Method

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APEX INSTRUMENTS, INC.

Method 6 Source Sampler – Model XC-60

Operator's Manual

METHOD 6 SOURCE SAMPLER –MODEL XC-60

Operator's Manual

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Introduction

The purpose of this manual is to provide a basic understanding of the Apex Instruments Model XC-60 Source Sampler Console. The Model XC-60 Source Sampler Console with the addition of various glassware and system configurations is applicable for the following test methods and pollutants listed in Tables 1-1.

Table 1-1. List of US EPA and OSW Test Methods Applicable to XC-60 Source Sampler Console

Method No.	Pollutants
4	Stack Gas Moisture (Approximation Method)
6	Sulfuric Acid Mist and Sulfur Dioxide
6A	Sulfur Dioxide, Moisture and Carbon Dioxide
6B	Sulfur Dioxide and Carbon Dioxide
11	Hydrogen Sulfide in Petroleum Refinery Fuel Gas Streams
15A	Total Reduced Sulfur from Petroleum Refinery Sulfur Plants
16A	Total Reduced Sulfur
18	Integrated Bag Sampling for Organic Compounds
18	Adsorption Tube Sampling for Organic Compounds
26	Hydrogen Chloride and Chlorine
106	Integrated Bag Sampling for Vinyl Chloride
308	Methanol
0030	Volatile Organic Compounds (VOST)
0031	Volatile Organic Compounds (SMVOC or SuperVOST)
0040	Principle Organic Hazardous Constituents (POHCs) Using Tedlar Bags
0051	Hydrogen Chlorine and Chlorine

Source Sampler Console Description

Source Sampler Console, which consists of dry gas meter, meter pressure gauge, internal diaphragm vacuum pump, vacuum pump controls, and electrical controls. The Source Sampler Console is the operator's control station that monitors gas sample volume and temperatures at the sampling location, and controls system sampling rate and system temperatures. Figure 1-2 illustrates the Apex Instruments Model XC-60 Source Sampler Console's front panel.

