



Advanced Fuel Rating Technology

Waukesha® CFR® XCP™ Digital Octane Panel and Octane Analyzer Option



imagination at work

The CFR[®] XCP[™] Digital Octane Panel

Only GE Energy offers the Waukesha[®] CFR[®] XCP[™] Digital Octane Panel with its top level of control and functionality. Since its introduction, the proven XCP Digital Octane Panel has become widely accepted in today's fuel testing laboratories and is now in ASTM Methods D2699-10 & D2700-10 and conforms to IP237 and IP236.

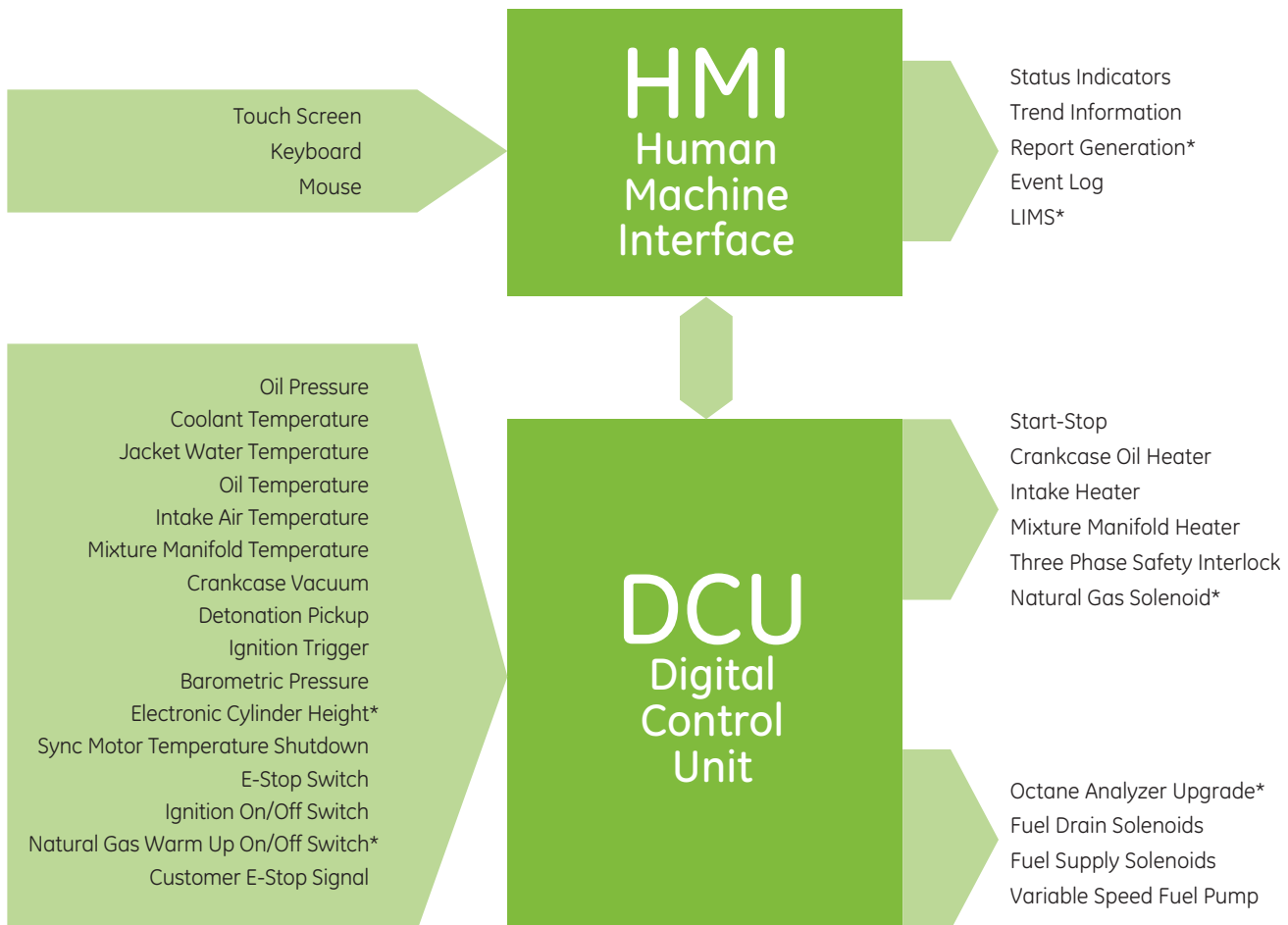
The XCP Digital Octane Panel incorporates many easy-to-use features including increased automated functions and enhanced documentation capabilities (see System Diagram below). Designed with the operator in mind, the XCP Digital Octane Panel is user-friendly, intuitive and will accommodate users of all skill levels.

