LICO Heat Detector & Prevent a Fire Catalog 2018
Detect Heat and prevent Overheat, Fire, Explosion with custom made Industrial Heat & Fire Detectors from 60 °C - until 510 °C
Detect Over Heat before!
When there is a Fire it’s already too late...

HDL-2 & HDL-3
Protective shells
& Accessories

HDL-5

CFD-Inconel wire

HDL-6

HDL-7

HDL-4

HDL-3-XL

Connection Houses

Linear Heat Detection

Detect-a-Fire
LICO

Alarmpanel HDL

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www.prevent-a-fire.eu
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Heat Detector LICO - HDL-2 & HDL-3 with Ex ‘e’ certified Components

HDL-2 / No Ex
Overheat - & Fire Detector unit for any kind of NO Ex. applications until 135°C

Complete and ready to install Heat Detector unit consists of:
- Bimetallic temperature sensor,
- junction box, metal cable gland and wiring block assembly.
- IP66/IP67 – with european CE!
- nett weight approx. 0.6 kg / pc

HDL-3 / Ex*
Overheat - & Fire Detector unit for any kind of Ex. applications until 135°C

Complete and ready to install Heat Detector unit consists of:
- Bimetallic temperature sensor,
- Ex. Certified Components: Junction box, cable gland and wiring block assembly.
- IP66/IP67 – with european CE!
- nett weight approx. 0.6 kg / pc

Information for all HDL: (HDL = Heat Detector LICO)
Heat detector for hazardous- and industrial applications
Automatic Reset after cooling
Switching contacts hermetically sealed (IP67)
Resistant against Dust and Humidity

Heat Detector for Fire Alarm Systems
Shock-Humidity-& Temperature resistant
Different Alarm temperatures from 60°C up to 385°C

HDL-2 & HDL-3 Standard Size junction box dimensions:

<table>
<thead>
<tr>
<th></th>
<th>Outside L. (mm)</th>
<th>Outside W. (mm)</th>
<th>Inside L. (mm)</th>
<th>Inside W. (mm)</th>
<th>Height (mm)</th>
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<tr>
<td>Standard</td>
<td>75</td>
<td>80</td>
<td>63</td>
<td>52</td>
<td>57</td>
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<tr>
<td>XL</td>
<td>125</td>
<td>80</td>
<td>113</td>
<td>52</td>
<td>57</td>
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</tbody>
</table>

For bespoken, custom made boxes please contact LICO

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www.prevent-a-fire.eu
HDL-2 / No Ex: suitable until 135 °C

Ready to install Heat Detector Unit with Bimetallic, Rate of Rise, Temperature Sensor mounted in HDL-2 NO EX Junction box, with metal cable gland and high temperature wiring block assembly. Fully assembled units according to IEC standards.

In other words: Fenwal DAF Sensors mounted in Industrial-Alu Box with cable glands and high temperature wiring terminals.

- Fenwal-Switch free of Choice
- Precision Cast AISI12 (LM24) Aluminium Alloy painted epoxy polyester grey (RAL7001)
- Sealing: High temp. Silicone, Neoprene on request
- Unit up to 135°C
- 4 Ground terminals inside (others on request)
- 1 or 2 pcs of metal cable glands
- Recessed screws
- Removable lid
- IP 66/67

HDL-3 / Ex*: suitable until 135 °C

*Ready to install Heat Detector Unit with Bimetallic, Rate of Rise, Temperature Sensor mounted in ATEX & IECEx certified Junction box, with ATEX & IECEx cert. metallic cable gland and ATEX & IECEx cert., wiring block assembly. Fully assembled units according to IEC standards.

In other words: Fenwal DAF Sensors mounted in Ex certified Industrial-Alu Box with Ex certified cable glands and Ex certified, high temperature wiring terminals.

- Fenwal-Switch free of Choice
- Precision Cast AISI12 (LM24) Aluminium Alloy housing
- Sealing: High temp. Silicone, Neoprene on request
- T3 Ex certified box, up to 135°C,
- 1 Ground terminal outside, 4 inside
- 1 or 2 pcs of metal cable glands
- Recessed screws
- Removable lid
- Cabling: up to 190°C:Teflon, over 190°C:TGGT
- IP 66/67

HDL-3 XL & HDL-5 Size junction box dimensions:

<table>
<thead>
<tr>
<th></th>
<th>Outside L. (mm)</th>
<th>Outside W. (mm)</th>
<th>Inside L. (mm)</th>
<th>Inside W. (mm)</th>
<th>Height (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDL-3 XL</td>
<td>125</td>
<td>80</td>
<td>113</td>
<td>52</td>
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<tr>
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<td>120</td>
<td>122</td>
<td>104</td>
<td>106</td>
<td>80</td>
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</table>
HDL-2 & variations and applications:

**HDL-2 for No Ex Industrial Applications:**

Recommended for any kind of industrial and commercial applications where there are NO Ex requirements.

Simply, easy, very price economic heat detector unit. Designed until 130 °C applications.

Junction Box may stay at the cooler part of the installation Detect-A-Fire-Sensor with Coupling Head – double thread allows unique installation possibilities, use with Sensor 28020-003 or 28021-005 series.

Sensors are mounted with maximum torque of 27 NM and sealed with special, high temperature Loctite glue. NPT counter nuts for the Sensors are on request.

Cable glands are mounted & fixed with counter nut and sealed with special, high temperature Loctite glue.

**Standard Cable gland variations:** See on Page 24
- 20 - + 80°C with Neoprene seal, IP66/68
- 40 - +100°C with EPDM-seal, IP66/68
- 70 - +220°C with Silicone-seal, IP66/68

**Options/ Accessories:** See on Page 24
- oil-resistant mounting of Heat Detector and Cable gland
- 2nd Cable gland (Option KD)
- Serie- and EOL – End of Line Resistors

**Applications:**
- Saunas, transformer stations
- Server rooms, Ovens, Windmills
- Painting rooms and many more

**Bespoken Custom-made:**
Free Choice of Fenwal Detect-a-Fire Sensor
1 pc or 2 pc of Cable Glands,
2,4,6,8 pole or more wiring blocks,
Wiring blocks are suitable until 130 °C use,
EOL and/or Series Resistors on request
HDL-3 & HDL-3 XL variations and applications:

**HDL-3 / HDL-3-XL Ex***:

Recommended for any kind of industrial and commercial applications where there ARE Ex requirements.

Simply, easy, very price economic heat detector unit. Designed until 130 °C applications.

Junction Box may stay at the cooler part of the installation Detect-A-Fire-Sensor with Coupling Head – double thread allows unique installation possibilities, use with Sensor 28020-003 or 28021-005.

Sensors are mounted with maximum torque of 27 NM and sealed with special, high temperature Loctite glue. NPT counter nuts for the Sensors are on request.

Cable glands are mounted & fixed with counter nut and sealed with special, high temperature Loctite glue.

*Housing Ex-certified:*

- Ex II 2 GD, Ex e/ib IIC Gb, Ex tb IIIC Db IP6X*
  - 40°C /+80°C with Neoprene seal,
  - 70°C/+130°C with Silicone-seal,
  - IP66/67.
- Wiring Terminal: acc. Ex requirements

**Standard EX Cable gland variations:** See on Page 24

- 20 - +80°C with Neoprene seal, IP66/68
- 40 - +100°C with EPDM-seal, IP66/68
- 70 - +220°C with Silicone-seal, IP66/68

**Options/ Accessories:** See on Page 24

- oil-resistant mounting of Heat Detector and Cable gland
- 2. Cable gland (Option KD)
- Series und EOL – End of Line Resistors
- High temperature Silicone Sealings

**Applications:**

- Power plants, Engine rooms,
- Heating rooms, Air-filter / Duct Systems,
- Chemical plants, production lines
- Gas compressors, Factories etc.
HDL-4 variations and applications:

**HDL-4 / Ex*, suitable until 210/220 °C max**

*Ready to install Heat Detector Unit with Bimetallic, Rate of Rise, Temperature Sensor mounted in Ex-certified Junction box, Ex. cert Cable gland and Ex. certified wiring block assembly. Fully assembled units according to IEC standards. Temperature range: 60 – 220°C*

In other words: Fenwal DAF Sensors mounted in Ex certified Industrial-Alu Box with Ex certified cable glands and high temperature Ex certified wiring terminals.

**Product description:**
- Fenwal-Switch free of Choice
- Materials: Body - Feraloy Cover: Copper-free aluminum
- Enclosure Dimensions: ca 140 x 127 x 67 mm, weight: ca. 950 g
- Finishes: Body - Electro-galvanize and aluminium acrylic paint: Natural
- Opening: Screw down Lid, fixing screw (imbus)
- Built in grounding terminal
- Entries: 2 x 3/4” NPT and 1 x 1/2” NPT
- 1 or 2 Cable Glands - Free of choice

**HDL-4 Housing:**

the High-Temperature-solution based on Fenwal 116317/ Cooper/EATON Housing and Fenwal Detect-A-Fire-Sensors

HDL-4 with 250°C ¾” NPT-Flextube or 385°C with solid ¾” NPT-Iron-tube and even up to 510°C

For Details consult LICO 116317 Data-sheet.

T-max 510°C with iron-tube and extra long Heat-Detector cables or 200°C with Std-Ceramic wiring block or 385°C with Special V2A Wiring-Block or 510C with Fenwal Temperature switch

High-temperature - tubes on request

**Applications:**
- Suspend explosionproof pendant luminaires from the conduit system
- Function as both conduit outlet box and luminaire hanger
HDL-4 variations and applications:

Standard Materials:
- Bodies – Feraloy® iron alloy
- Covers – copper-free aluminum

Standard Finishes:
- Feraloy – electrogalvanized and aluminum acrylic paint
- Copper-free aluminum – natural

Optional:
NPT-Elongation adapter to achieve a bigger distance between Sensor-switch and the HDL-box.

