CONTINENTAL CONTROLS CORPORATION
– A VALVE YOU CAN TRUST –

CATALYST MONITOR & AFR SYSTEM CONTROLLER

BENEFITS

- **Parameter monitoring for national or local regulations**
- **Monitors key catalyst operating parameters**
- **Alarm or shutdown on temperature or pressure**
- **Data logging on board for periodic or continuous download or retrieval via ethernet interface**
- **Automatic adjustment to CCC's AFR valve, the ECV5**
- **Operator-configurable**
- **Variety of I/O options supported**
- **Run hours logged using non-resettable, real-time clock**
- **Seemless integration with other CCC technologies**
- **Sized for natural gas engines from 100–8,000 horsepower**

THE CONTINENTAL CONTROLS SOLUTION

CCC's technology is the key to integrating air-fuel ratio controls and catalysts for gas engines. The CCC Catalyst "Cat" Monitor is the central communication hub that allows multiple inputs (O_2 sensor, NOx sensor, Cat dP, and Cat temperature), and outputs to enable optimal performance when combined with CCC's ECV5 AFR control valve, and an NSCR or oxidation catalysts. The AFR system monitors the NOx sensor, and automatically adjusts the O_2 setpoint, allowing maintenance-free operation under constantly changing operating conditions while maintaining emission compliance.

The CCC Catalyst Monitor offers the following functions:

1. Data logging

The Cat Monitor will continuously monitor compliance data over a period of time. This data is available using an onboard USB drive, via ethernet, and/or via MODBUS.

2. Emission control system for single- and dual-bank engines

The Cat Monitor communicates via CAN bus with the ECV5 air-fuel ratio valve and NOx sensor to correct the O_2 setpoint and optimize the air-fuel ratio. This lowers emissions and also extends the useful life of the catalyst.

3. Catalyst monitoring

Natural gas engines, subject to national and local regulations, are required to continuously monitor catalyst temperatures. When catalysts are operating properly, there is an exothermic (heat-producing) reaction. The Cat Monitor records both pre- and post-catalyst temperatures, and notifies the user if either a minimum or maximum temperature has been exceeded. It also monitors the delta pressure across the catalyst to detect if the catalyst has been damaged. These features aid in RICE-NESHAP compliance requirements.

CATALYST "CAT" MONITOR

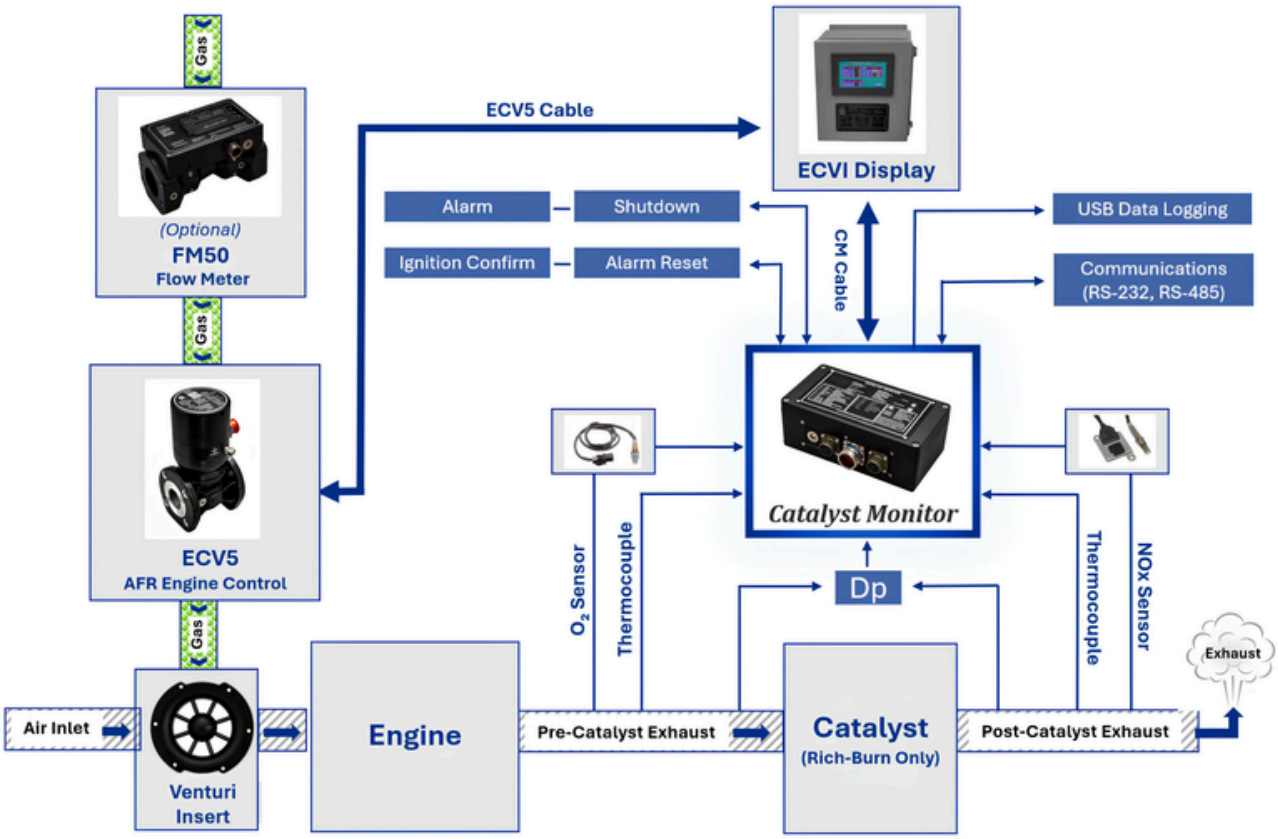




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CATALYST MONITOR INTEGRATION



MAINTENANCE ALERTS

Increased differential pressure (dP) across the catalyst indicates masking/fouling of the catalyst elements. A substantial decrease in this differential pressure can indicate severe damage. The CCC Catalyst "Cat" Monitor logs the dP, notifies the user of any unacceptable conditions, and ensures the engine remains in continual compliance.

OUTPUTS

- Modbus ethernet for SCADA interface or station control
- Modbus RS-232 for PC
- Two digital, discrete outputs: *Shutdown* & *Alarm*
- USB thumb drive for data-logging
- LED status indication lights
- Two wideband O_2 controls
- CAN bus communications

OPERATING TEMPERATURE

-40°C (-40°F) to +85°C (+185°F)

ADDITIONAL SPECIFICATIONS

9–32 VDC input power

HAZARDOUS ENVIRONMENT

Class 1, Div 2 compliant
IP66 compliant

INPUTS

2 wideband O_2 sensors
2 NOx sensors
2 thermocouples (pre- & post-catalyst)
1 differential pressure (dP)
1 4–20 mA (possibly for flow measurement)
2 CAN bus inputs (reserved for NOx sensors)

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