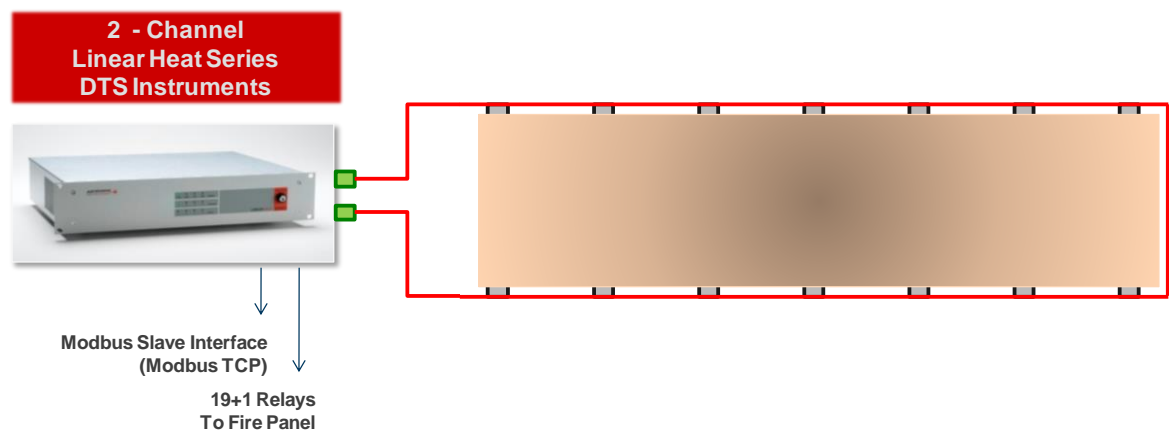




Sensor Cable Mounting: Heat Detection for Conveyor Belts

Typical Setup:

Dual Ended Configuration – Sensor cable mounted along both sides of the conveyor supports.



Benefits:

- Detects, locates and monitors fires or stationary heat buildup of conveyor systems and materials
- Continuous linear fire and heat detection up to 16km - no gaps in coverage
- Configurable simultaneous adaptive, rate of change, and fixed temperature alarms on up to 256 zones ensure optimum sensitivity
- Passive (no power required), robust, maintenance free sensor cables
- Ex approval (optional)
- Easy to install and integrate into existing SCADA or Fire Panel systems

Considerations:

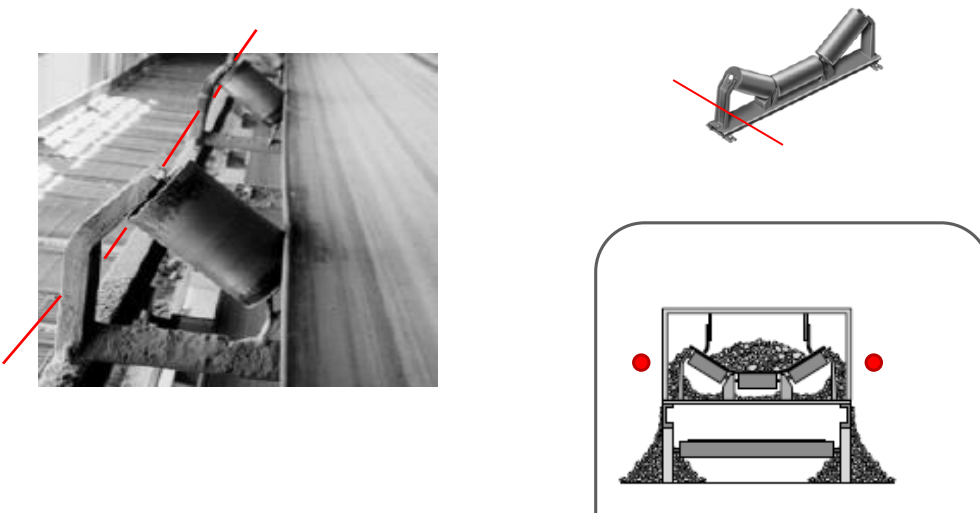
- Fiber optic heat detection is most suitable for detecting stationary or spreading fires
- Fires moving on the conveyor are not detected with linear heat detectors due to the speed at which they travel
- Heat from hot rollers can be detected, however, placement of the sensor cable is critical
- Hot roller detection is a benefit; but, they are detected at a later stage of mechanical wear

