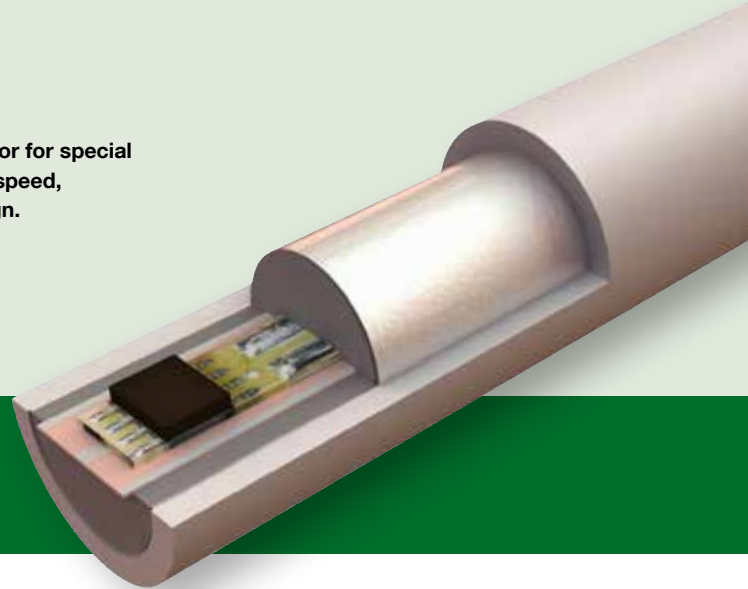


The SecuriSens d-LIST system is an addressable, line-type heat detector for special applications. It is characterised by its precise detection, high reaction speed, simple installation and commissioning, plus its maintenance-free design. Different sensor intervals, branches in the sensor cable and individual temperature sensors allow for the perfect solution for any application. With up to 500 metres of sensor cable on one cable terminal processor, d-LIST is primarily used in industrial applications.

SecuriSens d-LIST



Line-type heat detector (linear sensing of temperature)

Design and function

The SecuriSens d-LIST system is based on acquiring data from numerous temperature sensors that are integrated in the SEC 15 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 line-type heat detector is extremely short. The intelligent cable terminal processor evaluates the measurement data and determines instances of alarms or pre-signals based on the specific programming. The «d-LISTp800» PC software is a flexible programming environment that makes it possible to program the cable terminal processor easily according to the project-specific requirements. The programmable relays, whose availability depends on the cable terminal processor, 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 SecuriSens d-LIST is used wherever conventional point detectors are not able to guarantee optimal protection and where precise detection is necessary.

Typical applications include:

- Cable and supply tunnels, e.g. in power plants and heavy industry
- Car parks, vehicle silos
- Cold stores
- Industrial object protection, such as in conveyance systems and production lines
- Underground stations and tunnels
- Hollow floors and false ceilings
- Incineration plants, disposal operations
- Saw mills, agricultural sectors
- Open loading platforms
- And many other special applications

SEC 15 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 1 metre, 2 metres, 3 metres, 4 metres and 5 metres. Other sensor intervals of between 25 cm and 10 metres are possible on request. The SEC 15 sensor cable is prefabricated to the desired length and delivered with a crimp connector and end cap.

SCU 800 cable terminal processor

The SCU 800 cable terminal processor is the central control unit that supplies up to two SEC 15 sensor cables with power, carries out cyclical polling of the connected sensors every 10 seconds, records the received temperature values and then evaluates them 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 64 configurable fire sections. False alarms caused by natural temperature fluctuations can be largely minimised through special evaluation algorithms. Alarms are made both visually on the front of the device and also via potential-free contacts for forwarding electrically to other computer systems and control systems or to a fire alarm control panel. In doing so, both cable sections are evaluated separately and an alarm is also signalled separately. Faults are detected immediately and signalled thanks to the continuous polling of the sensor data.

- Line-type heat detector based on the multiple point principle (sensor cable)
- VdS approval in compliance with EN 54-5, Class A1
- Sensor intervals of between 25 cm and 10 metres
- Sensor cable length up to 2x 250 metres or 2x 99 sensors per cable terminal processor
- Branches in the sensor cable
- Ex zone 2, 22 variants
- Additional external point sensors (also as Ex version)
- Intelligent cable terminal processors with relays and interfaces
- Free assignment of the sensors to groups
- Freely adjustable detection properties for each group (max./diff.)

