

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

PRODUCT: PRG-M-□-R□-P1□□□□□□□□

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TECHNICAL SHEET 1/9

For further details see technical bulletin

• 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-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-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-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-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.

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

- ◇ **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-M-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.



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• TECHNICAL DATA

- ⇒ Watch dog micro process – to provide safe failure.(allows start programming for any kind of burner)
- ⇒ Feeding 115 or 220Vac +10 -15% (**phase / phase or phase / neutral non-grounded**) - 50/60 Hz ± 3%.
- ⇒ Power Consumption: 6VA
- ⇒ Protection fuse of internal circuits and outlets – 160 mA delayed (diameter. 8,5MM, length. 8,5MM), encapsulated mod. MST (fusíbras or similar)
- ⇒ **External Fuse: Foresee fuse for internal circuits' protection in accordance to the foreseen load in the project, respecting the boundaries of this specification.**
- ⇒ Local and/or remote reset via program
- ⇒ Protection of flame circuit during ignition period
- ⇒ Protection against tension outbreaks
- ⇒ Protection against failure due to short-circuit of the mass ionization sensor
- ⇒ Work temperature: 0 a 60°C
- ⇒ Storage ambient temperature: -5° a +65°C
- ⇒ Ambient protection degree: IP 40
- ⇒ Maximum ambient air moisture for operation: 90% (40 ± 2°C) – NBR 5291
- ⇒ Input for flame sensors: I, U, L, X or T (to order, see field code)
- ⇒ Verifies anticipated flame presence or false signal.
- ⇒ Ignition Time: adjustable via program
- ⇒ Confirmation time for flame inlet: < 1 sec.
- ⇒ Blocking time for flame failure: < 4 sec.
- ⇒ Adjustable functions in programming:
 - ◆ purge time
 - ◆ post purge
 - ◆ ignition time
 - ◆ automatic recycle
 - ◆ other functions according to application needs
- ✓ Number of control outlet and inlet capacity:
 - ◆ Inlets: 3 digital inlets for 115 / 220 Vac and one flame signal inlet, all photo-coupled.
 - ◆ Outlets: 5 dry contact outlets (N.A.) with single common and 2 SPDT isolated outlets SPDT; 2A–250 Vac maximum (resistive).
- ⇒ Electrical useful life expectancy of outlet contacts: > 100.000 operations
- ⇒ Mechanical useful life expectancy of outlet contacts: > 100.000 operations
- ⇒ Electrical connections: Terminals (20), disposed in front of the box
- ⇒ Local sinalization – watch dog - safe failure (Vm)
- ⇒ Local sinalization - equipment on (Vm)
- ⇒ Local sinalization – flame light (Vd) / Anticipated flame (Vd)
- ⇒ Outer covering: Beige plastic box
- ⇒ Assembly: In any flat surface (sheltered or internal in panel)
- ⇒ Fixation: Through two rail lugs DIN 46277, 35mm
- ⇒ Weight: 800 grams
- ⇒ Warranty: 12 months (**see term of warranty**)