Dimension of HDL-4 / Fenwal 116317 Housing:

HDL-4 enclosures certifications and compliances:

NEC/CEC:
- Class I, Groups C, D
- Class II, Groups E, F, G
- Class III

UL Standard: 1203
CSA Standard: C22.2 No. 30
For Details see:
LICO-116317-Brochure

(for further info and actual certificate please contact LICO)
HDL-5 with High Temperature Ex ‘e’ certified Components:

True High Temp. Heat Detector Assembly:
HDL-5 / Ex*: suitable until 210/220+ °C

*Ready to install Heat Detector Unit with Bimetallic,
Rate of Rise, Temperature Sensor mounted in
ATEX & IECEx certified Junction box, with
ATEX & IECEx cert. metallic cable gland and
ATEX & IECEx cert., Ceramic wiring block assembly.
Fully assembled units according to IEC standards.

In other words: Fenwal DAF Sensors mounted in Ex certified
Industrial-Alu Box with Ex certified cable glands and Ex cer-
tified, high temperature wiring terminals.

- Fenwal-Switch free of Choice
- Precision Cast AISI12 (LM24) Aluminum Alloy housing
- Sealing: High temp. Silicone, Neoprene on request
- T3 Ex certified box, up to 210°C,
- 1 Ground terminal outside, 4 inside
- 1 or 2 pcs of metal cable glands
- Recessed screws
- Removable lid
- Cabling: up to 190°C:Teflon, over 190°C:TGGT
- IP 66/67

Bespoken Custom-made:
Free Choice of Fenwal Detect-a-Fire Sensor
1 pc or 2 pc of Cable Glands,
2,4,6,8 pole or more Ultra high temp. Ceramic wiring blocks,
Wiring blocks assemblies are suitable until 210 °C use,
High Temp. Cement based EOL and/or
Series Resistors on request

Applications:
- Ovens, Powder coating ovens
- Turbine housings, Exhaust- and Ventilation systems
- and many more high temperature applications
HDL-5 variations and applications:

**HDL-5 Ex***:

Recommended for any kind of high temperature industrial and commercial applications where there ARE Ex requirements. Designed until 210°C / 220°C applications.

Junction Box may stay at the cooler part of the installation Detect-A-Fire-Sensor with Coupling Head – double thread allows unique installation possibilities, use with Sensor 28020-003 or 28021-005.

Sensors are mounted with maximum torque of 27 NM and sealed with special, ultra high temperature Loctite glue. NPT counter nuts for the Sensors are on request.

Cable glands are mounted & fixed with counter nut and sealed with special, high temperature Loctite glue.

*Housing Ex-certified:
Ex II 2 GD, Ex e/i B IIC Gb, Ex tb IIIIC Db IP6X*
- 70°C/+220°C with Silicone-seal,
- IP66/67,
- Wiring Terminal: suitable until 210 °C use acc. Ex requirements

Standard EX Cable gland variations: See on Page 24
-70 - +220°C with Silicone-seal, IP66/68

Options/ Accessories: See on Page 24
- oil-resistant mounting of Heat Detector and Cable gland
- 2. Cable gland (Option KD)
- Cement based ultra high temperature Series and EOL – End of Line Resistors
- Ultra high temperature Silicone Sealings

**HDL-5 Enclosures Certified according to:**

(for further info and actual certificate please contact LICO)

**HDL-5 Standard Size junction box dimensions:**

<table>
<thead>
<tr>
<th>HDL-5</th>
<th>Outside L. (mm)</th>
<th>Outside W. (mm)</th>
<th>Inside L. (mm)</th>
<th>Inside W. (mm)</th>
<th>Height (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>120</td>
<td>122</td>
<td>104</td>
<td>88,5</td>
<td>80</td>
</tr>
</tbody>
</table>

For bespoke, custom made boxes please contact LICO
HDL-5 Connection House Variations with Ex ‘e’certified Components:

**HDL-5-CH-WB130**  
2, 4, 6 or 8 positions,  
T-Max 130 °C  
All and only ATEX and/or IECEx certified parts  
Cable gland of Choice  
for cable diameter of choice

**HDL-5-CH-WB220**  
2, 3, 4, 5, 6 or 8 positions  
T-Max standard: 210°C  
All and only ATEX-certified parts  
T-Max with special High-temperature O-Ring: 220°C  
Cable Gland of Choice  
for cable diameter of choice

HDL-5-CH-WB130 is very popular for cable-hose assemblies. Application: mounting at pumps, generators, drives, motors, gears, ignitors, injectors and many more. Standard Box is EEx-e, EEx-d (HDL6) on request.

LICO optionally can mount Very High Temperature O-Rings of i.e. 220°C in lieu of the cert. O-Ring. Then the T.max of the unit can be i.e. 220°C, higher temperatures on request.

The fully mounted and in the System installed Housing/unit mandatory has to be certified by an approved body to be in accordance with the existing ATEX-Norms, the simple Installation of an EX-certified Mounting Box does not stretch the ATEX approval of parts or units onto an entire system.
Every piece a Master-piece
Easy installation!
Junction Box may stay at the cooler part of the installation
Detect-A-Fire-Sensor with Coupling Head – double thread allows unique installation possibilities,
use with Sensor 28020-003 or 28021-005

HDL5 for through wall mounting
with i.e. cable/hose-gland

Option:
NPT-Elongation adapter to achieve
a bigger distance between Sensor-switch and the HDL-box.

Bespoken Custom-made
Junction box solutions

For Details see:
LICO-116317-Brochure
**HDL-6 Heat Detector Variations with Ex 'd' certified Components:**

**Ex ‘d' Heat Detector Assembly:**
HDL-6 / Ex*: suitable until 210/220+ °C

*Ready to install Heat Detector Unit with Bimetallic, *Rate of Rise*, Temperature Sensor mounted in ATEX & IECEx Ex ‘d' - Flameproof cert. Junction box, with ATEX & IECEx cert. metallic cable gland and ATEX & IECEx cert., Ceramic wiring block assembly. Fully assembled units according to IEC standards.

In other words: Fenwal DAF Sensors mounted in Ex certified Industrial-Alu Box with Ex certified cable glands and Ex certified, high temperature wiring terminals.

- Fenwal-Switch free of Choice
- Aluminum alloy EN AC-42000
- Sealing: Neoprene, High temp. Silicone on request
- T1 Ex certified box, until 60°C,
- 1 Ground terminal outside, 1 inside
- 1 or 2 pcs of metal cable glands
- Removable lid
- Cabling: up to 190°C:Teflon, over 190°C:TGGT
- IP 66

**Bespoken Custom-made:**
Free Choice of Fenwal Detect-a-Fire Sensor
1 pc or 2 pc of Cable Glands,
2,4,6,8 pole or more Ultra high temp. Ceramic wiring blocks,
Wiring blocks assemblies are suitable until 210 °C use,
High Temp. Cement based EOL and/or Series Resistors on request

**Applications:**
- Ex ‘d’ flameproof Applications
- Marine- and Offshore platforms
- and many more

**Painted HDL-6 boxes are:**
Chromate primed and polyester powder coated for added protection against corrosion until 180 °C

**Custom specific HDL-6 construction**

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Tel: +36 23 520 113 Email: sales@lico.hu

w w w. p r e v e n t - a - f i r e . e u
HDL-6 variations and applications:

**HDL-6 Ex**: Recommended for any kind of high temperature industrial and commercial applications where there harsh environmental & Ex requirements. Designed until 210°C / 220°C applications.

Junction Box may stay at the cooler part of the installation Detect-A-Fire-Sensor with Coupling Head – double thread allows unique installation possibilities, use with Sensor 28020-003 or 28021-005.

Sensors and Cable glands are mounted & fixed with ultra high temperature Loctite glue.

**Housing Ex-certified:**
- IP66/67,
- Wiring Terminal: suitable until 210 °C use acc. Ex requirements

**Standard Ex Cable gland variations:** See on Page 24
-70 - +220°C with Silicone-seal, IP66/68

**Options/ Accessories:** See on Page 24
- 2. Cable gland (Option KD)
- Cement based ultra high temperature Series and EOL – End of Line Resistors
- Ultra high temperature Silicone Sealings

**HDL-6 Enclosures Certified according to:**

![Ex]![IEC]![IECEx]

(for further info and actual certificate please contact LICO)

**Protection:**
When fitted with a gasket - IP66
Without gasket - IP54
Application of a non hardening grease to flamepaths and entries is recommended.

**Earthing:**
All enclosures are supplied with a 6mm stainless steel (18/8) internal and external earth stud as standard.
Larger internal earth terminals can be fitted on request.

**Dimensions & Material:**
Aluminum housing: 165 x 125 x 120 mm,
Material (Body & cover):
Aluminum alloy EN AC-42000 (LM25) to BS EN 1706:1998 with less than 0.2% copper content
Locking Screw: Stainless steel (18/8)

**High temperature, unpainted HDL-6 unit:**
- High temperature Ceramic wiring blocks,
- Ultra high temp, Cement based, Ceramic EOL - and Serie Line Resistors
HDL-7 Heat Detector Variations with Ex ‘e’ certified Components:

Stainless Steel “Food Safe” Heat Detector Assembly:
HDL-7 / Ex*: suitable until 210/220 °C max

*Ready to install Heat Detector Unit with Bimetallic, 
Rate of Rise, Temperature Sensor mounted in 
ATEX & IECEx cert. Stainless steel Junction box, with 
ATEX & IECEx cert. Stainless steel cable gland and 
ATEX & IECEx cert., wiring block assembly. 
Fully assembled units according to IEC standards. 

In other words: Fenwal DAF Sensors mounted in Ex certi-
fied Industrial Stainless steel Box with Ex certified 
Stainless steel cable glands and Ex certified, high tem-
perature wiring terminals.

