

Bollinger Band Reversion

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Mean Reversion

TIMEFRAME

Any (H1 recommended)

WEBSITE

www.algotbot.live

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Overview

Bollinger Band Reversion is a classic volatility-band mean-reversion system. Its core premise is that price rarely sustains a move far outside its statistical envelope: when a candle closes beyond a Bollinger rail, the move is statistically stretched and tends to snap back toward the average.

The strategy builds Bollinger Bands — a simple moving-average "mean" with upper and lower rails set a number of standard deviations away — and only acts when price closes *beyond* a rail **and** a momentum oscillator (RSI) confirms the move is exhausted. It then fades the extreme back toward the moving-average mean, which becomes the take-profit. An ATR-based stop-loss sits beyond the rail so that a genuine breakout — the natural failure mode of any reversion system — is cut quickly.

It is a single-timeframe, indicator-based EA with distinct long and short rules. It evaluates everything on the chart's selected timeframe and acts only once per closed bar.

How It Works

Indicators

Three indicators are computed on the freshly-closed bar:

- **Bollinger Bands** — an SMA midline (the "mean") with upper and lower rails at $\pm \text{BandDeviations} \times \sigma$. The standard deviation is the *population* std-dev over `BandPeriod` closes, which matches MT5's native `iBands` calculation exactly.
- **RSI** — a momentum oscillator over `RsiPeriod` bars used to confirm that the move into the band is genuinely exhausted (oversold or overbought).
- **ATR** — Average True Range over `AtrPeriod` bars, used to size the protective stop relative to current volatility.

Entry Logic

The EA acts once per closed bar and holds only one position per magic number at a time. Two mirror-image conditions are evaluated on the close of the most recently completed bar:

- **Long (Buy):** the bar closes *below* the lower band **AND** RSI is below the oversold threshold → buy at the Ask.
- **Short (Sell):** the bar closes *above* the upper band **AND** RSI is above the overbought threshold → sell at the Bid.

If the ATR is zero or the bands have collapsed (upper \leq lower, i.e. no volatility), the bar is skipped.

Exit Logic — Stop-Loss & Take-Profit

Every position is opened with a fixed stop-loss and take-profit:

- **Take-Profit** = the moving-average *mean*. The trade fades the extreme back toward the centre of the band.
- **Stop-Loss** = `AtrStopMult × ATR` placed beyond the entry (below for longs, above for shorts). This sits past the rail so a true breakout is cut quickly.

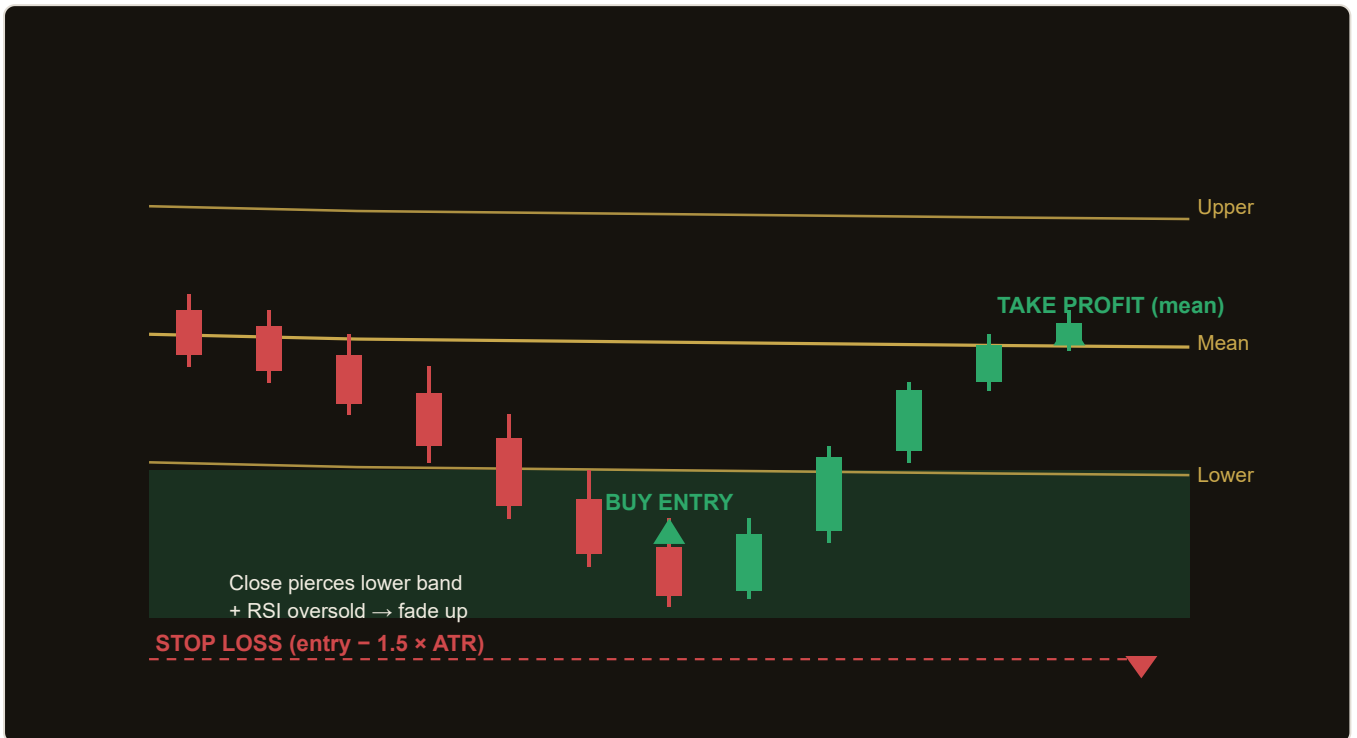
Mean-target safeguard. Because the mean can occasionally fall on the wrong side of the entry price (e.g. fast spread/slippage), the EA validates the target: if the computed take-profit is not beyond the entry in the trade's favour, it falls back to a symmetric `AtrStopMult × ATR` distance instead. This guarantees a sensible, well-ordered SL/TP pair.

