Protective system control FCU 500

Product brochure · GB
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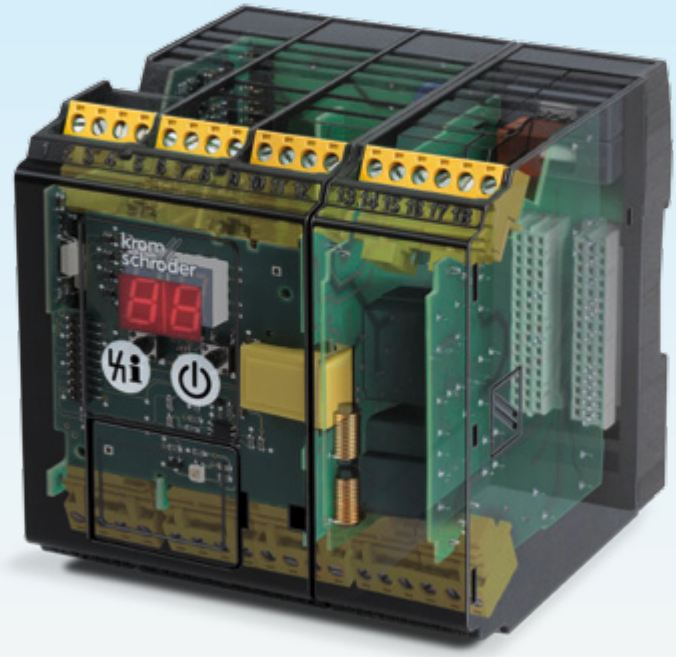


- For monitoring and controlling central safety functions in multiple burner systems on industrial furnaces
- Valve proving system for a valve system leak tightness check (optional)
- Safety temperature monitor (STM) or safety temperature limiter (STL) (optional)
- Long service life due to replaceable power module for fail-safe outputs
- Visualization and adaptation to the specific application via the PC programming and diagnostic software BCSoft to simplify logistics management
- EC type-tested and certified
- Certified for systems up to SIL 3 and compliant with PL e
- UL approval in preparation

Application

FCU 500 with plug-in connection terminals

Once the plug-in power module has been removed, the parameter chip card and fuses are accessible.

Thanks to the operator-control unit OCU, display functions and operation of the FCU can be relocated to the control cabinet door.

The protective system control FCU 500 is designed to monitor and control central safety functions, e.g. Gasmin., Gasmax., Airmin., pre-purge, tightness test, high temperature operation or start enable for burner control units, in multiple burner systems on industrial furnaces. The FCU can be used centrally to control several zones or in the individual zones as protective system and capacity control. If the centrally checked safety requirements, e.g. pre-purge, flow detector and pressure switch scan, have been met, the FCU 500 issues the start enable signal to the burner control units.

The FCU is optionally available with integrated safety temperature monitor or safety temperature limiter, integrated tightness control and with an interface for controlling the capacity of actuators or a frequency converter interface.

Using the BCSoft program, the parameters, analysis and diagnostic information can be read from the FCU via the optionally available opto-adapter. Parameters can be changed and saved on the integrated parameter chip card.

The parameter chip card can be simply removed, for example when the unit is replaced, and inserted into a new FCU to transfer the parameters.

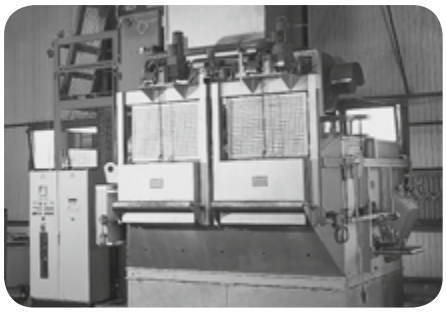
An integrated Manual mode allows the manual activation of the burner control units and adjustment of the butterfly valves.

The fail-safe outputs for protecting the furnace, e.g. for fan, actuator and valves, are activated via a plug-in power module. When the maximum number of operating cycles has been reached, it can simply be replaced.