- Fenwal-Switch free of Choice
- Stainless steel: 316 (1.4404) or Mild steel
- Sealing: High temp. Silicone, Neoprene on request
- Ex certified box, until 180°C,
- Internal and external ground terminal
- 1 or 2 pcs of stainless steel cable glands
- Removable lid
- Cabling: up to 190°C:Teflon, over 190°C:TGTT
- IP 67

Food Safe HDL-7 Heat Detectors:
Food Safe HDL-7 units can be made only 
with a special food safe glue from LICO

Applications:
- Special areas where aggressive gases 
  and moistures can corrode aluminum 
  or other type of metals
- Food- and Marine Applications

HDL-7 Housing: Standard

Dimensions: l/w/h:
152 mm, 102 mm, 126 mm
High Temperature-Silicone-sealing, 
Appropriate stainless steel box, 
Weight: 1500 g 
IP66 or IP67, 
Material: 316(1.4404) or Mild steel

Foodsafe Heat Detector Assemblies
HDL-7 variations and applications:

**HDL-7-”FAT BOY”**
**XL Size Housing**

**HDL-7 Enclosures Certified according to:**
- Ex
- IEC
- IECEx
- UL
- FM Approved

(for further info and actual certificate please contact LICO)

**Radiation Resistant Stainless Steel HDL-7 Heat Detectors**

**Applications:**
- Highly radiated areas
- Nuclear Power Plants

**Dimensions: l/w/h:**
- 152 mm, 152 mm, 126 mm

High Temperature-Silicone-sealing,
Appropriate stainless steel box
Weight: 2200 g
IP66 or IP67
Material: 316(1.4404) or Mild steel

**Radiation Safe HDL-7 Heat Detectors:**
Radiation Safe HDL-7 units can be made only with special sealings and radiation proof glue from LICO
Example for Ordering / Creating part numbers

Part Number Example:
HDL-3-27121-000-140-S-1-4-8-WB135-IP66,
HDL-7-28021-005-325-S-2-6-8-WB210-IP67

How to Order / How to create your own HDL:

| Type: | -2  
|       | -3  
|       | -3 XL  
|       | - 4  
|       | -5  
|       | -6  
|       | -7  |

| Sensor Type + Alarm Temperature: | 27121-0xx-xxx  
|                                 | 27120-0xx-xxx  
|                                 | 28021-0xx-xxx  
|                                 | 28020-0xx-xxx  
|                                 | See chart on page 20 |

| Size of Housing: | Standard or Custom Made |

| Number of Cable Gland(s) + Cable Diameter | 1. Number of Cable gland(s)  
|                                           | 2. Cable diameter in mm  
|                                           | See chart on page 24 |

| WB: Wiring block Temperature Type | No Ex until 130°C  
|                                 | Ex Until 130°C,  
|                                 | Ex Until 210°C, |

| IP | 66 or 67  
|    | 68 only on request |

Optional Add ons: - Please write after the IP number at the end of the HDL Part number
- L : Lid grounded, special silicone covered grounding device
- OIL : Oil-resistant mounting of temperature-switch and cable gland
- S : Serie Line Resistors supplied or built in
- EOL : (End (End of Line)-Resistor, Value in Ohms
- A : Thread adapter built between the Sensor and the choosen junction box, used in very high temp applications
- WD : LICO Stainless steel Weld in Pod supplied or mounted on sensor
- SC : LICO Stainless steel Screw in Pod supplied or mounted on sensor
- HO: High Temperature O-ring mounted
- C: Choosen CelciStrip fixed in/on the wished junction box, see on page

Every Piece a Master-piece.
Easy installation!
Solid Construction!
2 Grounding Terminals are Standard
VA-mounting screws

Picture shows a HDL-2, 60 °C, 4 wire, N/O
Heat Detector
Ordering Sheet / Make your own HDL:

Some information about the Application / Environment:

Example: - Place of use:
Ovens, Driers, Air filter / Exhaust systems, Power plant, Factory lines, Marine, Chemical plants, Saunas, Windmills, Gasturbines, industrial etc.

Temperature under normal operation

Wished Alarm Temperature in °C or °F

<table>
<thead>
<tr>
<th>HDL Part number:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity (pcs):</td>
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</tr>
</tbody>
</table>

LICO HDL Units are designed and assembled according to strict IEC standards:

- MSZ EN 60079-0:2013 (according to IEC 60079-0:2011 modified),
- MSZ EN 60079-0/A11:2014 (MSZ EN 60079-0:2013 modified)
- MSZ EN 60079-10-1:2009 (according to IEC 60079-10-1:2008)
- MSZ EN 60079-10-2:2010 (according to IEC 60079-10-2:2009)
- MSZ EN 60079-1:2008 (according to IEC 60079-1:2007)
- MSZ EN 60079-7:2007 (according to IEC 60079-7:2006)
- MSZ EN 60079-11:2012 (according to IEC 60079-11:2011)

We use these standards to make our Heat Detector units better and better for every individual application. Every LICO Heat Detector unit (HDL unit) is CE marked and checked in every detail.

This includes Equipment- and protection systems for dedicated and proper use in explosion-hazardous areas (94/9EG), as far as this regulation is applicable.

LICO Heat Detector Manufacturing and sales are ISO:9001 certified.
Made and designed in Hungary-EU

LICO Heat Detectors and Prevent-a-Fire Systems are mainly bespoke- custom made products. Everytime we plan and design our systems according to customers detailed specifications. To our experience there is no standard solution in Fire Prevention.
### Available Standard Fenwal DAF® Sensor Variations:

#### Single Thread units:
Brass & Stainless Steel or Fully Stainless steel
N/C (2 wire) Opens at temperature rise or N/C (4-wire) Closes at temperature rise

<table>
<thead>
<tr>
<th>2-wire unit</th>
<th>4-wire unit</th>
<th>Nominal Switching temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/C, Opens at Rise</td>
<td>N/O, Closes at Rise</td>
<td></td>
</tr>
<tr>
<td>Sensor Housing Stainless Steel</td>
<td>Sensor Housing Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>Body Brass</td>
<td>Body Stainless</td>
<td>Body Brass</td>
</tr>
<tr>
<td>27120-000-140</td>
<td>27120-022-140</td>
<td>27121-000-140</td>
</tr>
<tr>
<td>27120-000-160</td>
<td>27120-022-160</td>
<td>27121-000-160</td>
</tr>
<tr>
<td>27120-000-190</td>
<td>27120-022-190</td>
<td>27121-000-190</td>
</tr>
<tr>
<td>27120-000-210</td>
<td>27120-022-210</td>
<td>27121-000-210</td>
</tr>
<tr>
<td>27120-000-225</td>
<td>27120-022-225</td>
<td>27121-000-225</td>
</tr>
<tr>
<td>27120-000-275</td>
<td>27120-022-275</td>
<td>27121-000-275</td>
</tr>
<tr>
<td>27120-000-325</td>
<td>27120-022-325</td>
<td>27121-000-325</td>
</tr>
<tr>
<td>27120-000-360</td>
<td>27120-022-360</td>
<td>27121-000-360</td>
</tr>
<tr>
<td>27120-000-450</td>
<td>27120-022-450</td>
<td>27121-000-450</td>
</tr>
<tr>
<td></td>
<td></td>
<td>27121-000-500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>27121-000-600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>27121-000-725</td>
</tr>
</tbody>
</table>

#### Double Thread (Coupling Head) units:
Fully Stainless steel
N/C (2 wire) Opens at temperature rise or N/C (4-wire) Closes at temperature rise

<table>
<thead>
<tr>
<th>2-wire unit</th>
<th>4-wire unit</th>
<th>Nominal Switching temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/C, Opens at Rise</td>
<td>N/O, Closes at Rise</td>
<td></td>
</tr>
<tr>
<td>Sensor Housing Stainless Steel</td>
<td>Sensor Housing Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>Body Brass</td>
<td>Body Stainless</td>
<td>Body Brass</td>
</tr>
<tr>
<td>28020-003-140</td>
<td>28021-005-140</td>
<td>60°C / 140°F</td>
</tr>
<tr>
<td>28020-003-160</td>
<td>28021-005-160</td>
<td>71°C / 160°F</td>
</tr>
<tr>
<td>28020-003-190</td>
<td>28021-005-190</td>
<td>88°C / 190°F</td>
</tr>
<tr>
<td>28020-003-210</td>
<td>28021-005-210</td>
<td>99°C / 210°F</td>
</tr>
<tr>
<td>28020-003-225</td>
<td>28021-005-225</td>
<td>107°C / 225°F</td>
</tr>
<tr>
<td>28020-003-275</td>
<td>28021-005-275</td>
<td>135°C / 275°F</td>
</tr>
<tr>
<td>28020-003-325</td>
<td>28021-005-325</td>
<td>165°C / 325°F</td>
</tr>
<tr>
<td>28020-003-360</td>
<td>28021-005-360</td>
<td>187°C / 360°F</td>
</tr>
<tr>
<td>28020-003-450</td>
<td>28021-005-450</td>
<td>232°C / 450°F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28021-005-500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28021-005-600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28021-005-725</td>
</tr>
</tbody>
</table>

Class 1, Group A requires fully Stainless-steel Fenwal DAF-versions!
**Fenwal DAF: Detect-a-Fire ®**

**Description of Rate Compensated Thermoswitches:**

These highly reliable devices have been a standard of the industry for over 50 years. Many thousands of these units are now in use controlling the release of extinguishants such as clean agents, CO2, water, or dry chemicals. In some systems the device is used as an ALARM device, to sense overheating or fire, and alert personnel. In other systems, it is used as a RELEASE device, to sense fire and actuate fire attack systems.

DETECT-A-FIRE units have met with wide acceptance because they are designed with RATE COMPENSATION. This provides a unique advantage over both fixed temperature and rate-of-rise types of detectors because only the DETECT-A-FIRE unit accurately senses the surrounding air temperature regardless of the fire growth rate. At precisely the predetermined danger point, the system is activated.

