

## ES External Temperature Sensor



The aluminium or stainless steel casing contains the semiconductor temperature sensor. The casing can either be rectangular, for direct mounting onto the monitored object, or round, to be used as a probe.

The temperature sensor and the connecting cable are both glued into the casing, therefore sealing the entire assembly hermetically.

The connecting cables are either 1m, 2m, 3m or 5m long. Other lengths on request.

External sensors are available for the **LIST**<sup>®</sup>( ESA) and  $\delta$ -**LIST**<sup>®</sup> (ESD)-system.

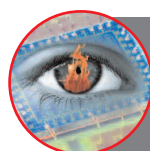
The sensor can be used in the temperature range -40°C to +150°C (ESA) or from -55°C to +120°C ( ESD) and measures temperatures with 0.1° accuracy.

External sensors can be connected to a **LIST**<sup>®</sup>-System via external sensor modules (MODx). Each module allows the connection of up to 4 external sensors to a control unit. A maximum of 3 MODx can be built into one connection box, i.e. 12 Sensors per connection box.

The  $\delta$ -**LIST**<sup>®</sup>-system allows the direct connection of the temperature sensors to the bus and, thus, to the evaluation and control unit.

Due to the continuous temperature interrogation by the sensor control unit, a continuous function check of all sensors is given.

The external sensors can also be combined with sensor cable systems.



## Ordering information

When ordering external sensors, always specify the complete type-code for the required version. The type-code is made up of the following ordering information. All options must be recorded in the type code:

**E S s - A 5 - f L - / /**

where: s = Sensor typel  
f = Casing form  
ll = Cable length

### Sensor type

**E S s - A 5 - f L - / /**

#### Sensor type A

for use with the LIST®-system, whereby their connection takes place via MODx-modules. The sensors can be used together with SEC20 sensor cable and the LIST controller.

Measuring range: -40°C...+150°C

#### Sensor type D

for use with the δ-LIST®-System, whereby all sensors are connected in parallel via standard terminals. These sensors can be used together with SEC15 sensor cable and the control unit SCU800.

Measuring range: -55°C...+120°C

### Casing material

**E S s - A 5 - f L - / /**

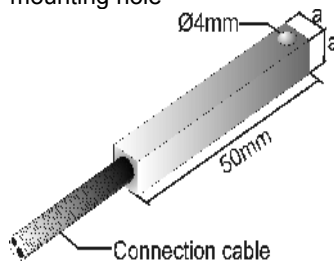
Material:  
stainless steel  
A5 quality

### Casing form

**E S s - A 5 - f L - / /**

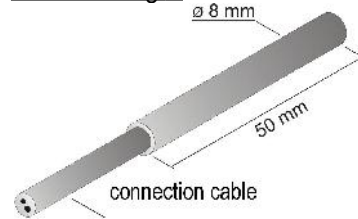
#### Rectangular casing E

- with 4 mm mounting hole
- Sensor directly next to the mounting hole



- Dimensions: a x a x 50 mm  
Cable type L a = 8mm

### Round casing R



- used as probe
- Dimensions:  
Cable type L d = 8 mm

### Cable type

**E S s - A 5 - f L - / /**

Cable type L  
Type: LISTEC  
Temperature: -65°C...+180°C  
Sheath: largely oil and gasoline resistant

Colour: red

### Cable length

**E S s - A 5 - f L - / /**

Available cable lengths are:

- 01 = 1 m
- 02 = 2 m
- 03 = 3 m
- 05 = 5 m

### Example

The type number **ESD-A5-EL-05** describes a δ-LIST external sensor in a stainless steel housing with a 5 m LISTEC connection cable.

## Accessoires

### LIST-system

#### External sensor module MODx

The MODx houses the LIST®-addressing modules and are required for the connection of the external sensors of the sensor type A to the a LIST®-system. The MODx is supplied in a snap-on housing for DIN rails.

- MOD1** module for 1 ES
- MOD2** module for 2 ES
- MOD3** module for 3 ES
- MOD4** module for 4 ES

#### Connection Module CCM20

The connection module contains over-voltage protection circuitry for LIST®-systems.

## δ-LIST®-system

The external sensors of the sensor type D are connected to the δ-LIST-bus via standard terminals. All sensors are connected in parallel.

## Connection boxes CBO

One connection box can be fitted with either three MODx or two MODx and one CCM. Both systems allow a maximum of 12 sensors and 2 bus cables per connection box.

CBO 10 type connection boxes are used in areas where the risk of mechanical damage is low.

CBO 20 type connection boxes are used outdoors in areas where the risk of mechanical damage is high (e.g. belt conveyors).

### CBO 10/4mod Connection Box

Connection box for max. 12 external sensors.

Material: ABS, Thermoplastic  
Protection: IP 65  
L x W x H: 240 x 160 x 90 mm  
(without cable-glands)

Colour: light-grey

### CBO 20/4mod Connection Box

Connection box for max. 12 external sensors.

Material: glass-fibre reinforced Polyester  
Protection: IP 66  
L x W x H: 240 x 165 x 100 mm  
(without cable-glands)

Colour: grey

### CBO15/12 mod Connection Box

Connection box for max. 12 external sensors.

Material: ABS, Thermoplastic  
Protection: IP 65  
L x W x H: 240 x 160 x 90 mm  
(without cable-glands)

Colour: light-grey

