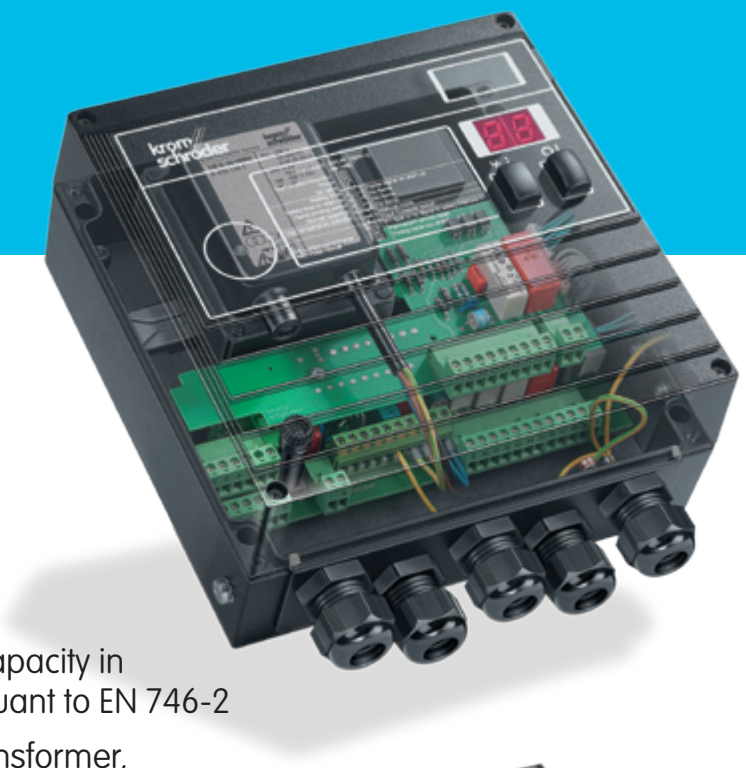
Burner control units BCU 480

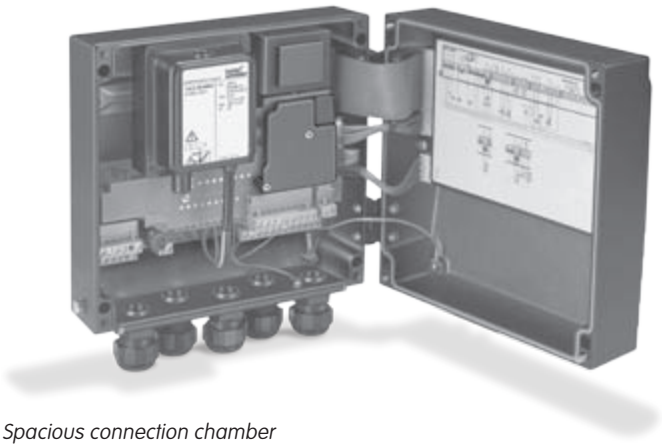
Product brochure · GB
6.1.2.8 Edition 06.07



- For pilot and main burners of unlimited capacity in intermittent or continuous operation pursuant to EN 746-2
- Automatic burner control unit, ignition transformer, indicators and operating controls in a space-saving metal housing which replaces the local burner control cabinet
- Flame control by UV, ionisation or a further option of using the furnace chamber temperature
- Display of the program status, unit parameters and flame signal; manual mode for burner adjustment and for diagnostic purposes
- Visualisation and adaptation to the specific application via the PC programming and diagnostic software BCSoft to simplify logistics management
- Spacious connection chamber with plug-in terminal blocks and plug-in cable glands for quick installation and servicing
- Air valve control relieves the furnace control
- Optional PROFIBUS-DP interface
- EC type-tested and certified

elster Kromschröder

BCU 480



Spacious connection chamber with plug-in terminal blocks

The BCU unites the functionally interrelated components of automatic burner control unit, ignition transformer, Manual/Automatic mode and display of operating and fault statuses in a compact metal housing.

Application

The burner control units BCU 480 control, ignite and monitor gas burners for intermittent or continuous operation. As a result of their fully electronic design they react quickly to various process requirements and are therefore suitable for frequent cycling operation.

They can be used for industrial burners of unlimited capacity which are ignited by pilot burners. Pilot and main burners may be modulating or stage-controlled. The BCU 480 monitors pilot and main burners independently. The pilot burner can burn permanently or be switched off. The BCU is installed near to the burner to be monitored.

On industrial furnaces, the BCU reduces the load on the central furnace control by taking over tasks that only relate to the burner, for example it ensures that the burner always ignites in a safe condition when it is restarted.

The air valve control assists the furnace control for cooling, purging and capacity control tasks.

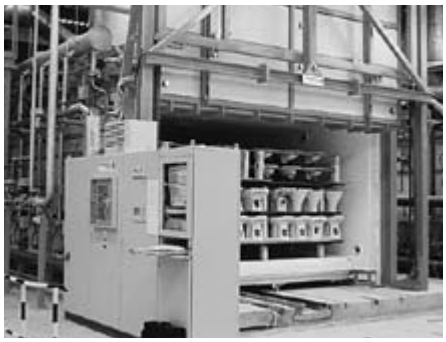
The program status, the unit parameters and the level of the flame signal can be read directly from the unit. The burner can be controlled manually for commissioning and diagnostic purposes.

If the local requirements on the burner control unit change, the PC software "BCSoft" can be adjusted to the unit parameters of the application by using the optical interface.

The service personnel is supported by a convenient visualisation system of the input and output signals and the error history.

To reduce the installation and wiring costs, Elster Kromschröder offers an optional PROFIBUS-DP interface to transfer the activation signals and feedbacks so as to expand the remote servicing and diagnostics facilities.

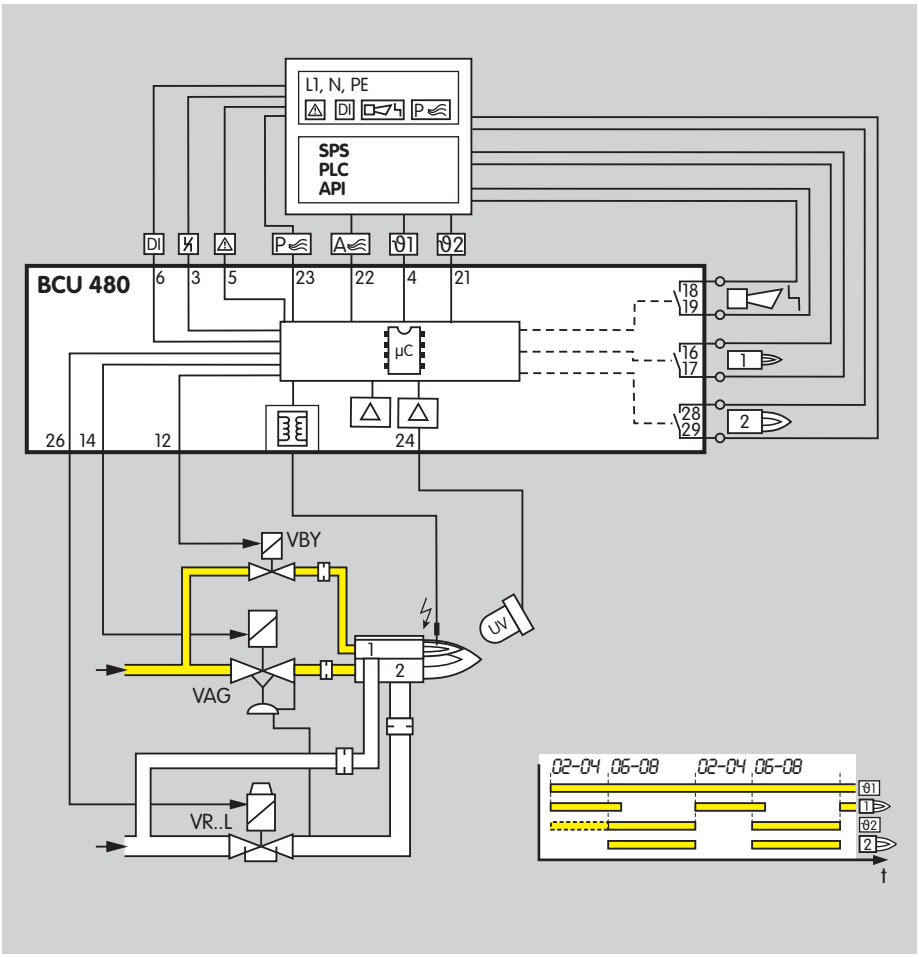
Bogie hearth forging furnace in the metallurgical industry