Fixed temperature detectors must be completely heated to alarm temperature and therefore a disastrous lag in time may occur with a fast rate fire. Rate compensated / Rate-of-rise devices, on the other hand, are triggered by the rate of increase in ambient temperature and could be subject to false alarms caused by harmless, transient thermal gradients such as the rush of warm air from process ovens.

**Vertical Detect a Fire Units for Concealed and Exposed Wiring:**

Vertical detectors are designed for use in both "ordinary" or "hazardous" locations. For "ordinary" use, they may be mounted to any appropriate tight metal junction box (preferred: solid Alu) with 7/8" diameter opening by using 1/2-14 NPT mounting nuts or into a ½"-14NPT thread. The device may be wired in or out of conduit, depending on local preference and codes. Four lead-wires are provided on normally open vertical units (that close on temperature rise), per UL requirement, to facilitate supervision of system wiring. Instruments are Underwriters Laboratory and Underwriters Laboratory of Canada listed and Factory Mutual approved for hazardous locations, when mounted in a suitable fitting.

**Important Information:**

The Detect A Fire Thermo Switch is a Sensible and Precise Electromechanical Safety Switch. Do NOT paint and Do NOT let cover the Sensor with dirt or any material! In this case the Sensor must be cleaned on a regular basis. If the circumstances do not allow regular cleaning, LICO Weld in Pod or Screw in Pod spare parts are recommended.

Do NOT hit and Do NOT flood the Sensor and the HDL Unit. Any of these can change the switching effect of the Sensor. The Sensor and the HDL Unit shall be mounted only where the Unit and the Sensor does NOT experience strong and/or continuously mechanical and chemical effects!

Normally Detect a Fire Switches can be Normally Open or Normally Closed. Normally Open switches are used in release function, Normally Closed switches are used in alarm function. Normally Closed switches do NOT meet the requirements of NFPA-72 for use as a releasing device.

**Test Information:**

The Fenwal DETECT-A-FIRE heat detector models are 100% factory tested and temperature calibrated. The units must actuate within the tolerances of the standard temperature settings listed before passing final QA acceptance. The units are calibrated and verified by controlling temperature in heat blocks. The units cycle for a minimum of 15 minutes and a minimum of 15 consecutive cycles of stable operation are recorded within specification before the unit is deemed accepted. Fully Stainless steel Sensors (body made from Stianless) are hermetically tight-en ed and leak tested in water.

**Warnings:**

DO NOT overshoot the set point of the unit by more than 100°F = 55°C, this could result in a shift of the set point temperature.

DO NOT contact the sensing shell with heating device such as soldering iron or blow-torch as this will damage the unit and cause in a shift of the set point temperature. While the DETECT-A-FIRE is a repeatable device, replacement is recommended should the unit be subjected to the intense heat of a fire.
### Special Fenwal Sensors: 17343 Serie

**17343-124 -xxx,**
Temperatures: (100°F), 140°F - 725°F, 60°C - 385°C
Make in full stainless-steel
Contacts N/O, close with increase of temperature
Rating, 28VDC, 0,5A, 125VDC, 0,5A
Mounting: ¾”-14 NPT

**17343-124 Sensors are ATEX & IECEc certified !**

CE/ATEX Approved for
Group II, Category 3 Gas,
Type of protection: "nC"
Unit is hermetically sealed.
Datasheet on request

**17343-113 -600, 17343-113 -950**
2 Temperatures: 600°F, 950°F = 315°C, 510°C
Flame safe up to 2000°F/1082 °C for short periods

600°F UL Listed for
Class I Group A,B,C,D
Class II, Groups E,F,G,
For use in hazardous locations

CSA certified 600 + 950°F,
overheat Detector in hazardous locations.

Datasheet on request

Rating, 125VDC, 1A
Mounting: ¾”-14 NPT

**17343-78-500, -725, -900**
3 Temperatures: 600°F - 950°F = 315°C, 385°C, 482°C.
Flame safe until 2000°F/1082 °C for short periods

17343-78 500F, 315°C / 17343-78 725F, 385°C / 17343-78 900F, 482°C

Make in full stainless-steel, hermetically sealed
Contacts N/O, close with increase of temperature
Rating: 28VDC, 3 A; 125VDC, 1A; 115VAC, 3A
Temperature: Field adjustable, Mounting: plate
Make in full stainless-steel
Contacts N/O, close with increase of temperature

For further info and actual certificate please contact LICO

17343-124 Sensors are ATEX & IECEc certified!
Heat Detector Accessories: LICO Weld in Pod / Screw in Pod

A popular solution in gas, oil and chemical industry. Also widely used in hydraulics, frying and drying applications, as well as in ovens and heating controls.

Easy installation!
Drilling the hole and welding in the weld-in pod allows easy installation and safe service without contact to the tank media.

Material list:
- Stainless steel 1.4401 (AISI 316),
- or S355
- or Chemical resistant Teflon

Option:
Stainless-steel NPT-Screw-in-adapter,
Outside & inside NPT-thread instead of outside weld-in.
with or without hexagon

Material list:
- Stainless steel 1.4401 (AISI 316),
- or S355
- or Chemical resistant Teflon

For ordering:
Please specify weld-in or screw-in type, material and shell thickness
**HORIZONTAL DETECT-A-FIRE-UNITS for i.e. Parking Houses**

**Horizontal detectors** are designed for locations where appearance is a factor. The attractive, functional design lends physical protection of the unit while making it suitable for commercial, industrial, mercantile and public buildings, institutions and ships in non-hazardous locations (those classified as "ordinary" under the National Electric Code). Flush mounted units are designed to fit standard 4" octagonal electrical boxes and surface mounting units are designed to mount directly on ceilings or on 4" electrical junction boxes. Canadian Electrical Codes requires mounting only to an electrical junction box.

**MOUNTING**

DETECT-A-FIRE units are not position sensitive. Horizontal and vertical detectors refer to the most common mounting configuration for that unit. However, each type can be mounted either horizontally or vertically depending on the application and installation requirements.

**NOTE:**
Specifications subject to change without notice.

UL of Canada labelling available upon request.

Although incandescent lamps are considered resistive, their inrush current is 10-15 times their steady current. Do not exceed ratings.

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Contact Operation on temperature rise</th>
<th>Function</th>
<th>Weight</th>
<th>Electrical Rating (resistive ONLY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-X27020-000</td>
<td>Opens</td>
<td>N/C</td>
<td>~ 170 g</td>
<td>5,0 Amps 125VAC</td>
</tr>
<tr>
<td>12-X27020-001</td>
<td>Opens</td>
<td>N/C</td>
<td>~ 270 g</td>
<td>0,5 Amps 125 VDC</td>
</tr>
<tr>
<td>12-X27021-000</td>
<td>Closes</td>
<td>N/O</td>
<td>~ 170 g</td>
<td>5,0 Amps 125VAC</td>
</tr>
<tr>
<td>12-X27021-001</td>
<td>Closes</td>
<td>N/O</td>
<td>~ 270 g</td>
<td>0,5 Amps 125 VDC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,0 Amps 24 VDC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,0 Amps 48 VDC</td>
</tr>
</tbody>
</table>

**CONSTRUCTION**

Stainless steel shell sensing element
Cold rolled steel mounting facility.

**COLOR**

Off-White finish.

**TEMPERATURE RATING**

(Suggested setting a minimum of 100°F above ambient)
~ about 50 - 55°C
LOCATION:
DETECT-A-FIRE® Units are precision temperature sensors.

They must be mounted in an area (normally a ceiling) so that:
1. The detector spacing complies with both system requirements and requirements of the agency having local jurisdiction.
2. The thermal air path to the shell is not obstructed.

Spacing per UL, FM, and UL of Canada are shown in Table 1. Distances given are for between units on smooth ceilings. Distances from partitions or walls are half that shown. To assure that all spacing requirements are met, consult the authority having local jurisdiction.
Heat Detector Accessories: Cable Gland variations

A: Ex certified cable glands:
Basic-Standard: Brass-Ni-plated - BCG-Series,
Temperature: -20 °C until +80 °C
Sealing: Neoprene

Protection: IP66/68
Ex Zone: Ex II 2 GD, Ex e II, ex tD A21 IP66/68*
*(for further info & actual certificates please contact LICO)

Please find our standard marked in red

<table>
<thead>
<tr>
<th>Material</th>
<th>Cable Gland Size</th>
<th>Sealing</th>
<th>Cable Diameter min-max in mm</th>
<th>Available Cylindrical Threads: ISO 262</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brass-Ni-plated</td>
<td>Size 1</td>
<td>Neoprene</td>
<td>3-6,5</td>
<td>M12x1,5</td>
</tr>
<tr>
<td>Brass-Ni-plated</td>
<td>Size 2</td>
<td>Neoprene</td>
<td>4-8</td>
<td>M16x1,5</td>
</tr>
<tr>
<td>Brass-Ni-plated</td>
<td>Size 3</td>
<td>Neoprene</td>
<td>6-12</td>
<td>M20x1,5</td>
</tr>
<tr>
<td>Brass-Ni-plated</td>
<td>Size 4</td>
<td>Neoprene</td>
<td>10-14</td>
<td>M25x1,5</td>
</tr>
<tr>
<td>Brass-Ni-plated</td>
<td>Size 5</td>
<td>Neoprene</td>
<td>13-18</td>
<td>M32x1,5</td>
</tr>
<tr>
<td>Brass-Ni-plated</td>
<td>Size 6</td>
<td>Neoprene</td>
<td>18-25</td>
<td>M40x1,5</td>
</tr>
<tr>
<td>Brass-Ni-plated</td>
<td>size 7</td>
<td>Neoprene</td>
<td>22-32</td>
<td>M50x1,5</td>
</tr>
</tbody>
</table>

B: ATEX & IECEx certified cable glands:
EXCG Series cable glands in Brass-Ni-Plated, Stainless steel (AlSi 316L), Aluminum or AVP steel

Temperatures:
EPDM Sealing: -40 °C until +100 °C
Silicone Sealing: -70 °C until +220 °C

Protection: IP66/68
ATEX: Ex II 2 GD/I M2, Ex d IIC/Ex e II ex d I/Ex e I, Ex tD A21 IP66 or IP66/68*
IECEx: Ex d I, Ex e I, Ex d IIC, Ex e II and Ex tD A21 IP66/68 or IP66*
*(for further info and actual certificates please contact LICO)

Armoured cables SHALL have Cable Glands specified for armoured cables to prevent the loss of the ATEX certificate for the entire installation.

