

**INTEC**  
CONTROLS

*Multi-Point Sample Draw  
Gas Transmitter*

**IVA-SQN-8X**

*User Manual*



ISO 9001:2000



**Intertek**



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# 1. INTRODUCTION

## 1.1 SPECIFICATIONS

Sensing Technology:	Refrigerant (infrared) Electrochemical (toxic) Catalytic Combustion (combustibles) Diffusion Fuel Cell (oxygen)
Visual Indicators:	Normal operation: Green LED Alarm Level 1: Red LED Alarm Level 2: Red LED Failure: Yellow LED Active Sample Points: Green LED
Required Power :	24 Vac, 0.74 A
Audible Alarm:	110 dBA at 3 ft. (1 meter)
Number of Sampling Points:	up to 8 (2, 4, or 8)
Outputs:	3 DPDT relays (3 alarm levels or 2 alarm levels and fault) RS-485
Relay Output Rating:	5A, 30 Vdc or 250 Vac (resistive load)
Alarm Levels:	3
Maximum Sampling Distance:	1000 ft. (305 meters)
Operating Humidity Range:	15% - 90% RH, Non-Condensing 0% - 99% RH, Non-Condensing (infrared)
Operating Temperature Range:	32°F to 100°F (0°C to 40°C)
Dimensions :	19 po x 13 po x 3.75 po (48 cm 33 cm 10 cm)
Poids :	26,5 lbs (12.02 kg)

## 1.2 DESCRIPTION

IVA-SQN-8X multi-sampling gas transmitters provide detection for a wide range of refrigerant gases and other toxic or explosive gases. A premium quality diaphragm pump ensures ambient air sampling up to a distance of 1000 ft. (305 meters). A sequencer synchronizes the electronic and mechanical architecture to adequately measure the presence of gas in each of the 8 available sensor ports.

## 1.3 UNPACKING

After opening the package, remove the equipment and components. Please make sure that all the items described on the order form or packing slip **are actually in the box and are undamaged.**

## *2. INSTALLATION INSTRUCTIONS*

### **2.1 INSTALLATION INSTRUCTIONS**

Installation instructions must be **strictly** followed to ensure the proper functioning of the equipment. We will not be liable or responsible for any malfunctions or incidents that may occur from improper installation.

- Place each unit in a location that is easily accessible for service.
- Avoid placing units near sources of vibrations.
- Avoid placing units near equipment that emits electromagnetic interference.
- Avoid any location where there are large temperature swings.
- Before installing, verify all local codes, standards or legislation that could impact choice of installation location.

## 2.2 WALL MOUNT INSTALLATION DETAILS

Affix the IVA-SQN-8X transmitter to the wall at a height of 5 ft. (1.5 meters) from the floor. Affix all sensors at an appropriate height and location, as shown in table 1. Place the sensors in a perimeter around a heat sink, a boiler or all other equipment that should be monitored.

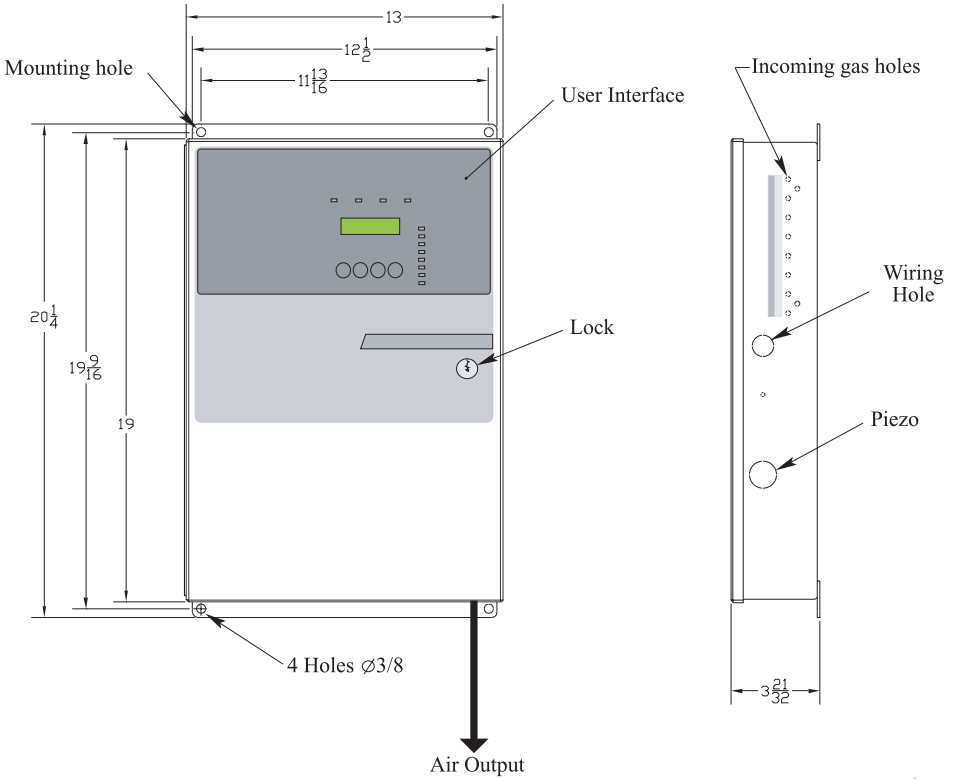
**Table 1 - Recommended Wall Mount Installation Height**

