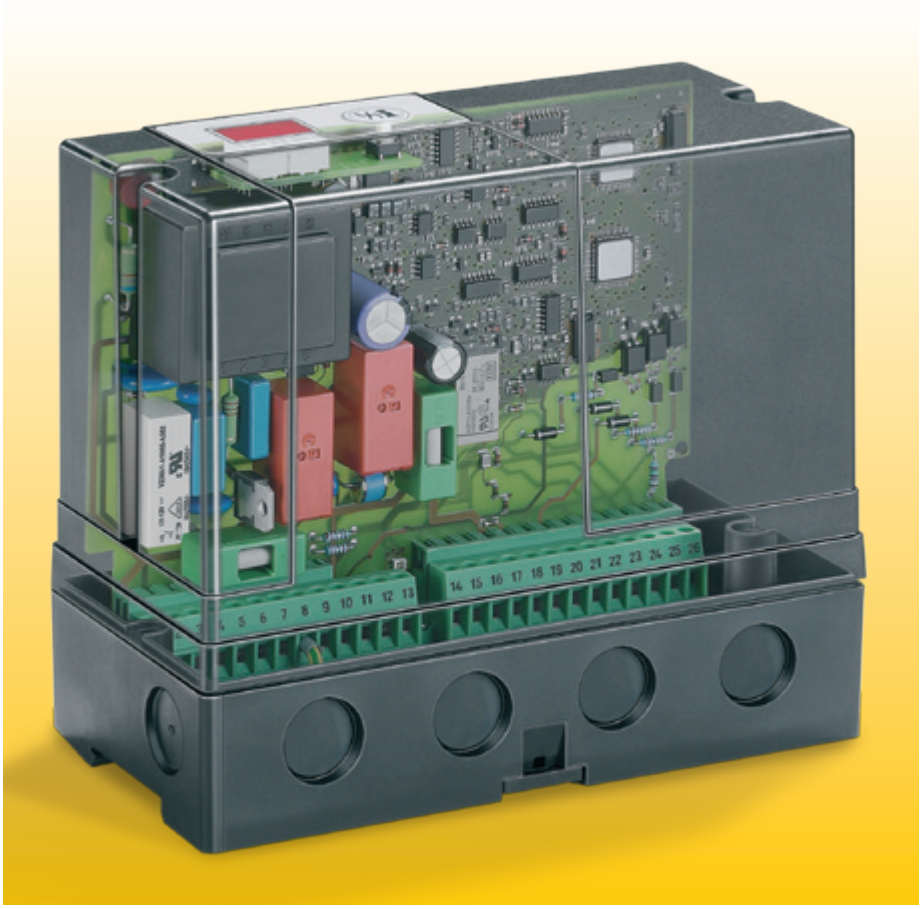
krom//schroder



CE

Automatic burner control units for continuous operation IFD 450, IFD 454

- For directly ignited burners of unlimited capa continuous operation pursuant to EN 746-2
- Continuous self-testing for faults
- IFD 450 includes immediate fault lock-out following flame failure
- IFD 454 includes restart following flame failure
- Flame control with UV sensor or ionisation sensor
- Multi-flame control with an additional flame detector IFW 50
- Checking that the gas valve is closed upon start-up
- EC type-tested and certified

ELSTER GROUP

6.1.2.2 Edition 10.06 GB

IFD 450, IFD 454

Automatic burner control units for continuous operation IFD 450, IFD 454

Application

IFD 450, IFD 454

The automatic burner control units for continuous operation IFD 450, IFD 454 ignite and monitor gas burners. As a result of their fully electronic design they react quickly to various process requirements and are therefore also suitable for frequent cycling operation.

They can be used for directly ignited industrial burners of unlimited capacity. The burners may be modulating or stage-controlled.

The program status and the level of the flame signal can be read directly from the unit.

IFD 450

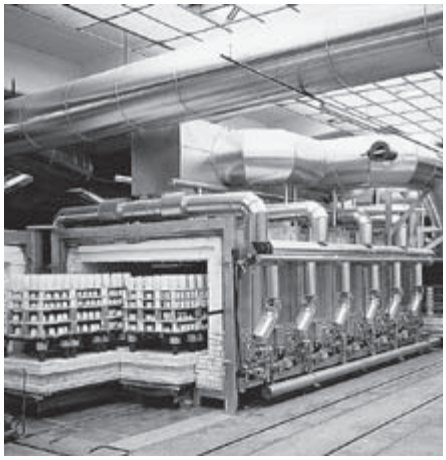
Immediate fault lock-out following flame failure during operation.

