

ELECTRONIC MANAGEMENT DEVICE FOR BURNER GAS HOBBS WITH 1 TO 5 BURNERS



DESCRIPTION

The NPCxFT device allows to manage a gas hob composed of 1 to 5 burners (x: number of burners customizable upon request). This device operates together with Brahma VPC01 valves and allows the regulation of the flow rate of each burner powered by different type of gas. With this device you can also use the main valve Brahma E6G*PC upstream of the gas rail. The NPCxFT could be paired with different types of user interfaces, with proprietary serial link or existing user interfaces with custom protocol as customer's request.

GENERAL FEATURES

The device is normally customizable, and its basic features are the following:

- **EC** type certification (CE PIN **51DO5139**) in accordance with **Gas Appliances Regulation (EU) 2016/426**;
- conformity to EC directives, Electromagnetic compatibility EMC (immunity) 2014/30/EU and Low-voltage directive 2014/35/EU
- In accordance with EN298:2022 (European Standard for automatic gas and oil burner control systems and flame detection) and with EN60730-2-5 (European Standard for automatic controls with B and C class software);
- the devices are suitable for EN60335-1 applications
- power supply using switching technology
- five 24Vdc outputs for Brahma VPC01 modulating valves
- 24Vdc output for the main Brahma VPC01 (or E6G*PC) valve located upstream of the gas collector
- Serial interface used for the system diagnostic
- five faston type inputs for the flame detection thermocouples
- voltage free output for spark-generator driving
- serial communication port for custom user interface
- serial SPI communication port for customized at customer's request user interface
- management of the modulation levels preset on a FLASH memory;
- possibility to manage up to three modulation tables depending on the selected type of gas (for example G2020, G3029, etc..)
- Integrated procedure that allows the flow rate adjustment for each burner and each level

TECHNICAL DATA

Supply voltage:	100÷240Vac +10%/-15%
Frequency:	50-60Hz
Standby power consumption:	< 0,5W
Maximum power consumption:	40W
Maximum current over ignition transformer output contacts:	250mA
Power supply and earth connection:	Fast-on 6,3x0,8 mm – 90°
Electrovalves connection:	Rast 2.5
Sensing flame thermocouple connection:	Fast-on 2,8x0,8 mm – 90°
Ignition transformer connection:	Faston 6,3x0,8 mm – 90°
Operating temperature range:	0°C ÷ +105°C
Protection rating:	IP 00
Max. cable length for external components:	≤1m

TIMES

- waiting time (TW): 1 ... 60s
- safety time (TS): 1 ... 8s
- reaction time on flame failure (according to EN 30-1-4) 1 ... 10s
- inter-waiting or inter-purge time: 1... 60s
- waiting time for lockout due to extraneous light: 0 ... 60s
- pre-ignition time: 0 ... 60s
- number of ignition attempts: 1 ... 10

The times indicated in the Technical Specifications correspond to the guaranteed values. Actual values can deviate from those declared, i.e. the waiting time can be longer and the safety time shorter.

FLAME MONITORING

The flame detection device works with voltage generated by a thermocouple dipped in a flame:

- Thermocouples voltage reference functional earth
- Thermocouple voltage range 0 ÷ ~33 mV
- Amplification coefficient ~120
- Minimum startup sensitivity ~4mV
- Sensitivity to detect flame in running >6mV

Note: The voltage generated by the thermocouples has a negative polarity with respect to the reference.

FUNCTIONS

The main functions of the device are the following:

- Stand-by mode
- Flow rate adjusting for each burner
- Safety lockout settable with manual reset through the user interface or with electric reset (volatile lockout)
- Setting of the employed fuel type
- Temperature detection on the electronic board

DIRECTIONS FOR INSTALLATION

- The device is designed to stay in running status for less than 24h (system for non-permanent operation). Reaching this limit causes a regulation shutdown to enable the device to check its own efficiency.
- This automatic device is a safety appliance and should not be modified. The manufacturer's responsibility and guarantee are invalidated in case the device is tampered with by the user.
- The applicable national regulation and European standards (Ex. EN 60335-1 and EN 60335-2-102) related to the electrical safety must be respected;
- All operations (installation, maintenance, etc.) must be carried out by a qualified technician.
- Before any connection operation, completely isolate the system from power supply (multi-pole disconnection). Place the system safely to avoid accidental switch-on and make sure there is no voltage. If the system is not switched off, there is a risk of electric shock.
- Check the cables before starting operation. Incorrect wiring may damage the unit and compromise the system safety.
- During and after any operation (installation, maintenance, etc.), make sure that the type, timing and code are the ones provided, that the wiring is in good condition and perform the safety check in the "Notes for start-up."
- In the event of a fall or impact, the devices must not be started, as safety functions may be compromised even if no damage is visible to the outside.