Sensor Cable Parameter:

	Sensor Cable Safety	Sensor Cable Steel
Construction	FRNC outer sheath Armid fibers Thight- buffered fibres	FRNC outer sheath Stainless steel wires Gel-free stainless steel loose tube Fibres with primary coating
Fiber	MM 50/125 μm [MM 62.5/125 μm]	MM50/125 μm [MM 62.5/125 μm]
Cable \varnothing	4.0 mm	3.8 mm
Weight	17 kg/km	25 kg/km
Minimum bending radius	20xD mm (with tensile) 15xD mm (without tensile)	20xD mm (with tensile) 15xD mm (without tensile)
Max. crush resistance	100 N / cm	960 N / cm
Max. tensile strength	1000 N (short term) 800 N (long term)	1500 N (short term) 1100 N (long term)
Operating temperature	-40°C to +85°C	-40°C to +85°C
Installation temperature	-5°C to +50°C	-5°C to +50°C
Short term temperature (1h)	-50°C to +150°C	-50°C to +150°C

Sensor Cable Positioning:

The fiber optical sensor cable is sensitive to radiated as well as convectonal heat. Therefore a positioning where the cable can “see” fires and is exposed to convectonal heat from the fire is best:



Sensor Cable Mounting:

The following mounting solutions can be considered, based on specific installation needs:

- Standard Clamps
- Tension Wires
- Cable Tray Clips

Clamps with reduction sleeve:

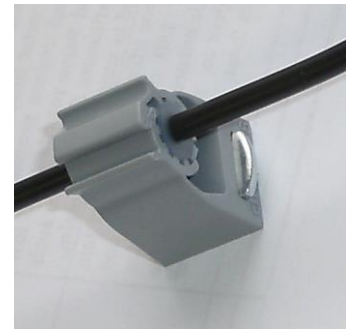
- DIN 3016 Clamps with Silicone Reduction Sleeve (Stainless Steel)
- Click – Clamps with Silicone Reduction Sleeve (Polyamide)



DIN 3016 Clamp



DIN 3016 Clamp
with Reduction Sleeve
Mounted with 2 x M6 nuts
on M6 thread.



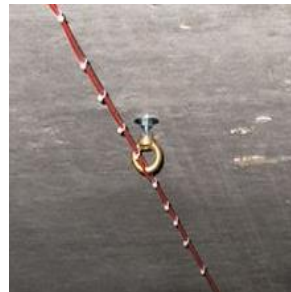
Clic -Clamp
with Reduction Sleeve
with M6 thread.

These clamps need to be fixed to the conveyor construction.

Cable Tray Clips:



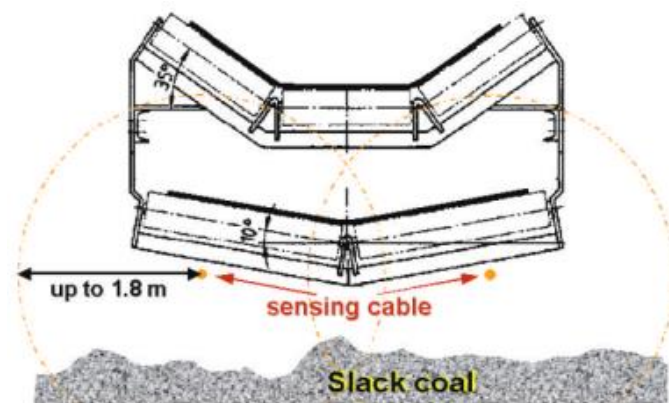
Tension Wire:



Note: Mounting with cable straps (quick and inexpensive) can be done, but the lack of robustness against vibrations needs to be considered.

Project Examples

Installation under conveyor in a coal mine:



Hanging conveyor: the detection goal was to find smoldering fires below the conveyor in coal mines.

Installation under conveyer in coal fired power plant with Cable tray clip:



Installation with Tension Wire:

