Keltner channels:

Keltner Channels are a technical analysis indicator used in financial markets to identify potential price reversals, determine market volatility, and assist in setting trading strategies. They consist of three lines plotted on a price chart: the middle line, the upper channel line, and the lower channel line.

The Keltner Channels are based on the Average True Range (ATR) indicator, which measures volatility. The ATR calculates the average price range over a specified period, providing an indication of market volatility.

Here's an explanation of the parameters used in Keltner Channels:

1. Lookback Time Period: This parameter determines the number of periods used to calculate the moving average and the ATR. It represents the historical period over which the indicator's calculations are based. Traders typically use different values for the lookback period depending on their trading style and the timeframe they are analyzing.
2. Smoothing Period: The smoothing period is the number of periods used to calculate the moving average of the typical price. The typical price is usually calculated as the average of the high, low, and closing prices for each period. The moving average is then calculated based on this typical price. The smoothing period helps to smooth out the price data and reduce noise, providing a clearer indication of the trend.
3. Open/High/Close: Keltner Channels are typically based on the closing price, but some variations use the high or low prices instead. The choice of which price to use can vary depending on the trader's preference or the specific strategy being employed. However, the closing price is the most commonly used.

The calculation of Keltner Channels involves the following steps:

1. Calculate the typical price as the average of the high, low, and closing prices for each period.
2. Calculate the ATR using the lookback period. The ATR measures the average price range over a specified period.
3. Calculate the middle line by smoothing the typical price using a moving average with the smoothing period.
4. Calculate the upper channel line by adding a multiple (usually a positive value) of the ATR to the middle line.
5. Calculate the lower channel line by subtracting the same multiple of the ATR from the middle line.

The resulting lines create a channel around the middle line, representing potential support and resistance levels. Traders may look for price breakouts or bounces off these levels to generate trading signals.

It's important to note that Keltner Channels are just one tool among many used in technical analysis. Traders often combine them with other indicators or use them in conjunction with other analysis techniques to make informed trading decisions.