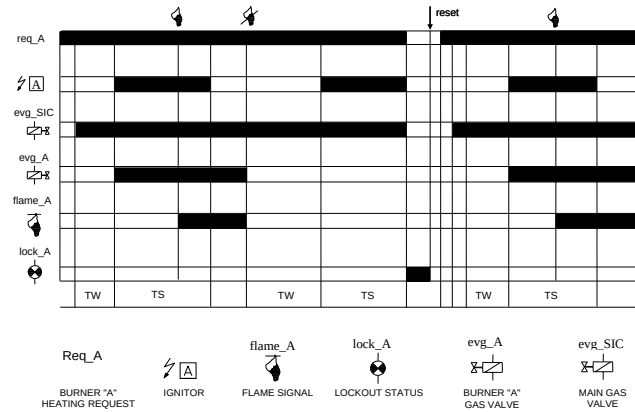
- Faulty devices or damaged must be unplugged from power supply and cannot be used.
- Condensation, ice formation and liquids intake are not permitted.
- Contact of the device with solid or liquid foods is not permitted.
- Always run the high-voltage ignition cables separately while observing the greatest possible distance to the unit and to other cables
- The appliance in which the controllers are installed must provide adequate protection against the risk of electric shock (at least IP20);
- The Low Voltage Circuit (PELV) and thermocouples are safe to touch (in accordance with IEC/EN 60730-1 and IEC/EN 60335-1)
- EMC emission requirements, according to the directive EN55014-1, shall be tested after the incorporation of the burner control system into the equipment.
- Applicable national and European standards (eg IEC/EN 60730-1) for thermocouples must be complied. The combination of the flame control device with the thermocouples must be verified in the final product.
- The requirements related to the failure modes of thermocouples, according to EN13611:2019 (Table E.1, Note n), must be verified after the insertion of the flame control device into the final product.
- Hob burner controls has a designed lifetime* of 250,000 burner startup cycles which, under normal operating conditions in heating mode, correspond to approx. 10 years of usage (starting from the production date given on the plate). This lifetime is based on the endurance tests in the standard EN 298. A summary of the conditions has been published by the European Control Manufacturers Association (Afecor) (www.afecor.org). The designed lifetime is based on use of the hob burner controls according to the manufacturer's technical notes. After reaching the designed lifetime in terms of the number of burner startup cycles, or the respective time of usage, the burner control must be replaced by authorized personnel.
* The designed lifetime is not the warranty time specified in the Terms of Delivery

NOTES FOR STARTUP

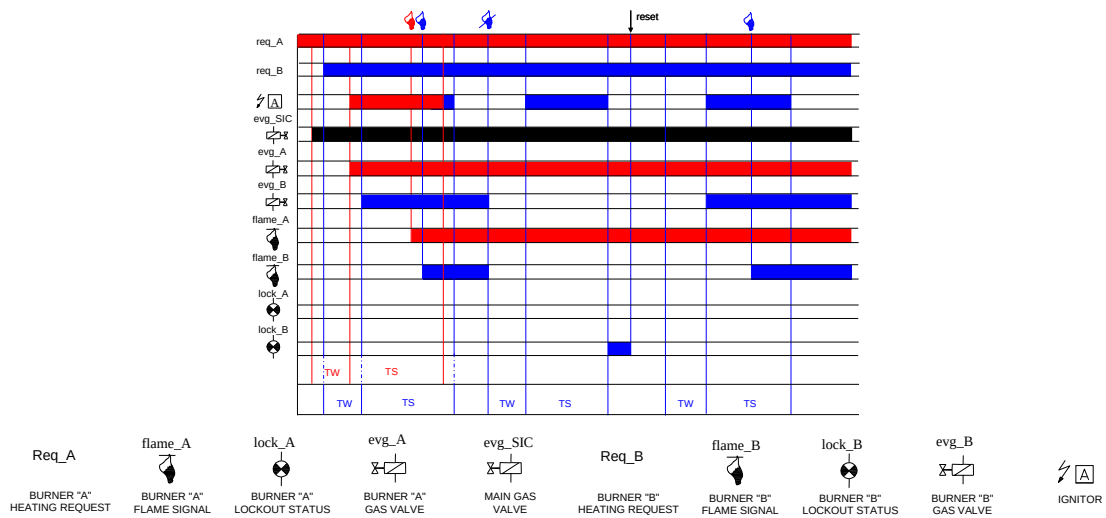
Perform the following safety checks at first start-up or maintenance work.

