

FLAME DETECTOR SENSOR FOR BURNER

PRODUCT: SEL-SV-□□-□1-O□□□-K6

TECHNICAL SHEET 1/7

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For further details, see technical bulletin

• APPLICATION

Flame detector sensor-conveyer recommended for systems with mono or multi-burners, for industrial or commercial use of all powers, using gas, oil or any other fuel which may provoke the emission of ultraviolet or visible rays (yellow flame), with discontinuous use cycle, that is, which turns the burner On/Off in less than 24h, It is equipped with failure self-checking circuit, every 4 seconds of operation.

ABNT NBR 12313, item 4.1.4.4, states it is obligatory to use failure self-checking sensors in burners with power equal or above 100.000 Kcal, which operate 24h or more, without being turned off at least once.

This product meets the requirements of ABNT NBR 12313 regulation. –reviewed on Sept./2000.

Equipped with sensitivity sensor, which facilitates its use in applications with multi-burners, for discrimination of adjacent flames and signal conveying circuit. This allows its application in distances up to 500 meters between the sensor and the flame detection relay or programmer. It is used with burners using gas, oil or any other type of fuel, depending on the sensor chosen:

A) OPERATION TEMPERATURE FROM 0°C to +60°C (sensor + conveyer)

⇒ SEL-SV-T0-□1-O□3□-K6 – for flame detection via ultraviolet radiation sensor.

⇒ SEL-SV-V0-□1-O□3□-K6 - for flame detection via visible radiation sensor

B) OPERATION TEMPERATURE FROM -20°C to +105°C (no conveyer)

⇒ SEL-SV-U2-0-O□3□-K6 – for flame detection using ultraviolet radiation sensor. In this version, the distance between the ACS-TX conveyer and the sensor; relay; programmer, should be limited to 8 meters.

• TECHNICAL DATA

- Feeding tension: 115 Vca or 220V, +10 / -15%; 50 / 60Hz ± 3%
- Power consumption (max): 5 VA
- Internal protection fuse: 160mA – assembled on a socket, code MST 160mA 00346607 by Fusibras Ltda. Or the like.
- Optional security failure: continuous failure self-checking system, with 4-second cycles.
- Sensor: photo-valve sensitive to ultraviolet radiation or photo-resistance of cadmium sulfide, sensitive to visible radiation.
- Front signalization: - **L1 (Vd)**: follows flame vision
- **L2 (Vm)**: energized circuit
- Flame operation: square wave oscillation between 0mA and 9mA, with 1.5-second interval each, for failure self-checking systems. The value of the signal depends on the volume of radiation on the sensor.
- Sensitivity adjustment (only for SEL-SV-TU (L)0 sensor: via tripod on the system.
- Quartz crystal flat lens, 2mm thick, resistant to pressure in the combustion chamber up to 50psi (344,75 kPa).
- Ambient protection degree: IP 66
- Fixation to process: fixed on vision tube with a 1" RP internal thread collar (NBR 6414)
- Electric fixation: internal ½" thread x 14 NPT, to connect flexible electrode.
- Electric spinning: 4 2-meter-long conductors (70°C - 0,33mm² - 660V).