Detected Gas		Relative Density (air = 1)	Installation Height
<b>CO</b>	Carbon Monoxide	0.968	3 - 5 ft. (1 - 1.5 m) from floor
<b>NO<sub>2</sub></b>	Nitrogen Dioxide	1.58 (cold)	* 1 - 3 ft. (30 cm to 1 m) from ceiling
<b>O<sub>2</sub></b>	Oxygen	1.43	3 - 5 ft. (1 - 1.5 m) from floor
<b>R11</b>	Refrigerants	5.04	1 ft. (30 cm) from floor
<b>R12</b>		4.20	
<b>R22</b>		3.11	
<b>R123</b>		5.27	
<b>R125</b>		4.14	
<b>R134A</b>		3.52	
<b>COMB</b>	Most combustibles are heavier than air, with the exception of methane, hydrogen, ethylene and acetylene. For gases that are heavier than air, sensors should be installed approximately 30 cm (1 ft.) from the floor. For combustibles that are lighter than air, sensors should be installed 30 cm (1 ft.) from the ceiling, close to the potential leak source.		

\* May differ for certain uses. For example, heated NO<sub>2</sub> gas coming from an exhaust system is lighter than 1.58.

## 2.2 WALL MOUNT INSTALLATION DETAILS (CONTINUED)

Install the tubing between the monitor and the sensors. Connect the tubing to each of the push-in connectors of both the transmitter intake (suction) and sensors. Also connect one length of tubing to the air exhaust, up to a secure area.



Dimensions in inches



### WARNING

Avoid bending the tubing as this may cause damage.

## 2.3 DETERMINING THE NUMBER OF SAMPLING POINTS

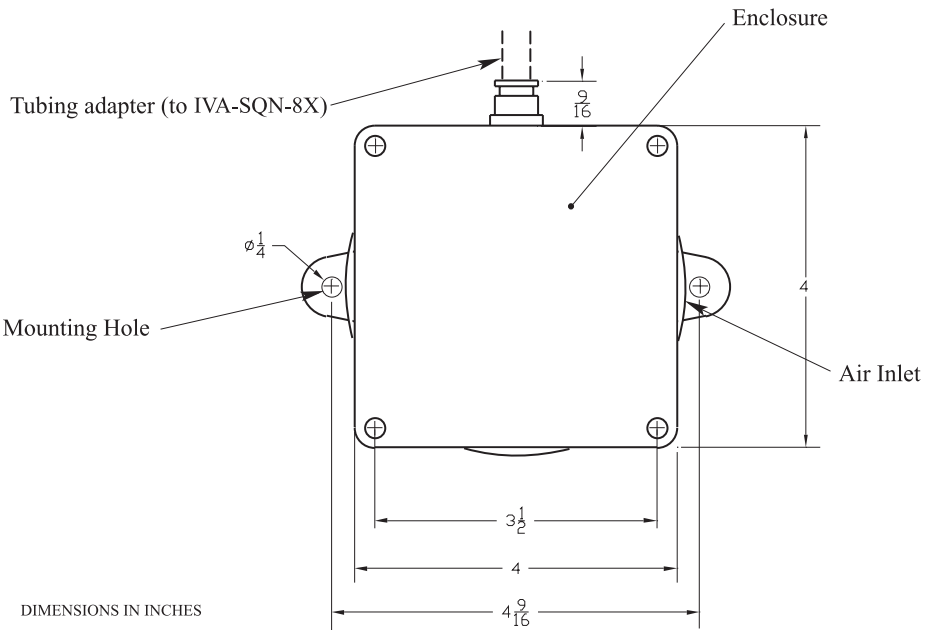
The monitoring radius of each type of sampling points determines the area covered by the unit.

