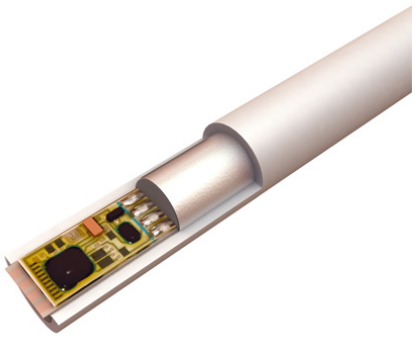
LINEAR HEAT DETECTION – SECURITON
SecuriHeat LIST LHD



SecuriHeat LIST LHD

DESCRIPTION

The SecuriHeat LIST system is an addressable Linear Heat Detector for special applications. It is characterised by its precise detection, high reaction speed, simple installation and commissioning, as well as its maintenance-free design.

The redundancy function, different sensor intervals and branches in the sensor cable allow for the perfect solution for any application. With up to 3,200 metres of SEC20 sensor cable on one LISTcontroller cable terminal processor, LIST is primarily used in tunnels and industrial applications that cover great lengths.

DESIGN AND FUNCTION

The SecuriHeat LIST system is based on acquiring data from numerous temperature sensors that are integrated in the sensor cable at regular intervals. The system measures both the actual heat temperature of the surroundings (convective heat) as well as a fraction of the infrared irradiation (radiant heat). Thanks to these properties and a polling cycle of 10 seconds, the response time of the Linear Heat Detector is extremely short. The intelligent LISTcontroller cable terminal processor evaluates the measurement data and determines instances of alarms or pre-signals based on the specific programming. The “LIST Config” web interface is a flexible programming environment that makes it possible to program the cable terminal processor easily according to the project-specific requirements. Remote access is also possible via TCP/IP for maintenance purposes. The optional programmable relays can be used for actuating the necessary systems in the event of an alarm or fault.

APPLICATIONS

Thanks to its excellent resistance to extreme environmental conditions, the SecuriHeat LIST is used wherever conventional point detectors are not able to guarantee optimal protection.

SEC20 SENSOR CABLE

Semi-conductor temperature sensors are located inside the sensor cable at freely selectable intervals, depending on the respective application. These are electrically connected to one another using a ribbon cable. The ribbon cable with temperature measuring points is surrounded by fill material that provides an aluminium shield against electromagnetic influences. The cable sheath seals off the cable tightly on all sides and is made from flame-retardant, halogen-free material. The standard sensor intervals are 2, 4, 5, 8 and 10 metres. Other sensor intervals of between 50 cm and 10 metres are possible on request.

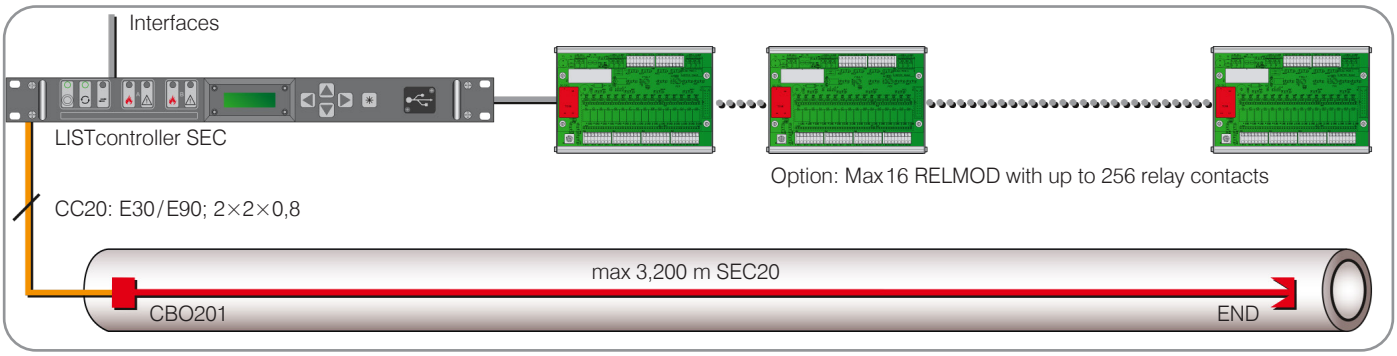
FEATURES

- Linear Heat Detector based on the multiple point principle (sensor cable)
- VdS approval in compliance with EN 54-22, Class A1
- Sensor intervals of between 50 cm and 10 metres
- Sensor cable length up to 3200 metres or 350 sensors per cable terminal processor
- Loop-back and redundancy function
- Branches in the sensor cable
- Intelligent cable terminal processors with relays and interfaces
- Free assignment of the sensors to groups
- Freely adjustable detection properties for each group (max./diff.)

