

# Bollinger Bands

One of the most useful technical concepts developed in recent years is trading bands. Trading bands are lines drawn at a fixed interval around a moving average. They are widely used to determine overbought/oversold levels. Sharp moves tend to occur after the bands tighten to the average line. A move outside the bands calls for a continuation of the current trend, not an end to it. Bottoms or tops made outside the bands followed by bottoms or tops made inside the bands call for reversals in the trend. A move originating at one band tends to go all the way to the other band. This observation is useful for projecting price movements early on.

Bollinger Bands are bands that vary in distance from the moving average as a function of the market's volatility. A moving standard deviation is calculated and placed above and below a moving average. A 20 period simple moving average is recommended.



## Properties

**Plot % Band** - Place a check mark in the 'Plot % Band' check box to enable a %B Indicator. In this case, the 'Spread' study line will change to '% Band'. If you enable this Study Line then an indicator will be plotted that represents where the close price is in relation to the Upper and Lower Bands. For example, if the close is exactly in the middle of the Upper and Lower band range, then the %B Indicator will be 50.

**Spread/Ave** - Place a check mark in the 'Spread/Ave' box to normalize the spread value. The spread is divided by the median average line.

**Multiplier** - Used to adjust the distance of the Standard Deviation from the middle line. An entry of 2 is recommended. The 1<sup>st</sup> multiplier is for the 1<sup>st</sup> set of Bollinger Bands. The 2<sup>nd</sup> multiplier is for a 2<sup>nd</sup> set of bands which are shown when the 2<sup>nd</sup> Band check box is checked.

**Average** - Number of N periods used for the simple moving average (middle line). An entry of 20 is recommended.

## **Formula**

Simple Moving Average = Sum of last N data points / N. This will be the middle line.

Deviation = (Price of data point - Average) <sup>2</sup> calculated for the last N bars.

Mean Deviation = Sum of Deviations / N calculated for the last N bars.

Standard Deviation = Square Root of (Mean Deviation)

Bollinger Bands Lines = Simple moving average line plus and minus the Standard Deviation x Multiplier

## **Credits**

Bollinger Bands are credited to John Bollinger, President, Bollinger Capital Management, Inc. For more information regarding Bollinger Bands or John Bollinger's Capital Growth Letter, contact: John Bollinger's Capital Growth Letter, P.O. Box 3358, Manhattan Beach, CA 90266, (310) 798-8855.