Worked example — long setup

Price has sold off and the latest bar closes at 1.09120, beneath the lower band at 1.09180, with RSI reading 27 (below the 30 oversold line). The EA buys at the Ask. With ATR = 0.00150 and `AtrStopMult = 1.5`, the stop is placed 0.00225 below entry, and the take-profit is set at the SMA mean (say 1.09600). The trade is closed when price reverts to the mean (profit) or the ATR stop is hit (loss).

Strategy in Action

The illustration below shows an example of how the strategy identifies a setup and triggers its entry and exit. This is a simplified, illustrative example for educational purposes — not real market data.



Illustrative example only. Actual market behaviour varies.

Parameters

Parameter	Default	Description
BandPeriod	20	SMA period for the Bollinger midline and the standard-deviation window. Range 10–50, step 2.
BandDeviations	2.0	Number of standard deviations for the upper and lower rails. Range 1.0–3.0, step 0.25.
RsiPeriod	14	Lookback for the RSI momentum filter. Range 5–30, step 1.
RsiOversold	30	RSI level below which a long (buy) is permitted. Range 10–40, step 5.
RsiOverbought	70	RSI level above which a short (sell) is permitted. Range 60–90, step 5.
AtrPeriod	14	Lookback for the ATR used to size the protective stop. Range 5–30, step 1.
AtrStopMult	1.5	Multiple of ATR placed beyond entry as the stop-loss distance. Range 0.5–4.0, step 0.25.
Lots	0.10	Fixed order volume in lots. Range 0.01–1.0, step 0.05.
Magic	2024	Unique magic number tagging this EA's positions so it manages only its own trades.

Recommended Settings

The defaults above provide a balanced starting point on ranging, mean-reverting instruments. Bollinger reversion works best where price oscillates around a stable average rather than trending strongly.

- **Instruments:** range-bound majors and crosses (e.g. EUR/USD, EUR/GBP) and consolidating commodities tend to suit reversion better than strongly trending pairs.
- **Timeframe:** H1 is a sensible default. Lower timeframes generate more signals but more noise; higher timeframes give cleaner, less frequent setups.
- **Bands & RSI:** widening `BandDeviations` (e.g. 2.5) and tightening RSI thresholds (e.g. 25 / 75) makes entries rarer but more selective.
- **Stop sizing:** raise `AtrStopMult` to give trades more room on volatile instruments; lower it to cut losing breakouts faster.

Tip. Always validate any parameter set in the MT5 Strategy Tester on your broker's data and spread before trading live. Mean-reversion systems are particularly sensitive to spread and to sustained trends, so confirm the equity curve over multiple market regimes.

Trend risk. A reversion strategy bets against the immediate move. In a strong, sustained breakout the price keeps running away from the mean — this is the system's primary failure mode, and the ATR stop exists precisely to contain it. Avoid deploying on instruments in clear, persistent trends.

How to Install on MetaTrader 5

- 1 Copy `BollingerBandReversion.ex5` to your MT5 `MQL5\Experts\` folder
- 2 Restart MetaTrader 5 and refresh the Navigator panel
- 3 Drag the EA onto a chart matching the recommended symbol and timeframe
- 4 Configure the input parameters and click **OK**
- 5 Enable **Algo Trading** in the MT5 toolbar

Risk Warning

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