IFD 454

Automatic restart following flame failure during operation.

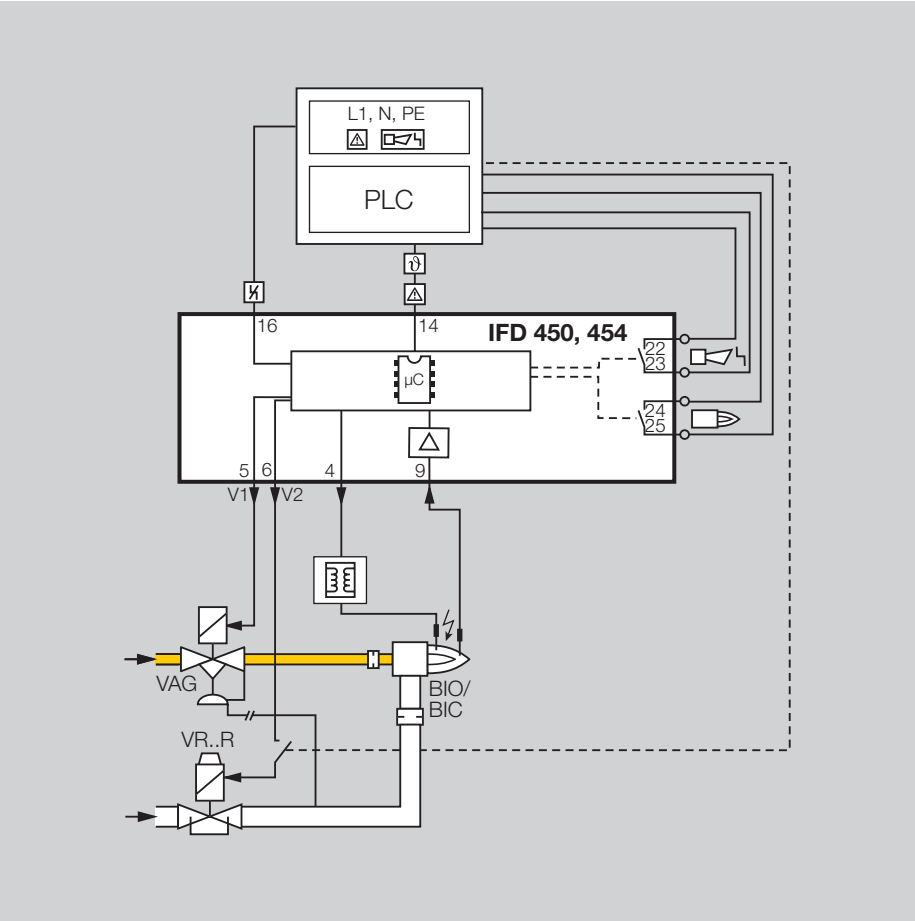
Intermittent shuttle kiln in the ceramics industry