Now, users seeking even faster throughput, increased productivity and shorter training periods can incorporate a highly automated fuel testing option – The XCP Octane Analyzer. (See Page 6 for complete details.)

The XCP[™] is our New Standard

The new XCP panel is now standard equipment on current production units. In addition, the XCP panel and Octane Analyzer are designed to accept future enhancements and upgrades as they are made available.

System Diagram



* Indicates Options - Contact Distributor for details

XCP™ Features

Easy-to-Use Panel Interface

The combination of a Windows®-based touch-screen user interface and a rugged industrial keyboard has produced a digitally enhanced control panel with many easy-to-use features. Operators can quickly become proficient and comfortable using the XCP Digital Octane Panel.

The XCP Digital Octane Panel technology is immediately recognized and accepted by the workforce of today. Standard features include on-screen reports, on-screen operation, maintenance and parts manuals, and internet and network connectivity.

Intuitive interface screens are clear and easy-to-use. Built-in prompts, automated calculations, and data logging greatly reduce the chance for operator errors, and allow operators to be quickly cross-trained for improved work flow resulting in increased throughput and productivity.

More Consistent Results

User-friendly software and interface ensure the XCP will produce consistent and reliable results from operator to operator. In short, the XCP has been designed to promote compliance to the methods independent of the operator.

Automated Data Recording

Critical information for each rating is automatically captured and displayed using bold graphics and easy-to-read charts. Fuel rating files include curves, calculations, tables, date stamps, and engine records, and are kept in easily accessible Microsoft® Excel® files.

The XCP is also Laboratory Information Management System (LIMS) capable which allows for IS/IT professionals to easily integrate key information and results into the data network.

The Waukesha® CFR® XCP™ Digital Octane Panel with Octane Analyzer



Increased Throughput

Laboratory supervisors often face the dilemma of having a reduced work force while also needing to have additional cross-trained operators to produce more octane tests each shift. With the XCP panel additional operators can be quickly trained, because an easy-to-follow template guides them through the fuel rating process with reduced operator interaction.

Report Generation

All method critical operating parameters are captured during the rating process providing for a traceable log which can be reviewed for method compliance to ensure quality.

Automated Digital Knock Meter

Utilizing an automated software solution, the need to center on 50 Knock Intensity (KI) or be constrained by 0 - 100 KI has been eliminated. The digital meter also eliminates the need to set "SPREAD" which allows users to run with default settings; a huge time saver and reduces variability between operators. All information is provided on a single display with automated data recording, results calculation and report generation.



Electronic Barometer

The onboard electronic barometer allows operators to easily set the required ASTM/IP method correction factor for barometric pressure without the need to reference an external barometer. The use of onboard barometer saves time by allowing the operator to standardize the engine without the need for an external pressure reference.