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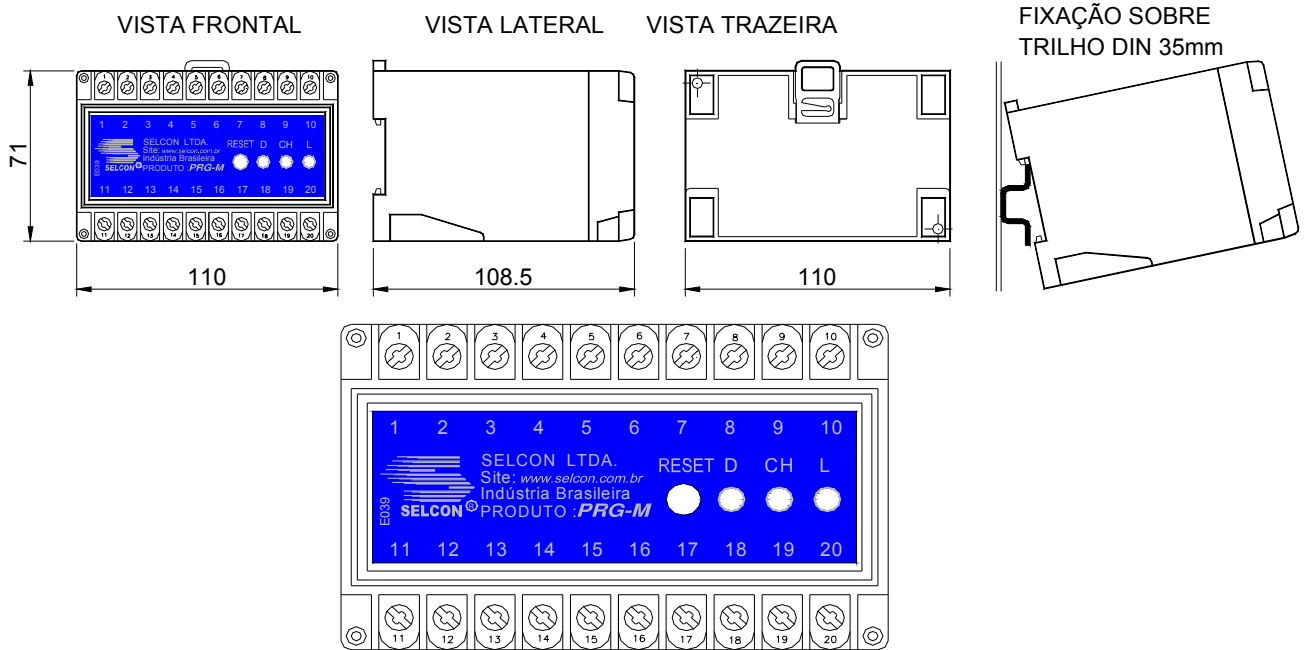
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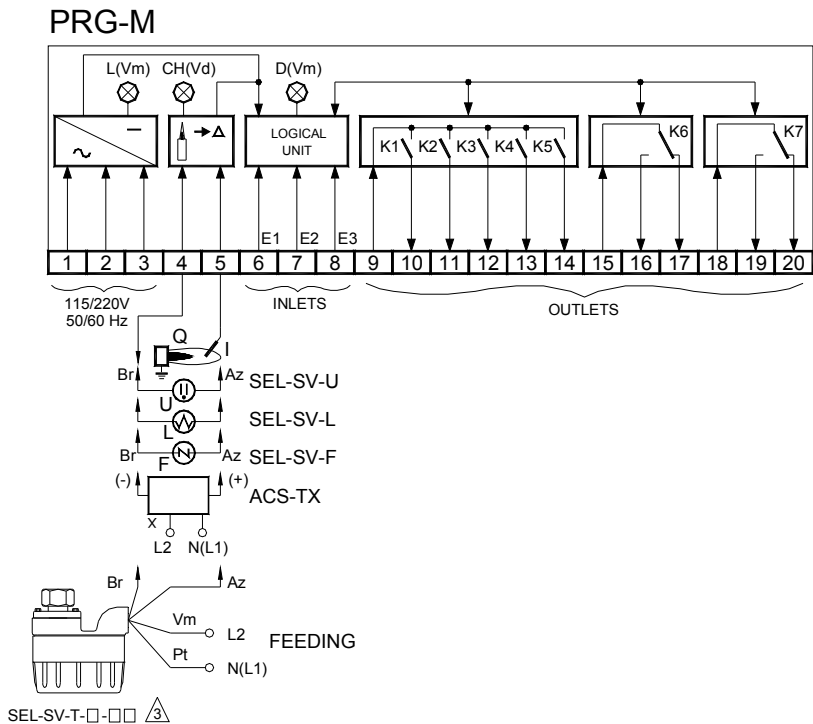
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• **Dimensional Draft (mm)**



