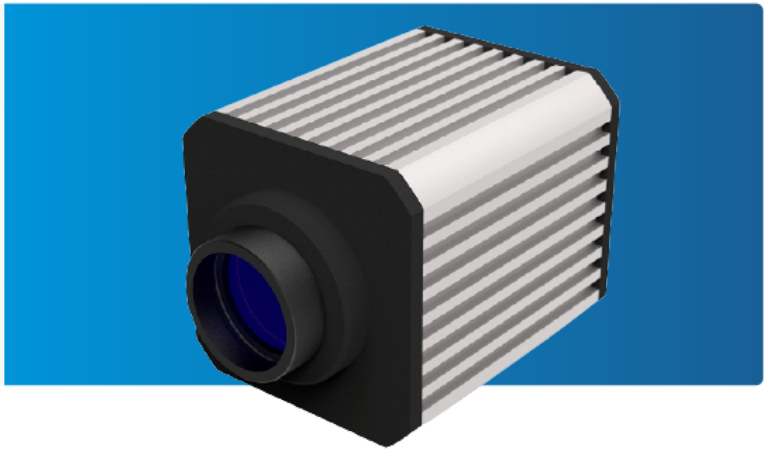
Sinter Plant Thermal Camera Monitoring System



A sinter plant is a important part of steel making industries or smelting industries. In this section, iron ore fines, coke fines and limestone are mixed well in a rotary drum also known as nodulizing drum. Binder is added to the mixture along with water to form sinter globules.

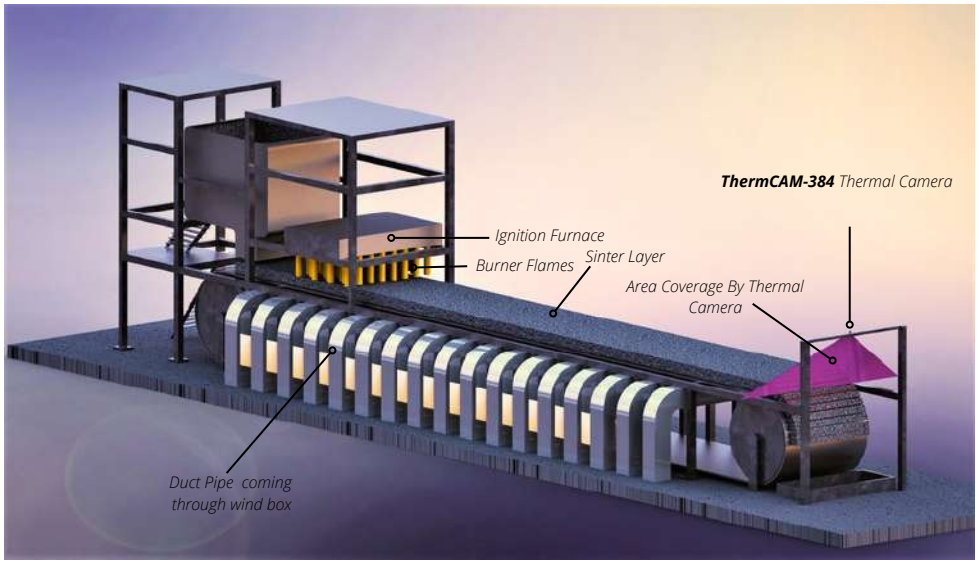
Sinter Bed Discharge Monitoring

These sinter globules are feed into ignition furnace. In ignition furnace this mixture is typically heated at the temperature between 1150 °C to 1250 °C. The mixture is loaded over a conveyor belt in two layers the bottom layer has slightly bigger particles and the top layer also know as hearth layer. After completion of burning, the mixture is turned into sinter and this sinter cake falls from the strand to sinter breaker and then to the cooling section.