Please find our standard marked in red

<table>
<thead>
<tr>
<th>Material</th>
<th>Cable Gland Size</th>
<th>Sealing</th>
<th>Cable Diameter min-max in mm</th>
<th>Available Metric Threads: ISO 262</th>
<th>Available Conic Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brass-Ni-plated, Stainless steel</td>
<td>Size 1</td>
<td>EPDM</td>
<td>4-7 / 7-10</td>
<td>M16x1,5</td>
<td>1/2” NPT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High temp.Silicone</td>
<td>4-6 / 6-8 / 8-10</td>
<td>M16x1,5</td>
<td>1/2” NPT</td>
</tr>
<tr>
<td>Brass-Ni-plated, Stainless steel</td>
<td>Size 2</td>
<td>EPDM or High temp.Silicone</td>
<td>5,5-8 / 8-10,5 / 10,5-13</td>
<td>M16x1,5 / M20x1,5</td>
<td>1/2” NPT / 3/4” NPT</td>
</tr>
<tr>
<td>Brass-Ni-plated, Stainless steel</td>
<td>Size 3</td>
<td>EPDM or High temp.Silicone</td>
<td>13-15,5 / 15,5-18</td>
<td>M20x1,5</td>
<td>3/4” NPT / 1” NPT</td>
</tr>
<tr>
<td>Brass-Ni-plated, Stainless steel</td>
<td>Size 4</td>
<td>EPDM or High temp.Silicone</td>
<td>18-21 / 21-24</td>
<td>M20x1,5 / M32x1,5</td>
<td>1” NPT</td>
</tr>
<tr>
<td>Brass-Ni-plated, Stainless steel</td>
<td>Size 5</td>
<td>EPDM or High temp.Silicone</td>
<td>24-27 / 27-30 / 30-33</td>
<td>M40x1,5/M50x1,5</td>
<td>1”/2 NPT</td>
</tr>
</tbody>
</table>
Heat Detector Accessories: Wiring Blocks, Serie and EOL Resistors:

**Standard for Ex-versions**

**ATEX & IECEx Certified Wiring Blocks,**

**Temperature: -50 / +130°C,**
- 2, 3, 4 or 5 poles
- Wiring: 0.5 - 4 mm² with screw connection
- Material: KrG, Flammability class UL 94: V-0
- Max current: 28 A, Max voltage: 275 V
- ATEX: Ex II 2GD EEx e II*
- IECEx: Ex e II*
  (* for further info & actual certificates please contact LICO)

**Temperature: -50 / +210°C,**
- 2-10 poles or more
- Wiring: 0.5 - 4 mm² with screw connection
- Material: Ceramic, Flammability class UL 94: V-0
- Max current: 28 A, Max voltage: 275 V
- ATEX: Ex II 2GD D Ex e II*
- IECEx: Ex e II*
  (* for further info & actual certificates please contact LICO)

**VDE-approved Wiring Blocks:**
- Porcelain C111 glazed or Steatik C220 unglazed
  - 2, 3 or 4 poles
  - Wiring: 0,5-2,5 mm²/ 1,5-6 mm², 24A
  - T max:
    - 350°C surface,
    - 200°C brass-parts to avoid burn-out,

**VDE-approved Wiring Blocks:**
- Option: 2-pole 500°C-Wiring-Block-Version:
  - All electrical parts are made entirely of V2A

**Electrotechnic 5 W Former,**
**Ex-conform- Resistors**

Series or EOL (End of Line) Resistors for Ex e junction boxes,
- T3 max 40 °C, T6 max 60 °C
  (Ex-cert. expired, T max 125°C, out-gasing may occur at higher Temperatures)
- Available in: 470 Ohm, 680 Ohm, 1,8 kOhm, 3,3 kOhm

220°C “Ex-conform”-Resistors are in Design & Evaluation

We are glad to receive your inquiry!

**Typical system wiring:**
- R-Serie and End Of Line resistors used mainly for cable break and shortcut control
LICO Alarmpanel:

You specify your function, we deliver that.

Massive Aluminum housing with Membrane-keyboard, dedicated programmed µController:

AP1 Alarmpanel 1:
- 1 or 2 Inputs, N/O or N/C
- 9-30 VDC
- Individual Printing of Keyboard possible
- Integrated Wirebreak-control
- Opt: Housing with Cabeglends or Flushmount
- 0, 4, 15, 23 mA Functional Currents

AP2, Alarmpanel 2:
as above plus 0-20mA output
0, 4, 15, 20 mA functional currents

Output:
- Alarm-LED
- 2 Outputs: 1 Output per Channel, switch only

Ask for the Alarmpanel datasheet!
**PAF - Prevent-a-Fire - Outline**

**Detect and Control Overheat & Fire at the Source**

**Content:**

- ATEX-Netzteil, Option Zenerbarriere
- Control Unit: Alarmpanel, auch im Ex e oder Ex d Gehäuse lieferbar

**Layout of salt filled inconel wire:**

---
LICO Alarmsystem:

Content:
1. Industrial-Server-USV
2. ATEX-certified 24VDC Power Supply
3. Safety barrier

4. LICO Alarmpanel:
The Alarmpanel provides the supply and control for action, stand-by, cable break Alarm, short-cut and test

The Standard configuration offers 2 Inputs. The Output is realized by 2 integrated optical and audible Alarms. External Outputs are 2 each for Alarm 1 + 2, audible and optical Alarm (N(O & N/C –Outputs allow connection to practically ANY alarm-system on the market.)

Versions: Build in panel (with O-Ring or Stand-alone (wall-mount with cable glands)

5. LHD/CFD-cables

The Layout usually is custom-made.
Linear Heat Detection Cables - Alarmline 2:

**Alarmline 2 Digital LHD Cables:** (NOT self restorable)
Comprises a twin-conductor "switching" cable with temperature-sensitive insulation protected by a special sheath. It operates by melting of the insulation between the conductors at a pre-determined temperature. This creates a short circuit which is detected by a simple electrical device, which in turn provides a fire alarm signal. Fault conditions are detected by continuous monitoring for an open circuit state. Cable control is permanent. A safety barrier may be used in Ex-areas.

**Main applications:** Storage Tanks, Dryers, Car Parks, Escalators, Floating roof tanks, Tunnels, Warehouse racking, Pumps, Silos, Transformers, Vehicle engines

Available Alarm temperature: 68 °C, 88 °C, 105 °C, 185 °C, 240 °C

**Digital LHD Cable Isolations:**
PVC outer sheath, Nylon outer sheath, PVC coated cable with Polypropylene outer sheath, PVC coated cable with Stainless Steel outer braid

Alarmline Cables are supplied only in: 100 m, 500 m or in 1.000 m increments

**Alarmline 2 Analogue LHD Cables:** (self restorable)
4-wire system: - Consists of a four-conductor cable surrounded by an outer sheath of PVC. A change in temperature produces a change in resistance, which is monitored by an Alarmline Control Unit, which in turn actuates an alarm signal at a predetermined level. The cable is continuously monitored for open and short circuit fault conditions. It detects either a localised hot spot or a lower level of temperature increase over the entire length. *It is recoverable after operation if the cable is not damaged or burned.

Approvals: Vds and/or FM depends on type of cable

**Main applications:** Storage Tanks, Dryers, Car Parks, Escalators, Floating roof tanks, Tunnels, Warehouse racking, Pumps, Silos, Transformers, Vehicle engines

**Analogue LHD Cable Isolations:**
PVC coated (red), Nylon coated, Polypropylene coated, PVC coated cable with Stainless Steel outer braid, Nylon coated with Stainless Steel outer braid

Alarmline Cables are supplied only in: 100 m or 500 m increments

**Control Units:**
Analogue LHD Control Unit - Self Programmable,
Analogue LHD Control Unit - PC Programmable with USB cable,
Linear Heat Detection Cables: SIGNALINE

Signaline Heat Sensing Digital Cables:
(NOT self restorable)
Signaline Fixed Temperature Heat Sensing Cable (Signaline FT) detects a build up of heat anywhere along its length. When any point along the length of the cable reaches a predetermined temperature an alarm is initiated.

Signaline FT is available in four different temperature settings and two outer cover options making the Signaline FT suitable for use in a very wide range of applications.

Signaline FT is comprised of two steel conductors individually insulated with a heat sensitive polymer that are twisted together. At the rated temperature the heat sensitive polymer insulation breaks down permitting the steel conductors to move into contact with each other. This forms a closed switch contact that can be used to signal an alarm condition at the control panel.

Signaline FT cable can be installed in hazardous areas when suitably protected by an intrinsically safe barrier.

Main applications: Hazardous Areas, Power plants, Boiler rooms, Road- and Access tunnels, Train applications, Engine rooms, Cable ducts, Airports, Underground (metro) applications and many more...
Available Alarm temperature: 68 °C (155 °F), 88 °C (190 °F), 105 °C (220 °F), 185 °C (365 °F)

Signaline Cable Isolations:
Standard PVC coating, Nylon coating for increased UV and chemical protection, Stainless steel outer braid for excellent mechanical protection and where a very rugged product is required.

