

# Turbo Monitor

## Turbo Monitor for Auto-Adjust® Turbo-Meter

*Monitor flow conditions while computing the Auto-Adjust® Turbo-Meter algorithms to provide basic meter performance information*



Mercury Instruments  
Turbo Monitor

The Turbo Monitor from Mercury Instruments is now available to connect directly to an Invensys Auto-Adjust® Turbo-Meter. The Turbo Monitor provides similar features as the Invensys SER (Standard Electronic Readout), which means its capable of performing all of the AAT algorithms to compute the Self-Checking and Self-Adjusting equations. Outputs for Adjusted Volume pulses and Adjusted Volume Flow Rate or Delta-A are available for remote monitoring. Normal and Abnormal alarms are also provided as outputs and for viewing on the integral alphanumeric display. The Turbo Monitor is listed for Class 1 Div-1 and Div-2 operation, so it may be mounted directly to the meter's instrument drive to record mechanical uncorrected volume.

Since MasterLink is the primary interface software, technicians may already be familiar with how to access instrument data. MasterLink also provides live graphing of main rotor frequency, sense rotor frequency, Delta-A and Adjusted volume flow rate, all on one graph.

### **Additional Turbo Monitor features:**

- **Normal & Abnormal Alarms** with separate Form-A output channels and user-defined alarm limits
- **Pulsating Gas Alarm**
- **Adjusted Volume pulses** (Form-A output)
- **4-to-20 mA output signal** for either Delta-A or Adjusted Volume Flow Rate
- **Simultaneous Live Graphing** of Main Rotor frequency, Sense Rotor frequency, Delta-A, and Adjusted Volume Flow Rate using MasterLink32 software
- **4-Year Warranty**
- **CSA approved for Class 1, Div-1 & Div-2**

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is a registered trademark of  
Invensys Metering Systems



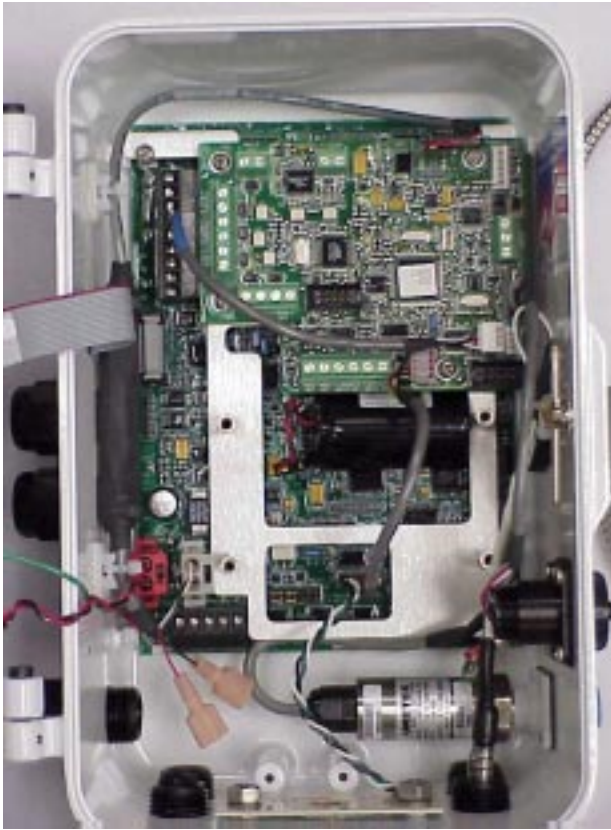
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**Precision instruments for the natural gas industry**



*Turbo Monitor  
(inside view)*

### General Description:

The primary component of a Turbo Monitor is the Turbine Interface Board (TIB). Its purpose is to provide an excitation voltage to the sensors for an Invensys Auto-Adjust® Turbo-Meter, input the pulses from the AAT sensors, compute the Invensys AAT algorithms, and output volume pulses and a 4-to-20 mA signal.

The Turbo Monitor provides several RS-232 serial data ports for local or remote communications. Through a serial connection, MasterLink software can simultaneously graph Main Rotor Frequency, Sense Rotor Frequency, Delta-A, and Adjusted Volume Flow Rate. This live graphing feature allows for a quick and easy method of meter proving.

The Turbo Monitor also provides output for Form-A Adjusted Volume Pulses to an RTU (or pulse accumulator), 4-to-20 mA signal, representing either Adjusted Volume Flow Rate or Delta-A, and independent alarm channels for Normal and Abnormal alarms.

## Turbo Monitor Information

### Power Supplies

- 120 VAC PS w/ Alk battery (Div-2)
- 120 VAC PS & I.S. Barriers w/ Alk battery (Div-1)
- Solar Panel and Rechargeable Battery (for Div-1 or Div-2)

### New Parameters

(configured into separate item codes)

- AAT Serial Number
- Mech. Output Factor (Kmo)
- Main Rotor Factor (Km)
- Sense Rotor Factor (Ks)
- Avg. Relative Adjustment (ABar)

### Computed Parameters

(available at separate item codes)

- Adjusted Volume
- High Resolution Adjusted Volume
- Unadjusted Volume
- Adjusted Volume Flow Rate
- Unadjusted Volume Flow Rate
- Instantaneous Delta-A
- Average Delta-A
- Main Rotor Frequency
- Sense Rotor Frequency

### Alarms

- Normal Alarm
- Abnormal Alarm
- Pulsing Gas Alarm
- Internal Fault

### Outputs

- Normal Alarm (Form-A alarm pulse)
- Abnormal Alarm (Form-A alarm pulse)
- Adjusted Volume (Form-A volume pulse)
- AdjVol Flow Rate or Delta-A (4-to-20 mA analog)
- Main Rotor Frequency (buffered)
- Sense Rotor Frequency (buffered)

### LCD / Pushbutton Scroll List Items

(Default Display = Adjusted Volume)

- Alarms (if present)
- Display Test
- Adjusted Volume
- Unadjusted Volume
- Battery Voltage
- Delta-A