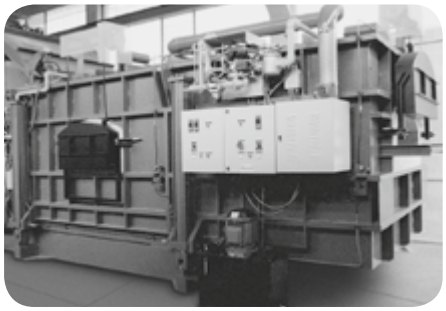
The FCU can be installed on a DIN rail in the control cabinet. The plug-in connection terminal strips make it easier to install and remove the FCU.

The external operator-control unit OCU is available as an option for the FCU. The OCU is fitted to the outside of the control cabinet door. The program status or fault messages can be read on the OCU. In Manual mode, the operator-control unit can be used to proceed through the sequence of operating steps.

Roller hearth kiln in the ceramics industry

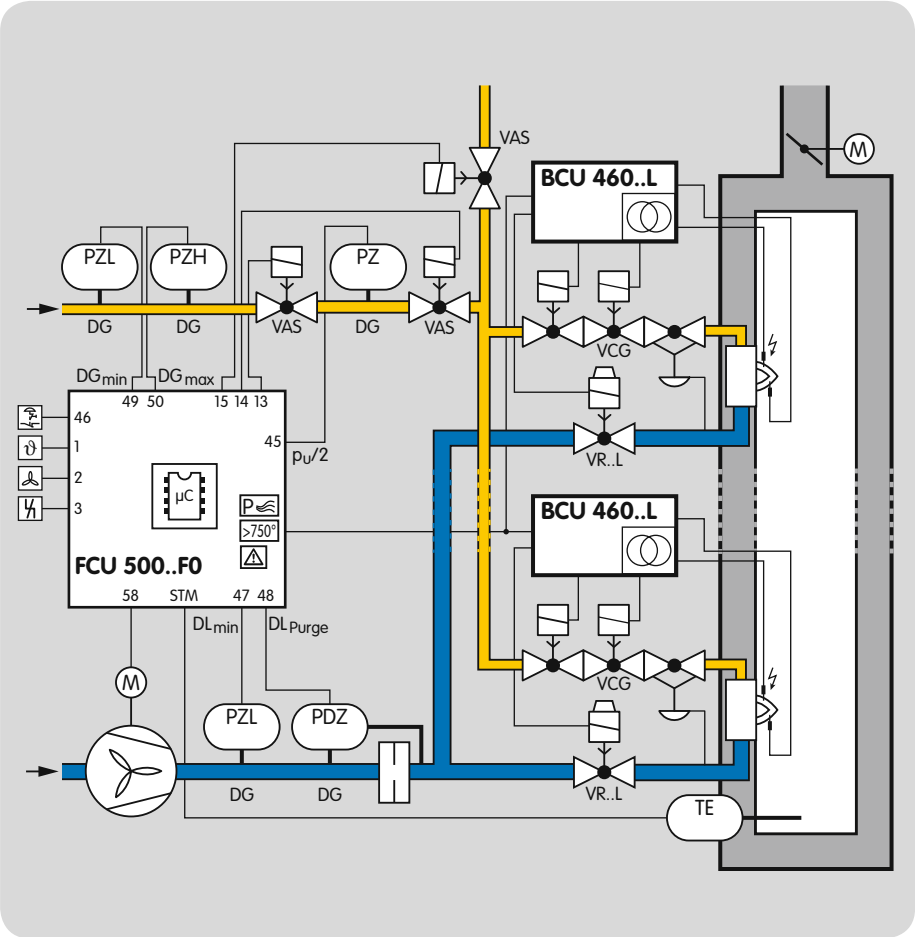


Shaft melting furnace



Smelting and holding furnace

Examples of application



ON/OFF rotary impulse control for burners up to 360 kW

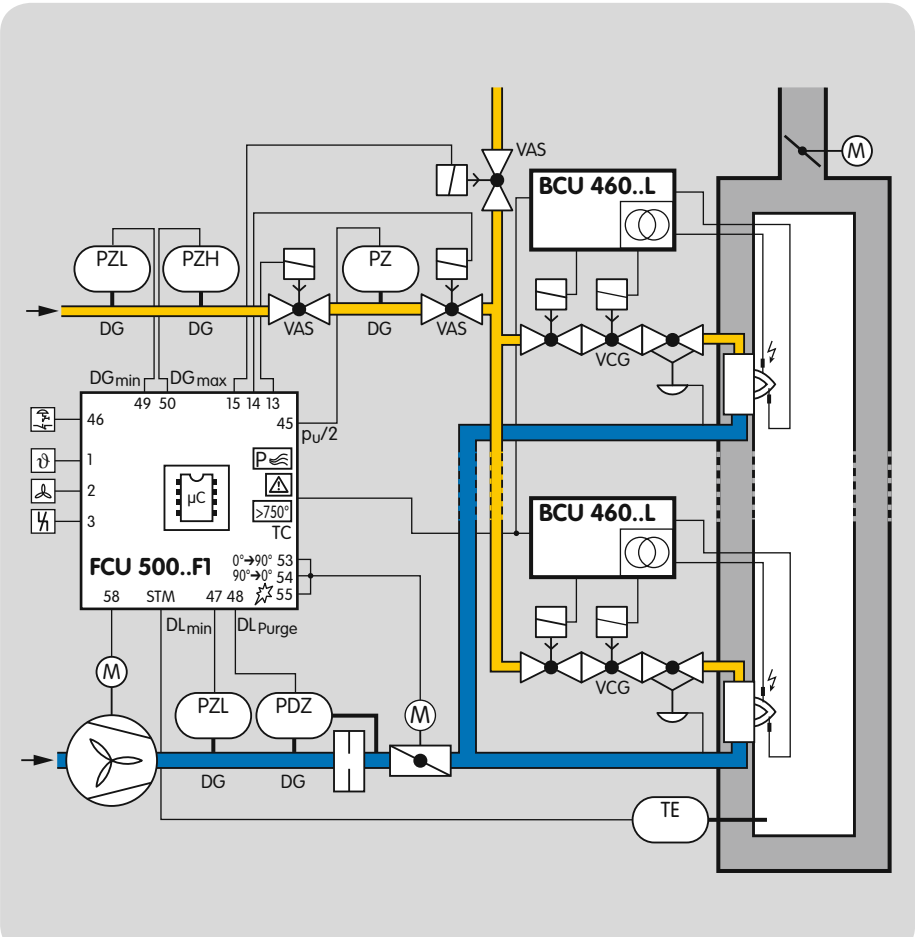
For processes which require a control range of more than 1:10 and/or those which require heavy circulation of the furnace atmosphere to ensure a uniform temperature, e.g. heat treatment furnaces operating at low and medium temperatures in the metallurgical industry.

With ON/OFF cyclical control, the capacity supplied to the process is controlled by means of a variable ratio of the operating time to the pause time. In this type of control, the burner output pulse frequency always maintains full momentum and results in maximum convection in the furnace chamber, even with regulated heating.

The pneumatic ratio control system controls the gas pressure on the burner proportionally to the air pressure and thus maintains a constant air/gas ratio. At the same time, it acts as an air deficiency cut-out.

The ignition and monitoring of the individual burners is ensured by burner control unit BCU 460..L.

The centrally checked safety functions such as pre-purge, tightness test, flow detector and pressure switch scan ($Gas_{min.}$, $Gas_{max.}$, $Air_{min.}$) are provided by the FCU 500.



