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Broadening Range Reversal

Expert Advisor Documentation

PLATFORM	TYPE	TIMEFRAME	WEBSITE
MetaTrader 5 (MT5)	Mean Reversion (Price Action)	M15 – H1	www.algobot.live

Overview

Broadening Range Reversal is a pure price-action Expert Advisor that fades the *broadening formation* — the “megaphone” or expanding-range pattern. It uses **no indicators of any kind**: no moving averages, no RSI, no ATR. Every decision is derived from raw candle geometry alone.

A broadening top or bottom is the geometric opposite of a triangle. Instead of coiling into a point, the swings **fan outward**: each new swing high prints *above* the previous swing high while each new swing low prints *below* the previous swing low. This structure is a signature of rising emotion and poor two-way commitment — breakout traders are repeatedly triggered as price overshoots each prior extreme, only to be snapped back through the middle of the range. That over-reach and reversion is the tradable edge the EA harvests.

The pattern is detected from raw candles in three parts — swing pivots, an expansion gate, and a rail poke with rejection — and every threshold is scaled off the window’s **average bar range**, so the system needs no per-symbol point math and self-adapts to changing volatility.

Core idea: A diverging range is exactly where the most breakout stop orders accumulate just beyond each prior extreme. The megaphone repeatedly triggers and reverses them. Demanding that *both* rails expand filters out ordinary trends (only one rail expands) and flat chop (neither rail expands), isolating the specific structure where over-reach reliably snaps back.

How It Works

1. Swing Pivots (the rails)

The EA scans the recent `Lookback` bars for fractal swing pivots. A bar qualifies as a swing high only if its High is strictly greater than the High of every one of the `FractalWindow` bars on *each* side; a swing low is defined symmetrically on Lows. The still-forming bar (shift 0) can never participate, so pivots are always fully confirmed.

From that scan it keeps the two most-recent confirmed highs (`phLast` newer, `phPrev` older) and the two most-recent confirmed lows (`plLast`, `plPrev`). These four points define the upper and lower rails of the formation.

2. Expansion Gate (is it really a megaphone?)

A genuine broadening formation requires *both* rails to provably diverge. The EA demands:

```
expandingUp   = phLast > phPrev + MinExpansion × avgRange   // rising upper rail
expandingDown = plLast < plPrev - MinExpansion × avgRange   // falling lower rail
```

Only if **both** conditions hold does the setup proceed. Requiring each rail to diverge by at least `MinExpansion` multiples of the average bar range guarantees the rails are truly fanning out, not merely drifting sideways.

3. Rail Poke + Rejection (the trigger)

The trade candidate is the most-recently-closed candle (shift 1). It must **overshoot** the expanding rail and then be **rejected**:

- **Short setup:** the trigger prints a fresh higher high *above* `phLast`, but closes back *inside* the rail, with the upper wick (High − Close) taking up at least `RejectFrac` of the candle's own range — a reaction close off the high.
- **Long setup:** the trigger prints a fresh lower low *below* `plLast`, but closes back *inside* the rail, with the lower wick (Close − Low) taking up at least `RejectFrac` of the range — a reaction close off the low.

That trapped-breakout bar is the exact candle the EA fades.

Entry Logic

- **SELL** — a fresh higher high pokes the rising upper rail and rejects. Entry is placed at the current Bid.
- **BUY** — a fresh lower low pokes the falling lower rail and rejects. Entry is placed at the current Ask.

Exit Logic — Stop Loss & Take Profit

Both exits are structural and set at order time; the EA holds a single position at a time and lets the bracket resolve it.

- **Stop Loss** sits just beyond the pierced rail — above the trigger's High (short) or below the trigger's Low (long), padded by `BufferFrac × avgRange`. This is the exact level at which the reversion thesis is invalidated.
- **Take Profit** is a fixed `RewardRatio` multiple of the structural stop distance, projected back toward the middle of the formation.

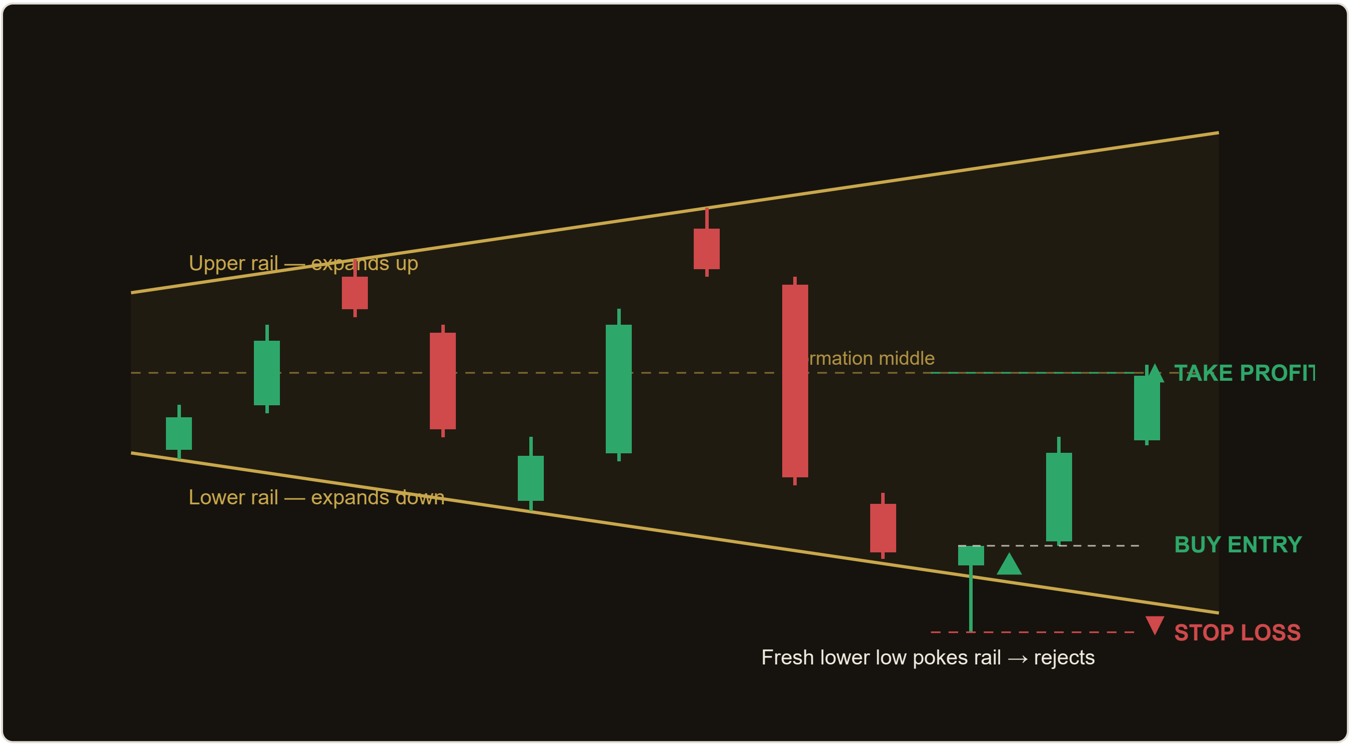
```
// Short
sl = trigger.High + BufferFrac × avgRange
tp = entry - RewardRatio × (sl - entry)

// Long
sl = trigger.Low - BufferFrac × avgRange
tp = entry + RewardRatio × (entry - sl)
```