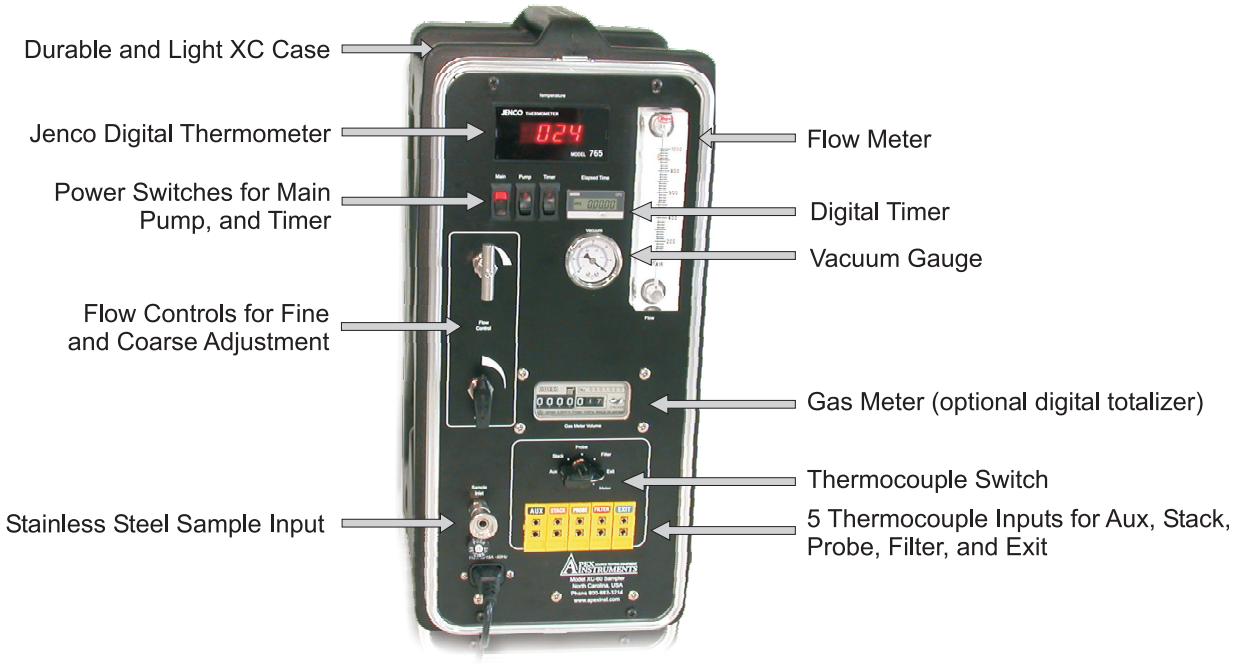

Figure 1-2. Model XC-60 Source Sampler Console Front Panel.

Table 1-3 presents the features and specifications of the XC-60 Apex Instruments Source Sampler Console. The XC-60 Source Sampler Console has:

- Fine flow control valve with orifice flow restrictor make it simple to adjust steady sampling flow rates.
- Dry gas meter with a direct-read index in cubic meters or liters. Readability of 0.2 Liters.
- Optional Automatic digital temperature controller with individual circuit breaker for probe heat.
- The temperature display and 6-channel thermocouple selector switch enable the operator to monitor temperatures throughout the sampling system.
- One Vacuum Gauge for the Sample reads the Flow Restrictor Orifice and Sampling system vacuum in the range 0-100 kPa (0-30 in. Hg).
- Rotometer flow indicator with the range of 0.2 –4 Liters/min.
- The digital Elapsed Timer monitors sampling time in Hours/Minutes/Seconds by the on/off toggle switch.

Table 1-3. Features and Specifications of Apex Instruments Model XC-60 Source Sampler Console

Features	XC-60 Source Sampler Console
Gas Meter	Positive displacement diaphragm meter, 45 Lpm maximum and 0.33 Lpm minimum flow rate, 0.7L/revolution
Meter Display	Direct Read Numeric Totalizer with 9999.9999 cubic meter capacity. 0.1 Liter Resolution. Optional Digital Encoder increases resolution to 0.001 Liters.
Temperature Display	3½ digit red LCD display, -200°C to 1250°C range, 1°C resolution, with external 6-channel selector switch
Sample Pump	Internal miniature diaphragm pump A) Gast 15D1 – 6.0 Lpm capacity B) Gast 15D1 – 6.0 Lpm capacity C) KNF UN815 – 10 Lpm capacity D) Thomas 2107 – 30 Lpm capacity
Flow Meter	A) Dwyer 100 – 1000 ccm B) Dwyer 0.2 – 4 lpm C) Dwyer 1 – 10 lpm D) Dwyer 1 – 20 lpm
Umbilical Connections	Electrical: Standard 3-prong connectors Sample Line: Colder Products quick connect
Dimensions	10in x 22in x 14.5in (WxHxD)
Power	110V/60Hz standard, 220V/50Hz optional
Weight	21.6lbs (9.8kg)

The XC-60 Source Sampling Console is comprised of plumbing, electrical and thermocouple subsystems that work together to give appropriate control and feedback to the operator.