Laser Cylinder Height Sensor

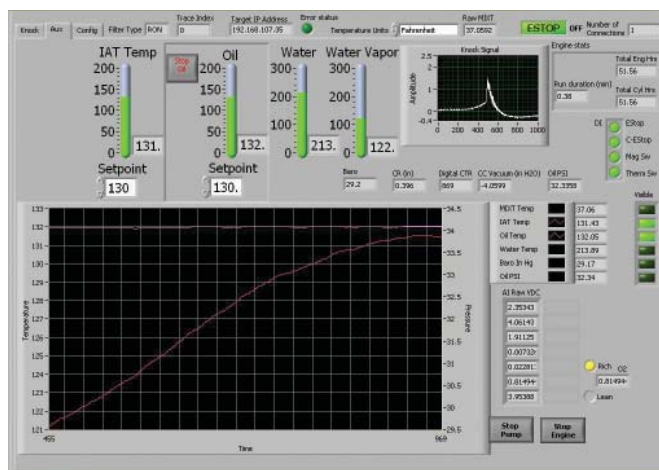
With the use of a non-contact laser sensor the cylinder height settings are available on screen in dual dimension values. The new sensor gives you more accurate results by eliminating inherent problems with mechanical measurement systems.

Enhanced Productivity

Users can maximize the potential of the XCP panel when they utilize the Falling Level procedure option incorporated into the XCP Panel. When using Falling Level Carburetors, the panel becomes "semi automatic" because it significantly reduces operator involvement.** (Falling Level Carburetors are standard on new units; see your distributor for more details.)

Reduced Maintenance

Incorporating the use of current technology improves durability and reduces panel component maintenance. The digital panel utilizes standard pressure transducers which eliminates the need to use separate gauges for calibration. Integrated closed loop control for the oil, intake air and mixture temperatures have been incorporated which allows for "set it and forget" temperature control. In addition, a built-in maintenance log records engine hours, cylinder hours and oil-change intervals.



Equipment Protection System

A built-in Emergency Stop switch, oil pressure and condenser temperature shutdowns, 3 phase monitoring and synchronous thermal motor protection are now all standard and integrated into the digital panel. The panel meets CE Mark requirements.

Retrofit Capability

XCP Digital Octane Panel retrofit kits are available for CFR octane rating units. (Please contact your distributor for units made prior to 1980.)

** Fully automatic operation available with octane analyzer option

XCP™ Summary

Features	Analog Control Panel	XCP Digital Octane Panel	Benefits
Control System	Discrete Controls <ul style="list-style-type: none"> • 501C • Analog Meters <ul style="list-style-type: none"> Knock Meter Pressure Gauges Mercury Thermometers Hour Meters • Temperature Controller • Mechanical Cylinder Height 	Fully Integrated Digital Controls <ul style="list-style-type: none"> • Digital Knock System • Digital Meters - On Screen <ul style="list-style-type: none"> Actual Signals, Calculated Values, Trends Transducers for Pressure RTDs for Temperature All Electronic • PID Closed Loop Controls • Electronic Cylinder Height • Electronic Barometer • Touch Screen 	<ul style="list-style-type: none"> • User Friendly • Easy to Read • Ease of Setup • Automatic Controls • More Information • More Robust • Automatic Data Log
Data Reports	<ul style="list-style-type: none"> • Manual Activity 	<ul style="list-style-type: none"> • Automatic Data Recording • Automatic Graphical Report Generation • Supports any Microsoft® Windows® Compatible Printer • Network Connectivity • Data Transfer via Multiple Storage Media Options 	<ul style="list-style-type: none"> • Microsoft® Excel® • Preserved Data Integrity • Data Sharing • Archiving • Direct Data Access
Safety	Discrete Controls <ul style="list-style-type: none"> • E-STOP (few installed) • Condenser Temperature Switchgag • Oil Pressure Switchgag • Magnetic Switch Contact • Motor Thermo Guard Switch • Mechanical Reset 	Fully Integrated Digital Controls <ul style="list-style-type: none"> • E-STOP Digital Input • Customer E-STOP Input (Remote) • Condenser Temperature RTD • Oil Pressure Transducer • Magnetic Switch Input • Motor Thermo Guard Input • On Screen Acknowledgement • Full Three Phase Protection (Rotation, Low, Loss) 	Ease of Setup <ul style="list-style-type: none"> • Automatic Event Log • Visual Status with Alarms • Integrated Shutdown System • More Robust Protection • Increased Safety
Maintenance Log	<ul style="list-style-type: none"> • Manual Activity 	<ul style="list-style-type: none"> • Electronic Maintenance Log 	<ul style="list-style-type: none"> • Microsoft® Excel® • Easy Logging for Oil Changes, Carbon Blasting, Cylinder Installation, and Routine Maintenance • Electronic Operation, Maintenance, and Parts Manual (PDF)

The Digital Octane Analyzer Option

Automated Fuel Rating Process for Improved Productivity

GE Energy has expanded the capabilities of its well-received CFR® XCP Digital Octane Panel by now offering users the choice of a fully automated Octane Analyzer option that significantly reduces operator involvement.