The SCU 800 is available in two versions:

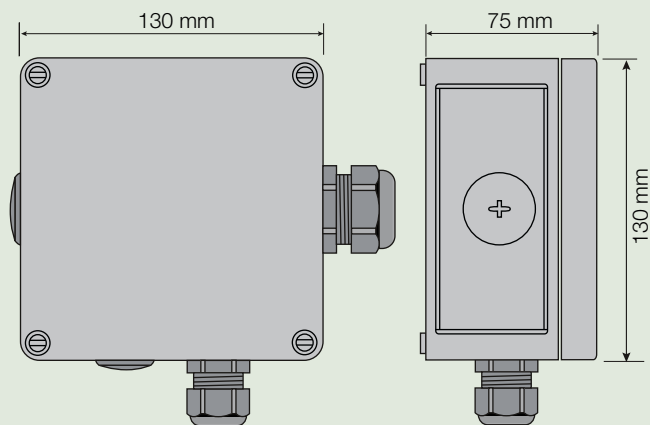
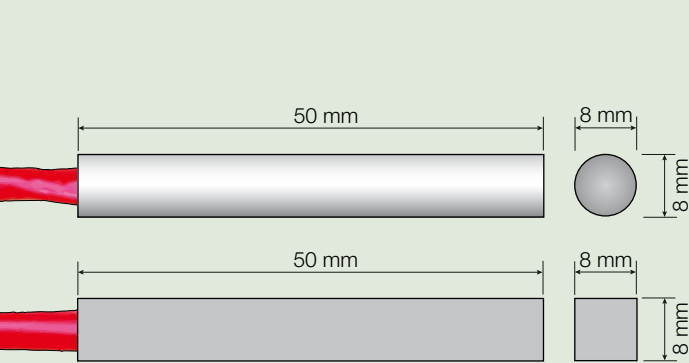
- SCU 800-3 with two collective alarm relays (one per sensor cable) and one collective malfunction relay.
- SCU 800/16 with 16 group relays that can be programmed to signal an alarm, pre-signal or fault per group, plus one collective malfunction relay.

Data interfaces and networking

A serial RS-232 interface is used for programming and for setting the alarm threshold value with the help of the d-LISTp800 software. Up to 31 SCU 800 cable terminal processors can be connected together via one RS-485 interface and then evaluated and operated centrally using a LISTcontroller.

RDU 316 remote display

The RDU 316 is a remote display unit using plain text for up to 31 SCU 800 cable terminal processors. In combination with the cable terminal processor, messages are generated



ES individual temperature sensors round and cornered

Connection box CBO 5

that are displayed chronologically (time and date) with fail-safe reliability, saved and read out. The loop memory and real-time clock on the RDU 316 allow up to 450 messages to be displayed and stored with a date stamp. In practice, this means that an alarm is forwarded precisely to the plain-text display on the RDU with the numbers of the device, section and measuring point. Depending on the message type, the display is shown in the respective language in green, orange or red. The RDU saves all messages from all connected devices, such as alarms, faults or other technical incidents. The connection is made via a RS-485 bus, which can have a maximum length of 1000 metres to the central system.

ATEX

A corresponding version of the d-LIST system is available for use in potentially explosive atmospheres (zones 2 and 22).

System design

A SecuriSens d-LIST system consists of at least one SCU 800 cable terminal processor and one or two connected SEC 15 sensor cables. 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. Alternatively, SECcon plugs can also be used. Branches in the sensor cable, the connection of individual sensor cable sections via cable and the combination of different sensor intervals are also possible (see the corresponding diagram).

ES individual temperature sensors

Individual sensors in a stainless steel housing are available for the precise temperature monitoring of critical areas. These are delivered with a supply cable measuring 1, 5 or 10 metres and are connected to the sensor cable or cable terminal processor via connection boxes. The sensors record the temperature at a resolution of 0.1 °C. The temperature measurement range is between -55 °C and 120 °C.

Mounting

The sensor cable is mounted with plastic CLIC clamps as standard. The maximum spacing between the clamps is 1 metre. Stainless steel clamps and other special fastening systems are available for special requirements.

OIM module

With the OIM module, the differential behaviour can be deactivated for a specific time after an input signal for certain sensor groups. This can

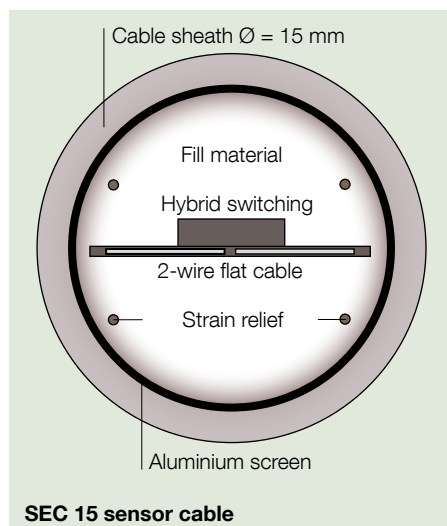
be practical next to doors on loading bays or cold storage rooms to prevent false alarms caused by sudden bursts of warm air, for example.

d-LISTp800 software

With the help of the software, the d-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 can be programmed individually.

