

Range Breakout Momentum

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Breakout · Momentum (Trend-Following)

TIMEFRAME

H1 (recommended)

WEBSITE

www.algotbot.live

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Overview

Range Breakout Momentum is a trend-following Expert Advisor that fuses two classic concepts — **breakouts** and **momentum** (measured with RSI) — into a single, selective entry filter. It is built on the premise that most range breakouts fail because price pokes past a level without genuine conviction behind it.

To avoid those low-quality "fake" breaks, the strategy only acts when the most-recently-closed bar closes *beyond* a rolling support/resistance shelf by an ATR-scaled buffer **and** RSI simultaneously confirms momentum in the same direction. Once in a trade, it manages risk with an ATR-based stop and target, but it also exits *actively* when RSI collapses back through the 50 midline — the moment momentum fades, which is exactly what weeds out breakouts that lacked follow-through.

The EA operates on a **single timeframe** (the chart it is attached to) and trades **one position at a time**, never stacking new entries while a position is being managed.

In one sentence: Buy only when price breaks above resistance with RSI confirming bullish momentum (and the mirror image for shorts), then ride the move until the ATR target/stop is hit or momentum visibly fades.

How It Works

Bar-close evaluation

The strategy evaluates logic **once per completed bar**. On each new bar it appends the bar that just closed (shift 1) to its rolling history and works only with finished data — it never reacts to an in-progress, unconfirmed candle. This keeps signals stable and repeatable.

The support / resistance shelf

A rolling shelf is computed from the `RangeLookback` bars *preceding* the breakout bar:

- **Resistance** = the highest `High` over the lookback window.
- **Support** = the lowest `Low` over the lookback window.

The just-closed bar is the candidate "breakout bar," and it is measured against this shelf.

Entry logic

A breakout buffer is scaled by volatility: `buffer = BreakBufferAtr × ATR`. Momentum thresholds sit symmetrically around the RSI midline: `longTrig = 50 + RsiMomBand` and `shortTrig = 50 - RsiMomBand`. With the defaults, a long needs $RSI \geq 58$ and a short needs $RSI \leq 42$.

- **Long entry** — the breakout bar closes *above* `resistance + buffer` **and** $RSI \geq \text{longTrig}$.
- **Short entry** — the breakout bar closes *below* `support - buffer` **and** $RSI \leq \text{shortTrig}$.

Example — a confirmed long break

Resistance over the last 20 bars is 1.10250 and ATR is 0.00120. With `BreakBufferAtr = 0.10`, the buffer is 0.00012, so price must close above

1.10262

. The just-closed bar prints 1.10310 and RSI reads 61 (≥ 58). Both conditions are met → the EA opens a buy at the Ask.

Stop loss & take profit

Risk is sized directly from volatility at entry:

```
Long:   SL = entry - ATR × AtrSlMult      TP = entry + ATR × AtrTpMult
Short:  SL = entry + ATR × AtrSlMult      TP = entry - ATR × AtrTpMult
```

With the default multipliers (SL 1.5× / TP 2.5× ATR), each trade carries a built-in reward-to-risk ratio of roughly **1.67 : 1** before the active exit is considered.

Active momentum-fade exit

This is the strategy's signature risk filter. While a position is open the EA checks RSI on every new bar and closes the trade the moment momentum reverses through the midline:

