

# PROGRAMMER FOR FLAME START AND SUPERVISION, AND SAFE STOP OF BURNER

PRODUCT: PRG-M-IIIme-□□-□-R□- P2□-□□□□□□□□

TECHNICAL SHEET 1/9

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## • APPLICATION

PRG-M programmer is a flame safety piece of equipment for machines, equipment or systems with one or multi-burners of any kind or power, with continuous use cycle (on/off burner in a period less, equal or more than 24 hours), according to 4.1.4.4 NBR 12313 item. It has failure self-checking circuit during the operation – safe failure. It can be used with gas, oil or any other kind of fuel. The programmer executes any sequence of start program, flame supervision and burner safe stop, according to applicable technical standards and specific user needs. Selcon Ltda has several application programs catalogued.

**The product replaces any other kind of national or foreign programmer and meets integrally the requirements of NBR 12313 of ABNT standard – revision Sept./2000.**

Allows 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 **use cycle of discontinuous burner**, the options are:

- ◆ **PRG-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 electrodes, sensors SEL-HT or SEL-HT-E line (electrode assembled under draft or sample from the special-client).
- ◆ **PRG- M-IIIme-L** – Inlet for photo-resistor sensor of cadmium sulfide – visible radiation, when heavy oils or any other kind of fuel that stimulate flame with yellow light emission in dark combustion chamber are used. See sensor SEL-SV-L model.

For applications with **use cycle of discontinuous or continuous burner**, the options are:

- ◆ **PRG-M-IIIme-U** – Inlet for ultraviolet radiation sensor, when light oils or any other kind of fuel that provoke flame with ultraviolet rays' emission are used. See sensor SEL-SV-U model.
- ◆ **PRG-M-IIIme-X** – Inlet for ACS-TX-□-K5 flame signal presence conveyer. It must be specified when the distance between the sensor and the programmer is higher than 8 meters, or when **SEL-SV-U2-11-O□□□-K6** is used. When the conveyer is used, it is possible to install the sensor until 500 meters away from the controller (relay or programmer). It has circuit that allows 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 conveyer.



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TECHNICAL SHEET 2/9

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In applications of any power, with **use cycle of continuous burner**, 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 conveyer, for applications that use gas, oil or any other fuel that provokes 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 conveyer, 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 it is necessary, specify separately the ACS-TX-□-K5 flame signal conveyer.
- ◆ **PRG-MIIIME-M-R□-P1□□□□□□** - Inlet for the contact coming from the CHM-F-MCQ-C□ flame detector relay, with failure self-checking, for systems with one or multi-burners and/or multi-fuel.

It can be supplied with ignition converter ACS-TE-21-3 model, incorporated in the interior of its outer covering. See figure 4.

It can operate with two flame sensors of any kind, with any kind of physical and programming combination, independent of the start sequence that the burner needs.

Therefore, when 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



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TECHNICAL SHEET 3/9

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## • TECHNICAL DATA

- ✓ Watch dog microprocessing – Safe failure
- ✓ 115 or 220Vac +10 -15% feeding (phase / phase or phase / non-grounded neutral) - 50/60 Hz ± 3%.  
**Note: Equipment originally configured for 220Vac. To alter feeding, change jumper to 115Vac position – See figure 2.**
- ✓ Power consumption (max): 6VA.
- ✓ Internal fuse to protect internal circuits and outlets: 5A delayed, (diameter 8,5mm and 8,5 mm length) encapsulated, Mod. MST (Fusi-Bras or the like).
- ✓ Protection against failure due to short circuit of the mass ionization sensor
- ✓ Controls on front panel (see figure 1):
  - ❖ Reset button: - resets start sequence, returning to the first operation (step 0).
  - ❖ Signalization:
    - ◆ Energizing signalization: “ON” (Vm)
    - ◆ Flame detection signalization: “CH1” (Vd)
    - ◆ Flame detection signalization: “CH2” (Vd)
    - ◆ Signalization regarding programmer failure or loss of program sequence: “FAILURE” (Vm); energizing checking included.
- ✓ Number and capacity of control inlets and outlets:
  - ◆ Inlets: 3 digital inlets for 115 / 220 Vac and one flame signal inlet, all photo-coupled. Option: One of the digital inlets may be used as the second flame signal inlet.
  - ◆ Outlets: 5 dry contact outlets (N.A.) with single common and 2 isolated SPDT outlets.
  - ◆ Outlet capacity: 2A – 250 VAC (resistive)
- ✓ Response time for flame failure:  $\leq 4$  sec.
- ✓ Function adjustable when programming:
  - ◆ Purge time
  - ◆ Post purge
  - ◆ Ignition
  - ◆ Automatic recycle
  - ◆ Other functions depending on application needs. Electrical useful life expectancy of outlet contacts: > 100.000 operations