**Table 2 - Area covered**

Detected Gas		Radius of Surveillance	Area Covered
<b>CO</b>	Carbon Monoxide	50 ft. (15 m)	7,854 ft. <sup>2</sup> (707 m <sup>2</sup> )
<b>NO<sub>2</sub></b>	Nitrogen Dioxide		
<b>Others</b>		23 ft. (7 m)	1,257 ft. <sup>2</sup> (154 m <sup>2</sup> )

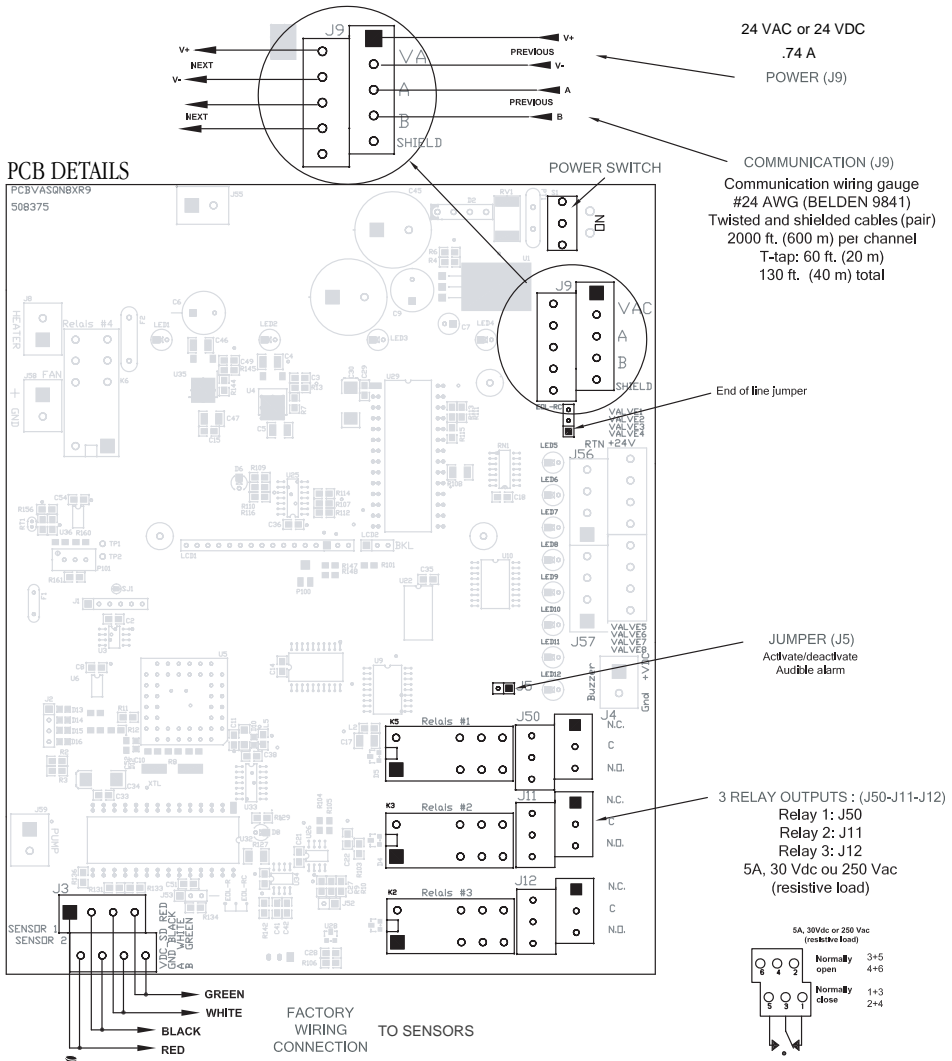
## 2.4 INSTALLING SAMPLING POINTS

Sampling points are equipped with a case to deflect particles that could obstruct air circulation within the system. This spacing of the tubing is important to maintaining proper air flow and to prevent premature equipment deterioration.



