Combustible Gas Detection and Control System

DESCRIPTION
Stand-alone, wall-mounted, single-point analog electronic control system for combustible gas detection, control and alarm.

APPLICATION
To detect and control levels of combustible gases and vapors in commercial applications such as boiler rooms (i.e. Methane), dry cell battery rooms (i.e. Hydrogen), gas/fuel spill locations (i.e. Gasoline, Hexane), laboratories and industries (i.e. Butane, Propane), etc. The controller can interface via binary outputs and a 4-20 mA signal with any compatible analog electronic control, DDC/PLC control or automation system.

FEATURES
- Continuous monitoring
- Four (4) relay outputs:
  - Two-stage control
  - One (1) remote alarm
  - One (1) remote fail-safe
- One (1) 4-20 mA output
- Catalytic bead (pellistor) sensor, long-life
- RF/EMI protected
- Easy plug-in sensor
- Built-in horn
- Optional package:
  - Digital display
  - LED status indicators
  - Test/Reset push buttons
- Power supply fused
- Lockable enclosure
- NEMA 4 w/splash guard
- Easy maintenance

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Electrical</th>
<th>120 VAC, -10%/+20%, 50/60 Hz or 24 VAC/VDC, 1.6 A fused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power consumption</td>
<td>0.6 A (15 VA), max.</td>
</tr>
<tr>
<td>Sensor Performance</td>
<td></td>
</tr>
<tr>
<td>Gas detected</td>
<td>Combustible gases and vapors (refer to table)</td>
</tr>
<tr>
<td>Sensor element</td>
<td>Catalytic bead (pellistor), diffusion</td>
</tr>
<tr>
<td>Range</td>
<td>0-100% LEL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Combustible Gases/Vapors</th>
<th>% v/v*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>2.6</td>
</tr>
<tr>
<td>Acetylene</td>
<td>2.4</td>
</tr>
<tr>
<td>Cyclohexane</td>
<td>1.3</td>
</tr>
<tr>
<td>Ethane</td>
<td>3.3</td>
</tr>
<tr>
<td>Ethyl Acetate</td>
<td>2.2</td>
</tr>
<tr>
<td>Ethyl Alcohol</td>
<td>3.3</td>
</tr>
<tr>
<td>Gasoline</td>
<td>1.4</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>4.0</td>
</tr>
<tr>
<td>Isopropyl Alcohol</td>
<td>2.2</td>
</tr>
<tr>
<td>JP8</td>
<td>0.9</td>
</tr>
<tr>
<td>Methane</td>
<td>5.0</td>
</tr>
<tr>
<td>Methanol</td>
<td>6.7</td>
</tr>
<tr>
<td>n-Butane</td>
<td>1.8</td>
</tr>
<tr>
<td>n-Hexane</td>
<td>1.2</td>
</tr>
<tr>
<td>n-Octane</td>
<td>0.95</td>
</tr>
<tr>
<td>n-Pentane</td>
<td>1.4</td>
</tr>
<tr>
<td>Propane</td>
<td>2.1</td>
</tr>
</tbody>
</table>

*% v/v = 100% LEL
LEL = Lower Explosive Limit
v/v = Volume by Volume

Detection limit: 0.5% LEL
Accuracy: ± 1% of reading
Repeatability: ± 2% of reading
Long term zero point drift: < 5% LEL methane/year
Long term sensitivity drift: < 2% LEL methane/month
Response time: t< 10 sec. methane
Sensor life expectancy: 3 yrs., normal operating environ.
Sensor coverage: Dependent upon target gas

Installation Location
Mounting height: Dependent upon target gas

PolyGard
SPC-3300

Combustible Gases/Vapors

Acetone (CH₃)₂CO
Acetylene C₂H₂
Cyclohexane C₆H₁₂
Ethane C₂H₆
Ethyl Acetate CH₃COOC₂H₅
Ethyl Alcohol C₂H₅OH
Gasoline C₆H₁₄
Hydrogen H₂
Isopropyl Alcohol (CH₃)₂CHOH
JP8 -
Methane CH₄
Methanol CH₃OH
n-Butane C₄H₁₀
n-Hexane C₆H₁₄
n-Octane C₈H₁₈
n-Pentane C₅H₁₂
Propane C₃H₈

x% v/v = 100% LEL
LEL = Lower Explosive Limit
v/v = Volume by Volume

No relays 1K1 & 1K2 included on “CFT” version

Phone (858) 578-7887 & (888) GO INTEC Fax (858) 578-4633 & (888) FX INTEC INTEC Controls, Inc., P.O. Box 12506, La Jolla, CA 92039 www.inteccontrols.com Printed in USA 041220