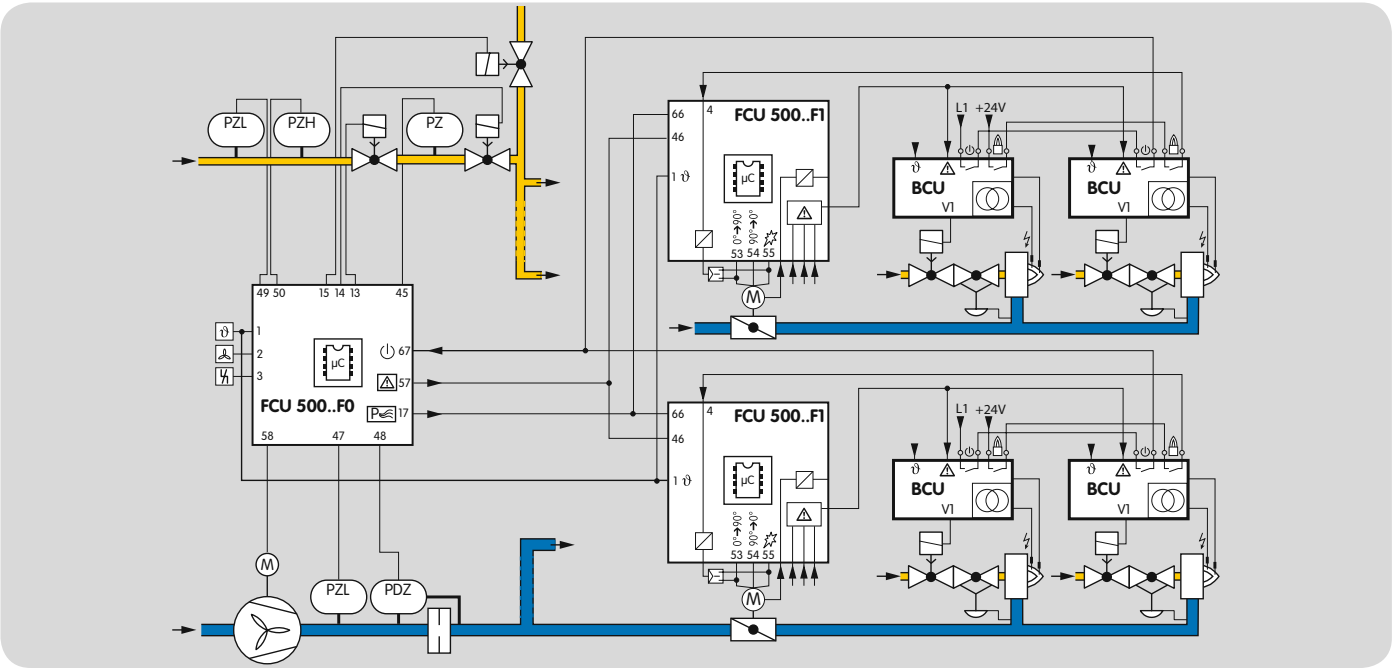
Modulating burner control

For processes that do not require heavy circulation in the furnace, e.g. aluminium smelting furnaces.

This system is suitable for processes in which infiltrated air may flow into the furnace through switched off burners. The capacity can be adjusted continuously by activating the air control valve (analogue or 3-point step signal). The pneumatic ratio control system controls the gas pressure proportionally to the air pressure and thus maintains a constant air/gas ratio. At the same time, it acts as an air deficiency cut-out.

One burner control unit per burner is required for ignition and monitoring.

The centrally checked safety functions such as pre-purge, setting the valve to ignition position via a butterfly valve control system, tightness test, flow detector and pressure switch scan ($Gas_{min.}$, $Gas_{max.}$, $Air_{min.}$) are provided by the FCU 500.



Furnace and zone control

A central furnace FCU controls several zone FCUs in the individual zones. It performs central tasks such as scanning the safety interlocks, fan control, system leak tightness check and pre-purge.

The furnace FCU informs the zone FCUs that the butterfly valves can be moved to the purge position. Signals are sent to the butterfly valves by the individual zone FCUs. The butterfly valves move into position. The FCUs in the zones are informed by the safety interlock input that the central FCU has issued the enable signal for the burners.

Technical data

Mains voltage:
FCU 500Q:
120 V AC, -15/+10%, 50/60 Hz, ± 5%,
FCU 500W:
230 V AC, -15/+10%, 50/60 Hz, ±5%,
for grounded mains only.

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

Enclosure: IP 20 pursuant to IEC 529.

Fuses, replaceable, F1: T 3.15A H, F2: T 5A H, pursuant to IEC 60127-2/5.

Weight: 0.7 kg.

Type code

Code	Description
FCU 500	Protective system control series 500
	Mains voltage:
Q	120 V AC, 50/60 Hz
W	230 V AC, 50/60 Hz
	Integrated tightness control or POC:
C0	none
C1	with integrated tightness control or POC
	Capacity control:
F0	none
F1	modulating with interface for actuator IC
F2	modulating with interface for RBW
	Temperature monitoring:
H0	none
H1	with temperature monitoring
	Connection terminals:
K0	none
K1	screw terminals
K2	spring force terminals

Maintenance cycles

The power module must be replaced once the maximum number of operating cycles has been reached

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Detailed information on this product

http://docuthek.kromschroeder.com/doclib/main.php?language=1&folderid=401119&by_class=6

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