

Application News

Turbine Flow Meter Solution Accurately Measures Bi-Directional Flow

Industry: Industrial

Service: Flow Rate/Total

Fluid: Dielectric Fluid

Overview

In a wide range of industrial and test & measurement environments, end users need an accurate solution for measuring bi-directional flow. They may also require a flow measurement system with the ability to compensate for viscosity changes due to variations in ambient fluid operating temperature, which can affect the accuracy of flow rate data.

Situation

Process operations incorporating bi-directional flow presents difficult challenges for flow metering equipment. For example, utility pumping and circulating plants pump dielectric fluid into underground electrical cables in order to dissipate heat generated by high-voltage power lines. This application involves monitoring upstream and downstream flow rates. It also requires a precise method of viscosity compensation as the dielectric temperature changes.

Solution

To help customers meet the demands of bi-directional flow processes, Flow Technology offers its FT Series turbine flowmeter paired with the LinearLink™ Temperature Compensated Interface (TCI). Utilizing a modified turbine flow meter, the system not only measures flow in each direction but also compensates for viscosity changes caused by fluid temperature fluctuations in a host of hydraulic, pneumatic and pumping applications. The FT Series meter is an ideal choice when high accuracy, compact size and fast response are critical. The LinearLink TCI is a sophisticated electronics platform for flow meter linearization, viscosity correction and density compensation.

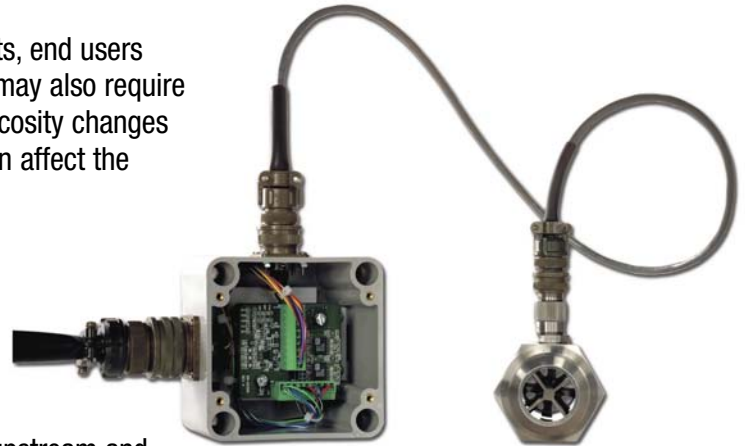
System Description

The FT Series turbine flow meter with a bi-directional Universal Viscosity Curve (UVC) calibration employs dual RF/RTD pickoffs for determining flow direction and sensing temperature. The LinearLink TCI's innovative, temperature-compensated linearization technique reduces viscosity effects on K-factors by calculating fluid viscosity through real-time temperature measurements and proper calibration methods.

As an alternative, the FT Series meter can be used with Flow Technology's SL9100 Series Flow Computer. This powerful unit can be configured to display volumetric or mass units of measure with UVC and Strouhal-Roshko temperature compensation for variations in viscosity and density due to temperature. The SL9100 can output a 4-20 mA flow measurement signal to the user's data acquisition system and display digital read-outs via a panel-mount display.

Technical Information

Flow Meter:	FT-10C2CB-LEAT5
Electronics:	LNT-3-C0-F1-9 and LNT-3-C0-F1-9-035
Flow Rate:	0.15-15 GPM
Fluid:	Dielectric Fluid



8930 S. Beck Ave., Suite 107 • Tempe, AZ, 85284 USA
Tel: 480.240.3400 • Fax: 480.240.3401 • Toll-free: 800.528.4225
E-mail: ftimarket@ftimeters.com • Web: www.ftimeters.com
©2009 Flow Technology, Inc. DB-69924 Rev A