Security check to be performed	Expected result
Hob burners startup without gas supply	Lockout at the end of (TS)
Burner operation with simulated loss of flame. For that purpose, close the fuel supply during operation and leave it in this state.	Recycle with lockout at the end of ignition attempts.
Turn on each burner individually for more than ten seconds with the fuel supply open	Check the correct functioning of the system (no lockout condition)

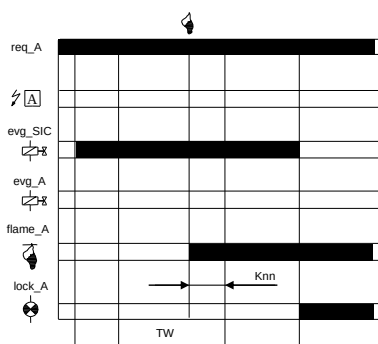
OPERATING CYCLE DIAGRAM (STANDARD CASE WITH HEATING REQUEST BY ONE BURNER, E.G. BURNER "A")



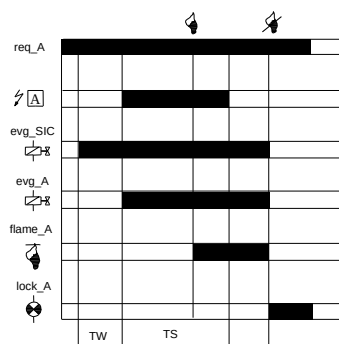
OPERATING CYCLE DIAGRAM (STANDARD CASE WITH HEATING REQUEST BY TWO BURNERS, E.G. BURNERS "A" AND "B")



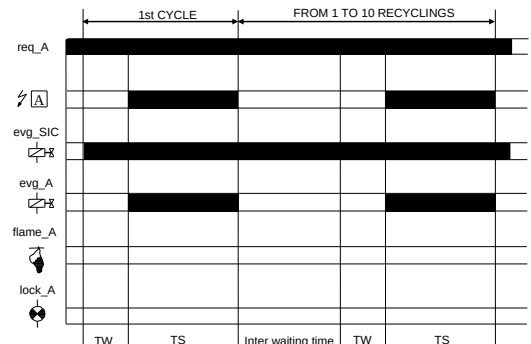
OPERATING CYCLE DIAGRAM FOR OPTIONS Knn – V – Inn – Ynn – E



OPTION Knn
(lockout due to extraneous light)