• **ELECTRICAL CONNECTIONS DIAGRAMS**



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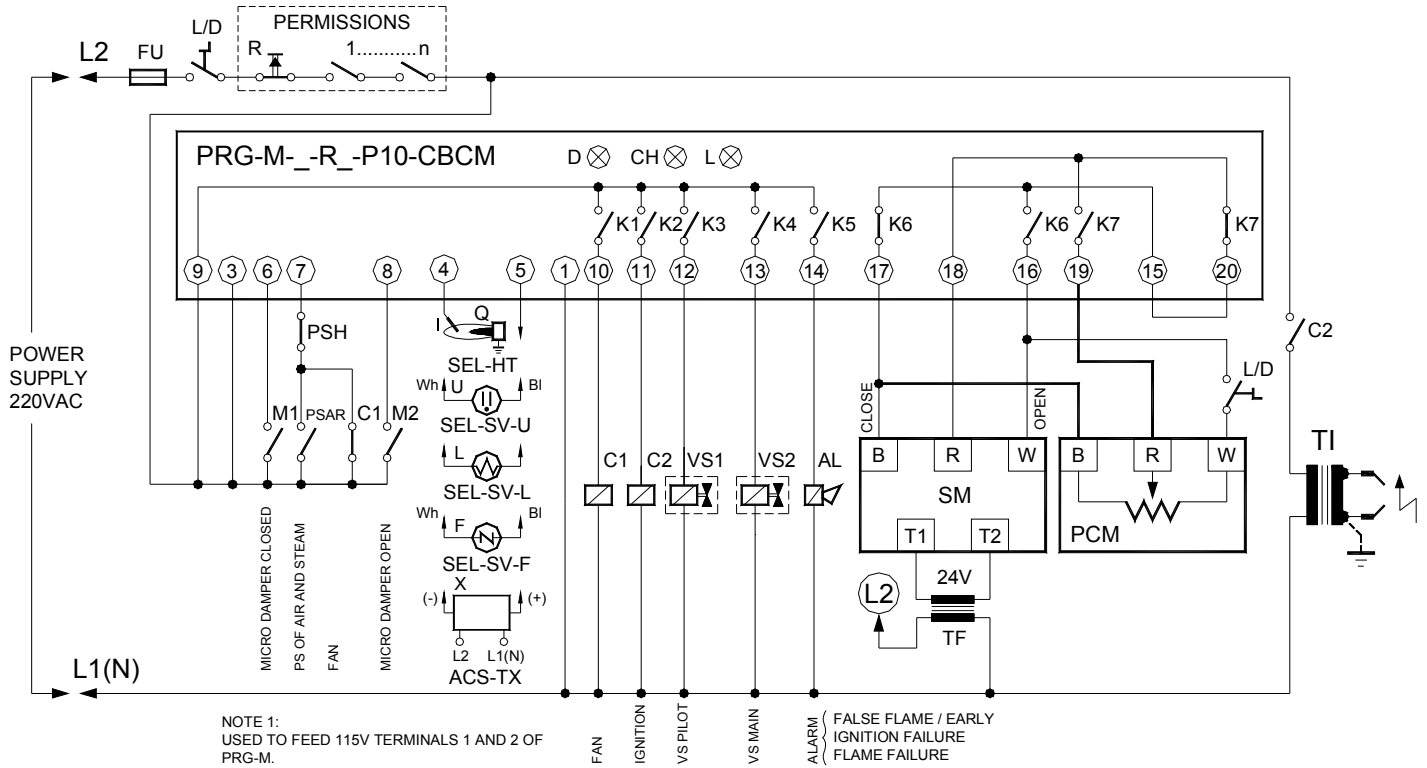
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• **EXAMPLE SHOWING CONNECTIONS OF A START PROGRAMMER OF DISCONTINUOUS USE BURNER**

For use with sensors SEL-HT e SEL-SV-(U or L), without failure self-checking.



