

# FLAME PRESENCE DETECTOR RELAY FOR BURNER

PRODUCT: CHM-M-IIIme-□□-R□-C□

TECHNICAL SHEET 1/6

☎ Customer Service: 55 11 3019-1616

See the technical bulleting for further details

## • APPLICATION

The CHM-M detector relay is a flame safety piece of equipment for machines, equipment or systems with one or multi-burners of any kind or power, with non-continuous use cycle (on/off burner in a period less than 24 hours), or continuous (on/off burner in a period less than, equal to or more than 24 hours), according to 4.1.4.4 of NBR 12313, because it has a failure self-checking circuit during the operation – safe failure. It can be used in burners of gas, liquid or solid fuels.

## Meets the requirements of NBR 12313 ABNT standard– revision Sept./2000.

Allows the signal inlet coming from ionization sensors, ultraviolet and visible light (without sensor self-checking) or ultraviolet and visible light (with sensor self-checking). It is recommended to use this product with failure self-checking flame sensor, available in versions time proof or time + explosion.

For applications with **non-continuous burner use cycle**, the options are:

- ⇒ **CHM-M-IIIme-I** - Inlet for flame sensor by ionization, when gas is used as fuel in burners that work with this kind of sensor. See electrode sensors line SEL-HT or SEL-HT-E (electrode assembled according to drawing or client sample-special).
- ⇒ **CHM-M-IIIme-L** - Inlet for photo-resistor sensor of cadmium sulfide – visible radiation, when heavy oils or any other fuel that stimulate flame with yellow light emission in dark combustion chamber are used. See sensor model SEL-SV-L.

For applications with **continuous or non-continuous burner use cycle**, the options are:

- ⇒ **CHM-M-IIIme-U** – Inlet for ultraviolet radiation sensor, when gas, light oils or any other fuel that cause flame with the emission of ultraviolet rays are used. See sensor model SEL-SV-U.
- ⇒ **CHM-M-IIIme-X** Inlet for ACS-TX-L-K5 flame presence signal transmitter. It must be specified when the distance between the sensor and the programmer is longer than 8 meters, or when the **SEL-SV-U2-11-O□□□-K6** is used. When the transmitter is used, it is possible to install the sensor until 500 meters away from the controller (relay or programmer). It has a circuit that allows the sensor sensibility adjustment over the supervised flame, allowing the discrimination of adjacent flames, and of other possible emissions present in the combustion chamber walls. See the specifications of the ACS-TX-K5 flame signal transmitter.

In applications of any power, with **continuous burner use cycle**, with failure self-checking, use the following sensors:

- ◇ **SEL-SV-T0-□1-O□□□-K6** or **SEL-SV-T0-□1-O□4-K7** - Photo-valve sensor of gas emission-ultraviolet radiation, with flame signal transmitter, for applications that use gas, oil or any other fuel that causes flame with ultraviolet radiation.
  - ◇ **SEL-SV-V0-□1-O□□□-K6** or **SEL-SV-V0-□1-O□4-K7** - Photo-resistor sensor of cadmium sulfide – visible radiation, with flame signal transmitter, when oil or any other fuels that stimulate flame with yellow light emission are used.
  - ◇ **SEL-SV-U2-11-O□□□-K6** – Inlet for flame signal coming from the ultraviolet sensor for high temperature (until 105°C). If necessary, specify separately the ACS-TX-L-K5 flame signal transmitter.
- ⇒ **CHM-M-IIIme-M** - Inlet for the contact coming from the CHM-F-MCQ-CL flame detector relay, with failure self-checking, for systems with one or multi-burners and/or multi-fuel.

It can operate with two flame sensors of any kind, with any physical combination, regardless of the start sequence that the burner may need.



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Therefore, when the **supervision through two simultaneous flame sensors** is necessary, it is possible to combine them as follows:

- a) I / I, I / U, I / L, I / X, I / M;
- b) U / U, U / L, U / X, U / M;
- c) L / L, L / X, L / M;
- d) X / X, X / M;
- e) M / M

## • TECHNICAL DATA

- Watch dog micro process - safe failure with frontal sinalization (Vm) and through isolated electrical contact.
- Power supply: 115 or 220Vac; +10/-15%; 50/60 Hz
- Power consumption: 5VA
- Internal fuse: 100 mA delayed
- External fuse: Estimate fuse for internal circuits' protection in accordance to the estimated load in the project, respecting the boundaries of this specification.**