Maintenance

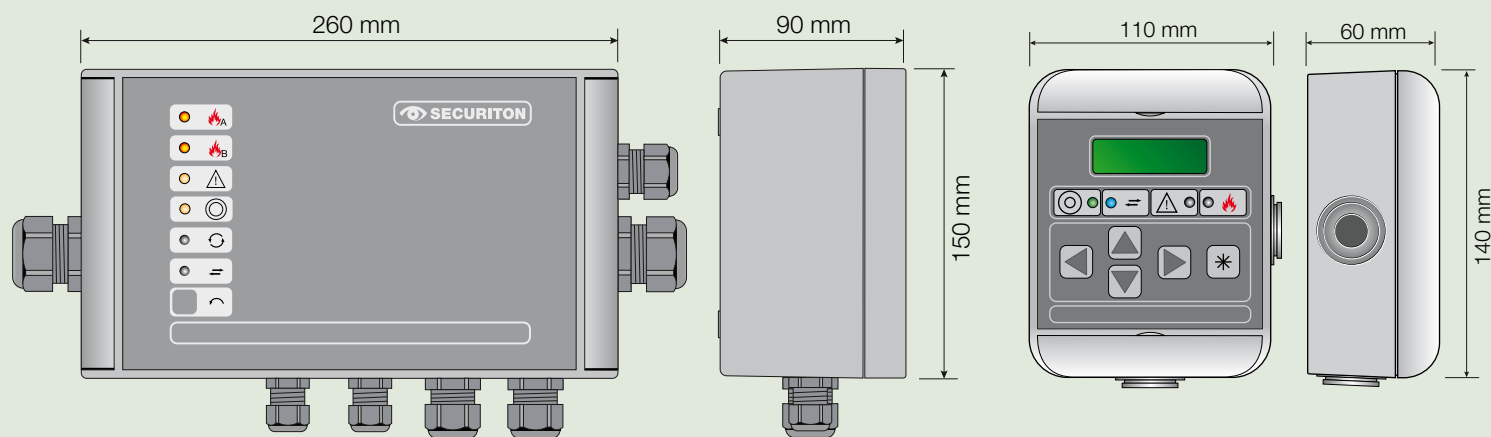
The SecuriSens d-LIST system is largely maintenance free. The position of the temperature sensors remains the same, even years later. A check of the response characteristics can be made with minimal effort thanks to the mobile, battery-powered STE 515 sensor testing device.



Technical data – SEC 15 sensor cable

Standard sensor intervals	1 m, 2 m, 3 m, 4 m, 5 m (others from 0.25 m to 10 m possible)
Maximum cable length	2x 250 m (incl. connection cable CC)
Maximum number of sensors	2x 99
Measuring range	-40 °C to +120 °C
Operating temperature, continuous	-40 °C to +85 °C
Operating temperature, short-term	+120 °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	approx. 15 mm
Weight per metre	0.35 kg/m
Colour	Grey
Min. bending radius	0.25 m
Installation temperature	> +10 °C
VdS approval in compliance with EN 54-5	G 205143

SEC 15 sensor cable



SCU 800 cable terminal processor

RDU 316 remote display

Technical data – SCU 800 cable terminal processor

	SCU 800-3	SCU 800/16
Operating temperature, continuous	-10°C to +60°C	-10°C to +60°C
Dimensions (W×H×D)	260×150×90 mm	260×150×90 mm
Supply voltage	21 to 29 VDC	21 to 29 VDC
Housing material	Aluminium	Aluminium
Protection type	IP 65	IP 65
Weight	1.9 kg	2.3 kg
Power consumption (normal operation)	1.9 W	2.7 W
Relays	2 x collective alarm 1 x collective malfunction	16x freely programmable (alarm, pre-signal, fault) 1 x collective malfunction
Contact load on relay	48 VDC/32 VAC/250 mA max.	48 VDC/32 VAC/250 mA max.
Reset input	5 VDC, galvanically isolated	5 VDC, galvanically isolated
Interfaces	RS-232 (programming) RS-485 (networking; RDU connection)	RS-232 (programming) RS-485 (networking; RDU connection)
VdS approval in comp. with EN 54-5	G205143	G205143

Technical data – accessories

	CBO 5-SEC	CBO 5-ESD-T
Connection box	CBO 5-SEC	CBO 5-ESD-T
Connection	1 or 2 SEC 15 sensor cables	8 ES individual sensors or 1 SEC 15 sensor cable and 4 ES individual sensors
Operating temperature, continuous	-35°C to +60°C (short-term +80°C)	-35°C to +60°C (short-term +80°C)
Dimensions (W×H×D)	130×130×75 mm	130×130×75 mm
Protection type	IP 66	IP 66
Housing material	Glass fibre reinforced polycarbonate	Glass fibre reinforced polycarbonate