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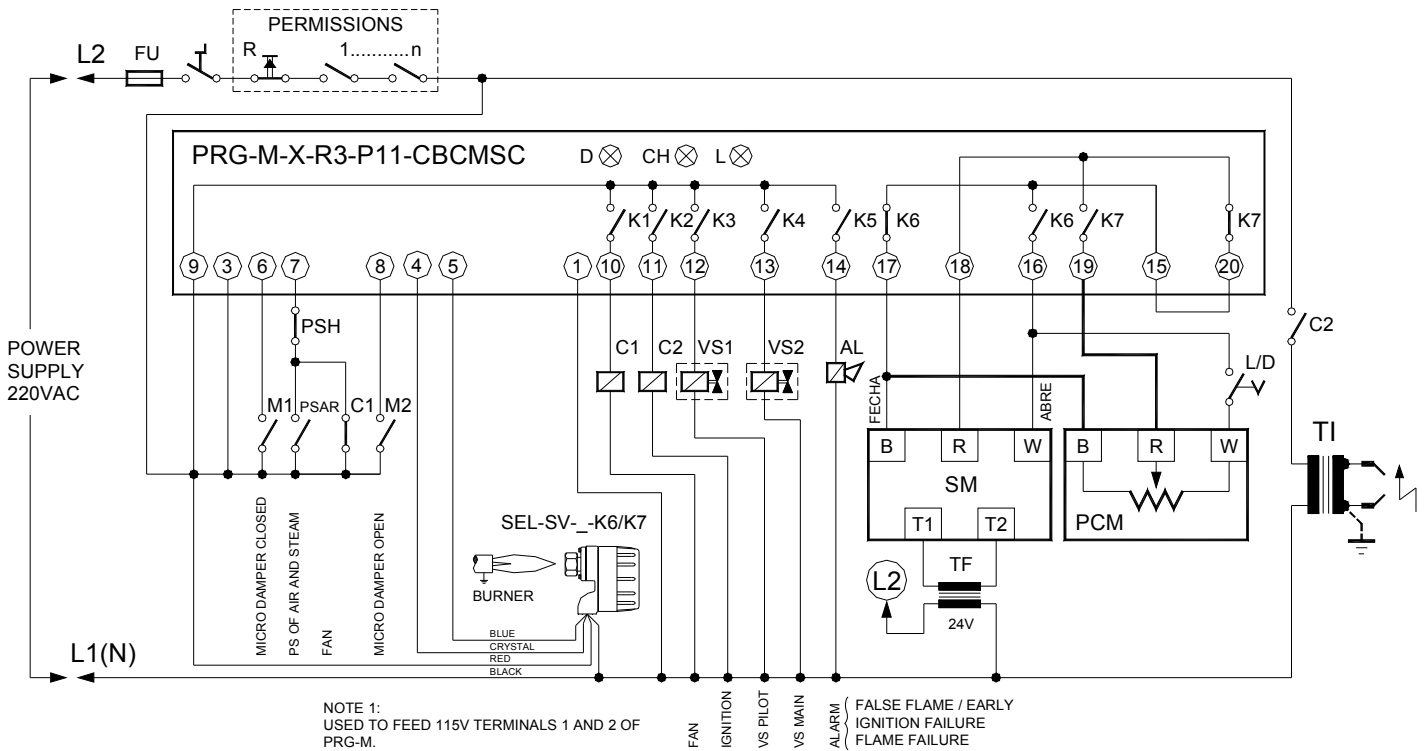
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