OMEGA VANZETTI®
The Leader in Infrared Temperature Measurement and Control

Sales and Service
1-800-342-3747SM
1-800-FIBER-IR
vanzetti.com
e-mail: info@vanzetti.com

TURBINE BLADE THERMAL MONITORING

$12,000.00
BASIC SYSTEM

During operation, the blades of the turbine rotors must be constantly kept cooled by circulating air through special channels located inside each blade. In the event that one or more blades in those channels should become blocked, overheating of the blades would develop, possibly reaching the softening temperature of the steel of which they are made. At this point, centrifugal force would produce deformations that could cause quick destruction of the turbine.

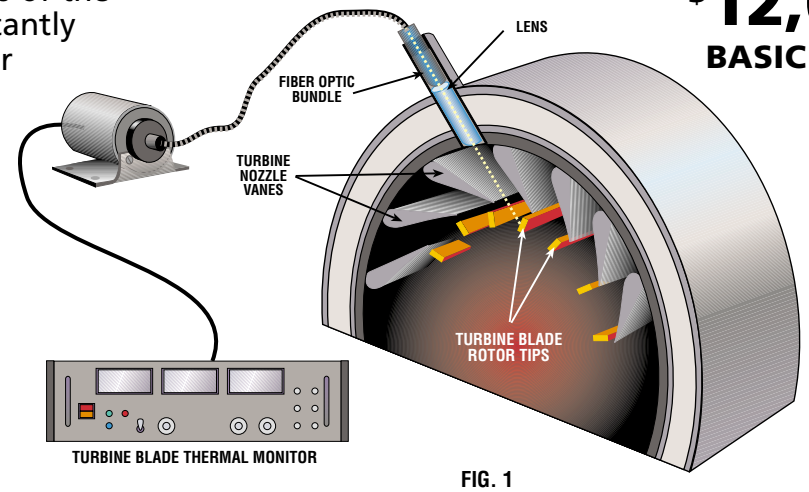

FIG. 1

Optical fibers introduced through the outside "skin" of the turbine at a convenient location and with the proper orientation will allow an infrared detector to "see" the rotor blades as they traverse, one by one, its field of view (fig. 1). In this way, thanks to its microsecond response time, the **OMEGA VANZETTI®** detector will be able to precisely measure the temperature of each and every blade.

In the event that even a single blade should exceed a pre-established temperature safety threshold, an alarm signal will appear at the system's output, and a feedback loop could automatically throttle down the turbine and avoid a catastrophic failure.

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Advantages of the fiber optic infrared approach as illustrated in Fig. 1 are:

- Fast response time 3 µ Sec (0 to 63%)
- Spot sizes down to 0.004"
- Temperature ranges from 700 to 4000°F (in sub ranges)
- Fibers available with vacuum bushing to 10^{-7}
- Flexible fiber optic cable up to 30' long (depending on temperature range)
- Backlighting optional for aligning on target
- Immune to electrical noise and radiation fields
- Optional outputs include: 4-20 md, 0-10 vdc and thermocouple types "J" or "K"
- 19" rack mounted