

2604 MODEL



Ratio control supplement

Ideal for:

- **Gas fired furnaces**
- **Water treatment**
- **Waste incinerators**
- **Chemical production**
- **Mixing vessels**

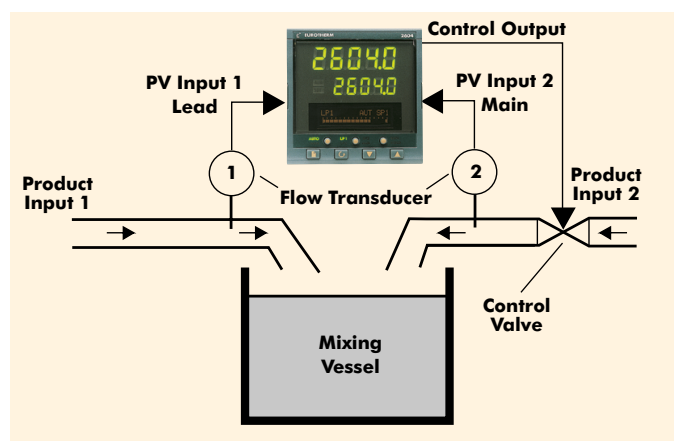
What is ratio control

Ratio control is a technique used to control a process variable at a setpoint which is calculated as a proportion of a uncontrolled (lead) input. Ratio control is one of the advanced control functions provided by the 2604 controller. The ratio setpoint determines the proportion of the lead value to be used as the actual control setpoint. The ratio setpoint can be applied as either a greater or a fraction to the (lead) input.

A typical application is in a mixing vessel (see diagram below) where in order to achieve the correct mix of product, inputs 1 and 2 need to be maintained at a constant ratio.

Features:

- **Maintains relationship between two variables**
- **Ratio setpoint tracking**
- **Ratio setpoint trim**
- **Calculates measured ratio**



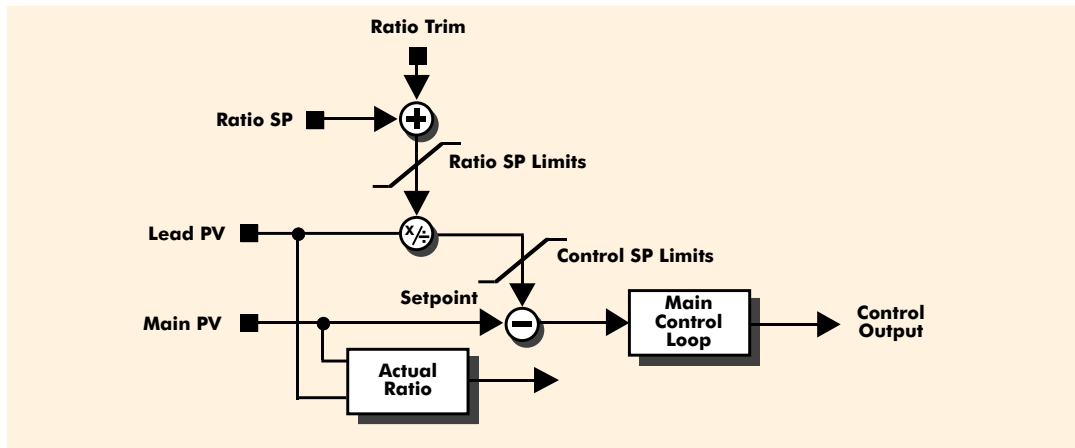
Simple Ratio Control

Ratio control

Ratio control is available as a standard option on the 2604 and can be implemented in all three control loops simultaneously. The block diagram below shows a typical set up of a simple ratio controller. The lead PV is multiplied or divided by the ratio setpoint to calculate the desired control setpoint. Prior to the setpoint calculation, the ratio setpoints which must obey the overall setpoint operating limits, can be offset by the ratio trim value. Another useful feature is the automatic calculation of the actual measured ratio which is then available to be displayed on the controller front panel.

Setpoint tracking

When the control loop is placed in manual or ratio has been deselected, setpoint tracking is used to recalculate the setpoint from the actual achieved ratio, thereby ensuring bumpless transfer between modes. If the input from the lead process value becomes invalid (open circuit probe etc), then the working setpoint of the loop will remain at its current value.



Ratio control block diagram

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