Roller hearth kiln



Intermittent shuttle kiln

Application examples

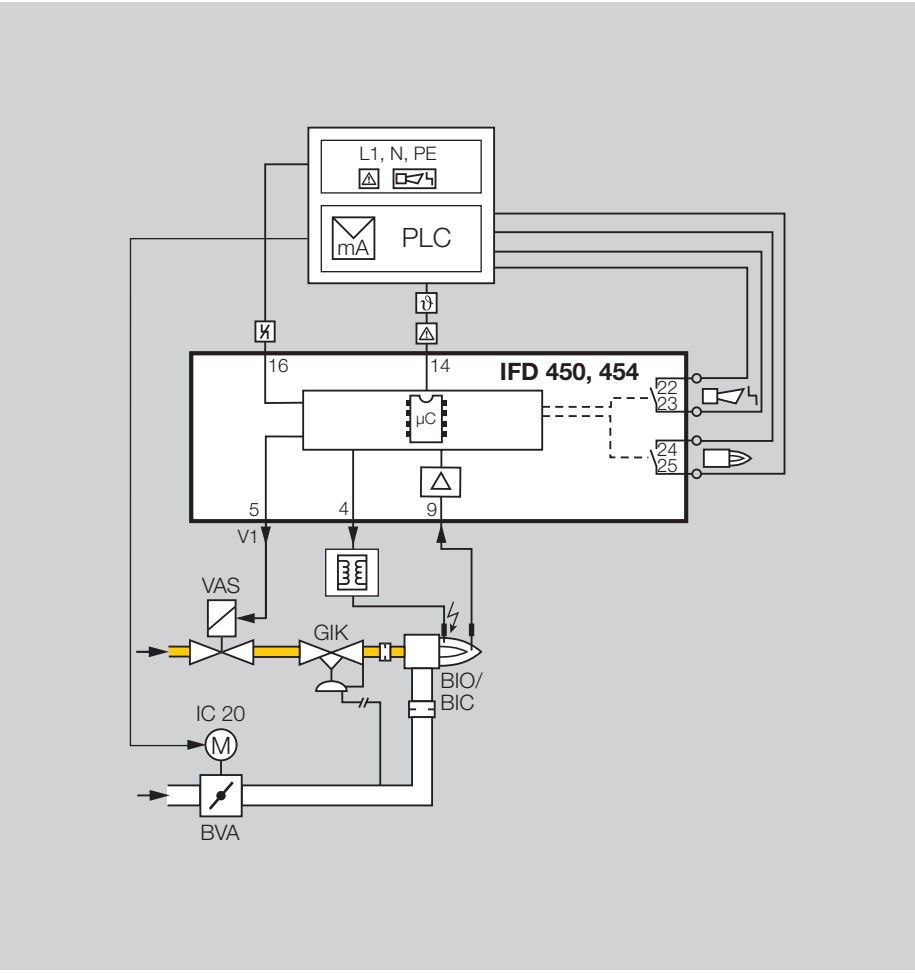


Two-stage-controlled burner

Control: ON/OFF or ON/HIGH/LOW/OFF

The burner BIO/BIC starts at low-fire rate. Once the normal operating state is reached, the automatic burner control unit for continuous operation IFD 454 or IFD 450 will release control.

The PLC can now pulse the air solenoid valve VR..R in order to control the capacity between high and low fire.

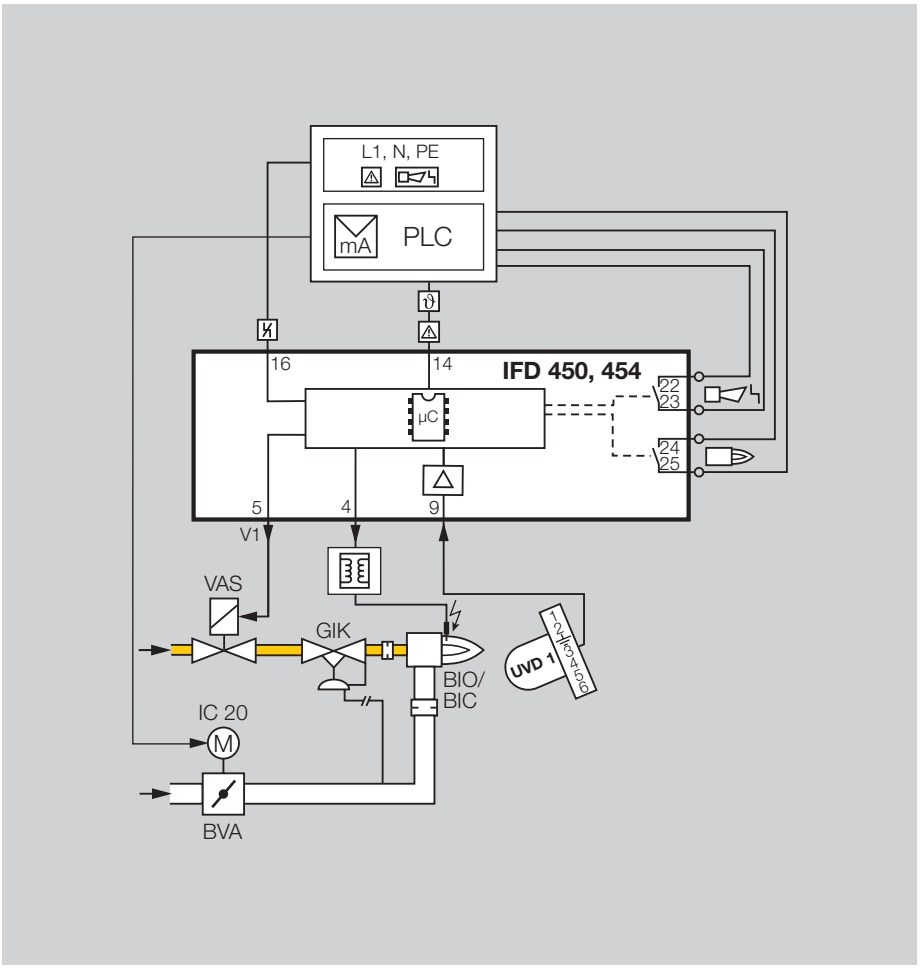


Modulating-controlled burner

Control: ON/OFF/continuous

The PLC uses the actuator IC 20 to move the air butterfly valve BVA to ignition position.

