

## FCS-LWM-1 Linear heat detector



The FCS-LWM-1 is a Linear Heat Detector for detecting fire. Its functionality is based on the change in resistance of an electrical conductor caused by a rise in temperature.

### Functions

The four copper wires on the sensor cable are each surrounded by a color-coded (orange, white, red, blue) material with a negative temperature coefficient and encased in a thermally resistant external coating. Two copper wires are connected to the bare end of the sensor cable to form two loops. The end of the sensor cable is then hermetically sealed. Both loops are continually monitored. In the event of an interruption or short circuit, the control unit outputs a trouble message.

If the temperature rises, the electrical resistance between the two loops changes. The control unit detects this change and triggers the alarm if the defined response temperature is exceeded. Both short sensor lengths and longer sections with small temperature increases are detected.

### Certifications and approvals

Region	Regulatory compliance/quality marks	
Switzerland	VKF	AEAI 19204 LWM1
Europe	CE	FCS-LWM-1

### Installation/configuration notes

- Ceiling joists with a height of more than 20 cm are calculated as walls. In this case, the distance from sensor cable to joist must be between 1.5 m and



- ▶ Usable in constricted spaces and under extreme environmental conditions
- ▶ Usable in Ex-zones 1,2, 21, 22
- ▶ Resistant to mechanical and chemical influences, corrosion, humidity and dust
- ▶ Usable for DIN EN 54-5:2000 classes A1, A2, B, C
- ▶ Simple installation and initial set-up

3 m. With ceiling panels measuring less than 3 m in width, it may not be possible to keep these distances. In such a case, the sensor cable must be installed in the centre of the ceiling panel.

- If ceiling joists are between 20 cm and 80 cm high and the overall ceiling area is under 18 m<sup>2</sup>, at least 1 sensor cable of at least 10 m length must be installed overall. (Where possible it is recommended to install 1 sensor cable of at least 10 m length for each of the ceiling segments.)
- If ceiling joists are between 20 cm and 80 cm high and the overall ceiling area is between 18 m<sup>2</sup> and 36 m<sup>2</sup>, the sensor cable must be distributed over the two ceiling segments so that each ceiling segment is outfitted with a sensor cable of at least 10 m length.

### Parts included

Quantity	Component
1	Detector box with control unit

### Technical specifications

#### Electrical

Voltage	10 to 30 V DC
Current consumption	
• Standby	25 mA (at 24 V DC)
• On alarm (ALARM DIFF/ ALARM MAX)	25 mA (at 24 V DC)

• Malfunction	15 mA (at 24 V DC)
Switch-on current	< 100 mA (at 24 V DC)

### Mechanical

Display	
• In operation	LED green, continuously lit
• ALARM DIFF	LED red, continuously lit
• ALARM MAX	LED red, continuously lit
• Malfunction	LED yellow, flashing light
Test keys	2 x for simulating alarm, malfunction and LED test
Dimensions (H x W x D)	200 mm x 120 mm x 80 mm
Material	ABS
Color	Grey, similar to RAL 7035
Weight	Appr. 550 g

### Environmental conditions

Protection class as per EN 60529	IP 65
Temperature range	- 20 °C to + 50 °C
Norm applied	DIN EN 54-5:2000

### Sensor Cables

Features	
• Blue Sensor Cable	Suitable for use in non-aggressive atmosphere with high humidity
• Black Sensor Cable with Nylon Coating	Suitable for use in aggressive atmosphere (nylon coating protects against acids and bases)
• Black Sensor Cable with Steel Netting	suitable for use in aggressive atmosphere (nylon coating protects against acids and bases), the surrounding stainless steel netting reduces the mechanical load of the cable under extreme conditions.
Heat resistance	
• Up to 100 °C	Unlimited
• Up to 150 °C	35 h

• Up to 175 °C	25 h
Exterior diameter	
• Blue Sensor Cable	3.15 mm
• Black Sensor Cable with Nylon Coating	4.1 mm
• Black Sensor Cable with Steel Netting	4.7 mm
Weight per 100 m	
• Blue Sensor Cable	1600 g
• Black Sensor Cable with Nylon Coating	2150 g
• Black Sensor Cable with Steel Netting	4150 g
Minimum tensile strength	100 N
Wire diameter	0.46 mm
Coating thickness	0.34 mm
Thickness of the exterior jacket	0.25 mm
Wire material	
• Lines 1 + 3 (orange + red)	Copper (with polyester coating)
• Lines 2 + 4 (white + blue)	Copper (blank)
Coating material	
• Lines 1 + 3 (orange + red)	Non-conductive polymer
• Lines 2 + 4 (white + blue)	Special NTC polymer

### Ordering information

#### FCS-LWM-1 Linear heat detector

conventional linear heat detector, dependent on the application and environmental condition three different sensor cables can be ordered separately  
Order number **FCS-LWM-1 | F.01U.026.138**

#### Accessories

##### LHD4-SC-BLUE Sensor cable blue (1pc = 1m)

suitable for use in non-aggressive atmosphere with high humidity  
Order number **LHD4-SC-BLUE | 2.799.330.836**

##### LHD4-SC-BLACK Sensor cable nylon coating

suitable for use in aggressive atmosphere (nylon coating protects against acids and bases)  
Order number **LHD4-SC-BLACK | 2.799.330.837**

**LHD4-SC-STEEL Sensor cable woven steel cover**

suitable for use in aggressive atmosphere (nylon coating protects against acids and bases)

Order number **LHD4-SC-STEEL | 2.799.330.838**

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**LHD4-TERMINAL Terminal connector**

Terminal connector

Order number **LHD4-TERMINAL | 2.799.330.833**

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**LHD4-CONNECTOR Intermediate connector**

Intermediate connector

Order number **LHD4-CONNECTOR | 2.799.330.834**

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