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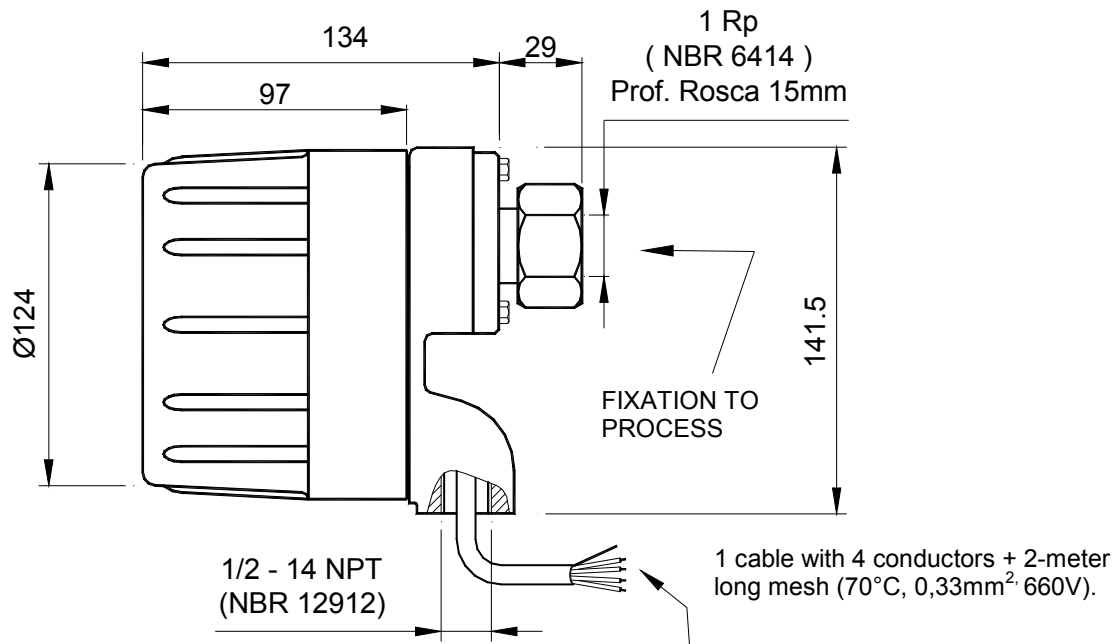
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- For the -20°C to +105°C option (**with no conveyer**), the spinning is to be assembled on lug box (3 outlet of 1/2" x 14 NPT).
- Maximum distance from (PRG-M) programmer, or flame detector relay (CHM-M): 500 meters (only for SEL-SV-TU(L)0 sensor)
 - Weight: 2500 grams for SEL-SV-TU (L)0 models and 3000 grams for the SEL-SV-U2-0-O□3□-K6 model
 - Ambient operation temperature: 0° C to 60° C or - 20°C to +105°C SEL-SV-U2-0-O□3□-K6
 - Storage temperature: - 5° C to 65° C dry heat
 - Maximum ambient moisture for operation: 90% without condensation (NBR 5291)
 - Outer covering: cast aluminum box, SAE 323 bound.
 - Painting: gray powder epoxy
 - Labeling: (Stainless) - 0,5mm thick, 90mm diameter, fixed with 2 bolts.
 - Warranty: 12 months (see terms of warranty)

1- FLAME SENSOR FOR TEMPERATURES BETWEEN 0°C and 60°C

• Dimensional Draft (mm)



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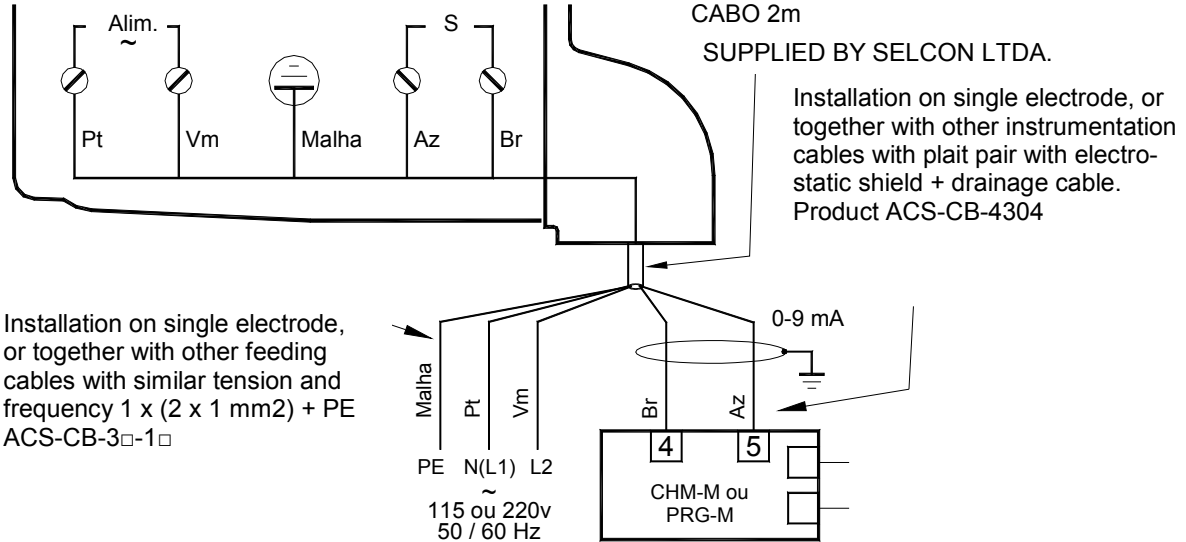
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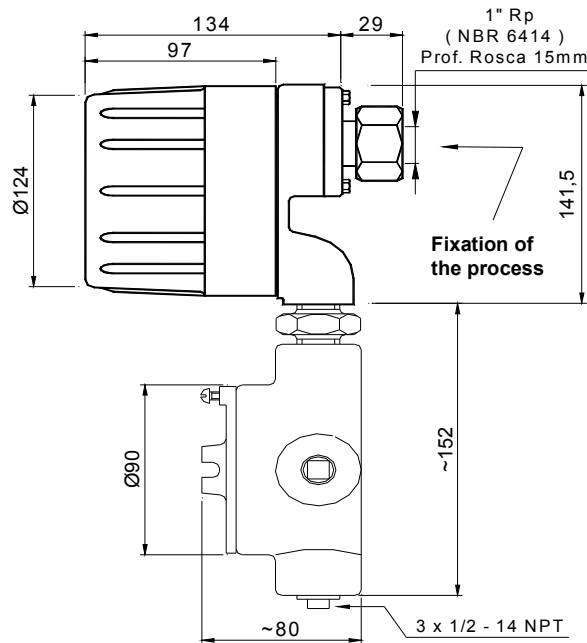
For further details, see technical bulletin