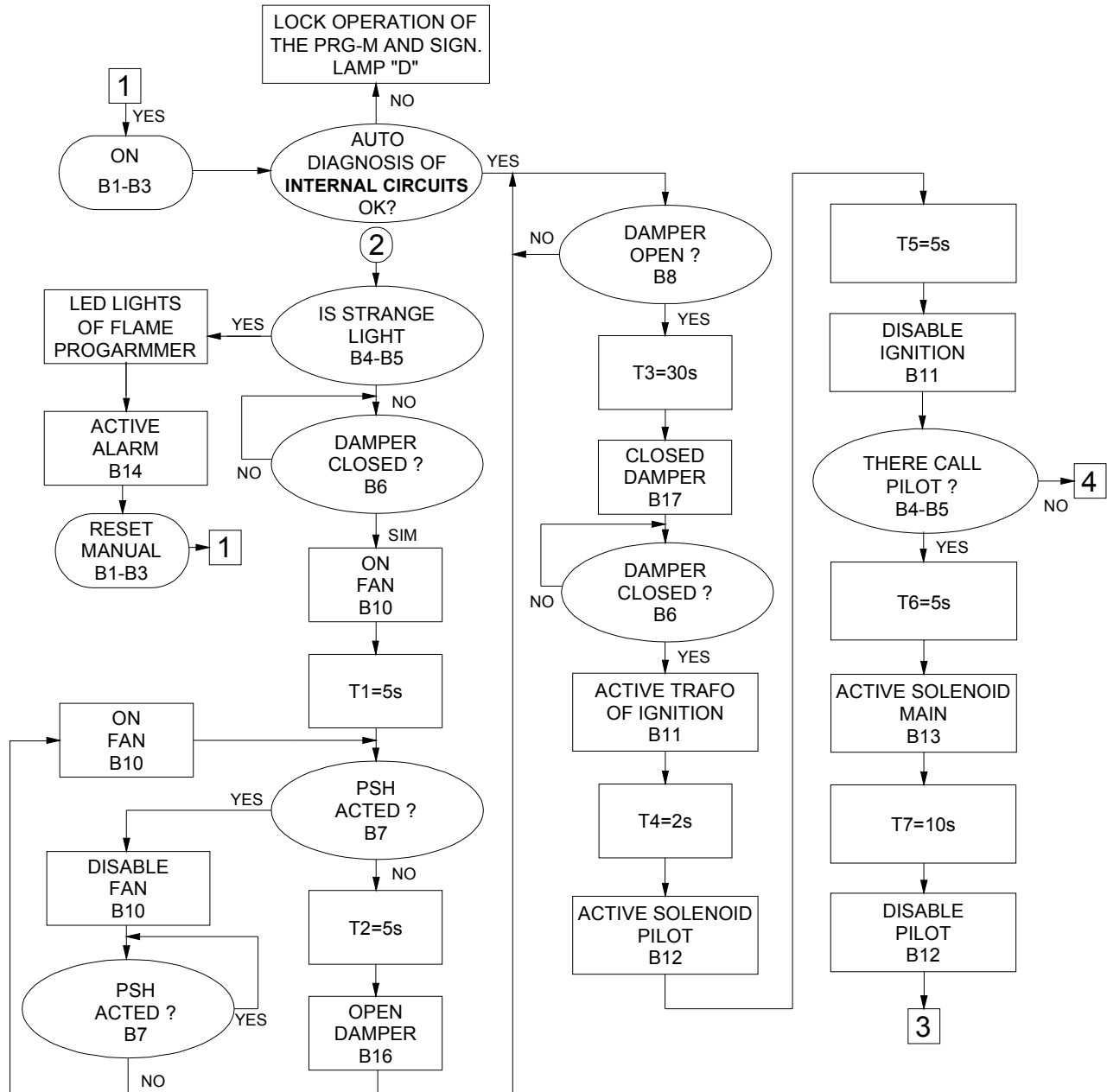
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• **EXAMPLE OF OPERATIONAL FLOWCHART - (OTHER FLOWCHARTS UNDER CONSULTATION)**