Signaline HD Analogue Cable: is fully resettable EN54 compliant VdS approved heat sensing cable. It is ideal for use in confined spaces where access is restricted such as escalators, cable tunnels and shafts.

Signaline Controllers:
All Signaline HD Heat Sensing Cables (Signaline HD) must be used with a Signaline HD Heat Sensing Cable Controller (Signaline HD Controller). Signaline HD Controllers are very simple and easy to use and there are three models to choose from:
- Signaline SKM-03; EN54 compliant for use with conventional systems (VdS approved)
- Signaline SKM-03UK; generate alarm when 1m of cable reaches 60°C or 80°C
- Signaline SKM-95; EN54 compliant loop power controller for use with Apollo XP95 addressable systems (VdS approved)
The solution for Aircraft & Industry
Overheat (OVHT) & Fire-alarm

Merkmale:
• Wiedereinschaltend soferne 1.100°C nicht überschritten wurden,
• wartungsfrei
• Solide & robust - widersteht Schock und Vibration
• vielseitig einsetzbar – verschiedene Schaltemperaturen,
  • auch untereinander kombinierbar
• Dauerhaft –
  ° Langlebige Inconel Konstruktion
• Wirtschaftlich –
  ° Deckt auch große Flächen ab,
  ° Sauber zu installieren
• Das Innenleben des Sensorkabels ist hermetisch in Inconel und Keramik isoliert
• Besonders Korrosionsbeständig
• Alterungsbeständig
• Extrem geringes Gewicht

APPLICATION:
Schutz von
• Transformatoren und Schaltanlagen
• Superheizanlagen
• Nuclear engineering
• Sprühtrockner
• Gasturbinen
• Ventilations Filter Bänke
• Industrielle Wärme/Hitze-Trocker mit Transportsystem für Pulver, Fasern, Papier, Pulpe, Granulate, Schnitzel etc.
• Industrielle Trommeltrockner
• Marine Motorräume, Antriebe
• Große mechanische Antriebe
• Große Kompressorstationen
• Abgasanlagen/Abgassysteme
• Hochtemperatur-Wärmetauscher

REMARKS:


Auszug aus einem Gerichtsurteil:
Es entspricht der Lebenserfahrung, dass mit der Entste- hung eines Brandes praktisch jederzeit gerechnet werden muss. Der Umstand, dass in vielen Gebäuden jahrzehntelang kein Brand ausbricht, beweist nicht, dass keine Gefahr besteht, sondern stellt für die Betroffenen einen Glücksfall dar, mit dessen Ende jederzeit gerechnet werden muss.”

DETECT HEAT & OVERHEAT
AND PREVENT A FIRE

Entsprechend der Schutzart, der Fläche und des Schutzniveaus finden Sie bei LICO die richtige Lösung zur Vermeidung von Industriebrand.
Description:
Die Eigenschaften des Sensorkabels:
• Völlig wasserdicht
• korrosionsfest
• schock und vibrationssicher
• klärt Überhitzung binnen weniger Sekunden
• Hitzefest bis ~1.100°C

Damit ist das Sensor-Kabel seit über 50 Jahren der Industriestandard das Herz vieler Überhitzungsschutz- und Brandschutzsysteme.

Bei zig-tausenden Installationen werden diese Systeme entweder als Überhitzungsschutz eingesetzt, also als ALARM-Einrichtung und oder als Einrichtung zur hitzereduzierenden Aktion, zB Abschalten der Anlage) oder bei der Feuerlöschung als auslösende Einrichtung um das Löschmittel freizusetzen. In vielen Fällen werden auch kombinierte Funktionen wie systemabschaltender Überhitzungsschutz UND Auslösen der Löscheinrichtung eingebaut.

STANDARD DATA:
124°C, 154°C, 204°C, 302°C, 407°C, höhere Schaltpunkte nach technischer Klärung
T max reversibel: bis max. 1100°C

Abmessungen:
Kabelsegmentlängen: 0,46 m – 4,60 m in 2,5 cm Teilungen
Max. Länge von Kabelsystemen: ~120m
Längere Konfigurationen auf Anfrage
Kabeldurchmesser: nur 2,25 mm
Screw-in connector
Plug Assemblies:
Connector assemblies are available in male and female thread configuration to accommodate either end of the sensing element.

The plug thread facilitates connection to a standard conduit box like the HDL-Conn-box.

Loose Cable Assemblies:
Cable assemblies are available in male and female thread configuration.

They may be used singly to connect the sensing element termination to the control unit or in combination to connect sensing element sections through volumes not monitored by the elements.
CFD - Continuous Fire Detection - Fenwal Sensing element:

Connectors and Mounting material 2/3:

**Sensing Element:**
The Fenwal sensing element consists of a small 2.26 mm diameter (.089 inch OD), lightweight, flexible Inconel tube with a nickel wire center conductor. The tube is packed with insulation impregnated with a special salt compound and is hermetically sealed. The picture below shows the sensing element with standard m + f connectors.

**Flange and Nut Assemblies:**
Flange and nut assemblies are used to support the connection of two sensing elements. They are used to support and separate the elements from the structure or as a bulkhead feed through supports. Flange and nut assemblies may be surface or bulkhead mounted.
CFD - Continuous Fire Detection - Fenwal Sensing element:

Connectors and Mounting material 3/3:

**Sensing Element:**
Diese speziellen Befestigungen halten das Schaltkabel sicher an ihrem Montageort. Die Artikelnummer 35401 benötigt den Silikoneinsatz 35450-1, Die Hochtemperatur Version 35402-0 aus 321 oder 347 Edelstahl beinhaltet schon eine Inconel „X“ Befestigung und benötigt daher keinen weiteren Silikoneinsatz.

**Silikontüllen:**
Notwendig für den Montageclip 35401-0 zur Befestigung des Schaltkabels.
T-Max 260°C

**Schaltkabel-Ab schluss:**
Dieses Abschlussterminal ist notwendig um bei einer Stichleitung (anstelle einer Ring-Schleife) die Ring-Schleife zu erzeugen.
CFD - Continuous Fire Detection - Fenwal Sensing element:

Anwendung/Beispiele:

Sprüh- & Trommeltrockner

Durch das auch mehrfache Verlegen in Kreisform in verschiedenen Höhen wird eine Überhitzung oder ein Brand rechtzeitig erkannt.

Heizräume und unterirdische Versorgungseinrichtungen,
Ein CFD-System meldet Überhitzung in Sekundenschnelle.

Gasturbinen:

Ein CFD-System schützt vor Überhitzung oder Durchbrand der Brennkammer.

Filterbänke & Absaugkanäle:

Die Ansammlung von entzündlichen Ablagerungen kann Feuer und erhebliche Luftverschmutzung auslösen.
### Typical Ignition Temperatures in C of Dusts

<table>
<thead>
<tr>
<th>Dust type</th>
<th>Cloud</th>
<th>Layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal dust</td>
<td>380 °C</td>
<td>225 °C</td>
</tr>
<tr>
<td>Aluminium</td>
<td>590 °C</td>
<td>&gt;450 °C</td>
</tr>
<tr>
<td>Flour</td>
<td>490 °C</td>
<td>340 °C</td>
</tr>
<tr>
<td>Grain dust</td>
<td>510 °C</td>
<td>300 °C</td>
</tr>
<tr>
<td>Methyl cellulose</td>
<td>420°C</td>
<td>320°C</td>
</tr>
<tr>
<td>Phenolic resin</td>
<td>530°C</td>
<td>&gt;450°C</td>
</tr>
<tr>
<td>Polythene</td>
<td>420°C</td>
<td>(melts) °C</td>
</tr>
<tr>
<td>PVC</td>
<td>700°C</td>
<td>&gt;450 °C</td>
</tr>
<tr>
<td>Soot</td>
<td>810°C</td>
<td>570 °C</td>
</tr>
<tr>
<td>Sugar</td>
<td>490 °C</td>
<td>460°C</td>
</tr>
</tbody>
</table>

### Classification of Zones and Divisions

<table>
<thead>
<tr>
<th>Type of Area</th>
<th>NEC</th>
<th>ATEX and IEC</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous hazard</td>
<td></td>
<td></td>
<td>Areas where explosive atmosphere is continuously present</td>
</tr>
<tr>
<td>Intermittent hazard</td>
<td>Division 1</td>
<td>Zone 1 / Zone 21</td>
<td>Areas where explosive atmosphere is likely to occur in normal operation</td>
</tr>
<tr>
<td>Hazard under abnormal conditions</td>
<td>Division 2</td>
<td>Zone 2 / Zone 22</td>
<td>Areas where explosive atmosphere is unlikely to occur but if it does, will exist only for a short period</td>
</tr>
</tbody>
</table>

### Equipment Categories / Protection ATEX & IECEx

<table>
<thead>
<tr>
<th>Equipment category</th>
<th>Cat.</th>
<th>Equipment Protection Level</th>
<th>Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>1G</td>
<td>Ga</td>
<td>Suitable for use in Zone 0, 1, 2</td>
</tr>
<tr>
<td></td>
<td>1D</td>
<td>Da</td>
<td>Suitable for use in Zone 20, 21, 22</td>
</tr>
<tr>
<td>Category 2</td>
<td>2G</td>
<td>Gb</td>
<td>Suitable for use in Zone 1, 2</td>
</tr>
<tr>
<td></td>
<td>2D</td>
<td>Db</td>
<td>Suitable for use in Zone 1, 2</td>
</tr>
<tr>
<td>Category 3</td>
<td>3G</td>
<td>Gc</td>
<td>Suitable for use in Zone 2</td>
</tr>
<tr>
<td></td>
<td>3D</td>
<td>Dc</td>
<td>Suitable for use in Zone 22</td>
</tr>
</tbody>
</table>

Please consult the ATEX guidelines and requirements in your language.
### Ingress Protection Rating I

