



# Alarmline® LWM-1 Linear Heat Detection System

Combined fixed and rate-of-rise  
temperature detection

# Alarmline® LWM-1

## Linear Heat Detection System

- Sensor length up to 300 m
- Resistant to mechanical and chemical influences, corrosion, humidity and dust
- Easy to install, economic, low-maintenance, simple commissioning
- Suitable for use in EX classified areas
- VdS approved, No.: G 20 50 66

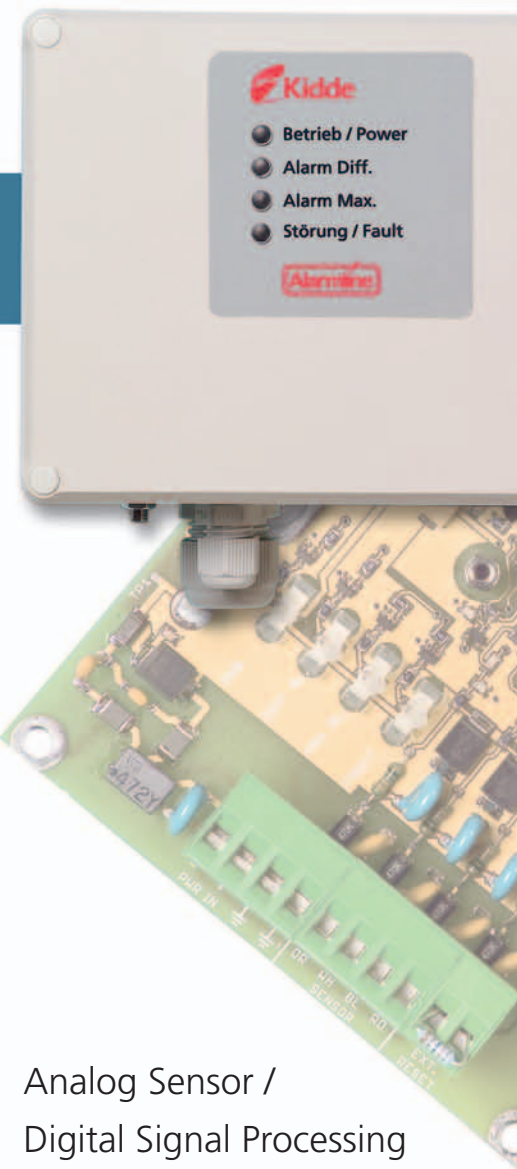
The Alarmline LWM-1 Linear Heat Detection System allows early detection of fire or overheating. It is especially suited for confined areas or harsh environments where adverse ambient conditions cause other detection devices to be unreliable or difficult to use.

The system consists of two components: the sensor cable and the Alarmline control unit LWM-1.

## Control unit

The control unit reports temperature differences by the permanent supervision of the resistance of the sensor cable. The response threshold Max-alarm can be adjusted with a 16-step dip-switch. The Max-alarm is triggered if the static alarm temperature of the sensor cable is reached or exceeded. Two 16 step dip-switches are available for the adjustment of the differential alarm: Diff-time and Diff-alarm. Diff-time changes the integration time of the ambient temperature; the shorter the time interval, the lesser sensitive the system responses. Diff-alarm changes the temperature range, which delivers a constant temperature/measurement-correlation. The higher the Diff-alarm value is chosen, the higher the possible alarm temperature. Individual LED's for "Power", "Max-alarm", "Diff-alarm" and "Fault" indicate the actual status of the system.

Two test buttons within the control unit allow for an electrical check of the system for alarm and fault. All alarm and fault messages are latched in the control unit. A reset can be generated either by an interruption of the power supply or an activation of the External-reset input. The electronic PCB of the control unit is housed in a plastic housing (ABS: Protection class IP 65). Connections to supervising fire panels can be made via potential-free relay contacts (2 A, 30 V) for alarms and fault.



## Analog Sensor / Digital Signal Processing

LWM-1 is the result of a consequent progressive development of the established Alarmline LHD4 system with very high flexibility in application, many new features and expanding options made possible by effective use of modern digital signal processing technology.







