hamamatsucho, Minato-ku, Tokyo 105-0013, Japan
Tel: +81-3-5403-2715 Fax: +81-3-5403-2710
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