



Industrial Television Limited

Excellence in Television Technology

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VITAL (Video Thermal Anomaly Location):

VITAL is a low-cost system designed for the inspection of vessels containing liquid metal to detect worn or weak spots in the refractory lining before these become dangerous.

The system allows the operator to quantify the actual temperature of the outer wall of the vessel, and so by inference detect areas of wear, missing refractory or leakage of metal between the lining and walls.

The principle of operation is that a remote reading pyrometer is combined with a camera that is sensitive to the near infrared spectrum. Both these instruments view the scene through coaxial optics to eliminate parallax.

The complete assembly is mounted in a suitable housing to protect it from the normally harsh environment in which it operates. This housing is mounted on a remotely-controlled platform, which can be moved by the operator. Water and air cooled versions are available for unusually demanding locations, and ambient temperatures of 250°C can be tolerated, with considerable additional thermal radiation loads.

The operator, in a place of safety which may be up to 400 metres from the sensor, sees on a video monitor a picture of the vessel in which areas with temperatures above approximately 400 degrees appear to the camera to be incandescent. There is a small window superimposed on the picture indicating the measuring field of the pyrometer, and by pointing the system to overlay the area of interest with this window, the temperature of the area can be measured. Accuracy is normally within 10°C.

The system is considerably less expensive than the thermal imaging systems traditionally used for this purpose, as it has been designed specifically for the application in which it is be used.

VITAL is one of a range of innovative video instrumentation and observation systems from Industrial Television Limited.

Because of our policy of continuous product development, specification may change without notice.