Specification subject to change without notice.
SPC-3300

SPECIFICATIONS

Type of Control (cont…)
- unit w/o display
  Horn reset push button, built-in

Optional Display, LED Indicators and Test/Reset Push Buttons
- Digital display
  3.5 digits, %LEL reading
- LED status indicators
  - power/operating LED
    Green = power on
    Red = failure
  - alarm LED
    Orange = low alarm
    Red = high alarm

Test, alarm, acknowledgment, and reset push buttons or manual reset (w/optional display), selectable
- high alarm
  LED on = is on w/high alarm
  (only w/latched relay)
- audible
  LED on = is on w/internal horn and/or relay R3 for remote alarm display

Reset buttons

Physical
- Enclosure
  Steel case
- color
  Light beige
- protection
  NEMA 4 (IP 55)
- installation
  Wall (surface) mounted

Dimensions (H x W x D)
- base
  9.06 x 8.27 x 5.60 in.
  (230 x 210 x 142 mm)
- splash guard (H x Ø)
  0.63 x 2.56 in. (16 x 65 mm)

Wire connection
- Terminal blocks, screw type for lead wire
- Wire size
  Min. 24 AWG (0.25 mm²), Max. 14 AWG (2.50 mm²)
- Weight
  8.8 lbs. (4.0 kg)

Approvals/Listings
- City of Los Angeles approval*
- CE
- EMV-Compliance 89/336/EWG
- sensor/transmitter
  City of Los Angeles approved
- relays (R1, R2)
  UL Recognized, CSA Certified, TÜV
- transformer
  UL Listed, CSA Certified

Warranty
- Two years material and workmanship
  * = Pending

Environmental
- Permissible ambient
  - working temperature
    23°F to 104°F (-5°C to 40°C)
  - storage temperature
    41°F to 104°F (5°C to 40°C)
  - humidity, continuous
    15 to 90% RH, non-condensing
  - humidity, intermitted
    0 to 99% RH, non-condensing
  - working pressure
    Atmospheric ± 10%

ORDERING INFORMATION

SPC-3300 - 0 000 US

Gases
- Acetylene C2H2
- Cyclohexane C6H12
- Ethane C2H6
- Ethyl Alcohol C2H5OH
- Ethyl Acetate CH3COOC2H5
- Gasoline C6H6
- n-Hexane C6H14
- Hydrogen H2
- Isopropyl Alcohol (CH3)2CHOH
- Methanol CH3OH
- Methane CH4
- n-Butane C4H10
- n-Octane C8H18
- n-Pentane C5H12
- Propane C3H8
- Acetone (CH3)2CO
- JP8 -

Digital Display
- No display
- With digital display, LED indicators and test/reset push buttons

Version
- CFT
- 4-20 mA output, no relays 1K1 and 1K2

Various options available on request.

No relays 1K1 & 1K2 included on “CFT” version

* = Pending

INTEC CONTROLS

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FIELD WIRING CONFIGURATION

“CFT” version (relays 1K1 & 1K2 not included), contact positions for R1 low alarm, R2 high alarm, R3 remote strobe/horn alarm and R4 fail-safe

- Power off, as drawn
- Power on and no alarm condition
  • R1, contacts 1-2 open
  • R2, contacts 3-5 closed, 4-5 open
  • R3, contacts 6-7 open
  • R4, contacts 8-9 open
- Power on and alarm condition
  • R1, contacts 1-2 closed
  • R2, contacts 3-5 open, 4-5 closed
  • R3, contacts 6-7 closed
  • R4, contacts 8-9 open
- Power loss or system failure
  • R4, contacts 8-9 closed

Low alarm level
standard DPDT relay
"1K1** (R1)"

High alarm level
standard DPDT relay
"1K2** (R2)"

4-20 mA analog output signal
to remote controller or BAS

Note: 4-20 mA signal is internally powered. DO NOT supply power to 4-20 mA signal or common.

Relay contact positions 1K1** (R1), 1K2** (R2), R3 and R4:
- Power off, as drawn
- Power on and no alarm condition, as drawn, and R4 is open
- Power on and alarm condition for 1K1** (R1), 1K2** (R2) and R3, contacts are closed between common and NO, and R4 stays open
- Power loss or system failure, R4 is closed

Recommended
• Twisted, shielded wire for 4-20 mA output signal
• Grounded housing