**NOTE: The equipment leaves the factory configured for 220Vac. To change the power to 115Vac, change the jumper of the base to the 115Vac position – See Figure 2.**

- Protection against voltage surges
- Protection against failure due to short-circuit of the mass ionization sensor
- Flame confirmation time < 1 sec
- Flame failure response time: until 4 sec (see order code)
- Electrical connections: through terminal strips located in the box front
- Maximum outlet currents (in 250 Vac<sub>max</sub>): 2 A resistive
- Electrical service life expectancy of outlet contacts: > 100,000 operations
- Mechanical service life expectancy of outlet contacts: > 100,000 operations
- Front panel controls (see Figure 1)
- Reset button: – reset the start sequence, returning to the first operation (step 0).
- Signaling:
  - Power signaling: “ON” (Vm)
  - Flame presence signaling: “CH1” (Vd)
  - Flame presence signaling: “CH2” (Vd)
  - Signaling for defect in the programmer or loss of program sequence: “FAILURE” (Defeito) (Vm); including power check.
- Work temperature: 0 to 60°C
- Storage ambient temperature: -5° to +65°C
- Maximum air relative humidity under operation: 90% (40 ± 2°C) – NBR 5291
- Case: ABS beige plastic box
- Ambient protection degree: IP 40
- Assembling: on sheltered flat surface, through the III Me BASE, which can be mounted on any external surface (for example the burner's), or internal panel surface. See Figure 2
- Attachment: 35 mm DIN rail or screws through the case base
- Weight: 730 grams
- Warranty: 12 months (**see the warranty terms**)



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## • Dimensional Drawing (mm)

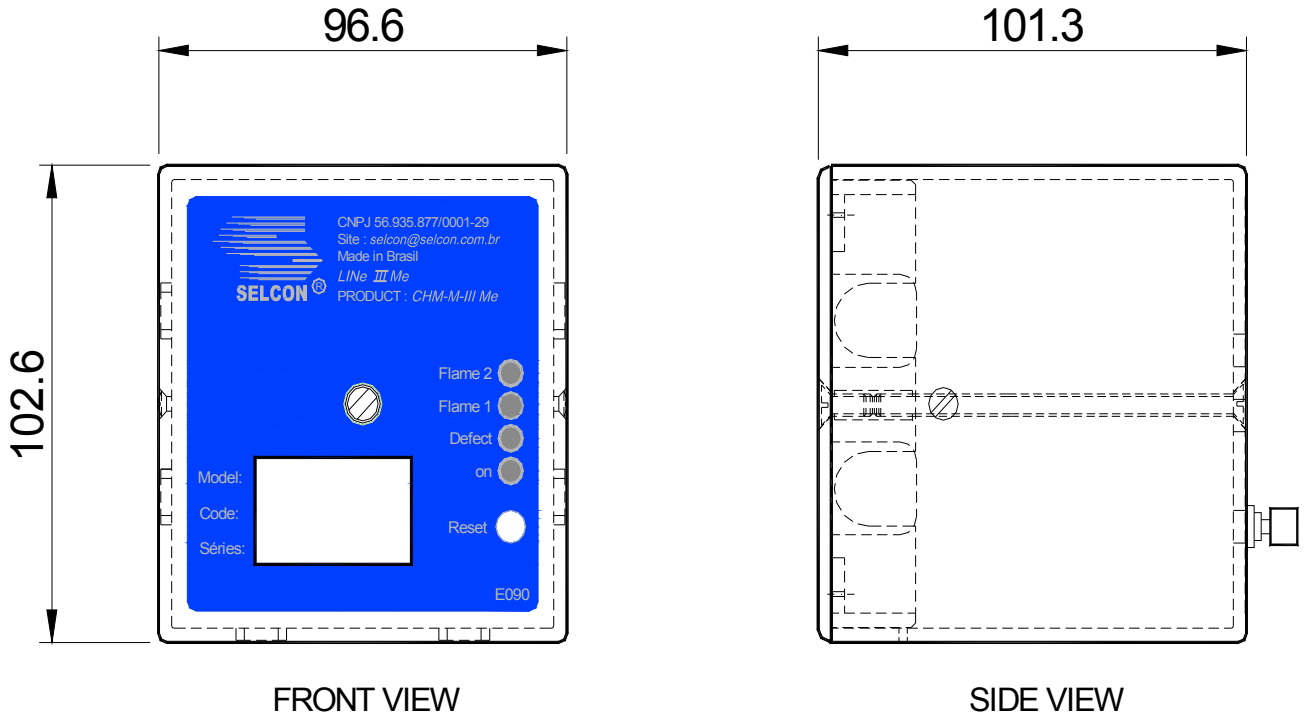
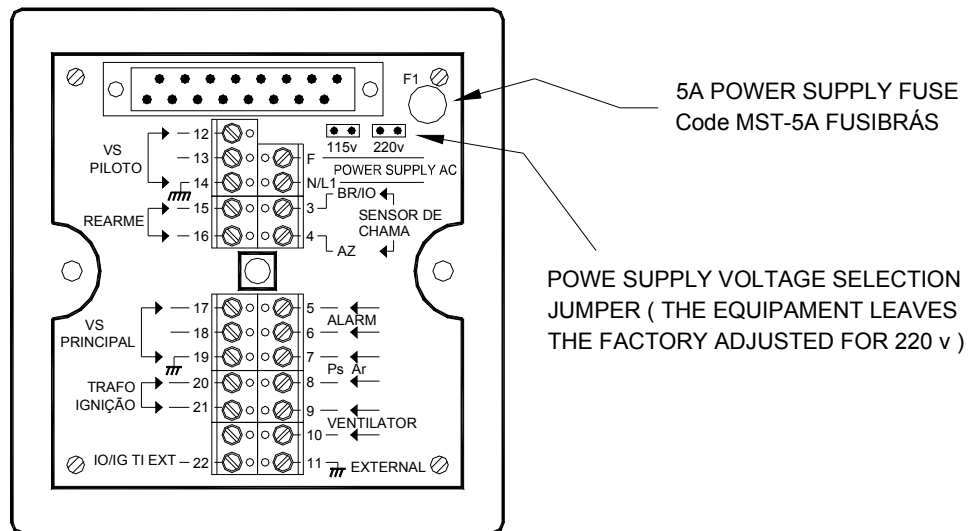