The burner BIO/BIC starts at low-fire rate. Once the normal operating state is reached, the PLC uses the actuator IC 20 and the air butterfly valve BVA to control the burner capacity.

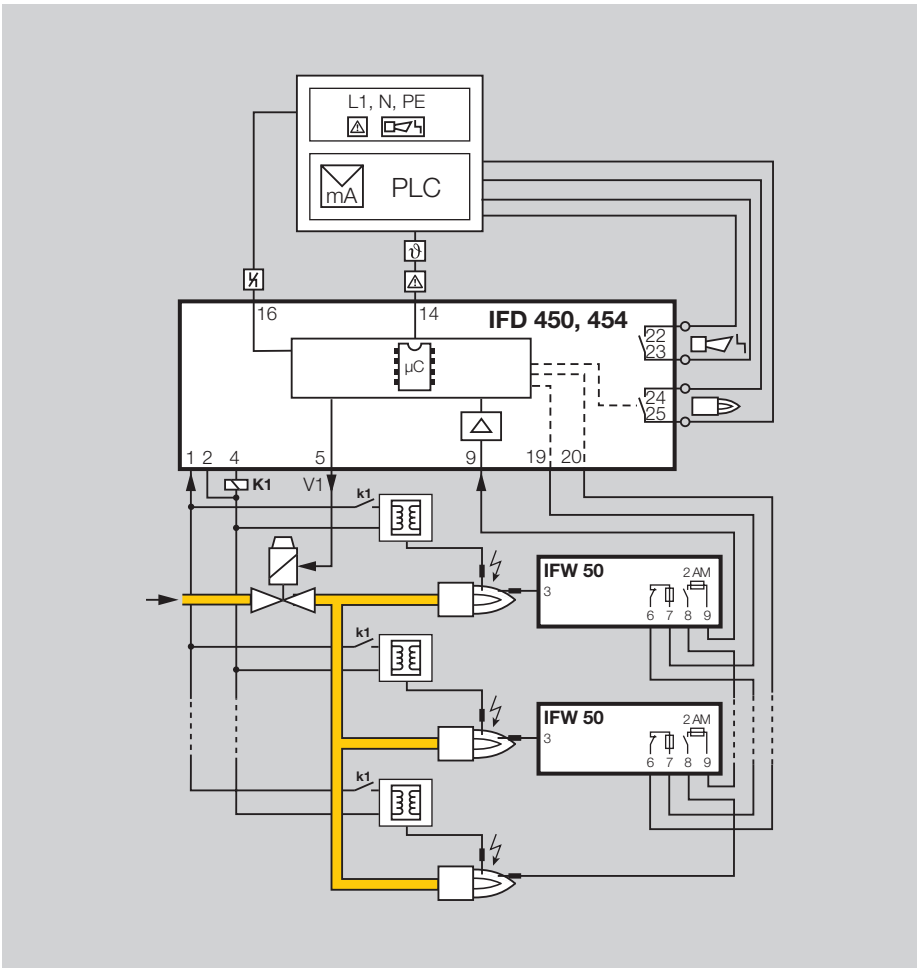


Modulating-controlled burner with UV control for continuous operation

Control: ON/OFF/continuous

The PLC uses the actuator IC 20 to move the air butterfly valve BVA to ignition position. The burner BIO/BIC starts at low-fire rate.

The UV sensor for continuous operation UVD 1 is also connected in order to monitor the flame. It notifies the automatic burner control unit for continuous operation IFD 454 or IFD 450 of the presence of a flame. Once the normal operating state is reached, the PLC uses the actuator IC 20 and the air butterfly valve BVA to control the burner capacity.



Multi-flame control with flame detector IFW 50

Several burners may be monitored jointly, following the principle of multi-flame control, using the flame detector IFW 50. In addition to monitoring a burner, the automatic burner control unit for continuous operation IFD 454 or IFD 450 is used in double-electrode operation to provide the entire control function. The remaining burners are each monitored by a flame detector.

