

µP Automatic Burner Control MPA 41xx

Automatic burner control for
one-stage and modulating gas
burners

DUNGS[®]
Combustion Controls

- Automatic gas burner control for one-stage burners with pilot burner or direct ignition
- Continuous operation
- Configurable program sequence
- Version with or without display
- Two independent flame detectors:
Ionisation input
Gate input
- Additional functions by extension modules
- Profibus
- Accessories
Flame detector
Ignition transformers
Parameterisation and service box



Description

Microprocessor-controlled automatic gas burner control for intermittent and continuous operation of one-stage atmospheric burners or one-stage or modulating fanned burners.

The program sequence and times can be customised by setting software parameters.

Versions

- MPA 4111 without display
- MPA 4112 with integrated display
- MPA 4122 with metal housing and integrated display

Application

For one-stage or modulating gas burners with or without ignition gas. In particular for industrial thermoprocessing equipment to EN 746-2.

Approvals

EC type testing certificate as per:

- EC-Gas Appliances Regulation
- EC-Pressure Equipment Directive

FM Approved to FM 761

UL Recognized Component per UL 372, UL 1998 and CSA C22.2.

GOST / Rostechnadzor

Suitable for applications up to SIL3.

Meets the requirement according to IEC 61508 (2nd Ed. 2011)

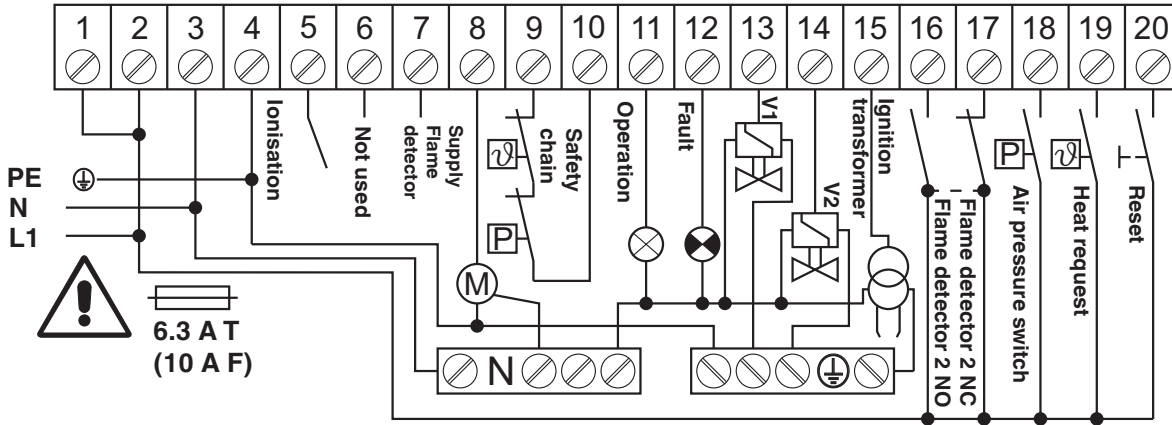
Certified by TÜV Süd

MPA 41xx automatic gas burners are suitable for all types of one-stage or modulating gas burners with and without ignition gas.

- For atmospheric burners and fan burners
- Suitable for continuous operation
- MPA4112/4122 configuration without laptop/PC via display
- Ionisation and gate inputs as flame detectors
- Extension module for Profibus communication

The flame is monitored either by means of an ionisation input, gate input or both inputs for burners with two flame detector positions.

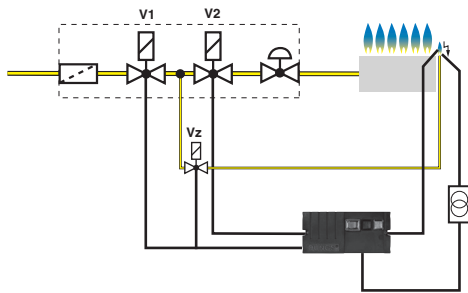
Wiring scheme



The wires which are used for the connection must be approved for ambient temperatures of minimum 75 °C (167 °F).

Example for connection

Atmospheric burner with ignition gas output

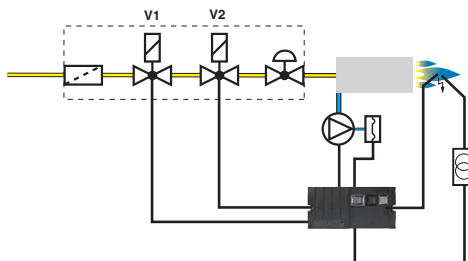


Atmospheric burner with ignition gas output.

After the heat request and an adjustable delay, the ignition is switched on and V1 and Vz are opened.

After the flame has been detected, the main gas flow V2 is opened.

Fan burner, direct ignition:



Fan burner, direct ignition of the main gas flame.

After the heat request, the fan is switched on, and the air pressure is checked by the pressure switch. After the pre-aeration time has lapsed, the ignition is switched on, and the two valves V1 and V2 are opened together.

The program sequence and times can be modified on the mounted display (MPA 4112/MPA 4122) to match each application.

A laptop or PC is not required for the modification.

The automatic burners are protected by passwords against unauthorised access.



All settings for the MPA 41xx automatic gas burners can also be made by means of a laptop/PC via MPA Vision Box.

