

## SEC 20

## Sensor Cable

**LISTEC**<sup>®</sup>  
**Linear Sensor Technik**  
 GmbH



The hermetically sealed sensor cable contains small hybrid circuits which, depending on the application, are placed at selectable intervals. The hybrids, which contain an integrated circuit with a defined address and a semiconductor temperature sensor, are electrically connected by a flat flexible cable.

The flat flexible cable and temperature measuring points, are surrounded by a filling material, which in turn is covered by an aluminium shield protecting against EMI. A flame retarding, halogen free cable sheath completes the sealed structure of the sensor cable.

The cable can measure temperatures in a  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  (for short periods  $+200^{\circ}\text{C}$ ) range, with a resolution of  $0,1^{\circ}$ .

On account of its maintenance- and adjustment-free operation, the sensor cable can be used in areas which are not or only partly accessible during normal operation.

Due to the constant interrogation of the temperature sensors by the control unit, a functional check is always given.

Self locking clamps are usually used to mount the cable. The relative stiffness of the cable allows a spacing of one meter between clamps.

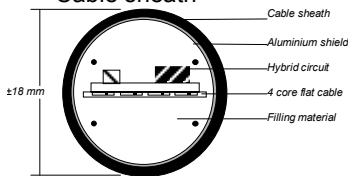
Damage cable sections can easily be repaired by cutting out the damaged section and connecting a new piece in its place with the aid of sleeve joints.

The **LIST**<sup>®</sup> sensor cable system is a Verband der Schadenversicherer (**VdS**) tested and approved product with the approval number **G294051**.

## DATA SHEET

### Cable construction

- Hybrid circuits mounted on a 4 core flat flexible cable
- Filling material with strain relief
- Shield
- Cable sheath



### Sensor spacing

Freely selectable; min. 0,5 m  
Standard spacing: 1, 2, 3, 4, 5, 8 m.

### Sensor marking

A 4-digit consecutive number on the cable sheath marks the position of each sensor in the cable.

### Cable specifications

Diameter: approx. 18 mm  
Min. bending radius: 0,30 m  
Max. continuous length: 2.000 m  
Cable sheath: halogen free,  
flame retarding,  
acc. to DIN VDE 0207, part 24  
Sheath colour: grey  
Operating temperature range:  
-40°C ... +85°C  
short period +200°C  
Mounting temperature:  $\geq$  +10°C

### Measuring point specifications

Measuring range: -40°C ... +200°C  
Resolution: 0,1°  
Addressing: 0 ... 1023

### Delivery

The sensor cable is delivered on rented, wooden, cable drums belonging to the Kabeltrommelgesellschaft (KTG). The delivery takes place according to KTG terms.

As a rule, the following drums are used for sensor cable deliveries:

#### up to 600 m:

Ø 1000 mm, W=685 mm, wt=71 kg

#### up to 1.000 m:

Ø 1200 mm, W=870 mm, wt=144 kg

#### up to 1.500 m:

Ø 1400 mm, W=870 mm, wt=175 kg

#### up to 2.000 m:

Ø 1600 mm, W=1100 mm, wt=280 kg

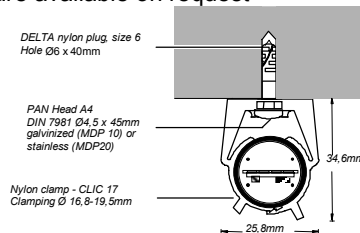
Sensor cable weight: 0,45 kg/m

### Accessories

#### Cable mounting

Self-locking nylon clamps are available as a mounting device. stainless steel clamps are also available on request.

The clamps are fixed to the ceiling using nylon plugs and screws. For nylon clamps 15, 25, 35, 45, 65 and 85mm spacers are available. Suggestions for the mounting on U-profiles, cable trays, metal beams etc. are available on request



#### Connection boxes

The beginning of each sensor cable length has to be fitted with a connection box. The connection box contains a connection module which allows the connection of the sensor cable with a normal cable, leading to the sensor control unit.

The connection module also contains overpotential protection circuitry.

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

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

Aluminium die-cast and explosion-protected connection boxes are available on request.

### Ordering information

#### Sensor cable SEC 20

Operating range: -40°C ... +85°C  
(+200°C short period)

Resolution: 0,1°

Sheath: FRNC, halogen free

SEC 20/01	sensor spacing 1 m
SEC 20/02	sensor spacing 2 m
SEC 20/03	sensor spacing 3 m
SEC 20/04	sensor spacing 4 m
SEC 20/05	sensor spacing 5 m
SEC 20/08	sensor spacing 8 m
SEC 20/x	custom sensor spacing

#### Mounting devices MDP 10

Nylon self-locking clamp, including galvanised screw and size 6 nylon plug.

Packaging: 100 pieces.

#### Mounting devices MDP 20

Nylon self-locking clamp, including stainless steel screw and size 6 nylon plug.

Packaging: 100 pieces.

#### CBO 10

**Connection Box**  
Material: ABS, thermoplastic  
Protection: IP 65  
L x W x H: 160 x 160 x 90 mm  
(without cable-glands)  
Colour: light grey

CBO 10/1	for one sensor cable
CBO 10/2	for two sensor cables
EBO 10	each incl. one CCM module end box

#### CBO 20

**Connection Box**  
Material: glass fibre reinforced polyester  
Protection: IP 65  
L x W x H: 260 x 160 x 95 mm  
(without cable-glands)  
Colour: grey

CBO 20/1	for one sensor cable incl. one CCM module
CBO 20/2	for two sensor cables
CBO 20/3	for three sensor cables
EBO 20	each incl. two CCM modules end box

#### END 20

**Endcap**  
Heat-shrink cap to seal the end of the sensor cable