Intermittent shuttle kiln in the ceramics industry

Walking beam furnace with overhead firing

Examples of application



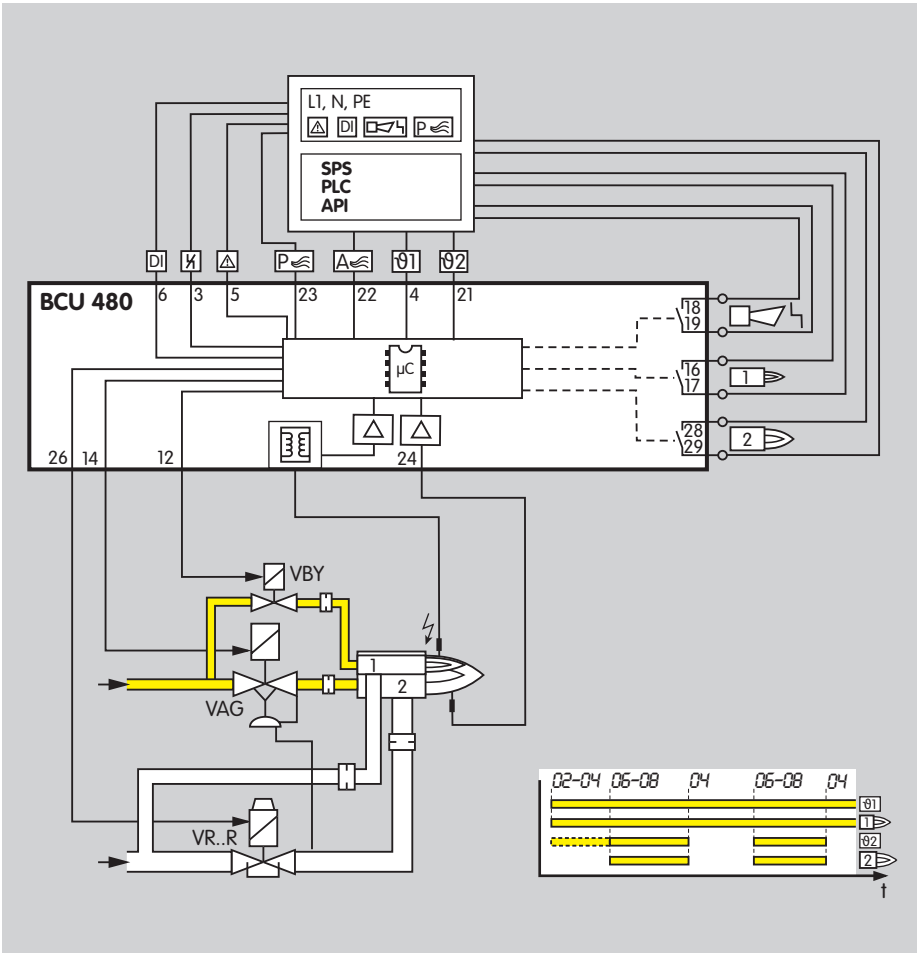
Stage-controlled main burner with alternating pilot burner

Control:
Main burner ON/OFF.

The main burner can be started with reduced capacity after the operating signal from the pilot burner has been detected. The pilot burner is switched off automatically after the main burner has started up. When the main burner is switched off, the pilot burner automatically switches on again. This reduces the main burner start-up time.

A UV sensor monitors the flame signal from pilot and main burners. UV sensor UVD 1 is used for continuous operation, UV sensor UVS for intermittent operation.

The BCU provides the cooling and purging processes.

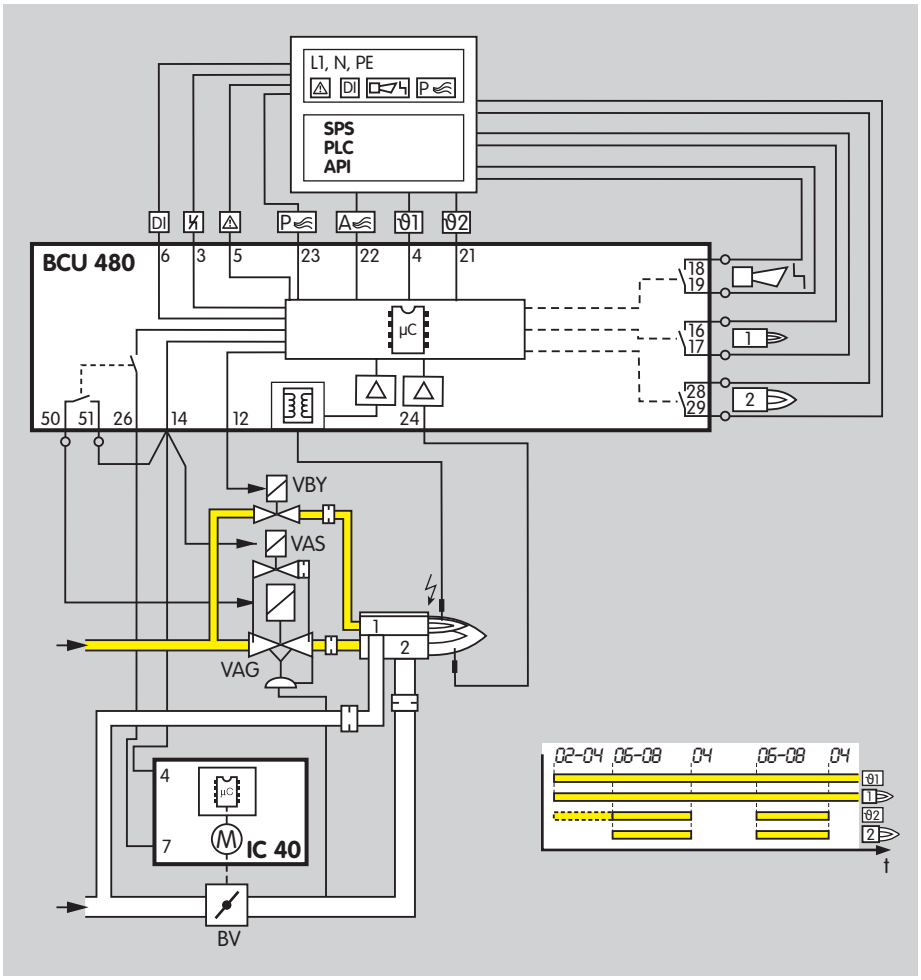


Stage-controlled main burner with permanent pilot burner

Control:
Main burner ON/OFF.

The main burner can be started with reduced capacity after the operating signal from the pilot burner has been detected. Pilot and main burners can be operated simultaneously. This reduces the time required by the main burner for starting up.

The BCU provides the cooling and purging processes.

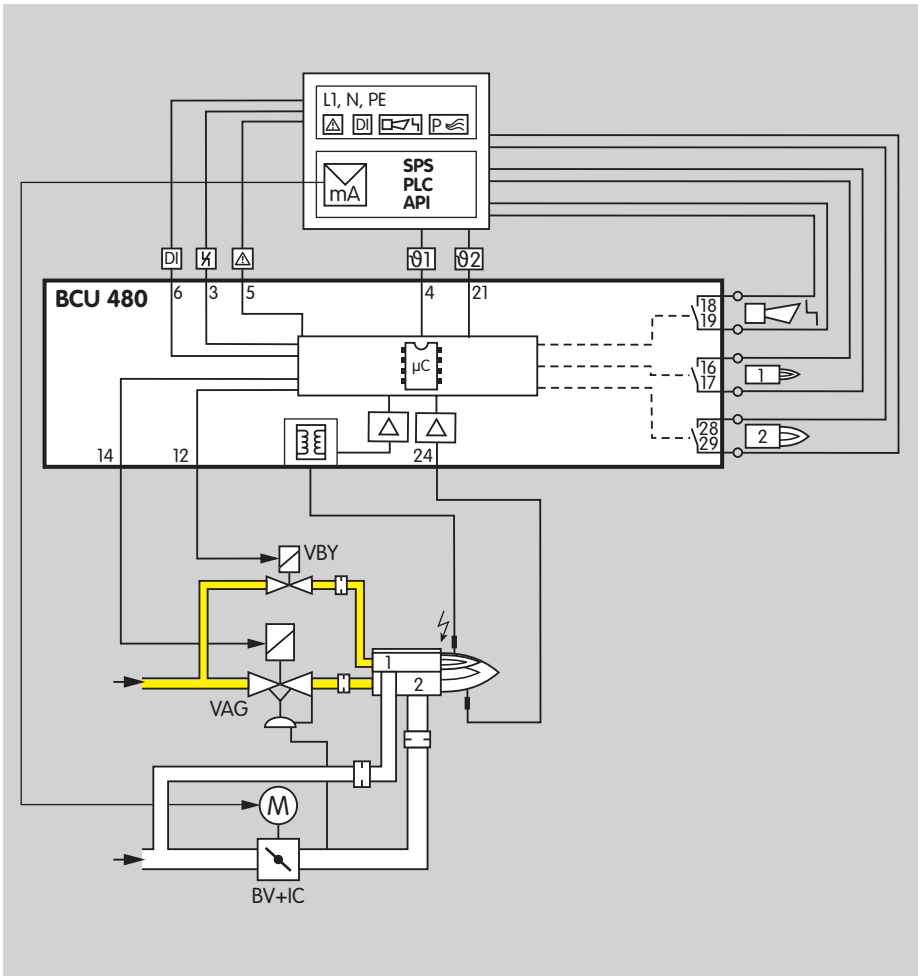


Two-stage-controlled main burner with permanent pilot burner

Control:
Main burner ON/OFF with ignition via bypass.

The main burner can be started at low-fire rate after the operating signal from the pilot burner has been detected. When the operating state is reached, the BCU issues the Enable signal for the maximum burner capacity. Pilot and main burners can be operated simultaneously. This reduces the time required by the main burner for starting up.