FIGURE 1

BASE M III Me  
Front View  
FIGURE 2



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## • Electric connections scheme

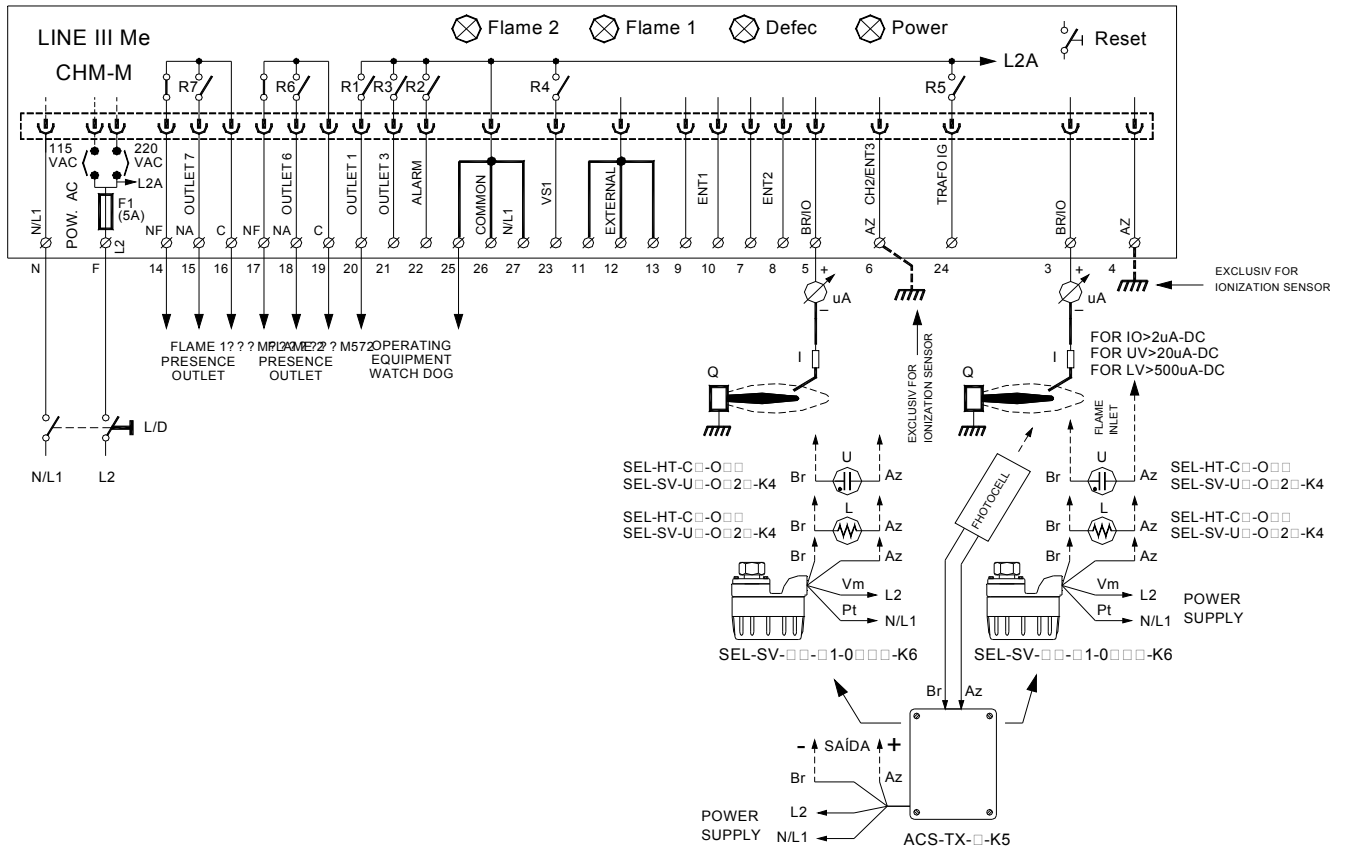


FIGURE 3



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• ORDER CODE - CHM-M-III Me-□□-R□-C□

CHM-M-III Me	SENSORS		R – RESPONSE TO FLAME FAILURE	C- BLOCKING UPON FLAME FAILURE
	FIRST	SECOND		
	I IONIZATION	I IONIZATION	<input type="checkbox"/> (d1) d1 = 1 => 1 sec  OR d1 = 3 => 4 sec	<input type="checkbox"/> (d2) d2 = 1 => yes  OR d2 = 2 => no
	U ULTRAVIOLET	U ULTRAVIOLET		
	L VISIBLE LIGHT	L VISIBLE LIGHT		
	X TRANSMITTER	X TRANSMITTER	d1 = 1 => 1 sec (without self-checking) OR d1 = 3 => 4 sec (with self-checking)	
	M DRY CONTACT GENERATED BY THE CHM-F	M DRY CONTACT GENERATED BY THE CHM-F	d1 = 1 => 1 sec	

**Note.:** The sensor and other accessories should be specified separately, according to their corresponding code tables.



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## • **BE AWARE:**

- ⇒ Use the programmers and/or detector relays exclusively with flame sensors of Selcon manufacturing.

## • **OTHER PRODUCTS AND ACCESSORIES:**

- ⇒ Flame Relays – CHM-E, CHM-P, CHM-M e CHM-F