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TECHNICAL SHEET 4/9

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- ✓ Electrical useful life expectancy of outlet contacts: > 100.000 operations
- ✓ Ambient temperature for operation: 0° C to 60o C dry heat.
- ✓ Ambient storage temperature: -5° C to 65° C dry heat
- ✓ Maximum ambient air moisture for operation: 90%, (40 ± 2) °C (NBR 5291).
- ✓ Outer covering: Basis and plastic box in synthetic material (ABS), black or gray, respectively.
- ✓ Ambient protection degree: IP50 (with base inlet / outlet cable press installed).
- ✓ Assembling: through BASE MIIIMe, this may be assembled on any external surface (for instance, burner) or internal surface on the panel. See figure 2.
- ✓ Weight: 730g
- ✓ Warranty: 12 months (**see terms of warranty**)



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PRODUCT: PRG-M-III Me-□□-□-R□- P2□-□□□□□□□□

TECHNICAL SHEET 5/9

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• DIMENSIONS IN MM

## PROGRAMMER DIMENSIONAL

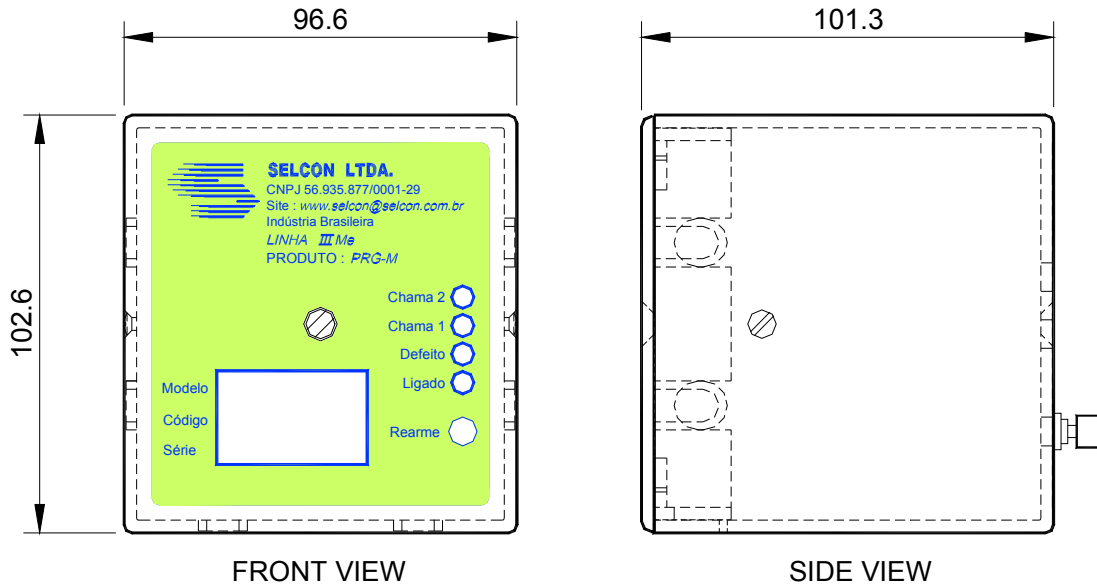


FIGURA 1

## BASE M III Me – FRONT VIEW

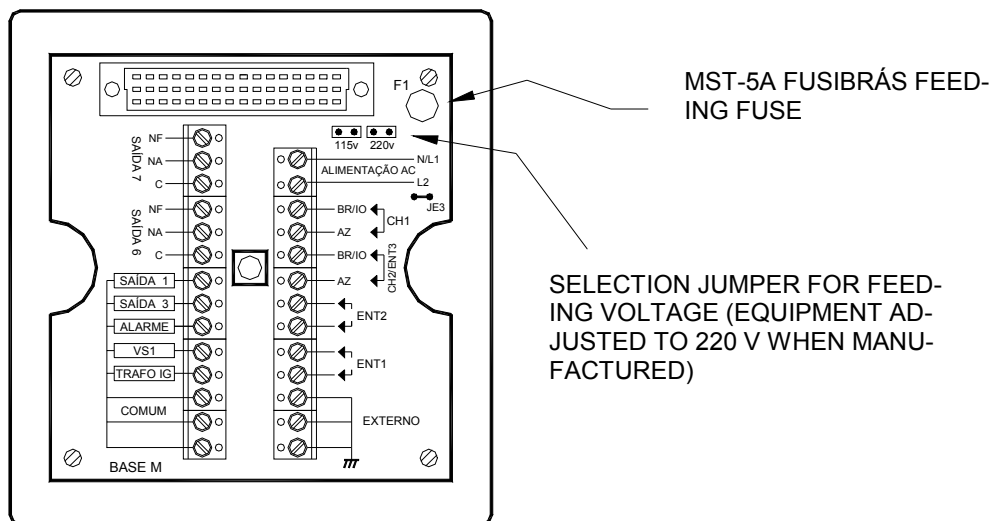


FIGURE 2



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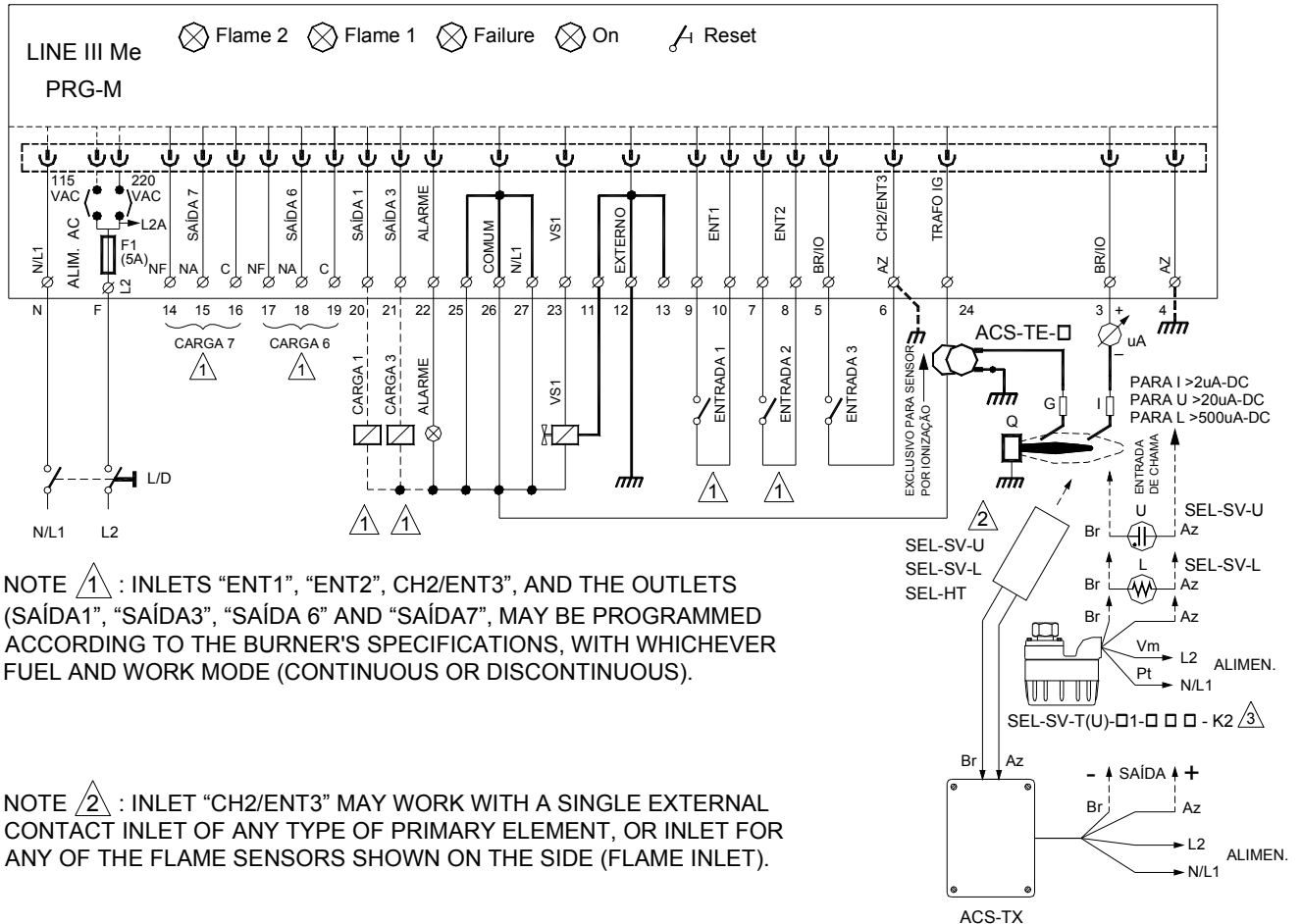
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**TECHNICAL SHEET 6/9**