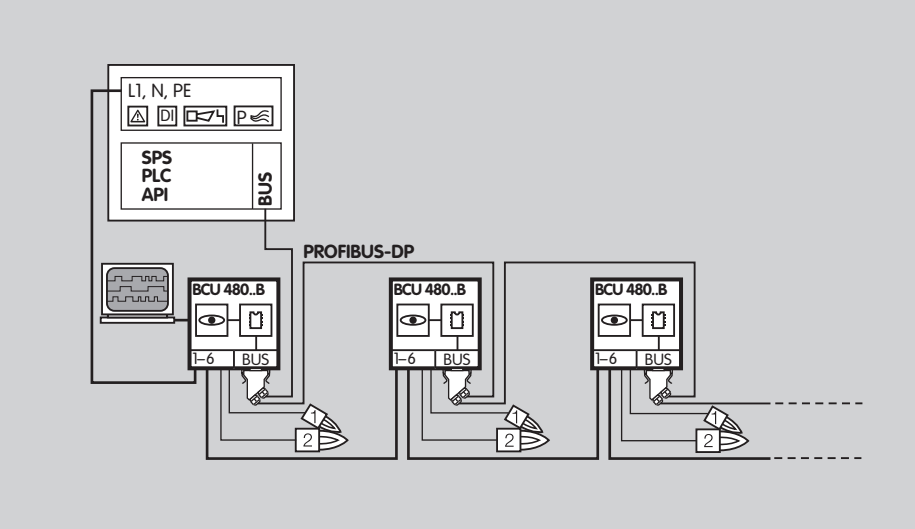
The BCU provides the cooling and purging processes.



Modulating-controlled burner

Control:
Main burner continuous

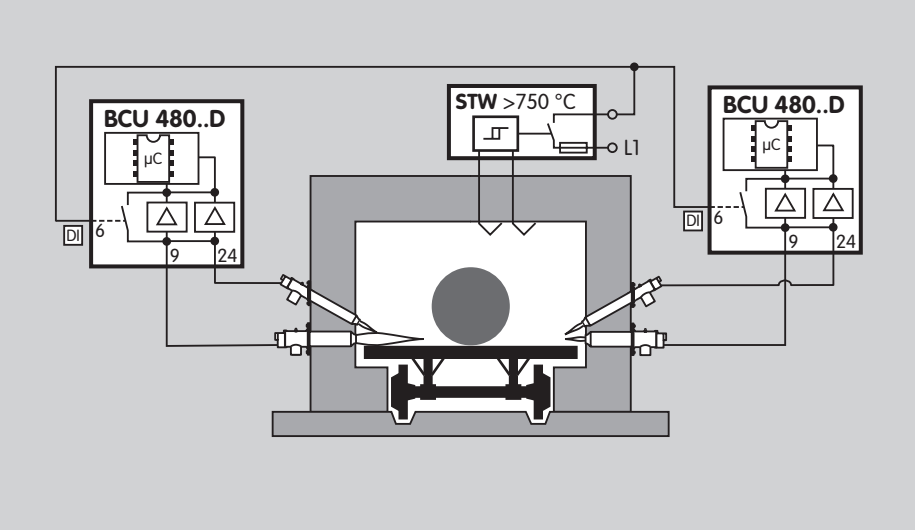
The butterfly valve for air is moved to ignition position in order to start the main burner. The main burner can be started at low-fire rate after the operating signal from the pilot burner has been detected. The control system controls the burner capacity via the butterfly valve for air after the operating state has been signalled. Pilot and main burners can be operated simultaneously. This reduces the time required by the main burner for starting up.



BCU 480..B1 for PROFIBUS-DP

The bus system transfers the control signals for starting, resetting and for controlling the air valve from the control system to the BCU 480..B1. In the opposite direction it sends operating status, the level of the flame signals and the current program status.

Control signals that are relevant for safety, such as the safety interlocks, purge (optional) and digital input, are transferred independently of the bus communication by separate cables.



BCU 480..D: High temperature equipment

Indirect flame control using the temperature. During the start-up process, as long as the wall temperature is below auto ignition temperature the flame must be controlled by conventional methods. When the working temperature has exceeded 750°C, the safety temperature monitor (STW) takes over the indirect flame control.

Technical data

Mains voltage:
230 V AC, -15/+10%, 50/60 Hz,
115 V AC, -15/+10%, 50/60 Hz,
for grounded and ungrounded mains.

Voltage to inputs and valves = mains voltage.

Output current: max. 2 A per output, but total current for valves and ignition transformer max. 2.5 A.

Operation and fault signalling contacts:
Dry contact, max. 2 A, 264 V, not fused internally.

Flame control:
sensor voltage approx. 230 V AC,
sensor current > 1 µA.

Length of sensor cable: max. 50 m (164 ft).

Fuse in unit:
F1: 3.15 A, slow-acting, H pursuant to IEC 127-2/5,
F3: 3.15 A, slow-acting,
H pursuant to IEC 127-2/5.

Ambient temperature:
-20 to +60°C (-4 to +140°F),
climate: no condensation permitted.

Enclosure: IP 54 pursuant to IEC 529.

Weight:
Approx. 5 kg (11 lb) depending on version.

BCU..B1

External fuse: 12 A per zone.

Certification

CE

FM APPROVED

The burner control unit BCU 480 is designed for applications pursuant to the Machinery Directive (98/37/EC).

EC type-tested and certified

pursuant to

- Gas Appliances Directive (90/396/EC) in conjunction with EN 298
- Low Voltage Directive (73/23/EEC) in conjunction with EN 60730
- Electromagnetic Compatibility Directive (89/336/EEC)

AGA

Certified under No. 6478

FM

BCU..T is FM approved.

Standard: Factory Mutual Research Standard 7610: June 1997

Suitable for applications pursuant to NFPA 86

Profibus User Organisation

BCU..B1

PUO = PROFIBUS User Organisation, Certificate No. Z 00692 pursuant to EN 50170-1, -3

Selection

	-3	-5	-10	/-3	/-5	/1	/2	L	5*	15*	25*	W	R	1*	2*	3*	8*	GB	P*	D2*	D3*	S2 – 3**	/2 – 3**	U*	C*	B1*	/1*
BCU 480	●	●	●	●	●	●	●	●	○	○	○	●	●	●	●	●	●	●	○[1)]	○	○	○	○	○[1)]	○	○	○

Type = BCU
1st safety time on start-up: t_{SA1} [s] = 3; 5; 10
2nd safety time on start-up: t_{SA2} [s] = 3; 5
Safety time during operation: t_{SB} [s] = 1; 2
Air valve control = L
Low fire over run time [s] = 5*; 15*; 25*
Mains voltage
230 V AC, -15/+10%, 50/60 Hz = W
115 V AC, -15/+10%, 50/60 Hz = R
Ignition transformer
TZI 5-15/100 = 1*
TZI 7-25/20 = 2*
TZI 7,5-12/100 = 3*
TZI 7,5-20/33 = 8*
Front film in English (with additional stickers in D, F, I, NL, E) = GB
Industrial plug connector = P*
Digital input to interrupt the flame monitoring...
... for intermittent operation = D2*
... for continuous operation = D3*
Number of pilot burner start-up attempts = S2 – 3**
Number of main burner start-up attempts = /2 – 3**
Preparation for UV sensor for continuous operation UVD 1 = U*
Additional signal distribution = C*
For PROFIBUS-DP = B1*
9-pin D-Sub bus plug connector, IP 54 = /1*

* If "none", this specification is omitted.
** If 1 start-up attempt, this specification is omitted.
1) Not in conjunction with PROFIBUS-DP = B1
● = standard, ○ = available.

Order example

BCU 480-5/-3/1LW3GBC

Detailed information on this product

www.docuthek.com

Contact

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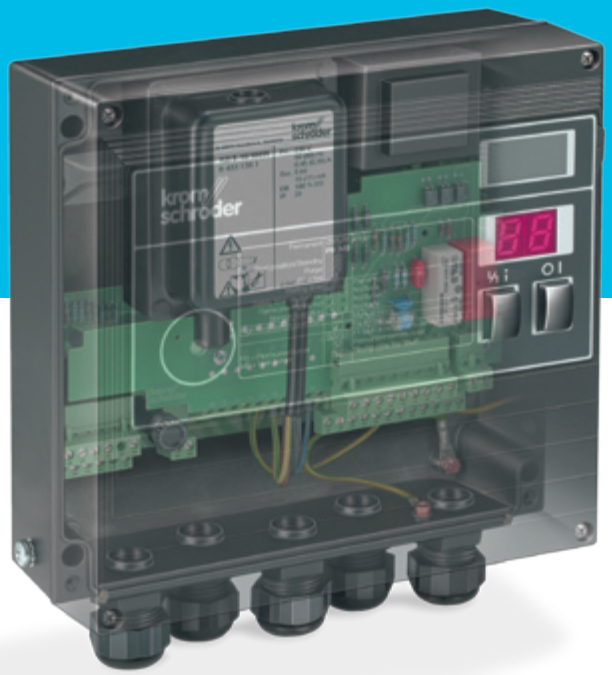
www.kromschroeder.com

Kromschröder, a product brand of the Elster Group

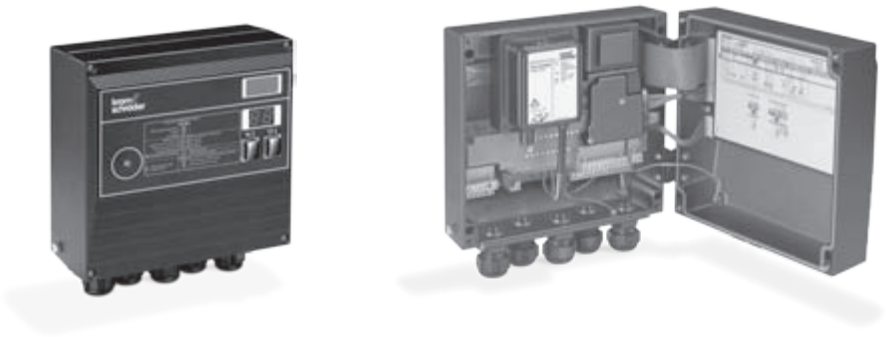
03250579 F.T. 06.07 1.000

Burner control units BCU 460, BCU 465

Product brochure · GB
6.1.2.6 Edition 08.07



- Automatic burner control unit, ignition transformer, indicators and operating controls in a space-saving metal housing which replaces the local burner control cabinet
- For directly ignited burners of unlimited capacity in intermittent or continuous operation pursuant to EN 746-2
- Flame control by UV, ionisation or a further option of using the furnace chamber temperature
- Display of the program status, device parameters and flame signal; manual mode for burner adjustment and for diagnostic purposes
- Visualisation and adaptation to the specific application via the PC programming and diagnostic software BCSoft to simplify logistics management
- Spacious connection chamber with plug-in terminal blocks and plug-in cable glands for quick installation and servicing
- Air valve control in BCU..L relieves the furnace control
- Optional PROFIBUS-DP interface
- EC type-tested and certified



The BCU unites the functionally interrelated components of automatic burner control unit, ignition transformer, Manual/Automatic mode and display of operating and fault statuses in a compact metal housing.