Display modes

Operation display

- Display of the current operating state
- Display of the program state
- Display of bus address

Info display

- Display of flame quality
- Display of resettable counters for start-up, operating hours and operating cycles

Error display

Display of the error memory

- Automatic activation of error messages
- Additional information about faults
- Query of the last ten faults

Parameter display

- Password-protected functional levels for service and OEM parameter settings
- Setting of important parameters such as:

Pre-purge time

Safety time for startup phase

Post-purge time

Behaviour after flame lift-off

Operating modes of V1 and V2

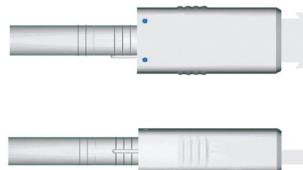
Continuous or intermittent operation

Accessories

Flame detector

FLW 10 IR

IR flame detector for connection to ionisation input. Suitable for intermittent operation.



FLW 20 UV

UV flame detector for connection to ionisation input. Suitable for intermittent operation.



UV 41 (HE)/UV 42

UV flame detector for high mechanical load; metallic version. Suitable for intermittent operation.

With shutter module suitable for continuous operation

FLW 41 I

Flame safeguard module for ionisation flame monitoring. The FLW 41I is connected to the second flame guard input of the MPA 41xx.

When equipped with an extension module, for example EM 2/4, suitable for continuous operation.



Communication

MPA 41 extension module EM2/4

Additional circuit board and connector set for Profibus DP and Modbus communication.

MPA 41 extension module EM2/6

Additional circuit board for Profibus DP and Modbus communication. PWM output for open loop control of DC fans, voltage-/current output also program state related relay outputs.

Parameter setting and service

MPA 41 parameterisation and service box

Universal support for checking devices in the field; for producing small and medium series.

MPA Vision Box

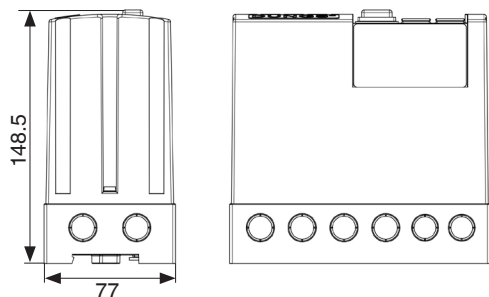
In addition to MPA41 parameterisation and service box for setting parameters via a PC/laptop.

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MPA 41xx**

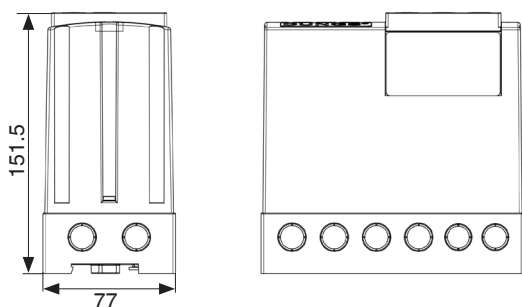
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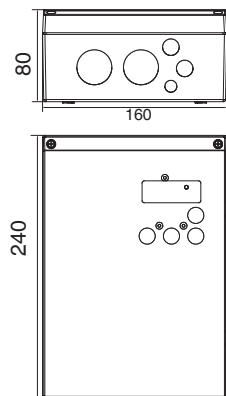
**Dimensions [mm]
MPA 4111**



MPA 4112



MPA 4122



Technical Data

Rated voltage (depending on the model)	115 VAC -15 % ... +10 % 230 VAC -15 % ... +10 %
Frequency	50 Hz...60 Hz
Power consumption	max. 10 VA
Fuse	max. 6.3 A slow-blow or 10 A fast-blow
Ready signal	max. 1 A
Fault signal	max. 1 A
Gas valves	max. 2 A
Fan	max. 1 A
Ignition	max. 1 A
Flame detector supply	230 VAC / 10 mA
Flame detector ionisation	ionisation
Ionisation current / operation	10-20 µA
Shutdown sensitivity	1,2 µA
Short-circuit current limit	approx. 280 µA
Unlocking due to fault	Pushbuttons and remote unlocking
Type of protection	MPA4111 / IP 42 MPA4112 / IP 54 MPA 4122 / IP 65
Ambient temperature	-40 °C - +70 °C -20 °C - +60 °C (UL approval)

Ordering data

MPA 4111/230 VAC	Order No. 259 058
MPA 4111/115 VAC	Order No. 259 062
MPA 4112/230 VAC	Order No. 259 066
MPA 4112/115 VAC	Order No. 259 070
MPA 4122/230 VAC	Order No. 260 347
MPA 4122/115 VAC	Order No. 260 355

Extension module

EM2/4 MPA 411x	on request
EM2/4 MPA 412x	on request
Profibus DP, Modbus, Shutter	
EM2/6 MPA 411x	on request
EM2/6 MPA 412x	on request
Profibus DP, Modbus, Shutter, PWM, analog In/Out	

Flame detector

FLW 10 IR	Order No. 255 216
FLW 20 UV	Order No. 250 733
FLW 41 I	Order No. 258 396
UV 41	Order No. 256 692
UV 41 HE	Order No. 260 575
UV 42	Order No. 258 385
UV 4x-EM 1/1 (Shutter)	Order No. 259 361

Subject to technical modification in the interest of technical progress.

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