

WHAT IS IT?

The unit consists of the well proven GE-Fanuc 9030 PLC* controller provided with 12 input thermocouple. Channels mounted in an aluminum chassis fit directly into the control cabinet. . The PLC logic is programmed to directly replicate the existing control and monitoring features of the existing “Delta Monitor” control warnings and shutdowns. The Front panel display is provided by a 10.5 inch TFT Quick panel touch screen color display connected to the PLC. The unit has its own isolated DC power supply.

IT IS EASY TO INSTALL?

The unit mounts in the existing cabinet in Chassis 5 connecting to plugs 13 and 21 of the existing system. The chassis is plug to plug compatible to the existing cabinets. In the case of units that have the Rustronic* Monitor, these will have additional plugs in the interface. No other wiring or connections are necessary.

IT IS EASY TO OPERATE?

The custom display allows easy monitoring of all channels and set points. It provides additional information on combustion system health. The Alarm history and short term data log facilitates simplified faultfinding on shutdown due to high temperature. Data is scanned continuously on a 2ms rate. There is simple touch screen access to verify or change set points.



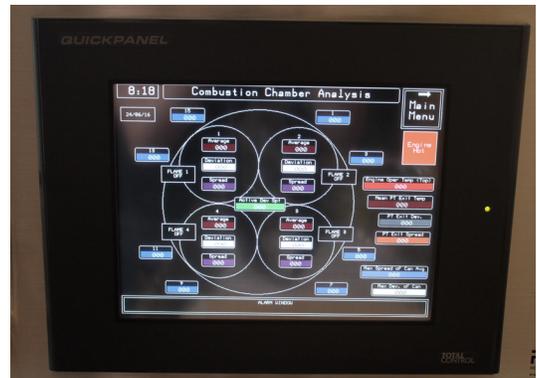
Installed at Conoco Phillips in Alaska

DISPLAYS.

This has a menu of five displays that provide information with regard to the turbine combustion system. Current alarm status bars are on all displays.



Turbine Startup Analog Displays Screen



Combustion Chamber Analysts Screen

BELOW IS AN EXAMPLE OF 5 OF THE SCREENS

Screen One- Displays a graphical view of the combustion system. Warnings and shutdowns are indicated.

Screen Two- Screen Two Displays the combustion chamber averages, deviations and spreads.

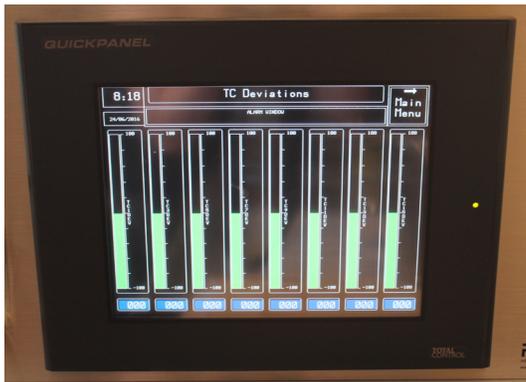
Screen Three- Displays all the parameters numerically including, the combustion system analysis, Max temperature, Max system Spread, System average, Max Can spread and deviation.

Screen Four- Displays the alarm and short term data history.

Screen Five- Displays the 'set alarms' and shutdowns for all monitored channels (configure F or C).



Current Value of TC and TOP Before any Shut Down Screen



TC Deviations Screen

TECHNICAL INFORMATION.

The unit is housed in a 19" rack mounted chassis with a stainless steel front panel in which the 10.5" TFT Touch screen display is mounted. The PLC unit is mounted in the chassis drawer. Access to the PLC is by pulling out the drawer. There is 24/24 VDC voltage converter that provides a constant 24 VDC to the PLC and touch screen. The interconnections to the chassis are by 34way MRAC connectors compatible with Ruston cable harnesses. Additionally a 25way DIN RS 232 port is provided for remote operation and data acquisition functions.

WHAT DOES IT DO?

The 12-channel monitor provides individual access to the 8 P.T exit thermocouples, and 'The Operating Temperature Thermocouple Circuit'. As an option it can be provided with inputs for: Gas producer speed, Power turbine speed, Fuel valve angle.

The unit constantly scans all input channels, providing individual indications of each channel on the display.

The unit provides the following control indications:

- High PT exit temperature warning
- High PT exit temperature Shutdown
- Engine Hot signal
- Thermocouple Fault protection and warning
- High Combustion chamber deviation warning (Indication only)
- Operating Temperature High warning
- Operating Temp. High Shutdown
- High PT exit Temperature Deviation shutdown