Trade & Execution Filters

- **One bar, one decision** — the logic runs once per freshly-closed bar via a new-bar detector.
- **Single position per magic** — no new entry while a position tagged with this EA's `Magic` is open.
- **Spread guard** — setups are skipped if the current spread exceeds `MaxSpreadPoints`.
- **History guard** — the EA waits until there are at least `Lookback + FractalWindow + 2` bars before acting.

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.

Reading the illustration

The swings fan out between two diverging gold rails — a textbook megaphone. The final green candle drives a *fresh lower low* below the falling lower rail, then snaps back and closes inside with a long lower wick (the rejection). The EA fades that trapped breakout with a

BUY

, places the

stop

just beyond the pierced rail, and targets a reversion back toward the formation's middle at a fixed reward-to-risk multiple (

take profit

).

Parameters

Parameter	Default	Description
Lookback	`40`	Number of bars scanned to locate the recent swing pivots that define the rails. Range 15–120, step 1.
FractalWindow	`3`	Symmetric fractal window (bars required on each side) to confirm a swing pivot. Larger values yield fewer, more significant pivots. Range 1–8, step 1.
MinExpansion	`0.30`	Minimum divergence of *each* rail versus the prior pivot, expressed as a multiple of the average bar range. Higher values demand a more pronounced megaphone. Range 0.00–2.50, step 0.05.
RejectFrac	`0.50`	Reaction-close requirement: for a short, (High−Close)/range must be ≥ this value (mirrored for a long). Larger values demand a stronger rejection wick. Range 0.30–0.90, step 0.05.
BufferFrac	`0.25`	Stop-loss buffer placed beyond the pierced rail, as a fraction of the average bar range. Range 0.00–1.50, step 0.05.
RewardRatio	`1.30`	Take-profit distance as a multiple of the structural stop distance (reversion toward the middle). Range 0.50–4.00, step 0.10.
MaxSpreadPoints	`30`	Skip the setup if the current spread (in points) is wider than this. Range 1–300, step 1.
Lots	`0.10`	Fixed trade volume in lots. Range 0.01–1.00, step 0.05.
Magic	`7042`	Magic number identifying this EA’s positions. Range 0–9,999,999, step 1.

Recommended Settings

Broadening Range Reversal is a counter-trend, mean-reversion system. It performs best in ranging, emotional conditions on liquid movers where over-reach reliably snaps back.

- **Symbols:** EUR/USD, GBP/USD, or XAU/USD (Gold) — liquid instruments that produce clean two-way swings.
- **Timeframes:** M15, M30, or H1. Lower timeframes give more setups; higher timeframes give cleaner, more significant formations.
- **Market regime:** best suited to ranging / expanding-volatility phases. Strong one-directional trends will tend to expand only one rail and are correctly filtered out by the expansion gate.

Tuning tips: Raise `FractalWindow` and `MinExpansion` to trade only larger, more textbook megaphones (fewer but higher-conviction signals). Increase `RejectFrac` toward 0.60–0.70 to demand a stronger rejection wick. Widen `BufferFrac` if stops sitting exactly on the rail are getting clipped by noise. Always validate any parameter change in the MT5 Strategy Tester on your broker's data before going live.

Why it should work: A diverging range is where the most breakout stops accumulate just beyond each prior extreme; the megaphone repeatedly triggers and reverses them. Requiring *both* rails to expand isolates that specific structure, and structural stops beyond the pierced rail cap risk to exactly the move that would invalidate the pattern.

How to Install on MetaTrader 5

1. Copy `BroadeningRangeReversal.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: Before trading live, run the EA in the MT5 **Strategy Tester** across several years of history and multiple symbols to understand its behaviour and to optimise the parameters for your broker's spreads and data.

Risk Warning

Trading foreign exchange, CFDs, and other leveraged financial instruments involves substantial risk of loss and is not suitable for all investors. The strategies and tools described in this document are provided for **educational purposes only** and do not constitute financial advice, investment recommendations, or solicitation to trade. Always consult a qualified financial adviser before making trading decisions. Past backtest performance is not indicative of future results.