<table>
<thead>
<tr>
<th>First Digit: Solid Particle Protection</th>
<th>Effective Against</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No Special Protection</td>
</tr>
<tr>
<td>1</td>
<td>Objects &gt; 50 mm diameter</td>
</tr>
<tr>
<td></td>
<td>Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part</td>
</tr>
<tr>
<td>2</td>
<td>Objects &gt; 12 mm diameter</td>
</tr>
<tr>
<td></td>
<td>Fingers or similar objects</td>
</tr>
<tr>
<td>3</td>
<td>Objects &gt; 2.5 mm diameter</td>
</tr>
<tr>
<td></td>
<td>Tools, thick wires, etc.</td>
</tr>
<tr>
<td>4</td>
<td>Objects &gt; 1 mm diameter</td>
</tr>
<tr>
<td></td>
<td>Most wires, screws, etc.</td>
</tr>
<tr>
<td>5</td>
<td>Dust Protected</td>
</tr>
<tr>
<td></td>
<td>Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact (dust proof)</td>
</tr>
<tr>
<td>6</td>
<td>Dust Tight</td>
</tr>
<tr>
<td></td>
<td>No ingress of dust; complete protection against contact (dust tight)</td>
</tr>
</tbody>
</table>

### Ingress Protection Rating II

<table>
<thead>
<tr>
<th>Second Digit: Liquids</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dripping water</td>
</tr>
<tr>
<td></td>
<td>Dripping water (vertically falling drops) shall have no harmful effect. Test duration: 10 minutes. Water equivalent to 1mm rainfall / minute</td>
</tr>
<tr>
<td>2</td>
<td>Dripping water when tilted up to 15°</td>
</tr>
<tr>
<td></td>
<td>Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position.</td>
</tr>
<tr>
<td>3</td>
<td>Spraying water</td>
</tr>
<tr>
<td></td>
<td>Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect.</td>
</tr>
<tr>
<td>4</td>
<td>Splashing water</td>
</tr>
<tr>
<td></td>
<td>Water splashing against the enclosure from any direction shall have no harmful effect.</td>
</tr>
<tr>
<td>5</td>
<td>Water jets</td>
</tr>
<tr>
<td></td>
<td>Water projected by a nozzle (6.3mm) against enclosure from any direction shall have no harmful effects.</td>
</tr>
<tr>
<td>6</td>
<td>Powerful water jets</td>
</tr>
<tr>
<td></td>
<td>Water projected in powerful jets (12.5mm nozzle) against the enclosure from any direction shall have no harmful effects.</td>
</tr>
<tr>
<td>7</td>
<td>Immersion up to 1 m</td>
</tr>
<tr>
<td></td>
<td>Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion).</td>
</tr>
<tr>
<td>8</td>
<td>Immersion beyond 1 m</td>
</tr>
<tr>
<td></td>
<td>The equipment is suitable for continuous immersion in water under Test duration: continuous immersion in water conditions which shall be specified by the manufacturer.</td>
</tr>
</tbody>
</table>
## FLOWMETERS FOR SPRINKLER FIRE PUMP TESTING

- Flange or groove style connection.
- Horizontal or vertical pipes.
- Scaled in USGPM and dm³/min.
- Highly stable indicator readings.
- S.W.P: 20 bar g
- Accuracy: ± 2% of test range max.

<table>
<thead>
<tr>
<th>Pump USGP M</th>
<th>Flowmeter and line size</th>
<th>Flowmeter test ranges USGPM</th>
<th>Flowmeter range USGPM</th>
<th>Grooved connection order code</th>
<th>Wafer flange connection order code</th>
<th>Flowmeter range dm³/min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inches</td>
<td>mm</td>
<td>min</td>
<td>max</td>
<td>min</td>
<td>max</td>
</tr>
<tr>
<td>200</td>
<td>3</td>
<td>80</td>
<td>100</td>
<td>400</td>
<td>100</td>
<td>400</td>
</tr>
<tr>
<td>250</td>
<td>4</td>
<td>100</td>
<td>150</td>
<td>500</td>
<td>150</td>
<td>900</td>
</tr>
<tr>
<td>300</td>
<td>6</td>
<td>150</td>
<td>250</td>
<td>1000</td>
<td>250</td>
<td>2000</td>
</tr>
<tr>
<td>450</td>
<td>8</td>
<td>200</td>
<td>750</td>
<td>2500</td>
<td>750</td>
<td>4000</td>
</tr>
<tr>
<td>500</td>
<td>8</td>
<td>200</td>
<td>1500</td>
<td>5000</td>
<td>1500</td>
<td>6000</td>
</tr>
<tr>
<td>750</td>
<td>8</td>
<td>200</td>
<td>1500</td>
<td>5000</td>
<td>1500</td>
<td>6000</td>
</tr>
<tr>
<td>1000</td>
<td>8</td>
<td>200</td>
<td>1500</td>
<td>5000</td>
<td>1500</td>
<td>6000</td>
</tr>
<tr>
<td>1250</td>
<td>8</td>
<td>200</td>
<td>1500</td>
<td>5000</td>
<td>1500</td>
<td>6000</td>
</tr>
<tr>
<td>1500</td>
<td>8</td>
<td>200</td>
<td>1500</td>
<td>5000</td>
<td>1500</td>
<td>6000</td>
</tr>
<tr>
<td>2000</td>
<td>8</td>
<td>200</td>
<td>1500</td>
<td>5000</td>
<td>1500</td>
<td>6000</td>
</tr>
<tr>
<td>2500</td>
<td>8</td>
<td>200</td>
<td>1500</td>
<td>5000</td>
<td>1500</td>
<td>6000</td>
</tr>
<tr>
<td>3000</td>
<td>8</td>
<td>200</td>
<td>1500</td>
<td>5000</td>
<td>1500</td>
<td>6000</td>
</tr>
</tbody>
</table>
INFLUX Firesure Type FM

Mounting Detail - Firesure

Typical Pipeline Configuration (Horizontal or Vertical)

Isolation Valve allows drain down of meter without disconnection of water supply.

Control Valve Downstream

From Pump

W

W

Nominal Size D

Connection

Flange

Groove

Weight

50

60

100

150

200

200-8*

150-8*

X

15

15

15

15

25

25

25

25

W

14

14

14

14

24

24

24

24

Weight

4.8

4.8

4.8

4.8

6.8

6.8

6.8

6.8

kg

kg
FLOORMETERS FOR SPRINKLER SYSTEMS

- Flange and groove style connection.
- Simple and quickest to install.
- Horizontal or vertical pipe-lines.
- Most extensive flow ranges.

### Table: Size & Connection

<table>
<thead>
<tr>
<th>Size &amp; Connection</th>
<th>Groove Pipe OD</th>
<th>Firesure close coupled</th>
<th>Firesure X remote coupled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>dm3/min</td>
<td>LPCB ref.</td>
</tr>
<tr>
<td>50 Flange</td>
<td>60.3</td>
<td>150 to 700</td>
<td>464a/06</td>
</tr>
<tr>
<td>50 Groove</td>
<td>88.9</td>
<td>300 to 1600</td>
<td>464a/07</td>
</tr>
<tr>
<td>100 Flange</td>
<td>114.3</td>
<td>500 to 3500</td>
<td>464a/08</td>
</tr>
<tr>
<td>100 Groove</td>
<td>165.1</td>
<td>900 to 7900</td>
<td>464a/09</td>
</tr>
<tr>
<td>168 Groove</td>
<td>168.3</td>
<td>900 to 7900</td>
<td>464a/22</td>
</tr>
<tr>
<td>200 Groove</td>
<td>219.1</td>
<td>2000 to 15000</td>
<td>464a/10</td>
</tr>
<tr>
<td>50 Flange</td>
<td>-</td>
<td>150 to 700</td>
<td>464a/01</td>
</tr>
<tr>
<td>80 Flange</td>
<td>-</td>
<td>300 to 1600</td>
<td>464a/02</td>
</tr>
<tr>
<td>100 Flange</td>
<td>-</td>
<td>500 to 3500</td>
<td>464a/03</td>
</tr>
<tr>
<td>150 Flange</td>
<td>-</td>
<td>900 to 7900</td>
<td>464a/04</td>
</tr>
<tr>
<td>200 Flange</td>
<td>-</td>
<td>2000 to 15000</td>
<td>464a/05</td>
</tr>
</tbody>
</table>

**INFLUX Firesure and Firesure X**

- Direct and remote indicator positioning options.
- Design flexibility to meet CDM regulations.
- Increased pressure rating.
- Remote indicator can be retrofitted.
- Certificated to LPS 1045
INFLUX Firesure and Firesure X

Mounting Detail - Firesure

Assessed to ISO 9001:2008
LPCB Cert No. 464

Mounting Detail - Firesure X

Assessed to ISO 9001:2008
LPCB Cert No. 464
## INFLUX Firesure and Firesure X

### Size & Connection

<table>
<thead>
<tr>
<th>Size &amp; Connection</th>
<th>LPCB Ref. No. &amp; Order codes</th>
<th>Dimension</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Firesure</td>
<td>Firesure X</td>
<td>'W' (mm)</td>
</tr>
<tr>
<td>50 Flange</td>
<td>464a/01</td>
<td>464a/11</td>
<td>40</td>
</tr>
<tr>
<td>80 Flange</td>
<td>464a/02</td>
<td>464a/12</td>
<td>40</td>
</tr>
<tr>
<td>100 Flange</td>
<td>464a/03</td>
<td>464a/13</td>
<td>40</td>
</tr>
<tr>
<td>150 Flange</td>
<td>464a/04</td>
<td>464a/14</td>
<td>40</td>
</tr>
<tr>
<td>200 Flange</td>
<td>464a/05</td>
<td>464a/15</td>
<td>40</td>
</tr>
<tr>
<td>50 Groove</td>
<td>464a/06</td>
<td>464a/16</td>
<td>90</td>
</tr>
<tr>
<td>80 Groove</td>
<td>464a/07</td>
<td>464a/17</td>
<td>90</td>
</tr>
<tr>
<td>100 Groove</td>
<td>464a/08</td>
<td>464a/18</td>
<td>90</td>
</tr>
<tr>
<td>150 Groove</td>
<td>464a/09</td>
<td>464a/19</td>
<td>90</td>
</tr>
<tr>
<td>168 Groove</td>
<td>464a/22</td>
<td>464a/24</td>
<td>90</td>
</tr>
<tr>
<td>200 Groove</td>
<td>464a/10</td>
<td>464a/20</td>
<td>100</td>
</tr>
</tbody>
</table>