# 3. WIRING DETAILS

Opening the IVA-SQN-8X monitor provides access to the terminal boards. Connect the 24 Vac power supply to the power supply terminal. The power supply should come directly from the electrical panel on a dedicated circuit. Connect the auxiliary device to the relay outputs. Relay 1 is activated, by default, when gas concentrations reach alarm level A. Relay 2 is activated when gas concentrations reach alarm level B and relay 3 signals a failure (breakdown). The functioning sequence is completely programmable, thus programming can be modified if it was requested at the time of order.



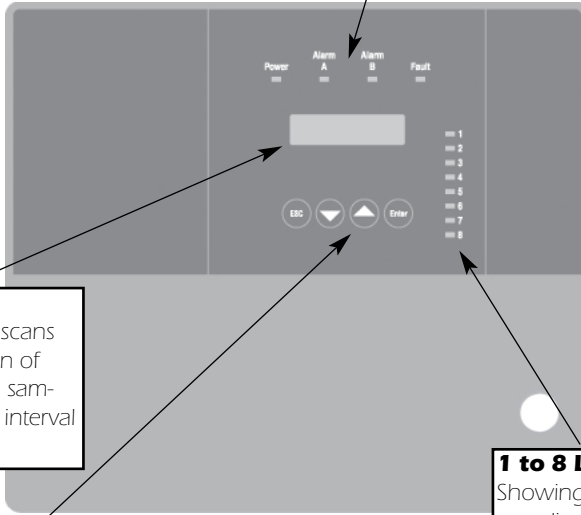
A dedicated circuit must be used for power supply

# 4. PROGRAMMING

## 4.1 USER INTERFACE

As indicated by the green LED for each port, each of the ports (up to 8) is analyzed following a specific time interval based on the type of probe used and the length and course of the sensor tubing. When the gas concentration is channeled and measured at the transmitter, the value is stored until the next reading.

**Visual Indicators:**  
I/O Normal Operation: Green LED  
Alarm Level A: First Red LED  
Alarm Level B: Second Red LED  
Alarm Level C: Both Red LEDs blink  
Failure: Yellow LED



**LCD Display:**  
The LCD display scans the concentration of gas read in each sampling zone at an interval of 2 seconds.

**1 to 8 LEDs**  
Showing operating sampling point.

**Programming Keys:**  
**Esc:** Exit a Menu  
**ENTER:** Access the programming or acknowledge a programming field or value  
**Up and Down Arrow Keys:** Select a programming field or value  
**Scan the reading at a specific sampling zone.**

## 4.2 DETECTION RANGE AND ALARM LEVELS

**Table 3**  
**Range and Alarm Levels**

Gas Detected		Range	Alarm A	Alarm B	AlarmC
<b>CO</b>	Carbon Monoxide	0 - 255 PPM	25 PPM	200 PPM	225 PPM
<b>NO<sub>2</sub></b>	Nitrogen Dioxide	0 - 10.2 PPM	0.72 PPM	2 PPM	9 PPM
<b>O<sub>2</sub></b>	Oxygen	0 - 25.5% Vol.	19.5% Vol.	22% Vol.	22.5% Vol.
<b>R-123</b>	Refrigerant	0 - 1,020 PPM	50 PPM	500 PPM	900 PPM
<b>R-11</b>	Refrigerant Q1	0 - 1,020 PPM	250 PPM	500 PPM	900 PPM
<b>R-12</b>					
<b>R-22</b>					
<b>R-125</b>					
<b>R134A</b>					
<b>COMB</b>	Combustibles	0 - 102% LEL	25% LEL	50% LEL	90% LEL

