

Overheat and Fire Protection for Transformers

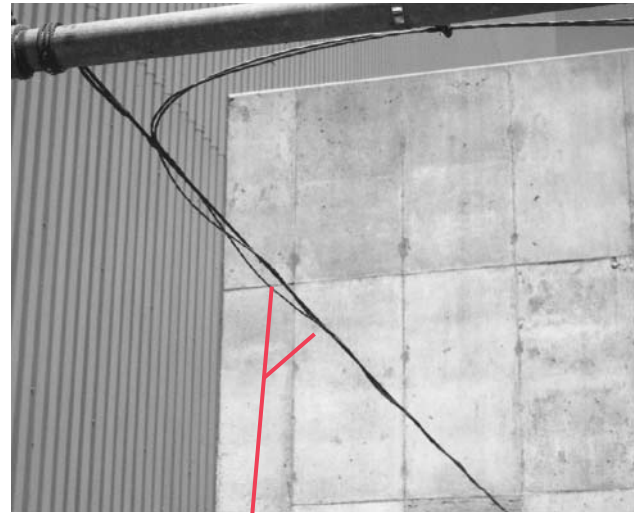
Protectowire Linear Heat Detector is uniquely suited for protection of power transformers. The Detector can be easily installed adjacent to or directly on transformers in outdoor installations to provide detection of any overheating condition. The inherent flexibility of the Detector allows it to be placed easily at any spacing desired. Non-metallic cable ties are recommended for fastening directly on transformers.

Protectowire Linear Heat Detector, Type EPR, provides resistance to aggressive atmospheres often found in transformer locations. See DS 6592 in the Protectowire catalog for description of this Detector type.

The Protectowire control panel will annunciate zoned alarm and trouble signals on the front of the panel and will sound audible signals as required. The system is also capable of supervising sprinklers or other extinguishing systems.



Photos taken at: Monroe Power Plant, Detroit Edison Co., Detroit, Michigan., U.S.A.



Protectowire Linear Heat Detector



Power transformers are subject to fires from many sources. They often occur because of deterioration of insulation in the transformer. This produces arcing which in turn overheats the insulating oil and causes the tanks to rupture; further arcing then will start a fire. Fires are also initiated by lightning and occasionally by dirty insulators on the outside of the tanks.

Proper maintenance can reduce these risks. Careful protection against faults by shielding, grounding, lightning arresters, interrupting devices and relays can also decrease the opportunity for a destructive fire.

In spite of protection by these measures and expert maintenance, the risk of fire remains quite high, and a fire protection system is always recommended and often required. In addition, suppression systems are frequently installed. Foam is effective on flammable and combustible liquid fires (such as oil filled transformers) but is a conductor of electricity and should, therefore, not be used near energized equipment. Water, in the form of a solid stream, is also conductive and ineffective on oil fires. Only non-adjustable spray nozzles, or nozzles which cannot be adjusted to the solid stream position should be used in transformer areas. Carbon dioxide fixed systems are usually of questionable value out-of-doors, due to the effect of winds. In the photos shown on the front page, two temperature ratings of Protectowire Linear Heat Detector are run on the sprinkler pipes to initiate a prealarm and alarm signal. Alarm bells are sounded when the prealarm signal is received and the deluge sprinklers are activated from the alarm signal.

If the sprinkler system is installed at too great a distance from the transformer to provide early detection, the Protectowire may be installed directly on the device it is protecting with the use of plastic cable ties and mounts cemented directly to the transformer. The Protectowire panel can automatically provide transformer shut-down and then release sprinkler or other extinguishing agents. An early warning signal is initiated by the Protectowire Linear Heat Detector, which can sense an overheat condition even before fire is initiated, and can operate in outdoor areas as well as indoors. Protectowire engineers will work with you to design a complete system.

Protectowire Linear Heat Detector is a component of a complete family of fire detection systems manufactured by The Protectowire Company.



*Photos taken at:
Zimmer Generating Station
(345/69 KV Transformer)
Cincinnati Gas & Electric Co., Moscow, Ohio, U.S.A.*



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