The Octane Analyzer integrates with the XCP panel to automatically determine Research or Motor octane numbers using a bracketing procedure. This method of data acquisition allows rapid selection and measurement of the fuel-air ratio for maximum knock value and thereby significantly reduces the time required to complete octane number determinations.

Faster Testing Time and Less Variability

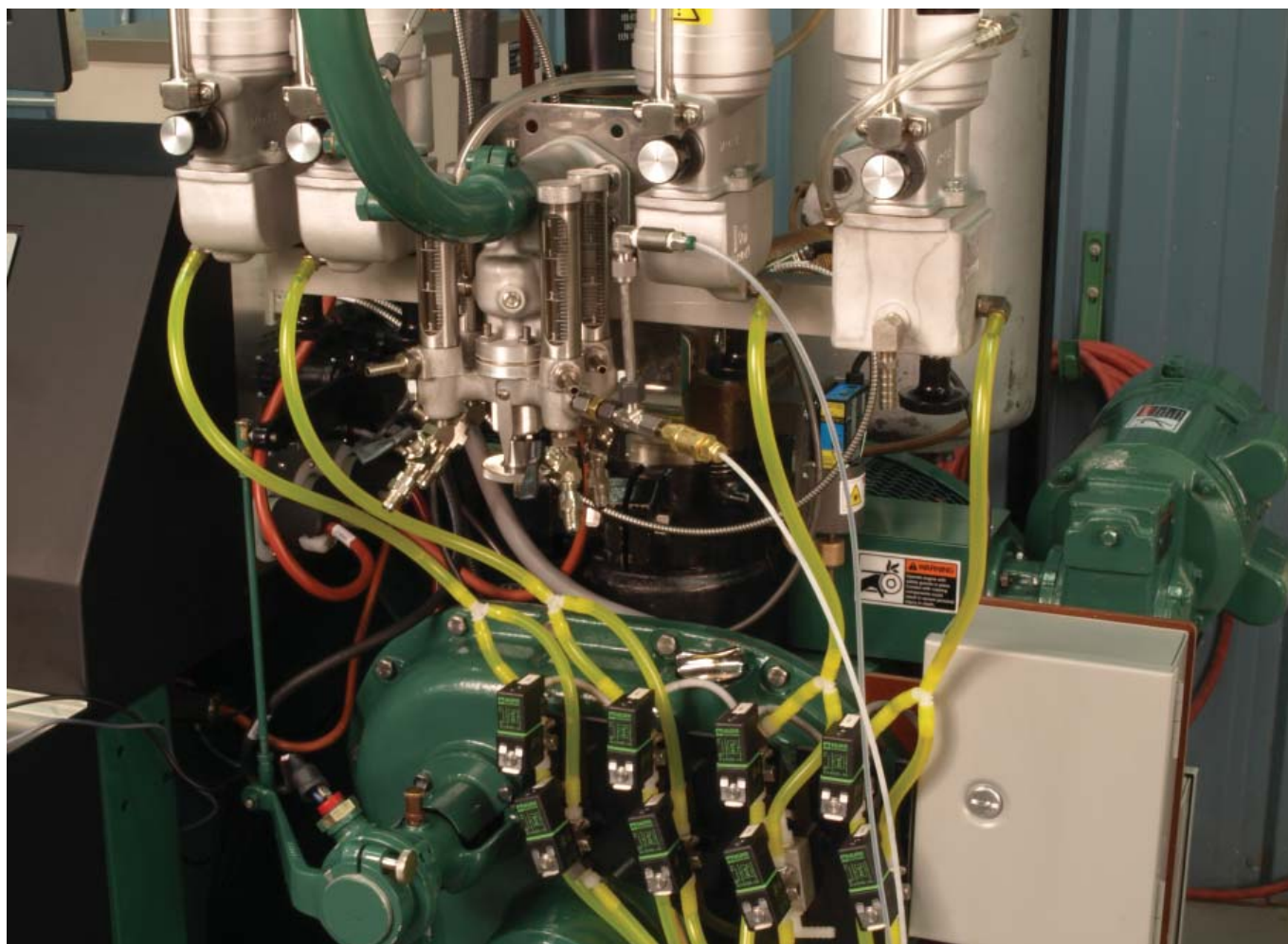
The automated Octane Analyzer Option can run fuel samples in a bracketing mode in approximately 20