Application

The burner control units BCU 460 and BCU 465 control, ignite and monitor gas burners for intermittent or continuous operation. As a result of their fully electronic design they react quickly to various process requirements and are therefore suitable for frequent cycling operation.

They can be used for directly ignited industrial burners of unlimited capacity. The burners may be modulating or step-by-step-controlled. The BCU is installed near to the burner to be monitored.

On industrial furnaces the BCU relieves the load on the furnace control by taking over tasks that only relate to the burner, for example it ensures that the burner always ignites in a safe condition after it has been restarted.

The optional air valve control on the BCU..L assists the furnace control for cooling, purging and capacity control tasks.

The BCU 465..L is fitted with an air flow monitor and an air supply and air post ventilation for use on recuperative burners.

The program status, the unit parameters and the level of the flame signal can be read directly from the unit. The burner can be controlled manually for commissioning and diagnostic purposes.

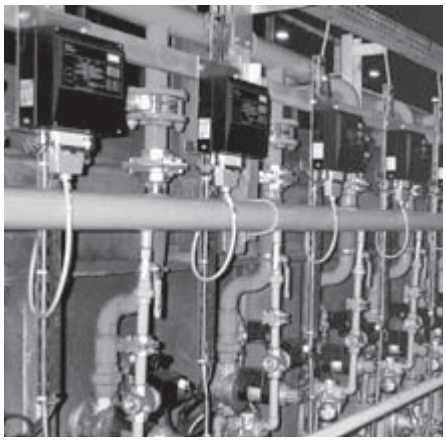
If the local requirements on the burner control unit change, the PC software BCSoft can be adjusted to the unit parameters of the application by using the optical interface.

The service personnel is supported by a convenient visualisation system of the input and output signals and the error history.

To reduce the installation and wiring costs Kromschröder offers an optional PROFIBUS-DP interface to transfer the activation signals and feedbacks so as to expand the remote servicing and diagnostics facilities.

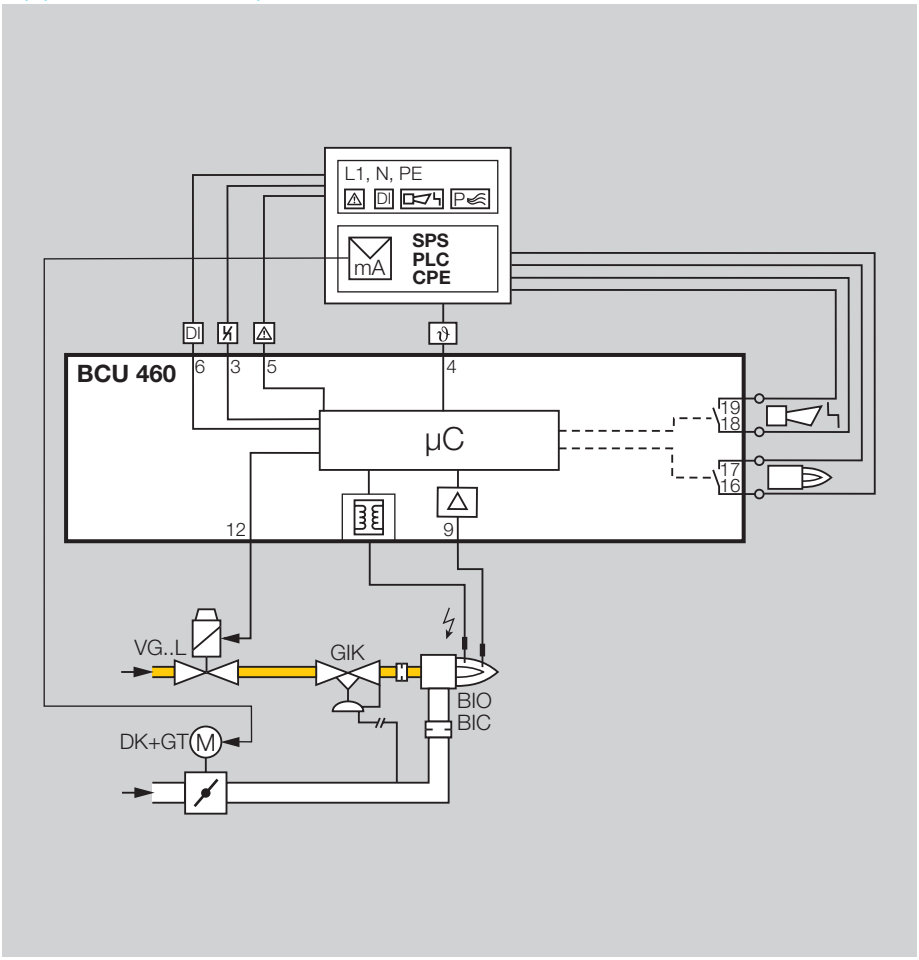
Roller hearth kiln in the ceramics industry

BCU on recuperative burner



Hardening furnace with lots of industrial burners located side-by-side

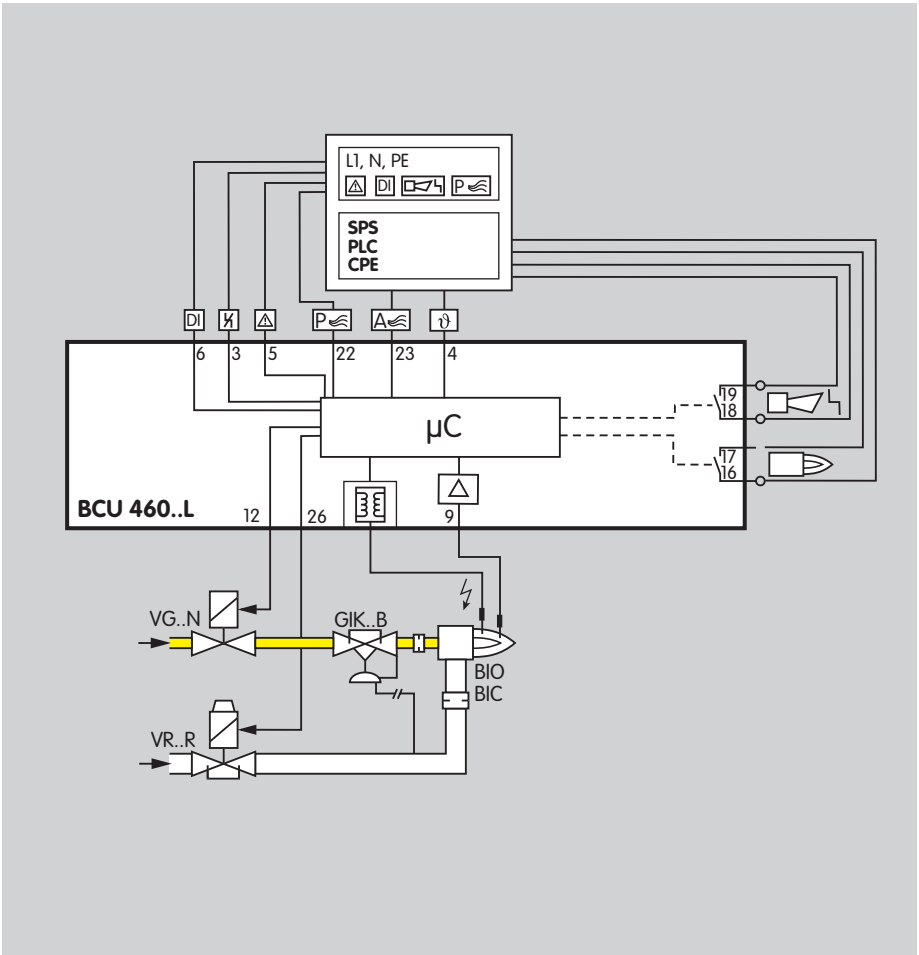
Application examples



BCU 460: Modulating-controlled burner

Control: ON/OFF/Continuous.

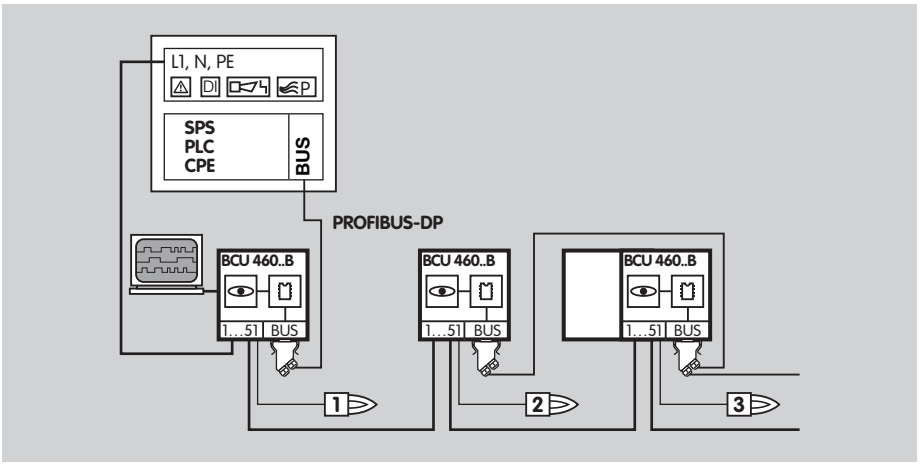
The external control system moves the butterfly valve for air to ignition position. The burner starts at low-fire rate, and a regulator controls the burner capacity via the butterfly valve for air after the operating state has been signalled.