A flame detector IFW 50 must be installed for each burner in order to monitor multiple burners in single-electrode operation. Where a system is subject to British standards, a flame detector IFW 50 must also be installed for each burner.

A fault will give rise to the shut-down of all burners.

Technical data

Mains voltage for grounded and ungrounded mains:
IFD..T
220/240 V AC, -15/+10%, 50/60 Hz,
IFD..N: upon request
110/120 V AC, -15/+10%, 50/60 Hz.

Safety time on start-up t_{SA}: 3, 5 or 10 s.

Safety time during operation t_{SB}: < 1 s, < 2 s.

Ignition time t_Z: approx. 2, 3 or 7 s.

Power consumption: approx. 9 VA.

Output to ignition transformer with no-switch contacts via semi-conductor.
Output voltage for valves and ignition transformer = mains voltage.

Contact rating:
max. 1 A, cos φ = 1 per output,
V2: max. 0.75 A, cos φ = 1,
max. number of operating cycles: 250,000.

Total load: max. 2 A.

Reset button: max. number of operating cycles: 1000.

Signal inputs:

Input voltage	110/120 V AC	220/240 V AC
Signal “1”	80–126,5	160–253
Signal “0”	0–20	0–40
Frequency	50/60 Hz	

Input current signal inputs: Signal “1” typ. 2 mA.

Flame control:
Sensor voltage: approx. 220 V AC,
Sensor current: > 1 µA,
max. sensor current: ionisation < 28 µA.

Permissible UV sensor: Kromschröder model UVD 1, for ambient temperatures from -40 to +80°C (-40 to 176°F).

Valve connections: 2.

Fuse in unit: F1: T 2A H 250 V pursuant to IEC 127-2/5.

Ambient temperature: -20 to +60°C (-4 to +140°F).

Relative humidity: no condensation permitted.

Enclosure: IP 54 pursuant to IEC 529.

Overvoltage category III pursuant to EN 60730.

Cable gland: M16.

Installation position: any.

Weight: 790 g..

Certification

EC type-tested and certified

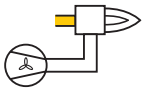
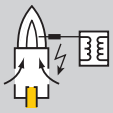
pursuant to

- Gas Appliances Directive (90/396/EEC) in conjunction with EN 298,
- Machinery Directive (98/37/EC) in conjunction with the relevant sections of EN 746,
- Low Voltage Directive (73/23/EEC) in conjunction with the relevant standards,
- Electromagnetic Compatibility Directive (89/336/EEC) in conjunction with the relevant standards relating to radiation.

Maintenance cycles

The automatic burner control units for continuous operation IFD 454 and IFD 450 require little maintenance.

EN 746-2

	P_N	t_{SA}
	≤ 70 kW	**5 s**
	> 70 kW*	**3 s**
	≤ 350 kW	**10 s**
	> 350 kW**	**5 s**
	0 ➔∞*	**10 s**

* P_Z 0,1 x P_N, P_{Zmax} = 350 kW
** P_Z 0,33 x P_N, P_{Zmax} = 350 kW

Selection

Determining the safety time t_{SA}

The safety time on start-up t_{SA} = 3 s, 5 s or 10 s should be indicated when ordering.

The details are based on the 1997 edition of EN 746-2.

P_N = Rated heat output
P_Z = Ignition capacity (this is defined via the pilot gas valve V1)
The safety time on start-up t_{SA} depends on the burner type, the burner capacity and the respective application.

Selection table

Automatic burner control units for continuous operation IFD 450, 454

Order example

IFD 450-5/1/1-T

	4	50	54	-3	-5	-10	/1	/2	/1	-T	-N
IFD	●	●	●	●	●	●	●	○	●	●	○

Type = IFD

Series 400 = 4

Fault lock-out following flame failure = 50
Restart following flame failure = 54

Safety time on start-up t_{SA}:
3 s = -3
5 s = -5
10 s = -10

Safety time during operation t_{SB} for V2:
1 s = /1
2 s = /2

Safety time during operation t_{SB} for V1: 1 s = /1

Mains voltage for grounded and ungrounded mains
220/240 V AC, -15/+10%, 50/60 Hz = -T
110/120 V AC, -15/+10%, 50/60 Hz = -N

● = standard, ○ = available

Detailed information on this product

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