APPLICATIONS

- Road tunnels
- Railway and metro tunnels
- Long cable and supply tunnels
- Long conveyor belts

SECURITON



Stub Installation

LISTCONTROLLER CABLE TERMINAL PROCESSOR

The LISTcontroller is the central cable terminal processor, with one central processor and two peripheral processors for continuous, quick and reliable temperature monitoring together with the SEC20 sensor cable. Up to 2x 3,200 metre sensor cables or 350 individual sensor points are polled every 10 seconds and then evaluated according to various criteria. A fire alarm is triggered when either the temperature at a measuring point exceeds a set threshold, or when a specific temperature increase is recorded over time (differential behaviour). Both alarm thresholds can be freely programmed for up to 254 configurable fire sections. False alarms caused by natural temperature fluctuations can be minimised through special evaluation algorithms. Alarms are made both visually on the front of the device via LEDs and the plain text display in eight different languages, and also via potential-free contacts for forwarding electrically to other computer systems and control systems or to a fire alarm control panel. Faults are detected immediately and signalled thanks to the continuous polling of the sensor data.

DATA INTERFACES AND NETWORKING

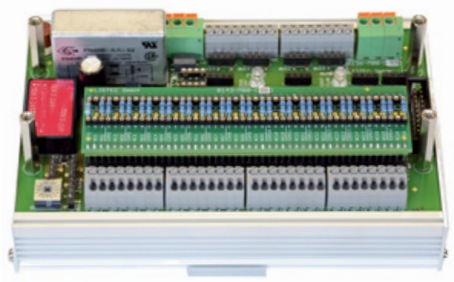
Various interfaces (such as RS232, RS485 and Ethernet) are available for transmitting the alarm, temperature and status values to superordinate systems, as are different protocols such as Modbus RTU, Modbus TCP or IEC 60870-5-104. Multiple LISTcontroller units can be networked via LAN and then evaluated or programmed centrally. Event data and maintenance data can be read out and configuration data can be copied via a USB connection.

SYSTEM DESIGN

A SecuriHeat LIST system consists of at least one LISTcontroller and one connected SEC20 sensor cable. A connection cable can also be installed between the cable terminal processor and sensor cable, to which it is connected via a CBO connection box. Branches in the sensor cable, the connection of individual sensor cable sections via cable and the combination of different sensor intervals are also possible.

One special feature of the LIST system is the possibility of implementing systems with increased availability or redundancy through loop-back and RDT (Rerouted Data Transmission). With loop-back (one LISTcontroller), interruptions in the sensor or connection cable are automatically detected. With RDT (two LISTcontrollers), the failure of a cable terminal processor is also detected. In both cases, the system reconfigures itself automatically and continues to be fully accessible (see the three diagrams on Stub, Loop-back and RDT Installation).

RELMOD RELAY MODULE



The RELMOD is a relay extension for the LISTcontroller. Each RELMOD has 16 potential-free contacts that can be programmed to signal an alarm, pre-signal or fault per group. Up to 16 RELMOD modules can be connected to one LISTcontroller via RS485. The relay contacts can be directly fitted with loop resistors for monitoring the quiescent current when connecting to a collective fire alarm line. The RELMOD also has inputs for targeted alarm release, adjusting the maintenance mode and integrating third-party alarms, plus for deactivating the differential behaviour for certain sensor groups and for a specific time. This can be practical next to doors on loading bays or cold storage rooms to prevent false alarms caused by sudden bursts of warm air, for example.