BCU 460..L: Two-stage-controlled burner

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

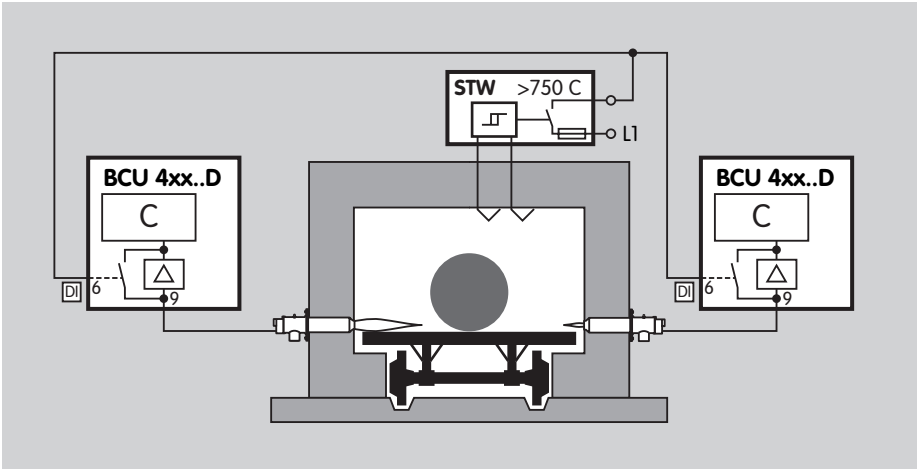
The BCU supports the cooling and purging processes. The burner starts at low-fire rate. When the operating status is reached the BCU advises the control unit. The PLC can now pulse the air valve in order to control the burner capacity.



BCU 460..B1 for PROFIBUS-DP

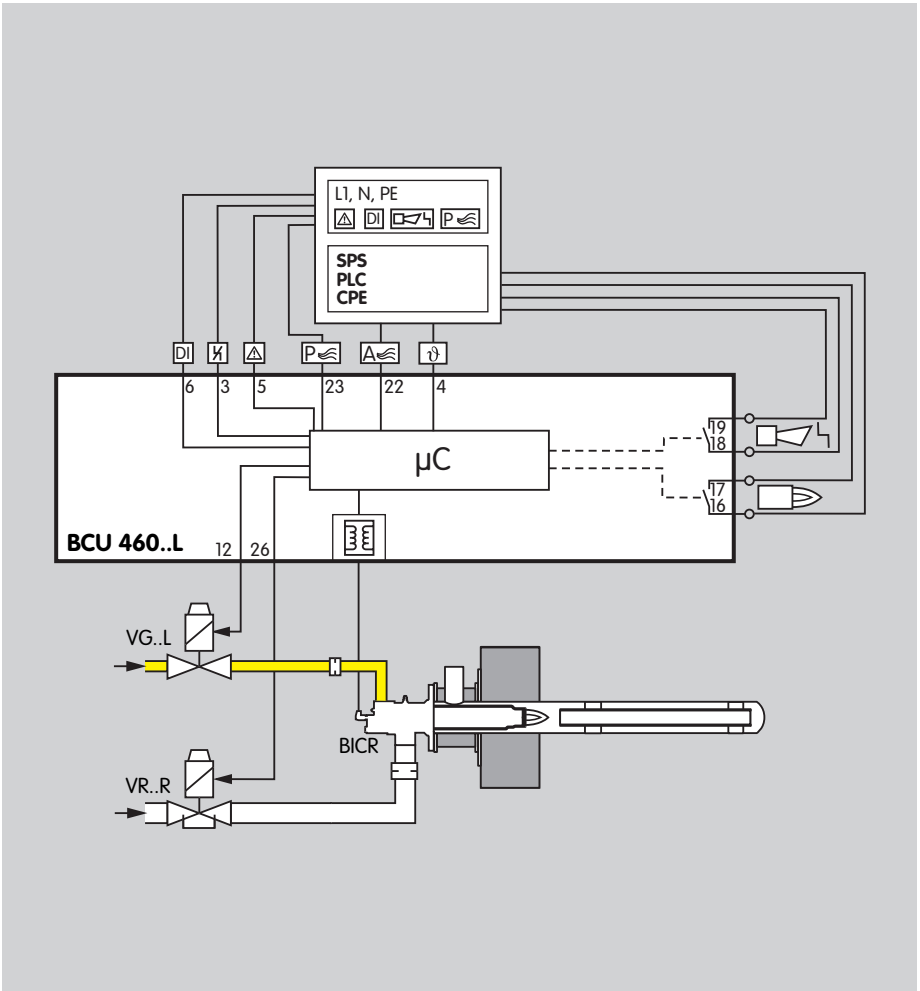
The bus system transfers the control signals for starting, resetting and for controlling the air valve from the control system (PLC) to the BCU..B1. In the opposite direction it sends operating status, the level of the flame signal and the current program status.

Control signals that are relevant for safety, such as the safety interlocks and digital input, are transferred independently of the bus communication by separate cables.



BCU 460..D: High temperature systems

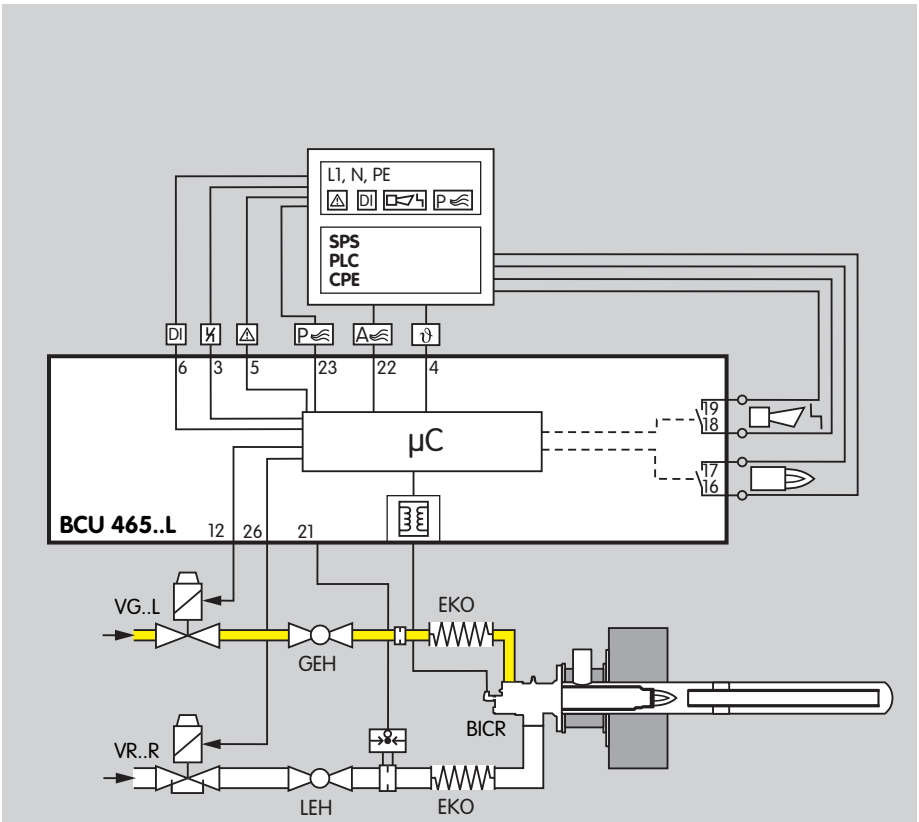
Indirect flame control using the temperature. During the start-up process, as long as the wall temperature is below auto ignition temperature the flame must be controlled by conventional methods. When the working temperature has exceeded 750°C the safety temperature monitor (STW) takes over the indirect flame control.

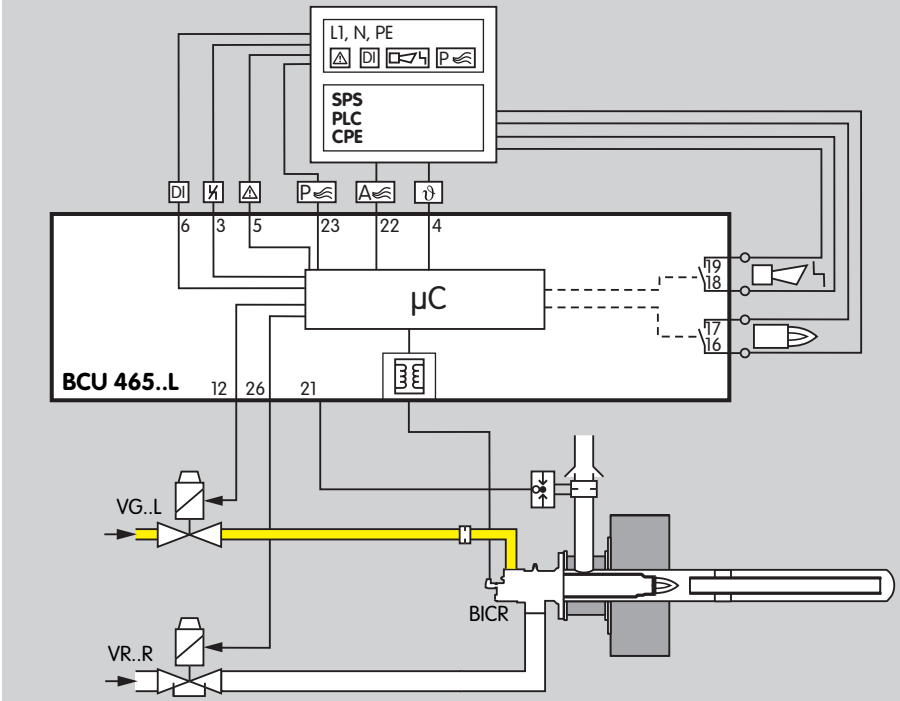


BCU 460..L: Single-stage-controlled radiant tube burner

Control: ON/OFF.