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**• ELECTRIC DIAGRAMS – EXTERNAL IGNITION TRANSFORMER**



**FIGURE 3**



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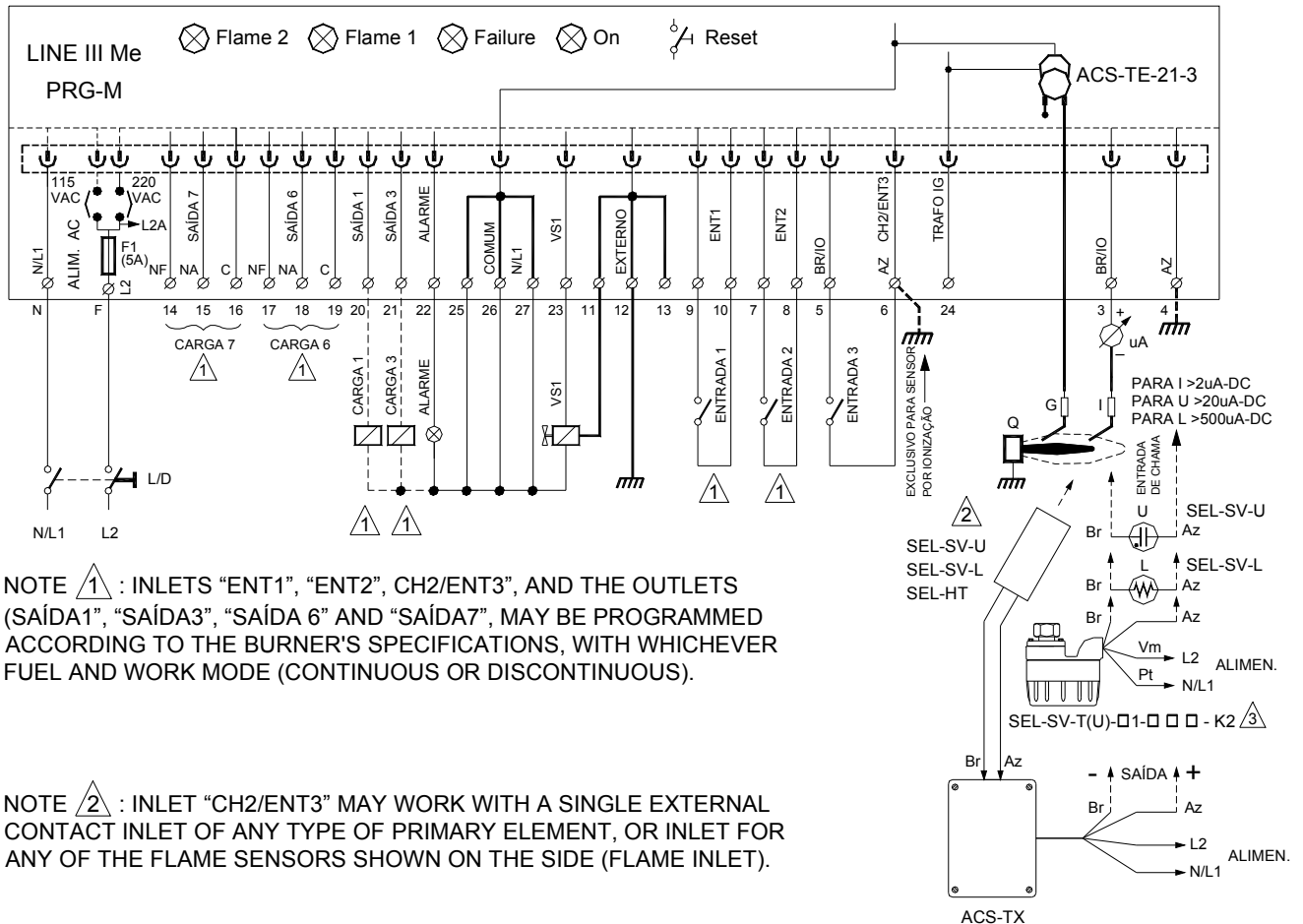
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**TECHNICAL SHEET 7/9**