PLUMBING SUBSYSTEM

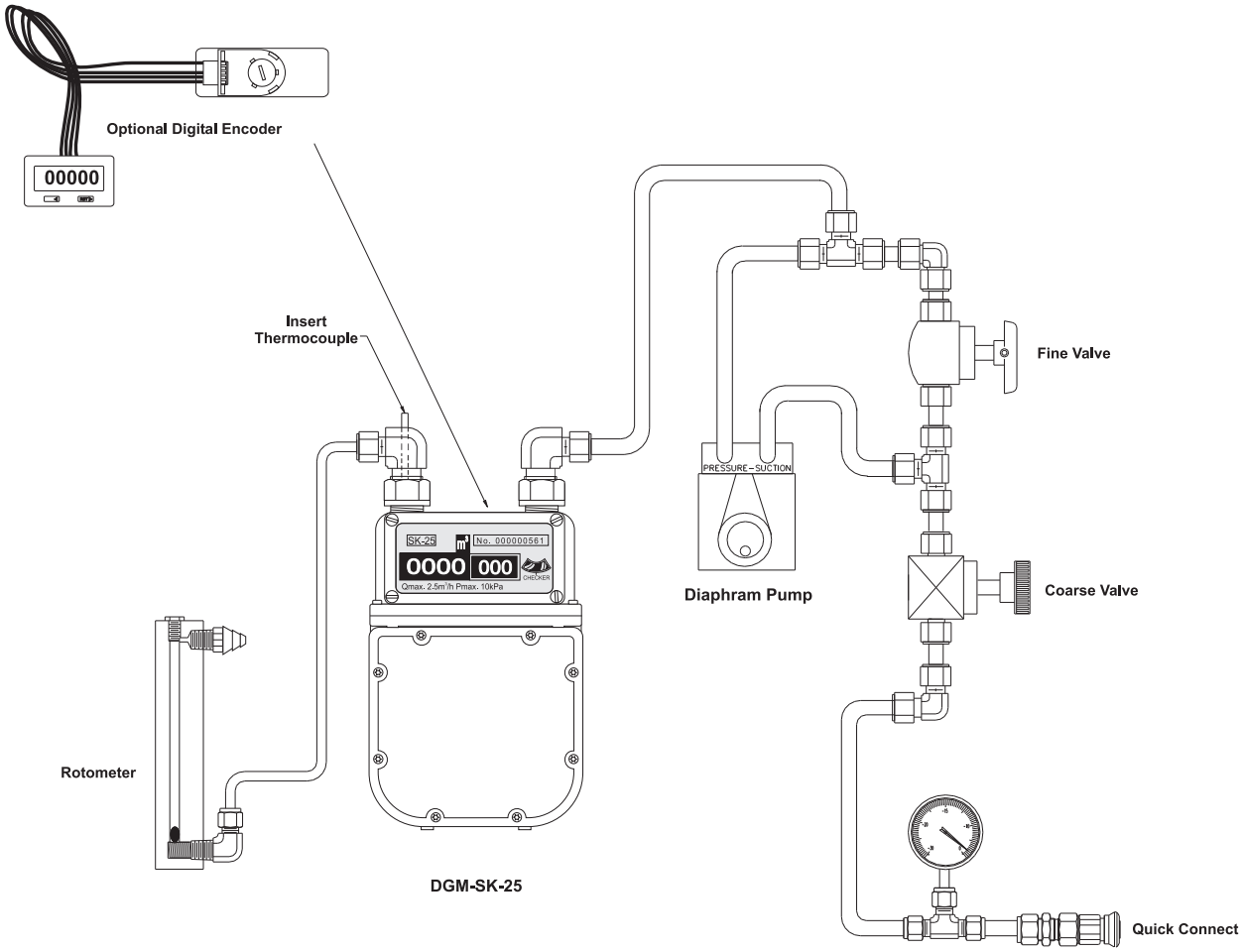

Figure 1-3. Plumbing Flow Diagram of XC-60 Source Sampler Console.