1.1- DRAFT FOR ELECTRIC CONNECTIONS FOR TEMPERATURES BETWEEN 0°C and 60°C



2- FLAME SENSOR FOR HIGH TEMPERATURES: -20°C to +105°C

•Dimensional Draft (mm)



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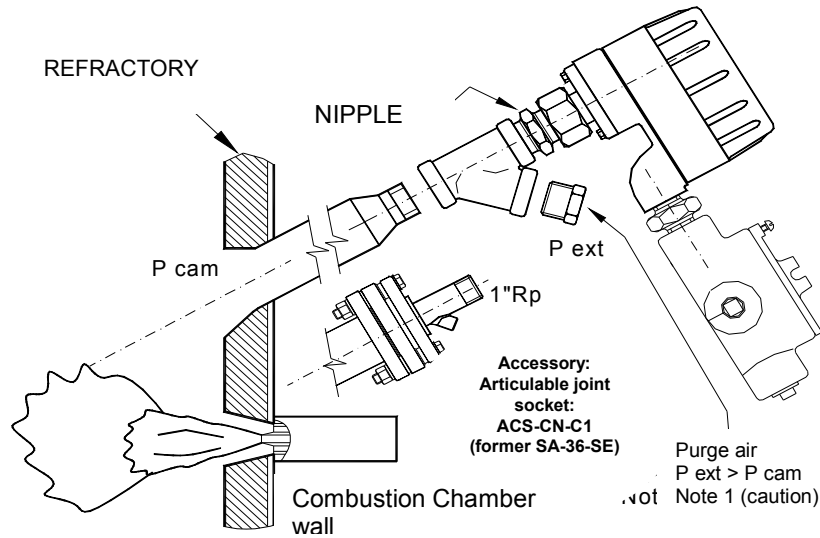
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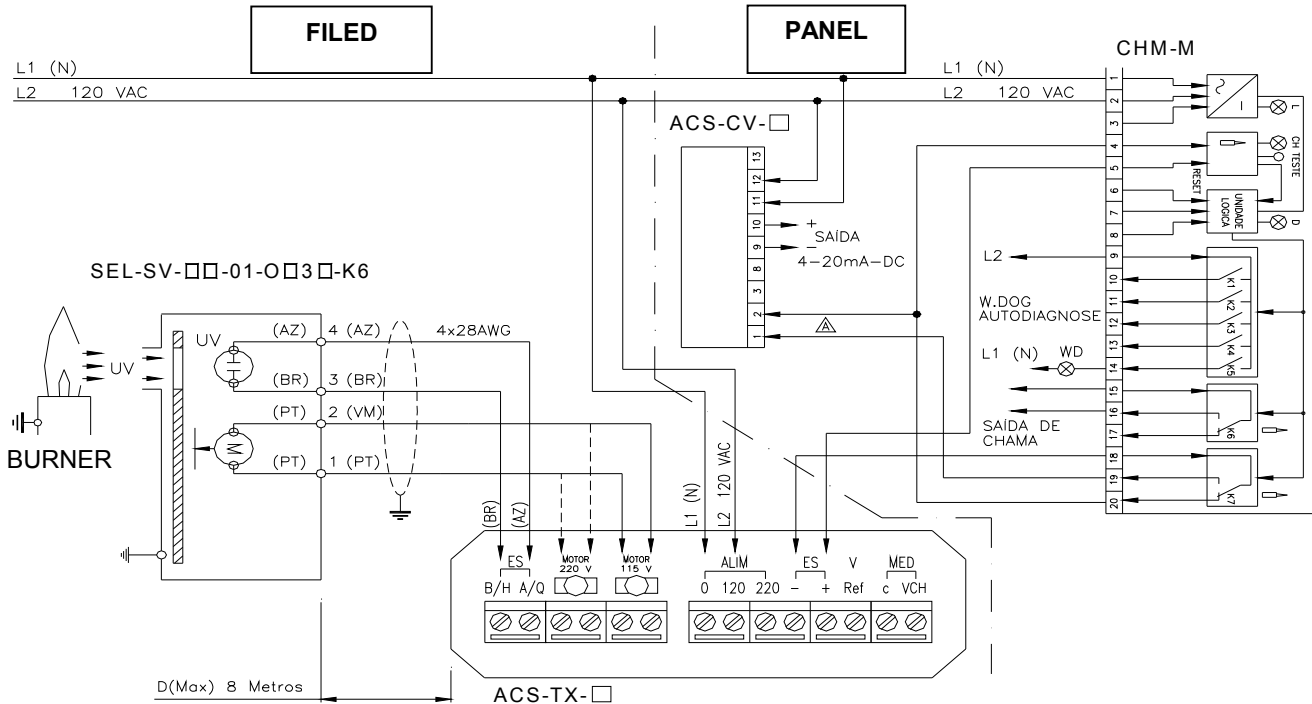
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• INSTALATION



