



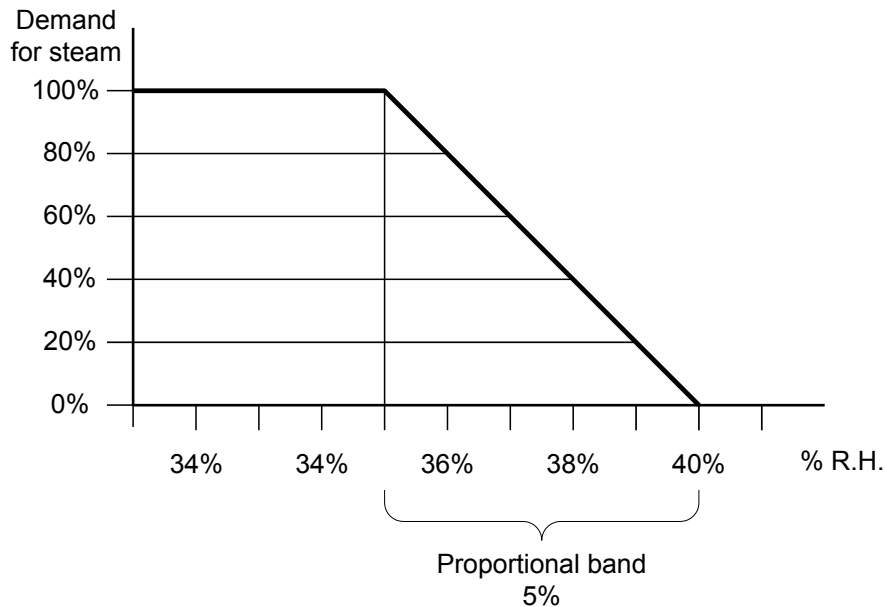
## Humidity Control 101

### Proportional band – VAV system – Low Signal Selector

How does the Low Signal Selector (LSS) work? Following is an explanation of the operation behind the LSS, found in our HRO20 (wall mount humidity controller) and in most of our SK models.

#### Proportional band:

The proportional band can be compared to the acceleration of a car to reach a destination without overshooting it. The example below shows a humidity control with a proportional band of 5% and a set point of 40% R.H.



In this situation, the steam output of the humidifier will be at 100% output until the humidity level reaches the proportional band (35% R.H.). Once the %RH is within the proportional band, the steam output will modulate down (from 99% to 0% steam output) until humidity level attains the set point.

**VAV system:**

The calculated humidification load is done with the total CFM or maximum CFM. When an application has a ventilation system with a variable air volume (not a constant volume), the usage of a proportional high limit duct humidistat is recommended. The reason is that the humidity controller that is monitoring the humidity level in the space may require a full output from the humidifier, but the amount of air in the supply duct is less than the maximum airflow required to absorb the steam produced by the humidifier. To avoid saturation of the air an SHC80 duct humidity sensor should be installed in the supply duct to monitor the humidity downstream of the steam dispersion system. It is wired to a HRO20 or to an SK humidifier in combination with another humidity sensor (a room humidity sensor or a second duct sensor, in the return duct, to monitor the humidity in the space).

**Low Signal Selector (LSS):**

The purpose of the LSS function is to provide the lowest demand for steam to the humidifier between two humidity sensors. In a VAV application, it will be between the humidity sensor in the supply duct and the one used to control the humidity in the space.

Each humidity sensor has its own set point value and proportional band. The humidity controller will analyze the demands for steam from each sensor and transmit the lowest demand to the humidifier by the LSS.