



# TRYON TRADING, INC.

Mail : P.O. Box 40, Tryon, NC, 28782, USA  
Office : 136 Dug Hill Road, Landrum, SC, 29356, USA  
WEB : [www.tryontrading.com](http://www.tryontrading.com) TEL : 864 - 457 - 2545  
EMAIL : [tryonusa@alltel.net](mailto:tryonusa@alltel.net)  
FAX (from USA) 877-398-8134 FAX (from overseas) 847-787-5149

# APPLICATION GUIDE

## VENTURE MEASUREMENT

### TARGET METER STEAM APPLICATIONS

## THE BEST STEAM METER IN THE WORLD

Hotels are a prime market for steam meters. They make good sales as a typical hotel installation ranges from five (5) to twelve (12) meters. Another good application that requires multiple units is a large manufacturer with several divisions at a single location. They usually only have one steam plant and want to allocate costs among the divisions.

Tryon Trading will be glad to select and quote meters any application. Just send us our ADS (Application Data Sheet) and we will respond. If you prefer to select the meter locally, the following information may be of assistance.

Before equipment selection can be made, it must be determined what kind of steam application the customer has. There are FOUR possibilities. Each depends on the quality of the steam - which in turn involves the control the customer has over the pressure and temperature to maintain the steam in whatever state it is in. The following FOUR alternatives will enable you to first determine the TYPE of application that is involved, and then use the Venture Measurement product specifications (and formulas) to finalize the product and instrument selection.

#### **TYPE 1: SATURATED - Constant Pressure and Temperature.**

The steam is not only saturated, but the customer has complete control over the pressure and temperature and they are BOTH being held CONSTANT. This is the least expensive measuring system. All that is needed is a standard TARGET meter and a meter mounted readout. We suggest the Model 1100-L or if a remote panel mounted readout is wanted use the 1050 Transmitter and a remote panel mounted unit like the Model 1030AP.

On smaller lines, a simple turbine meter is also an excellent choice, and less expensive.

#### **TYPE 2: SATURATED - with varying Pressure and Temperature.**

Here we can take advantage of the Model 1530AP which has built-in steam tables. We can use either a pressure or a temperature sensor (only one is needed)- as the Model 1530AP will take the input and look the other value up in the steam tables.

We normally select the Temperature Sensor as it runs about 1/3d the cost of pressure sensor. The pressure sensor response time is better, so you may select that if response time is a critical factor. (It usually is not)

Here we use a TARGET meter with a temperature sensor mounted right in it,

(In-Line or Probe style). The Probe leads are taken right up into the Junction Box of the Model 1050. Tryon Trading has sample drawings - request if needed. Both the meter Bridge outputs and the temperature sensor outputs are board terminated. From the board, these lines are connected to the Model 1530AP.

Either PROBE (Temperature or pressure) may be meter mounted.  
If A pressure probe is used, its output does NOT go through the Model 1050 terminal board - but direct to the Model 1530AP

**TYPE 3: SUPERHEATED steam** - and it remains superheated.

Here we need BOTH P & T sensors - as the model 1530AP will need both to calculate mass flow. You need a meter/model 1050 transmitter and Both P & T sensors. The Temperature sensor is mounted and terminates as described in TYPE 2 above. The Pressure sensor is also meter mounted, BUT its signal cable is carried to the Model 1530AP in a separate conduit/line (not through the board terminal in the Model 1050).

**TYPE 4: SATURATED or SUPERHEATED.**

Here the customer does not have complete control over the P & T. You probably will not see this type, but we cover it to show the application can be handled by the TARGET meter - with some assist by the customer.

Both P & T sensors will be needed as described in TYPE 3.

The operating people in the readout room are going to have to do some monitoring and make entries into the Model 1530AP to obtain proper readouts. You will need to review the programming chart to follow the points below:

- \* If the steam is saturated - then the operator will need to go into the Programming mode and set (B) to saturated mode and set ONE of the Sensors "ON" (i.e. Temperature (C) ON and pressure (E) OFF. Then the Computer will use the steam tables to calculate mass flow.
- \* If the steam is superheated - then the operator will need to go into the Programming mode and set (A) - select superheated and go into "D" or "F" and be sure both sensors are ON.
- \* Comment: in the superheated mode, should the steam deteriorate to the point where the temperature actually gets BELOW the temperature for saturation (POOR STEAM - now with water/liquid in it - The model 1530AP will display the words "OFF TABLES". This will alert the operator they MUST make adjustments to the system to get things back in measuring range.
- \* The reason the re-programing of the Model 1530AP is needed is that in the superheated mode, if the temperature falls below that of saturated steam, the sensors come in conflict with the table values, and the computer does not know what values to user for the calculation.
- \* We have actually supplied metering for such an application where the System was old and maintaining P & T were difficult, yet the customer wanted to provide reasonable expense allocation among several plants within their complex.

For those experienced in selecting TARGET meter products based on application data, the above may be a useful guide in finalizing the selection of equipment.

Tryon Trading will be glad to select and price the proper products for your customer's application. Just send our ADS (Application Data Sheet) and we will review and quote.

The above APPLICATION GUIDE gives information on how we review and apply the ADS information in the product selection.