

# Global Risk Communication: Assessing Infrared Findings

There are two ways in which a fault can be assessed and it is important to understand the differences between the *severity* of a finding (also known as a fault) and the *impact* of a finding. While severity determines “how serious” a finding might be from a thermal temperature threshold standpoint, impact looks at the potential “equipment damage cost” (including ancillary property damages) and/or how much potential disruption/downtime the facility might suffer as a result of the loss. Both of these perspectives must be taken into account to fully assess each finding.

Severity is a measurement of the actual temperature of an object and its temperature-rise (delta-T) against a reference point. It is important that the criteria for a finding be clearly defined and followed when analysing faults. Suggested limits and respective actions based on severity are outlined in the indicated charts.

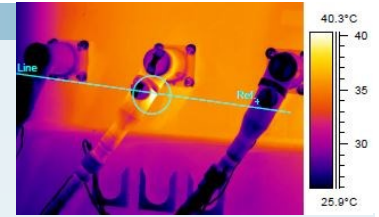
Classification	Severity	Temp-Rise	Comments
Minor Problem	*	1° - 10° C	Monitor, repair as part of regular maintenance.
Intermediate Problem	**	10° - 35° C	Repair in near future. Monitor load, watch for changes. Inspect for physical damage.
Serious Problem	***	35° - 75° C	Repair in immediate future (1– 2 days). Inspect surrounding components for possible damage.
Critical Problem	****	75° C or greater	Repair as immediate as possible, optimally re-check w/ thermal imager. Inspect surrounding components for probable damage.
Notification of Risk Exposure	FYI	FYI	Non-thermal finding. Observed condition poses risk to integrity of facilities electrical, mechanical, equipment/building systems.

The impact of failure should be considered by the qualified individual inspecting the equipment and importance should be attached to findings where high costs or significant downtime may occur in the event of failure. A well-defined finding should combine both of these factors into its assessment and appropriate weighting should be given to higher impact findings. It is easy to concentrate on the impressive looking high severity findings and completely ignore the significantly lower severity findings, which may have critical impact upon production. Knowledge of the equipment and the processes they drive is important in the correct assessment of a fault condition. Impact is measured either in cost values or time.

Rating	Description	Comments
Low	< 10 K and/or 1 day	Anticipated probable loss of <\$10K. USD property damage/BI of < 1 day.
Moderate	> 10 < 100 K and/or > 1 day < 1 week	Anticipated probable loss of b/w \$10K - \$100K. USD property damage/BI b/w 1 - 7 days.
High	> \$100 K and/or 1 week	Anticipated probable loss of >\$100K. USD property damage/BI of >1 week.

Whilst severity is what most people assess with any thermographic image, impact is typically a more important measurement as it has a more immediate effect upon business. For example, the image at the upper right depicts a high-voltage bushing (boot) on a transformer (high impact), which under failure conditions would result in complete power disruption to all downstream power; whereas, the thermal image lower right (low-impact) depicts a loose-crimp-on lug within a control panel and fairly inconsequential damage to the equipment.

High (and Moderate) impact findings should be prioritised for repair over low impact findings as these are our greatest risks in terms of business interruption and associated costs with losses. It should be noted that higher temperature severity findings typically have a higher probability of failure.



## Summary Points:

- Severity determines “how serious” a finding might be from a thermal temperature standpoint.
- Impact is an assessment of disruption to business operations.

*“A well-defined finding should combine both of these factors into its assessment and appropriate weighting should be given to higher impact findings.”*



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