The BCU supports the cooling and purging processes.

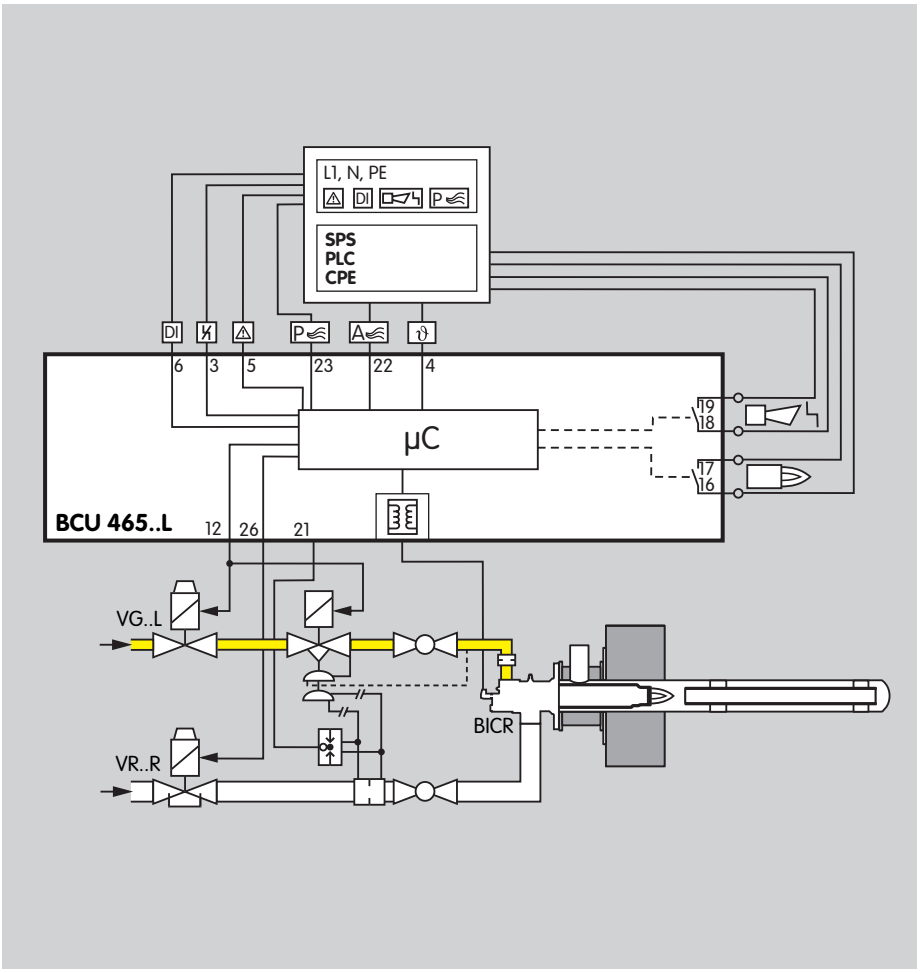




BCU 465..L: Single-stage-controlled burner

Control: ON/OFF.

The gas/air mixture is adjusted to the requirements of the applications using the differing parameters of air supply and air post ventilation. The pressure switch monitors the air flow in the air supply line or in the flue gas branch.



BCU 465..L: Single-stage-controlled burner with pneumatic group

Control: ON/OFF.

The BCU supports the cooling and purging processes. The variable air/gas ratio control compensates for gas/air pressure fluctuations. Optional: The pressure switch monitors the air flow during pre-purge and operation. The gas/air mixture is adjusted to the requirements of the applications using the differing parameters of air supply and air post ventilation.

Technical data

Mains voltage:
230 V AC, -15/+10%, 50/60 Hz,
115 V AC, -15/+10%, 50/60 Hz (option).

Length of burner cables: max. 5 m.

Max. number of operating cycles: 1,000,000.

Ambient temperature: -20 to +60°C, no condensation permitted.

Enclosure: IP 54 pursuant to IEC 529.

Die-cast aluminium housing with plug-in terminal blocks and plug-in M20 cable glands.

Certification

The burner control units BCU 460 and BCU 465 are designed for applications pursuant to the Machinery Directive (98/37/EC).

EC type-tested and certified pursuant to

– Gas Appliances Directive (90/396/EC) in conjunction with EN 298
– Low Voltage Directive (73/23/EEC) in conjunction with EN 60730
– Electromagnetic compatibility (89/336/EEC)

AGA

Certified under no. 6478

FM

BCU..T is FM-approved.

Standard: Factory Mutual Research Standard 7610: June 1997

Suitable for applications pursuant to NFPA 86

(BCU..T see www.docuthek.com)

Profibus User Organisation

BCU..B1

PNO = PROFIBUS user organisation, Certificate no. Z 00692 pursuant to EN 50170-2

Selection

BCU 460: standard version
BCU 465: with extended air control

	-3	-5	-10	/1	/2	L*	5*	15*	25*	W	R	1*	2*	3*	8*	GB	P*	D2*	D3*	S2 – 4**	A*	U*	C*	B1*	/1*
BCU 460	●	●	●	●	●	○	○	○	○	●	●	●	●	●	●	●	○[1]	○	○	○		○[1]	○	○	○
BCU 465	●	●	●	●	●	●	○	○	○	●	●	●	●	●	●	●	○[1]	○	○	○	●	○[1]	○	○	

Type = BCU
Safety time on start-up
t_{SA} [s] = 3; 5; 10
Safety time during operation
t_{SB} [s] = 1; 2
Air valve control = L*
Low fire over run time [s] = 5*; 15*; 25*
Mains voltage
230 V AC, -15/+10%, 50/60 Hz = W
115 V AC, -15/+10%, 50/60 Hz = R
Igniton transformer
TZI 5-15/100 = 1*
TZI 7-25/20 = 2*
TZI 7.5-12/100 = 3*
TZI 7.5-20/33 = 8*
Front film in English with additional stickers in D, F, I, NL, E = GB
Industrial plug connector* = P*
High temperature operation in conjunction with ...
... UVS = D2*
... ionisation sensor or UVD = D3*
Number of start-up attempts = S2 – 4**
Air flow monitoring = A*
Preparation for UV sensor for continuous operation UVD 1 = U*
Additional signal distribution = C*
For PROFIBUS-DP = B1*
9-pin D-Sub bus connector, IP 54 = /1*

* If "none", this specification is omitted.
** If 1 start-up attempt, this specification is omitted.
[1] Not in conjunction with PROFIBUS-DP = B1

● = standard
○ = available

Order example
BCU 465-5/1LW3DAC

Detailed information on this product

www.docuthek.com

Contact

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www.elster.com

Kromschröder, a product brand of the Elster Group

03250379 FT 08.07 X.XXX

Burner control unit for PROFIBUS-DP BCU 400..B1

Technical Information · GB
6.1.2.7 03.11

- Easy transmission of activation signals and feedbacks via fieldbus cable
- Remote servicing and diagnostics facilities
- Saves installation and wiring costs
- Units can be exchanged during bus mode operation thanks to industrial plug connector system (SUB-D)
- Bus interface remains in operation when BCU® is switched off (standby mode)
- Certification for PROFIBUS-DP

In addition to the scope of functions and performance of the standard versions, the BCU.. B1 is also equipped with a connection for the PROFIBUS-DP fieldbus.

BCU 400..B1

1 Application

BCU 460..B1, BCU 460..L..B1, BCU 465..L..B1 and BCU 480..B1 correspond to the standard version in terms of their scope of functions and performance and, in addition, they can be equipped for connection to the PROFIBUS-DP fieldbus (see Technical Information bulletin BCU 460, BCU 465 and brochure BCU).

The conventional wide-spread systems used in industrial furnace and kiln construction require bridging of large distances for signal processing.

As a standardised fieldbus system, the PROFIBUS-DP considerably reduces development, installation and commissioning costs compared to conventional wiring.

The use of a standard bus system offers massive benefits over manufacturer-specific bespoke solutions. Time-tested hardware components, standardised connection methods and a series of tools of bus diagnostics and optimisation are available on the market from a whole range of manufacturers. The widespread use of the system ensures that the planning and service personnel are very familiar with how the system operates and how to handle it and can therefore operate the system efficiently.

