



BCU 570



Burner control units

- For monitoring and controlling modulating individual burners and forced draught burners of unlimited capacity
- For directly ignited burners or burners ignited by a pilot burner in intermittent or continuous operation
- Perform safety functions in accordance with EN 746-2 and EN 676
- With optional valve proving system
- Flexible range of applications due to parameterization possibilities
- Optional bus module for fieldbus connection
- EC type-tested and certified
- Safety functions up to SIL 3 (DIN EN 62061) corresponding to PL e (ISO EN 13849)
- AGA approval in preparation

Application



BCU 570 with plug-in spring-force connection terminals



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

Burner control unit BCU 570 controls, ignites and monitors industrial individual burners and forced draught burners of unlimited capacity in intermittent or continuous operation. It can be used for directly ignited burners or burners ignited by a pilot burner.

The BCU 570 has an interface for control elements for burner capacity control. Both actuators (IC 20, IC 40, 3-point step and RBW) and frequency converters can be controlled. A valve proving system can be integrated as an option.

The BCU 570 activates the fan and sets a connected actuator or frequency converter to pre-purge and ignition position. If the centrally checked safety requirements, e.g. pre-purge, flow detector and pressure switch check, have been met, the BCU 570 starts the burner. An enable signal is then issued to an external temperature controller which controls the actuator or frequency converter in accordance with the capacity demand. The burner control unit BCU 570 monitors the gas and air pressure. The optionally integrated valve proving system checks the valves by checking an external gas pressure switch or by checking whether the gas valve on the inlet side is closed.

Using the BCSoft program, the parameters, analysis and diagnostic information can be read from the BCU via the optionally available opto-adaptor. All valid parameters are saved on the integrated parameter chip card. The parameter chip card can be removed easily, for example when the unit is replaced, and inserted into a new BCU to transfer the parameters.

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

The fan output and the actuator and valve outputs which are checked for faults are accommodated in a plug-in power module. This can simply be replaced if necessary.

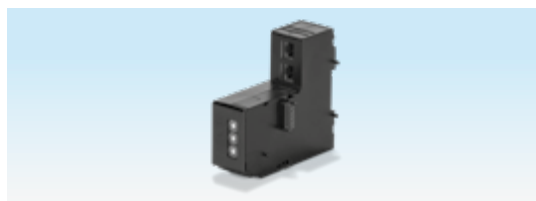
The BCU can be installed on a DIN rail in the control cabinet. The plug-in connection terminal strips make it easier to install and remove.

The external operator-control unit OCU is available as an option for the BCU. The OCU can be installed in the control cabinet door instead of standard control units. The program step/status or fault messages can be read on the OCU. For burner adjustment, the operating points can be approached conveniently in Manual mode using the operator-control unit.



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

Using the bus module BCM 500, the BCU can be networked with a fieldbus system. Networking in a fieldbus system enables the burner control unit BCU 570 to be controlled and monitored by an automation system (e.g. PLC). This also opens up a wide range of process visualization possibilities.



Bus module BCM 500 for DIN rail installation for lateral connection to the BCU

The diagram illustrates the control system for a pump and valve assembly. The central component is the **BCU 570..COFI** control unit, which features a microcontroller (μC) and various input/output terminals. The system is divided into two main sections: a yellow section for the valve and a blue section for the pump.

Valve Section (Yellow):

- Inputs:** The BCU receives signals from **PZL** (Pressure Zener Low) and **PZH** (Pressure Zener High) sensors, which are connected to terminals 49 and 50. It also receives a **DGmin** (Differential Pressure Minimum) signal at terminal 13 and a **DGmax** (Differential Pressure Maximum) signal at terminal 14.
- Outputs:** The BCU controls the **VAS** (Valve Actuator Solenoid) and the **VAG** (Valve Actuator Solenoid) via terminals 9 and 5. It also controls the **TZI/TGI** (Temperature Zener In/Temperature Zener Out) sensor via terminals 38 and 39.

Pump Section (Blue):

- Inputs:** The BCU receives a **DLmin** (Differential Pressure Minimum) signal at terminal 58 and a **DLpurge** (Differential Pressure Purge) signal at terminal 47. It also receives a **DG** (Differential Pressure) signal at terminal 48.
- Outputs:** The BCU controls the **PZL** (Pressure Zener Low) and **PDZ** (Pressure Differential Zener) sensors via terminals 1 and 2. It also controls the **IC 20 + BVA** (Interlocking Control 20 + Back Valve Actuator) via terminals 52 and 53.

System Components:

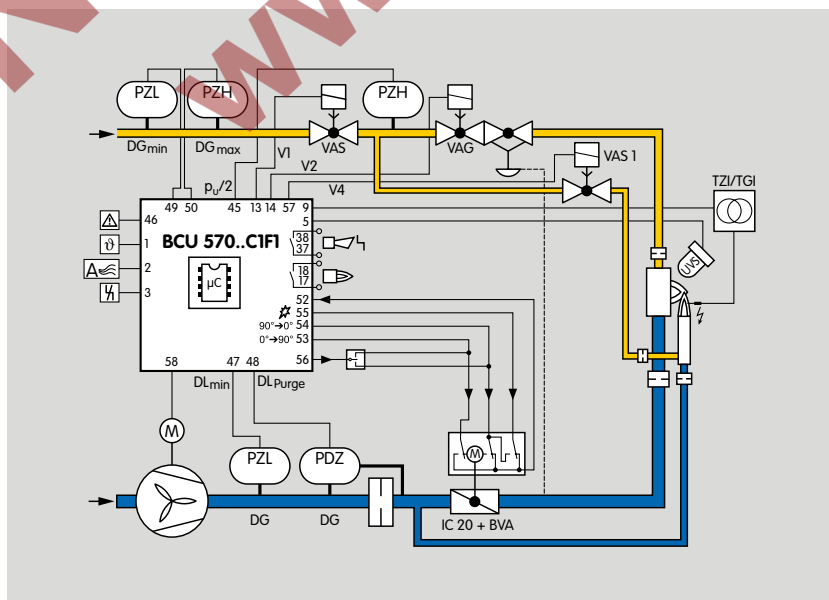
- Pump:** A three-lobed pump symbol is shown in the blue section.
- Valve:** A valve symbol is shown in the yellow section.
- Sensors:** Various sensors are represented by symbols: Δ for pressure, Φ for temperature, and μC for the microcontroller.
- Wiring:** The system is connected via a yellow line (valve) and a blue line (pump). The BCU is connected to the sensors and actuators via a network of lines.

