



FT-1 On-Line Moisture Sensor

Reg. U.S. Pat. Off. No. 6,192,750 B1

General Installation Instructions

Introduction

The FT-1 Sensor is a precision electronic instrument capable of accurately determining moisture content and temperature continuously, on-line of flowing particulates. Its **correct installation is critically important** to insure accurate data generation and maximize sensor life expectancy.

There are two separate physical components to the sensor:

1. A "one-size-fits-all" sensor mounting box for tubes up to 12" in diameter.
2. The FT-1 On-Line Moisture Sensor assembly

Mounting Box Installation

Important elements of the sensor mounting box installation are illustrated in **Figure 1**:

1. The sensor mounting box and sensor **must be mounted in a vertical position.**
2. As shown in the schematic, this installation forms a "pillow" in the "dead end" of the downspout. This "pillow" accomplishes two things:
 - A. particulate velocity and sensor wear are reduced
 - B. debris orientation in the flow is randomized making the scalper more effective in protecting the sensor from plugging.
3. The sensor mounting box itself is flange mounted to allow for adjusting the sensor position in the particulate flow as necessary.

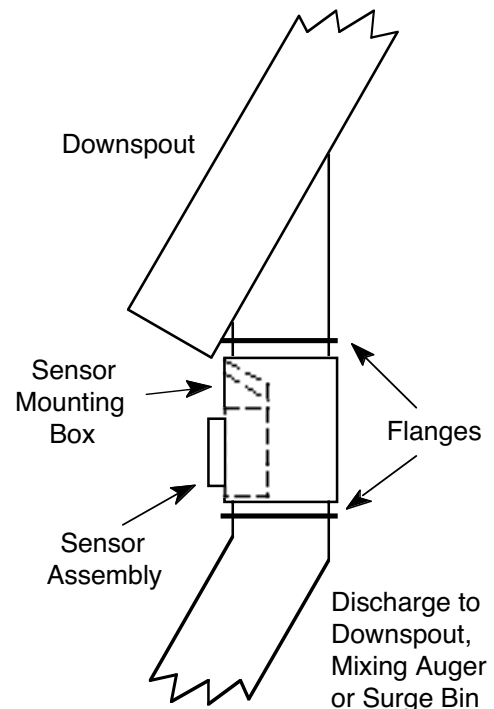


Figure 1: "Ideal" Sensor Installation

Openings in the mounting box for inlet and outlet piping are cut in the field at the time of installation. **Figure 2** illustrates the positioning of these openings to assure proper flow through the sensor. Illustrated are openings for either a six or nine inch diameter pipe, positioned directly over the sensor assembly, centered side to side within one-half inch of the front edge of the front of the mounting box.

When the sensor mounting box is shipped a steel plate is bolted to the box covering the sensor assembly opening. This side is considered to be on the front of the sensor mounting box. The larger hinged plate on the opposite side allows access for monitoring the sensor and scalper for plugging, wear, etc.

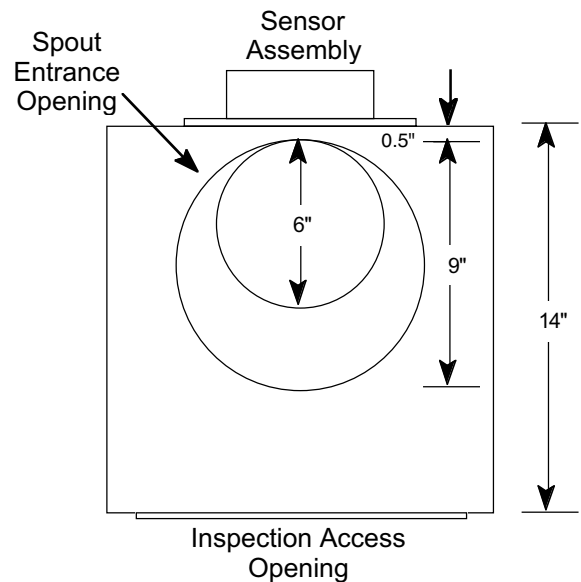


Figure 2: Attachment of Inlet & Outlet to Sensor Mounting Box

After the correctly sized holes are cut, piping with flanged connections may be welded directly to the sensor mounting box. Once this welding is completed the mounting box is ready to be bolted into place.

The FT-1 Sensor assembly now may be installed.

Installation of the FT-1 Sensor Assembly

Physical Installation

Remove the bolted steel plate from the sensor mounting box. Save the nuts. Insert the sensor assembly into the exposed opening. Replace the nuts on the sensor mounting bolts and tighten until snug.

Wiring

The FT-1 Sensor will be connected to its controller with five color coded, shielded signal cables. These cables should be enclosed in rigid conduit between the controller and the junction box attached to the sensor assembly.

Carefully connect the signal cables between the controller and sensor by matching the color coded terminals in each device.