3.9 Fault messages

Fault message (blinking)	DISPLAY	BCU 460..B1	BCU 465..B1	BCU 480..B1
Flame simulation	1	●	●	●
Start-up without flame signal	2	●	●	●
Flame failure during flame proving period	3	●	●	●
Flame failure during operation	4	●	●	●
Too many remote resets	10	●	●	●
Fault Air monitor break contact check	d0		●	
Fault Air supply during purging	dP		●	
Fault Air supply in program step X	dX**		●	
Fuse F1 defective or safety interlocks discontinuity	S1	●	●	●
Permanent remote reset	S2	●	●	●
Timing cycle too short	S3	●	●	●
Bus fault	Pb	●	●	●
System fault	flickers*	●	●	●
EEPROM data change, NFS***	30	●	●	●
EEPROM data change, FS***	31	●	●	●
Undervoltage in power pack	32	●	●	●
Faulty parameterisation	33	●	●	●
Bus module fault	bE	●	●	●

In manual mode, two dots blink on the display.

* Display flickers = BCU system fault.

** x = 1, 2, ... or 8, depending on the program status/position step. For example, for a missing pressure switch input signal in parameter/position step "Operation", the display indicates d4.

*** FS = input/output safety circuit, NFS = input/output control system.

For a detailed list of the fault messages, see Technical Information bulletin BCU 460, BCU 465 and brochure BCU.

5 Selection

BCU 460: Standard version; BCU 465: With extended air control;
BCU 480: For pilot and main burner monitoring

	-3	-5	-10	/-3*	/-5*	/-10*	/1	/2	L*	5	15	25	W	R	1	2	3	8	GB	D2*	D3*	S2 – 4**	A*	C*	B1*	/1*
BCU 460	●	●	●				●	●	○	○	○	○	●	●	●	●	●	●	●	○	○	○		○	●	●
BCU 465	●	●	●				●	●	●	○	○	○	●	●	●	●	●	●	●	○	○	○	●	○	●	●
BCU 480	●	●	●	●	●	●	●	●	●	○	○	○	●	●	●	●	●	●	●	○	○	○		○	●	●

Type = BCU

1st safety time on start-up
t_{SA} [s] = 3; 5; 10

2nd safety time on start-up
t_{SA} [s] = 3*; 5*; 10*

Safety time during operation t_{SB} [s] = 1; 2

Air valve control = L*

Low fire over run time [s] = 5; 15; 25

Mains voltage
230 V AC, -15/+10%, 50/60 Hz = W
115 V AC, -15/+10%, 50/60 Hz = R

Ignition transformer
TZI 5-15/100 = 1
TZI 7-25/20 = 2
TZI 7,5-12/100 = 3
TZI 7,5-20/33 = 8

Front film in English with additional stickers in D, F, I, NL, E = GB

Digital input to interrupt the flame monitoring...
... for continuous operation = D3*
... for intermittent operation = D2*

Number of start-up attempts = S2 – 4**

Air flow monitoring = A*

Additional signal distribution = C*

For PROFIBUS-DP = B1*

9-pin D-Sub bus plug connector = /1*

Order example: BCU 465-5/1LW3GBACB1/1

● = standard, ○ = available, * if "none", this specification is omitted, ** if 1 start-up attempt, this specification is omitted.
Please quote the default Parameter settings when ordering.

8 Technical data

Mains voltage:
230 V AC, -15/+10%, 50/60 Hz,
115 V AC, -15/+10%, 50/60 Hz,
For grounded and ungrounded mains.

Power consumption: approx. 9 VA plus inherent consumption of the ignition transformer.

Voltage to inputs and valves = mains voltage.

Signal and control line: max. 2.5 mm^2.

Cable for burner earth/PE wire: 4 mm^2.

Input voltage
Signal inputs:

	115 V AC	230 V AC
Signal „1"	80 – 126,5	160 – 253
Signal „0"	0 – 20	0 – 40

Input current signal inputs:

Signal "1": typ. 2 mA

Output current:

max. 2 A per output, but total current for valves and ignition transformer: max. 2.5 A.

Fail-safe inputs and outputs:
All the inputs and outputs marked „□" (see connection diagrams) may be used for safety tasks.

Flame control:
Sensor voltage: approx. 230 V AC.
Sensor current: > 1 µA,
Length of sensor cable: max. 5 m.

Fuse in unit:
F1: 3.15 A, slow-acting, H,
pursuant to IEC 127-2/5,
F3: 3.15 A, slow-acting, H,
pursuant to IEC 127-2/5 (for BCU..C).

Operation and fault signalling contacts:
Signalling contact (not floating); max. 2 A, 264 V, not internally fused.

Max. number of operating cycles: 1,000,000.

Mains switch: 1000.

Reset/Information button: 1000.

Ambient temperature: -20 to +60°C, no condensation permitted.

Enclosure: IP 54 pursuant to IEC 529.

Weight: approx. 5 kg depending on version.

8.1 BCU..B1

External fuse: 12 A per zone.

8.2 PROFIBUS-DP

Manufacturer ID: 0x05DB.

ASIC type: SPC3.

SYNC- and FREEZE-capable.

Baud rate detection: Automatic.

Min. cycle time: 0.1 ms.

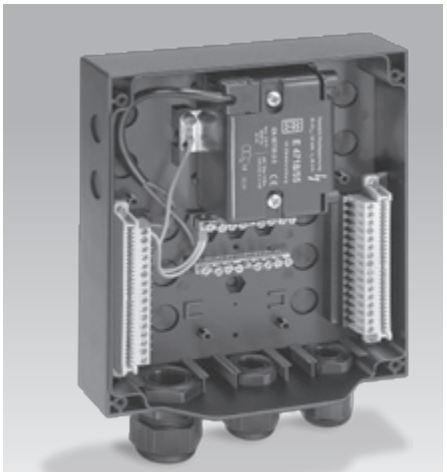
Diagnostic bytes: 6 (DP Standard).

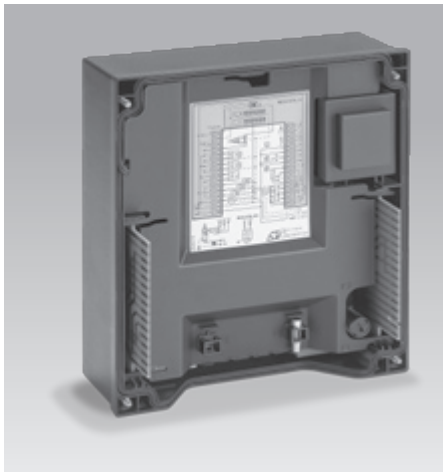
Parameter bytes: 7 (DP Standard).

Burner control unit BCU 370

Product brochure · GB
6.1.3.2 Edition 12.05

- For modulating, forced draught burners for gas of unlimited capacity in intermittent or continuous operation
- Control of fan and butterfly valve
- Simple system set-up thanks to optional tightness control and integrated ignition unit
- Easy start-up and maintenance thanks to Manual operating mode
- Enhanced flexibility and simplified logistics thanks to programmable functions
- Easy servicing thanks to informative operating, warning and fault messages
- Optionally available with integral field bus interface for simple wiring
- EC type-tested and certified, CSA and FM approved





Burner control unit BCU 370.

Application

The BCU 370 burner control unit controls, ignites and monitors industrial forced draught burners of unlimited capacity in intermittent or continuous operation.

It can be used for directly ignited forced draught burners or forced draught burners ignited with pilot burner. The BCU 370 activates the blower and sets the connected butterfly valve to pre-purging and ignition position. After pre-purge and burner start, the Enable signal is issued to an external controller which positions the butterfly valve in accordance with the output demand. Post-purge occurs after the end of burner operation. The burner control unit BCU 370 monitors the gas and air pressure. An optionally integrated tightness control function checks the valves with an external gas pressure switch.

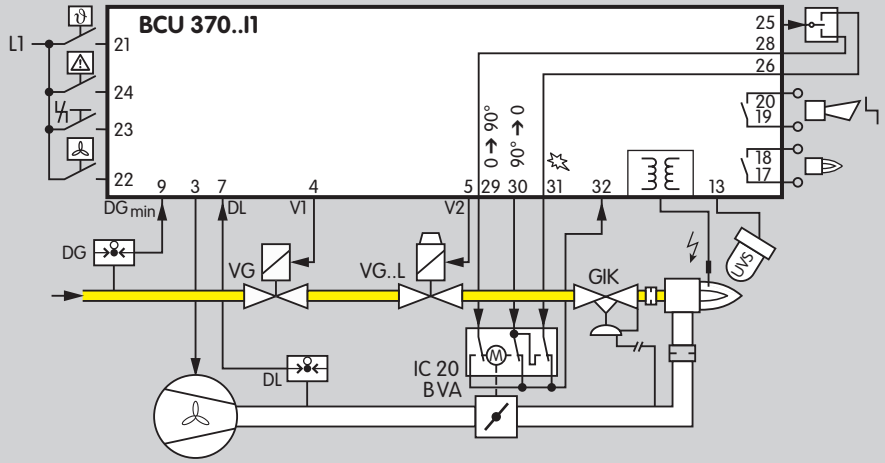
Programmability by means of the optical interface and BCSoft PC software guarantees optimum adaptation to the relevant application. Adjustable start-up attempts and automatic restart which can be activated ensure the high availability of the burner equipment.

The quick-start option allows standard-compliant start-up of the forced draught burner without pre-purge after normal shutdown. This avoids unnecessary admission of air into the combustion chamber. The heat output is available as quickly as possible after a temperature demand.

The program status, the unit parameters and the level of the flame signal can be read directly from the unit. An integrated Manual mode allows manual start of the burner and setting of the butterfly valve position independently of the central control system. The BCSoft operator-control and setting software provides a powerful tool for start-up and servicing.