The BCU 570 controls the fan, monitors the combustion media air and gas, controls pre-purge and moves the butterfly valve to pre-purge and ignition position. Once the BCU 570 has started the burner, it issues the enable signal to the external temperature controller which then assumes the control task.

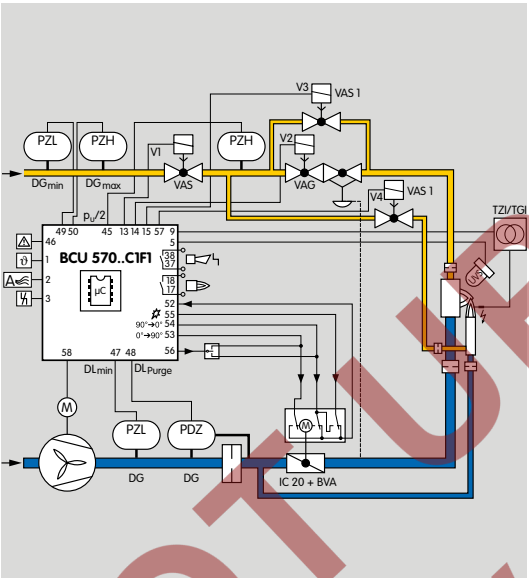
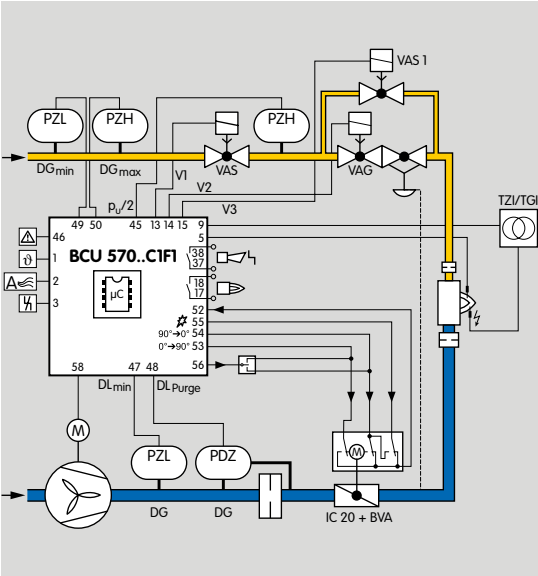
The BCU 570..C₁ is fitted with an integrated valve proving system. This allows the tightness of two gas solenoid valves and the pipework to be checked. Optionally, the closed position of a gas solenoid valve can also be checked using a POC switch.

By checking the closed position using the proof of closure function, the BCU complies with the requirements of NFPA 85 (Boiler and Combustion Systems Hazards Code) and NFPA 86 (Standard for Ovens and Furnaces).

The burner is ignited by a pilot burner. The integrated valve proving system checks the tightness of all gas valves and the pipework between the gas solenoid valves with the aid of the pressure switch.

[illegible]

Limitation of the ignition rate in accordance with SIL/PL



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The burner can be started with a defined ignition rate using the connected gas valve V3. Once the BCU has been informed that the burner is in operation, gas valve V2 opens. Gas valve V3 closes.

It is thus possible to limit the ignition rate in accordance with the valid SIL/PL safety requirements.

The safe limitation of the ignition rate can be used for both applications with a single burner and burners with pilot burners..

Type code

Code	Description
BCU	Burner control unit
570	Series 570
Q	Mains voltage: 120 V AC, 50/60 Hz
W	230 V AC, 50/60 Hz
C0	No valve proving system
C1	With valve proving system
F1	Capacity control modulating with IC interface
F2	modulating with RBW interface
U0	Ionization or UV control in case of operation with gas
K0	No connection plug
K1	Connection plug with screw terminals
K2	Connection plug with spring force terminals
E	Individual packaging

Technical data

Mains voltage:
BCU 570Q:
120 V AC, -15/+10%, 50/60 Hz, ±5%,
BCU 570W:
230 V AC, -15/+10%, 50/60 Hz, ±5%,
for grounded or ungrounded mains.
Power consumption:
At 230 V AC approx. 6 W/11 VA plus power consumption per AC input of approx. 0.15 W/0.4 VA,
at 120 V AC approx. 3 W/5.5 VA plus power consumption per AC input of approx. 0.08 W/0.2 VA.
Flame control:
With UV sensor or ionization sensor,
for continuous operation (intermittent operation with UVS).
Flame signal current:
Ionization control: 2 – 25 µA,
UV control: 5 – 25 µA.
Signal cable for flame signal current:
max. 100 m (164 ft).
Weight: 0.7 kg.
Ambient temperature:
-20 to +60°C (-4 to +140°F),
no condensation permitted.
Enclosure: IP 20 pursuant to IEC 529.

Technical Information bulletin for this product
www.docuthek.com
Search term: BCU 570

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