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SFC 332 Training

Section 1: Course Description

Our training session is a one day, hands-on workshop that provides the student an opportunity to explore all the features of our flow computers in a safe and guided environment. Our objective is to help our customers become familiar with our products and maximize the investment they make in Dynamic Flow Computers.

1.1 Course Objectives

- Identify Hardware Components
- Build sample meter configuration
- Understand calibration procedures
- Retrieve historical information

1.2 Course Overview

- Introduction: Basic SFC 332 overview
- Technical Data: Flow computer physical & electrical characteristics
- Communications: SFC 332 wiring and communication setup
- Configuration Software:
  - Overview of Screens
  - Diagnostics Section
  - Snapshot Section
  - Configuration Section
  - Calibration
  - Reporting
  - Additional features
- Firmware Download (optional)
- Questions & Answers

1.3 Prerequisites

- Students must have basic knowledge of fluid measurement. This class is focused on the flow computer operation and not on fluid measurement.
- Participants must bring their own laptop computers and any special equipment they would like to covered in the class, such as calibration equipment. Demo SFC 332 units, power supplies, software and handouts will be provided by Dynamic Flow Computers.

Section 2: SFC 332 Overview

2.1 Introduction

The SFC 332 flow computer handles up to 2 meter runs and has optional proving functions. It is used in Liquid and Gas applications. Liquid applications are calculated based on API liquid tables while gas applications use flow equations such as New API 14.3, ISO 5167, turbine (AGA7) and V-Cone.

One Rosemount 205 MultiVariable sensor can be connected to each SFC 332 flow computer to provide temperature, pressure (up to 3626 PSI) and DP (up to 1000" H^2O).

SFC 332 Technical Details:

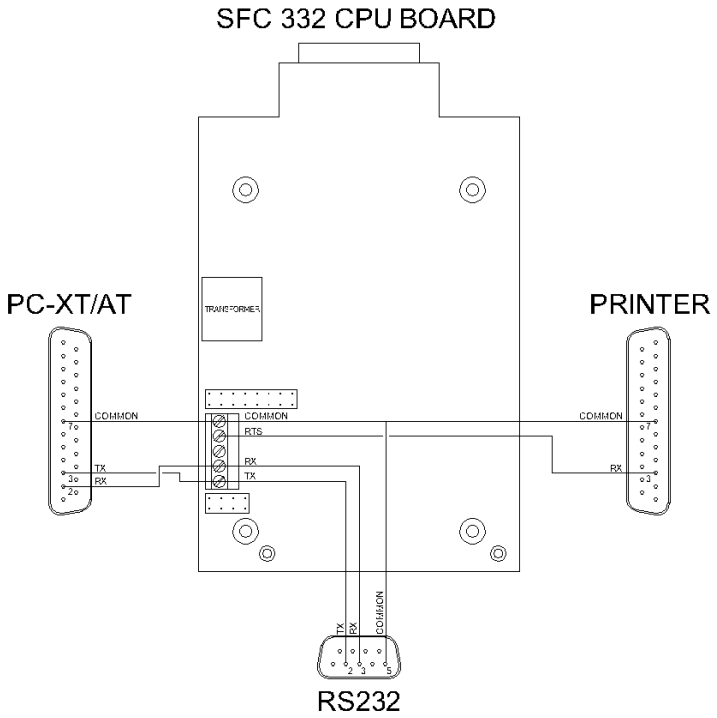
POWER	
Voltage	12 to 30 VDC
Power Consumption	4 Watts
OPERATING CONDITIONS	
Temperature	-40 to 185 °F
Humidity	100%
Housing	NEMA 4X Class 1, Division 1
FEATURES	
Display	Plasma Display 2 Lines, 16 Characters per line
Processor	32 bit Motorola 68332 @ 16.7 MHz
Flash Rom	4 MB @ 70 Nanoseconds
RAM	2 MB
Frequency Input	Three Channels, Expandable to Four 0-5000 Hz Turbine Diagnostic Function <70 mV for Sine Wave > 6 Volts for Square Wave
Analog Input	Four 24 bit Inputs, Expandable to 8
RTD Input	Two Channels, 4 Wires
Analog Output	Two Channels, 12 bit Single Ended
Digital Output	Outputs 1 & 2 are Pulse/Switch with 0.5 Amp Rating Outputs 3, 4 & 5 are Switch Only with 0.25 Amp Rating
Status Inputs	Four with On/Off Type Signal
All inputs and outputs are optically isolated	
Serial	One RS232 @ 19200 Bauds Variable One RS485 @ 38400 Bauds Variable
Communication Protocol	Modbus
Rosemount 205 Module	Temperature: -200 thru 1200 °F Static Pressure: 0 thru 800 PSI OR 0 thru 3626 PSI Differential Pressure: 0 thru 250" OR 0 thru 1000"

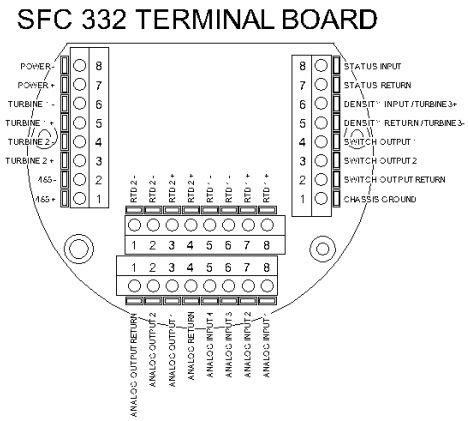
Section 3: SFC 332 Communications

3.1 Communication

The SFC 332 flow computer has two serial ports. The main port (RS-232) is located on the CPU board and the second port (RS-485) is located on the Terminal board.

Follow the wiring drawing below to connect the serial cable. If the unit has the second optional port, no wiring is required other than plugging a serial cable into the DB9 port located in the side elbow.





Once the cable is in place, use the Dynacom® software to detect the flow computer. In the Dynacom **Tools** menu, select **Comm Settings** and click on the **Auto Detect** button.

Section 4: Configuration Software

4.1 Dynacom® Configuration Software

In order to calculate flow, it is necessary to enter site parameters such as size of the orifice plate and characteristics at base conditions of the gas or liquid being measured.

The flow computer requires at least Pipe ID, Orifice ID and Gas composition information to calculate gas flow. For Liquid application, it will also be necessary to enter product information. To get a detailed description of the data entries, please refer to the Operator's Manual.

Default Calibration	**Offset Calibration**	**Full Scale Calibration**
Returns calibration to default factory settings.	Performs a single point adjustment to the variable reading.	Uses a two point calibration sequence for an accurate range calibration.
1. Select multivariable DP, temperature or pressure.	1. Induce live value for temperature, pressure or DP.	1. Induce live value for temperature, pressure or DP.
2. Select Reset calibration method.	2. Select multivariable DP, temperature or pressure.	2. Select multivariable DP, temperature or pressure.
3. Verify the live reading against the flow computer reading.	3. Select offset calibration method, enter offset value and click the 'OK' button.	3. Select full calibration method.
	4. Read induced live values to verify the calibration.	4. Induce the low range signal, enter the first point and then click the 'OK' button.
		5. Induce the high range signal, enter the second point and then click the 'OK' button.
		6. Verify the live reading against the flow computer reading.

Data Collection:

- Previous Hourly Data
- Previous Daily Data
- Last Month Data
- Last Month Daily Data
- Alarm Report
- Audit Report
- Batch Report

Additional Features:

- I/O Configuration
- Display Assignments
- Modbus Shift
- PID Control
- Program Variable
- Boolean Statements