MOUNTING

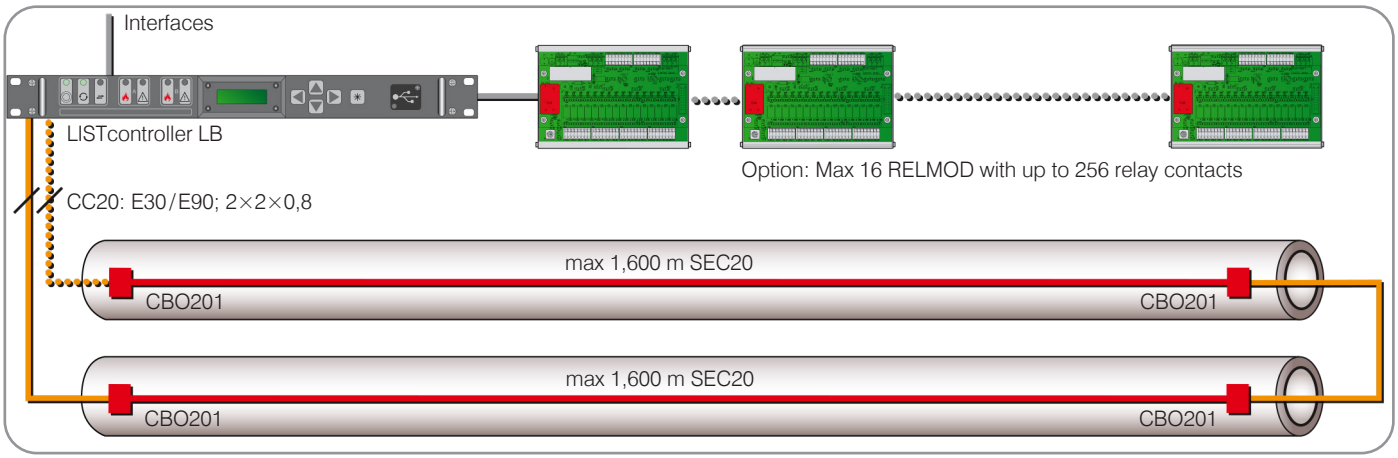
The sensor cable is mounted with plastic CLIC clamps as standard. The maximum spacing between the clamps is 1.2 metres. Stainless steel clamps and other special fastening systems are available for special requirements.

CONFIGURATION

With the help of a web interface, the LIST system can be adjusted to the application with exceptional ease and flexibility. Any number of sensors can be grouped together. The maximum and differential temperature thresholds per sensor group can be programmed individually.

MAINTENANCE

The SecuriHeat LIST system is largely maintenance free. The position of the temperature sensors remains the same even years later, and does not have to be recalibrated. A check of the response characteristics can be made with minimal effort thanks to the mobile, battery-powered STE 515 sensor testing device, even in high tunnels.

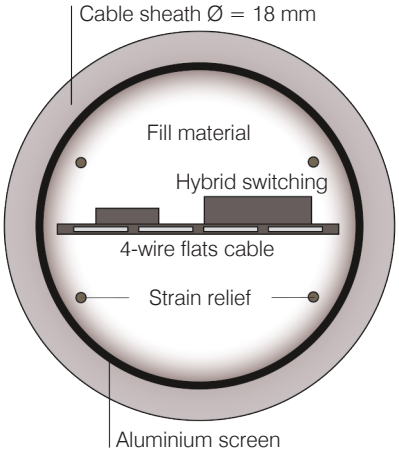


Loop-back Installation

SPECIFICATIONS

SEC20 Sensor Cable

Standard Sensor Intervals	2, 4, 5, 8 & 10 metres – intervals from 0.5 to 10 metres are also possible
Maximum Cable Length	3,200 m (incl. connection cable CC)
Maximum Number of Sensors	350 (VdS approved 320)
Measuring Range	-40 °C to +200 °C
Operating Temperature, Continuous	-40 °C to +85 °C
Operating Temperature, Short-Term	+200 °C
Resolution	0.1 °C
Cable Sheath Material	Halogen-free, flame-retardant (according to EN 60332-1-2, EN 60332-2-2 and IEC 60754-1)
Diameter	18 mm
Weight per Metre	0.45 kg/m
Colour	Grey
Minimum Bending Radius	0.30 m
Installation Temperature	> +10 °C
VdS Approval in Compliance with EN 54-22	G213072