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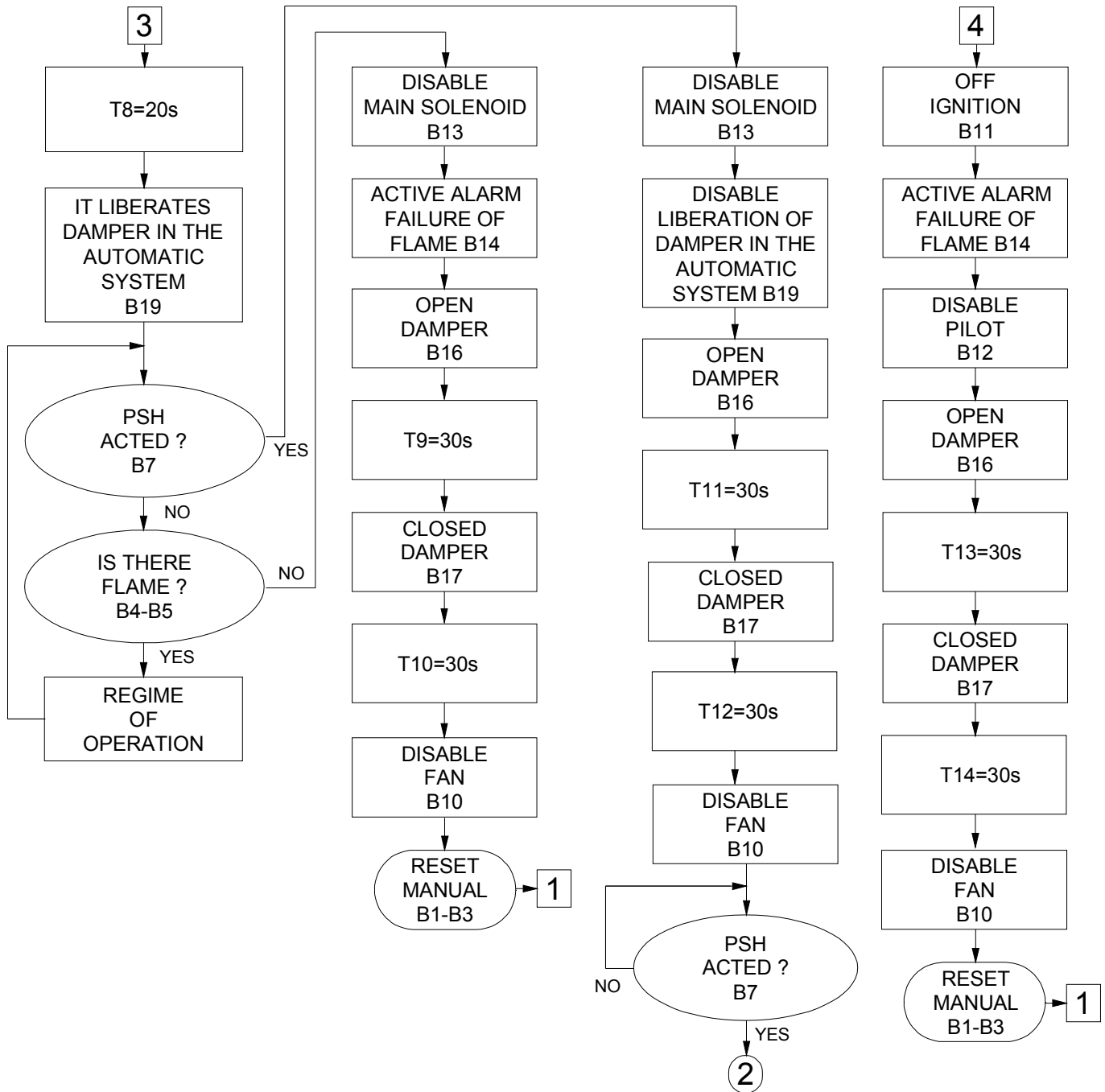
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ORDER CODE- PRG-M-□-R□-P1□□□□□□

PRG-M	-	SENSOR	-	R - FLAME FAILURE RESPONSE	-	P1- APPICATION PROGRAM
		I IONIZATION U ULTRAVIOLET L VISIBLE		<input type="checkbox"/> (d1) d1 = 1 => 1 sec. OR d1 = 3 => 4 sec.		P1□ → The code "P10" indicates that the PRG-M will operate with flame sensor without self diagnosis of failure. The code "P10" indicates that the PRG-M will operate with flame sensor with self diagnosis of failure. -□□□□□□ → This field indicates the name of the application program, set up to 7 alphanumeric characters, existing in Selcon or determined by the client.
		X CONVEYER		d1 = 1 =>1 sec. (without sensor self-checking) OR d1 = 3 =>4 sec. (with sensor self-checking)		
		M DRY CONTACT- PROVIDE BY DETECTOR RELAY CHM-F-MCQ		d1 = 1 => 1 sec.		

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



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● **BEWARE:**

⇒ 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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