ELECTRICAL SUBSYSTEM

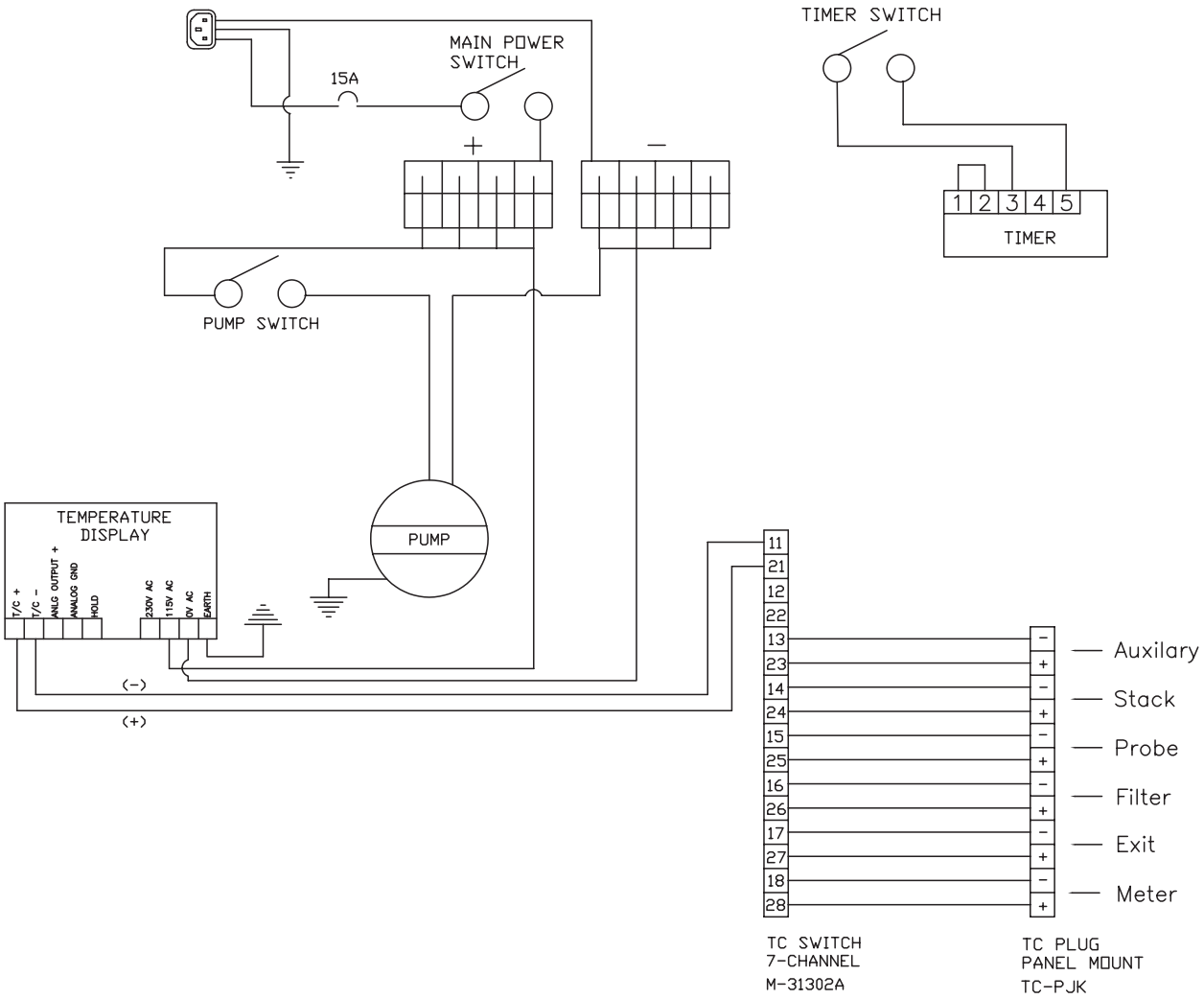

Figure 1-3. Electrical Diagram of XC-60 Source Sampler Console.

- The Source Sampler Console is factory-configured for 115 VAC / 60 Hz electrical power. Configuration for 220 VAC / 50 Hz operation is an available option.

- The electrical subsystem provides switch power to each circuit, controlled by three switches: MAIN, PUMP, and TIMER.

- All circuits are protected by a 15 amp (10 amp 220V) circuit breaker. These circuit breakers detect and interrupt overload and short circuit conditions, providing an important safety factor. If the circuit breaker opens, or "trips," indicating interruption of the circuit, investigate and repair the electrical fault, and then reset the breaker by pressing the circuit breaker switch. The Electrical Schematic for the Source Sampler Console is presented in Appendix B.

THERMOCOUPLE SUBSYSTEM

- The Source Sampler Console has a 7-channel thermocouple switch with 6 inputs populated by default. The standard external inputs are Auxiliary, Stack, Probe, Filter, and Exit. There is also an internal input installed directly into the Dry Gas Meter. To display the temperature of a specific input, turn the Thermocouple Switch to that input.