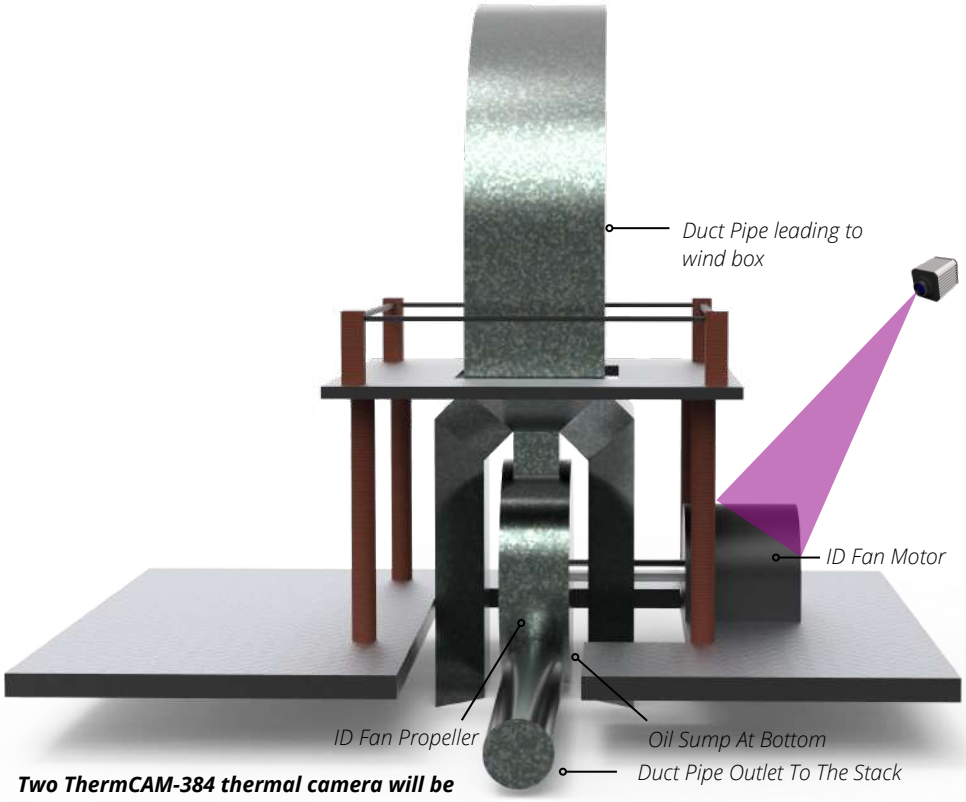
ThermCAM-384
Pixel Resolution: 384 x 288 Pixels

Thermal camera enclosed in cooling jacket helps thermal camera to with stand high temperature and harsh environmental conditions.

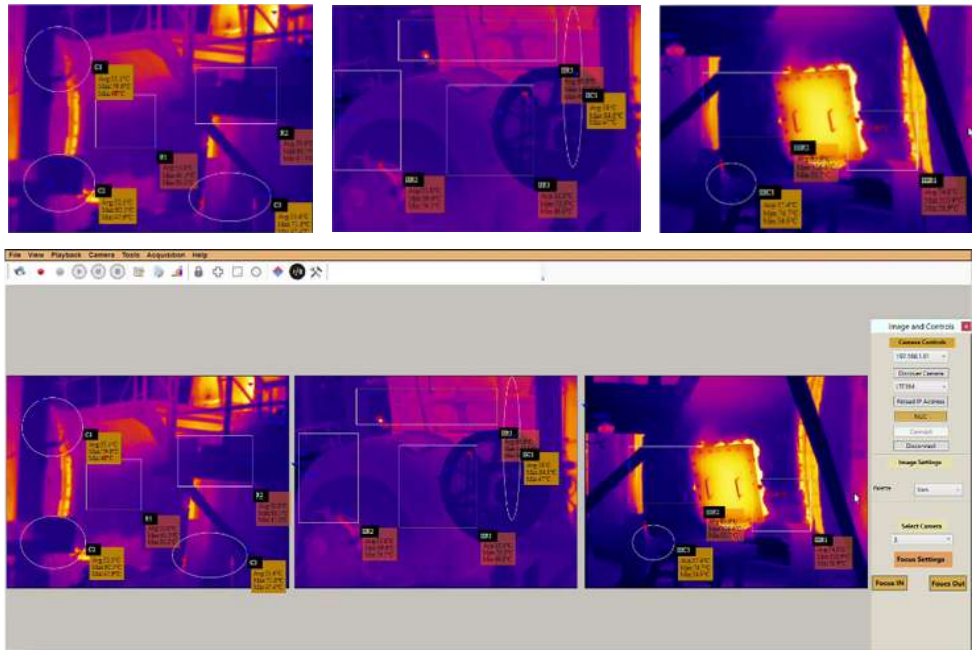
At the time when sinter is falling from the strand it is necessary to note the sinter bed layer thickness. Thermal cameras can be used to measure the temperature of sinter and thickness as well. As the temperature of finished sinter ranges from ~550-900°C, which provides temperature difference between sinter layer and the surrounding and due to this difference the thermal image produced by camera show a clear image of sinter layer. Accuopt's ThermCAM-384 thermal camera is a versatile devices to monitor sinter discharge which can provides precise and clear image/video and temperature as well with better accuracy.