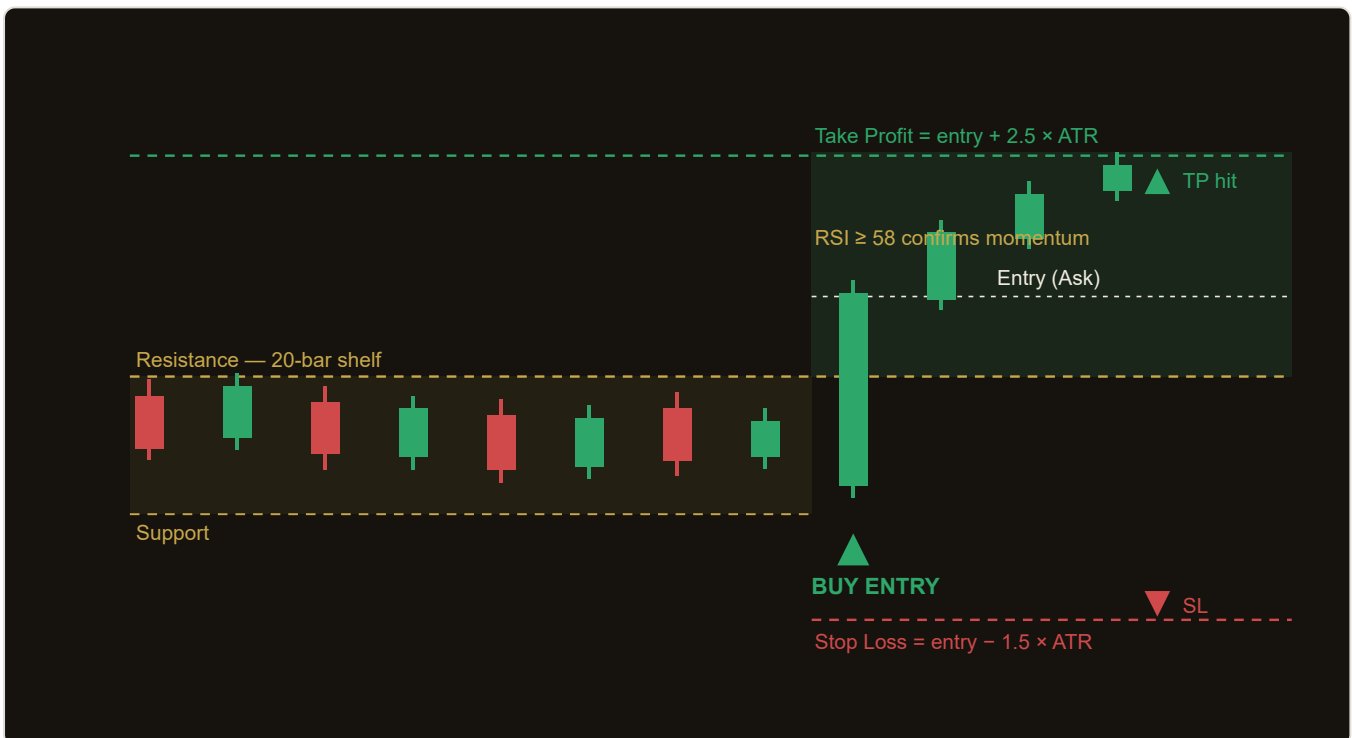
- A **long** is closed if RSI drops **below 50**.
- A **short** is closed if RSI rises **above 50**.

This often exits a failing "fake" breakout well before the ATR stop is reached, cutting losers short. While any matching position exists, the EA manages it and returns — it will not evaluate new entries until flat.

Why it helps: A true breakout keeps momentum on its side, so RSI stays beyond 50. A fake breakout loses thrust quickly — RSI snaps back through 50 and the position is closed early, before the full ATR stop is risked.

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
RangeLookback	20	Length of the rolling support/resistance shelf, in bars (range 10–60, step 5). The breakout level is the highest high / lowest low over this window.
RsiPeriod	14	RSI calculation period used for the momentum filter and the active fade exit (range 7–28, step 1).
RsiMomBand	8.0	Momentum band around the RSI midline of 50. Longs require $RSI \geq 50 + \text{band}$; shorts require $RSI \leq 50 - \text{band}$ (range 2.0–20.0, step 1.0).
AtrPeriod	14	ATR period used to scale the breakout buffer and the stop/target distances (range 7–28, step 1).
BreakBufferAtr	0.10	Breakout buffer expressed in ATRs. Price must close beyond the shelf by $\text{BreakBufferAtr} \times \text{ATR}$ before a signal is valid (range 0.0–1.0, step 0.05).
AtrSImult	1.5	Stop-loss distance as a multiple of ATR from the entry price (range 0.5–4.0, step 0.25).
AtrTpMult	2.5	Take-profit distance as a multiple of ATR from the entry price (range 1.0–6.0, step 0.25).
Lots	0.10	Fixed trade volume in lots (range 0.01–1.0, step 0.01).
Magic	920145	Magic number identifying this EA's positions, so it manages only its own trades.

Recommended Settings

The strategy is designed for liquid, trending instruments where clean breakouts from consolidation are common. As a starting point:

- **Symbols:** major FX pairs (e.g. EUR/USD, GBP/USD, USD/JPY) or major indices with tight spreads.
- **Timeframe:** H1 is a sensible default — long enough to form meaningful shelves, short enough to give several setups per week. M30–H4 are reasonable alternatives.
- **Defaults:** the shipped values (20-bar shelf, RSI 14, ATR 14, 1.5/2.5 ATR stop/target) are a balanced baseline. Keep them while you evaluate, then tune one parameter at a time.

Tuning tips: Raise `RsiMomBand` for fewer but higher-conviction breakouts. Increase `BreakBufferAtr` on noisier symbols to demand a more decisive close beyond the shelf. Widen `AtrSImult` if normal volatility is stopping trades out prematurely.

Always backtest first. Run the EA in the MT5 Strategy Tester across multiple symbols and date ranges, then forward-test on a demo account before committing real capital. Optimal parameters differ by instrument and market regime.

How to Install on MetaTrader 5

- 1 Copy `RangeBreakoutMomentum.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

Tip: Confirm the EA is active by looking for the smiley face in the top-right corner of the chart. A sad face means Algo Trading is disabled or the EA was not permitted to trade.

Risk Warning

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