

Introducing the DURAG 150 Series: Premium Burner Control for the next Millenium.

D-GF 150 Automatic Burner Control

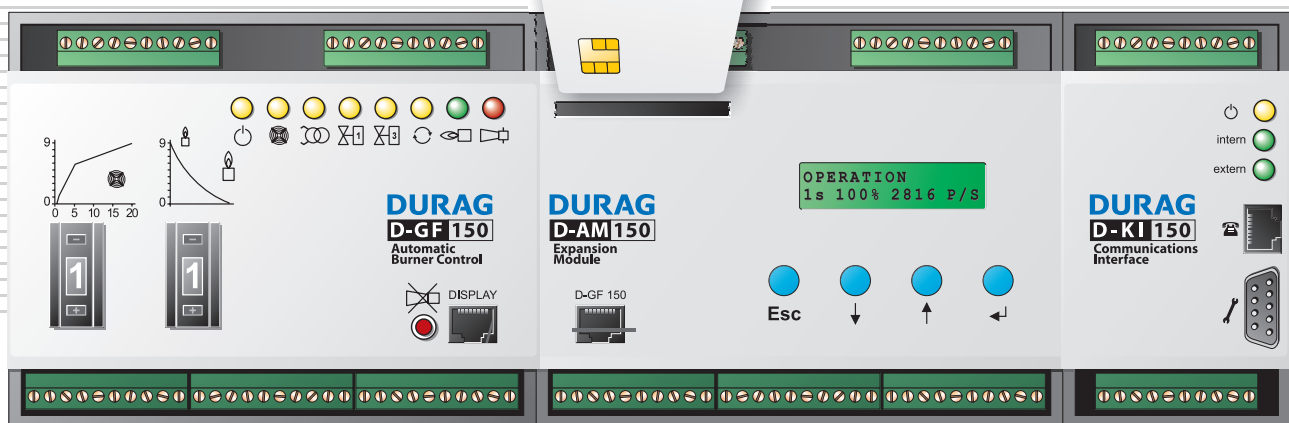
- Controlling and monitoring of gas, oil and combined burners of any capacity
- Integrated flame monitor with adjustable threshold
- Possible parallel connection of 2 flame sensors: UV/UV, IR/IR or UV/IR
- Adjustable prepurge time
- High technical safety and availability