2.1- DRAFT FOR ELECTRIC CONNECTIONS FOR TEMPERATURES BETWEEN -20°C and 105°C



NOTE: THE MAXIMUM DISTANCE BETWEEN THE SEL-SV-U2-0-O□□□-K6 SENSOR AND THE ACS-TX-□ CONVEYER SHOULD BE 8 METERS. THE ACS-CV-□ ACCESSORY, WHICH CONVERTS FLAME SIGNAL TO 4-20 mA (STANDARD) MAY BE SPECIFIED TO INTEGRATE THE SYSTEM.



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• CODE FOR ORDERS: SEL-SV-□□-□1-O□□□-K6

SEL-SV	SENSOR	Temperature	FEEDING		O – OPCIONALS			Protection Degree
	T ULTRAVIOLET (SENSOR + CONVEYOR)	□ (d1) d1 = 0 => 0 to + 60°C OR d1 = 4 => - 20 to + 80°C	TENSION d2 = 1 => 115Vac OR d2 = 2 => 220Vac	FREQ. d3 = 1 => 50/60 Hz	LENS □ (d4) d4 = 2 => flat OR d4 = 3 => convex	CONNECTION TO PROCESS d5 = 3 => 1" RP With self-checking e sem caixa de bornes OR d5 = 5 => 1" RP With self-checking e com caixa de bornes	THREAD ADAPTER □ (d6) d6 = 0 => none OR d6 = 1 => 1" RP(M) / 1" NPT(F)	K6 IP 66
		V VISIBLE LIGHT (SENSOR + CONVEYOR)	d1 = 0 => 0 to + 60°C					
		U ULTRAVIOLET	d1 = 2 => - 20 + 105°C	d2=1 d3=1 => 115Vac =>50/60Hz => alimentação de 115Vac proveniente do de rede especifica ou do transmissor ACS-TX-□-K5				

Note: The relay, programmer and accessories should be specified separately, according to the respective table of codes.



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• CAUTION:

- ⇒ Install the sensor from top to bottom, to avoid dust accumulation and to keep its face clean.
- ⇒ **Attention:** >Use clean and dry air with $\theta < 40^{\circ} \text{C}$; flow > 5 scfm; pressure > pressure in the combustion chamber, in at least 300mm of water column.
- ⇒ The sensor should "see" the flame (if possible, the first 30% of it) from the burner nozzle, where the emission of visible radiation is higher.
- ⇒ **Use the sensor exclusively with programmers and/or detector relays manufactured by Selcon.**

• 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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