DURAG GROUP

D-LX 201
Compact flame monitor

Safe, flexible and selective flame monitoring – for sure

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Optical flame monitoring

For large industrial combustion plants with many burners, complex process sequences or even several fuels the method of optical flame monitoring often is the most adequate one. It offers a way of monitoring that on one hand is burner selective as well as fuel selective, on the other hand can be adapted well to very variable combustion conditions.

To monitor the flame the device evaluates electromagnetic radiation in the ultraviolet, visible and infrared region of the spectrum for its flame specific portions and analyses these in more detail. For this the D-LX 201 investigates intensity and frequency of the flame flickering as well as the stability of the flame.

As a safety device the D-LX 201 is built fail safe and selfmonitoring. Through its design as a compact flame monitor it possesses a direct relay output for the flame signal. But as a modern flame monitor it also provides additional information about the flame via adequate bus systems.

Housing variants

Images on the right:
Examples of the housing variants used for the product family D-LX 201 (from the top):

– Housing P2 (shown with plug connector)
– Housing M5 (shown with plug connector)
– Housing M4 (version for Ex zone 1/21)

Images below:
Each housing variant allows to check the status of flame and device at a single glance.

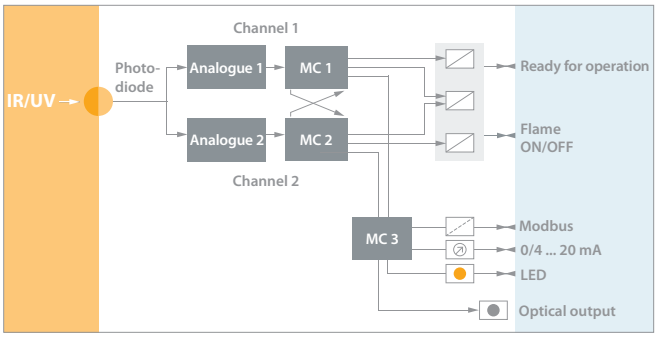
Certifications (according to variant)

DURAG | CE | DVGW | TÜV SÜD SIL 3 | The Australian Gas Association | FM APPROVED | EAC | Ex

Facts + Specifications

Spectral sensitivity	UAF: 280 … 410 nm UA: 190 … 520 nm IG: 780 … 1800 nm
Electrical connection	24 V ⎓, 5 W, PELV
Ambient temperature	–40 °C … +85 °C; /86Ex, /87Ex: –40 °C … +65 °C
FFDT (safety time)	1, 2, 3, 5 s (separately per Range)
Relay outputs	Flame relay Ready for operation relay Closing contacts, 24 V⎓, 0.5 A
Analogue output (signal configurable)	0/4 … 20 mA, 750 Ohm max.
Optional real time information	Flame stability analysis
Ingress Protection	IP66/IP68 IP65 (/MP3) IP66 (Ex-versions)
Process connection	G1¼" or NPT1¼", F
Purge air connection	G½" or NPT ½", F
Viewing angle	6°
Dimensions	Hsg. P2 80 x 80 x 250 mm Hsg. M5 100 x 100 x 260 mm Hsg. M4 Ø120 mm Length approx. 310 mm
Weight (w/o cable)	Housing P2 approx. 0.9 kg Housing M5 approx. 1.2 kg Housing M4 approx. 2.8 kg

- Applicable from –40°C up to +85°C, certified and without need for accessories to isolate, heat or cool
- Wide dynamic range through automatic adaptation to the brightness of the flame
- Consequent two channel architecture for highest safety coexisting with highest availability
- Ideal support for Functional Safety within safety chains up to SIL3
- Different variants certified for diverse systems of standards for many parts of the world and many fields of application
- All variants also available for use with fibre optic systems (designation D-LX 721)
- Local display of status parameters and flame intensity at the device, for the whole temperature range
- Low maintenance requirements
- Optional analysis of flame stability in real time



Two channel design for high safety with high availability

Features + benefits

- **Safe process control**
  Even during strong and fast load changes of the combustion plant the process can be controlled safely by the flame stability signal. Reactions in due time are possible.

- **Higher flexibility for different loads and different fuels**
  Excellent selective flame monitoring and information concerning the stability of the flame makes it possible to run the plant in less stable regimes

- **Protection from unscheduled shutdown of the burner**
  Burner specific information concerning the stability allows decisions for preventative maintenance of the burner

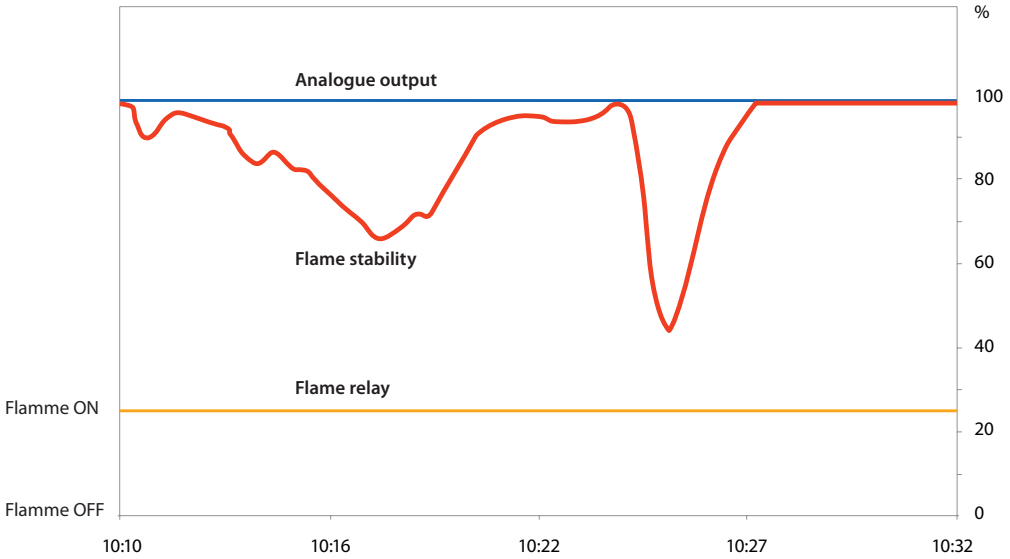
- **Fulfilment of special requirements**
  Flexible pre-settings for different combustion situations and fuels

- **Same technology for the most variable application conditions**
  The same device technology can be used without change for the most different geographical regions and based on varying systems of standards

Applications

- Complex combustion plants with a larger number of burners
- Combustion processes with continuous operation and with changing fuels
- Fossil fuelled power plants (Lignite, hard coal, biomass, oil and gas)
- Thermoprocessing plants
- Chemical plants
- Refineries
- Waste incineration plants
- Petrochemical plants
- Steel industry
- Cement plants

Temporal variation of the usual output signals **Flame relay** and **Analogue output**, as well as the **Flame stability signal** for a real combustion. The signal for the flame stability shows very clear changes while the other two signal do not yet show signs of a change.



Housings of the compact flame monitors (from left: M4, M5, P2)

Optical access for M5 housing, direct view (left) and for combination with fibre optic systems

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