D-AM 150 Expansion Module

- Displays all relevant information
- Programmable via chip-card

D-KI 150 Communications Interface

- Sends error reports via SMS or voice-mail



Series 150



*Solutions for Emission
and Combustion*

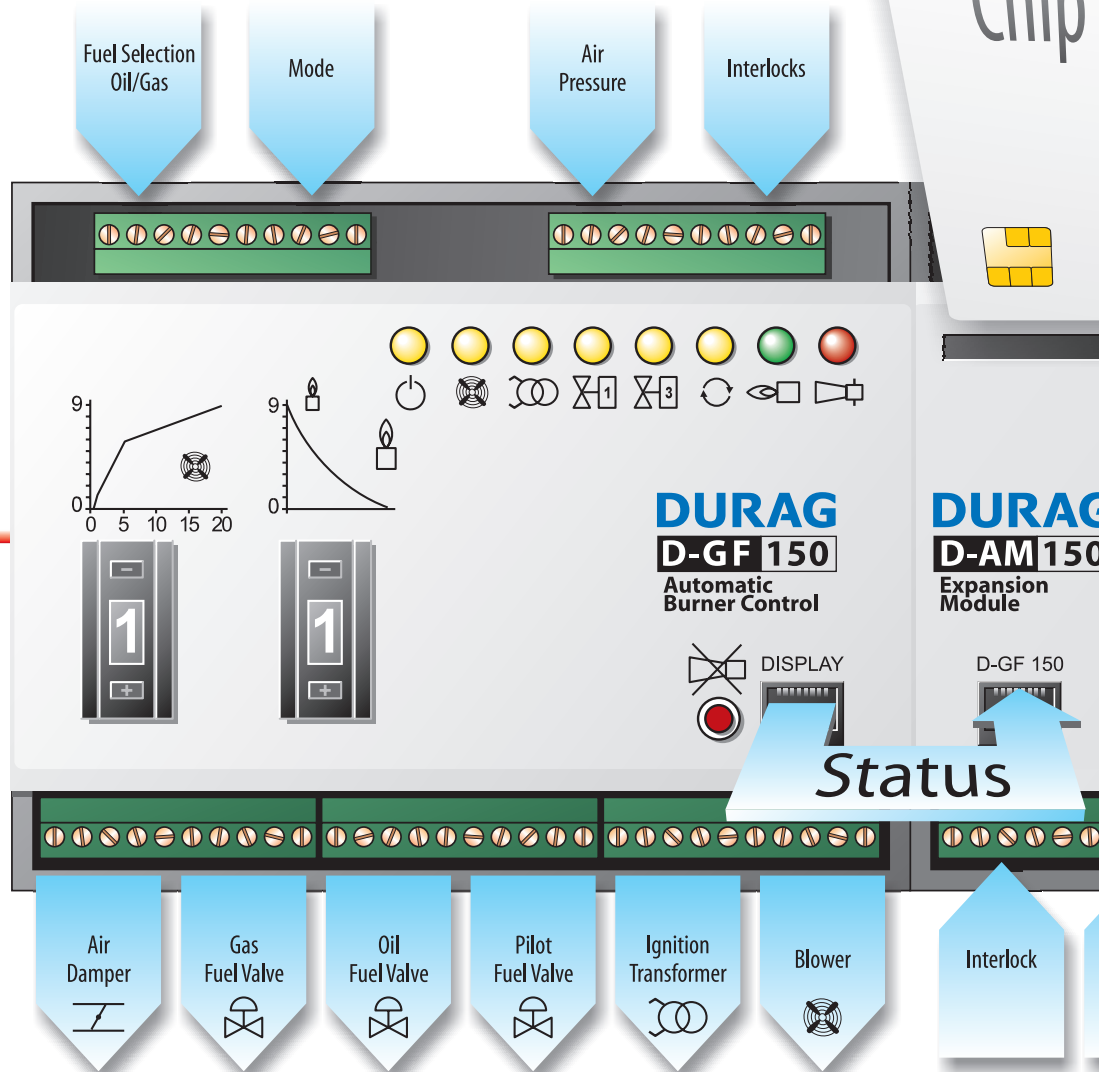
DURAG
GROUP

Introducing the DURAG 150 Series: Premium

■ Total Control: The Burner Control Module

The DURAG D-GF 150 Burner Control System controls and monitors gas and oil burners of any capacity. The control functions of this system cover the tasks of prepurge, ignition and solenoid valve control, through to the enabling of the output regulation. Thanks to its flexibility, the program sequence for prepurge, ignition, fuel supply and air supply may be adjusted to the requirements of the plant, with simultaneous consideration given to applicable guidelines. These units may be used in applications ranging from large power stations to small remote heating plants, or in chemical processes or thermal flue gas combustion systems. By employing microprocessors with corresponding software and hardware, this burner management system offers improved evaluation capability and a heightened degree of safety and availability.