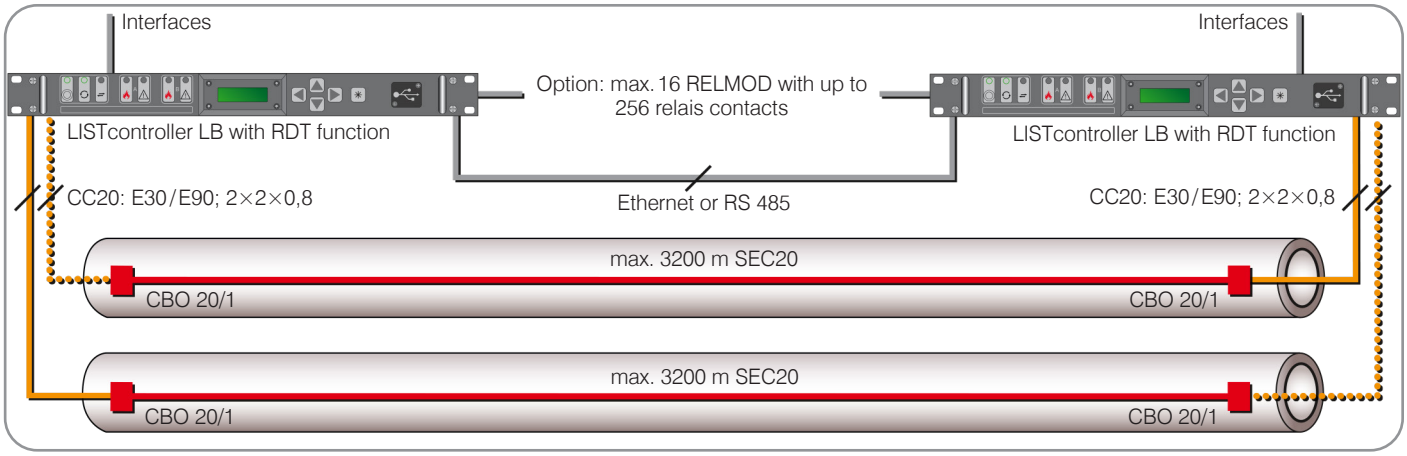


SEC20 Sensor Cable

LISTcontroller LCON Cable Terminal Processor

Operating Temperature, Continuous	-5 °C to +70 °C (-25 °C with limited legibility on the LCD display)
Dimensions (W × H × D)	482.6 x 43.6 x 315.5 mm (corresponds to a 19" board with 1HE (height unit), installation depth with connected cables ± 400 mm)
Supply Voltage	9.5 to 36 VDC
Housing Material	Aluminium
Weight	2.6 kg
Power Consumption	Maximum 5 W (normal operation)
Relays	2x collective alarm, 2x pre-signal, 2x frost alarm, 1x collective malfunction
Contact Load on Relay	48 VDC/32 VAC/250 mA Maximum
Reset Input	5 to 36 VDC, galvanically isolated
Interfaces	COM1 RS485 for LIST network, COM2: RS232 LAN Ethernet 100 Mb/s for LIST network and maintenance USB saving of maintenance, event and configuration data
Protocols	Modbus RTU via COM2, Modbus TCP via LAN, IEC 60870-5-104 via LAN
Displays	LEDs for operation, alarm, fault, measuring cycle and data transmission LCD display for showing messages and menu-driven operation
VdS Approval in Compliance with EN 54-22	G213072

LINEAR HEAT DETECTION – SECURITON
SecuriHeat LIST LHD



Redundant RDT installation

SPECIFICATIONS

Accessories

Connection Box	CBO200	CBO201	CBO203
Connection	2x SEC20 sensor cables	1x CC cable 1x SEC20 sensor cable	3x SEC20 sensor cables (branch)
Operating Temperature, continuous	-30°C to +90°C	-30°C to +90°C	-30°C to +90°C
Dimensions (W × H × D)	244 x164 x100 mm	244 x164 x100 mm	244 x164 x100 mm
Protection Type	IP66	IP66	IP66
Housing Material	Glass fibre reinforced polycarbonate		

RELMOD Relay Module

Number of Potential-free contacts	16
Contact Load on Relay	48VDC / 32VAC / 250mA Maximum
Housing Material	Aluminium, with transparent Plexiglas cover on the main components
Opto-isolator Inputs	8x galvanically isolated inputs, for 5V to 28V DC signals
Operating Voltage	10 to 36VDC
Power Consumption	0.84 W (normal operation) 2.4 W (all relays picked up)
Operating Temperature	0°C to +70°C
Dimensions (W × H × D)	167 x 113.3 x 66.2 mm
Weight	0.65 kg
Mounting	Top hat rail

ORDERING INFORMATION

Product Code	Product Description	Product Code	Product Description
ST-LIST-LB	LISTcontroller LB	ST-LIST-SC2002	Sensor Cable SEC 20/02
ST-LIST-RDT	RDT-Function for LISTcontroller	ST-LIST-SC2004	Sensor Cable SEC 20/04
ST-LIST-RELM	Relay Module RELMOD	ST-LIST-SC2005	Sensor Cable SEC 20/05
ST-LIST-SEC	LISTcontroller SEC	ST-LIST-SC2008	Sensor Cable SEC 20/08
		ST-LIST-SC2010	Sensor Cable SEC 20/10

Please refer to the current Technoswitch Price List for the complete range, peripherals and accessories.

HEAD OFFICE — JOHANNESBURG
Cussonia Park, 3 Ridge Road, Laser Park, Johannesburg **T** +27 (0)11 794 9144 **E** info@technoswitch.co.za
CAPE TOWN T +21 948 4575 **DURBAN T** +27 (0)31 266 8843
www.technoswitch.co.za