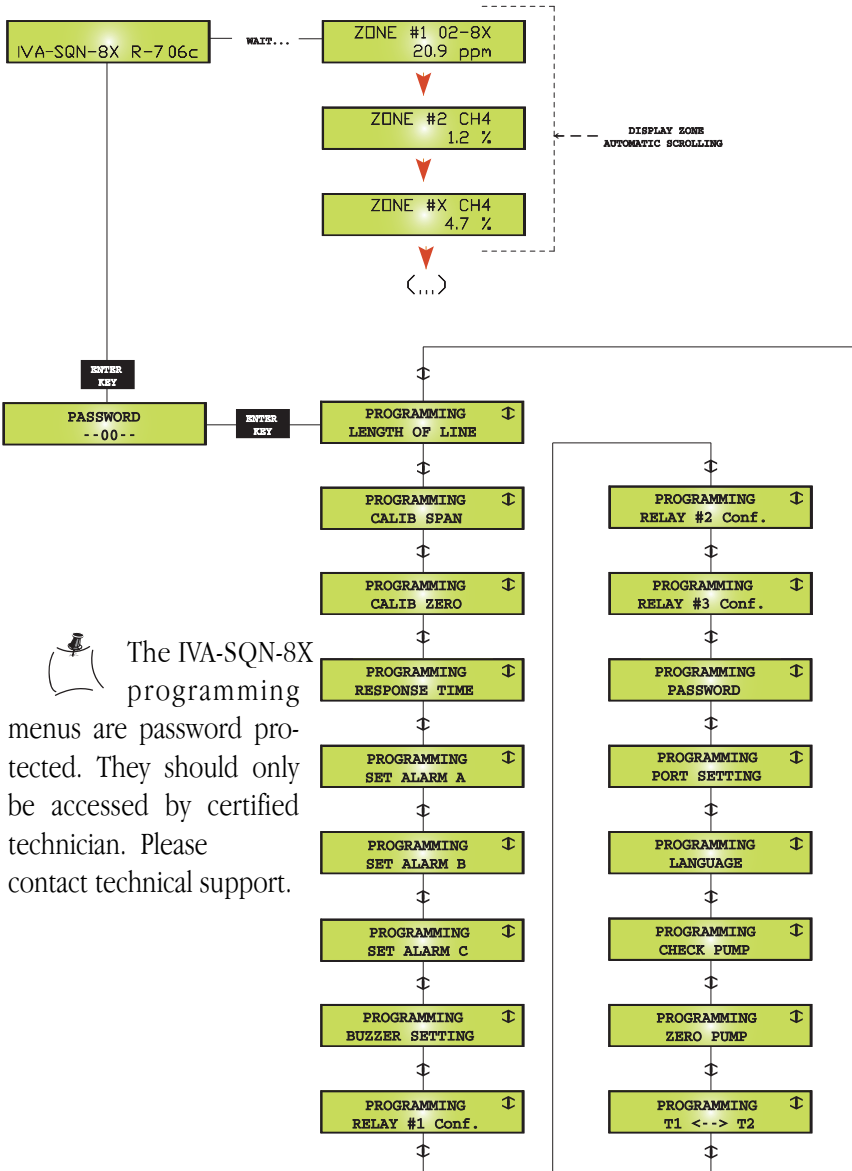


A different alarm level setting can be programmed to meet the constraints of a particular use.

Note that in a given zone is in alarm state, the system will display the status of that zone intermittently between the displays of the other zones monitored by the system. For example, if Zone 2 is in alarm status, the system will display the zones in the following order: *Zone 1*; **Zone 2**; *Zone 3*; **Zone 2** etc.

## 4.3 PROGRAMMING MENUS

Different programming menus allow users to configure IVA-SQN-8X according to their needs. In normal mode, the screen displays the system status by scrolling gas concentrations in the different zones. Access to programming is password protected. Here is an overview of the various menus:



The IVA-SQN-8X programming menus are password protected. They should only be accessed by certified technician. Please contact technical support.

## 4.3 PROGRAMMING MENUS (CONTINUED)

The menus allow you to configure the system to optimize monitoring of the space to safeguard. The following pages describe the different menus.

### Programming Menu Description

PROGRAMMING ↕  
LENGTH OF LINE

This menu allows the user to configure the length of sensor tubing. This field will allow the unit to calculate sensor delays. Therefore, the greater the distance between the IVA-SQN-8X and the sensor points, the more important it is to calculate sensor delays, which will allow a more representative reading of the gases in an area being monitored. See the table at the end of the setup menu description section.

PROGRAMMING ↕  
CALIB SPAN

CALIB SPAN allows the user to input a reference detection value. This value is the basis on which the unit will calculate gas concentrations in the environment.

PROGRAMMING ↕  
CALIB ZERO

CALIB ZERO allows the user to define the zero of the unit.