Sinter Plant Exhauster System



Two ThermCAM-384 thermal camera will be mounted at the bottom to monitor oil sump



Software Interface with 3 ThermCAM-384 thermal camera connected.

Exhuster System Monitoring

Air flows at the bottom of the second layer below the hearth layer. This air sucks the fine dust particles from the mixture. Air flows in the wind box and the suction is powered by induction draught fan. ID fan are connected to the electrostatic precipitator and this combined unit is called exhauster. In ID fan oil used for lubrication dribs down and get collected in the oil sump.

Some time this oil start leaking from oil sump at this stage there can be chances of fire as the ambient temperature range goes from 90°C to 120°C near exhauster. Some times the oil temperature increases to an extent that accidents like blast occurs. A thermal imager is a versatile device to monitor ID fans. Accuopt's ThermCAM-384 thermal camera can be installed with an cooling jacket as the ambient temperature in industries is very high.

Accuopt

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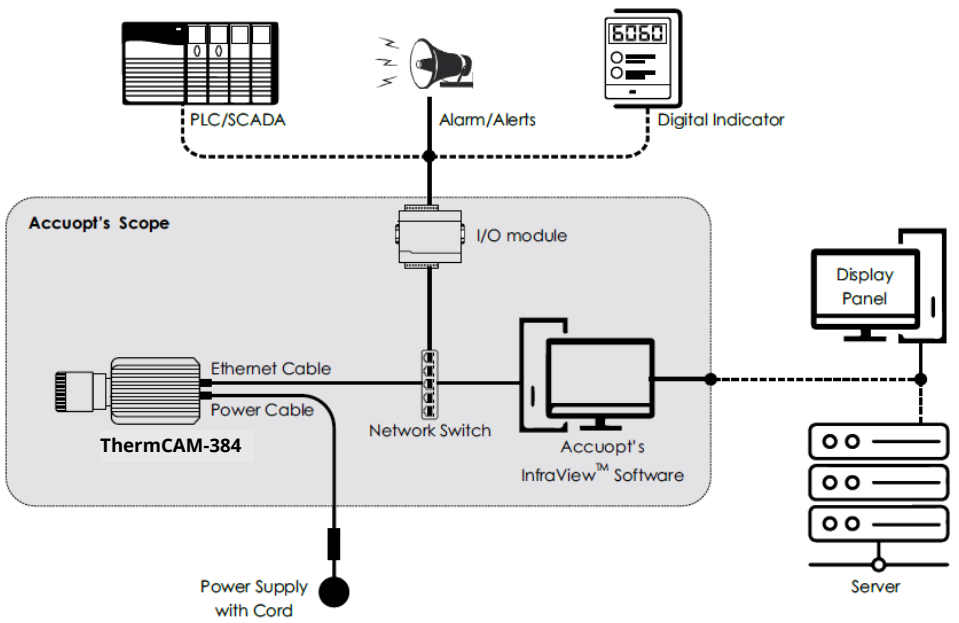
System Configuration



Advantages

- Completely automatic and non-contact system, which reduces human involvement and increases personnel safety.
- Automatic and manual modes both are available which can be remotely operated at control rooms.
- Generate alarms on detection of hot spots, which helps in indicating predictive maintenance which reduces high maintenance costs.
- Predictive maintenance allows timely repair of the equipment and helps in prolongation of the equipment, which saves the cost for replacing with new equipment.
- One time investment, camera comes with robust body which can with stand harsh industrial environments and increases camera life span

Thermal Camera Connections

- ThermCAM-384 provides Ethernet output. Camera has two connectors at the back side one is power connector and another one is RJ45 Ethernet connector.
- The camera get connected to PC installed with InfraView™ software which allows to stream thermal videos/images.
- This camera output can also be taken over PLC/SCADA, digital indicators or hooters/ alarms etc. through I/O module via a network switch.
- This Accuopt's I/O module provide 2 relay outputs and 4 analog output of 4-20mA.

Key Features

- Provide continuous thermal video in InfraView™ Software.
- Different types of ROI (Region Of Interest) can be drawn for localized temperature monitoring.
- Histogram and trend chart of ROI can be generated for data analysis.
- Includes 9 different color palates which can be selectable as per the user demand

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