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• **ELECTRIC DIAGRAMS – INTERNAL IGNITION TRANSFORMER**



**FIGURE 4**



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TECHNICAL SHEET 8/9

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• CODE FOR ORDERS PRG-M-IIIme-□□-□-R□- P2□-□□□□□□□□

PRG-M- IIIme	-	SENSOR		-	Ignition Transformer Included In The Outer Covering	R- FLAME FAILURE RESPONSE	P2□-□□□□□□□□ Application Program
		1 <sup>st</sup> flame sensor inlet	2 <sup>nd</sup> flame sensor inlet				
		<b>I</b> IONIZATION <b>U</b> ULTRAVIOLET <b>L</b> VISIBLE	<b>I</b> IONIZATION <b>U</b> ULTRAVIOLET <b>L</b> VISIBLE		<input type="checkbox"/> (d1)  d1 = <b>S</b> => yes  OR  d1 = <b>N</b> => no	<input type="checkbox"/> (d2)  d2 = <b>1</b> =>1 sec.  OR  d2 = <b>3</b> =>4 sec.	<b>P2□ →</b>  O código “ <b>P20</b> ”, indica que o PRG-M-IIIme vai operar com sensor de chama <b>sem auto diagnose</b> de falha.  O Código “ <b>P21</b> ”, indica que o PRG-M-IIIme vai operar com sensor de chama <b>com auto diagnose</b> de falha.
		<b>X</b> CONVEYER	<b>X</b> CONVEYER			d2 = <b>1</b> =>1 seg. (without sensor self-checking)  OR  d2 = <b>3</b> =>4 seg. (with sensor self-checking)	O Código “ <b>P21</b> ”, indica que o PRG-M-IIIme vai operar com sensor de chama <b>com auto diagnose</b> de falha.
		<b>M</b> DRY CONTACT DUE TO CHM-F	<b>M</b> DRY CONTACT DUE TO CHM-F			d2 = <b>1</b> =>1 sec.	-□□□□□□□□ →  Neste campo é Indicado o nome do programa de aplicação, definido com até 7 caracteres alfanuméricos, já existente na Selcon ou determinado pelo cliente.

Obs.: The sensor and other accessories must be specified separately, according to a specific code.



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TECHNICAL SHEET 9/9

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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 -IIIme (with base), PRG-I, PRG-M e PRG-M-IIIme (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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