PROGRAMMING ↕  
RESPONSE TIME

Response time is a delay configured by the user. It holds up the zones scrolling to adapt the sensors with their detection time.

PROGRAMMING ↕  
SET ALARM A

PROGRAMMING ↕  
SET ALARM B

PROGRAMMING ↕  
SET ALARM C

This field lets you set different alarm levels for different gas concentrations (see detection range et alarm level table). In accordance with the relay configuration, different actions will be taken by the relays, according to the user's needs. In the case of an alarm, the affected sensor will be displayed on screen.

PROGRAMMING ↕  
BUZZER SETTING

PROGRAMMING ↕  
RELAY #1 Conf.

PROGRAMMING ↕  
RELAY #2 Conf.

PROGRAMMING ↕  
RELAY #3 Conf.

This feature links system status to setting on the relays and audible alarm. Here are the system status that could set on an action.

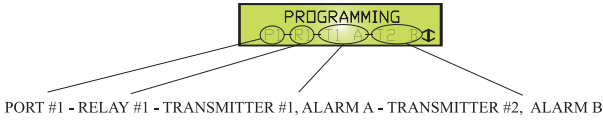
- 1- Alarm A (Gas concentration has reached alarm level A)
- 2- Alarm B (Gas concentration has reached alarm level B)
- 3- Alarm C (Gas concentration has reached alarm level C)
- 4- Fault (A system anomaly has been detected)
- 5- Alarm A^B (A or B: The relay will be set off if the gas concentration reaches alarm A or B)
- 6- Fault +P (The relay will be set off in the event of communication failure or pump failure)
- 7- --- (No system status will set off the relay)

PROGRAMMING ↕  
PASSWORD

Allows the user to modify the password to access setup menus.

PROGRAMMING ↕  
PORT SETTING

The different ports bring the air samples to the system and triggered the related actions. It is possible to set an action for each of the 8 ports. Here is an exemple:



PROGRAMMING ↕  
LANGUAGE

This field allows the user to change the programming language: English or French.

PROGRAMMING ↕  
CHECK PUMP

Verify pump operation.

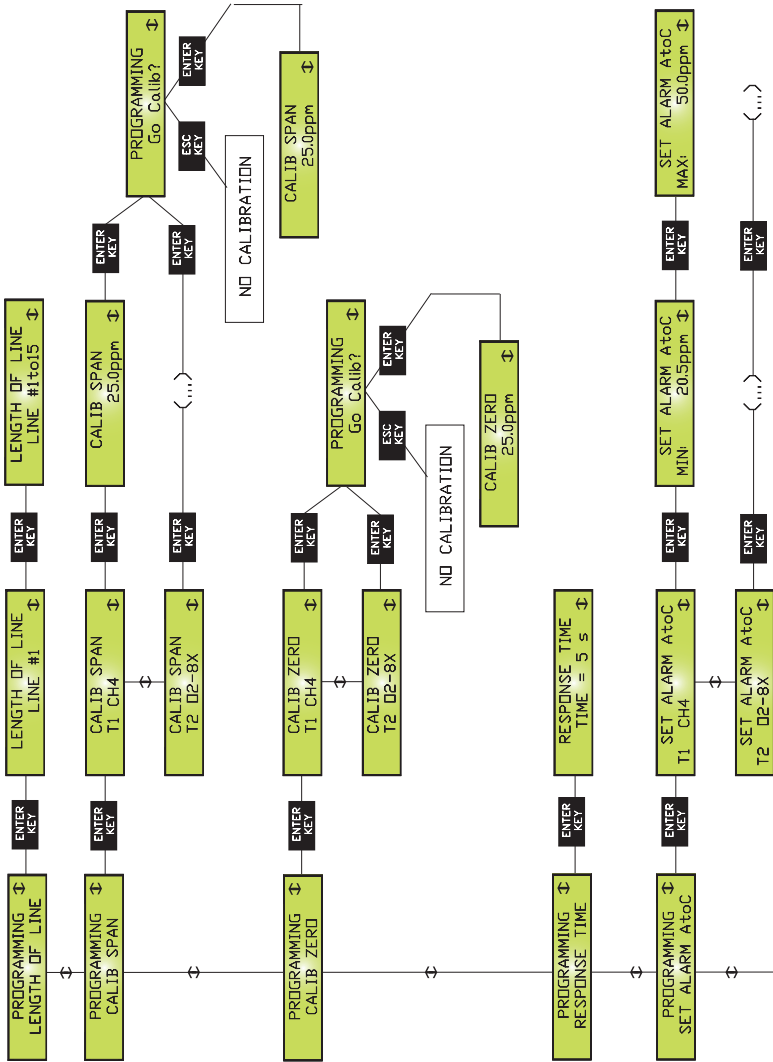
PROGRAMMING ↕  
ZERO PUMP

Calculate zero calibration for the pump.