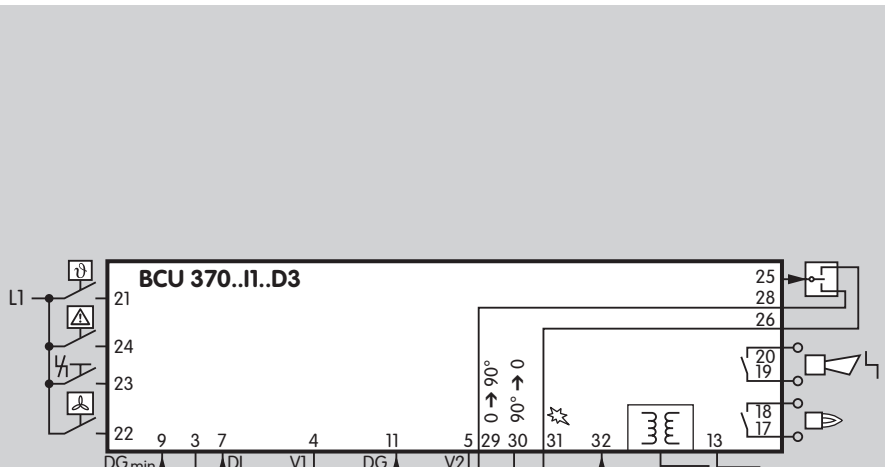
To reduce the installation and wiring costs Kromschröder offers an optional Profibus-DP interface to transfer the activation signals and feedbacks.

Example applications



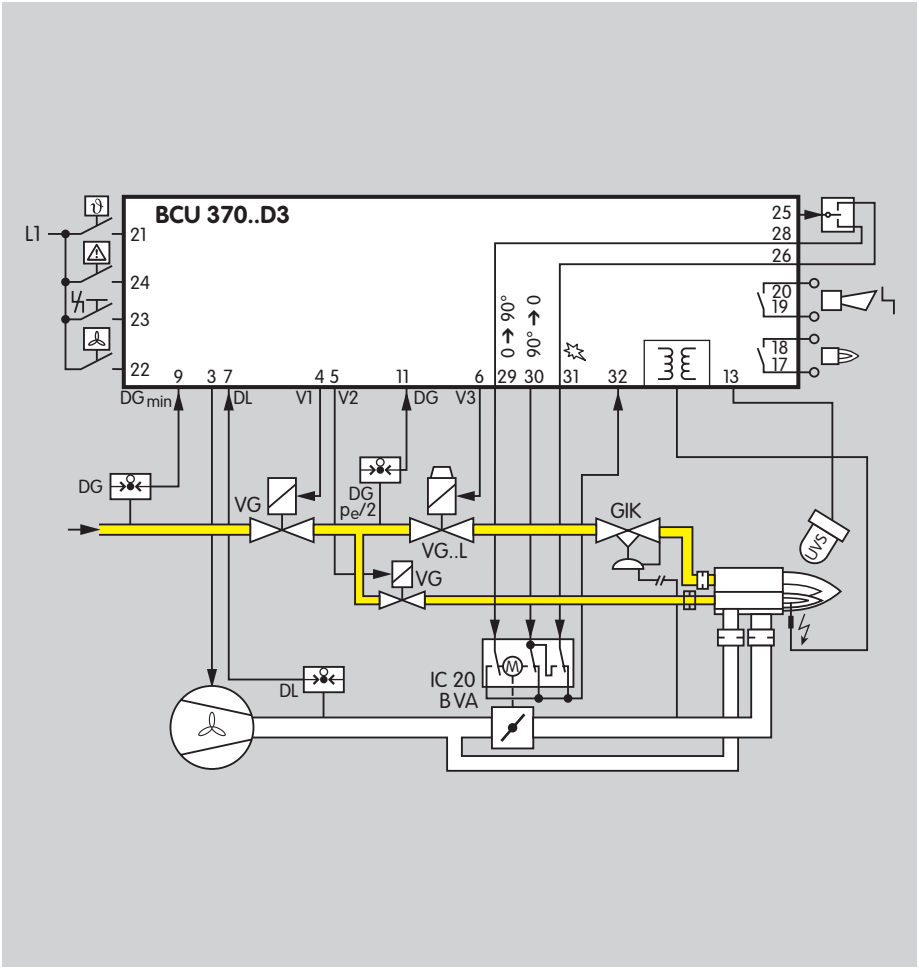
Modulating-controlled forced draught burner

The BCU 370 controls the blower and moves the butterfly valve to pre-purging and ignition position. It issues the Enable signal to the control system after start-up of the burner.



Modulating-controlled forced draught burner with tightness control

In addition to controlling the forced draught burner, the burner control unit also monitors the fail-safe function of the two solenoid valves for gas via the DG. gas pressure switch.



Modulating-controlled forced draught burner with pilot burner and tightness control

A pilot burner ignites the main burner and is switched off during the main burner's safety time.

Technical data

Mains voltage:
BCU..W: 230 V AC, -15/+10%, 50/60 Hz, or
BCU..Q: 120 V AC, -15/+10%, 50/60 Hz,
for grounded or ungrounded mains.

Flame control with UV sensor or ionisation sensor.

Flame signal for:
Ionisation control: 1–28 µA,
UV control: 1–35 µA.

For intermittent or continuous operation.

Air pressure check during pre-purge and operation by external air pressure switch DL.

Maximum length of ignition cable with integrated electronic ignition: 1 m.

Maximum length of ionisation/UV cable: 50 m (164 ft).

Max. number of operating cycles: 250,000.

Ambient temperature:
BCU 370: -20–+60 °C (-4–+140 °F),
BCU 370..I: -10–+60 °C (14–+140 °F),
no condensation permitted.

Enclosure: IP 54 pursuant to IEC 529.

Housing made of impact-resistant and heat-resistant plastic. Plug-in upper section with operating and display elements.

Lower section with connection terminals, earthing strip and pre-wired neutral bus with spacious wiring chamber.

1x M25 multiple screw connector,
4x 7 mm cable grommets,
2x M20 multiple screw connectors,
2x 7 mm cable grommets, and loosely enclosed

1x or 2x M16 plastic screw connector(s) for the ignition cable(s).

Voltage to inputs, valves, fan, controller enable, actuator and ignition unit = mains voltage.

Power consumption: Approx. 9 VA plus approx. 50 VA for integrated ignition.

Input voltage signal inputs:

Rated value	120 V AC	230 V AC
Signal "1"	80–126.5 V	160–253 V
Signal "0"	0–20 V	0–40 V

Input current signal "1": Typ. 2 mA

Output to ignition transformer:
No-switch contacts via semi-conductor.

Contact rating:
Valves: Max. 1 A, cos φ = 1,
Butterfly valves: Max. 1 A, cos φ = 1,
Ignition: Max. 1 A, cos φ = 0.3,
Controller enable signal:
Max. 1 A, cos φ = 1,
the contacts may be loaded with a max. total of 2.5 A,
Fan: Max. 3 A, start-up current:
Max. 6.5 A < 1 s.

The outputs may be loaded with a max. total of 4 A.

Operation and fault signalling contacts:
Dry Contact, max. 1 A, 253 V, not fused internally.

Reset/Information button: Max. number of operating cycles: 1000.

Fuse in BCU, replaceable, F1: T 5A H, pursuant to IEC 60127-2/5.

Permissible UV sensors:
Kromschröder models UVS 1, 5, 6, 8 and UVD 1.

Weight: Approx. 1.8 kg.

PROFIBUS-DP

Manufacturer ID: 0x08EC.

ASIC type: SPC3.

SYNC- and FREEZE-capable.

Baud rate detection: Automatic.

Min. cycle time: 0.1 ms.

Diagnostic bytes: 6 (DP Standard).

Parameter bytes: 7 (DP Standard).

Certification

EC type-tested and certified

pursuant to

- Gas Appliances Directive (90/396/EEC) in conjunction with EN 298,
- Low Voltage Directive (73/23/EEC) in conjunction with the relevant standards,
- Electromagnetic compatibility 89/336/EEC in conjunction with the relevant standards relating to radiation.

AGA

Approval No. 6478 in preparation

CSA and FM approved

Canadian Standards Association Class: 3335-01 and 3335-81 Systems (Gas-)Automatic Ignition and Components

Factory Mutual Research Class: 7611 Combustion Safeguards and Flame Sensing System

Suitable for applications pursuant to NFPA 85 and NFPA 86

PROFIBUS User Organisation

BCU 370..B1

PUO = PROFIBUS User Organisation,

Certificate no. Z 00692 pursuant to EN 50170-2

Selection

BCU 370: for modulating-controlled forced draught burners

Order example
BCU 370WI1FEU0D1

	W	Q	I1	I2	I3	F	E	U0	U1	D1	D3	B1*	-3*
BCU 370	●	●	●	○**	○**	●	●	●	○	●	○	○	○

Type = BCU

Mains voltage
230 V AC, 50/60 Hz = W
120 V AC, 50/60 Hz = Q

Ignition
Electronic ignition, single-pole = I1
Electronic ignition, double-pole = I2**
Electronic ignition, double-pole with neutral conductor = I3**
Without ignition = no specification

Fan control = F

Valve control = E

Flame control
Ionisation control (continuous or intermittent op.) or UV control (intermittent op. with UVS) = U0
UV (continuous operation with UVD 1) = U1

DG_{max} monitoring = D1
Integrated tightness control = D3

For PROFIBUS-DP = B1*

Three-point step control via PROFIBUS-DP = -3*

● = standard
○ = available

* If "none", this specification is omitted.
** I2 only for 230 V, I3 only for 120 V

Detailed information on this product

www.docuthek.com

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