### Construction and Specification:

<table>
<thead>
<tr>
<th></th>
<th>Firesure*</th>
<th>Firesure X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main orifice carrier</td>
<td>Flange and groove connection, 316SS orifice in polyester coated steel body.</td>
<td></td>
</tr>
<tr>
<td>Indicator assembly</td>
<td>Nickel plated brass valves and components, borosilicate glass flow tube and Viton seals. Polycarbonate filter bowl and stainless steel filter element.</td>
<td></td>
</tr>
<tr>
<td>Indicator connectors</td>
<td>Direct coupled nickel plated copper tube.</td>
<td>1.7 metre colour coded hydraulic hoses and stainless steel hose clips.</td>
</tr>
<tr>
<td>Indicator mounting</td>
<td>Simple direct to main body</td>
<td>Galvanised steel bracket with 6mm fixing holes, compatible with Unistrut frame and pipe clip mounting options.</td>
</tr>
<tr>
<td>Safe Working Pressure</td>
<td>16 bar g (with x 2.5 safety factor.)</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>5% of flow rate reading</td>
<td></td>
</tr>
</tbody>
</table>

*FIRESURE X RETROFIT PACKAGE: Existing Firesure installations can be converted to Firesure X by use of FSX01 or FSX02 retrofit package.*
INFLUX Firesure and Firesure X

Typical Pipeline Configuration (Horizontal or Vertical)

Assessed to ISO 9001:2008
LPCB Cert No. 464

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www.prevent-a-fire.eu
Two- and Four-Wire Conventional Smoke Detectors

STANDARD FEATURES

- FM Approved
- UL Listed
- CSFM Approved
- Self-diagnostic capability continually monitors operation
- Meets NFPA 72 sensitivity test requirements
- Head and terminal base design (base sold separately)
- Automatic drift compensation
- Field-replaceable optical chamber
- Low-profile design blends into the ceiling
- Advanced alarm verification feature reduces chance of nuisance alarms
- Extensive two-wire compatibility listings
- Compatible with most Kidde, Fenwal and Chemetron Conventional Control Panels (See compatibility chart in Datasheet No. K-70-100)

DESCRIPTION

The 700 Series conventional photoelectric smoke detector is an interchangeable head and base detector with a lightscattering optical sensor that provides outstanding stability and excellent response to a wide range of fires.

A pulsed infrared LED light source and a high-speed photodiode sensing element are housed in an omnidirectional sensing chamber protected by an insect screen. For easy cleaning, the detector features a field-replaceable optical chamber (P/N 211).

Model 721UT photoelectric detectors include integral fixed temperature and rate-of-rise heat detectors. The 721UT provides remote alarm and trouble LED driver outputs. The 700 Series smoke detectors were the industry’s first conventional self-diagnostic detectors specifically designed for the demands of commercial and industrial environments. If the detector drifts out of its UL Listed sensitivity range or fails internal diagnostics, the alarm LED flashes once a second to indicate a trouble condition. This meets NFPA 72 field sensitivity testing requirements without the need for external meters.

Additional diagnostic information is activated by applying a magnet near the detector’s integral reed switch. This initiates a self-diagnostic routine and provides visual indication of sensitivity level, or if service is required. The magnet test causes the LED to blink. The number of blink counts corresponds to a smoke detector sensitivity range.

And, if they become dirty over time, the 700 Series detectors automatically adjust the alarm threshold through built-in drift compensation. If the detector ever does need to be cleaned, the patented field replaceable optical chamber makes cleaning a snap.

ENGINEERING SPECIFICATIONS

The 700 Series photoelectric smoke detector is a low-profile, self-diagnostic, two-wire detector that monitors its own sensitivity and operational status. The detector meets NFPA 72 field sensitivity testing requirements without the need for external meters. Built-in drift compensation automatically adjusts the sensitivity if the detector gets dirty. The 700 Series features an alarm verification feature to further reduce the chance of a nuisance alarm. Normal sensing occurs every 9 seconds. This rate doubles when a signal exceeding the alarm threshold value is sensed. Two additional successive signals above the threshold level initiate an alarm. The patented optical sensing chamber is field replaceable, allowing quick and easy cleaning and maintenance.
# Two- and Four-Wire Conventional Smoke Detectors

**TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th><strong>Electrical</strong></th>
<th><strong>Physical</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>Color</td>
</tr>
<tr>
<td>8.5 - 33VDC, non polarity sensitive</td>
<td>White head and base</td>
</tr>
<tr>
<td>Maximum ripple (peak to peak)</td>
<td>Detector head dimensions</td>
</tr>
<tr>
<td>10% (vp - p)</td>
<td>4” D x 1.75” H (10cm x 4.44cm)</td>
</tr>
<tr>
<td>Typical standy current (24V)</td>
<td>Base dimensions</td>
</tr>
<tr>
<td>70µA</td>
<td>701U, 702U: 6” D x 0.06” H (15.24 cm x 1.3 cm),</td>
</tr>
<tr>
<td></td>
<td>702E: 4” D x 0.06” H (10.16 cm x 1.3 cm)</td>
</tr>
<tr>
<td>Typical alarm current (24V)</td>
<td>Total height, (head and base)</td>
</tr>
<tr>
<td>up to 60 mA max, if not limited by control panel</td>
<td>1.98” (5 cm) H</td>
</tr>
<tr>
<td>Photoelectric Sensitivity</td>
<td>Regulating</td>
</tr>
<tr>
<td>2.85%, +0.37, -0.75%</td>
<td>Listing</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>UL 268, FM, CSFM</td>
</tr>
<tr>
<td>32°F to 100°F (0°C to 38°C)</td>
<td><strong>Ordering Information</strong></td>
</tr>
<tr>
<td>Operating humidity range</td>
<td>711U Smoke detector head only, photoelectric, two-wire</td>
</tr>
<tr>
<td>0 to 95% Non-condensing</td>
<td>721UT Smoke detector head only, photoelectric, two-wire w/integrall heat detector, output for remote LED</td>
</tr>
<tr>
<td>RFI immunity</td>
<td>741UT Smoke detector head only, photoelectric, four-wire, w/integrall heat detector, alarm relay (N.O.) output and output for remote LED</td>
</tr>
<tr>
<td>20 V/m min; 0-1000 MHz</td>
<td>701U Smoke detector base, 3 terminals, 6 in. dia.</td>
</tr>
<tr>
<td>Remote LED output current</td>
<td>702U Smoke detector base, 6 terminals, 6 in. dia.</td>
</tr>
<tr>
<td>5 mA min, 8.5 mA max</td>
<td>204-12/24VG End-of-Line, power supervision relay for four-wire applications</td>
</tr>
<tr>
<td>Drift compensation adjustment</td>
<td>211-10PKG Replacement optical chamber for smoke detectors, set of 10</td>
</tr>
<tr>
<td>1.0% ft, max</td>
<td>06-117883-001 Test magnet</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td>SM200-12PKG Canned smoke for functional testing of smoke detectors</td>
</tr>
<tr>
<td>Heat Sensor Ratings (721UT, 741UT)</td>
<td>706U1A Remote LED indicator for 721UT or 741UT</td>
</tr>
<tr>
<td>Fixed 135°F/Rate of rise 15°F/min, &gt; 105°F (8.3°C/min., &gt;40.6°C)</td>
<td><strong>Ordering Information</strong></td>
</tr>
<tr>
<td>Maximum wind velocity</td>
<td>706U2A Remote LED indicator and keyed remote for 721UT or 741UT</td>
</tr>
<tr>
<td>300 ft/min</td>
<td>706U3A Remote LED indicator, keyed remote and reset for 721UT or 741UT</td>
</tr>
<tr>
<td>Field wiring size</td>
<td><strong>Ordering Information</strong></td>
</tr>
<tr>
<td>12-18 AWG</td>
<td>706U1A Smoke detector head only, photoelectric, two-wire</td>
</tr>
<tr>
<td>Remote test input (721 UT)</td>
<td>721UT Smoke detector head only, photoelectric, two-wire w/integrall heat detector, output for remote LED</td>
</tr>
<tr>
<td>100 ohm max</td>
<td>741UT Smoke detector head only, photoelectric, four-wire, w/integrall heat detector, alarm relay (N.O.) output and output for remote LED</td>
</tr>
<tr>
<td>Reset voltage</td>
<td>701U Smoke detector base, 3 terminals, 6 in. dia.</td>
</tr>
<tr>
<td>2.5V max</td>
<td>702U Smoke detector base, 6 terminals, 6 in. dia.</td>
</tr>
<tr>
<td>Reset time</td>
<td>204-12/24VG End-of-Line, power supervision relay for four-wire applications</td>
</tr>
<tr>
<td>1 second max</td>
<td>211-10PKG Replacement optical chamber for smoke detectors, set of 10</td>
</tr>
<tr>
<td>UL two-wire compatibility identifier</td>
<td>06-117883-001 Test magnet</td>
</tr>
<tr>
<td>S10A (711U, 721UT)</td>
<td>SM200-12PKG Canned smoke for functional testing of smoke detectors</td>
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Kidde Fire Systems Datasheet
Number K-70-100

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