PROGRAMMING ↕  
T1 <--> T2

Swap transmitters. T1 <--> T2

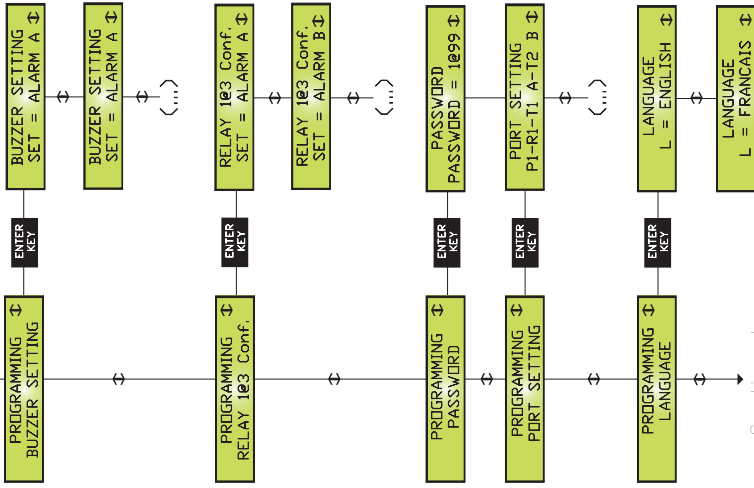
### 4.3.1 PROGRAMMATION MENUS DETAILS 1/3



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### 4.3.1 PROGRAMMATION MENUS DETAILS 2/3

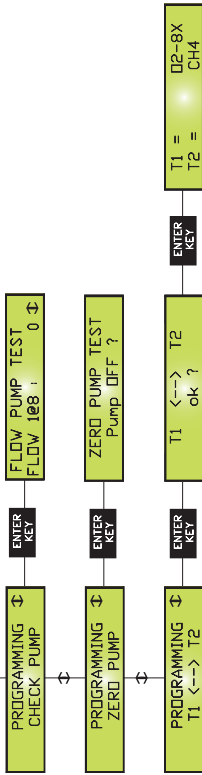
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### 4.3.1 PROGRAMMATION MENUS DETAILS 3/3

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## 4.5 SENSOR TUBING LENGTHS

<b>Tubing Lengths</b>						
Length (ft.)	Code	Dwell Time (sec)		Length (ft.)	Code	Dwell Time (sec)
No sampling	0	0		301-350	8	160
0-25	1	10		351-400	9	185
26-50	2	20		401-450	10	210
51-100	3	40		451-500	11	260
101-150	4	60		501-600	12	300
151-200	5	95		601-700	13	350
201-250	6	130		701-800	14	400
251-300	7	145		801-100	15	550

## 5. MAINTENANCE

The IVA-SQN-8X requires no maintenance. Transmitters, however, require regular inspection and calibration.

### 5.1 PERIODIC INSPECTIONS AND CALIBRATIONS

The factory supplies its customers with highly specialized gas detection equipment. Beyond the warranty period, these systems require maintenance and calibration on a regular basis (usually twice a year).

These inspections and calibrations can only be performed by qualified technicians either trained or certified by the factory. We are exempt from any responsibility or from lawsuit claiming responsibility resulting from functioning or malfunctioning of the systems for which it does not or no longer performs maintenance and calibration.

An updated list of authorized service centers is available from Technical Services.

When calibration cannot be accurately achieved, the cell must be replaced. Keep a log of all maintenance, calibration and alarms.

### 5.2 REPLACEMENT PARTS

Because of the continuing evolution of our products, we ask you to contact Technical Support for more information.

### 5.3 CLEANING

Clean the exterior of the unit with a soft, damp cloth. Do not use solvents, soaps or polishes.



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