ES individual temperature sensors

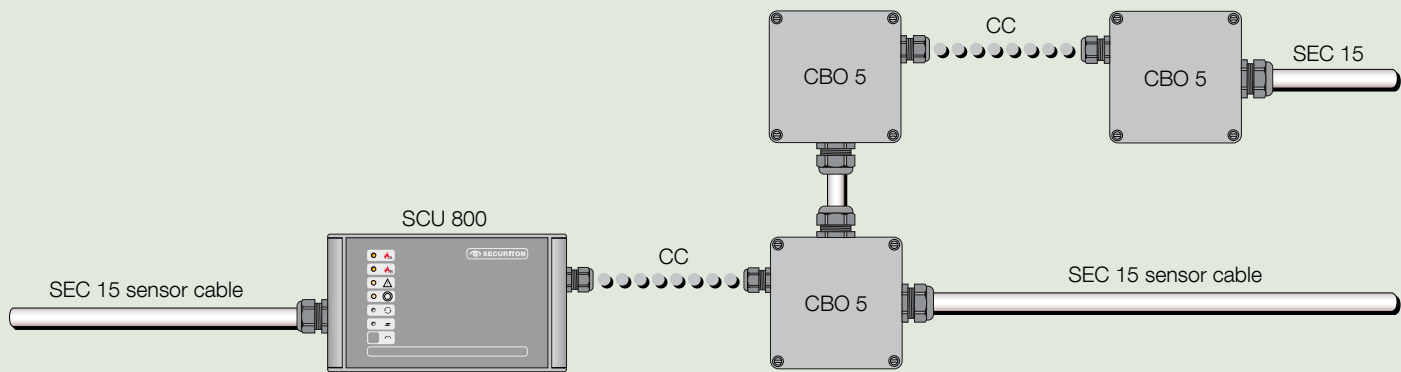
Measuring range	-55°C to +120°C
Material	Stainless steel 1.4571
Dimensions (W×H×D)	ESD-A5-EL: 8×8×50 mm with 4 mm hole ESD-A5-RL: Ø 8×50 mm
Length of supply cable	1 m, 5 m, 10 m

RDU 316 remote display

Operating temperature	0°C to 60°C
Material	ABS-FR
Dimensions	110×140×60 mm
Operating voltage	10 to 36 V DC
Power consumption at 24 V DC	Normal 40 mA; alarm 100 mA
Protection type	IP 66

OIM module

Input	Switching contact on terminal strip, galvanically isolated
Switching voltage	18 V to 31.9 V
Operating voltage	24 VDC
Operating temperature	0°C to +40°C
Dimensions (W×H×D)	68×82×40 mm
Weight	0.076 kg
Mounting	Top hat rail



d-LIST system design

SecuriSens d-LIST range

SCU 800-03	Cable terminal processor with two alarm relays and one fault relay
SCU 800/16	Cable terminal processor with 16 section relays
LCON Master	LISTcontroller as master for d-LIST sensor cable systems
RDU 316	RDU 316 with plain-text display, three lines of 16 characters, for connecting to up to 31 SCU 800 cable terminal processors via RS-485 interface
SEC 15/01	Sensor cable with 1 metre sensor interval
SEC 15/02	Sensor cable with 2 metres sensor interval
SEC 15/03	Sensor cable with 3 metres sensor interval
SEC 15/04	Sensor cable with 4 metres sensor interval
SEC 15/05	Sensor cable with 5 metres sensor interval
CLIC 15	CLIC 15 cable clamps
MDC 20	Stainless steel clamp with restraining bar
MDJ 40	Stainless steel clamp (1.4571) with stainless steel dowel and cable fastener
CC 15	CC 15 connection cable (red)
CBO 5-SEC	Connection box for one to two SEC 15 sensor cables, with UCM module, polycarbonate, IP 66
CBO 5-ESD-T	Connection box for up to eight ESD individual sensors, with UCM module, polycarbonate, IP 66
OIM 15	Input module for on/off switching state, galvanically isolated
ESD-A5-EL-01	Stainless steel sensor in A5; 1 metre supply cable; square, 8 mm
ESD-A5-EL-05	Stainless steel sensor in A5; 5 metre supply cable; square, 8 mm
ESD-A5-EL-10	Stainless steel sensor in A5; 10 metre supply cable; square, 8 mm
ESD-A5-RL-01	Stainless steel sensor in A5; 1 metre supply cable; round, 8 mm
ESD-A5-RL-05	Stainless steel sensor in A5; 5 metre supply cable; round, 8 mm
ESD-A5-RL-10	Stainless steel sensor in A5; 10 metre supply cable; round, 8 mm

Specifications subject to change without notice. Delivery subject to availability.



MDC 20



CLIC 15



MDJ 40