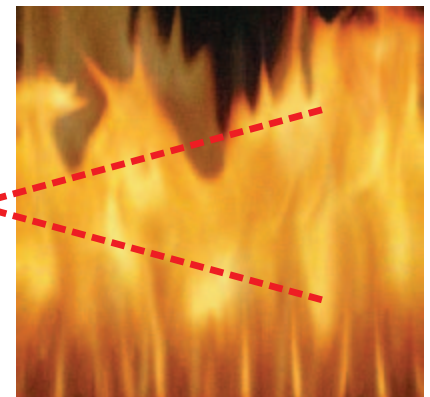
■ The Inputs



■ The Outputs

■ The Flame Sensors

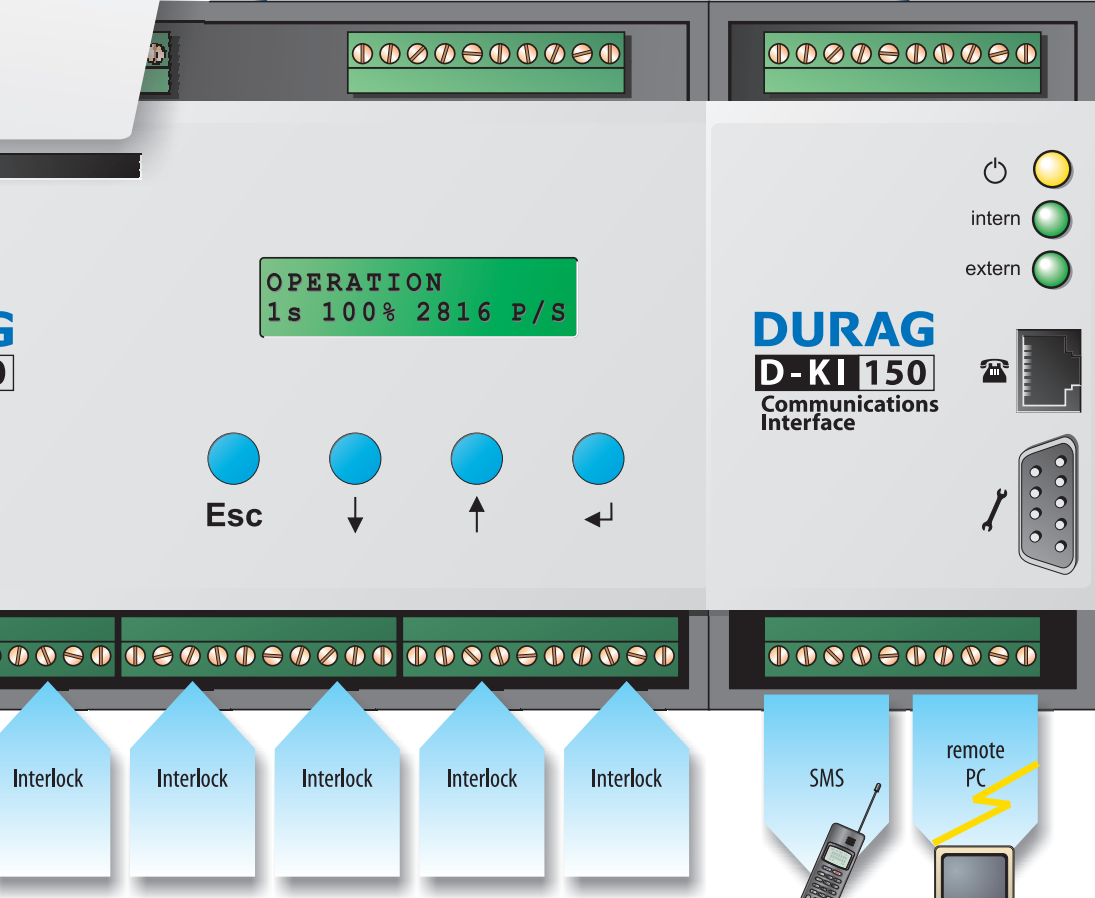
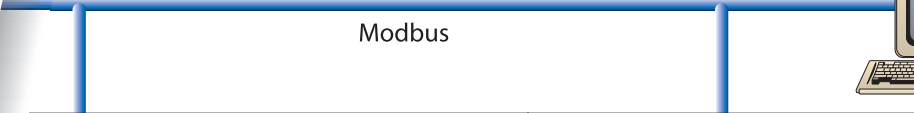
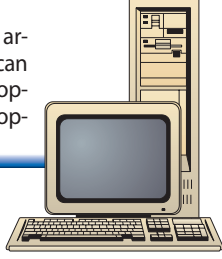
In combination with flame sensors from either the D-LE 103 or D-LE 603 series, the burner management system is fully suited to monitor flames of different fuels and combustion techniques, in single burner or multi-burner systems. Different UV and IR flame sensors are available to optimally adapt the flame monitoring system to local conditions. The response threshold (sensitivity) of the flame monitoring system may be set to one of ten different levels using a rocker switch on the front panel of the Programming Unit. The safety time may be fixed between 1 and 5 seconds, depending on fuel and operating conditions



Burner Control for the next Millenium.

■ Programming made easy: The Chip-Card

All display texts on the expansion module are modifiable using the display and arrow keys. There is also the ability to change the display text using a PC. These files can be saved on a chip card and can be installed on any other expansion module. The operation data can be saved on chip cards as well. This allows the evaluation of the operation data on a PC.



■ Linking to the World: The Communications Module

The status and data from the Combustion Automation Unit is remotely accessible worldwide using the Modbus interface in connection with the D-KI 150 Communications Interface. Up to eight relays on the expansion module can be controlled remotely. Therefore, the unlocking of the automation system and the operation of the burner can both be controlled remotely.

■ Information at your Fingertips: The Expansion Module

The D-AM 150 Expansion Module offers additional features to the D-GF 150 Combustion Automation Unit including a LCD display, Primary Annunciator, as well as a Modbus Interface. It receives and processes status messages from the D-GF 150.

The primary annunciator is continuously evaluating the condition of each of the interlocks. In the event of a shutdown it indicates to the interlock that triggered the shutdown. The display, which can be tailored to specific applications, then registers the appropriate data. It shows the current program step of the Combustion Automation Unit plus any additional information. You can easily choose between the following options:

- Flame Signal
- Error Message
- Burner Operation Hours
- Burner Cycles
- Date and Time

The Expansion Module uses the Modbus Interface to provide status information. It works as a slave and sends its data on demand to a primary master. In total, up to 32 different devices can be connected to this device at one time.