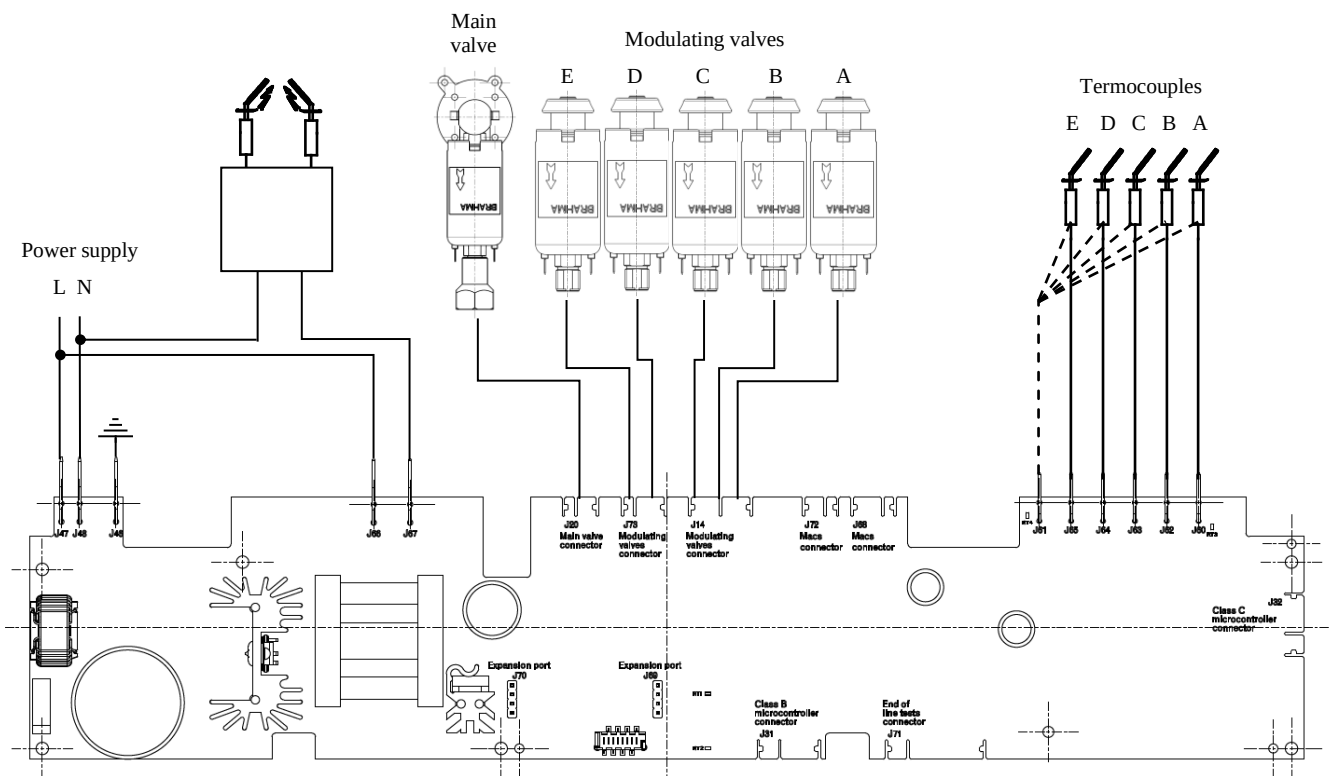
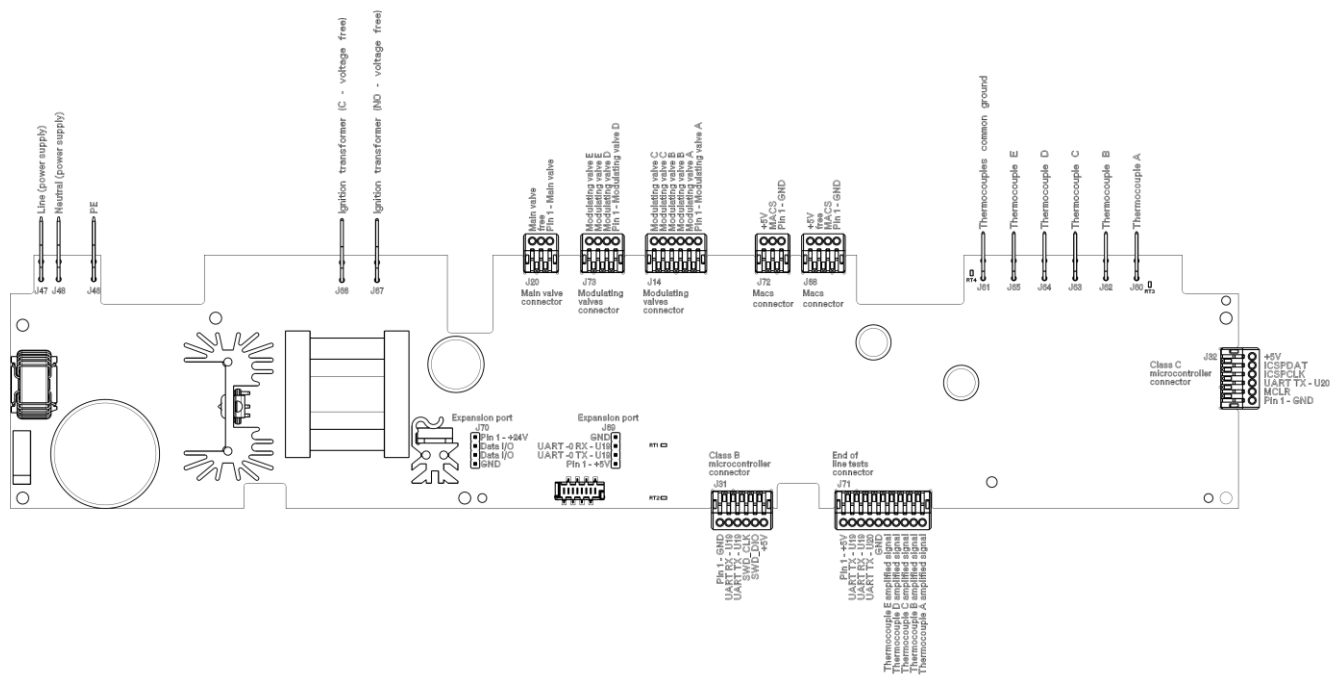
OPTION V
(lockout due to flame failure)