minutes for a full octane determination (two passes). The consistent results produced by the system also allows for less variability due to reduced operator intervention.

Highly automated for less chance of operator error, the Octane Analyzer automatically:

- Sequences through the sample fuel and two primaries, per ASTM methods D2699 & D2700, Procedure D (IP237 & IP236).
- Adjusts the fuel/air ratios on all fuels for more consistent readings.

Additionally, purge cycle delays allow for crucial engine stability to ensure consistent and repeatable ratings and results.



Increased Productivity and Throughput

The intuitive, familiar controls and operating procedure of the Octane Analyzer allows operator training to be accomplished in a shorter period of time.

Ethanol Fuel Capability

Designed with today's fuels in mind, the XCP Octane Analyzer can analyze all alcohol-based fuels with no changes in hardware. All materials are fuel compatible.

Retrofit Capability

Rating units with XCP Digital Octane Panel can be retrofitted with the Octane Analyzer option. In addition, rating units with the previous analog control panel can be retrofitted by adding the XCP Digital Octane Panel with the Octane Analyzer option. (Please contact your distributor for units made prior to 1980.)

Octane Analyzer Option Summary

Features	Custom CFR Control Octane Analyzer	XCP Octane Analyzer Option	Benefits
Control System	<ul style="list-style-type: none"> Independent Stand Alone Option Microsoft DOS Operating System Proprietary Hardware RTD Temperature Sensors Fixed Run Modes 	<ul style="list-style-type: none"> Fully Integrated with XCP Digital Octane Panel Off-The-Shelf Hardware Touch Screen Access to Fuel Supply & Drain RTD's with Industry Standard Connectors Variable Run Modes 100% E100 Capable without Modification 	<ul style="list-style-type: none"> More User Friendly Easy Installation & Setup Robust System Configuration More samples - Less Time Improved Throughput Greater Flexibility
Fuel System	<ul style="list-style-type: none"> Fixed Speed Mechanically Driven Pump Mechanical Fuel Delivery Control Brass Fuel Solenoids Ceramic & Stainless Steel Pump 	<ul style="list-style-type: none"> Variable Speed Electronic Drive Pump Simple Electronic Fuel Delivery System Stainless Steel Fuel Solenoids Ceramic & Stainless Steel Pump Automated Fuel Purge Cycle 	<ul style="list-style-type: none"> Lower Maintenance Fewer Parts Greater Fuel Compatibility Robust Design More Consistent Results
Data Reports	<ul style="list-style-type: none"> Microsoft DOS Print Drives Data Transfer via 3-1/2" Floppy Disk 	<ul style="list-style-type: none"> Fully Integrated with XCP Report Generator 	<ul style="list-style-type: none"> Common User Interface Flexibility
Safety	<ul style="list-style-type: none"> Fuel Pressure Relief Valve 	<ul style="list-style-type: none"> Integrated with XCP Feature Set Fuel Pressure Relief Valve Pump Cavitation Sensing and Protection 	<ul style="list-style-type: none"> More Robust System
Maintenance Log	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Integrated with XCP 	<ul style="list-style-type: none"> Common Storage Location

GE Energy
1101 West St. Paul Ave.
Waukesha, WI 53188-4999
T. 262 547 3311
F. 262 549 2795

© 2011 GE
All rights reserved. Waukesha, CFR,
and XCP are trademarks/registered
trademarks of GE.