- ⇒ Tightness Test Relay of blocking valves – CHM -T
- ⇒ Ignition Programmers and flame monitoring – PRG-E, PRG-Ie, PRG-Ie -III Me (with base), PRG-I, PRG-M e PRG-M-III Me (with base)
- ⇒ Optical Flame Sensors– SEL- SV
- ⇒ Flame sensors by ionization and ignitor electrodes – SEL-HT e SEL-HT-E (sensors and electrodes assembled under draft or sample from the special-client).
- ⇒ Flame signal transmitter– ACS –TX (until 500 meters between the sensor and relay or programmer)
- ⇒ Flame Signal Converter for 4 -20 mA – ACS - CV
- ⇒ Ignition transformers – ACS -TE (for feeding in VAC or VCC)
- ⇒ Portable ignitor – ACS-IP (works with common alkaline battery AA type)
- ⇒ Several Cables– ACS - CB (ignition / sensing / communication / control)
- ⇒ Connector and protector to touch for ignition cable – ACS - CP
- ⇒ Temporized ignition panel ACS – IT
- ⇒ Ignition and flame panel – ACS - PI
- ⇒ Articulated socket joint – ACS - CN
- ⇒ Ignition and monitoring panel – ACS-PN (under consultation)
- ⇒ Reform services of pilot burners (under consultation)
- ⇒ **PRODUCTION DATA SUPERVISION LINE**



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