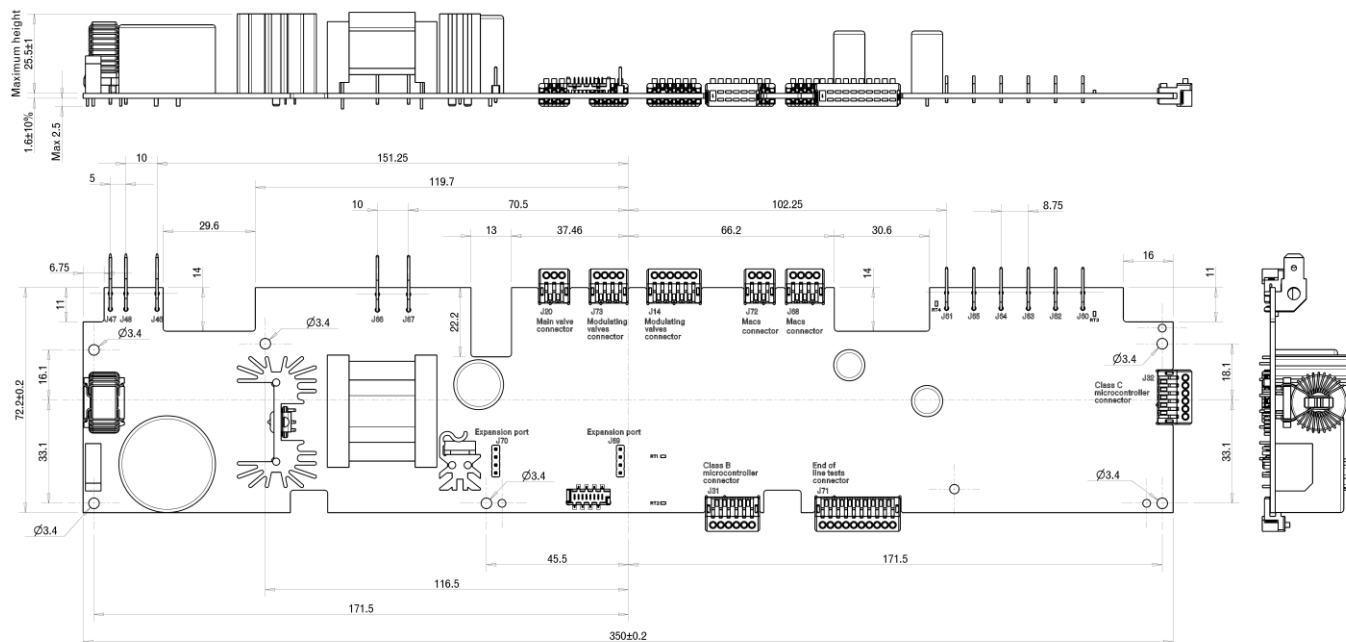
OPTION Inn -Ynn
(inter-waiting time and recycling)

Option E = volatile lockout (electrical reset)

CONNECTION DIAGRAMS



MECHANICAL DIMENSIONS



NOTES ABOUT PRODUCT DISPOSAL

The device contains electronic components and cannot therefore be disposed of as normal household waste. For the disposal procedure, please refer to the local rules in force for special waste.

ATTENTION --> Company Brahma S.p.A. takes no responsibility for any damage resulting from Customer's tampering with the device.

BRAHMA S.p.A.

BRATIMA S.p.A.
Via del Pontiere, 31

37045 Legnago (VR)

Tel. +39 0442 635211 - Telefax +39 0442 25683

<http://www.brahma.it>

E-mail : brahma@brahma.it

13/07/2023 Subject to amendments without notice