Important operation dates of the automation system, along with a date stamp, are held as a file. This file can be accessed at any time for maintenance purposes. The following information is stored in memory:

- Operation hours of the burner
- Number of burner cycles
- System faults with date, time and error message
- Burner starts and stops with date, time, fuel type and type of equipment

DURAG

■ Specifications

■ D-GF 150 Programming Unit

Power Supply..... 115/230 VAC +10 % ... -15%
 Mains Frequency 50/60 Hz ±10%
 Power Consumption..... 20 VA
 Permissible Ambient Temperature -20°C to +60°C
 Dimensions (WxHxD) 170x130x115 mm
 Current Output for Flame Intensity 0/4 - 20 mA / 200 ohms
 Potential-Free Control Outputs:

- Open Air Damper
- Close Air Damper
- Enable Air Damper Regulator
- Flame Signal

The switch contact for the flame signal serves only for signaling purposes.

Power-Related Control Outputs:

- Fault
- Blower motor
- Ignition transformer
- Solenoid valve 1 (ignition solenoid valve)
- Solenoid valve 2 (ignition/main solenoid valve)
- Solenoid valve 3 (main solenoid valve)

The electro-mechanical switch relays meet the requirements of VDE 0116 for safety equipment.

Permissible Ambient Temperatures:

D-GF 150 Control Unit -20°C to +60°C (0°F to +140°F)
 Protection Class (EN 60529) IP 20
 Weight 1.5 kg (3.3 lb.)
 Installation..... on DIN-Rail

■ D-LE 103 Flame Sensors

Operating Voltage 20 VDC (from control unit)
 Spectral sensitivity (depending on flame sensor model) 190-1800 nm.
 Permissible Ambient Temperature..... -20°C to +60°C (0°F to +140°F)
 Protection Class (EN 60529):
 with cable gland..... IP 65
 with plug IP 67
 Weight..... approx. 1.5 kg. (3.3 lb.)

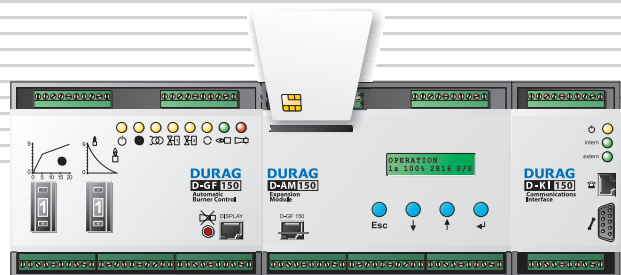
■ D-AM 150 Expansion Module

Power Supply..... 115 / 230 Vac
 Mains Frequency 50 / 60 Hz
 Power Consumption..... 8 VA
 Permissible Ambient Temperature -20°C to +60°C
 Dimensions (WxHxD) 170x130x115 mm
 Protection (EN 60529)..... IP 20
 First-Out Annunciator:
 Number of Inputs..... 24
 Input Voltage..... 115/230 Vac
 Relay Outputs:
 Number of Contacts 2x4 SPST
 Maximum Switching Capacity .. 230 Vac, 2 A resistive
 Fieldbus:
 Hardware-Protocol RS 485
 Software-Protocol Modbus
 Transmission Rate 9.6 kBd
 LCD-Display:..... Alphanumeric with two rows, each with 16 characters.
 Weight 1 kg
 Installation..... on DIN-Rail

■ D-KI 150 Communications Interface

Power Supply..... 115 / 230 Vac
 Mains Frequency 50 / 60 Hz
 Power Consumption..... 8 W
 Certification CTR21
 Data Transmission Analogue Modem
 Baud-Rate 14.4 kB

Extensive descriptions of these units with specifications, setting instructions, dimensions and connection plans are available upon request.



Solutions for Emission and Combustion **DURAG GROUP**

DURAG

DURAG Industrie Elektronik GmbH & Co KG
 Kollaustr. 105
 D-22453 Hamburg, Germany
 Tel. +49 40 55 42 18-0
 Fax +49 40 58 41 54

Hegwein

Georg Hegwein GmbH & Co. KG
 Am Boschwerk 7
 D-70469 Stuttgart, Germany
 Tel. +49 711 13 57 88-0
 Fax +49 711 13 57 88-5

VEREWA

VEREWA Umwelt- und Prozessmesstechnik GmbH
 Kollaustr. 105
 D-22453 Hamburg, Germany
 Tel. +49 40 55 42 18-0
 Fax +49 40 58 41 54

orFeus
 combustion engineering

ORFEUS Combustion Engineering GmbH
 An der Pönt 53a
 D-40885 Ratingen, Germany
 Tel. +49 2102 9974-0
 Fax +49 2102 9974-41

DURAG

DURAG, Inc.
 Southridge Business Center
 1355 Mendota Heights Road #200
 Mendota Heights,
 Minnesota 55120, USA
 Tel. +1 651 451-1710
 Fax +1 651 457-7684