## Features

- 3840 application specific settings
- Early fire detection (heat detector classes A1, A2, B, C)
- VdS approved, based on standard EN 54-5:2000
- Low probability of nuisance alarms even in rough environments
- Low space requirement for sensor cable
- Easy installation of sensor cable
- High chemical and/or mechanical resistance using special coated sensor cables
- Control unit may be installed up to 500 m remotely from sensor
- Easy maintenance of the system
- Constant sensitivity over entire length of sensor cable

## Specific application advantages

- **Car parks:** Early recognition of fires despite exhaust gases, dirt and humidity
- **Recycling plants:** No false alarms due to dust and dirt, no interruption of operation during maintenance
- **High-voltage installations:** Installation of the control unit in safe area, no influence by interfering electromagnetic fields
- **Cold stores:** No false alarms or faults due to icing-up of the sensor cable, low maintenance costs
- **Raised floor:** Installation possible under tight space conditions
- **Industrial manufacturing:** Simple maintenance even under high ceilings and/or large overhead cranes; sensor resistive against contamination
- **Conveyor belts:** Early recognition of fires also in changing climatic conditions, dirt and humidity
- **Escalators:** Continuous detection along the entire sensor, no interruption of operation during maintenance
- **Tunnel:** Low probability to false alarms despite exhaust gases, dirt and humidity, installation of the control unit outside of the traffic region

## Sensor cable

The Alarmline sensor cable consists of 4 copper cores. These are coated in a colour coded material with Negative Temperature Coefficient and protected by an outer sheath of high temperature, flame-retardant material. For applications under rough environmental conditions a metal braid additionally protects the sensor cable. The inner sensor wires are connected at the end and hermetically sealed in a manner that they form two loops. Both loops are permanently monitored for open- or short circuit. A fault signal will be generated in the control unit accordingly.

With increasing temperature the electrical resistance is reduced between the two loops. Provided that the sensor is not exposed permanently to a temperature exceeding 100 °C, it will return to its normal operating mode after alarm activation.

## Technical Data

General Data			
Housing material	ABS		
Dimensions	200 mm x 120 mm x 80 mm (WxHxD)		
Weight	approx. 550 g		
Protection class	IP 65		
Colour	grey similar to RAL 7035		
Temperature range	-20 °C to 50 °C		
Length of sensor per control unit	max. 300 m, min. 10 m		
Voltage supply			
Voltage	10-30 V dc		
Quiescent current consumption	max. 25 mA (at 24 V)		
Current consumption on Diff-alarm or Max-alarm	max. 25 mA (at 24 V)		
Current consumption on fault	max. 15 mA (at 24 V)		
In-rush current (on power up)	< 100 mA (at 24 V)		
Displays			
LED green:	Power, continuous light		
LED red:	Alarm Diff, continuous light, latched		
LED red:	Alarm Max, continuous light, latched		
LED yellow:	Fault, flashing light, latched		
Test Buttons			
2 buttons to simulate alarm, fault and LED test			
Sensor cable	standard cable (blue)	+ nylon covered (black)	+ stainless steel braid
Part number	11800010	11800011	11800013
Outside diameter (nominal)	3.15 mm	4.8 mm	5.8 mm
Weight (200 m)	3.2 kg	4.7 kg	9.7 kg
Minimum tensile strength (N)	100	100 +	1000
Conductor diameter		0.46 mm	
Insulation thickness		0.34 mm	
Thickness of the outer sheath		0.25 mm	
Conductor material	Conductor 2+4: Copper, conductor 1+3: Copper with polyester enamel coating		
Insulation	Conductor 2+4: special doped NTC Polymer, conductor 1+3: non-conducting Polymer		
Conductor colours	①- orange ②- white ③- blue ④- red		
Temperature stability	< 100 °C: unlimited < 150 °C: 350 h < 175 °C: 25 h > - 5 °C for part number: 11800010 > - 60 °C for part number: 11800011		



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